QUALITY MANAGEMENT IMPLEMENTATION

A MULTIPLE CASE STUDY
IN INDONESIAN MANUFACTURING FIRMS

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University of Twente, The Netherlands
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by

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Dedicated to my parents, wife and sons

Dradjad Irianto

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Making a cup of coffee is not just put the ingredients together, but also needs a process to come to the expectation. It will be better if we can add tasty flavours. Deriving a conclusion from making a good cup of coffee is similar to a deduction I learnt from studying quality management implementation as presented in this dissertation. Making a cup of coffee involves the ingredients (content), stirring (process) and the situation while drinking (context).

Making cups of coffee has accompanied my long struggling process of completing this dissertation. Sometimes it tastes bitter, some other times it is sweet. With constructive support, I believe many candidates could pass this process well. In appreciating these supports, firstly I would like to express my gratitude to my promoters, prof. dr. ir. Olaf A.M. Fisscher and prof. dr. ir. Erik Joost de Bruijn, for their constructive criticisms and excellent guidance while carrying out this research and writing the dissertation. I also highly appreciate their advice for strengthening the academic foundation of this research and improving my capability for executing the research.

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During my study, I often felt guilty because I had selfishly abandoned many celebrations, occasions and opportunities for being together with my parents Akung and Uti, my wife Ian, and my sons Dito and Aryo. You should know that this was also a hurt inside my heart. Now it is time to be a "fulltime" husband and father.

SUMMARY

Quality management is viewed as concepts, principles, or practices, within which prescriptive views and empirical facts play roles in constructing its recent definition. Essentially, the concepts of quality management share three principles, i.e. customer focus, continuous improvement, and the central role of people. In this research, transforming the concepts and principles into a system, and then realising it through practices in order to improve organisational effectiveness are referred as quality management implementation. This implies that implementation is a process of change.

The question as to how quality management can be successfully implemented in an organisation is raised by the high expectations of quality management reported in the literature. However, empirical studies also report that specific difficulties lead to failures in quality management implementation. The barriers to quality management implementation in Indonesian organisations are observed ranging from technical-operational to social-dynamic issues. These theoretical and empirical observations led us to conclude that there was a need for further investigation in order to get a better insight into the characteristics of quality management, and how to implement it properly in a specific environment. Within this research objective, the search for the requirements for successful quality management implementation led to three research questions:

1. To what extent do the theoretical and empirical aspects found in literature contribute to quality management implementation, and how can these aspects be constructed into a conceptual research framework for observing quality management implementation?
2. How does such a research framework function in the actual situation of Indonesian manufacturing firms?
3. How could organisations develop a strategy for quality management implementation in order to manage inter-organisational cooperation?

To address the first research question, the initial step is to develop the theoretical foundation prior to constructing the necessary conceptual framework. Based on discussions found in literature, an implementation needs a quality management system, as well as a supportive environment to enable a well-ordered flow of the whole processes of change. This leads to a conclusion that the implementation involves three dimensions of change, i.e. content, process and context. Since the focus of this research is to observe how the quality management is adopted, and then developed and adapted into actual practices, observing a sequence of implementation processes provides insight into the development, evolution, reconstruction, and possibly decline over time. Regarding this sequence as a process of change, a sequential approach of structuring based on the dimensions of change has characterised the conceptual research framework. In the case study research, three principles in data collection were followed,

i.e. using multiple sources of evidence, creating a case study database, and maintaining the chain of evidence. The data were collected from documents, formal discussions, interviews, surveys (questionnaires) and direct observations.

In order to address the second research question, the constructed models were developed by referring to the full EFQM model, which then guided the development of research issues for conducting a multiple case study with Indonesian organisations as our research domain. Three organisations were selected. All field observations took place between January 2000 and August 2002. The implementation ways at the studied organisations were characterised as mechanistic, craftsmanship and Taylorism respectively.

To address the third research question, discussions on the findings continued to the perspectives of structure-action, organisational model, implementation sequence and strategy, and cultural formation. Discussions on these perspectives encouraged the development of a typology for quality management implementation, in which the quality management construct could be observed through dimensions of change structurally (partial-holistic) and behaviourally (control-learning orientations). From discussions on the achievements and impacts of the implementation on the studied organisations, three types of inter-organisational cooperation could be expected, i.e. independent partner (maker or supplier), operational partner (subcontractor), and strategic partner (co-makership or manufacturing unit). Based on the existing status of quality management achievements, the studied organisations could develop a strategy for quality management implementation.

A multiple case study of quality management implementation in a specific Indonesian situation was explored. This empirical study expresses the link between the strategy for improving organisational capability and the quality management implementation. The link expresses a high concern for improving internal aspects of an organisation through quality management implementation, which is important for improving inter-organisational cooperation. Improving inter-organisational cooperation includes improving operational and managerial capabilities and developing trust. From this study, key important issues were obtained. The issues included perspectives of the inter-organisational cooperation, the context (control and learning attitudes), the content (leadership, quality department, and quality management system), and the process (motivation and learning, and the incremental process).

As the main motivation for implementing quality management is to improve inter-organisational cooperation, companies always review their conditions and potential. This empirical study indicated three types of inter-organisational relationships, i.e. independent partner (maker or supplier), operational partner (subcontractor), and strategic partner (co-makership, or manufacturing unit). Each type involves issues of operational capability, managerial capability, and trust-based relationships.

The philosophy of continuous quality improvement normatively implies an idealised final end-state. Accordingly, the implementation can only be observed at a midway point towards the end-state. Apart from the resulting improvements, companies also experience problems. With results oriented towards the short term, the benefit of quality management is overshadowed by disappointments with marginal results. The climate in a result-oriented context is not constructive for the implementation context since control attitudes dominate learning attitudes. An organisation needs to guide employees in a process-oriented way.

As leadership is the main triggering element in a quality management model, it is considered to be the key issue of content. This study found that the quality management implementation correlated with a reconfiguration of power in an organisation. Leaders were brought into the companies based on an assumption of the advantage of homogeneity in teamwork. However, homogeneity in the members of the leadership creates constraints, especially about details of control and authority, because the homogeneity of the leaders often rules out the visibility of differences. Renewing (replacing) the leadership team is an important issue. Initially, the term "renewing" was intended to mean renewing the understanding of concept of quality management. However, in actual practice "renewing" implies replacing the existing member of leadership team and inviting new individuals to form a new leadership team.

The quality department has two roles. Firstly, the quality department is directly involved in designing and characterising product and production, but it provides only indirect involvement in quality practices during production. Production operators perform all the quality activities as part of their routine jobs. Secondly, in addition to non-routine activities, the quality department also directly participates in quality-related activities on a routine basis. This study found, that at first, companies practiced the second type of role in the quality department. In the later stages, only one company adopted the first role. Changing the role from the second type to the first type is a process of aligning of technology and structure (as reported in Barley, 1990).

A quality management system, such as ISO 9000, is a necessary foundation for building quality management principles and practices. This study found that building the procedural system comes before adapting the quality management principles, operating the elements of the system, and carrying out improvements, which in the later stage will provide a quality assurance system. This consideration puts forward the idea that internal procedures are more important than internal processes. After the procedural system becomes routine, companies still fail to translate the external needs precisely into an internal focus. As a result, an organisation rarely accomplishes its objective of implementing an assurance system towards organisational trust as a way of improving inter-organisational cooperation. The precursors of organisational change motivated the leadership at the studied companies to build quality management systems. However, the

follow-up to the management processes for stimulating action is only partial, and quality assurance certification becomes the final target.

Quality management implementation is a process of transforming an organisation along with all of its elements, in which two important points can be observed, i.e. motivation building and learning process. This study found that motivation as a task accomplishment was explicit, but the motivation towards sharing responsibility and providing recognition was never expressed. This discontinuity showed that companies restricted their attention to socio-dynamic issues and were concerned only technical-operational issues. In relation to the process of learning, the continuous improvement process involves an iterative process of learning and change in order to obtain a better result or condition. It means that people take the central role, especially in controlling and directing, and thus people determine the effectiveness of the learning process. In controlling and directing the learning, specific characteristics of people create two often-opposing patterns in the process of learning, i.e. to adapt and survive, and to unfold and improve. In our observations, people learn from one another about the work processes in order to adapt and survive. Within this first pattern, the effectiveness of learning and change is determined by the sufficiency of tools and the level of knowledge of people to utilise these tools. If these requirements are not fulfilled, the orientation is merely to succeed or to solve a problem rather than to learn.

Companies learn about quality management through successful examples or cases from developed countries, and thus the implementation is motivated as a “me too” attitude. This study found that, later on, this attitude leads to a focus on the state of the result rather than the process of implementation. Accordingly, the implementation process is characterised as incremental in order to obtain intermediate targets. Without a detailed definition of the objective (and target), a trial and error approach dominates the implementation process.

The main research question of this study was *how can quality management be implemented in Indonesian manufacturing firms using their potencies and advantages in their specific business environment in order to improve their capability in managing inter-organisational cooperation.* From the issues discussed above, it is clear that no unambiguous answer can be given to this main research question that is valid for all organisations. However, the issues that have been covered are typical for the Indonesian situation and should be addressed according to the specific situations of the companies involved.

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LIST OF ABBREVIATIONS

AAC	Automotive Assembly Company
ATQC	Astra Total Quality Control
ATQM	Astra Total Quality Management
DP	Deming Prize Award
DQA	Dutch Quality Award
EFQM	European Foundation for Quality Management
FDI	Foreign Direct Investments
FMEA	Failure Mode and Effect Analysis
HEC	Health Equipments Company
ISO	International Standard Organisation
MBNQA	Malcolm Baldrige National Quality Award
MEC	Micro-Electronics Company
MOIT	Ministry of Industry and Trade
MPV	Multi Purpose Vehicle
PDCA	Plan-Do-Check-Action
PMA	Penanaman Modal Asing (a company where the main shareholder(s) is foreigner)
QCC	Quality Control Circle
TQC	Total Quality Control
TQM	Total Quality Management

CHAPTER 1 QUALITY MANAGEMENT IMPLEMENTATION

1.1 Introduction

Organisations carry out quality management and improvement programmes for a range of objectives. Successful results provide substantial benefits by achieving customer satisfaction, improving employee quality awareness and consciousness, improving organisational performance, and supporting partnership in value chains. These benefits are important for all organisations, especially in developing countries, such as Indonesia, where the general quality level is relatively low and need to be increased in the pursuit of effective inter-organisational cooperation. During the process of implementation, organisations also face a range of difficulties and often fail to experience the expected benefits from quality management implementation. In relation to this implementation issue, research studies, such as by Ruel 2001, Govindaraju 2002 and van Harten et al. 2002, observed that the process of implementation is one of the determining aspects of success in introducing methods or technology into an organisation. From these studies, it is seen that acquiring insights into the process of implementation is important, especially in finding an effective way of transforming the quality management concept and principles into practices throughout the organisation. This transformation is called "quality management implementation". Accordingly, research on implementation is needed to benefit quality management for organisational effectiveness, and possibly for permeating beyond.

This chapter provides (i) specific situations to explain the motivation for conducting research on quality management implementation, (ii) the formulation of the research objective, research problem, and research questions as the main guidelines in systemising the research, and (iii) the research strategy and design necessary for executing empirical research on quality management implementation in Indonesia. Three examples of preliminary observations are offered to illustrate specific situations of actual quality management practices in Indonesian organisations.

1.2 The need for quality management

Organisations are continuously questing after new hypotheses contributing to value creation through improvement (Senge, 1990). They are continuously in need of improving customer satisfaction by introducing and implementing new organisational and management methods. These new methods introduce concepts and principles that address a range of efforts in the search for improvements in the value creation process. These introductions and implementations can be motivated by ambitions regardless of

whether they really need them for their current situation, but mostly the triggers are concrete problems. In many cases the problems are "directly related to the organisational context" (Hardjono et al., 1996). In dealing with problems, many efforts are unsuccessful because organisations are restricted and controlled by their contexts and also by their internal characteristics. Certain contexts and characteristics often limit an organisation's ability to improve its internal weaknesses. Organisations need concrete decisions and actions for their current and anticipated problems. The objective is aimed not only at obtaining internal efficiency, productivity and people satisfaction, but also at improving external relationships.

In fulfilling this objective, the necessary efforts involve improving and accumulating essential know-how, and for certain organisations the improvements are fundamental. For example, in improving external relations, organisations may fail to initiate a link because they do not comply with basic or standard requirements, such as management and administration systems. This is often the case with organisations in developing countries such as Indonesia because they tend to pay attention only to the improvement of technical skills for internal efficiency (Wilson et al., 1995). In Indonesian manufacturing firms, the extensive use of capital-intensive production technology has provided improvements in product quality and cost efficiency, especially for manufacturers involved with mass-production. However, this development strategy neglects the development of people and management capability. The developed inward-looking attitude forms a barrier to the active participation of all people, and thus limits the efforts for achieving external objectives. As a result of this, Indonesian organisations remain insignificant in terms of international cooperation. As foreign cooperation is needed as part of the recovery strategy from the recent economic crisis, they face a number of difficulties in conforming to the fundamental qualities necessary for inter-organisational cooperation. The required fundamental basics include an improvement in terms of the preconditions necessary for building assurance, commitment and transparency before formulating a strategy for competitiveness as well as for mutual cooperation (Feigenbaum, 1999). The requirement for fundamental improvements has triggered Indonesian organisations to reconsider their quality management systems using procedures, such as the ISO 9000 quality assurance system. This quality management system was initially adopted to comply with international trade regulations. In a later stage, this assurance system is used to standardise internal operational and business processes in order to provide a systematic way of managing organisational improvement. For increased external orientation, the developed quality management system is expected to provide the organisational assurance and trust that are central elements in nourishing inter-organisational cooperation.

The motivation for improving foreign cooperation is derived from lessons learnt during the economic crisis. Before the economic crisis, the national policies on foreign participations had fruitful impacts on Indonesian economic growth. This high growth

had forced some organisations to implement a high yield development strategy, especially in the manufacturing sector. This result-oriented strategy violated the principles of sustainability, such as prudence in investment and balancing orientations. As markets are effectively borderless, government protectionism is no longer effective (e.g. Hayes and Wheelwright 1985; Womack et al., 1990). These strategy violations contributed to the financial crisis as one factor that led to the economic crisis. Accordingly, the deregulation of Indonesian business and economic policy is required. The recovery strategy from the economic crisis is expected to have an impact on the development of Indonesian organisations, including in terms of foreign participation and cooperation. The expectations include promoting transparency and increasing the participative role of the customer. In a broad sense, the customer includes the internal elements of an organisation (i.e. employees and share holders) and the external ones (i.e. users, suppliers, and society in general). There are two expectations from improved foreign participation, i.e. (i) provision of funding, and (ii) endorsing inter-organisational relationships through the introduction of organisational improvement methods.

In terms of providing funding, foreign participation in Indonesia includes foreign direct investment (FDI), and investment in the open stock market. This foreign participation is important because the financial crisis which started in 1997 devalued the local currency and reduced the contribution of local investment. In order to regain the momentum of progress, many organisations are encouraged to seek foreign support in funding. In return, foreign entities can expect short-term benefits in terms of low labour costs, the availability of natural resources, and the closeness to potential markets in Southeast Asia. Compared to local investment, the total of approved foreign investments is significant since the financial crisis (see Figure 1.1). On average, foreign investment has covered more than 60 percent of total investment. Through various funding mechanisms, recent regulations allow foreign investors to have a majority operational and strategic control of the developed organisation, known as a PMA (abbreviation of '*Penanaman Modal Asing'*, which literally means an organisation where the main shareholders are foreign entities). Although such foreign participation is limited to certain industrial sectors, this type of foreign ownership has been legally ensured. The status of a PMA can be a multinational organisation, or a fully foreign organisation. Specific policies, such as a free tax zone, are also formulated for the benefit of these multinational organisations, especially for export-oriented firms. These policies are expected to contribute to the growth of Indonesian exports of non-oil and gas products as reported by the Ministry of Industry and Trade (see Table 1.1). This table shows that the destinations of exports are emerging Asian economies and the major developed countries. From an economic perspective, foreign participation provides benefits for Indonesia.

Figure 1.1

Local and foreign project (investment) approvals 1998-Oct. 2004

(US$ billion)

Source: MOIT – Gov. Indonesia

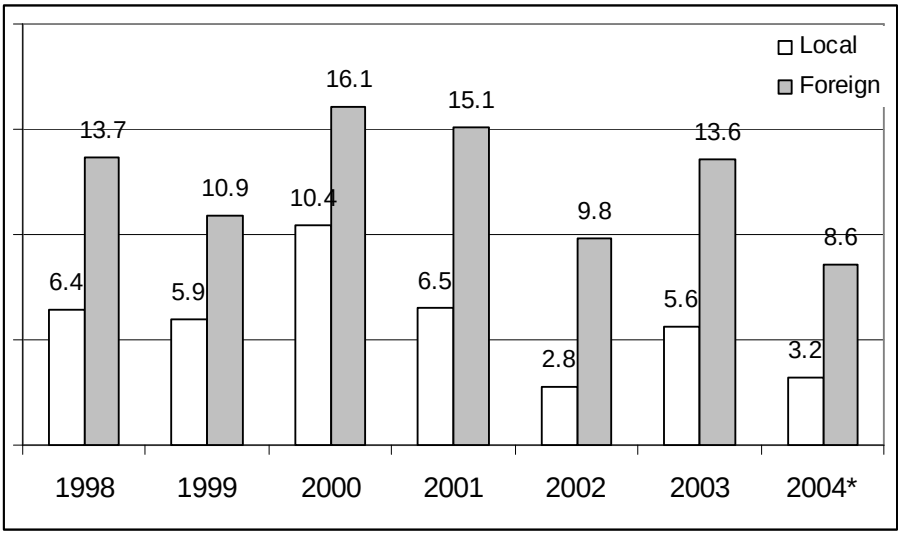


Table 1.1

Top 10 destination countries of Indonesian non-oilexport

Source: MOIT – Gov. Indonesia, value in US$ billions

No.	Country	1999	2000	2001	2002	2003	2004*
1	USA	6.4	7.9	7.3	7.2	6.9	4.6
2	Japan	5.7	7.4	6.7	6.4	6.8	4.5
3	Singapore	4.5	5.8	4.6	4.7	4.8	2.6
4	China	1.3	1.8	1.7	2.2	2.8	1.7
5	Malaysia	1.4	1.7	1.6	1.9	2.3	1.5
6	South Korea	1.3	1.5	1.5	1.8	1.8	1.0
7	India	0.8	1.0	0.9	1.2	1.6	1.0
8	Germany	1.2	1.5	1.4	1.3	1.4	0.9
9	The Netherlands	1.5	1.8	1.5	1.6	1.4	0.9
10	Taiwan	1.2	1.4	1.2	1.2	1.3	0.8
	Other Countries	13	15.2	14.7	15.5	16.3	9.6
TOTAL		**38.9**	**47.8**	**43.7**	**45**	**47.4**	**29.1**

* *January to July only*

Apart from funding, PMAs are expected to promote improvements in the business practices of their Indonesian partners. With respect to the locations of investment, the provinces in Java have attracted more than 60 percent of the total foreign investment. This selection is not arbitrary. Compared to other areas, besides infrastructure, organisations in Java have relatively better capabilities to be potential local partners. The selection of location indicates that foreign entities expect specified requirements to enable their operations to run well. In many cases, foreign entities actively initiate fundamental improvements by their local partners to facilitate their operations by introducing new standards of requirements, production technology and management practices. One indication is the increase in the promotion of standardisation and assurance for quality as in an ISO 9000 quality assurance system. Since its initial introduction in Indonesia in the early 1990s, implementing a quality assurance system has been attractive to an increasing number of organisations.

Besides its internal orientation, a quality assurance system also promotes the organisational assurance necessary for external cooperation. In international business, inter-organisational cooperation in a value chain is becoming a part of a sustainable business strategy. A major issue in this strategy is determining how to provide organisational effectiveness through internal improvement that also fulfils the requirements of external objectives. This issue is behind the rationale for adopting a quality management system as the necessary foundation. A quality management system basically promotes the standardisation of products, production processes, procedures and problem solving. As a feedback mechanism, repeated quality auditing enables the evaluation of the existing practices and standards, which then opens up the opportunity for performing improvements. A continuous process of improvement turns quality management systems into quality assurance systems. This assurance system is expected to build the capability for socio-cultural interactions that create transparency and trust between internal elements of an organisation. From the external viewpoint, internal transparency and trust improve the degree of assurance for external partners. This factor is known as inter-organisational trust; and is a fundamental social capital for cooperation (Sztompka, 1999).

Building trust for inter-organisational cooperation also requires attention on the differences in the existing organisational conditions and practices of partners. In a specific partnership, managing the relationship does not only engage with developing mutual objectives but also with creating collective values. Formulating joint vision, arranging feasible contributions, defining detailed incentive schemes, and securing the means of the cooperation are examples of the necessary means for organising effective interface management (Weisenfeld, et al., 2001). Since quality management implementation is also concerned with developing the dynamic capability for sociocultural interactions (Fisscher, 1994) it can contribute towards effective interface management. Quality management implementation is not straightforward; it includes

recursive processes of measurement, evaluation and improvement (Benner and Tushman, 2003). As this recursive process continues, the affected practices reorient employees into a continuous improvement attitude. The impact of quality management implementation on the construction of employees' mindsets can be observed, for instance, at Toyota Astra Motors, an Indonesian-Japanese joint venture company in automotive co-makership (Imai, 1997). These arguments imply that quality management implementation is not as simple as building the quality management system; it also faces the differences in the dominant organisational contexts.

From the view of the organisational context, quality management implementation involves the introduction of norms, values, standards and routines into organisation. Recursive processes of measurement, evaluation and improvement make organisations aware of the high expectations of the benefits of quality management implementation. The expectation can shift from a product and process orientation towards an organisational system orientation, or to the mutual benefits from interactions with the external entities. The developed quality management and assurance system should cover a range of activities from shop floor production to strategic management. Likewise, quality management implementation is no longer regarded as only covering system-technical aspects. The coverage of implementation also includes the issue of strategic management and deals with the socio-cultural concerns, as described in the total quality matrix (Fisscher, 1994).

Regarding the various expectations and comprehensive coverage of quality management, the implementation of quality management is a fertile ground for observing technical, managerial and organisational phenomena. Acquiring knowledge of quality management implementation in a unique, and influencing, organisational environment and situation is a relevant issue for investigation. With respect to organisations in Indonesia, this research is focused on observing quality management implementation, and is expected to provide new insights into the implementation process in order to improve organisations ability to meet their internal and external objectives.

1.3 Quality management practices in Indonesia

The objective of quality management implementation ranges from operational efficiency to organisational effectiveness, and with internal or external orientations. Linking the process of implementation to the expected performance requires attention to the role of contingencies. The developed practices in Indonesian organisations did provide benefits, but observations have also indicated the existence of doubtful practices. Through a survey, Amar and Zain (2002) reported some impedance factors (mostly related to resources) in quality management implementation in Indonesia, i.e. human resources, materials, and machinery or equipment. The problems relevant to

quality management practices can be illustrated through in-depth observations. The following examples present difficulties in quality management implementation ranging from specific operational tasks to cultural issues, i.e. developing quality control tools, managing processes and resources to support improvement, and the attitude of people in decision-making. These examples[1] are used as pilot observations of quality management implementation at a manufacturing company employing high technology equipment. The company is ISO 9000 certified, has adopted various advanced management techniques, and has close technical and managerial cooperation with foreign companies in developed countries.

Example 1: Introduction of control chart does not generate self-improvement

A manufacturing company considered the painting process as important since it contributed to the total weight of the product as the main performance criteria. The company needed to control paint thickness precisely; and thus appointed a team with a primary assignment of designing a small-scale control chart. Once the chart was developed, it was tested using empirical data to estimate whether its existing operational parameters were suitable for the existing operation.

After several weeks of implementation, the painting section manager still received reports of inconsistent overweight problems. The manager gave an immediate view that the developed control chart was not working and asked for its redesign. It was a mistake. The team realised a basic misconception in statistical process control implementation. A control chart, as other monitoring instruments, is useless without effective improvement action. The manager, therefore, needed to develop a comprehensive root-cause system to complete the PDCA cycle for improvement actions in addition to this monitoring instrument.

The first example reveals that the problem is not with the technical instrument, but concerns the knowledge of the effectiveness of tools for problem solving and improvement at the operational level. The manager mistakenly assumed that the developed tool was able to directly solve the problems as soon as it was operationalised. He failed to follow up in case an out-of-control condition occurred. This example shows that an operator is expected to find the source of problems and make the necessary adjustment to the process parameters. However, the operator expects a standard operating procedure describing means and authorizations for taking action. The developed control chart is only a tool to monitor the ongoing painting process. This tool is used to determine whether the process is within its designed specification or out-of-

[1] Examples are summarized from empirical cases in the industrial engineering and management academic program at the Department of Industrial Engineering ITB (1997-1999).

control. This tool does not include means and authorisations for taking action in the event of out-of-control conditions. In a PDCA cycle, the control chart only deals with the "check" activity. Once it has been developed, it is still necessary to build a complete set of detailed standard operating procedures and authorisations for performing evaluation, adjustments, corrections, and improvements. Focusing only on the quality control tools shows a lack of understanding of the essential idea of quality management including improvement. It is clear from this example that the painting manager merely relied on efforts in building the control chart. This manager failed to recognise the follow-up, beyond the technical tasks, such as managing the necessary operations for improvements.

Example 2: Lack of coordination in managing resources

A company is operating a chemical milling machine using a chemical solution to erode aluminium alloy to form parts and components. After a number of operations, the chemical solution becomes over-saturated and this reduces process effectiveness. To recover, the solution had to be adapted to its right concentration by adding a certain amount of a chemical substance. This should be done accurately, including the timing (when) and the content (how much). If the concentration of the solution is too low or too high, it reduces the effectiveness of the milling process. For this purpose, an indirect prediction method had been designed and operated to provide anticipatory information when the solution should be corrected. Subsequently, the plant manager has made predictions and made a detailed plan for procurement.

However, in the operationalisation a problem occurred at the time the additional chemical substance was needed: the substance was often not available. In this situation, operators were confronted with a problematic situation, either to wait for the substance, or continue the procedure to meet their production schedule. Usually operators decided to continue, which consequently meant using an incorrect solution without approval from their superior.

The second example reveals that there were problems with respect to (i) ineffective realisation of planning on material procurement, and (ii) the lack of clarity of procedure for execution. After developing the plan for material procurement, the manager merely relied on the existing information system to ensure that material procurement would be consequentially followed-up. The manager continued with preparing an improvement procedure for the operator to add the chemical solution based on the developed prediction method. With the prediction plan and execution procedure, the manager assumed that the material was always available and the operator was able to maintain the concentration of the chemical solution. The plant manager disregarded the importance of regular monitoring of the real conditions. Without regular monitoring, the

manager never knows whether the developed plan and procedures are running well. In this case, he assumed that the existence or non-existence of materials is no longer his responsibility since it is not in his job description. The delay in procurement schedule or delivery from supplier, and the lack of budget for purchasing are some of the technical reasons that determine the availability of material. If the confirmation procedure in the information system, and communication between the related managers works well, then problems due to the lack of material can be avoided. Lack of monitoring has left the decisions on maintaining the process to the operator alone. Under strong pressure to meet production targets, the operator dissolves the chemical without further consideration. In the long term, this malpractice reduces the reliability and durability of the machine, and thus can create a loss for the company. This example emphasises problems in transforming a plan into operational execution.

Example 3: Restrictions in the decision-making process

Based on contract requirements, a company was advised to implement an improvement method, called the root-cause analysis. This had been adapted by means of benchmarking to a world-class company in the US. After several years, no substantial improvement was obtained. An implementation team was created to investigate this problem and involved one general manager and several section managers. The team evaluated the problem comprehensively and found that operational procedures had to be provided in a simpler form, followed by detailed instructions and working sheets.

After some months of implementating the new method, the management was still dissatisfied with the result. Certain improvements gave results, but others did not. The general manager, who was assigned as project leader, searched for new appropriate tools, and came to a decision to use the FMEA tool, with a note indicating that the FMEA tool was similar with the existing tool. After a series of evaluations and discussions, it was finally realised that, for specific reasons, managers faced difficulties in making the decisions about failure modes necessary for deciding the priority of actions because any decision about failure was considered as judging a personal mistake.

The third example reveals an improper influence of mindset by which a failure is considered to be blaming someone. This mindset comes from a judgment of an action on an actor. Considering the Indonesian collectivist culture, respect for members of a group is strong. In a group, a member tends to protect other members from loosing face. If a failure occurs, all members will sense the same guilty feeling. If a failure is minor and has insignificant consequences, other members will simply ignore the mistake. Intervention by another group is usually refused. In the case that the failure is critical,

and may have significant consequences, it is difficult for other members to explicitly state that a member of their group made a mistake. In this example, the manager as the head of the group faced difficulties in making a decision about the failure mode using the existing root cause analysis. Finding the root cause is considered as pointing to a member in the group for making a mistake. In this situation, the manager refused to make his individual decision. As a result, the root cause analysis was unsuccessfully operationalised. The decision to use FMEA clarifies the need for a collective decision as a consensus of the majority. In FMEA, a 'blind review' mechanism enables decisions over failure. This tool uses standardised weighting rules for prioritising causes of occurrence, severity and detection of failures. This example demonstrates the restriction created by culture in decision-making.

These three examples illustrate quality management practices that cover technical, managerial and cultural issues. The cases illustrate the difficulties of quality management implementation in specific Indonesian situations. This implies that realisation in quality management implementation is not always as expected. The implementation is not simple "if-then" relationships; it is a multifaceted process that requires further theoretical and empirical research.

1.4 Research objectives

The main objective of implementing quality management is to contribute to the improvement of organisational effectiveness. As typified in the examples in an Indonesian context, the difficulties in quality management implementation indicate a lack of insight into quality management concepts, principles, as well as its required elements. This limitation results in incorrect practices in managing quality. These empirical observations show the need for further theoretical and empirical research in order to get a better insight into quality management concepts and principles, and how to implement them in a specific environment. This research aims to develop a strategy for implementing quality management. Based on these considerations, the research objectives are formulated as follows:

1. To achieve a better understanding of quality management implementation in the Indonesian situation, including the characteristics of quality management elements and the influencing internal and external factors.
2. To develop a strategy so that quality management implementation can realise the potential benefits of quality management.

These research objectives are urgently required by Indonesian organisations in their pursuit of inter-organisational cooperation with foreign partners. Based on these

research objectives, the discussion of the research problem and the research questions follows.

1.5 Research problem and research questions

To achieve organisational effectiveness through quality management implementation, organisations usually begin with an orientation on product inspection. Subsequently, the progress continues into an orientation on process control, the organisational system, and external relationships prior to progressing towards the organisational orientation known as total quality management. Although many organisations have experience of operational success with product and process orientations, these efforts are often insufficient for dealing with issues of inter-organisational cooperations. In the case of Indonesian organisations, the examples of quality management practices in Section 1.3 indicate the absence of important factors. The organisation in the examples is ISO 9000 certified, and thus it can be assumed that this organisation has established product- and process-oriented quality management. However, the examples show a different situation. These examples lead to the conclusion that a fundamental reorientation is required. To perform a fundamental reorientation, Indonesian organisations need to realise their existing condition, including their development strategy, that is dominated by the use of capital-intensive production technology. This strategy needs to be reconsidered because of the capital scarcity as a result of the 1997 financial crisis.

From Indonesian development policies in the past, two major practices behind the crisis are found. Firstly, in developing countries like Indonesia, domestic production has protective barriers. Accordingly, the growth of the industrial sector does not always lead to a growth in national income (for a discussion of this phenomena see Kaplinsky, 1998). Secondly, policies of industrial development, especially those based on cheap labour and produce for the local market, are only sustainable if the exchange rate is competitive. As long as this situation can be maintained, the purchasing power provided by industrial production remains stable. Learning from the crisis, Indonesian organisations need to redefine their business strategy. The risks in the past strategy can be reduced by building cooperation with foreign partners with two conditions: (i) foreign counterparts provide significant contributions towards investment, and (ii) the cooperation exports the end product.

To attract foreign cooperation, Indonesian organisations need to improve their present strategy that heavily relies on imported capital-intensive production technology. Organisations in mass production do acknowledge the use of capital-intensive production technology such as mechanisation and automation of production facilities (Pine, 1993). The expectation of operational improvement through production technology mainly comes from the conventional philosophy of Taylor's scientific management, in which one of the critical elements in the division of labour is the

development of dedicated processes, equipment or machinery. This kind of development strategy has been well accepted by Indonesian organisations since the 1980s (e.g. Sato, 1998). Before the crisis, many Indonesian organisations experienced success with this strategy. With this strategy, organisations experienced an affluent business development without realising the importance of technology transfer. Knowledge acquisition of production technology is usually done gradually. It is started with the acquisition of knowledge about operations, and then progresses to maintenance, improvements in operation, and finally to the invention of new production technologies. However, since the major content of technology is built in equipment, the knowledge transfer process can leapfrog by simply investing in new equipment. This was a common practice in Indonesia before the crisis. Organisations put their limited focus only on procurement and operation of equipment, which was mostly imported. With a leapfrogging progression, organisations only perform the operation as an operator of new equipment. They failed to acquire knowledge about maintenance, improvement and invention. Accordingly, they only became passive recipients of technology as the operator of new equipment. With this restriction, it is unrealistic to expect organisations to perform significant improvements to their product, process and organisation.

The financial crisis in 1997 created a scarcity in essential resources, especially funding and certain materials. In this situation, investing in capital-intensive production technology became very expensive. A devalued local currency had made products using imported material expensive. With no significant experience of improvement beyond inspection and process control, innovation for substitution of scarce material was difficult. As a result, the level of competitiveness reduced significantly. Learning from these restrictions, advancing cooperation with foreign partners provided an opportunity. Two expectations can be achieved by advancing foreign cooperation, i.e. (i) providing an opportunity of funding and access to materials and markets, and (ii) endorsing the implementation of management technology in complementing the invested production technology. The first expectation is direct and achievable in the short-term, but the second expectation follows a process of implementation. Unlike production technology, knowledge acquisition through management technology is predominantly represented in understanding, adaptation, and internalisation in people. Since it mostly involves recursive internal processes, this kind of knowledge acquisition typically improves awareness and enthusiasm. It makes people in an organisation as active participants. People development through the transfer of management technology supports the implementation of production technology. This was successful in broadening quality control (as tools) towards total quality control (as a way of thinking) in an Indonesian automotive company that cooperated with a Japanese organisation (Sato, 1998). This specific cooperation illustrates a thorough change from a focus only on production technology to a balance of focuses on production technology and management

technology through quality management implementation. However, this kind of development is rare in Indonesia.

The above examples in quality management implementation show that developing the structural and technical side of organisation has not been sufficient. Further progress is required to improve people and their interactions not only from a technical stand point but also from a socio-cultural standpoint. In this pursuit, the role of quality management is well-known. Quality management is not only viewed as an assurance system, but also as a way for systematic organisational improvement. Quality management implementation includes the development of people in their roles to formulate working instructions, to enable communication, to encourage teamwork, as well as to advance social relationships within the organisation and with external parties (Oakland and Waterworth, 1995). The continuing process of people development forms the quality-oriented culture of an organisation. However, the discussed empirical examples in Indonesia have led to a proposition that quality management implementation is difficult since it often deals with fundamental changes, because the implementation is not only directed to the development of a quality management system, but is also aimed at the development of routines and attitudes. This implies that the implementation is not only a fit between process and performance. Rather, it is an iterative process of changes and constructions. Organisations need to tailor their specific construction processes to be appropriate for their businesses, strategies, people, and potencies of their environment. A clear perspective is required to understand the dynamic process during implementation. This includes understanding the comprehensive coverage of quality management contents and the influence of the environment on the construction processes. This requirement leads to the formulation of the main question on implementation of quality management in Indonesian business environment for this research.

How can quality management be implemented in Indonesian manufacturing firms using their potencies and advantages in their specific business environment in order to improve their capability in managing inter-organisational cooperation?

To address this main research question, three research activities are envisaged. The first is to get a comprehensive theoretical and empirical knowledge about the concepts and principles of quality management and its implementation. This knowledge is important for finding relevant approaches to build a conceptual research framework for observing how quality management implementation is carried out. The second is to empirically observe quality management implementation in Indonesian manufacturing firms based on the developed conceptual research framework. The third is to provide recommendation in order to develop a strategy to enable the organisations to implement quality management. As an implication, it is expected that quality management

implementation can improve the capability to manage inter-organisational cooperation. With regard to these required activities, the main research question can be re-formulated into three sub-questions.

1. To what extent do the theoretical and empirical aspects found in literature contribute to quality management implementation, and how can these aspects be constructed into a conceptual research framework for observing quality management implementation?
2. How does such a research framework function in the actual situation of Indonesian manufacturing firms?
3. How could organisations develop a strategy for quality management implementation in order to manage inter-organisational cooperation?

1.6 Strategy and design of the research

In addressing research problems and questions, the selection of a suitable research strategy is an important initial step prior to defining the research design and activities. A research strategy is needed as a guiding operative means in performing research. Yin (1994) characterises five types of research strategy, i.e. experiment, survey, archival analysis, historical study and case study. The selection of a suitable research strategy is based on three criteria, i.e. (i) the type of research question, (ii) the extent of control over behavioural events, and (iii) the degree of focus on contemporary events. With regard to the first criterion, the "what" expression, as justifiable in an exploratory study, is a relevant research question in all research strategies. When the "what" expression is used in the form of a "how many" or "how much" line of inquiry, it is more relevant to survey and archival research strategies than others. In this research, the first research question implicitly expresses a question about "what" aspects of quality management. This question is exploratory for the rest of the research. In the other research questions, the questions are on "how" to observe implementation in actual practices, and to develop a strategy for managing quality management implementation. With regard to the second criterion, the actual behavioural events are difficult to control because this research takes the organisation as a unit of analysis that implements quality management in a certain way. With regard to the third criterion, since the objective of this research is to provide a strategy in order to manage and organise the implementation, the focus of this research is on contemporary events. Based on arguments with regard to the three criteria for selecting a research strategy, the appropriate research strategy for quality management implementation in Indonesian organisations is a case study one.

Case study research enables a researcher to simultaneously observe the process (how) and the content (what) of implementation. In this research, the case study is

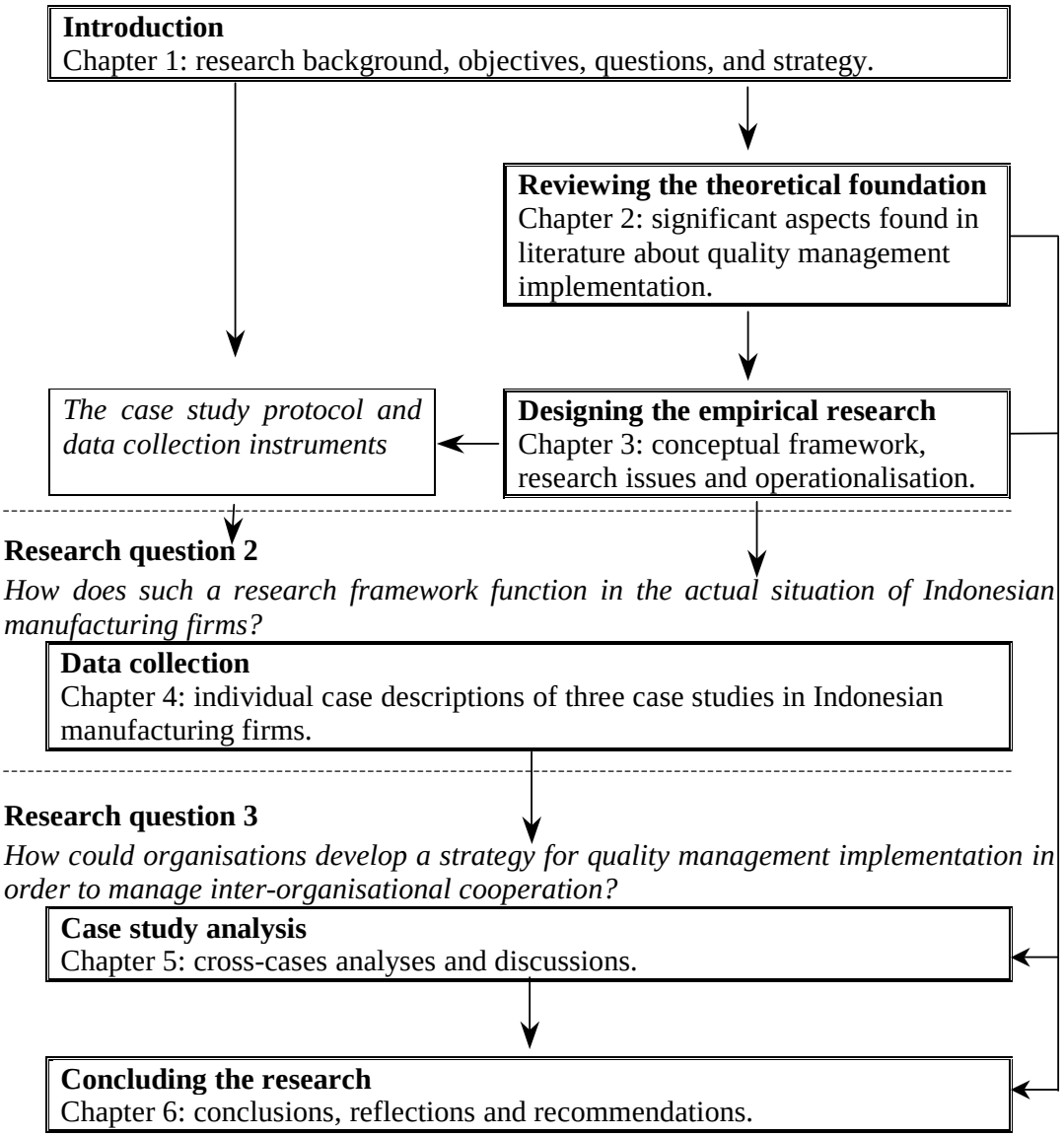
aimed at addressing how the variables in the conceptual research framework can be significantly linked to the actual implementation in Indonesian situations. For case study research, the five elements that are central in defining the research design are: the research questions; propositions (if any); unit of analysis; the logic (construct) of linking the data to the propositions; and the criteria for linking and interpreting the findings of field observations (Yin, 1994). As described in the previous section, the first research question focuses on developing a theoretical foundation that is expected to lead to the development of a conceptual research framework. Based on this framework, proposing research issue (or proposition) is necessary in order to guide the research operationalisation. The quality of research is judged through the validity (construct, internal and external), and the reliability. Developing a theoretical conceptual framework from well-substantiated literature will give the construct an internal validity. Generalisation to a broader domain through multiple case studies will extend the external validity. Evaluating the repeatability of the adjusted theoretical research framework through the cases will determine the reliability of the research.

A case study protocol that guides the field observations is required for the second research question. Before executing the research, it is imperative to select cases that ensure replication logic, which can either predict similar results or produce contrary results but for predictable reasons (Yin, 1994). Multiple case studies will be conducted progressively, during which the obtained evidence from a case study will be used to reinforce the subsequent case studies. The case studies will be executed in selected manufacturing organisations. Referring to the main research question, these organisations will be pursuing inter-organisational cooperation as a supplier, subcontractor, or co-maker with organisations in developed countries. In the execution of the case studies, several types of data collection methods are used, i.e. interviews, questionnaires, group discussions, visual observations and documentation collection.

Eisenhardt (1989) describes the steps necessary in reaching closure from case study research. The steps include preparation; case selection; designing instruments and protocols; field observations; data analysis; shaping hypothesis; enfolding literature; and concluding the research. Similarly, Yin (1994) defines the steps of research to include case study design; preparation for data collection; field observation; data analysis; and reporting and concluding the research. The activities of this research and their relationship to the research questions are depicted in Figure 1.2. These activities are categorised as either empirical or theoretical. The research is started by a discussion on the research background that describes the motivation, objectives, problem and strategy. A study of relevant literature for developing a theoretical foundation was the first research activity. This activity was intended to form a comprehensive conceptual building block for investigating the concepts, theories, approaches and practices in quality management implementation, and which also considers the influence of the environment. From the literature study, the analysis leads to the development of a

conceptual research framework. A case study protocol, including its data collection instrument, is then developed based on the constructed research framework. A multiple case study research programme was then conducted at three Indonesian companies. Finally, an analysis and discussion of the results of the empirical multiple case studies is presented that leads to the conclusions of this research.

Figure 1.2
Outline of the research activities and chapters



CHAPTER 2 THEORY ON QUALITY MANAGEMENT AND IMPLEMENTATION

2.1 Introduction

Observations and experiences of quality management implementation have empirically led to applicable concepts and principles, and to implementable practices. These empirical findings also inspire researchers to rebuild management and organisation theory. This iterative sequence provides benefits to the organisational and management theorists as well as to practitioners about quality management and its implementation.

In this chapter, the relationships between quality management implementation practices and the related management and organisation theories are discussed in order to develop the theoretical foundation for this research. The discussion starts by introducing the significance of the development of quality management and its implementation. From this discussion, successful quality management implementation illustrates its relevance in capturing the detailed conception of this research. Quality management implementation is considered as a process of change. The subsequent sections will discuss the essential dimensions of change according to Pettigrew and Whipp (1991). They propose that a successful change needs to consider dimensions of content, context, and process. The conclusion at the end of this chapter leads to the building blocks of quality management implementation that form the basis for constructing a conceptual research framework for conducting empirical research.

2.2 Quality management and its implementation

Management methods, such as quality management, business process reengineering, and information systems, are implemented worldwide to achieve improvements in organisational effectiveness. Among these methods, quality management implementation "has become something of a social movement" (Hackman and Wageman, 1995:309). Since its introduction, quality management's influence has broadened from manufacturing to other industries including educational institutions, health care organisations, public and government services, and non-profit organisations. Many authors characterise the advantages of quality management from various standpoints, such as business performance (e.g. Hendricks and Singhal, 1997), customer satisfaction (e.g. Choi and Eboch, 1998), and employee satisfaction and empowerment (e.g. Gunasekaran, 1999). In terms of strategy, the implementation of quality management is viewed as a promising business strategy. Feigenbaum (1999) characterises the comprehensive coverage of the strategy, i.e. (i) supporting employees' behavioural change, (ii) promoting important management ideas, (iii) upholding the

discipline of quality cost economics, (iv) bridging improvement ideas as an international business language, (v) assisting universal fact-based decision-making, and (vi) measuring the business results. Despite the recognised advantages, reports on quality management implementation failure are also frequent (e.g. Reger et al., 1994). In discussing the successes or failures one has to consider the coherence of prescriptive (concepts and principles) and empirical (practices) development. In the following sub-sections, the development of concepts and their consequential practices in quality management are discussed, followed by a discussion on the problem of its implementation. This leads to the consideration of a process of change in managing the process of implementation.

2.2.1 The development of quality management

Before the appreciation of quality management as an organisational improvement method, Crosby (1979) proposed a quality management idea based on an inverse relationship between cost and quality. Improving quality will increase customer satisfaction level but improving quality can also increase costs. As a consequence of the former, improved customer satisfaction can be expected to increase sales, which in turn increases revenues to an organisation. This mechanism has been considered as the basis for improvement. This consideration implies that a decision to opt for quality improvement is based on a cost and benefit trade-off. Not all quality improvement proposals will be executed, but only those that give added value in terms of higher benefits than costs. This idea has been recognised empirically as an effective one by many manufacturing organisations where improvement efforts are commonly emphasised in product and production processes. Quality improvement is often focused only on technical and operational elements, such as defect reduction, rejection-rate reduction, shorter production time, lower inventory, and increased capacity. These improvements have to be measured quantitatively to enable decision-making based on cost-benefit trade-off. This way of improvement is aimed only at satisfying external customer in order to gain revenues. This feature of organisational performance is limited to financial measures achieved from technical and operational improvements. Too much attention to technical-operational improvements reduces or even removes attention to non-system technical elements of the organisation, such as development and satisfaction of employees as an important factor for improvement. This negligence is a reason behind considering employees as part of the resources just like money, materials or equipment.

About thirty years after Deming and his team introduced modern methods of quality management to the Japanese, literature started to acknowledge the significant progress made by the Japanese. This successful implementation has been discussed and analysed to have a better understanding of how Japanese organisations implemented quality management to build their effectiveness. In viewing the quality management

concept, the Japanese use the term *hinsitsu kanri*. *Hinsitsu* literally means high quality of product, and *kanri* can have several meanings such as control, management, or administration. Accordingly, the term *hinsitsu kanri* can have connotations as a tool of quality control, a method or approach in quality management, or practicing a quality procedure. The meaning of *hinsitsu kanri* is thus understood simultaneously as a concept as well as a practice. Accordingly, this term can be used flexibly as quality control (focus on technical-operational matters) or quality management (focus on the total organisation). In a similar view, Feigenbaum (1991) introduces "total quality control" for expressing this Japanese style of quality management.

This unique Japanese way of organising quality is behind the success of the "quality control circle" (QCC). The progress through QCC is considered as a significant observable fact that emphasises not only technical-operational improvement, but also people development (Ishikawa, 1985). In a Japanese organisation, a group of employees commonly forms a QCC with obligatory participation. This obligatory feeling of participation is known as *giri*. This obligation is different to the concept of responsibility in western countries since *giri* is more emotional-based. With this obligatory feeling, each member of the circle performs improvements without expecting any personal reward. Employees assume that their improvement efforts will contribute to the sustainability of the organisation. This assumption is behind the mindset of life-long employment in only one organisation. The objective of QCC is to prepare and operate tasks in accordance to an organisation's policy and strategy, and to perform improvements. In many Japanese organisations, a quality circle customarily spends a few minutes three times a day meeting, e.g. (i) in the morning to prepare for the whole day's operations, (ii) at noon to inform on the intermediate results or problems, and (iii) at the end of working hours to evaluate the result. At the last meeting of the day, the circle decides whether there is any necessary correction or improvement to the plan for the next working day. This day-to-day activity in the circle has been recognised not only for making improvements, but also for encouraging people involvement and sense of belonging to the group, and ultimately to the organisation. These daily routines develop awareness for continuous improvement, known as *kaizen*. *Kaizen* not necessarily provides vast improvements: it is incremental and continuous. Accordingly, *kaizen* simply means improving continuously, and it is found effective in motivating people. Japanese employees see *kaizen* as a "journey with direction but without end" because the ultimate end is "total perfection". Recognized terms, such as zero defects or zero tolerance, adopt the concept of total perfection. Successful improvements in a circle diffuse easily to other circles because the Japanese are a homogeneous collectivist society. As a result, continuous improvement is implemented throughout the whole organisation as it is characterised as adapting and performing continuous improvement in all daily activities. After a period of implementation, incremental improvements

accumulate into an integrated organisational improvement that characterises the foundation of the recent concepts of total quality management.

Quality management implementation is more than installing systems and procedures. Thus "despite the enthusiasm shown for the approach and well-publicised reports of successful applications there exist substantial data confirming the failure of some 80 per cent" (Macleod and Baxter, 2001:392). This implies that a successful implementation has its own distinctive approach in terms of substance and sequence. Successful continuous improvement practices in Japanese organisations have convinced many organisations to reconsider the quality management method introduced by Deming. "Its widespread popularity appears to stem from numerous case studies attributing organisational turnaround to the influence of the Deming management method" (Anderson et al., 1994). Accordingly, organisations in various countries adopt 'me too' attitudes for their implementation programmes. The idea of the Deming management method focuses attention on the process management, which is essentially supported by the organisational system to progress towards organisational effectiveness. In the Japanese developed model of organisational excellence (i.e. the Deming Prize model), the organisational-oriented quality management model includes three elements; corporate policy, organisation and management, and education and extension. This orientation includes a shift in empirical practices: from operational achievement through independent teamwork in functional separateness to organisational effectiveness across interdependent teams. The Deming Prize model regards corporate policy as the main enabling factor, while in other models (such as the Malcolm Baldrige National Quality Award, and the European Quality Award) leadership is the main enabling factor. Although the developed organisational-oriented quality management models do differ in scope and approach, they share a focus on process management, which entails measuring, improving and synchronising the improved processes (Benner and Tushman, 2003). This implies that process management is central for continuously organising quality management (Hardjono and Bakker, 2001).

2.2.2 The complexity in implementing quality management

Quality management is seen as a process-based management method as in re-engineering (Hammer, 1996). As a process-based method, the focus of quality management implementation is on process management. Benner and Tushman (2003) define the extents of process management activities as mapping, streamlining, and adhering the improved processes. They propose that the improved process management makes progress in terms of responsiveness and performance. The progress involves the contingent influences of organisational form and environmental context. They point out that the contexts of so-called ambidextrous organisational form and incremental technological change positively influence progress towards responsiveness and performance, while the context of non-incremental technological change influences the

progress negatively. Ambidextrous implies the use of more than one function simultaneously for one objective. From this point of view, an ambidextrous organisational form enables an organisation to promote control and flexibility simultaneously, which in practice rarely exists. The phases of quality management implementation include the coherence between prescriptive ideas and practices in terms of exploitative and explorative innovations. Exploitative innovation is classified by its proximity to current technology for the existing market, in which the context is stable or predictable, while explorative innovation is directed at the emergent market, in which the context is turbulent. The first type of innovation is often associated with refinement, consistency and efficiency; while the second type is captured by risk-taking, experimentation, flexibility and discoveries that accentuate challenge and opportunity (March, 1991).

Benner and Tushman (2003) argue that the inconsistent findings over implementing quality management for supporting such innovations are caused by the failure to fully adapt the associated practices and to form an appropriate culture in which to work. In this perspective, the implementation of quality management often triggers great efforts in administrative practices. This creates routines and stabilised procedures that accumulate through steps from introducing concepts and principles, structuring a quality system, and maintaining and improving the related practices. Executing quality management implementation frequently leads to rationalising the existing work processes and process relationship into a standardised procedural system. As these practices are institutionalised, the organisation achieves efficiency as the benefit of implementation. This guides an organisation to standardise internal practices of teamwork, correctness and consistency. Adapting improved process management in routines is expected to improve the organisational dynamic capability, which will affect the balance between exploitative and exploratory innovation (Benner and Tushman, 2003). In this case, dynamic capability is defined as the "ability to integrate, build or reconfigure internal and external competence to address rapidly changing environment" (Teece et al., 1997). If the achievements can be maintained, then teamwork, correctness and consistency will have a direct influence on cooperation, coherence and transparency as essential elements in developing networks, norms and trust. These last achievements are seen as the necessary social capital of organisations for interacting with other organisations in a wider society (Sztompka, 1999). The success in managing quality management implementation - in terms of creating consistency and efficiency, and capturing organisational dynamic capability - is likely to become a model of a 'how to approach' when introducing other new process-based technologies into the organisation (e.g. Hipkin and De Cock 2000).

The need for exploratory innovation expands the centre of attention from technical-operational issues to strategic-dynamic issues. Within this focus, process management faces the risks of uncertainty in the external, longer time horizon, and

more diffused effects. To avoid the negative impact of these risks, the adaptive feature of process management steps back to a secure improvement by means such as in exploitative innovation. This increases the complexity in quality management implementation. Weick (1990) mentions that an implementation is often the only way in which a technology itself is designed, developed or changed. As a consequence, the complexity of quality management implementation also increases. In this situation, to avoid any impact from the risk of implementation failure an organisation often limits its intentions for further implementation. Even so, studies on managing the complexity of quality management implementation are limited (e.g. van Harten et al., 2002). The implementation process is seen as the key issue in introducing new methods or technologies into an organisation, such as in the work by Ruel (2001) over the use of office automation, Govindaraju (2002) in enterprise system implementation, and Van Harten et al. (2002) in quality management for health care institutions. In these research studies, understanding implementation is realised through a deep evaluation of the process of transformation of concepts and principles into practices suitable for the organisational characteristics and environment. Implementation is not only about achieving effectiveness based on an input-process-output model, but also needs to examine many perspectives in managing change (Van de Ven and Huber, 1990). In this respect, any discussion on quality management implementation must include the perspective of change.

2.2.3 Implementation as a process of change

The term "process" is used from various perspectives, such as a flow of activities (e.g. the process of production), a management method or approach (e.g. process management, process orientation, process-based method), a theory or methodology (e.g. a structuration process, a process approach as opposed to a variance approach), and a dimension of implementation (i.e. content, context and process). In one view of quality management implementation, a process of change is also considered as a recursive process of change, develop and construct.

In terms of sequence, the process of change in quality management implementation includes the development, evolution, and construction of a quality management system, the internalisation of the system into practices, the improvement of the system, and the possibility of its decline as time elapses. Taylor (1996) characterises the process of implementation as a cycle of initiation, adoption and adaptation. The process of implementation, such as in developing quality management (or assurance) systems, is initiated by building motivation and the institutionalisation of norms and attitudes in entire constituents of the organisation, prior to the operationalisation of methods, instruments and procedures. This initial step includes efforts for developing the mindset, acquiring understanding and building motivation (Hill et al., 2001). Accordingly, incorporating the relevant perspectives including contingencies of the

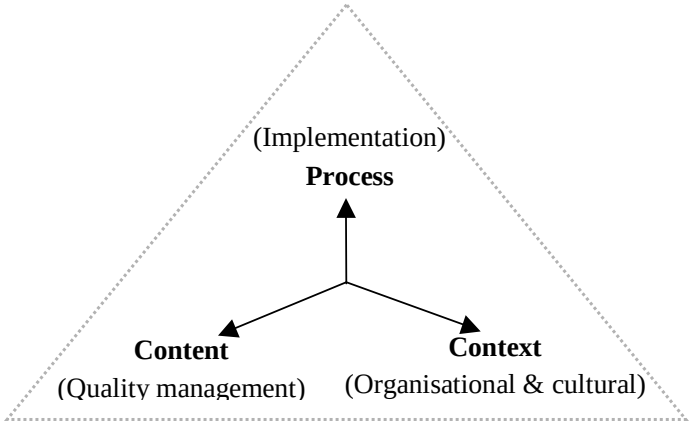
environment is necessary (Lindsay and Petrick, 1997). As progress continues, researchers enrich the subsequent process of implementation through a range of perspectives, e.g. knowledge building (Nonaka and Takeuchi, 1995), socio-dynamic interactions (van Harten et al., 2002), or setting up new ideologies for continuous improvement (Imai, 1997; Savolainen, 1999). In this progression, influencing environmental factors are not always considered as fixed contingencies. The influencing context may be completely new or a result of reconstructions of the existing context. Literature describes expressions of fundamental change as total change, radical change, metamorphosis. The paradigm shift is that in general process of implementation is to be re-framed in an evolution (Bounds et al., 1994).

With regard to the influence of context, processes of implementation are sequential and iterative. The implementation is substantiated by the detailed settings of 'what the organisation actually does' and 'how the organisation actually works' (e.g. Pettigrew, 1997). Likewise, Reed et al. (1996) view the "what" and the "how" respectively as representations of the content and the process of quality management implementation. The associated link between these two questions signifies the consistency between the design issues and the practical relevance (Daft and Lewin, 1993). In this relationship, quality management implementation can be viewed as a process of repeated constructions of structure through actions (Barley, 1986). This construction needs to consider the role of held values. This developed perspective on implementation is based on a view that the held values determine the acceptance of the quality management principles in practice, then, that in a reverse order, the adapted practices are institutionalised into routines, and finally the routines introduce a new set of values. This mechanism not only involves content (what) and process (how), but also involves the influence of context (why). Barley (1986) introduces this repeated mechanism of interaction between structure and action as a "sequential model of structuring", by which the process of implementation does not shape the organisation straightforwardly in a rational approach of fit between cause and effect. It is likely to incorporate the development of several elements in a sequence of activities. The development of the elements of quality management, through implementation, needs to be appropriate to the existing values and principles, otherwise the developing values and principles becomes part of the implementation process.

Developing the necessary values and principles of quality management can be realised using one of two approaches, i.e. the value first approach and the practical programmes approach (Hardjono et al., 1996). Most organisations strongly prefer to use practical programmes. They focus on performing activities with concrete gradual and fragmented results to create a vision that is socialised into the organisation using technical, managerial and cultural representations. Considering implementation as a process of change, the internal content and the context of the organisation are shaping and shaped interchangeably or simultaneously, as modelled by Pettigrew (1997).

Consideration of context may also involve the contingency effect of the environment. Considering Barley's sequential model of structuring, quality management implementation not only involves interaction between the substance of quality management and action to develop this substance, but also the influence of context in constructing the substance and in guiding the action. This consideration also invites a thought as in institutional theory (Scott and Cole, 2000): that the influence of the environment as the implementation context can be supporting, moderating or restricting. Within this framework, quality management implementation is viewed as a multi-dimensional change. Following "three essential dimensions of change" (Pettigrew and Whipp, 1991), the dimensions of quality management implementation can be constructed as involving the content, the context and the process, as depicted in Figure 2.1. The arrows in this figure represent interactions between these dimensions.

Figure 2.1
The three dimensions of quality management implementation
Based on Pettigrew and Whipp, 1991



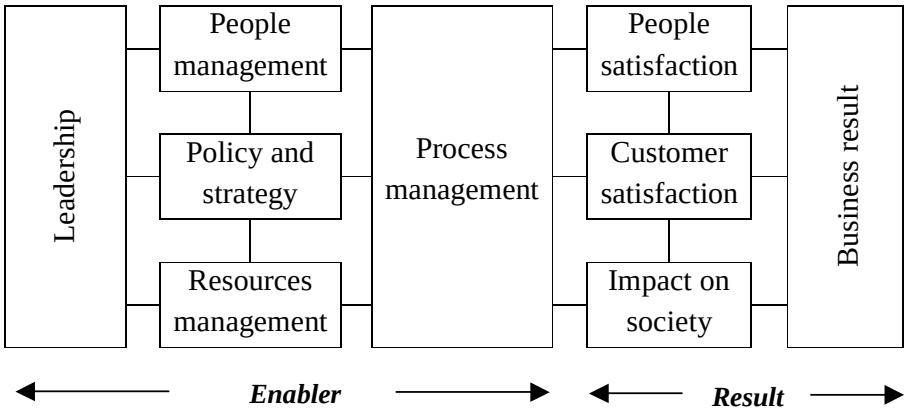
2.3 The content of quality management

The content of quality management has direct or indirect impacts on performance and the ability to compete (Reed et al., 1996). Describing the content of quality management is highly related to the definition of quality. In literature, a definition of quality has been developed based on normative or empirical considerations. For instance, various respected quality experts propose their own normative thinking about the prescriptive meaning of quality, e.g. conformance (Deming, 1993), fitness for use (Juran, 1992), conformance to requirement (Crosby, 1979), loss imparted to society (Taguchi, 1987), or economic value and practical utility (Harry and Schroeder, 2000). Garvin (1989) defines quality of product, while Zeithaml et al. (1990) define quality of service. These proposed meanings of quality have their effects on scopes and magnitudes that lead

ordinary people to merely interpret quality through quantifiable indicators such as cost, price, useable period, or market share. However, "[n]ew definitions have not replaced old definitions; rather, all of the quality definitions continue to be used today. No definition of quality is best in every situation" (Reeves and Bednar, 1994). To standardise a descriptive meaning of quality, the International Standard Organisation defines quality in the ISO 8402:1994 Quality Vocabulary as "the totality of features and characteristics of a product or services that bear on its ability to satisfy stated and implied needs".

In addition to formal definitions, Reeves and Bednar (1994) explain the definition of quality by tracing its roots. They characterise quality in concepts such as excellence, value, conformance to specification, and meeting and/or exceeding expectations. Their arguments also expose continuous improvement as the important principle of quality. This characterisation leads to a conclusion that the definition of quality corresponds to the perspectives of customer. Customers can be defined as internal customers, i.e. an individual in the work place, a production process, functions, sections or departments in the organisation, or as an external customer, i.e. buyer or user, other organisations, or society in general. The extension of the coverage from a production process to society determines the concept of quality orientation, through which they also define the quality management content. Regarding this extension, the Dutch Quality Institute (INK) defines the categorisation of quality management orientation in order to measure the level of quality achievement of an organisation for the Dutch Quality Award (DQA). The measures of achievement are developed based on the European Foundation for Quality Management (EFQM) model as depicted in Figure 2.2. It is important to note that quality management content includes both structure and action. The elements of the model represent the content as structures, while the related quality management actions are embedded in each element and in the relationships between elements. A detailed discussion of the structure and the actions will be developed in Section 2.6.1. The European model is comparable with other developed models in expressing quality management excellence, e.g. the Deming Prize model (Japan), the Malcolm Baldrige National Quality Award model (the USA), and the ISO 9000 quality assurance model. The elements of these models emphasise the content of quality management. These elements are accepted and partially adapted in national quality models in many countries.

Figure 2.2
The EFQM model



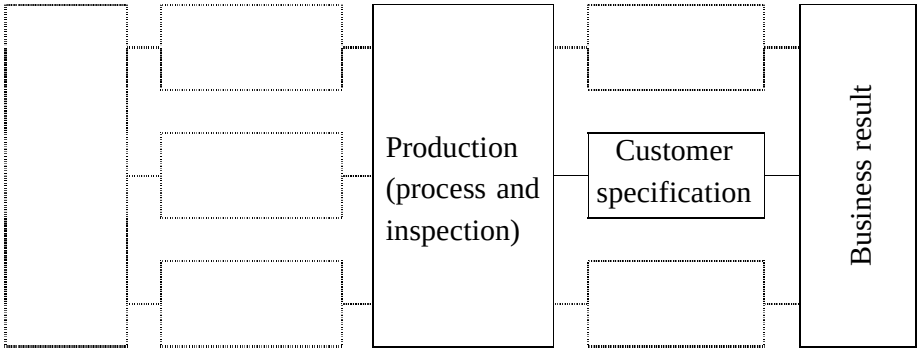
The DQA includes a developed measure to assess the achievement level of quality management and defines the orientations of achievement in terms of product, process, system, chain and total quality management. The product orientation is the end product quality assurance for satisfying the external customer. With this orientation, the main quality management activity is product inspection. The process (control) orientation is a product and production process quality assurance. This orientation is aimed not only at external customer satisfaction, but also at easing work relationships between internal constituents. The system orientation amounts to a quality assurance for the whole organisation in order to provide assurance. Further progress leads to extensive and intensive external cooperation with supplier and customer. Establishing these external relationships leads to a chain-orientation quality management. However, the emphasis on the customer has expanded to broader views beyond the traditional coverage of organisational relationships, such as social responsibility. Beyond a chain orientation, quality management orientation is known as total quality management. These orientations imply the substance of elements, which thus determine the quality management content. The details of these orientations and the substance of the elements will be discussed in the following subsections. The discussion for each orientation is focused on the main content that relates structure and action.

2.3.1 Inspection orientation

In traditional sales transactions, the price is considered as the main determinant of customer choice. By focusing solely on price, a producer often ignores quality as a major component of a customer's decision. In this situation, which is known as the craft approach, both the price and the quality of product are considered as exchangeable. It is assumed that producers are allowed to produce with lower product quality as long as they sell at a lower price. However, "this setting procedure fails to take account the fact that customer preference, which is strongly affected by the level of quality, is variable"

(Irianto, 1998). Customers will only accept a "perfect" product that meets their "precise" requirements. As a result, producers react by merely inspecting the product's conformance to a given customer specification. In this situation, the quality achievement is known as product (or inspection) oriented and its scope is depicted in Figure 2.3. (Note that the empty boxes in this figure do not exactly refer to 'no structure'. The structure exists, but related actions might be so insignificant as to make no contributions to improvement. This similar note also applies to Figures 2.4, 2.5 and 2.6). With an inspection focus, a producer delivers only the conforming product, and usually rejects or reworks any non-conforming product. Since inspection is done after production, the non-conforming product leads to more losses than if it was detected earlier during production. This consideration leads to a process orientation.

Figure 2.3
The scope of product-oriented quality management

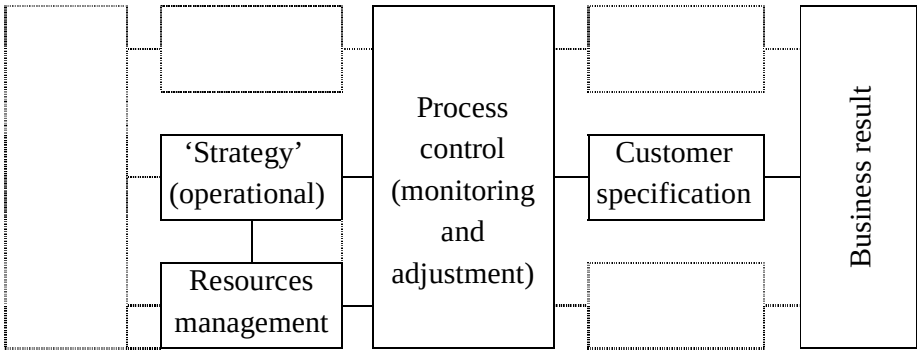


2.3.2 Process orientation

In order to reduce losses from inspection failure, the focus in managing quality is shifted to earlier phases before end-product inspection, i.e. during production and design. The shifting of orientation to the earlier phases is known as process orientation. Quality management concern is not only on the process of production, but also on strategy in designing a product and production, managing related activities, and managing the required resources. In this orientation, a producer is expected (i) to define and translate the customer requirements into product and process design specifications, and (ii) to set up means of obtaining products which will differ from the specification by no more than has to be left to chance (Reeves and Bednar, 1994). As product specification is based on customer requirements, the focus in managing quality is on monitoring and adjusting any deviation from the designed specification. Compared to a product orientation, process orientation is effective in maintaining the quality of a product during production. As a result, it can be expected that the inspection of end-products will result in a low rate of non-conformance. With this orientation, performance improvement programmes are mostly executed by integrating two

approaches, i.e. product quality improvement and cost reduction. This ignores the prior assumption that high quality corresponds to high costs, as in inspection orientation. Producers in mass-production system have experienced the benefit of a process (control) orientation. Its intensive exploration leads to the extensive use of production technology, mechanisation and automation, and a strict division of employees by task. The scope of process orientation is depicted in Figure 2.4. The iterative adjustment of any deviation leads to the most effective pattern of production. Later, this pattern is assumed to be the best practice in production. Based on this assumption, standardising process and procedure is effective in managing quality. This argument is true as long as there is not much variation in customer requirement. Efficient production is achieved through mass production of standardised products.

Figure 2.4
The scope of process-oriented quality management



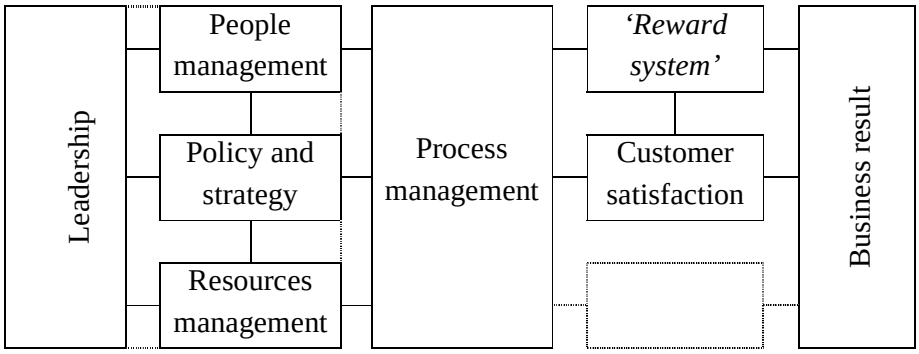
2.3.3 System orientation

Mass production has been recognised as remarkably effective (Kaplinsky, 1998). In the case of a change in customer requirement, the way of managing production is also changed. As customer requirements are advancing, the shift towards mass-customisation is unavoidable. In this condition, a standardised product can no longer satisfy the customer's expectations. The new requirement for customisation inevitably increases the complexity, not only in operational and technical matters, but also in the marketing strategy in response to new or future demands. Accordingly, a strategy in terms of operational standards and procedures is no longer effective.

From an internal point of view, mass production has also brought organisation to daily operational routines. As an implication, employees experience that they become part of mechanisation. The debate concerns the distinction between the terms human resource management and people management. With the term resource, people are considered as objects like machines and materials. With the second term (people management), people are considered as the means: the actor as well as the end. They have an active role in an organisation and thus need to be satisfied. Moving towards

mass-customisation implies that the objective is not only on meeting external customer expectations, but also people satisfaction. The "customer relationships" are no longer defined only for the external entities, they are also defined for the interactions between departments, sections or even between employees. Accordingly, the organisation takes advantage of strategic management methods with a broadened consideration of socio-cultural issues. This implies deeper attention to leadership, policy and strategy, resources management, and people management. The system orientation is depicted in Figure 2.5. System-orientated quality management is commonly formalised in elements of ISO 9000. As a formal assurance system, the main objective of ISO 9000 is to "help to ensure that organisations follow specific well documented procedures" (Singels, 2001:66-67). This system orientation, however, views the external actors as independent. Improvement efforts are often restricted to internal elements, while the external ones are considered as a given. As organisations advance their improvement efforts, they face a need for the active involvement of external parties for mutual benefits. This need leads to a chain-oriented quality management.

Figure 2.5
The scope of system-oriented quality management

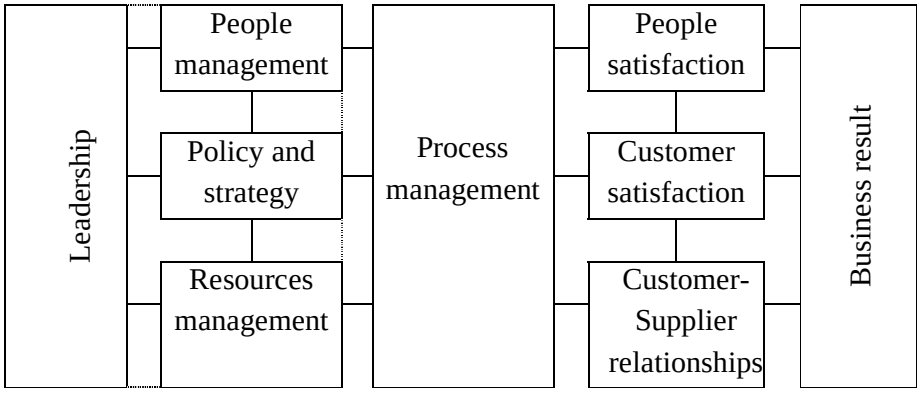


2.3.4 Chain orientation

The progress reflected in system orientation expresses an increase in the complexity of managing quality internally. On the one hand, this progress develops skills and knowledge for performing improvements, on the other hand further intentions to improve often turn into restrictions. For example, an organisation often faces a decision of making versus buying, leading to outsourcing or a subcontracting relationship. In a contractual setting with an external party, quality assurance often becomes the responsibility of both sides. Assuring quality for the customer requires more than the internal assurance of system-oriented quality management. The objective progresses to the need to build a trust-based inter-organisational relationship. In this situation, an organisation can constructively contribute in a wider value chain. In this orientation,

customers and suppliers are treated equally as partners. The scope of quality management necessary for this orientation is depicted in Figure 2.6.

Figure 2.6
The scope of chain-oriented quality management



2.3.5 Total quality management orientation

The progress into a chain orientation integrates the internal and external focuses in the quality management system. However, as a member of society, an organisation is also required to contribute to the prosperity of society. This requirement motivates organisations to improve their responsibility to society in general. Chain-oriented quality management with this additional requirement forms an idealisation of the quality management orientation known as “total quality management”. Quality management in this orientation is considered as the achievement of excellence. The scope of total quality management orientation was shown in Figure 2.2. Accordingly, the elements of this 'ideal' orientation determine the comprehensive content of quality management. Gradation in developing these elements will be considered in researching quality management implementation from a content perspective as will be discussed in Chapter 3.

2.4 The context of quality management implementation

As the content of quality management expands towards the ideal orientation, quality management implementation is highly likely to introduce new ways of thinking to the organisation. This introduction occurs because quality management implementation “involves changing the way people interact and work in an organisation” (Tata and Prasad, 1998). Introduction of new ways of thinking implies that implementation has to be congruent with, or is influenced by, related contexts and culture, either directly or indirectly. Culture of an individual or organisation as an influential context for implementation has been indicated in literature. For example, the implemented quality

management element is a representation of a culture (Madu 1997), and culture is occasionally considered as the reasons behind the success (or failure) of an implementation (e.g. Sigler and Pearson, 2000). Such a relationship exists because quality management implementation "embodies a set of values and behavioural standard that contains many fundamental components of cultural system" (Jenner et al., 1998).

As a context of implementation, culture can be classified as given or changeable. Culture becomes "one of the most powerful and stable forces operating in organisations" (Schein, 1996). If the context is given, an organisation views the elements of culture as a basic reference in implementing quality management. If the context is flexible or changeable, an organisation can develop suitable features of practices, and then adapt these into routines. If these routines are supportive in implementing quality management, they can be internalised as new values. Related to these views, the literature introduces the terms of national culture and organisational culture. However, this does not mean that national culture is always rigid and organisational culture is always flexible. National culture is however not as flexible as organisational culture.

2.4.1 National culture as a given context of implementation

Quality management implementation is often triggered by successful practices in an organisation in one particular country. "It worked in Japan so why does it not work here?" This is an example of common phrase whenever an organisation tries to implement directly an idea concerning quality or operation management from Japan, such as quality control circles that is highly influenced by Japanese culture. The need to observe quality management from a cultural perspective requires one to acknowledge the cultural differences. Deming (1993), for example, developed a theory of management known as "a system of profound knowledge" that has been shown to be applicable to any culture. However, Deming notes that the application of this theory in a society will tend to be limited to issues that are unique for characteristics of culture of this society. It means that attention to specific characteristics of a culture is unavoidable. However, there is no generally accepted characteristic of culture that fits all. In relation to country differences, culture as the context of implementation can be defined as polycentric than as ethnocentric. Polycentricity incorporates values and norms from different participants, whereas ethnocentricity is based on values and norms of an individual participant. The participant can be an individual or a group of individuals.

Studies concerning national culture as a context have positioned an organisation in one country relative to organisations in other countries in terms of similarities and differences. However, there is no consensus about the definition of culture (Hofstede, 1991). Culture can be defined collectively as an integrated pattern (of human knowledge, belief, and behaviour) that depends on human capacity for learning and

transmitting knowledge to succeeding generations, or as a set of shared norms, values, and practices. Hofstede (2001) defines five dimensions of national culture based on the collective perception of individuals, i.e. power distance, individualist-collectivist, uncertainty avoidance, masculinity-femininity, and time orientation. These dimensions compose the collective programming of the mind that distinguishes members of one group from another. Schein (1992) mentions that initial cultural formation is an ability to share involving learning and understanding of a "common language". Newly shared practices begin the formation of a new culture as a characteristic of a particular group. A small group, such as an organisation, tends to be homogeneous, and thus the decision for adoption of values and norms is easier. This argument leads to the consideration of the important role of "flexible context" in an organisation, often known as organisational culture.

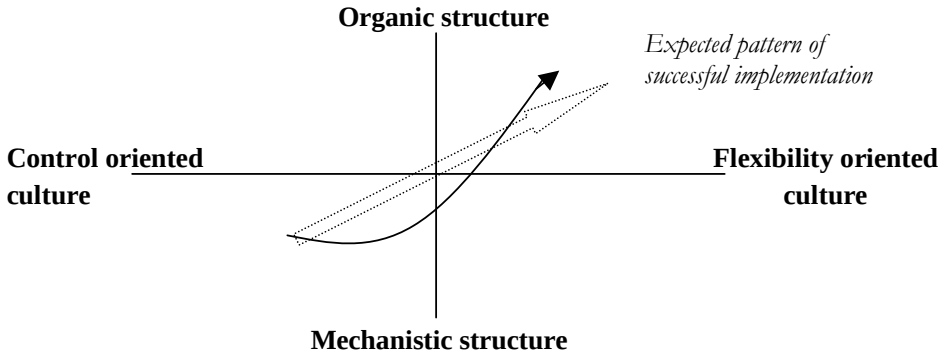
2.4.2 Organisational culture as a flexible context of implementation

The culture of an organisation can be considered as having "acquired a status similar to structure, strategy and control" (Hofstede et al., 1990:286). From the organisational culture theory, there are two different descriptions that often are used (Kekale and Kekale, 1995). Firstly, the organisational culture relates to a set of coherent basic values that uniquely characterises a group and rules its preferences. Secondly, it is a set of characteristics, which not only represent a basic value but also its beliefs, models of behaviour, symbols and artefacts. This implies that managerial style is a product of culture, which is thus easily observed through management practices. However, the meaning of culture as an articulation of symbols, heroes and rituals is still invisible (Hofstede, 2001). Hofstede (2001) contributes to the formation of dimensions of organisational culture, i.e. process-result, employee-job, parochial-professional, open-closed, loose-tight, and pragmatic-dogmatic which enable clarification of the conditions that support the practices of individuals in an organisation.

Holding the shared values of their g, the majority of individuals directly influence the organisation psychologically through practices and interactions. Later, this influence will have an effect on the internal shared values and beliefs (Hames, 1991). Schein (1996) continues the formation of culture in an organisation by characterising three cultures of management based on group of people, i.e. operators, engineers and executives. An organisation "may not ever be able to be a reliable learning system unless it reconciles the built-in conflict between these three cultures" (p.238). These arguments hold that the cultural formation interrelates the context of the individual with that of the organisation. Hofstede (2001) considers that two dimensions of national culture, i.e. power distance and uncertainty avoidance, have direct connections to organisational value orientation (control and flexibility) and structures (mechanistic and organic) as the basis for building a foundation in the formation of flexibility and the degree of formalisation in organisation. Likewise, Tata and Prasad (1998) consider that

these two dimensions are important in implementing quality management. They introduce a model in relating culture and structure to quality management implementation involving a control-flexibility oriented culture and a mechanistic-organic structure, as depicted in Figure 2.7. A flexibly-oriented culture and an organic structure correspond to success in quality management implementation.

Figure 2.7
The link between culture and structure and implementation success
Source: Based on Tata and Prasad, 1998



Cameron and Quinn (1998) develop four types of organisational culture, i.e. hierarchy, clan, market and adhocracy. Each type is positioned in accordance to two-dimensional orientations on control-flexibility and on internal-external orientation that form four quadrants. This characterisation follows the competing value approach for organisational analysis (as proposed in Quinn and Rohrbaugh, 1983). Each type has a different characteristic that is aimed at different effectiveness criteria: (i) the hierarchy type is aimed at stability, predictability and efficiency; (ii) the market type is aimed at profitability and market share; (iii) the clan type is aimed at employee involvement, cohesion and commitment; and (iv) the adhocracy type is aimed at adaptability, flexibility and creativity. An organisation is not always associated with only one type; it can be reflected in two types, but not ones in diagonally opposite quadrants.

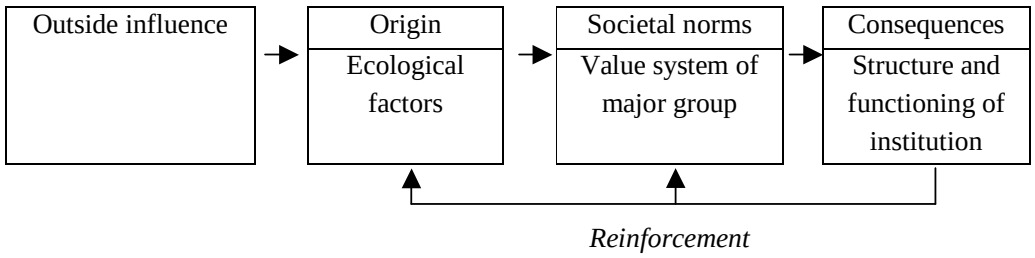
From a different perspective, Trompenaars and Hampden-Turner (1997) also developed four types of corporate cultures within dimensions of equality of hierarchy (hierarchical as opposed to egalitarian) and orientations towards persons and tasks. Within these dimensions, an organisation is characterised as (i) “incubator” (an egalitarian and project oriented), (ii) “guided missile” (an egalitarian-task and person oriented), (iii) “family” (hierarchical-person and role oriented), and (iv) “Eiffel tower” (hierarchical-task oriented).

2.4.3 Change of culture as an impact of implementation

Cultural change involves the (re-)organisation of values, attitudes, behavioural norms and management style (Cartwright, 1999). Internal pressure is not the only means that initiates cultural change. For example, a change of attitude, which affects the way of viewing a problem, is a helpful initiative in overcoming a problem. A way to initiate cultural change is through communication and diffusion in order to achieve a general understanding of new or successful practices. Cartwright (1999) continues by listing conditions. Progress can be indicated by a measurable attitude based on the condition of acceptable beliefs and values. With different acceptable beliefs and values, the response to new or successful practices could be different. Initially, an example of good practice provides a good result. Realising this result develops goodwill towards understanding. Subsequently, motivation to repeat the same pattern is built, and is expressed in willingness to be involved and mutual sharing. All these processes can only be achieved by winning over 'hearts and minds' of people.

Communication and diffusion are necessary but not sufficient for cultural change. In the perspective of change, organisational culture can be considered as a process of repeated structuring through interactions and interventions (Bate et al., 2000). Introducing quality management principles (Tenner and DeToro, 1992), such as a focus on customer satisfaction and continuous improvement, can be regarded as redefining the held value system of an organisation as a consequence of pursuing better organisational effectiveness. The role of the major group is central in mediating the structuration. Hofstede (2001) considers interactions and interventions as reinforcement, through feedback mechanisms, from the consequences to the origins and the societal norms, see Figure 2.8.

Figure 2.8
Cultural change as reinforcement



2.5 The process of quality management implementation

In observing an implementation one can make use of a variance-based approach or a process-based approach. The variance-based approach produces an outcome variable that consistently occurs when necessary and sufficient conditions are present in any order. The process-based approach produces a discrete occurrence of an outcome that may not occur when conditions are present, unless a particular sequence involving probabilistic occurrences unfolds (Mohr, 1982). Both approaches categorise certain research in the field of organisation. In the field of quality management implementation, research using the variance approach aims to find the critical success factors. The main goal of research using the variance approach is to predict the outcome or effectiveness based on assumed relationships and conditions of factors relevant to the implementation success. In the process-based approach, the goal of research is to understand better how a sequence of basic phases, each of which must be pursued, leads to implementation success.

In observing the process of quality management implementation, it is useful to review the variance-based approach, in order to found the critical factors. These factors are useful for developing the implementation construct model. Apart from finding critical factors, attention on the steps and perspectives of implementation are relevant issues. This attention is based on the need to consider the process-based approach when observing quality management implementation. Accordingly, the following subsections discuss the critical factors, the organisational and managerial perspectives of the implementation process, and the process approach to implementation.

2.5.1 Critical success factors

Using the variance-based approach, a researcher focuses on causative factors in researching quality management implementation. These causative factors are characterised as elements of a latent construct of an implementation model or as related indicators (Ahire and Ravichandran, 2001). The key factors that represent the scope of quality management implementation are summarised in Table 2.1. Sila and Ebrahimpour (2002) characterise 25 factors that are summarised from sources related to the quality management and its implementation. According to their analysis, certain issues are considered to be the major elements of quality management. The issues related to customer focus and satisfaction receive the greatest coverage, followed by training, leadership and top management commitment, teamwork, employee involvement, continuous improvement and innovation, quality information and performance measurement.

Table 2.1
Key factors for successful quality management implementation

Categories	Key Factors
Leadership	Role of top management,[a,i] quality policy & strategy,[a,j,d] commitment,[b,c,e] supervisory control,[b,e,h] visioning,[b,i] consistency on purpose.[j]
Organisation	Quality department,[a] teamwork structure,[b] cross functional,[e,f], continuous improvement,[h,i] management commitment,[g,i,j] communication.[d]
Fact based management	Data & reporting,[a,c] measurement system,[d] measurement and feedback.[h]
People management	Employee involvement,[a,b,c,g,j] employee empowerment,[c,f] people management,[d,h] teamwork cooperation,[f] job satisfaction,[f] assurance to employee.[e]
Education & training	Education and training.[a,c,e,f,h,i]
Environment and culture	Corporate culture,[d,h] work environment,[h] cultural communication.[g]
Customer focus	Customer focus,[c,d] customer satisfaction,[d,j] customer understanding.[i,j]
Quality in suppliers	Supplier partnership,[a,c,d,e,h] supplier understanding.[i]
Quality in design and process	Product design,[a,c,] product innovation,[e] operational planning,[a,c] process management,[a,h] process measurement and reward,[i,j] external interface management.[d]
Tools & techniques	Improvement tools & techniques,[c,h] technology support.[f]

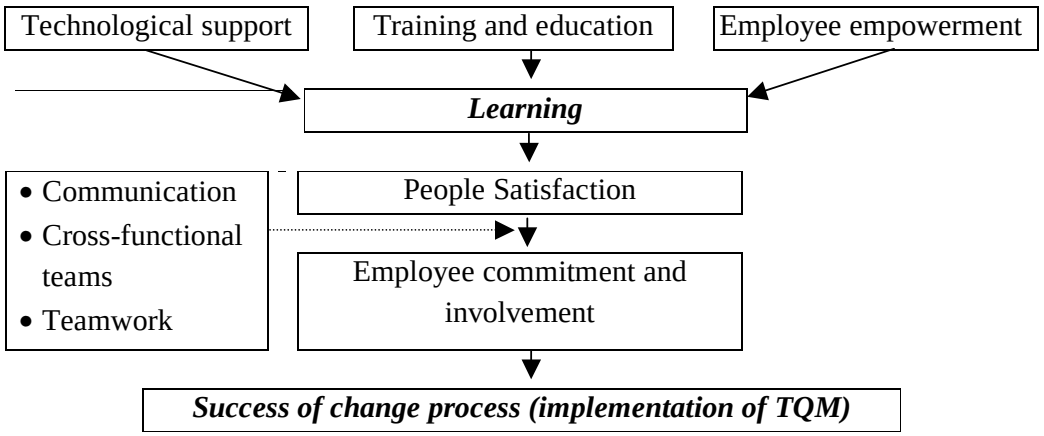
Note: a. Saraph et al. (1989), b. Porter and Parker (1993), c. Ahire et al. (1996), d. Black and Porter (1996), e. Tamimi (1998), f. Gunasekaran (1999), g. Abraham et al. (1999), h. Yusof and Aspinwall (2000b), i. Sohal and Terziovsky (2000), j. McAdam (2000).

Researchers adopting the variance approach often merely use the previous measurable circumstances of success. Later, they build models that are used to explain the variance of the outcome. Statistical techniques, such as linear regression in analysing an assumed linear relationship or structural equation modelling in constructing relationships among factors, are usually applied. In this case, quantitative data is required to quantitatively determine the relative importance of factors on implementation success. The expected benefit is that if an understanding of the important critical factors can be achieved then successful implementation can be expected. Further, the statistically-constructed framework, which is considered as the basis for implementing quality management, puts forward a mechanistic consequential

view of implementation rather than the possibility of processes in probabilistic occurrences. In spite of its attractiveness in providing quantitative clarity, the variance approach has been criticised. The main criticism is that the variance approach tends to view implementation as a static rather than a dynamic process of (probabilistic) socio-cultural construction. Accordingly it tends to ignore the potential of a factor to have a variable effect on the process of implementation. Consequently, it often fails to explain the relationship between factors, for example the variant effects of the contingency factor or multifaceted relationships.

Extracting factors, as in the variance approach, is more useful in describing the content than the process of quality management implementation. However, paying attention on why the factors come out as relevant is useful in describing the process of quality management. For example, Gunasekaran (1999) developed a conceptual construct model. His study concluded with enabler factors that converge on the learning and change processes. The proposed model sees people satisfaction as the key issue that includes aspects of job satisfaction, communication, teamwork, cross-functional teams, empowerment, training and technological support. These aspects and their relationships form a construct model for quality management implementation as shown in Figure 2.9.

Figure 2.9
An example of a conceptual construct model of implementation
Source: Based on Gunasekaran 1999



From a learning and change perspective, the construct model in Figure 2.9 puts people at the centre in achieving a successful implementation. A number of enablers can be considered as the necessary conditions (i.e. technology, education, training, empowerment, communication and teamwork) while others are the sufficient conditions (i.e. job satisfaction and employee commitment and involvement). This construct is

made because it is realised that even though organisations have attempted to embrace implementation, they have either abandoned or failed to translate and communicate achievements into outcomes. This construct model proposes a process-based approach in observing quality management implementation in addition to the variance-based approach. This combined approach not only provides the relevant factors, but also explains the processes of interaction between factors.

Compared to the variance approach proponents, a smaller number of researchers consider the process approach when observing quality management implementation (van Harten et al. 2002). The goal of research using a process approach is to better understand how a sequence of necessary basic phases leads to implementation success. In this regard, research will be beneficial that uses the process theory approach, in which a series of occurrences flowing in a sequence over time, so as enables a researcher to explain how a phenomenon comes about (Mohr, 1982).

2.5.2 The process perspectives of implementation

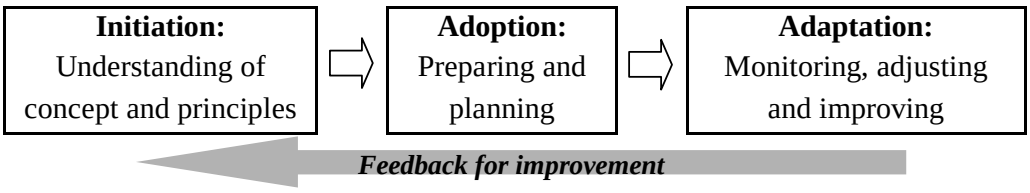
The process of implementation can be seen as a flow of activities and as an essence in achieving an objective. As a flow of activities, the process of quality management implementation underlies the importance of iterative steps, such as in a plan-do-check-action cycle. Such cycle is recognised as an effective approach for continuous improvement since it implies feedback mechanisms. Improvement actions based on assessment results are expected to lead to progress. Ford and Evans (2001) characterise this recursive progress as strategic transformation and operational improvement. The strategic transformation is often motivated by the challenge for a fundamental change such as customer or market demand, technological invention or innovation, or other external forces that influence the stability of the organisation. The operational improvement is the result of an effort to solve a problem or to improve an existing task. In a recursive view, operational improvement is seen as an incremental improvement. The outcome from an improvement defines a new objective for the operational task, groups, or organisation as a whole. This improvement continues in order to achieve an acceptable organisational foundation. Strategic transformation and operational improvement can influence each other. Operational improvements are organised in the direction of strategic transformation, and problems with operational improvements can trigger strategic transformation.

Taylor (1996) classifies the sequence of interchangeable states of strategic transformation and operational improvement into four steps of quality management implementation: (i) understanding of concept and principles, (ii) preparation and planning, (iii) implementation, and (iv) evaluation. For a specific purpose, van Harten et al. (2002) classify steps in quality management implementation as: orientation and preparation, defining quality mission, knowledge transfer, pilot project, training, evaluation and formal implementation. Considering these, staging a quality

management implementation is considered in terms of the essence (e.g. awareness, motivations, setting up ideology, knowledge building, and learning) and the sequence (e.g. initiation, preparation, planning, implementation and institutionalisation). Regardless of the approaches in staging, developing conceptual understanding generally initiates the implementation. This initiation is expected to build motivation and awareness about quality as a foundation prior to implementation. This stage is crucial since it generates the necessary preconditions that are characterised by attainment of understanding, accumulation of consciousness, and creation of commitments. Significant events and related critical incidents often play an important role in this stage. After the initiation step, preparation, planning, implementation and institutionalisation essentially comprise two segments, i.e. adoption and adaptation, see Figure 2.10. Accordingly, quality management implementation, as a series of activities, is executed in the following steps:

- Initiation involving the development of understanding of concepts and principles, building motivation, and defining the measurable objectives in order to gain commitment for adoption.
- Adoption involving the preparation and planning for developing the mission and putting it into operation.
- Adaptation involving the monitoring, adjusting and improving re-alignment in response to difficulties or barriers in which understanding is important.

Figure 2.10
The activity steps for quality management implementation



The steps in Figure 2.10 view the implementation through intermediate outcomes representing the status of effectiveness at points in time. In the steps of adoption and adaptation, evaluations can be made and expected to result in recommendations as feedback for improvement. The whole sequence of implementation steps and feedback for improvement form an iterative mechanism. In this case, implementation is viewed as a continuous construction through iterations. A capability to maintain progress throughout this iterative mechanism is considered necessary for continuous improvement (Savolainen, 1999). Each cycle of iteration is carried out uniquely and depends on certain conditions, requirements, and achievements. This way of progressing needs an objective to give a direction. As a process for pursuing an objective, implementation can be regarded from different perspectives, such as internal

improvement, innovation diffusion, organisational change, organisational learning, organisational renewal, and cultural change.

- ***Internal improvement.*** Choi and Eboch (1998) have revealed that quality management implementation is geared more towards external motives than on internal concerns. However, every impact, as an external motivation, is mediated through internal organisational elements. Given this, balancing internal and external views is needed. This balancing act is often between, for example, restoring internal control to improve, and enforcing flexibility in response to improve the external effectiveness. Lindsay and Petrick (1997) propose that at the beginning it is important to incorporate the development of structure, processes, and resources in order to form an effective quality system for internal concerns. In addition to this, an improvement in the internal effectiveness can be mediated by the role of people through a process of diffusion (Gunasekaran, 1999).
- ***Innovation diffusion.*** Innovation brings together the introduction and implementation of new ideas, methods, systems or technology. Introducing an innovation involves fortifying change towards the goals of an organisation along with the process of achieving them. Carrying out introduction and implementation concurrently in an organisation is not easy. A process of diffusion is often preferable (Ahire and Ravichandran, 2001). Diffusion of innovation has been characterised as propagating a new substance, by which it is conveyed throughout the members of an organisation. This diffusion is affected by various variables, such as the type of innovation, channels of communication, and inter-personal, and social interaction systems (Conde and Ruiz, 2001). From the perspective of quality management implementation, innovation can be viewed from two points, i.e. technical-operational and administrative-managerial: the first usually diffuses bottom-up while the second diffuses top-down (Ahire and Ravichandran, 2001). For quality management, the diffusion can be started by the adoption of a system or tools by an implementation team as the first adopter. The first adopter accepts the principles as true, applies them to practice, experiences the benefits, and then influences other member(s). Since the diffusion is mainly done through people, the captured concept of a new system or tools is firmly and uniquely internalised in people. Accordingly, the diffusion proceeds in various ways among members, occasionally uncontrollably. There is a chance of deviation from the captured concept, which can be either constructive or restrictive.
- ***Organisational change.*** Organisational change concerns an integrated transformation from one state to another. It is a transformation that brings an organisation from an existing condition to a desired better condition (Bennet and Kerr, 1996). Managing quality management implementation represents managing change. When an organisation faces a considerable change, members of the organisation are challenged and exposed to a reconstruction, one that is often

fundamental. Consequently, attention is not on the state, but on the process of transformation. To understand organisational change, it is necessary to understand the values that exist among organisational members, as well as the activities or practices whereby these values change. Since change often creates uncertainty, the central role of (top)-management through commitment and leadership is important. Commitment and leadership are cornerstones of any initiative for change (e.g. Drenan 1992, Lindsay and Petrick 1997). It is likely that, after initiation, adoption will steadily develop understanding, awareness, intention and creation, and that these will enable (top) management to reformulate a relevant policy and strategy for adaptation. As in other transformation programme, three points are considered as sources of resistance to change, i.e. the prosperous of the present, the uncertainty of the future, and the harmful of the gap in between (Fisher and Torbert, 1995).

- ***Organisation renewal.*** Hardjono et al. (1996) describe successful cases of the introduction and implementation of quality management through the European way of excellence. They conclude that successful implementation is attributed to the development of sensitivity and capacity to interact with the environment, the development of internal coherence and adaptability, and the development of capacity for learning autonomously and thinking collectively. These enablers rarely all exist in an organisation. These enablers represent the participative nature of an organisation that considers people management as a key discipline. In relation to this, Savolainen (1999) considers the importance of organisation renewal. The term renewal means realising a new ideology through practices in order to institutionalise change. The new ideology requires the crystallising of a new philosophy to fit the renaissance of the organisation. Organisational renewal extends the gradual and adaptive concepts of continuous improvement, wherein it reforms the organisational values and norms. Consequently, fitting social dynamical processes, such as reflection, communication and integration into an organisation is critical. To support this, an organisation needs two kinds of leadership, i.e. (i) stressing motivations for involvement, and (ii) leading to realisation of operation through direction. Organisational renewal is possible, but will be full of twists and turns in reaching a fruitful result.
- ***Organisational learning.*** Quality improvement, such as with Deming's PDCA improvement cycle, is about systematic and continuous learning. Yusof and Aspinwall (2000b) empirically find that quality management implementation supports learning, especially in developing trust, cooperation and teamwork, quality awareness, and eagerness for improvement. The key objective in quality management implementation is to serve the stakeholders better. In this pursuit, knowledge from observation and evaluation enables organisations to learn, and generates ideas for improvements. Learning and generating ideas contribute to a process of knowledge building (Nonaka and Takeuchi, 1995); and with knowledge

one can predict and control (Bisgaard, 2000). In organisation theory, there is always a useful feedback mechanism from structure to strategy. As an extension to this mechanism, Porter concludes that an organisation what actually happens occurs in the reverse order (Hodgetts, 1999). Accordingly, based on the existing condition of the organisation, implementing quality management is considered as a strategy for improvement in that its execution enables learning. The implementation, as a strategy, guides quality management activities that at the same time develop knowledge to ease the execution of these activities. However, when these activities are imposed without recognising the necessary requirements for constructive learning, the organisation will end up in a worse situation than it was to begin with (Argyris, 1998).

- ***Culture development.*** Literature on organisational culture mentions that 'culture' has an overwhelming influence on organisational effectiveness (e.g. Schein, 1992, Schneider and Barsoux, 1997). This argument is supported empirically (e.g. Kekale and Kekale 1995). In relation to culture, Kekale and Kekale (1995) classified quality management into three types: (i) quality management as a hard aspect of production, (ii) quality management as a soft, qualitative concept concerning an open management style, responsibility and staff autonomy, and (iii) quality management as a mixture of hard and soft concepts with features in quality perfection, scientific approaches and the potential of people. The first type reflects Tayloristic divisions of labour. The second type corresponds to cognitive psychology, which emphasises autonomy and responsibility in motivating people to learn. The third type corresponds to the idea of self-actualisation, and relates to the theory of humanistic psychology. The last type is considered to be fundamental because people play a specific role in the process of implementation. However, the norms and values, as the essence of the management styles and practices that govern the organisation, must be relevant, acceptable and operable. Thus, motivating people throughout an organisation to learn and to cooperate in teamwork is a strategy that characterises the relevance of the totality aspect of quality management. In this relationship, the theoretical concept of organisational culture implies that an implementation will function better within an acceptable basis of individual (or organisational) culture.

The discussion on the perspectives in implementation characterises quality management implementation from the process standpoint. These perspectives pay attention to: (i) the quality management content and properties including execution tasks and standard operating procedures (such as in internal improvement and organisational change), (ii) the context that supports implementation (such as in organisational renewal, organisational learning, and cultural development), and (iii) the process of implementation as well as socio-cultural interactions (such as in innovation diffusion,

and organisational change). Essentially, these perspectives deal with improvement efforts as a process of continuously restructuring quality management.

2.5.3 The implementation process as a structuration approach

Van de Ven (1992) defines a process as "(1) a logic that explains a causal relationship between dependent and independent variables, (2) a category of concepts or variables that refers to action of individuals or organisations, and (3) a sequence of events that describes how things change over time" (p.169). In the first part of the definition, process is used as an explanation of the variables. Observation of the process explains the underlying relationship between independent and dependent variables. This is known as process logic. As a conceptual category that refers to actions such as implementation, a process is operationalised as constructs and measured as an entity or as variables. As a sequence of events, the process describes a transition over time, and often represents unspoken incidences. Pettigrew (1997) defines the process as a "sequence of individual and collective events, actions, and activities unfolding over time in a context" (p.338). Considering these definitions, quality management implementation in this research is considered as a process that unfolds as to how and why an organisation transforms through intermediary steps flowing over time towards its objective. To understand how and why an organisation improves through such as implementation, the use of a process approach is valuable.

Van de Ven and Poole (1995) consider four types of process theory that have a rich and long-standing intellectual tradition, i.e. life-cycle, evolution, dialectic and teleology. Each type of process "represents fundamentally different event sequences and generative mechanisms" (p.511). The characteristics of these types of process theories are given in Table 2.2. The process of quality management implementation commonly aims to provide a transition towards an improved organisation. Every programme related to quality management implementation is designed as a plan of a sequence of actions towards an identifiable goal. Looking at, for example, the success of quality circles in continuous improvement, quality management advanced the importance of the involvement of all members of the organisation. During the operationalisation, improvement is usually achieved through a sequence of events, which are repeated but often discontinuous. The sequence of events includes goal setting, implementation, assessment and adaptation to set a new goal. However, specific conditions often occur in practice that influences the motives and event sequence of the implementation process. The motive is about social construction in the organisation and also envisages the end state of the process. This social construction approach, as proposed by Barley (1986), is appropriate for quality management implementation as this method has the significance of continually improving the quality concept, principles and system through improved actions. In this perspective, the implementation is likely to correspond to a teleology type of process.

Table 2.2
Characteristics of four types of process theory
Source: Van de Ven and Poole (1995).

Characteristic	Life-cycle	Evolution	Dialectic	Teleology
Symbol	Organic growth.	Competitive survival.	Opposition or conflict.	Purposeful cooperation.
Motive	Imminent programme, anticipated sequence, and compliant adaptation.	Natural selection among competitor.	Contradictory forces.	Social construction and envisaged end state.
Event sequence	Linear and reversible sequence of prearranged stages.	Recurrent, cumulative and probabilistic sequence of variation, selection and retention.	Recurrent, intermittent sequence .	Recurrent, intermittent sequence of goal setting, implementation and adaptation.
Generating energy	Anticipated programme regulated by nature, logic, or institution.	Scarcity, competition and commensalism.	Conflict and confrontation.	Goal enactment consensus on means cooperation.

In observing the structure-action relationship, Poole and van de Ven (1989) suggest four extended views of social construction: (i) acknowledging the deterministic aspect of structure-action, (ii) clarifying the connection between levels of analysis, (iii) harmonising structure-action through time, and (iv) building new theory for the structure-action relationship. The first three options emphasise the deterministic role of either action (of people) or structure. On one hand, people play dual roles in action and structure, while the organisation is passive. On the other hand, the specific characteristics of the structure govern rules and norms that in the long term, influences the attitude of people, and then influence action. An organisation, and its elements as a representation of the structural properties of a social system, is viewed as the medium and as the outcome. It is made up of rules that regulate acceptable conduct, but is also modified by the instituted actions of people. In dealing with the fourth suggestion of Poole and van de Ven (1989), structuration theory provides a conceptual explanation of

social interaction that links structure to action. According to structuration theory, as developed by Giddens (1984), the organisation is understood as both "the realm of action" and as "the realm of institution," which can be understood as the duality of structure. The developed structure influences the pattern of action surrounding the adoption while, at the same time, the structure is positioned contextually between stability and flexibility to change. Once the influence of technology adoption becomes apparent, attention shifts from the structural context to the social practices that surround the use of technology. In mapping this kind of evolution of structure, Barley (1986) developed a sequential model of the structuring process that is useful for technology-driven structural change. The sequential model of structuring is characterised as a strategy for implementing technology. With this strategy, the introduced technology is assumed to facilitate social dynamics that lead to structuring consequences. The role of a sequential model for this research will be discussed in Chapter 3 as an integral part of developing the conceptual framework for researching quality management implementation.

2.6 Towards the building blocks for implementation

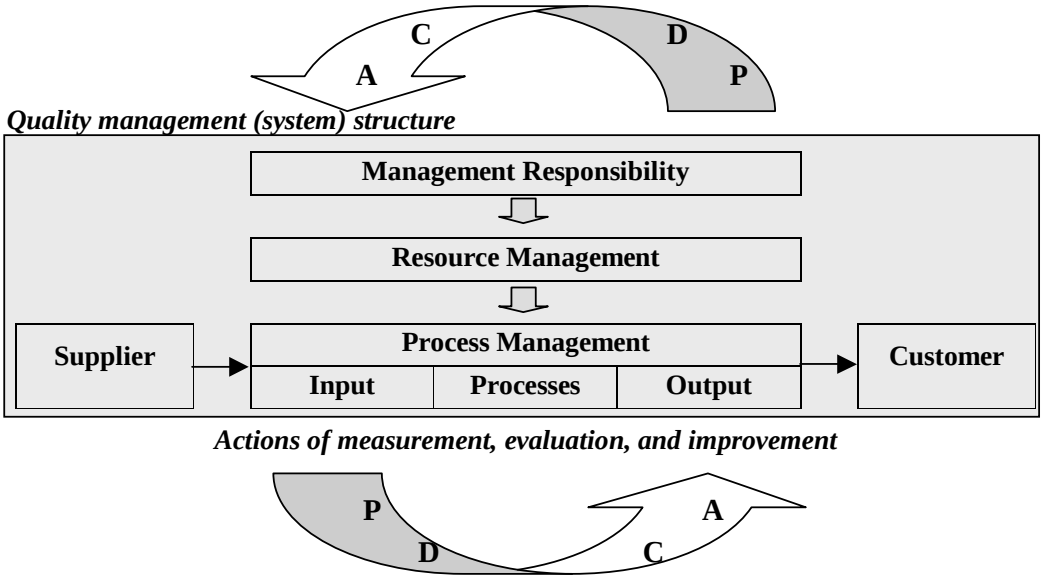
Contributions to developing the quality management body of knowledge, and in managing its implementation have been discussed. The advancements in the quality management orientations characterise the content elements. This advancement also applies to the importance of discussions on structure and actions, implications concerning the organisational model and strategy, and the role of performance measures in confirming an implementation outcome. These topics are brought in because implementation is considered as a process of change, in which incorporating dimensions of context and process is unavoidable. Attention to these topics is important in order to give a comprehensive view when analysing and discussing quality management implementation. Detailed discussions on these topics are provided in the following subsections.

2.6.1 Structure, actions, and continuous improvement

The progress towards the highest orientation of total quality management (referring to the Dutch quality model) can be observed through the development of structure (representing content) and the advancement of actions (representing process), as represented in Figure 2.11. In the view of the content, the quality management system is structured within three elements that cover top-management responsibility (including leadership, policy and strategy), resource management (including people and other resources), and process management (including input, process and output). These elements can be viewed vertically as covering the strategic level down to the operational management. The process management interacts directly (through input and output

relationships) with the external parties, i.e. suppliers and customers. The defined relationships with suppliers and customers illustrate the role of quality management in a supply chain. As a representation of action, quality management implementation involves three essential activities, i.e. measurement, evaluation and improvement. These activities cover internal (vertical) and external interactions. Every cycle of measurement, evaluation and improvement, such as the PDCA cycle by Deming (1993), leads to a new direction. For example, a functioning measurement, evaluation and improvement process builds a continuous improvement attitude that later has an impact on both structure and action.

Figure 2.11
Structure, actions and guidance for improvement



Standardising and documenting all the necessary activities for the three elements, including improvement actions, into a standard operating procedure is known as developing the quality management system. Within this formal system, continuous progress in the cycle of measurement, evaluation and improvement provides an internal assurance in managing quality. This idea has been adopted in defining quality assurance systems such as ISO 9000. To be effective, the quality assurance system requires certain actions that include a cycle of measuring, evaluating and improving. Continuous action in these cycles is the core focus, which is shared by other management methods such as business process re-engineering (Benner and Tushman, 2003). Such process management involves mapping, improving and adhering to a system. Accordingly, structuring the organisation and developing a strategy for prioritising, staging and changing does indeed influence the process management. By combining similar improvements as a continuous process, as a means for transforming an organisation,

quality management implementation can also be considered as an iterative or evolving process of transformation (Bounds et al., 1994).

2.6.2 Organisational model

Spencer (1994) characterises organisation models as mechanistic, organismic, or cultural in order to relate the required guiding principles for quality management implementation (i.e. quality definition, focus, goal, and philosophy of change) and the expected structure (i.e. structure, role of people). This characterisation is an extension of models (i.e. mechanistic and organismic) developed by Burns and Stalker (1961). The characteristics of the models are drawn by making distinctions within the aspects of quality definition, focus, goal, structure, role of people, and philosophy of change as shown in Table 2.3.

Table 2.3
Organisational models in relation to quality management implementation
Source: Spencer, 1994

Dimensions	***Mechanistic***	***Organismic***	***Cultural***
• Quality definition	Conformance to standard	Customer satisfaction	Constituent satisfaction
• Focus	Product & process	Organisation	People development
• Goal	Efficiency	Organisational effectiveness	Meet individual needs
• Structure	Chain of command	Process flow	Mutual adjustment
• Role of people	Passive & procedural	Reactive & self-control	Active & self-control
• Philosophy of change	Stability but learning from specialisation	Change and learning in adaptation	Change and learning is valued in themselves

With each model, an organisation performs quality management practices with a certain mechanism. In one aspect, the differences in the characteristics of the organisational models show a progress in terms of quality management achievement. For example, in respect of focus, the progress is shown by a change from standard conformance (in the mechanistic model) to constituent satisfaction (in the cultural model). Shifting from a mechanistic model to an organismic or a cultural model is considered as progress. However, the actual characteristics of an organisation are not always from one model. An organisation can be characterised as a combination of characteristics from different models, and this creates the possibility of defining a different model for an organisation. For instance, "Deming works, in particular, seems to graft mechanistic and organismic concepts into a coherent whole" (Spencer, 1994). A constructed organisation produces

detailed evidence such as actions and decisions that represent the dynamism of internal interactions, which are influenced by the developed contextual philosophy (Tidd et al., 1997). Considering improvement as the result of quality management implementation, then the characteristics of organisation are not static. Accordingly, the appropriate improvement strategy is also not static.

2.6.3 Implementation strategy

Literature discusses two basic strategies for improving organisational effectiveness through quality management, i.e. market-based (e.g. cost-quality approach, or customer satisfaction strategy) and resource-based (e.g. quality assurance strategy, or continuous improvement). The market-based strategy pays attention to the attractiveness of the competitive position, in which the realisation depends on the potential of the resources of the organisation. Improving effectiveness to the market often results in improving the internal capabilities. This implies that improving organisational effectiveness is strongly reliant on improving the quality of resources (Hammer, 1996). Since an organisation has specific characteristics of internal resources and external orientation, an organisation needs an appropriate strategy for directing efforts in utilising resources to improve organisational effectiveness. An understanding of organisational models is necessary to enable the development of the best strategy. However, what actually happens can occur in the reverse order. Based on a new vision and policy, top management may develop a strategy that implies a reorganisation. A well-operated strategy, for example in response to an external pressure, can change the internal characteristics of an organisation. In coping with this issue, quality management supports a balanced strategy between a market-based view and a resource-based view. An organisation can have a customer satisfaction strategy by developing an internal assurance system to support such a strategy.

In both types of strategy, elaborations on the quality management activities "need to be undertaken to develop a dependable knowledge base of the complex socio-technical interactions" (Ahire and Ravichandran, 2001). This means that for the implementation of quality management the technical and socio-cultural sub-systems need to be complementary and work synergistically. This is possible to achieve as long as the involvement of people is put at the centre in quality management. To integrate these subsystems, Fisscher (1994) developed the 'Total Quality Matrix' to represent the comprehensive concept of quality management. The matrix is represented as practices in four quadrants, as a combination of issues, i.e. system-technical and social-dynamic, and coverage, i.e. at operational and strategic levels of the organisation, as described in Figure 2.12.

Figure 2.12
The total quality matrix
Source: Fisscher, 1994

	System-technical issue	**Social-dynamic issue**
Operational - tactical level	Quality management system Control & monitoring techniques Management by facts/data Budgeting	Communication Motivation and commitment Teambuilding Quality training
Strategic level	Strategic orientation Planning and vertical deployment Division of task, responsibility and authority	Shared norms and values Dynamic of decision-making Leadership Employee empowerment External partnership

The matrix can be used for developing a strategy for managing the process sequence of implementation. An improved orientation often improves the coverage from the operational to the strategic level, or increases the complexity from a system-technical issue to a social-dynamic issue. The implementation strategy can be linear (or rationalistic), adaptive or interpretative (Johnson, 1987). The selection of a strategy depends on the nature of the strategy (such as decision, action or plan), the focus (means or ends) and the aim (goal, alignment or legitimacy) (Chaffee, 1985). Referring to the total quality matrix, an organisation in its early stages of operation prefers a linear strategy as a path and means towards the goal. This choice is usually based on rationalistic assumptions. In practice, however, uncertainty and the influence of context require a flexible rather than a rigid linear strategy. As a strategy, developing quality management involves the operationalisation of activities within all the quadrants in a continuous improvement approach. In the early stages of operation, an organisation sets its quality management implementation by focusing on the upper-left quadrant for at least two pragmatic reasons. In this quadrant, (i) the tools, systems and practices are well developed, and (ii) the achievement is mostly quantifiable. Based on these reasons, an organisation initiates the development of a quality system as an adoption decision. Through subsequent ongoing monitoring, adjusting and improving, the progress towards total quality management involves activities in the other quadrants.

2.6.4 The measurement of achievement

Quality management implementation is aimed at improving organisational effectiveness. Considering continuous improvement as the most important principle, then quality management implementation is a never-ending process. To help clarity, an

organisation needs to define intermediate targets, from which an organisation can develop sub-strategies for implementation. This is important because an implementation needs a target so that one can measure whether the process is as expected or not. A performance measurement system is useful in observing the implementation in terms of linking the strategy and the action (Schalkwyk, 1998). Organisations carry out performance measurements for various reasons; commonly (i) to characterise processes, resources and environments, (ii) to evaluate and determine the status with respect to planning, (iii) to establish baselines for comparison with future assessments that enable re-planning, and (iv) to support improvement by gathering information that helps to identify problems that enable one to track improvement efforts (Park et al., 1996).

In explaining the relationship between organisational efforts for improvement and the expected result, management theorists introduce rationalism, contingency, configurational and complementary approaches. In the rationalism approach, organisations are viewed as instruments designed to attain a goal (Scott, 1998). Based on this approach, the organisational performance, or effectiveness, is a consequential result of the designed characteristics of the organisation. Based on this rational approach, Reed et al. (1996) developed a strategy to guide quality management activities that relates orientations (external and internal) and performances (revenue and cost), as depicted in Figure 2.13.

Figure 2.13
Strategy in relating orientations and performances

	Customer orientation	**Operation orientation**
Increased revenue	Exploiting market advantage.	Improving product, process (and system) reliability.
Reduced cost	Improving efficiency in product design.	Improving efficiency in process of production.

The increase in revenue and reduced costs are mainly focused on mesuring operational performance. However, the effectiveness of operational activities is influenced by the contingency variables of the organisation. Contingency approaches view organisational effectiveness as resulting from fitting the characteristics of the organisation to contingencies that reflect the situation of the organisation (Donaldson, 2001). However, the influence of structure on performance involves a change of status. This transition potentially requires multiple interactions in a coherent pattern. This is the focus of the configurational approach. This approach assumes that the mutual dependency of coherent patterns increases the understanding of the organisational situation, and so uncovers the pattern of relationships leading to organisational effectiveness (Ketchen et al., 1993). The complementary approach; (i) considers the starkness of formulation, and (ii) introduces a sense of external and internal sources of advantage (Whittington and

Pettigrew, 2003). In this approach, complementarity is defined as "doing more of one thing increases the returns of another" (Massini and Pettigrew, 2003). Considering that the elements of the quality management content can be categorised into enablers and results, the achieved organisational performance is best explained by an accepted level of achievement as fully defined in the European quality award model. For this purpose, the Dutch Quality Institute has developed an assessment tool to measure the level of quality management achievement as discussed previously.

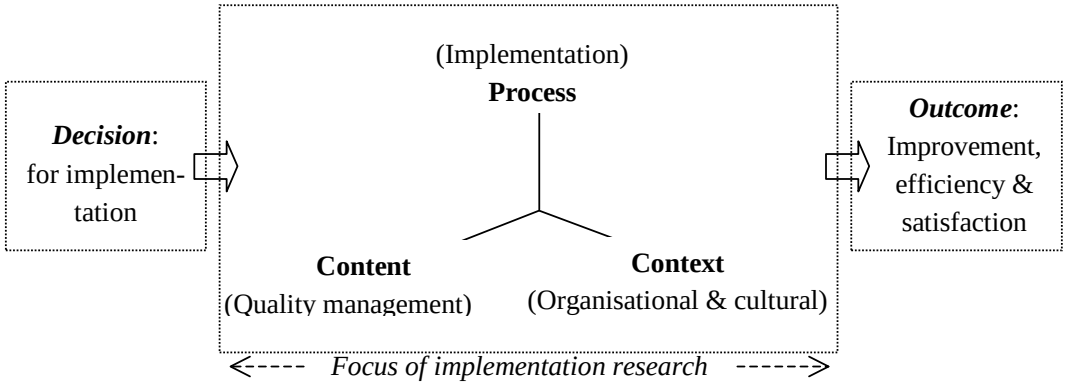
2.6.5 The building blocks for implementation

Integrating the dimensions of quality management implementation leads to a process approach to the construction of organisational structures and actions. This construction needs to understand the organisational characteristics, the adopted motivating initiative, and the guiding objective. The implementation of quality management is not easy. The difficulty is not only due to its broad coverage but also due to the non-existence of supportive conditions and context. These problems, however, have contributed to the enhancement of the theoretical development of quality management as discussed in the literature. These contributions suggest that the implementation in each organisation has to have its own distinctive approach and possibly needs specific dimensions to be considered in order to fit the organisation's conditions and requirements. The review of literature for developing a theoretical foundation in this chapter concludes with three dimensions of managing change as the substance of quality management implementation:

- Content of quality management that concerns the organisational components necessary for successful implementation including leadership, strategy and policy, people management, resources management and process management.
- Context of implementation that concerns the organisational and cultural backgrounds that influence implementation activities.
- Process of implementation that concerns transformation in recursive sequences of building knowledge, understanding, awareness, involvement and action.

The links between these dimensions, the decision for implementation, and the predicted outcome form the building blocks for the model of implementation of quality management as shown in Figure 2.14.

Figure 2.14
The building blocks for quality management implementation



The first decision in implementation is embedded in the initial decision behind creating the organisation, such as serving the customer, making a profit, providing employment, or other societal objectives. This initial decision defines the outcome criteria, and implementation occurs in between. From the implementation, organisational effectiveness is expected as a direct outcome, while the developed content of quality management characterises the organisational effectiveness as indirect outcomes. The focus of research is on implementation as an intermediate process that covers the dimensions of content, context and process. These building blocks will be used as the basis for the development of the conceptual framework.

CHAPTER 3 THE CONCEPTUAL FRAMEWORK AND ITS OPERATIONALISATION

3.1 Introduction

In Chapter 1, the selected strategy for researching quality management implementation is the case study approach. Subsequently a research design to link the empirical data from specific research questions to the desired closure is required (Yin, 1994). To address the research questions, different approaches to the investigation are possible, but the necessary step is developing a conceptual framework. Based on this framework, a case study protocol can be developed through detailed discussion of the research operationalisation. Chapter 2 discussed the theoretical foundations that resulted in the building blocks for quality management implementation. Three dimensions, i.e. content, context and process, are used to construct the building blocks. In this research, the focus is on observing how the quality management is developed and then adapted into actual practice through an implementation process. Apart from observing the dimensions of change, observing a sequence of implementation processes is expected to provide insights into the development, evolution, construction, and possibly the decline as time elapses. Considering this sequence as a process of change, as discussed in the previous chapter, a repetitive construction approach, based on Barley's (1986) "sequential model of structuring", will be the main basis in developing the conceptual research framework.

Based on the developed conceptual research framework, the details of the research operationalisation will be discussed. This research operationalisation considers the raised research issues as detailed expressions for guiding the observations of relevant subjects of quality management implementation. Since it comprises observable facts, the observation can occur in a particular scope of research known as the level of analysis (Miles and Huberman, 1994). In relation to quality management implementation, the research allows one to conceive and examine individual, group, organisation, and inter-organisational levels of analysis. The focus is on the quality management implementation process in an organisation, and the observations are divided into individual, group, department ones, and the relationships with other organisations.

3.2 The development of the conceptual framework

3.2.1 Defining the conceptual framework

Research needs a conceptual research framework as a basis for conducting observations, analysis and reaching conclusions. In this research, the conceptual research framework is defined as a set of variables and their relationships, by which a researcher focuses on

certain subjects in investigating an issue. Popper (1994) provides a critical review on the need for a conceptual framework as a fundamental basis for arguing. He argues that "the doctrine that truth is relative to our intellectual background, which is supposed to determine somehow the framework within which we are able to think; that truth may change from one framework to another" (p.33). He continues with a logical observation that a rational and constructive discussion is difficult if participants do not share a common basis. In contrast, however, different interpretative frameworks can be fruitful in bringing a colourful dialogue, which is often also challenging. A researcher must be aware of the importance of continuing sense-making discussions. As a solution, a discussion within overlapping frameworks is preferable, so that participants are allowed to agree on some points and to disagree on others. In this view, the overlap between frameworks provides an opportunity to incorporate streams of theory as conceptual background prior to designing the research. Researchers have the benefit of this discourse. Accordingly, for this research, developing a conceptual research framework requires consideration of the relevant concepts of the research subject and on the research methodologies related to quality management implementation. These considerations recall the importance of having detailed discussions on the basic assumptions and preconditions, and the fundamental principles of theories about research approaches, through which a conceptual research framework can be subsequently developed.

3.2.2 Assumptions and preconditions

The need to improve responsibility for external customer satisfaction or for internal efficiency is commonly considered as an initial and necessary motivation. To achieve and maintain this motivation, it is important to consider quality management:

- **As a standard of excellence**. Quality thinking implies a standard of excellence. However, achieving a standard of excellence is not always motivating. Accordingly, all efforts and the targets of achievements are usually designed to be realistic and achievable. This standard of excellence is often transformed into quality management principles, such as continuous improvement, customer satisfaction, and people satisfaction. Although these principles are actually diverse and may even create conflict in practice, still the interest and leverage of majority should be achieved.
- **As a reason to participate**. Accepting quality management principles as a standard of excellence, the process in quality management implementation is an objective-based advancement. This implies that the act of pursuing a standard of excellence is always progressive. Some progress is necessary for generating appreciation as a basis for creating participation. Accordingly, the sequence of implementation not only includes defining, doing, and improving, but also maintaining momentum for progress.

- **As consequences**. The consequences of pursuing a standard of excellence consistently, as the manifestation of participation, are to institute actual constructive and sustainable contributions.
- **As conditions**. Pursuing excellence, creating participation, and instituting contributions requires certain conditions. The required condition should be conducive in having positive effects on implementation. If this condition prevails then quality management is considered as a universal approach. In practice, the condition is strongly related to the challenge or pressure faced by organisations such as intense competition, complex customer demands, people pressures from what they experience as dehumanisation, and excessive stakeholder expectations.

These perspectives, underline the essence of 'doing the right things in the right ways at the first time and continuously' (Takala, 1999). This essence is regarded as the quality improvement concept. Implementing this concept into an organisation requires precise interpretations of the terms 'the right things' and 'the right ways'. The right thing is considered as the objective that generates the pressure for attainment as the basis in building motivation and realising actions. The right way has connotations in performing actions. It involves activities of measurement, evaluation and improvement as the core of process management (Benner and Tushman, 2003). In this regard, process management is a path of activities to follow that is guided by an implementation strategy. Process management is required to direct, to organise, and to control all efforts for improvement.

The implementation agenda includes attention to the following three expectations. These are considered as necessary preconditions for realising the quality improvement concept.

a. The organisational capability to characterise objectives as a datum for defining a successful implementation. This involves observing characteristics and conditions of customers, markets, competitors, regulations, suppliers, and stakeholders (including employees and investors). If an organisation is unsure of its objective, it is difficult to emphasise planning and goal setting.
b. The organisational capability to provide details about the conditions. This capability can reflect subjects of designing and organising. Organisations can make use of the quality award model as an ideal basis for self-evaluation of its conditions.
c. The organisational capability to improve. Realising this capability requires systematic feedback and improvement mechanisms. Consequently, the organisation requires supporting systems, such as information and communication channels, and employee education and training. Careful evaluation of improvements and self-experiences are useful for learning.

Building these capabilities is also the objective of quality management implementation. If these capabilities are not fully completely built, quality management implementation becomes the objective. Afterwards, a strategy and plan are developed, and the process

of change will typically follow. As the concept and principles could be new to an organisation, building the concept and principles becomes a continuous construction of all the quality management elements and the necessary conditions. Based on these assumptions and preconditions, a discussion on the research approach can take place done prior to developing a conceptual framework for quality management implementation.

3.2.3 Approach in developing framework

Eisenhardt (1989) considers that an ideal case study research should begin with no theory and no hypothesis to test. However, she admits that considering the a priori specification of the construct is important, and that conducting research without theoretical and conceptual bases is hard to achieve. In this research, theoretical and conceptual bases in the literature were reviewed, from which the building blocks, as an initial research framework, were developed in the previous chapter. From the various approaches for developing a conceptual framework for quality management implementation, there are three broad types of approach that aim to provide a logical coherence between prescriptive idea and empirical relevance (Yusof and Aspinwall, 2000a):

- Quality guru (consultant or expert) based. This approach is mainly derived from personal reasoning and normative judgement through experiences in providing consultancy to organisations in the process of adopting a quality management initiative.
- Award based. This approach is mainly for organisations seeking to be recognised as leaders of quality management excellence, and also for self-assessment of their quality achievements for further self-improvement.
- Academic based. This is largely developed through theoretically-based research and field research; generally it is aimed at providing contributions to concepts and theories in management, organisation, and culture.

Considering that the implementation of quality management is a multifaceted process, it is difficult to develop a framework based only on one of these types. The quality gurus essentially do not build an implementation framework, instead they advise "a prescription for companies to act" (Yusof and Aspinwall 2000), with the idea giving fruitful results after a period of implementation. Considering the arguments over the theoretical foundation in the previous chapter, the conceptual framework gives support to the award based and the academic based approaches. An appropriate framework will thus be somewhere in between and, at best, incorporate selected aspects of those broad types.

Developing a conceptual framework is one of the core factors in the success of implementing quality management (Flynn et al., 1994). Essentially, a conceptual framework forms a skeletal building as the basis for research, and this implies that the

framework can be a basic structure, method, or system (Bagozzi et al., 1991). There are minor differences between the quality management model and the quality management implementation framework, such as in the award-based approach, because quality management can be viewed both as a process and as an objective. To see the difference, it is necessary to study the type of questions. The question `what is quality management' refers to the model including concepts and elements, and the `how to' question refers to the implementation framework including concepts, relationships and overall ways to go forward. Frequently, a framework can be composed of questions of 'why', 'what', and 'how' as they represent the motive, vision or critical incidents (why), the strategy, plan and process (how), and the system or elements to be developed (what). The developed system also includes the structure to be built (what and how), and the action for improvement (how and why).

Considering the questions of why, how and what in terms of implementation, this research considers the three essential dimensions of change as put forward by Pettigrew and Whipp (1991):

- **Content of quality management**. The elements that are developed, which include leadership, strategy and policy, people, resources, and process management. The content also considers actions (how and why) under an orientation including customer satisfaction, people development, and business results.
- **Context of organisation and culture**. How and why the internal and external backgrounds of an organisation influence or shape, directly or indirectly, the process of implementation in developing quality management content. As a consequence, the developed quality management routines institute norms, values and behaviour as representations of context.
- **Process of implementation**. How a transformation is carried out through processes (initiation, adoption and adaptation) towards an expectation (e.g. total quality management). The main substance in this transformation includes generating commitment, participation and involvement.

These dimensions substantially show an attempt to see implementation as a process of repeatedly constructing (how) and examining the constructed (what and why as a reason to act). The link between these three dimensions, and the steps in quality management implementation, builds a conceptual framework for the implementation of quality management. Evaluation of the theories about the interactions among these dimensions is useful in defining the relationship between the dimensions. These include contingency theory and institutional theory, which are necessary for developing the conceptual framework for quality management implementation.

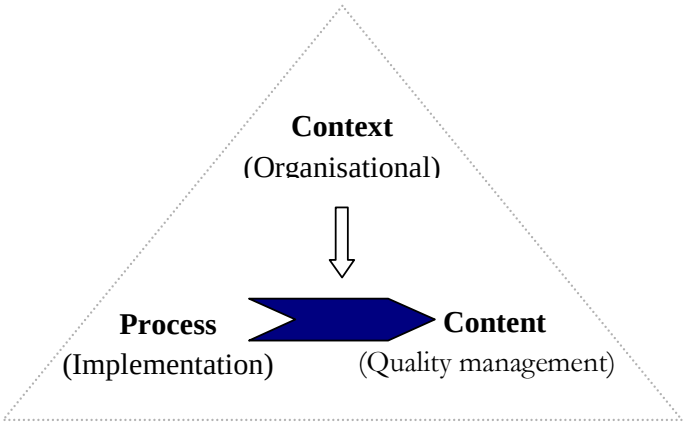
3.2.4 Developing the conceptual framework

The contingency theory

One of accepted theories for a process of transforming an organisation towards effectiveness is contingency theory (Drazin and Van de Ven, 1985). This theory is one of the major constituents in thinking about organizations that is widely recognised in studying the implementation of management or organisational improvement methods. The contingency theory is based on a contingent proposition, in which "a conditional association of two or more independent variables with a dependent outcome is hypothesised and directly subjected to an empirical test" (Drazin and Van de Ven, 1985, p.514). Donaldson (2001) gives an explanation for this proposition that explains an action-reaction relationship, e.g. *X* (the independent variable) has an effect on *Y* (the dependent variable). In this relationship, *X* may have positive or negative influence on *Y*, and thus there must be at least one variable (*Z*) that moderates this relationship. It is important not only to understand the definite relationship between independent (*X*) and dependent variables (*Y*), but also the existence of moderating variables (*Z*) that affect the dependencies between independent and dependent variables.

Contingency theory in organisation and management studies argues that there is no one best way of organizing or managing an organisation. There is always an alternative approach for different cases or contexts to make analysing an organisation feasible. Many improvements to management and organisation depend on contingency variables as expressions of the complex nature of the environment, risk of a strategy, or uncertainty of an introduced technology (Birkinshaw et al., 2002). Contingency variables moderate or condition the relationship between the content of the introduced method, the process of introduction and the expected result. In the organisational perspective, the observed relationship is between organisation and its effectiveness. "The essence of the contingency theory paradigms is that organisational effectiveness results from fitting characteristics of the organization, … , to contingencies that reflect the situation of the organisation" (Donaldson, 2001). In relation to quality management implementation, "[i]dentifying the circumstances or variables that have an intervening effect on the quality practice-quality performance relationship could provide both the academic and practitioner communities with potentially compelling answers to the question of why quality improvement programmes sometimes fail" (Fynes and Voss, 2002). The process of implementation determines the content (as an expected achievement), while the context is a moderating element in this relationship as depicted in Figure 3.1. In this view, the context, either supporting or against the process of implementation, is considered as a given contingency (the state of nature that often is assumed as a given) for the implementation (Saad and Siha, 2000).

Figure 3.1
Context as a moderating variable in quality management implementation



Organisational fit approaches

Contingency theory has been improved and criticised time after time on both theoretical and methodological grounds. There are two main issues related to the situation-dependence concept of organisational fit based on contingency theory:

- The organisation consists of interacting subsystems, dimensions and factors between which the definite relationships have to be determined as preconditions for achieving effectiveness.
- The organisation can be explained directly by means of characteristics of relevant contextual factors, in particular the environment and technology.

Drazin and Van de Ven (1985) criticise the concept of contingency theory in relation to these two issues, in which organisational fit is considered as the hypothesis that the object of design has to be consistent with the context in order to be effective.

Contingency theory usually comes into consideration in the sphere of a proposition that there are no straightforward generalisations about the implementation process in an organisation. In developing countries, for example, the introduction of quality management lags behind the situation in developed countries, and thus quality management can be considered as a 'newly introduced management technology'. In carrying out research into the introduction of this new technology, two relevant reflections are valuable (van Harten et al., 2002):

- The developmental stages lead to the conclusion that there is no well-defined quality management approach that fits every kind of organisation.
- The design of the quality management system will be dependent on the pre-existing external and internal situations or contexts.

Under a positivist determinism approach, the context is considered as an interfering factor that can be controlled, or as a controlled variable involved in a cause and effect relationship. In an interpretive approach, however, the context is considered as a

socially constructed reality of organisation in order to understand the social process of a transformation (Skok and Legge, 2002). This is an alternative view that may lead to an alternative approach. In this relationship, Drazin and Van de Ven (1985) consider three approaches for broadening the concept of organisational fit, i.e. selection, interaction and system, as described in Table 3.1.

Table 3.1
Selection, interactive and system approaches of organisational fit
Source: Drazin and Van de Ven (1985).

Features	Selection approach	Interaction approach	System approach
Main idea	Assumption	Bi-variate interaction	Consistency analysis
Definition	Assume a premise that underlies congruence between context and structure	Interaction of organisational context and structure affects the effectiveness	Internal consistency of multiple contingencies and structural characteristics affects the effectiveness characteristics
Test methods	Correlation or regression coefficients on structure	Context-structure interaction in MANOVA or regression equation on effectiveness	Conflicting contingencies create deviation from ideal type that leads to low effectiveness

The implementation of quality management as a new technology in an organisation needs an argument that matches one of these approaches to organisational fit. In the selection approach, the situation is assumed to determine the structure and then influence the effectiveness. In the interactive approach, the situation and structure can independently, interactively or congruently influence the effectiveness. Within the systems approach, there are multiple contingency and structural characteristics that find their most favourable convergence and progress to multiple characteristics of effectiveness. Considering the system approach in relation to the contingency theory for implementation represents progress in understanding the reality of the process. In this way, perspectives of flow and states of construction can be discovered from the interplay between content and context. Within this scheme of research, Govindaraju (2002) conducted research into enterprise system implementation. She discussed implementation within a straightforward flow of states of adoption decision, intermediate outcome, and improved organisational effectiveness, with the implementation processes between states being moderated by the critical role of actors (i.e. management, consultants, users and specialists) as part of the organisational

contingencies. In this case, however, the role of actors (e.g. management) can be interpreted as a contingency within contingencies.

The criticism of contingency theory continues especially in the alignment of technology and structure. Barley (1990) states that the contingency theory is primarily static and assumes a direct link between technology and structure. Iivari (1992) rationalises the situational dependence between situation (contingency), structures and effectiveness into various types that correspond to the operational meaning of organisational fit. Without these situation dependences, the concept solely concerns organisational fit and its effectiveness. This kind of hypothesis is grounded in a type of determinism held by decision theorists that favours positivist research approaches (DeSanctis and Poole, 1994). Certain effects are assumed predictable. This implies that once a technology is applied, it should bring productivity, efficiency and satisfaction gains to individuals and organisations. Certain properties of quality management and contextual contingencies have a significant role in the success of the implementation process. The problem is that there is no single observable pattern relating the role of the properties and contexts to the success or failure of implementation. The developed form of contingency fit, in a holistic perspective, is the configurational situation (Meyer et al., 1993). In addition, Pettigrew and Massini (2003) saw this situation as a multiple interaction between changes, in which the performance relationship is not based on pair-wise assumptions and is likely to be at least three-way. In this situation, a developed practice influences other practices in either positive or negative directions, and thus attention should be given to the interactions. This creates a challenge in considering a non-deterministic approach to research on implementation.

The institutional theory

In contrast to the decision-making theorists, institutional theorists consider technology as providing opportunities for people and organisations to change (Barley, 1986). The institutional theory, which is inspired by Giddens' theory of structuration, hypothesises that the influence of technology is a social process of construction that involves interactions between human actors and structural properties of organisations. Scott (2001) considers three pillars that support the process of construction, i.e. regulative, normative and cultural-cognitive. Particularly, "all social actors, all human beings are highly learned in respect of knowledge which they possess and apply" (Giddens, 1984). This implies that technology is recursively created, changed, used and institutionalised (by and often into people) to accomplish certain objectives. The focus of the institutionalist is more on the social construction of structures within human institutions using resources, interpretive schemes and norms embedded in the larger context (Orlikowski, 1992). People or organisations can consider the introduction or implementation of a technology as an action for improvement. In this view, the process of implementation is usually performed through motivation and rationalisation that

leads to action which, in the subsequent reflexive monitoring, may face unacknowledged conditions and unintended consequences. This requires attention to the social structure within technology and the social structure within action (Giddens, 1984). Both give attention to rules and resources as the basis for human actions or interactions (Orlikowski, 1992). DeSanctis and Poole (1994) propose an approach as a combination of the decision-making school and the institutional school, called the adaptive structuration theory. Using these theories, Ruel (2001) studied the development and implementation of office technology seeking clarity, appropriation and work process effectiveness that are moderated by actors and rules, which are considered both as object and subject.

The adaptive structuration theory has a tendency towards a patterned relationship (interactions) approach, in which organizational effectiveness is developed from a patterned relationship between the environmental and the organizational characteristics, as well as with the process. Orlikowski (1992) developed a structuration model of technology that considers technology as a product and medium of human actions in which interactions with organisational properties influence people as human agents.

The sequential approach of structuring

As has been described in Chapter 2, quality management implementation processes embed "continuous improvement" in steps (or flow) of socially repeated constructions that involve interactions between (or within) the content and the context. Quality management (as technology) is the product and medium of people and structures that interact with each other. Considering implementation as technology adoption and adaptation, this social construction view is "more plausible than [the view] that technology shapes organisational structure" (Barley, 1986).

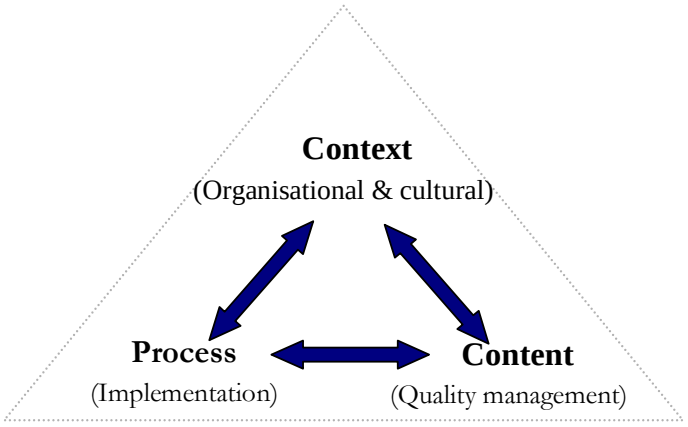
In implementing a technology in an organisation, Barley (1990) mentions two approaches for lining up technology and structure, i.e. extending macro-social forces and micro-social bottom-up suggestions. The proponents of the first approach argue that a strong interest can establish an ideology, through which the developed arrangements guide the design, selection and implementation of an introduced technology. In this way, the implemented technologies are those that are consistent with the established ideology. This approach limits efforts for significant change. The second approach considers the alignment of technology and structure through micro-social processes as a new technology is introduced. Later, structural changes go upwards. The perspective of the second approach is a resurgence of two streams of theory, i.e. the sociology of automation, and socio-technical systems theory (Barley, 1990). Both theories argue that technology adjusts the task, the job and the required skills, which initiates change and generates demands for structural organisational change.

Both approaches are needed and complementary, at least for two reasons (Scott, 1990). Firstly, the contextual elements of an organisation influence the design of the

organisation and the technology, and secondly any implemented technology has intended and unintended consequences that affect the activities of an organisation. Accordingly, referring to Giddens' structuration theory, "it is difficult to see how any social structure can be produced or reproduced except through ongoing action and interaction" (Barley, 1990). Known as sequential approach of structuring, this approach is a beneficial strategy for investigating empirical social dynamics occasioned by new technology (Barley 1986, and Pettigrew 1997).

Integrating the two approaches, in lining up technology and structure in research into quality management implementation, is attractive since the interplay between macro and micro social dynamics is readily observable. Following Barley's (1986) sequential model of structuring, the implementation process is regarded as the "realm of action", and the content is regarded as the "realm of structure", while the context takes a role not only in mediating, but also in motivating, conditioning, and regulating the structuration. In this scheme, a successful construction in one step influences the context of subsequent construction processes, which can be either supporting or restricting. In many cases, the process starts by considering quality management as a newly introduced method or tools for a specific accomplishment in a given contextual condition; such as the organisational culture and structure, or pressure from the environment. This newly introduced method is seen as a new plan for the organisation that enables implementation to proceed. After a period (or process) of implementation, the organisation and people learn what is progressing properly and what is not. As this involves social dynamics, the learning impacts the (construction of) the related context. This new context may create new contingencies, and then restructure the subsequent process and content of quality management implementation. From this consideration, the implementation process, as a repeated construction, puts the context not as a mediating variable, but as both object and subject through interactions with content and process. This argument leads to the reformulation of the moderating effect of context (as in Figure 3.1) into inter-related influences in structuring between content, context and process as shown in Figure 3.2.

Figure 3.2
The conceptual framework for quality management implementation



3.3 The operationalisation of the research

3.3.1 Introduction

Yin (1994) states that every case study cannot be completed exactly as planned. Minor or major changes are often inevitable. If a change occurs, the researcher needs to refer back to the research objective. This indicates the importance of research preparation prior to conducting a field case study. In research preparation, two activities are frequently suggested, i.e. improving the skill of the investigator and developing a case study protocol. Improving the skill of the investigator is mostly focused on improving the capability to grasp the main issues on flexibility, on asking question, listening, and ignoring bias, while some researchers attend training sessions and workshops to improve their skills. A case study protocol is a set of necessary instruments, procedures and general rules to guide a researcher in carrying out field research and to increase reliability. A case study protocol is essential, especially for a multiple case study research project. In developing the case study protocol, a discussion of the details of the research operationalisation is required.

As discussed in Chapter 2, quality management implementation involves three dimensions of change, i.e. content, context and process. The discussed enabling elements of the EFQM model characterise the elements of the dimension of content. The discussion continued by emphasising culture, individuals and the organisational-related environment in characterising the dimension of context. Similarly, the implementation decisions and actions characterise the dimension of process. Regarding the relationship between these dimensions, as constructed in Figure 3.2, the research operationalisation will be discussed in the following subsections. This discussion is expected to lead to a research framework as a basic reference structure for conducting

the field research. To guide the discussion on research operationalisation, the important research issues need to be identified. A detailed elaboration of the research issues is summarised in the case study protocol, which is described in Appendix A.

3.3.2 The content: quality management

Research operationalisation in the dimension of content includes: (i) a review of the elements of the EFQM models, (ii) a detailed discussion of research variables, and (iii) an assessment of quality management achievement.

The review of elements of the quality management model

The elements of content are defined based on elements of the EFQM model. Even though the focus of this research is on elements of enablers, it is also useful to include an evaluation of the relationships of all the elements as a complete constructed model. Since the EFQM model is developed for the European situation, it is necessary to first review whether the elements of the model can be used in non-European countries. This review is important prior to using the model in a country that has no quality management model such as in Indonesia where, at the same time, many of the introduced concepts and methods influence quality management practices. The elements of the EFQM model form a quality management construct model as described in Figure 2.2. The effectiveness of these elements and the influences of each element on the others in an established model (such as the EFQM model), implies external validity to the construct. As a confirmation of the empirical appropriateness, reviewing the relationships between elements of the construct implies an internal validation of the construct (Ping, 2004). Based on this consideration, the following research issue is developed:

Research issue 1:
To investigate the relationships between elements of the EFQM model to assess its appropriateness as a quality management model in the Indonesian situation.

Ping (2004) states that specifying and testing a theoretical model involves steps of: (i) defining constructs, (ii) stating relationship between constructs, (iii) developing measures of constructs, (iv) data collection, (v) validating the reliability of the measures, and (vi) validating (reviewing) the construct. In this research, the variables and their relationships are defined based on the established model developed by the EFQM (EFQM, 2003). This directly implies an external validity in defining and stating the relationship between elements of the construct model. For the empirical evaluation of the internal validity of the measures, sequential activities will be performed. Firstly, measurement items will be developed, as described in Appendix B, based on the developed items for assessing achievement as in the Dutch Quality Award (developed fully based on the EFQM model). For each item, the observation is adapted to

individual interpretation (through a questionnaire) on a "to what extent the item should be" at the organisation. The responses are classified using a Likert five point scale as a quantification of subjective interpretation. The Likert-style rating scale is the most common approach when asking respondents how strongly they agree or disagree with a statement (Saunders et al., 1997). The respondents involved are selected from employees who have experience with quality management programmes and/or training and education which can be considered equivalent to such experience.

Several of the developed items represent a variable; in this case the elements of the EFQM model. The Alpha-Cronbach method can be used to assess the internal validity of items in each variable (Dunn-Rankin, 1983). The Alpha-Cronbach coefficient measures the consistency of the answers from respondents on each item that forms a variable. The coefficient is formulated as $\alpha = kr\{1+(k-1)r\}^{-1}$, where parameter *k* is the number of items in each variable, and *r* is the average of correlation values among items. The values of alpha coefficients are between zero and one. A high value of the coefficient indicates a high consistency among the items of a certain variable. Literature indicates various thresholds for acceptable consistency, for example Ahire and Ravichandran (2001) consider threshold values between 0.4 and 0.7. The reliability of a variable does not guarantee that all the items in it are also reliable. Accordingly, researchers occasionally also consider the internal validation of each item by calculating the item's Pearson *r* correlation to the total score (Dunn-Rankin, 1983). The correlation value is compared to a critical value at a certain level of significance (usually noted by α in a subscript). A higher value than the critical value, $r > r_{\alpha}$, confirms the validity of the construct.

Finally, the review of a construct will be achieved through an analysis of correlation. Unlike the regression analysis that theoretically implies to a degree of influence in a cause and effect relationship between variables (i.e. elements of the EFQM model), analysis of correlation focuses on measuring the degree of relationship between variables. The analysis of correlation assumes that the variables are dependent with a linear relationship. The analysis focuses on evaluating the degree of the relationship, whether it is strong or weak (Saunders et al., 1997). Such an analysis views only the degree of the relationship between variables regardless of their roles as either dependent or independent variables. Overall, strong correlations between variables reflect an empirical appropriateness of these variables in constructing a quality management model, which however should only be applied to the studied organisations. A canonical correlation coefficient is used to measure the degree of the relationship because the variables contain multiple items (Hair et al., 1998).

The elements of quality management content

Cumming and Worley (1993) introduce the concept that strategic organisational change is a process of finding an alignment of an organisation's features, including structure,

people, resources, technology, and the organisation's strategy. This alignment also includes a formulation of the arrangements among these features. How well the organisation manages this alignment and its process determines organisational effectiveness. Managing this alignment through the implementation of quality management covers features of the organisation known as quality management content. Table 2.1 in the previous chapter showed that literature considers certain elements to be critical success factors in quality management implementation. Assuming that the first research issue supports the use of elements of the EFQM model for describing the quality management content in the Indonesian situation, then the features of quality management elements will include leadership, policy and strategy, people management, resource management, and process management.

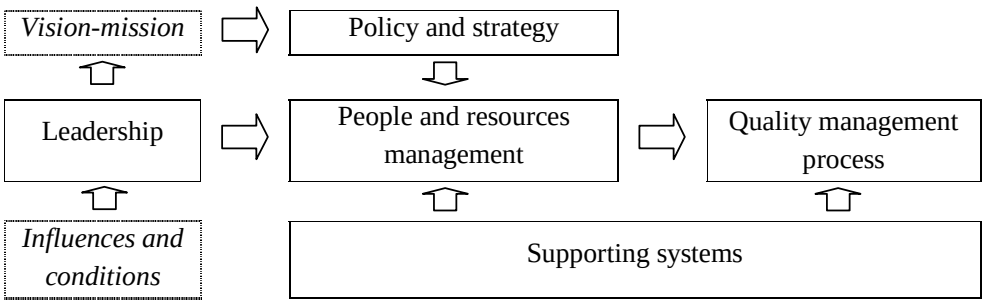
- **Leadership**. Leadership is the ability (of an individual, or an organisation) to formulate challenges and opportunities into objectives, and to lead the necessary efforts towards the objectives. The roles of top management are often regarded as explicit representations of leadership. As it formulates objectives, top management commitment is often considered to be the first important initiative in leading in the right direction. Commitment not only represents external relationship; it forms a basis for people thinking that generates internal energy and activates the mind (Argyris, 1998). As it leads efforts towards the objectives, leadership is concerned with authority and the responsibility of tasks. Authority and responsibility often figure as a source of power. Physically, power can be considered as control over both direction and force; psychologically, power can be considered as an influence on participation and involvement. If this influence can be handled properly, it will inspire respect, trust and loyalty.
- **Policy and strategy**. As it has to lead efforts towards the objective, leadership needs to formulate organisational visions, objectives, or more simply, the desired end-state of the organisation. Afterwards, visions and objectives can be organised into an operational plan through policy and strategy. In relation to quality management implementation, policy is a guide for integrating quality management principles into planning processes, while strategy is a way to communicate and socialise the objective in order to make the plan effective throughout the organisation. In terms of the elements of quality management content, policy and strategy cover issues of people, resources and process.
- **People management**. Management always concerns people. The important essence of management regularly deals with human character and behaviour. From a quality management perspective, people management regards two objectives, i.e. to realise the potential of working capability, and to engender communication, participation, trust, teamwork, empowerment, personal development and pride. Within this perspective, people management can follow three stages, i.e. (i) people identify themselves as consistent with explicit characteristics of the organisation, and are

willing to accept values since 'it is the right thing to do', (ii) people adopt and internalise the values, and (iii) people are motivated to become involved in achieving objectives. The first stage forms attitudes, the second stage forms behaviour, and the third stage forms loyalty in terms of willingness to participate, involve and cooperate with little or no supervision. To achieve these conditions, an organisation needs to create a supportive climate as an essential part of people management.

- **Resources management (and supporting system)**. The resources of an organisation cover material, budget, facility, and information. Since all resources need specific-supporting systems, managing resources can often be observed through the ways used in managing these systems. Managing resources is concerned with organising how resources are measured, collected (or provided), analysed and used throughout the organisation. Resources management is aimed at improving capacity and capability to support process management.
- **Process management.** From a quality management perspective, the managing process is described as an arrangement of the necessary elements for creating quality (in all respects), and as a means to allocate and coordinate constituent activities of typical processes of quality management. The related processes are systematically designed, managed, and innovatively improved. Accordingly, Benner and Tushman (2003) mentioned the critical importance of measuring, improving and synchronising the improved processes.

These elements of the quality management content form the constructed model as depicted in Figure 3.3.

Figure 3.3
The constructed model of quality management elements



Normatively, the relationships (arrows) in Figure 3.3 also represent a process in achieving effectiveness in quality management implementation. In this case, a high achievement in leadership implies high achievements in policy, strategy, people management and resources management, which also imply an achievement in process management. Consequently, these achievements will characterise the success of

enablers that are also assumed to provide positive results. Based on this constructed model and consideration of its elements, the following research issue is developed.

Research issue 2:
2.a. To investigate how leadership formulates the desired end state of an organisation in its vision, policy and strategy, and as an explicit (action) plan for managing quality.
2.b. To investigate the influence of the developed policy, strategy and plan on resource and people management in order to perform a quality management process.
2.c. To investigate the effectiveness of supporting systems in the operationalisation of managing people, resources and process.

The elements and variables used for observing quality management content are summarised as follows:

Elements	Variables
Leadership	Role of (top) management, clarity and orientation of vision, commitment, authorisation in decision-making
Policy and strategy	Quality policy, implementation strategy, plan, consistency of purpose (as in quality management principles)
People management	Employee involvement and empowerment, teamwork, cooperation, satisfaction
Managing resources	Information- and communication-related resources, technology- and production-related resources, financial-related resources, employee-related resources
Process management	Role of quality department, structure, (continuous) improvement activities, cross links of departments, teamwork, communication, applied tools and techniques
Supporting system	Promotion and reward systems, maintenance and engineering systems, financial system, suppliers system, tools and techniques

The level of quality management achievement

The criteria for assessing achievement level tell us little about the dynamic process of changing an organisation towards a state of effectiveness. Attainment shows the level of achievement, in terms of criteria, at a given point in time. Thus, such a success does not guarantee continuation of this attainment over time (Flynn et al. 1994). However, such

an assessment is useful in exploring a process of change that has been conducted so that it forms a foundation to go further. Criteria such as in the Dutch Quality Award model can be used to assess achievement and to define the present condition in terms of quality management implementation. The main source of facts and data for this measurement is interviews using the detailed list of variables and attributes as described in Appendix F.

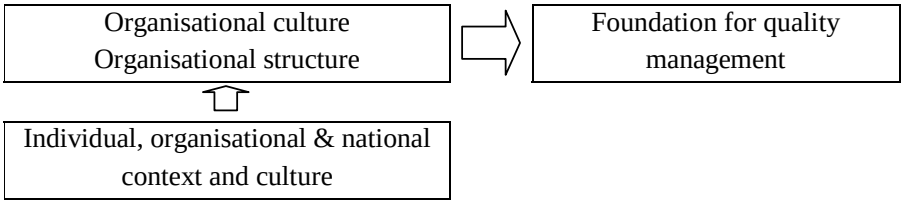
3.3.3 The context: culture and structure

Culture is internalised into individuals. Internalisation of beliefs and values provides no guarantee that they are right; it can only be assumed that they may be right. With an internalised culture, individuals behave consistently. As time progresses, individuals also search for harmony within their beliefs and values. When certain behaviour is introduced, the held beliefs and values can become the source of a problem or conflict (Cartwright, 1999). As the set of beliefs and values of an individual, culture can make individuals either exclusive or inclusively supportive. Since people in an organisation differ, interpersonal relationships are dependent on implicit expectations, intentions, norms and values. To bridge gaps in mutual understanding and tolerance, it is important to make the relationships explicit. However, as is common in the process of quality management implementation, exhortations and explicit persuasion often create strong opposing feelings (Deming, 1993). This will especially happen if the process de-emphasises the held relevant beliefs and values. People can conform to certain behaviour, but it is not easy to institute a single system of beliefs and values that is acceptable to all. The characteristics of an individual in an organisation influence the acceptance, internalisation and customisation of newly-introduced concepts or practices of quality management. In searching to synchronise people, management is effective when it has trust built on its apparent credibility, composed of attitude, wisdom and competence.

Prior to the implementation of a new technology such as quality management, an organisation needs to understand its present culture and structure in order to determine the supportiveness of its conditions of context (McDermott and Stock, 1999). As part of behaviour, an acceptable routine in an organisation expresses the held (or developed) beliefs and values of its members. Such beliefs and values have been internalised and customised in line with the objectives of the organisation, and form a basis for actions in the form of organisational culture and structure. In this view, quality management is viewed as a new way of looking at things that require the participation of all people to contribute to the search for the best strategy (Dean and Bowen, 1994). This implies that the implementation of quality management has the potential to be congruent with structuring the culture (as a context) and structure (as part of content). What is required is an in-depth look at the way things are done or changed, why most people do something in that way, and how they can improve. These questions are crucial in easing internalisation. Through this mechanism, implemented concepts and principles of

quality management can be considered as a new culture, and thus as the cultural transformation of people and (elements of) the organisation. In understanding the variations in background and conditions in a process of change, there can be no general best way of learning in such a transformation. In this respect, Hofstede (1999) suggests using the shared-practices instead of the shared-values because the same objective can be achieved through different directions in the practices. The determination that results in specific actions to improve the quality in an organisation is known as quality awareness. Quality awareness can come into attributes as the combination of loyalty and commitment, which in practice is known in the form of responsibility. Awareness and sense of responsibility for improvement are the necessary foundations for quality management. These contexts of people and organisation form the following constructed model.

Figure 3.4
The constructed model of context of individuals and organisation



Based on this construct, the following issue for research is developed.

Research issue 3:	
3.a.	To investigate the influence of organisational contexts on the formation of organisational culture and structure.
3.b.	To investigate the formation of a particular organisational culture and structure as a constructive foundation for quality management.

The variables for the operationalisation of the context of implementation are summarised, mainly based on variables extracted by Hofstede (2001), as follows:

Scope	Variables
National culture	Power distance, collectivism-individualism, uncertainty avoidance, masculinity-femininity, time orientation.
Organisational culture	Process-result orientation, employee-job orientation, parochial-professional, open-close orientation, loose-tight orientation, pragmatic-normative orientation.
Organisational formation	Degree of formalisation, degree of centralisation.
Other influencing elements	Conditions of production, employee, and employment.

3.3.4 The process: implementation decisions and actions

In general, implementation starts with the acceptance of a new idea that leads to generating management commitment. Taylor (1996) identifies management commitment as a prerequisite for quality management implementation at the initial stage. He also observes that quality management implementation is derived predominantly from functional specialisation, such as production or quality assurance, and that only a few organisations start with a holistic view of quality management. To orientate the commitment towards organisational needs, a process of diffusion of the idea is required. The diffusion from one function to others often fails for at least two possible reasons. The first reason is the uniqueness of a function (Wilkinson and Witcher, 1993). Secondly, there is often not enough preparation and this leads to imprecise plans, low appreciation, and thus low acceptance (Ahire and O'Shaughnessy, 1998). Reflections on attractive expectations and pressures (or challenges) from significant events create the required need for implementation. These events can consist of critical incidents in terms of initial reactions and decisions in response to the event. These reactions and decisions are substantially determined based on management interpretations. The synchronization of events and incidents is expected to continue the sequence of initiation, adoption, and adaptation in quality management implementation. This argument leads to the following research issue.

Research issue 4:	
4.a.	To investigate how motivation building initiates a decision to implement.
4.b.	To investigate how top management makes influential decisions and actions in achieving the reorientation of strategic and operational issues.

A successful initiation process is constructive for adoption and adaptation. Researchers have noted the link between effective adoption and certain management practices in

quality management. Oakland and Waterworth (1995) argue that implementation is more than a single step of installing systems since it involves fundamental factors in structure and culture. In relation to people, teamwork and involvement, which are combined with the sense of process ownership, have been identified as the key enablers for the implementation effectiveness (Kennerfalk and Klefsjo, 1995). In this process, the reorientation of all members of an organisation, characterised as creating awareness, is crucial prior to adoption and adaptation of quality management principles and practices. Literature discusses principles that govern the successful reorientation necessary for change (Hardjono et al. 1996; Abraham et al. 1999). Based on these principles, strategies and approaches for organisational transition can be explored. In terms of scope, four strategies for change can be characterised, i.e. fine-tuning of activities, incremental adjustment, modular transformation, and corporate transformation (Nadler 1989; LaMarsh 1995; Dawson et al. 2000). In general, these strategies are crystallised into the following pair of two-dimensional perspectives:

- The first dimension describes the originating circumstance of change, which can be classified as the fundamental issue. In most cases, the change relates to the entire organisation. It is known as a strategic change that reconstructs the current systems, and occasionally may develop almost a new organisation.
- The second dimension describes the ways of introducing change in relation to reasons. A change can be in response to recent, or in anticipation of future, opportunities and challenges. This change relates to jobs or activities that need improvement. This second type of change is known as an anticipatory change.

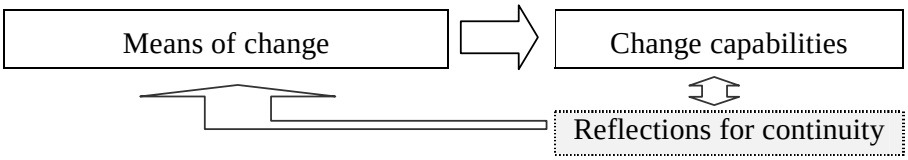
A change can be either strategic or anticipatory, or each in turn over time; both rarely occur concurrently. Prior to executing a change, an organisation needs to evaluate its characteristics in fitting its challenges and opportunities, and also their implications. In a process of change, people may need to improve their practices, and often also their attitudes regarding (new) requirements. Since quality management implementation affects the organisation as well as its people, the change requires a series of processes. This kind of change process is also known as reorientation (Nadler, 1989). An effective reorientation needs guidance (in terms of vision, policy, strategy and plan) that assembles and converges the required characteristics in respect of performance objectives, organisational structure or process, and management style. This guidance is deployed into organisation through the following means:

- Introduction, such as education and training, to develop the skills and knowledge that motivate people given a sufficient degree of awareness.
- Communication and diffusion to reach a common holistic understanding.
- Collaboration and intervention to create willingness for involvement.
- Direction and coercion to generate energy, to provoke contributions and to create participation in performing actions and decisions.

An established organisation is often resistance to change. Accordingly, an organisation needs to develop a change capability by creating sufficient concern to start, and energy to execute, change (Hardjono et al., 1996). Developing the change capability is possible through a combination of means of change. Vaill (1993) indicates the need for visionary leadership as an agent of change to transform and integrate all the visions of stakeholders. Effective communication is required to refine the circumstances and make them relevant and concrete for stakeholders. The benefits of communication are that they (i) build and strengthen shared values and beliefs about what is important, (ii) minimise barriers, (iii) assist in substantiating and reconstructing problems into opportunities, and (iv) generate ideas (Kouzes and Posner, 1995).

Change and stability are hardly able to co-exist when it comes to fundamental transformation. In this respect, some authors have advocated the continuous improvement process that transforms constructively in the sense of stability (*kaizen*) known as incremental change (e.g. Imai, 1986). Other authors have promoted re-engineering which often typifies a radical change (e.g. Collins and Hill 1998). In both types of change, a change process does not only relate to structural transformation, but also to cultural transformation (Bounds et al., 1994). Changing the culture can be initiated by changing the behavioural patterns of people and the organisation. Again, leadership is often expected to guide this process of change. In this case, leadership requires a capability for managing social relationships to demonstrate that the organisation is prepared for learning, proactive in creating favourable conditions, and thus maintains the continuity of change. In relation to research issue 4, it is important to observe how the means of change influence the formation of change capability in observing the action-decision relationship. Observing the triggering effects of events or incidents in terms of implications and responses is a considered approach. Considering the process, the means and capability for change, the following model is constructed.

Figure 3.5
The constructed model of change process.



Based on this constructed model, the following research issue is raised.

Research issue 5:
5.a. To investigate how awareness and willingness create participation and involvement.
5.b. To investigate the sufficiency of the participation and involvement of people to execute the process of change in quality management implementation.
5.c. To investigate how the developed quality management system supports organisational learning.

The variables and attributes for operationalisation of the implementation process are summarised as follows:

Variables	Attributes
Initiation	Motivation development due to decisions or pressures about investment, change of ownership, market influence, requirement to meet standards and specifications. Creation of awareness.
Adoption and adaptation	Action, decision and impact on the organisational structure, system and procedure, education and training, standardisation and certification, etc. The role of internal elements (i.e. top management, quality department), and the role of external support (e.g. consultant).
Means of change process	Education, training, communication, diffusion, collaboration, intervention, direction, and coercion.
Developing change capabilities	Linking activities to objectives, generating involvement, moving across departments, enunciating improvement values, learning and continuity, roles of feedback for improvement.

All of these identified elements, variables and attributes of the operationalisation of the content, the context and the process will be combined to form a research protocol. This protocol will be a basis for developing the instruments for field research as described in Appendix A, while the supported measures are in Appendices B to E.

3.3.5 The research framework

Referring to the conceptual framework in Figure 3.2, the dimensions of content, context and process are central to the implementation of quality management. These dimensions

interact with each other following Barley's sequential approach of structuring (Barley, 1986). Among these dimensions, the developed content and context are closely related to significant events and conditions, which then influence process the dimension. Significant events and conditions also influence initial decisions for implementation. Finally, the implementation is intended to have effects on outcome in terms of continuous improvement, efficiency, and customer and people satisfaction as feedback to a decision for further implementation. The whole set of mechanisms lead to the research framework for quality management implementation as shown in Figure 3.6.

3.3.6 The arrangement for the field research

The previous section resulted in a research framework to link the research objective presented as research questions to the field research. Prior to conducting field case study research, it is necessary to determine: (i) the selected organisation as a unit of analysis, (ii) the source and the availability of data, (iii) the data collection approach, and (iv) the data analysis approach. The domain of this research is organisations in a process of quality management implementation. Selection of a case organisation is based on two main criteria. Firstly, the organisations must face a strong need (or pressure) to implement quality management, especially in their efforts to develop or improve inter-organisational cooperation. Secondly, the organisations must have implemented a quality management system or tools, such as ISO 9000, in order to enable the researcher to observe the processes of implementation and the impact on the organisation. Selected organisations were approached through formal contacts by sending proposals, and three companies were selected for observations that met the selection criteria.

During implementation, "best quality practices evolve over a considerable period of time within companies and different challenges are faced at different points in time" (Fynes and Voss, 2002). Observing the selected implementation cases, each of which lasts a specific period of time, is often restricted by the different implementation status at the time the research starts. This situation influences the source and availability of data. Alternatively, observations of the 'how' and the 'why' of the implementation processes can consider past data as complementary confirmations of existing implementation processes. Due to the limited knowledge of context in the past, findings from past data observations are difficult to generalise because of the lack of nuances on how the process had been carried out. Any generalisation is restricted to theoretical (assumed) propositions on (elements of) the content, and to a limited extent of the role of context.

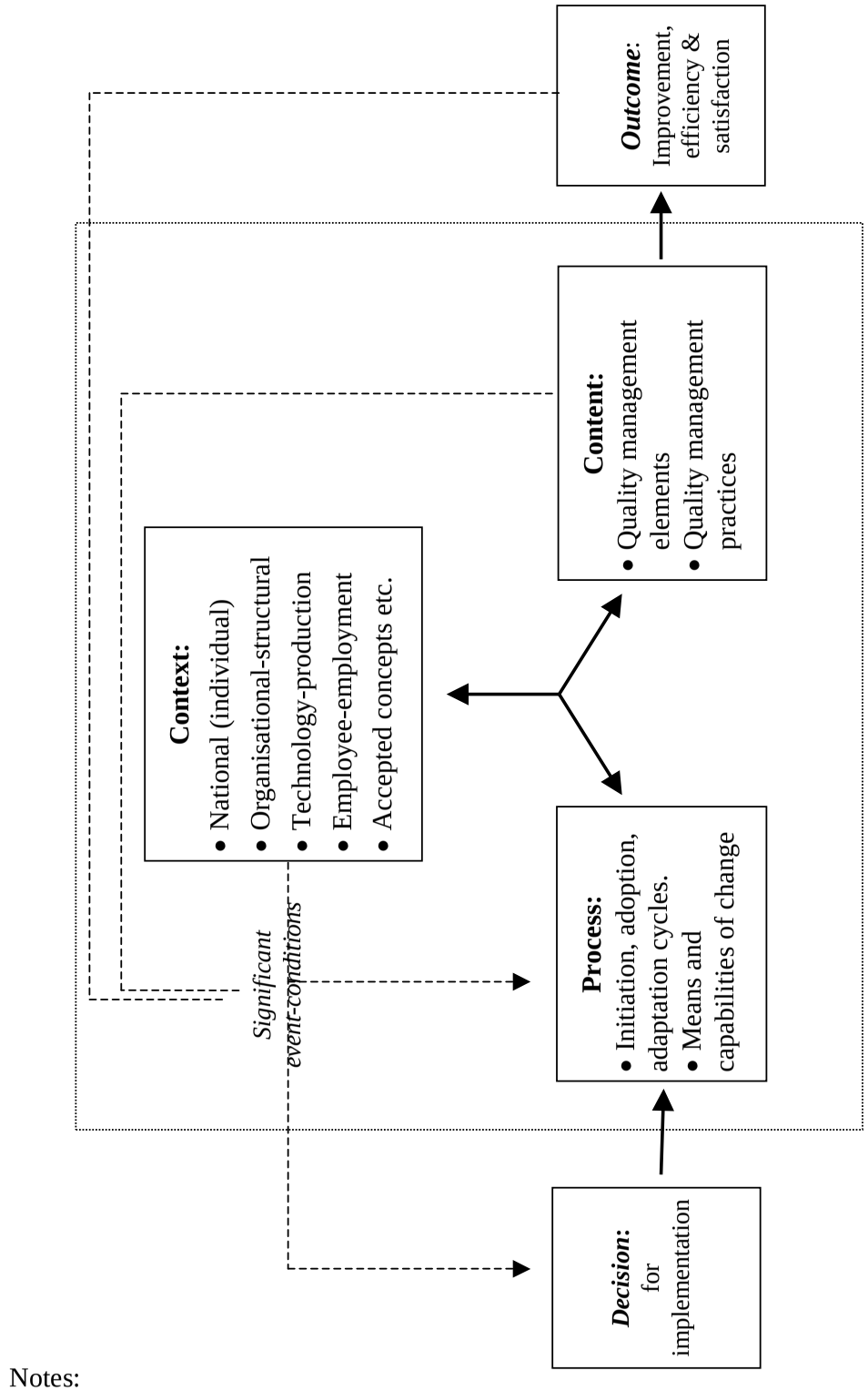


Figure 3.6. The research framework

In case study research, Yin (1994) characterises three principles for data collection, i.e. using multiple sources of evidence, creating a case study database, and maintaining the chain of evidence. The use of multiple sources of evidence means that the evidence is from two or more sources but come together with the same set of facts. Evidence used in case studies may come from six sources, i.e. documents, archival records, interviews, direct observations, participant observation, and physical artefacts. A case study database is a formal construction of the evidence. Commonly, case study data are presented in a case study report as a database. The database includes case study notes, case study documents and tabulated material. Maintaining a chain of evidence is important in explicitly linking the research questions, the collected data, and the conclusions.

This research uses multiple sources of evidence that were collected from documents, formal discussion (workshops with senior management), interviews, survey (questionnaire) and direct observations. In this research, a case-study database was developed containing the following data items:

- Copies of documents that provide background information on organisations and implementation processes in the past and present.
- Interview scripts (as notes from recorded interviews with individuals).
- Answers to the semi-structured questionnaire.
- Case-study notes about communicated and observed information obtained by direct observation.

From these sources of data, the interviews were the main source for gaining evidence of implementation processes and their impact on the organisation. Questions for the interviews were tailored according to the job description of the respondents. Respondents were asked to describe their recent job in the organisation, their observation of the existing quality management practices, impacts and expectations, their involvement in the process of implementation that underlines events, their role, and their impacts or consequences. Each interview lasted for about one and a half to two hours and was tape-recorded. Triangulation was undertaken after interviews. The fieldwork was executed from January 2000 to August 2002.

Data analysis consists of examining, categorising, or recombining, the evidence (Yin, 1994). As case-study analysis, this research used a pattern-matching logic, which compared empirically-based patterns constructed from collected facts and evidence with the predicted one developed in the previous section (research issues). In this research, the emphasis is on the implementation process, which is related to the influencing factors and the outcomes. If the patterns coincide, the case study's internal validity will be strengthened. In this research, multiple case studies were conducted by examining the evolving process model in different contexts in order to achieve external validity (Eisenhardt, 1989).

CHAPTER 4 CASE STUDIES IN INDONESIA

4.1 Introduction

This chapter describes the case studies conducted in three Indonesian manufacturing firms. All field studies were executed in the period between January 2000 and August 2002. General information on the three studied companies is given in Table 4.1. The implementation of quality management was with the intention of improving internal and external capability to benefit from cooperation with foreign partners. The studied companies are in the manufacturing sector and are involved in foreign cooperation as subcontractors and/or co-manufacturers. Two of the companies sell most of their products to foreign market. Apart from production, the cooperation with foreign entities is also indicated by their ownership status, which influences the internal operations and the external strategy. The range of production processes varies from manual processes to automated assembly, and each case has different contextual elements.

Table 4.1
The overview of the researched companies

Characteristics	Microelectronics	Health equipment	Automotive
Ownership	Indonesian and Singaporean	Indonesian	Indonesian and Japanese
Product	Microelectronics chips	Sphygmomanometer set	Passenger car (5/7 seats MPV)
Main production facility	High speed robotic/ automated assembly processes	Rubber processes, manual assembly and testing	Single assembly line (semi-automatic and partially robotic)
Type of foreign cooperation (main country)	IC packaging subcontractor (USA)	Product/part subcontractor (USA, and Europe)	Product co-manufacturer (Japan)
Major market	Foreign	Foreign	Local (and limited in SE Asia)
Monthly production	13 million units	0.15 million units	2400 units
Number of employees	2500	250	1400

As requested by the studied companies, their names are kept confidential. The discussion in each case description starts with an introduction, followed by an overview of the company including ownership, company vision, products, market, production, organisation and personnel. The structure in describing the case starts by discussing the contextual elements, followed by the implementation process and descriptions of the

content. In presenting the implementation process, this research uses an approach that shows the sequence of significant events that have implications for the development of quality management. The sequence includes steps of initiation, adoption and adaptation. To illustrate the realisation of implementation, the status of the current state of the implementation is assessed before presenting the conclusions to each individual case description. The final section provides a summary of these individual case descriptions including a review of elements of the EFQM model.

4.2 Case description of the microelectronics company[2]

4.2.1 Introduction

The proposal for this first case study was presented in October 1999. The research started in February 2000 with a brief introduction meeting with top management, including the president director, three directors (production, quality, and human resources - two of them expatriates), and one manager from the human resource department. This meeting was aimed at confirming the company's commitment to the study and exploring the strategic considerations for quality management implementation. A direct observation of the production facilities was conducted. It provided a comprehensive impression of production operations and supporting facilities. A full day workshop with 15 middle-level managers was held. This workshop was aimed at gaining an overview of current knowledge, practices and problems concerning quality management and its implementation. 36 Interviews with middle and upper management were executed and covered the departments of production, quality assurance, customer service, human resources, and information, and two interviews were conducted with (inside the plant) customers. In addition, two sets of questionnaires were used. The first set was to evaluate the appropriateness of a quality management model with 24 respondents (middle level managers). The second set was to gather information about quality management and its implementation from 150 employees, of which 106 were returned. An intensive session with the human resources team discussed details of a training programme, a reward system and progress with people development. Formal documents were also collected including documents on the initiation and adoption of the ISO 9000 quality assurance system.

[2] Part of this section was presented at the 3rd Asian Academy of Management Conference, December 2002, in Bangkok, hosted by the Chulalongkorn University – Thailand.

4.2.2 Company overview

a. Ownership and vision

The company, referred to as MEC, was set up in Bandung – West Java in 1974 as a subsidiary of an American-based semiconductor manufacturer. After 12 years, a conservative government's labour intensive policy caused the American leadership to stop operations because the policy strongly opposed an improvement initiative for production automation. The Americans handed over the ownership to an Indonesian conglomerate. Afterwards, management of this conglomerate formed a joint venture with a Singaporean company. As the fourth largest, this conglomerate has businesses mainly in the trading and rubber-related industries, but with no experience in semiconductor related business.

Under this new ownership, MEC had been a pioneering independent assembly and test subcontractor of semiconductor products in Indonesia. Since semiconductors were a completely new line of business for the group, the new owner relied strongly on the management style of the previous (American) owner. In its initial operations, the new top management team adopted a western-style enterprise approach in operation, production and administration. The top management put a lot of effort into increasing sales, but without a satisfactory outcome. To obtain better leadership at this initial stage, the (top) management was changed several times. Each time, they introduced new vision statements to visualise the core values of the company. The latest company management team in 1999 included two Asian expatriate directors with considerable experience in western-style companies. This new top management team introduced a vision statement that focused on customer satisfaction by promoting the importance of continuous improvement. This vision formally determines the company’s current quality policy.

b. The product, market and operations

As an assembly and test subcontractor, MEC carried out the processes of die making, framing, gold wiring, compounding, and packaging integrated circuits to produce various types of packages, including single and multiple modules such as PDIP (plastic dual in-line package), SOIC (small outline IC), PLCC (plastic leaded chip carrier) and TO/SOT (transistor outline/small outline transistor). These products are commonly known as microelectronic chips. The manufacturing facility occupied about 6,800 square metres including 950 square metres of Class 10K clean room and 2,800 square metres of Class 100K clean room. These special facilities were equipped with automated equipment, while other processes in general were manually operated. MEC used advanced package technology and process manufacturing that made it one of the few companies in the world employing multi-chip module (MCM) technology. This

technology enabled MEC to customise semiconductor packages based on a particular order specification. This improved technical capability enabled MEC production to run as a mass-customisation set up.

All the customers were located overseas (mainly in North America) and contracts continued to expand. The growth was highly appreciated by the government that had provided a limited free trade zone inside the factory area since 1996, where export-import activities could benefit from exceptional tax and trade regulations. A customs office was located in this area to provide rapid assistance in export and import administration and in other customs-related matters. MEC also allowed two major foreign customers to have facilities inside the plant primarily for testing and inspection. Their presence provided an opportunity to advance inter-organisational cooperation which, however, was limited to operational-technical issues.

Working as a mass-customisation system, all MEC products were manufactured based on a customer's job order. The customer commonly supplied the main raw material known as a semiconductor wafer, while other materials came from independent local suppliers. MEC processed the semiconductor wafer into microelectronics chips. The volume of production fluctuated; during the research period the actual production was on average 13 million units of microelectronics chips per month. An increasing throughput was a result of improvements in internal efficiency when customers increased their volume of orders; the number of customers remained constant.

c. The organisation and personnel

At the time of the research, MEC employed more than 2500 employees in six departments: marketing and business development; manufacturing; quality assurance and customer services (QA); human resources, plant management and general administration; procurement and logistics; and finance and accounting. Top and middle level managers mostly had university level education, while production operators had elementary or secondary level education. More than 75 percent of employees were direct production operators who worked on a four-shift system to maintain continuous manufacturing operation. Most of these direct production operators were women. The majority would stop working when they got married, or had children. For this reason, turnover of production personnel was high.

The organisational structure was functional. Employees were organised as production operators, management staff, and supporting staff. The MEC organisational structure was flat. Approximately 50 percent of the employees who returned the questionnaire had supervisory positions. They were promoted based on their seniority and technical skills; only a few were promoted for their management capabilities. Authorisation for decision-making was assigned to only a few people at the upper level, and thus the organisation was centralised. Studies of company documents showed that

executing a decision required the formal signature of a member of the board of directors.

Most of the production processes required manual and labour-intensive work due to the fact that investing in advanced equipment was expensive. Consequently, the level of product quality was limited by the skill of the employees. Although all the processes were standardised, and the procedures were well organised, it was hard to avoid human and process errors. Production process control was often considered ineffective so inspection always followed production to filter out any defect products. As a result, customer claims reduced but the number of inspectors increased. Based on a benchmarking report, at the time of research, the number of inspectors was higher than other Indonesian semiconductor assemblers.

4.2.3 Contextual elements

Using the dimensions of culture proposed by Hofstede (2001), the context of the national culture at MEC was measured through individual. This measurement tool is presented in Appendix C. For each dimension, responses to statements were classified from one to five on a Likert scale, in which the responses are strongly agree (1), agree (2), neutral (3), disagree (4), and strongly disagree (5), with the statements. The results show that MEC employees (respondents) were characterised by a high power distance, individualistic, uncertainty avoiding, feminine, and with a long-term orientation as shown in Figure 4.1. The number in this figure respectively (from left to right) shows percentages who agree (scale 1 and 2), are neutral or undecided (scale 3), and disagree (scale 4 and 5) with the statements on the left side (high power distance, collectivism, uncertainty avoidance, masculinity, and short-term orientation). Higher percentages in the figures to the left than to the right (e.g. 55 compared to 33 in the dimension of power distance) mean that the respondents tended to be consistent with the characteristic to the left (high power distance) than the characteristic to the right (low power distance). This note also applies to Figures 4.2, 4.3, 4.6, 4.7, 4.8, 4.11, 4.12, and 4.13. This background influences employees in their work and interactions that characterise the organisational culture. The MEC organisational culture can be described as result oriented, job oriented, parochial, an even open-close orientation, tightly controlled, and normative as shown in Figure 4.2.

Figure 4.1
The culture of the individuals at MEC

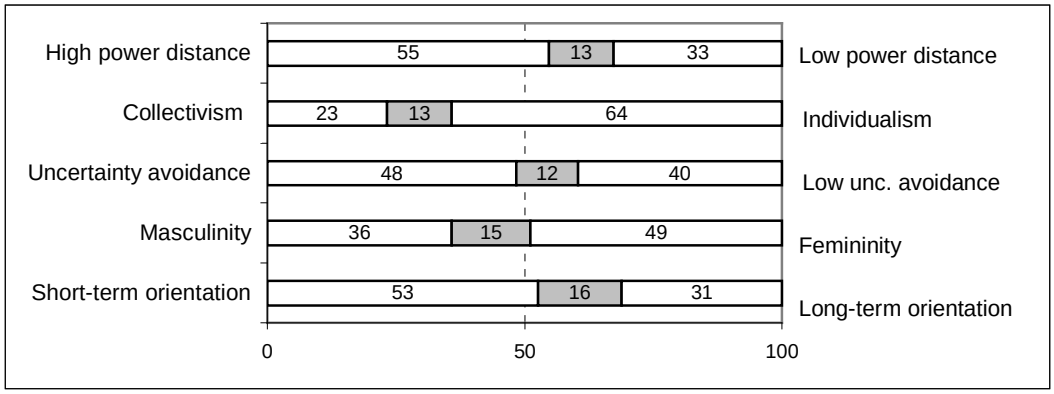
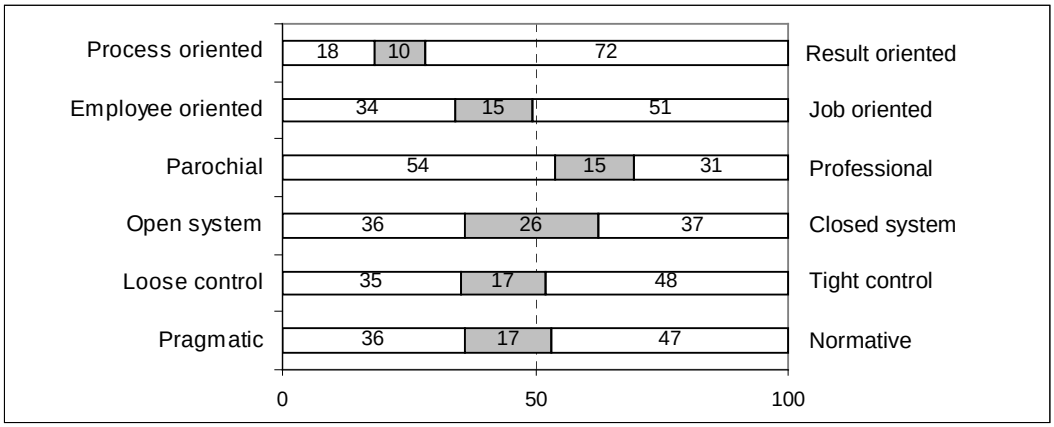
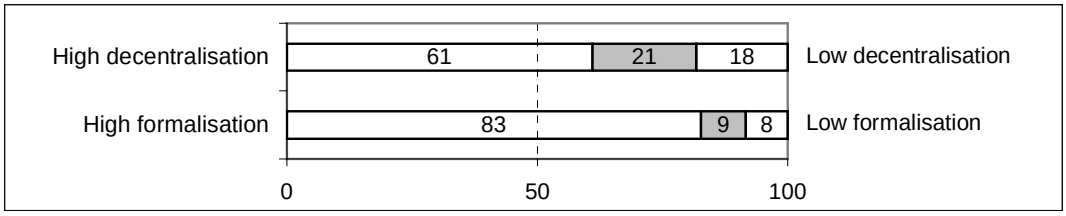


Figure 4.2
The organisational culture of MEC



Although MEC operated a mass-customisation process, at the time of the research incoming orders mostly had similar specifications. It was difficult for production employees to feel the differences among the orders in their tasks. This situation led them to standardise the procedure of their tasks as in mass production. In the formal structure, production supervisors were given more authority than management staff. This made the organisation decentralized with a high degree of formalisation, as shown in Figure 4.3. The contexts concerning working conditions, employment period, and level of education affected this organisational formation.

Figure 4.3
Degree of formalisation and decentralisation at MEC



The working conditions, especially in production, contributed to the development of employee attitudes. With the use of military-standard quality control for many years, there was inspection activity after each production process to filter out defects. The quality assurance department tightly supervised this inspection. This practice created a relationship between production and quality assurance operators represented by the inspected operators and the inspectors. The constructed context was "production operators make mistakes and inspectors seek out mistakes." Since top management considered inspection to be necessary, inspectors often felt that they were superior to production operators. To meet the targets, production operators simply produced more than planned in anticipation of rejection, without considering further impacts such as on delivery time or availability of material. Since all the finished products were technically reported as 'conforming', middle level managers failed to realise this situation. Since the inspectors and production operators work day-to-day on high-speed production, they become mechanistic and passively follow the procedures. They assumed that quality by inspection was an effective way of managing quality. In doing so, they were unaware of the developed attitude of 'just meeting the specification'. For example, if the procedure did not mention the specification, the production operators did not care about the specification because they assumed that the quality assurance department held the responsibility for product quality. Interviews showed that middle management in production had realised that the condition was deteriorating, but missed the opportunity to open communications with subordinates in searching for solutions. They merely relied on formal written standard operating procedures.

Besides the working conditions, differences in employment duration also contributed to the organisational formation. In general, senior level employees tended to have long-term employment, while the turnover rate of production operators was high. Middle and senior management of the company were well educated with significant working experience, either in MEC or outside the company. They appreciated the long-term impact of quality on the business as a whole, and thus acknowledged the importance of continuity in improving their work. In contrast, employment periods of the less educated supervisors were short. As a result, they often faced difficulties in understanding and interpreting standardised procedures correctly. The greater power of

upper management determined strategic and operational decisions and actions for the long-term improvement programme. Since the result could not be realised quickly, operators failed to gasp the objective of improvement. Consequently, upper management controlled the operation based on directive standardised procedures, which thus created a high degree of formalisation.

4.2.4 The implementation process

A change of ownership, change of market orientation, change of production orientation, and cancellation of a potential order due to lack of certification were significant events that influenced progress in developing quality management at MEC. These events had critical implications that led to managerial action and decisions.

As the demand for microelectronic products increased in the early 1980s, MEC needed to increase its production capacity through mechanisation and automation. However, this plan was opposed by the conservative government's labour intensive policy. A fundamental disagreement over this policy led the American leadership to close its operations in Indonesia. This decision led to the handover of ownership to Indonesian entities. From a customer viewpoint, although all production facilities remained, the change of ownership lowered the impression of product quality. This critical assessment came from a general image of the new owner as lacking a capability in high technology production of microelectronics. This led to a decision to renew the leadership in order to create a new image for the company, which was expected to have a subsequent positive impact on the image of product quality, especially with respect to foreign marketing. Individuals with considerable experience in foreign countries were invited to join the board of directors. They brought in a new vision and philosophy that stressed the importance of quality for organisational competitiveness. The new top management team defined a formal company vision that reflected the commitment to deliver total customer satisfaction by providing the best value services and total solutions through continuously improving the quality. This vision was aimed at increasing market share to maximise total returns to shareholders and employees. For inward improvement, however, the company continued to use the existing quality system based on military standards with few modifications. The quality system focused on internal control of production and inspection that relied solidly on documentation and procedures. All the major quality system documents were in English which reduced their operational effectiveness.

Besides the implication for the image of product quality, the change of ownership also had another implication in that the operational status of the business was no longer as a subsidiary of an American company. The business and marketing orientation was changed and they became an independent foreign subcontractor, in which quality and customer orientation were considered important. This change of orientation had a subsequent implication in that quality, together with cost and delivery,

characterised the strategy for improving competitiveness. This challenged the company to engage in a quality improvement programme and at the same time improve its production capabilities in terms of cost and delivery time reductions. This reoriented the management, which was expressed by the commitment to zero defects as an explicit statement for customer satisfaction. With this direction, the company formed a separate quality assurance department. However, the focus on managing quality was still on product orientation.

The change of business orientation had internal implications on the orientation of the production facilities. This led to a critical decision to change the production system orientation from mass production to mass customisation. Consequently, the company could no longer rely only on production and inspection, but had to cover the holistic range from marketing, engineering, manufacturing to delivery. Accordingly, instead of focusing on product inspection, a system-oriented quality management approach came into consideration. This challenged the top management to engage intensely in efforts towards organisational quality improvement programmes. The programmes were intended to integrate and embed the quality improvement activities in production, and the cooperation between quality assurance and production departments, in quality-related activities, was fundamental. For this purpose, top management critically evaluated the existing condition prior to implementing an improvement programme. Later, top management came to the decision to invite expatriates with experience in semiconductor industries to hold top positions in these departments. This shows that MEC considered a top-down approach for guiding the implementation of quality improvement programmes.

While the new leadership was in an early stage of organisational restructuring, there was a cancellation of an order from a customer in Germany. The reason behind the cancellation was the lack of an adequate quality assurance system such as ISO 9000. The top management predicted that the lack of a quality assurance system would have negative effect on foreign customer relationships. This cancellation put strong pressure on management to engage with a formal certification programme for quality assurance. It had developed the motivation that led to a critical decision to establish a formal action plan for ISO 9000 certification in October 1992. The company sent two senior employees from the quality assurance department to a quality assurance workshop in Singapore. Afterwards, they were assigned the task to initiate the construction of a quality assurance system. Consequential preparation activities for the adoption of a quality assurance system were also carried out. In the following month, the first internal training session for quality assurance employees was carried out. This training was aimed at developing the knowledge and skills necessary for internal (product) quality audit. After that, internal training for key managers was held and covered the concept of ISO 9000, quality management techniques, and improving documentation. Based on this training, MEC formed an implementation team with the tasks to prepare, to develop

and, if necessary, to modify the quality manual, procedure manual, work instructions, and other supporting documents. The team did not start from scratch, they used the existing system based on Military Standard No. 883D, which consisted of a quality system, purchasing rules, material assurance procedures, assurance of quality records, internal auditing and statistical techniques. Simple modifications were quickly completed and complied with 18 elements of the ISO 9000 quality assurance system, with the exception of elements of training and management responsibility.

Top management highly appreciated the achievement during this initiation stage. In early 1993, top management reorganised its corporate quality policy. Based on this modified policy, two types of training were intensified. The first was to enhance the capability of auditors in order to intensify the internal quality audit. The second was on subjects related to ISO 9000 requirements in all departments enabling them to develop and implement quality assurance procedures. Evaluation by the registrar of ISO 9000 found major and minor discrepancies in the system and its operationalisation. These discrepancies indicated that the company was still lacking the mechanistic operational requirements of ISO 9000. In this respect, the implementation team did trials, revisions and fine-tuning of the documentation. Missing documents were developed, and others were revised and improved. In December 1994, the registrar awarded ISO 9002 quality assurance certification.

Within two years, MEC was successful in initiating and developing a quality assurance system without external support. This achievement motivated top management and led to consequential quality improvement programmes as follows:

- *Improving employee capabilities through training*. Training was directed at improving the capability for internal assessment as part of developing a feedback system. However, since the training was in general not immediately realising results, employees' willingness to be involved in the training was weak.
- *Intensifying the quality audit as a feedback mechanism*. The quality audit, which was focused on finding discrepancies in the detailed operations and the change process, was focused on documentation, training, calibration, reporting, safety and cleanliness. In its operationalisation, the internal quality audit appeared as judging the mistakes and inefficiencies of individuals. This made employees worried since a further consequence might be a reduction in the number of employees. Due to poor communication of the importance of auditing as a feedback for improvement, the quality audit was seen as threatening employees, especially those in production.
- *Functioning of the documentation system*. As in auditing, the functioning of the documentation system was critical since it was relatively new. Completing the documentation consumed a lot of time, such as for filling forms and updating data. It was considered as unproductive, as additional work without a direct benefit. As a result, the new documentation system was frequently conducted through direction

and coercion. This practice created friction within the company, especially between the production and the quality assurance departments.

It appears that the obstacles to these quality improvement programmes were more with socio-cultural issues than with technical-operational issues. Although these quality improvement programmes did not run as expected, the progress in ISO 9000 quality assurance certification led management for trying to obtain compliance to QS 9000 certification. The reason behind this desire for certification was based on a marketing orientation strategy, since QS 9000 is a standard specifically required by a sector of industry in the US. The requirements for compliance with QS 9000 were relatively easy because it is similar to the ISO 9000 quality assurance system. One major difference to ISO 9000 is the need for a continuous improvement program, which however was hardly institutionalised as reflected by the slow progress in the quality improvement programmes. An additional effort to promote the institutionalisation of continuous improvement was a quality control circle in production. Accordingly, continuing training programmes were planned to ensure that the gained skills were applied properly. Since the need was indicated from obstacles in institutionalisation, the training on the technical skills was actively employed, but the training on improving cooperational skills was hardly done. Nevertheless, in November 1999, MEC was awarded QS-9000 certification for assembly, test and finishing of semiconductor components. This certification was appreciated in terms of promoting the image of the company's quality achievement, but it did not have significant internal implication.

The chronological approach in the implementation processes is shown in Figure 4.4. This figure illustrates how the present quality management system was developed.

4.2.5 Content of quality management

The measurement of EFQM model appropriateness involved respondents who were selected from employees who had adequate working experience with quality management. From the collected data, the results of reliability testing and the appropriateness of the model to the organisation are provided in Section 4.5. The results showed the appropriateness of this model for this research. Based on this finding, descriptions of the enabler elements of the quality management model, i.e. leadership, policy and strategy, people management, resource management and process management will follow.

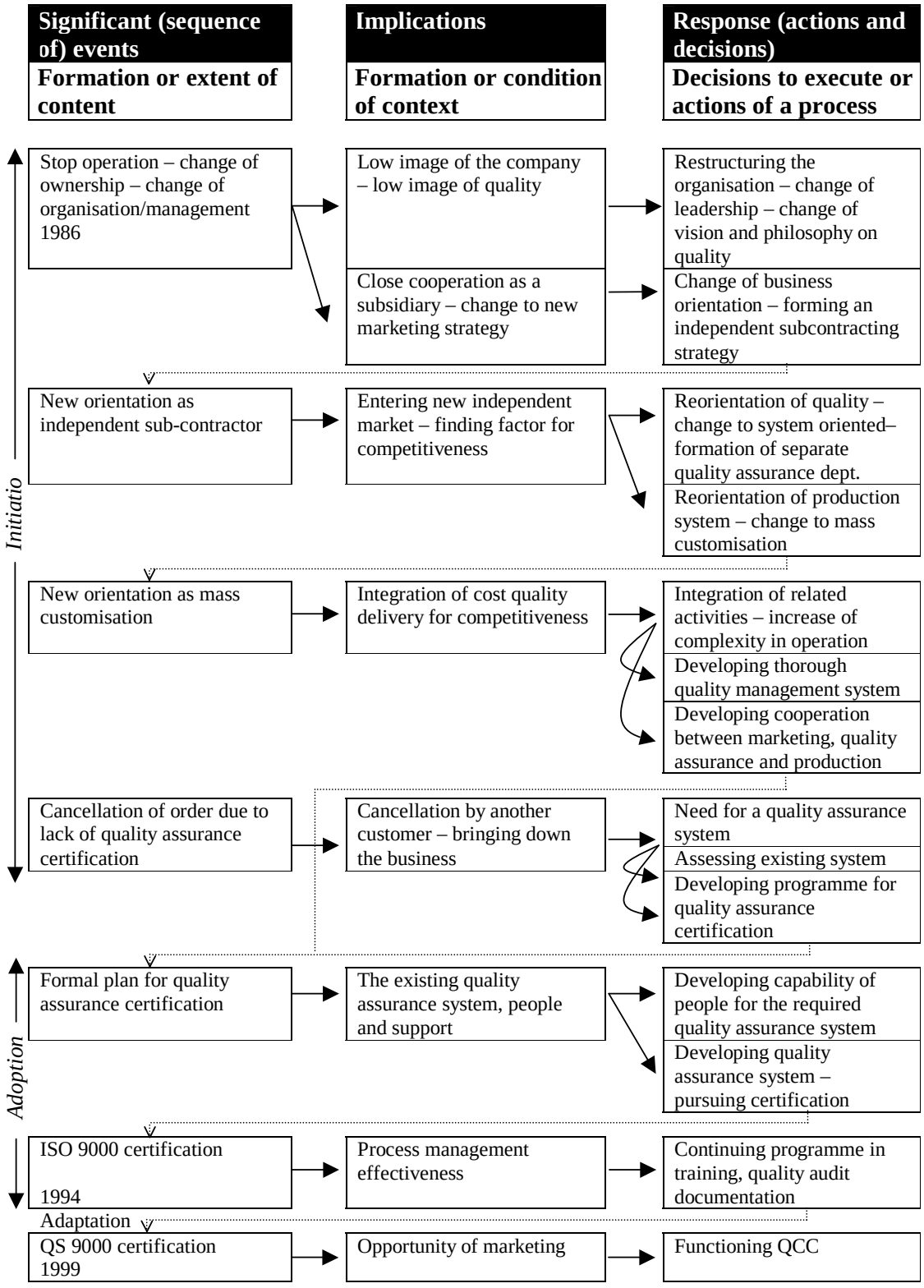
a. Leadership

Although the structure was relatively flat, the MEC organisation was considered as having a strong hierarchy because the top-down coordination was formal and mostly based on written procedures. Observations and interviews showed that leadership style was downward and patronising. Most decisions were made at the top with a formal statement for further operationalisation. Based on this statement, top management used

their time supervising almost everything in the company. Bottom-up approaches, such as minor improvement initiatives, were not easy. If employees did have initiatives, the proposed idea had to go all the way up the hierarchy to get formal support from the top management prior to execution. Without top management support, the idea would not be pursued further, even if employees were formally authorised to execute the idea. They were afraid of being held responsible if something went wrong. Interviews with top management showed a problematic picture. Top management encouraged bottom-up participation in strategic planning, and employees were generally responsive. However, the majority had to ask their superior before they submitted an idea. Essentially, they expected their superior to tell them what they had to do. Superiors expected an active role of subordinates while, at the same time, subordinates expected guidance. In practice, subordinates worked in their own ways. Shop-floor observations showed that operators knew the formal procedures, but often did not follow them. Instead, they performed what they thought of as the right or similar procedures. In reaction, the management often controlled the operations in a directive and coercive way.

Figure 4.4

The process of quality management implementation at MEC



b. Policy and strategy

The decision to implement quality management was triggered by significant external events that challenged the internal development. The external pressures were strong enough to force management to revise most procedures, occasionally without taking a critical look at internal conditions. In translating the concepts of quality management into policy, strategy and planning within the hierarchical structure, top management provided brief communications in quarterly mass meetings. Employees appreciated these meetings that provided them with information about what had been decided, the successes that were achieved, and the set targets. However, the meetings were not detailed enough. Awareness of quality was created, but employees were still confused about how to progress further. After MEC was certified, employees leaned back and relaxed. There was no follow-up to internalise further the emphasis on measurement, evaluation and improvement. The role of middle management in top-down mediation was not significant because the middle management was confused about the company's policy on quality.

In the last five years top-management has changed three times. Each time they formulated a new mission stressing the importance of quality. This rapid change contributed to the confusion over downward policy deployment, especially on what exactly the company was striving for. The reorientation of quality management principles was put into effect in the rest of the company only by the quality assurance department which, however, was often considered as patronising. As a result, the goals were not streamlined towards a coherent objective. Each department interpreted the objective independently, towards their own goals with an inward-looking attitude. Employees in production, for example, considered that the working instruction explained more about what the target output should be, and not on why they should achieve it. As a result, employees referred to quantity fulfilment rather than efficiency. Frequently, a deviation in the standard procedures, from the quality system, was found in production, and thus needed correction, however after some time the deviation would resume.

c. People management

In people development, the human resource department developed reward systems, training systems, and promotion systems. In the promotion system, participation in training and achievements in production and quality essentially formed the appraisals for promotion. Top and middle level employees, who had the proper knowledge, experience and skills, benefited from the opportunities of these systems. In contrast, lower level employees were generally only interested in the salary and the reward systems. They worked hard to comply with the requirements just to keep their income. In addition to their basic salary, they earned bonuses based on two categories, i.e. achievement of production (including output, cycle time and yield) and quality

achievement (including non-compliance and internal trouble reports), both of which were rated daily. Since achievements were not individually measured, the bonuses were given to the entire shift. For the quality achievement, the bonuses could only be obtained when the shift reached zero non-compliance and zero internal trouble reports, which hardly ever happened because a shift of hundreds of employees inevitably made mistakes. In the training system, an exercise on technical problem solving was well thought of since it used real cases and provided results. The training section also made efforts to develop programmes to facilitate the quality management implementation process. However, the expectation from the training was short-term problem solving, which limited the introduction of the long-term concept of quality management.

There was a distinction in the formal job descriptions between the production and non-production staff. The production side was characterised by standardisation and division into tasks that were governed by strict rules and procedures. The job descriptions were sufficiently clear to regulate the operations. All quality-related activities were based on written descriptions. Measurements of quality-related variables were extensive; the production department had a high degree of formalisation. Conversely, the degree of formalisation in the non-production departments was low. Interviewees mentioned the inconsistencies in their job descriptions. On the one hand, this was aimed at providing flexibility for action, but on the other hand it provided the possibility of avoiding responsibility. Production employees saw the practices of non-production employees as not always following formal procedure. Production employees considered this as unfair because top management never stated any objection to this practice in employee performance appraisals.

d. Resource management

As a semiconductor subcontractor, MEC received its main raw materials from the customer, while other materials came from local suppliers. With a specific customer order, MEC followed with a plan for production and delivery. To support production, financial resources, supporting facilities and sources of knowledge (library and internet) were available to back up improvement initiatives. However, employees considered that the implemented quality management system was restricted. Interviews showed that employees and production managers focused only on their own priorities, which often had little relevance to the company's objectives. For instance, in order to support people development, the company built a library with a collection of literature on new developments in production and management technology. However, the lower level staff improvements, which were organised in QC circles, often failed to make use of the available library collection because they had no time for studying the literature. Only quality personnel seemed to have the motivation to actively diffuse the quality efforts to other departments. The same situation occurred with the utilisation of the adopted advanced information system.

e. Process management

During adoption of the quality assurance system, MEC split off all the quality tasks from the production department and formed a separate quality assurance department. This separation was aimed at a division of tasks and responsibilities for improving the quality of the product and production process, and in easing the process of the ISO 9000 certification. Audit teams from the quality assurance department were established to check the compliance of all activities with standard procedures. At the operational level, however, the job descriptions of quality employees and production operators often overlapped. Production operators often failed to perform quality-related activities and transferred the duties to the quality assurance department. The ratio of quality employees to direct operators was high. MEC had one quality employee per ten production operators, which was twice the average in the semiconductor industry in Indonesia. Quality related activities in production were seen as supervising and often disturbing because they slowed production.

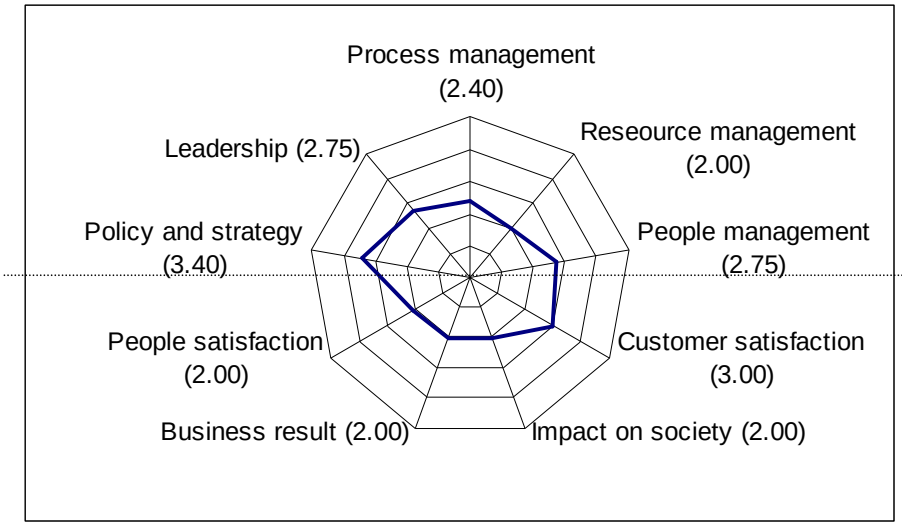
MEC was relatively advanced in practising quality control and QC circles. Facts about qualitative and quantitative achievements were circulated across departments, but only slowly. The status reports were distributed weekly to production and staff managers in order to propose improvements. This information was easily found on the QC circle news boards in the plant, but it was often outdated. Operators mentioned that they expected feedback on how well they were doing, but they missed the support and feedback needed to finish the last stage of the PDCA cycle. Even if they had an idea for improvement, they felt uncomfortable bypassing their direct superiors that held the authority for the execution decision.

4.2.6 Current state of implementation

Adoption and adaptation of a quality management system (as in ISO 9000) led to the present achievement level, which was measured based on Dutch Quality Award (DQA) criteria. The quality management achievement at MEC is shown in Figure 4.5. The trend appeared to be positive, such as is shown by the high achievement in policy and strategy and customer satisfaction, but it would be premature to state that there is effective quality management. In terms of the elements of the enablers, the difference between the high achievement on policy and strategy and the low achievements in resource and process management reflects disagreements between managers in relation to production activities, in particular between the departments of production and quality assurance. Production operators acted as if in a mass-production system, while middle-level management organised production based on mass-customisation characteristics following a strategy of customer satisfaction. A difference between the organisational (enabler) areas and the result areas implied that (i) the recent establishment of the quality system has provided improvements but the results were not yet fully realised,

and (ii) certain aspects had not been implemented. In addition to self-assessment, a benchmark report positioned MEC as having average performance compared to six other subcontractors in the microelectronic sector in Indonesia. The MEC production facility was not as advanced as its competitors, but still capable of handling incoming orders. Major customers expressed their satisfactions in terms of defect rate, cycle time, conformance, cost and engineering flexibilities. As an independent mass-customisation subcontractor, MEC more often accepted smaller quantity orders than the other subcontractors.

Figure 4.5
The spider web showing quality achievement status at MEC



4.2.7 Conclusion

Prior to the decision to adopt the ISO 9000 quality assurance system, the intensive use of a military-based quality system had set up a strict system of working according to standard procedures. Successful improvement in this period built on inspection-orientated quality management. Adoption of a quality assurance system re-enforced the company's objectives with respect to customer satisfaction and created an internal attitude favourable towards improvement. Prior to the adoption of the quality assurance system, the management explained the plan to all employees in a company wide meeting. However, in communicating the objective, top management put a higher priority on the output target than on how to achieve it. The detailed message for operational action remained vague. Initially, the employees were motivated, but there were few initiatives from their side. They missed some follow-up to the company-wide meeting. Employees disappointedly commented “we need commitment and support for real actions, instead of just talking.” Employees experienced an unchanged situation, which made them mechanistic in just following procedures as passive participants with

an attitude of "just meeting the specification." They discovered quality improvement from an inspection perspective, and that limited the development of quality awareness. As long as they followed the standards, the responsibilities for quality were transferred to the quality assurance department. This contributed to a growing 'you-and-us' attitude within the company. Each department formulated their own objectives and implementation agenda. In the expectations of (top) management, quality management implementation would improve the overall capabilities by offering everything that was needed for customer satisfaction. However, customers did not experience it this way. Top management and the quality assurance department tried hard to formulate goals for improvements, but not all employees were consistent in their roles because they had doubts on how to proceed further. The way MEC organised the adoption process influenced the adaptation process. Although MEC had underlined the need for change, it failed to provide sufficient motivation to its employees.

4.3 Case description of the health equipment company

4.3.1 Introduction

The proposal for the second case study was sent to the company in early September 2000, and the field research started in February 2001. Prior to execution of the field research, a discussion with top management was conducted that set the steps of the field research. The steps include, namely a review of the appropriateness of the quality management model, the evaluation of a rubber dipping process, a workshop on quality management for middle-and top management, a schedule for interviews, data collection using questionnaires, and the other methods for data collection within the company. Data collection for evaluating the appropriateness of the quality management model and the evaluation of the dipping process were done in parallel over a period of three months, and the other activities were started in the period from May to October 2001. Twenty-six respondents were involved in evaluating the appropriateness of the quality management model. The evaluation of the rubber dipping process was not directly related to the quality management implementation, but provided a valuable opportunity to get a deep and comprehensive view of operations at the shop-floor level. Twenty-three participants including shop-floor supervisors, middle managers and heads of department attended a three-day workshop on quality management tools and practices. The workshop provided an opportunity to discuss the concept of quality management and cases of its implementation. After the workshop, interviews were made with 16 senior managers from all departments including the CEO. According to the company's schedule, each interview was set for about 90 minutes. Following the interviews, 50 respondents participated in a questionnaire survey of quality management implementation. About 60% of respondents were production supervisors and the rest were lower-level management from all the other departments. Formal company's data

was collected, including the history of the company, the product and production processes, suppliers and customers, employees, organisational structure, and ISO 9000 documentation.

4.3.2 Company overview

a. Ownership and vision

The company, referred to as HEC, produces health related equipment, in particular aneroid and mercurial sphygmomanometers - devices to measure human blood pressure. Since production of the mercurial sphygmomanometer is regulated and it is not easily safely disposed, the production numbers are limited. The company's operation started in the 1980s. The owner started company operations as a trading company for imported health-related equipment. As it developed, the company started producing parts and consumables under a licensing agreement with producers in developed countries. The management realised that cooperation with foreign producers improved their capabilities from trader to parts manufacturer of health equipment product. This development brought the management to build a manufacturing company focusing on health equipment in the early 1990s. In 1997, the company was divided into two. The initial company re-focused on trading of general health equipments, while HEC, as the new company, focused on production of sphygmomanometers for export.

b. The product, market and operations

HEC products entered markets in Asia (mainly in Japan and Taiwan), Europe, America, and to a lesser extent in Australia and Africa, while local sales were not significant. The demand from these various markets required tailored specifications. As a result, the product range covered 15 types of components and 41 types of end product. Each type of product was produced in several models and in total there were 172 distinct models. For this wide range of products, some components were subcontracted to local and foreign companies. HEC produces the major components, i.e. bladders, bulbs, and bags, which are all made from natural rubber. In 2000, the production of bladders was 1.6 millions units, of bulbs 1.2 millions units, and of bags 1.3 millions units. As a subcontractor, not all of these components were exported as finished products. This production was equivalent at least to 1.2 millions units of finished products. This covered about 30% of the forecasted world demand, which was estimated at about 4 million units. The quality of the components was recognised as excellent by the customers and thuis built long-term loyalty to the company. One customer especially expressed high appreciation and regularly met HEC executives to jointly promote product and process development. The customers were ADC (25-30%), Prestige (15%), Riester (15%), Mabis (15%), Omron (5%), Mars (5%), DML (4%), Grafco (1%), Spengler (1%), and others (9-14%).

To keep up with demand, HEC had subcontract cooperations with 40 suppliers. Some suppliers were partial-owned by HEC. To evaluate the suppliers, HEC used measures in terms of quality, delivery and costs. The evaluation determined whether to continue contracts. Poorly-rated suppliers were closely monitored and assisted in achieving the required improvements. If there was no progress of improvement, a contract was terminated. Since the start of subcontracting operations, five subcontracts had been terminated.

Production and assembly highly depended on simple manual processes. This meant that the success of operations depended more on the craftsmanship and skills of employees than on equipment. The decision to use manual production approaches was based on the consideration that the acquisition of knowledge could be achieved through learning by doing. This approach led to a significant improvement at the beginning of the company's operations and this influenced the management to maintain the process in this way. Employees in the production section usually did simple problem solving, were occasionally innovative, but very few ideas touched on the fundamental characteristics such as a process re-design. The production management was satisfied with the current achievements, and thus hardly gave thoughts to make basic improvements.

c. The organisation and personnel

The present organisational structure was developed in 1999 in preparation for ISO 9000 certification. The difference from the previous structure was the addition of "Management Representatives", a division whose main task was to coordinate and to monitor the certification. At the top level, two heads of departments covered more than one department based on two considerations. Firstly, the load was low, so that one person was capable of managing two departments. Secondly, these departments were closely related and often required quick decisions.

The company employed 258 employees attached to six departments, i.e. production, purchasing, marketing, quality assurance, finance, and personnel and general administration. The production department was composed of a manufacturing section and an assembly section. About 60% of production employees worked in manufacturing and the rest in assembly. Fifty-seven people performed office administration and operational support, including the top management and the CEO. The employees' education level was mostly high school (67%) with about 26% only having had elementary education, some of them holding supervisory positions. The management considered this educational structure as appropriate for the characteristics of production, which was dominated by manual operations and tight operational procedures. The employees with a high school educational level and several years of experience were mostly in middle management positions.

In the last five years, the turnover rate of employees has been very low. Mostly, those employees that did resign did so for personal circumstances. At the time of the research, the lowest salary was about 20% above of standard provincial rate. In addition to basic salary, the company also provided an extra family allowance (for a spouse and up to two children), which was aimed at improving the secure feeling of security. Moreover, employees were involved in social activities in the neighbourhood, such as during social and religious occasions, which was useful in improving relationships with the society; an important value in the Indonesian collectivist culture. Employees highly appreciated this involvement in social activities, which increased their morale and sense of belonging to the company.

4.3.3 Contextual elements

Using five dimensions of culture (Hofstede, 1994), the context of national culture was measured. The results indicate that the employees are characterised as having high power distance, individualism, uncertainty avoidance, femininity, and short-term time orientation, as shown in Figure 4.6. Considering the influences of the national culture to form the background, the routine practices and interactions within the organisation characterise the organisational culture at HEC. The organisational culture can be described as result-oriented, job-oriented, parochial, open-oriented, tight control, and normative as shown in Figure 4.7.

Figure 4.6
The culture of the individuals at HEC

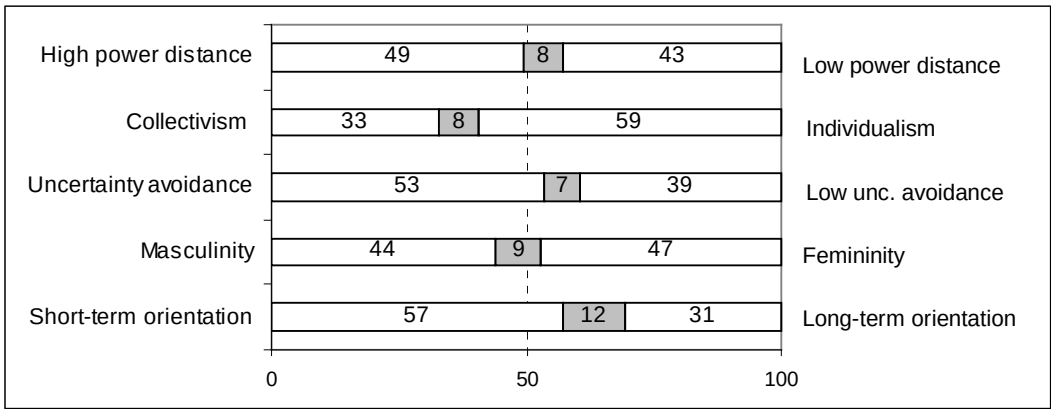
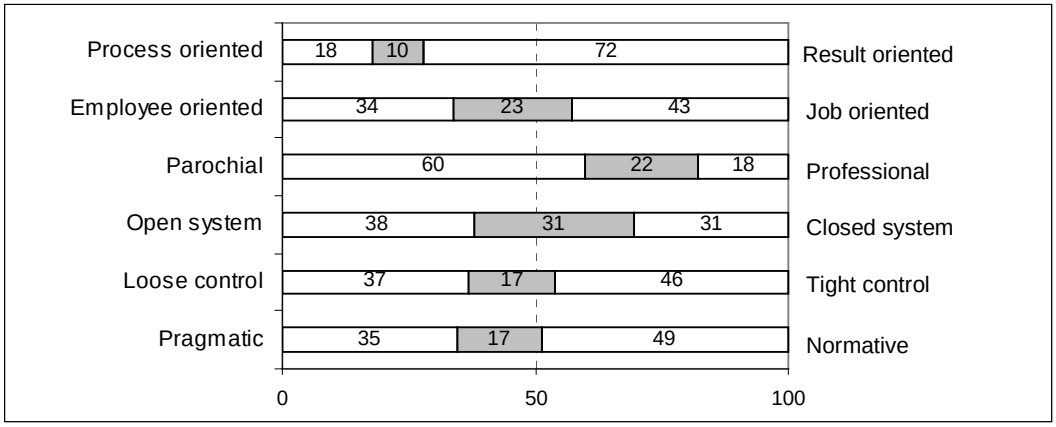
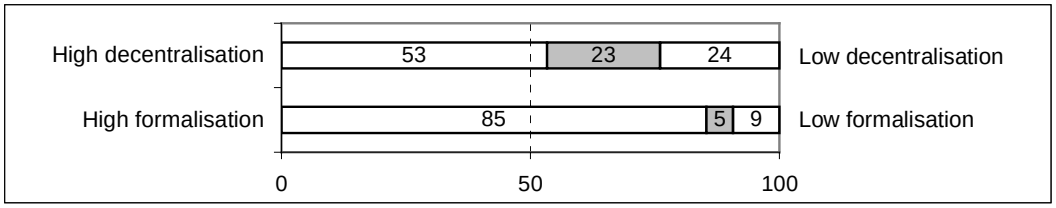


Figure 4.7
The organisational culture of HEC



The background of national and organisational culture was closely related to the formation of the organisational character of HEC. New production employees mostly started as operators, and could be promoted to the supervisory level based on their technical skills. Supervisors with managerial skills, especially those who had a capability in handling personnel problems, had a chance to be promoted to the middle level. Most of the office administration staff started at a level below the managerial level, and competed with good supervisors for the positions of section heads. As a manufacturer, the company highly appreciated employees with technical working experience, who thus usually had a better chance of promotion than the office administration staff. Since the focus was on production, this approach to promotion made the decentralisation of technical and operational procedures uncomplicated. However, as the technical and operational procedures were rigid, they contributed to a high degree of formalisation, as shown in Figure 4.8. In terms of the organisational structure, HEC was functional and relatively flat, through which top management carried out decentralisation. The top to bottom relationship was formal and paternalistic due to the high power of top management who had close personal relationships with the CEO (the owner). Accordingly, strategic and specific operational decisions were centralised. In addition, the employment period, the level of education, and the working environment influenced the development of skills and attitude that affected this formation.

Figure 4.8
Degree of formalisation and decentralisation at HEC



There was little variation in the employment periods of employees. New entrants, mostly with low educational level, were employed in any department usually starting at the lowest position. Operators in manufacturing were mostly males, while operators in inspection and assembly were mostly females. Although in Indonesia it is common that a female employee will resign after getting married or having children, this was not the case at HEC. Flexibility and tolerance in managing employees contributed to the low turnover rate that made for a long average employment period. Most of the supervisors had significant technical capability. However, the flexibility and tolerance were specified based on trial and error approach. Employees often gave a response to a specific problem solely based on the situation or context rather than referring to standard operating procedures. Accordingly, a trial and error approach characterised employees' behaviour at work.

The reason for the development of a trial and error attitude to problem solving could be observed from the recruitment phase. Based on the company's recruitment policy, the company hired lowly educated employees for the manual processes and inspection. This recruitment policy was motivated by the rigidity of the production cost structure. To improve the poorly educated employees, the company encouraged learning by doing to attain production targets and at the same time improve the required skills as an accumulation of experience. For example, the operators in the rubber processes were confronted with naturally fluctuating conditions in the incoming natural rubber. The specifications for raw natural rubber have a high variance. Operators handled this variability manually because laboratory testing was expensive. They had to robustly sense the conditions of the material by its place of origin, tapping period, colour, shape, and smell. In this situation, the appropriate decision about the material conditions came from complex natural relationships to physical and chemical elements that were tough for them to gasp. To get the necessary skills to sense this, operators learnt by day-to-day adapting to the specific characteristics of the material. After long experience, operators successfully figured out the characteristics of the material and the related actions in processing natural rubber. With this way of learning, the founders (the CEO) effectively built a company that favoured this contextual way of skills development.

Although employees had high degree of work formalisation in order to achieve results, the contextual way of problem solving occasionally resulted in inconsistent

actions and decisions while handling the process. As a subcontractor, the company was expected to deliver products that conformed to specification. Accordingly, the company integrated production and inspection, but still the focus was more on the results than on the process. Even though the management introduced an ISO 9000 quality assurance system, the inspection attitudes remained. Since the inspected product satisfied the customer, this kind of quality assurance was easily appreciated and institutionalised. Operators enjoyed this practice because it involved autonomous on-the-job-training to improve their skills. Experienced employees flexibly managed the jobs with their own ways and rhythms, although this created inconsistent working procedures and made standardisation difficult. An example of this inconsistency was found during the shop-floor observations where two groups of employees had to assemble parts together with adhesive. One group put adhesive on five parts and assembled them one by one. The reason was that after working on five parts the adhesive had dried enough to make a good bond. The other group did this after working on only three parts for the same reason. Even though they worked side by side, different decisions concerning the drying conditions of the adhesive remained; and they just did the work in their own way. In some cases, different ways gave different results. In many years of operation, the company never complained to the lowest performer about the inconsistent way of performing the jobs. The differences in job performance were considered minor compared to their need for togetherness, which was further seen as brotherhood. They argued that accepting this inconsistency was "providing tolerance" to other employees, which was important for supporting cooperation in teamwork.

4.3.4 The implementation process

The recent situation of the company was the result of a sequence of activities in sales, marketing, maintenance, parts production, and manufacturing of end products. Through these development processes, the present top management built their knowledge and capabilities based on experience. A positive impact from the progress in business focus, from sales to manufacturer of end product, characterised the way of managing the organisation. Significant sequences of events were observed in this development related to the implementation of quality management, i.e. recognition of maintenance, recognition of product quality from a well-known producer in Europe, poor appreciation of the HEC brand, increase in demand over planned production capacity, and the decision to achieve ISO 9000 certification.

In its early stages of business, the company traded the health equipment of foreign manufacturers. Sometimes, HEC was given responsibilities for providing the necessary after sales services and maintenance. In practice, different products implied different ways of service and maintenance. On one hand, these differences made the service and maintenance activities difficult but, on the other hand, it improved technical skills. A long involvement in service and maintenance resulted in an appreciation from

the foreign partners. Internally, this progress contributed to the knowledge acquisition for setting up a technical capability for manufacturing. As the first step, the company produced simple spare parts for substitution in imported equipment under the full supervision of its foreign partner. At the same time, the close cooperation in this scheme led the company to a better knowledge of the characteristics of the world market for health equipment, especially in the major emerging market in developed countries. The company came to the decision to manufacture sphygmomanometers based on two reasons. Firstly, the demand for this product was significant in developed countries because it usually had a short product life especially when used in hospitals. Secondly, the availability of natural rubber for the major components was available in Indonesia.

The company introduced its components to major sphygmomanometer producers and received various suggestions for improvements, mainly concerning technical specifications. The company responded by conducting laboratory experiments on material, and trial and error improvements in production, to meet the required specifications. A positive result occurred when the product quality gained recognition from a well-known producer in Germany. This recognition implied that the product met the high requirements of the European market. The top management of the company considered this recognition as an additional motivation to start production, especially for the European market. Internally, besides standardising the method of production, top management regarded "conformance to specification" as the quality principle for the basis of developing a company quality control system.

In spite of this recognition of product quality, progress in marketing was developed slowly. Top management decided that the European customers needed more than just quality of products in terms of technical specifications. Customers also expected quality assurance over a long-term buying contract. It also seemed that European customers implicitly rejected the product under the original HEC brand, because European users did not know of the HEC brand. For this reason, top management changed its marketing strategy by introducing a subcontracting scheme, through which HEC supplied the products under customer brands. This new marketing strategy significantly increased sales volume. The sales growth resulted from the increase in demand from certain European brand-owners that had worldwide reputations. Further, the subcontracting relationship was extended in the United States and Asia (Japan and Taiwan).

The sales growth was an indication of customer satisfaction that, after about five years, also created customer loyalty. In a seminar in 1998, the CEO unintentionally stated that the company did not need to be ISO 9000 quality assurance certificated because he confidently believed that the technical quality of the product was sufficient. The subcontracting strategy was effective, but it created a business dependency on the brand owners. In this situation, the brand owners effectively controlled product specification, delivery time and scale of production. Top management considered that

the growth in sales was an indication of customer satisfaction, which thus created confidence with the HEC production processes. To progress further, the top management was challenged to improve its quality management system beyond its technical product quality orientation. HEC needed to extend its orientation to integrate external effectiveness and internal efficiency. This need increased as the demand went over one million units. In 1998, the productions of bladders, bulbs and bags were 1.49 million, 0.42 million and 1.27 million units respectively. This production rate was higher than the forecasted production plan (about one million units), and hence the company was operating under great pressure. A result was that the existing production system was no longer considered reliable. The reject rate was about 7.24% for bags, 7.0% for bulbs, and 16.04% for bladders. This critical condition generated a need for a thorough quality management assessment and improvement beyond simple product inspection. The top management had to face the fact that the company was becoming a major player, and thus needed fundamental changes to improve and comply with international business excellence. As an initial step, top management started promoting process-oriented improvement, and concurrently proposed a programme for developing a quality assurance system.

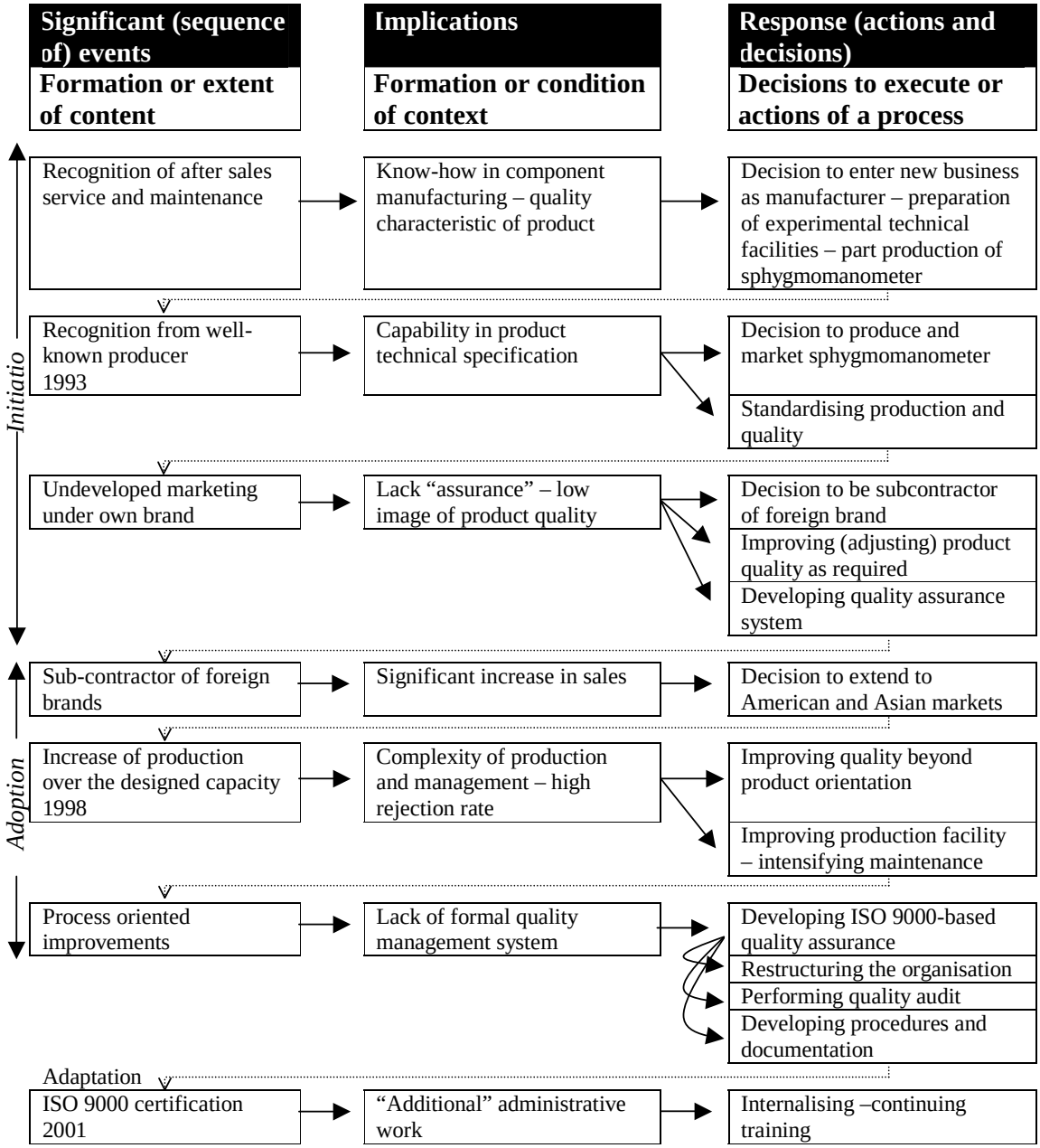
In 1999, the development of an ISO 9000-based quality assurance system was started. Having a high rate of production, this ambition increased the complexity of managing the company. As a result, improvement efforts became unstructured, and previous experience in problem solving characterised improvement efforts. The company formed a new division called “management representative” to facilitate all activities in certification and to support the CEO in making strategic decisions about quality. The quality assurance and production departments handled improvements in material control, product inspection and production processes. In parallel, related training was carried out, i.e. ISO 9000 procedures, internal audits (in compliance to the ISO 9000 procedures) and *gemba kaizen*. Afterwards, the company developed the necessary procedures and performed a limited internal quality audit in August 1999, for which a consultant assisted the company. The first internal audit focused on production, and identified 8 major and 22 minor discrepancies. Some of the discrepancies were simple but fundamental, such as working without following the work instructions, or differences between written data and real conditions. In October 1999, the company ran a quality audit by external authorised auditors. After the first visit, the auditors put forward 9 corrective action requests, of which one was a major request. This concerned the failure to record and to report the investigation and corrective action of all customer complaints. The company took two months to produce a corrective action procedure to prevent recurrence. The improved corrective action included a searching activity to find the root-cause of the customer complaint and issuing an improvement request down to the shop floor and to subcontractors.

After the first auditor visit, the company conducted a comprehensive internal quality audit in March-April 2000 that covered all departments. The audit found some non-conformance and the company carried out the necessary corrective actions. The external auditor conducted a second visit in June 2000 and concluded that there were improvements in documents with regard to the findings from the first visit (and the internal audit). Unlike the first audit, which focused on operations, the second audit focused on managerial and strategic issues. The observations confirmed that the company had to make further improvements, i.e. fully review all improvement agendas, not only partially, develop a target for each department to increase company performance, incorporate continuous company quality improvements, and made sure that all problems were solved effectively and recorded to avoid recurrence in the future. The third visit of the external auditor was in January 2001, which resulted in three minor corrective action requests. Reactions to these requests finally confirmed the ISO 9002-1994 certification one and half years after starting. The subsequent programmes were followed by intensified training and the internalising of the quality assurance system, by which employees experienced additional administrative work due to the requirements of ISO 9000 certification. Given the company's high capability in technical skills, improvement efforts were based on past experience and often carried out unsystematically.

To give a picture of how the present quality management was developed, the chronological approach to the implementation processes is shown in Figure 4.9. The reject rate in 2000 was about 6.33% for the bags, 7.9% for the bulbs, and 15.59% for the bladders.

Figure 4.9

The process of quality management implementation at HEC



4.3.5 Content of quality management

The review of the EFQM model appropriateness involved respondents that were selected from employees who had working experience with quality management programmes. From the collected data, the results for reliability testing and the appropriateness of the model to the organisation are provided Section 4.5. Based on the elements of this model, a description of the content of the quality management systems is given.

a. Leadership

The HEC organisational structure included a formal method for co-ordination between top and lower levels. In practice, the HEC leadership was likely to consider a less formal relationship through direct communications that also elaborated real cases in production to exemplify the means for problem solving. Initially, the top management regularly visited the shop floor and had discussions on strategic issues in straightforward terms such as achievable objectives and examples of possible actions. Top management viewed this approach as having two objectives. Firstly, top management needed to be sure that the messages on strategic issues reached the middle and bottom levels exactly as they intended. Secondly, the top management needed to exposure the realisation of the determined production target as set in the operational plan. In a paternalistic context, which was characterised as patronising, admiration, loyalty, and obedience, the reactions of employees varied. Some employees experienced the informal approach to communication as positive and often generated a two-way constructive discussion. In contrast, some employees reacted by accepting the message as normatively true. If there was a doubt, they carefully discussed the message in their group or with a direct superior. This attitude not only delayed the realisation of actions, but also often distorted the messages. Where there was a critical contradiction, employees tried to find a consensus for further discussion, however, this rarely happened.

At a later stage, the shop floor visits by top management were rare due to three reasons. Firstly, the success in terms of sales performance led top management to presume that the key idea had been communicated well to the whole company. Secondly, in the last three years, the production rate has increased so rapidly that top management is overloaded, especially in maintaining customer relationships. Thirdly, the company built a new facility about two kilometres away, mainly for assembly, administration and general management. The top management moved to this new location, and most of the time the production was only supervised by middle level managers. As a consequence, top management handed down more responsibilities to these managers. There was positive encouragement to a certain extent, but there were also restrictions. In production, senior responsibility was held by the head of the

production department who was also the head of the personnel and administration department. Since only half of his time was spent in production, the middle-level managers were actually in charge of production. All of these managers were highly experienced in production. The high appreciation of their past achievements was not only communicated internally, but also externally in the surrounding area where most employees resided. Believing that the performance of production was excellent, these managers thought that what they had done was the best way. They felt that they were highly honoured and so expected obedience from lower level employees in performing their jobs. Consequently, these managers stopped learning and often opposed newly introduced best practices. A proposed new idea for an improvement was often argued against using the example of success in the past and the risk of failure in the future. This showed a result-oriented attitude by the production leadership, while the top management assumed that they were putting forward a process-oriented attitude.

b. Policy and strategy

Top management expressed the company vision as producing high quality products and improving the people in terms of the desired future achievements. Top management expressed their feelings about managing employees with the analogy of a "parent- child relationship". The CEO argued that without skilled employees the company would never produce high quality goods. This vision is not written down in any formal document of the company. However, nuances of this vision were found in the formal company policy for production and human resource management. From the interviews, it became clear that the meaning of this vision was unclear for the middle level management since there was no further definition of the method to be used to strive for the desired achievement. For example, employees still thought that improving quality and people development were conflicting goals. Employees considered that process improvement through mechanisation or automation of equipment implied a reduction in their role or presence in the company. One department head expressed another potential conflict between the need for training for people development and the need to achieve target of production. With a high rate of production, activities in manufacturing and assembly were given the highest priority that often led to cancelled classroom training programmes. During interviews and a workshop, managers often went out of the room to receive phone calls from production, or to sign documents. Regardless of this conflict, the company set operational plans for production based on targets set by the marketing department. These targets were stated in the annual plans based on sales performance of the previous year. Most department heads agreed that the marketing target was considered as the "actual company policy". Implementing policy meant realising the target of the marketing people. On the shop floor, the required activities were performed with "contextual flexibility" within an understandable direction: essentially it was a "trial and error" approach. Within this scheme, production and

assembly supervisors became accustomed to short-term production plans, and so they reacted only to achieve short-term objectives, such as meeting a production target. As a result, meeting the annual production target and reducing the number of maximum defects were rarely realised.

c. People management

In production, employees were divided into day and night shifts. Their operational performance was measured against achievement of a monthly target, as individuals and as a group. For the group, a financial bonus was given together with the salary in the following month. Most employees agreed that improvements to produce fewer defects were important, but only a few agreed that there was a sufficient reward for quality improvement within a group. Even though it did not lower the commitment towards quality in production, it was an indication why the group targets had been rarely achieved. For an individual, there was little personal financial reward apart from the salary. Rather, individual achievement was an important consideration in promotion. Employees appreciated rewards in terms of promotion as more human than financial rewards, although it meant competition among the members of a group.

Considering the recent production performance to be excellent, human resource management paid attention to people development mainly through training. The objective was to support talented employees who were expected to and capable of, promoting improvement and innovation. However, the employees viewed this effort as ineffective and discriminating. “The training effectiveness had never been measured or evaluated properly” and “training had little effect on promotion” were common expressions. The human resource manager replied that this was true since intensive training programmes were new. The selection of trainees was also considered unfair because busy employees in manufacturing and assembly usually had little time available for training. In the interviews, production managers considered that training for innovation or fundamental improvement was too complicated for them. They agreed that there was a possibility but it rarely occurred; some of them even considered this as a daydream. The top management realised this problem and argued that such efforts would temporarily relieve them from monotonous high-speed production, and hopefully give them an opportunity to think about alternative ways in manufacturing and assembly.

d. Resource management

HEC managed resources tightly by reducing the costs as much as possible. This was a strong reflection on the company's orientation that was essentially typified as managing production. As demand increased, instead of additional investment on equipment, the company relied on exploiting the conventional equipment and improving the technical skill of the employees. Additional equipment would be procured only if it was urgently

required. In managing supplies, the purchasing department was responsible for building a reliable supplier relationship and used criteria of quality, delivery and cost. A plantation about 30 kilometres away from the factory supplied the natural rubber. Other supplies came from small-scale suppliers. For most supplies, the purchasing department indicated that there was a negative correlation between quality and size of supplies: as the size increased the quality usually decreased. Learning from long-term customer relationships, the supplied products were protected by a contract as a formal agreement to ensure specification and delivery. The company applied tighter technical specifications and delivery procedures for new supplies which made the initial supplier relationship difficult. Even though a supplier relationship could last for several years, it was still difficult to build a trust-based relationship. So far, the supplier improvement activities have been focused on solving problems to reduce defects. The recent rejection rate for supplies was considered as low. Even though trust in supplier relationships has developed slowly, the existing practices in managing suppliers was considered effective.

e. Process management

The CEO told of an experience with one customer who had refused to form a subcontracting relationship. However, this customer kept the sample products for a comprehensive evaluation. After several years, this customer found the product to be of the highest quality and initiated a long-term subcontracting agreement. In realising contracts, however, customers generally complain about quality, and rarely about delivery time and price. As a result, providing the highest satisfaction to the customer in terms of quality specification has become the latest company quality policy.

Production data showed up a list of customer complaints that have directly affected process management in production. The marketing department received the customer complaints and reacted in various ways depending on the customer, the size of the order, and the type of complaint. Based on an attitude to satisfy the customer, the marketing department usually responded by providing immediate replacements to the customer. The marketing department simply ignored the existing production plan. If the delivery of an order was critical, the marketing department took products that were planned for another customer. In another case, the marketing department made a contract whose delivery plan was not feasible according to the production schedule. The top management made a decision in solving this inter-departmental problem that prioritised the new order. In this way, the production department often has to reschedule production. This problem occurred several times a year so that altered the existed system of production; it was effectively make-to-order (from the perspective of the production department) and make-to-stock (as practiced by the marketing department). The marketing and quality assurance departments, which were headed by the same employee, mostly followed up complaints by analysing the sources and reasons for

defects while the execution of the problems mostly were in manufacturing and assembly. If there was a major complaint, the quality assurance department initiated a joint meeting with the middle managers of purchasing, manufacturing and assembly. They usually formed a special task force consisting of highly experienced employees. The task force started with first-aid action to make sure that the impact of the complaint was overcome. Afterwards, they proposed an improvement procedure using an approach such as a “quality control circle” in production or assembly. Although statistical process control and 'the seven tools' (i.e. flow process diagram, check sheet, scatter plot, cause and effect diagram, pareto diagram, histogram, and control chart) had been introduced in training and in the quality manual, these were rarely used. After an intensive evaluation, the improvement team, in production or assembly, communicated the result to top management. However, the team did not have total confidence that their work would be accepted. In many cases, the quality assurance department directly intervened in activities in manufacturing and assembly. The team considered that there were many “bosses” with many intentions. Without clear authorisation in this interdepartmental teamwork, the team was confused as to which boss should be given first priority. Since the marketing targets were regarded as the central guide, all efforts were aimed at fulfilling the targets of the marketing department. This often ignored the cost implications. As a result, the costs for problem solving, in general, were high, and the concept of “higher quality means higher cost” became institutionalised.

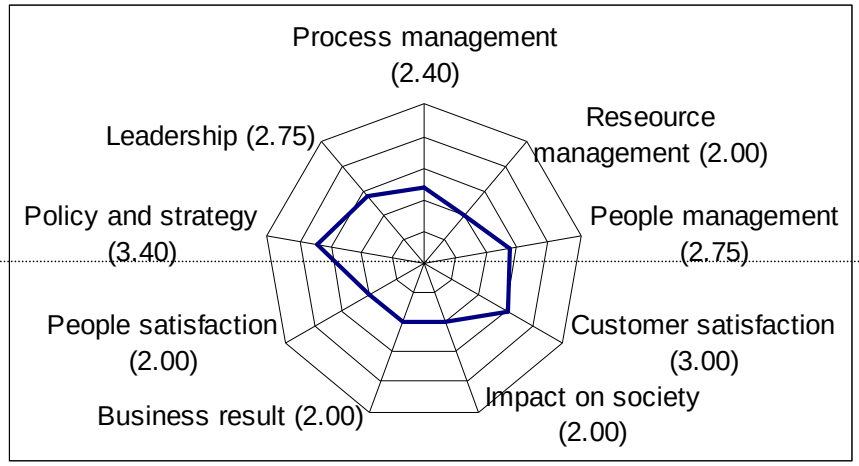
As production passed the rate of one million units per year, the experienced employees considered the production situation to be above the normal capacity. There became an ambiguity about the sources of a defect: whether it resulted from old equipment, poor skill of employees, or as an effect of production above the normal capacity. To meet the recent high demands, there were proposals to replace manual operations with mechanised or automated equipment. Production employees were opposed to this idea. They were worried that mechanisation and automation might lead to job losses. With new facilities, they were expected to adapt to new requirements: if they failed they could be fired. In the existing national economic situation, they were afraid of losing their jobs. As a compromise, instead of mechanising or automating the facilities, the head of the production department intensified the maintenance programme of the existing equipment. At the same time, a plan for minor replacements, mechanisation and automation was carried out.

4.3.6 Current state of implementation

The implementation process determined the existing achievement level of quality management, as shown in Figure 4.10. The assessment results show the central role of leadership, as represented by the CEO and the department heads from production, human resources, marketing, and quality assurance. As previously mentioned, these individuals led the company and placed direct communication in the forefront. This

style of leadership occasionally appeared to overrule the existing formal procedures. Accordingly, there was a disagreement between the top and lower level managers in production. Lower level managers strongly relied on knowledge based on practical experience, and so that they used their own interpretation and approach in implementing the quality policies. These managers often faced difficulties in convincing employees about the objectives of production because the employees felt that they were told something by lower level managers that was different from what they heard from top management. This deviation affected practices on the shop floor, and was a reason behind the low achievement level in process management. However, this low achievement in process management produced high level achievements for customer satisfaction and business results. This gap indicates that the existing performance was a result of improvements to a simple and effective product and process quality management. This implies that the recent process of quality management implementation has not become established.

Figure 4.10
Spider web showing the status of quality achievement at HEC.



4.3.7 Conclusion

Intensive interactions with customers led the company to promote quality control activities by focusing on providing conformance to customer specifications in a product-oriented quality management. With this orientation, in 2000, HEC supplied about 30% of the world market with 1.2 millions units. This was achieved by intensive use of manual equipment in production. Several significant events challenged the company to undertake further quality management implementation as in Figure 4.9. Top management responded by pursuing certification of a quality assurance system. As a preparation for certification, the company restructured the organisation and performed a quality audit. Major and minor revisions to documentation, procedures and methods for improvement were executed. After ISO 9000 certification, the management transferred

responsibilities for quality to the quality assurance department. Considering the importance of quick strategic decision-making in customer services, the CEO appointed the head of the quality assurance department also as the head of the marketing department. The marketing department received all customer complaints, responded by replacing goods, and internally proposed an improvement plan. The quality assurance, production and purchasing departments were expected to support in interdepartmental cooperation. Without clear authorisation, employees from these departments considered that their roles were to serve the marketing department. This way of handling customer complaints was effective in fulfilling the targets of marketing, but not efficient from the view of production costs. Since employees considered quality improvement to be expensive, they were not sure about what they should do. Employees also primarily learnt and developed their capabilities based on a trial and error approach. This accepted practice strengthened the dominance of craftsmanship, under which improvement efforts were defined based on the contextual preferences of individuals.

4.4 Case description of the Automotive Assembly Company[3]

4.4.1 Introduction

The third case study was conducted from November 2001 to August 2002. The field research started with an introductory meeting with the general manager of the manufacturing division of AAC, who was in charge of daily activities on behalf of the board of directors. The meeting discussed the research objectives in detail and also defined the research limitations, especially in gathering financial data. A meeting with the general affairs section set out the necessary schedule for interviews and other data-gathering procedures. The second meeting with the general manager of the manufacturing division was to obtain an overview of the company, especially in relation to development, current knowledge and existing practices in terms of quality management. An extensive visit to the production facilities was also made. A total of 25 interviews with general managers, managers and section heads were scheduled, each for one and half hours, however, at the operationalisation stage, two respondents failed to show up due to out-of-office duties. In addition, two sets of questionnaires were used, firstly to review the quality management model with 25 respondents (managers and section heads), and secondly to gather information about the implementation process from 50 respondents drawn from employees below the section head level. Of the latter only 32 completed forms that were considered valid. Company data and other documentation were also collected concerning the implementation of quality management. A workshop with 21 employees (the general manager and other

[3] Part of this section was presented at the National Industrial Engineering Conference February 2002, hosted by Surabaya University - Indonesia.

managers) was held. This half-day workshop was aimed at presenting the results of the observations in order to obtain feedback for further analysis of the data.

4.4.2 Company overview

a. Ownership and vision

The company, referred to as AAC, is an assembler of a diesel-engined passenger car originally designed and produced by the Japanese. The initial activities of the company started in 1980 in anticipation of a government regulation that separated the business of assembling from that of a trade agency. An Indonesian group built the assembly facility in the vicinity of Jakarta. The company received orders from various car assemblers. In 1989, a group of industries, owned by Indonesian and Japanese interests, took over the ownership and put the company in its automotive division. The group started its operations in Indonesia in the 1960s and intensively introduced the Japanese way of quality control, mainly based on best practices at Komatsu, Fuji Xerox, Honda and Toyota. The group owned 99.99% of the AAC shares, with a private company owning the remaining few. This change of ownership fitted the aim of the group to become the leader in the growing Indonesian car market. In December 1990, a new facility was built in an area close to the center of Jakarta where other automotive-related industries operated. In 1992, AAC formally moved into this new location and specialized in car assembly, with most of the capacity being occupied with orders from Isuzu and Daihatsu. In October 1996, a company within the group, which is abbreviated to PM, extended its joint venture with Isuzu Motors Limited and Itochu Corporation of Japan. In 1997, due to a change in business structure as proposed by the Japanese counterpart, activities for Daihatsu were terminated. Subsequently, together with PM, AAC became the sole elements in Isuzu's business in Indonesia. In this framework, AAC was in charge of production and assembly, while PM was in charge of design and marketing.

b. The product, market and operations

With authority for design and marketing, PM was responsible for decisions about the volume of production, the supply of major components, and the quality standards. AAC had authority for the design and engineering of the manufacturing processes, the supply of consumables, and the delivery schedule. With this type of cooperation, the middle- and senior level employees of both companies co-performed various tasks, especially in planning for a new product. AAC set up its facility to produce passenger cars with 11 variants, which were defined based on dimensions, transmission systems, and types of engine. The flow for the main processes was organised on a single conveyor system from chassis assembly to final inspection. Two other parallel processes supported this system, i.e. an automated chassis welder and a painting process. After final inspection,

all units were directly sent to PM, located nearby. In this facility, the production cycle is about four minutes, or 2400 cars per month, which is close to current market demand.

c. The organisation and personnel

The AAC organisation was structured into two divisions. The manufacturing division had six departments, i.e. production, safety and environment, quality control, logistics, maintenance, and engineering. The finance and administration division had two departments, i.e. finance and accounting, and human resource development. Members of the board of directors came to the facility only for strategic meetings with the division heads, which occurred only once monthly or less. As a consequence, the head of the manufacturing division was effectively the person in charge of the company. Within the existing structure, there were several managerial and operational levels with their own salary scales.

In 2001, AAC had 1467 employees, of which only 12 were female employees and none of whom were in production. About 90% of the employees worked on production, and the rest were in management including the two in top managers (the heads of divisions), 25 middle-level managers (as the heads of departments and sections), and others as management staff and office support. This structure shows that the company focused on manufacturing. As determined by the group's management, lower-level employees had a one-year temporary contract before they were accepted or rejected based on assessment of individual performance. At the time that AAC became the only company involved with the Isuzu business in 1997, the number of employees was 257. This increased to 1694 in 2000, and then, in a restructuring, reduced by 227 employees in 2001. Among the employees, 57 had university education, and 1379 had achieved high school educational level at best, of which three held middle managerial level.

4.4.3 Contextual elements

Using the five dimensions of culture (Hofstede, 1994), the context of the national culture was measured using a questionnaire. The results indicate that the employees tended to have a high power distance, be individualist, have a low uncertainty avoidance, show feminine traits and have a short-term orientation, as shown in Figure 4.11. These characteristics influence an individual in their work and interactions and this characterises the organisational culture. In terms of the influences of the national culture, the organisational culture can be described as result-oriented, job-oriented, parochial, open, tight control, and normative, as shown in Figure 4.12.

Figure 4.11
The culture of the individuals at AAC

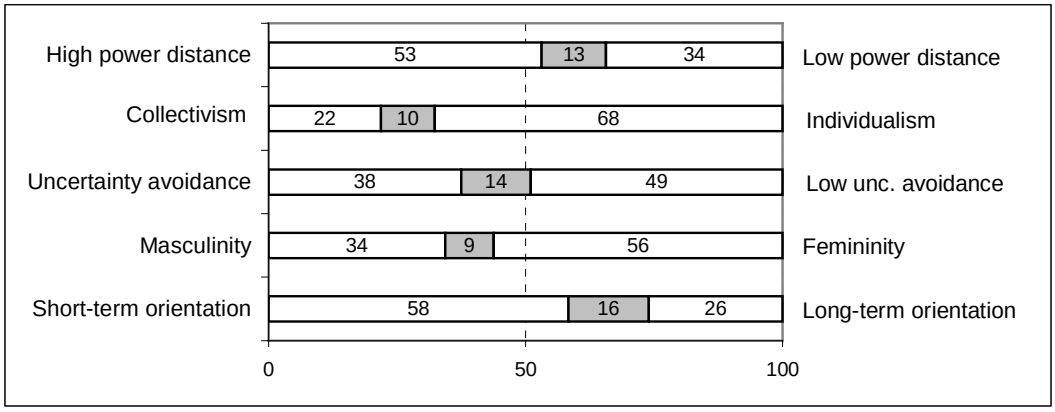
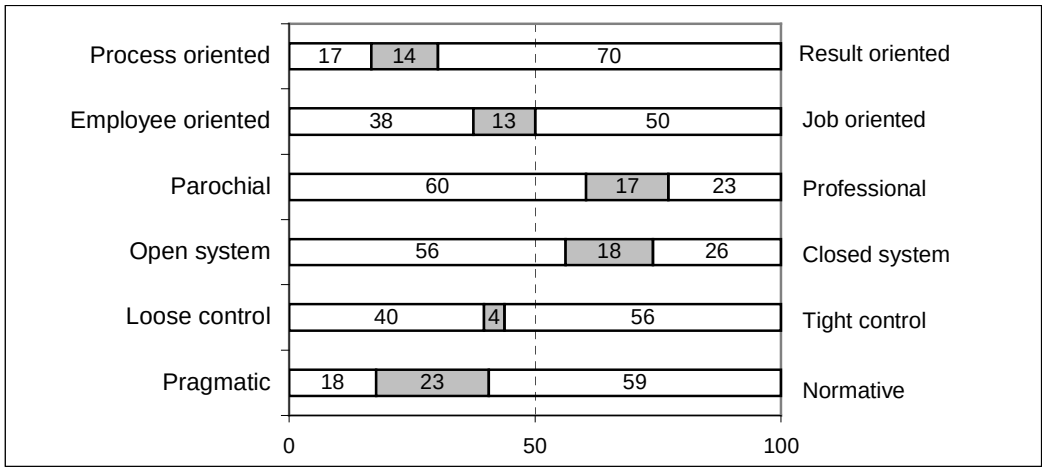
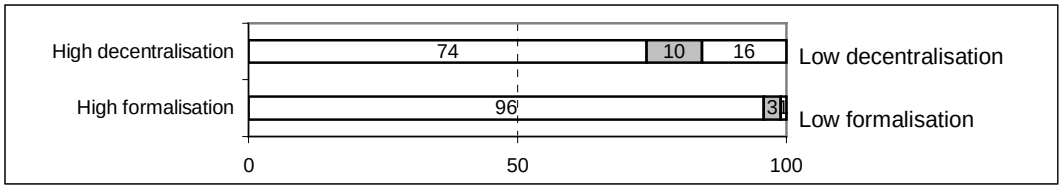


Figure 4.12
The organisational culture of AAC



An automated production system to maximise throughput determined the operational character of the company. Production processes were managed by comprehensive and highly controlled standard operating procedures. This formed the organisation into one that was decentralized with a high degree of formalisation as shown in Figure 4.13. Comprehensive and standard operating procedures and their effect on the development of skills and attitudes were the related contextual factors that affected the organisational form.

Figure 4.13
Degree of formalisation and decentralisation at AAC



With given capacity design and targets, the company substantially focused on standard operating procedures for production guided by seven core policies:

- Follow ISO9000, ISO14000, AMS, and health and safety systems.
- Meet the quality standard for customer satisfaction.
- Avoid and reduce waste.
- Minimise energy consumption.
- Make the working environment secure and comfortable.
- Follow environmental safety and health regulations.
- Perform continuous improvements.

Within this setting, the head of the manufacturing division received daily reports of production and the status of work in process. This report also described problems that occurred during the day, so that any deviation from the planning could be detected. In response, the next morning, the head of manufacturing division walked through the plant to have a direct overview of the situation, to appreciate the successful achievements, or to discuss further with any foreman who had problems. If there was a serious problem, it was usually followed up by an immediate response at the managerial level in terms of close monitoring, coordination, and direct involvement for improvement. The head of the manufacturing division mentioned that what he did was monitoring and finding defects as feedback for improvement. This practice is based on a philosophy that was adapted from the Japanese way of managing the production shop floor. This routine practice had created a solid basis for cultivating continuous improvement. The philosophy formed the foundation for the “suggestion system” that was initially operationalised as an employee evaluation of performance. Under this system, employees should make at least one individual suggestion for improvements each year. Suggestions were not limited to their job, but could cover all aspects of the company's operations.

The active involvement of the lower-level employees in making suggestions for improvements created a feeling of being recognised, and so they considered most of the tasks and responsibilities to be decentralised. The top management had the same attitude towards decentralisation and therefore implemented a policy to keep employees on the right track, especially in production. The policy emphasised the encouragement of

continuous improvement with a “how-to” guide that was part of the intensively-monitored standard operating procedures. The procedures detailed who has to report to whom and how. These procedures involved operators, group leaders, foremen and supervisors. This practice did not only intensify the development of operators' skills but also formed an attitude of high formalisation. It was adapted into the organisational culture which became a result, job and open-system oriented. Top management considered this development to be the result of a series of processes of improvements.

4.4.4 The implementation process

Since the change of ownership, there were three significant events that influenced the process of quality management implementation. Firstly, a change in the group orientation that not only covered decisions on investment, but also encouraged the use of a management system, by each member. Here, the group changed its guidance for a management system from Astra Total Quality Control (ATQC) to Astra Total Quality Management (ATQM) plus Astra Management System (AMS). ATQC is a comprehensive quality control method mainly adapted from the Japanese total quality control approach. ATQM is an expansion of ATQC to include strategic management. AMS is a comprehensive management system provided by the group management team, and is obligatory for all member companies of the group. Secondly, in 1997, an improved joint venture relationship with Isuzu Motors Limited and Itochu Corporation of Japan restructured the pattern of business and made AAC the sole manufacturer for Isuzu in Indonesia. The third significant event was the national economic crisis that forced AAC to introduce a policy for efficiency to meet the new customer requirements.

As the largest conglomerate in the automotive business in Indonesia, the group had a close cooperation with the Japanese partners, and this greatly influenced the member companies by introducing unique values, norms, and practices. The various cooperations with Japanese counterparts enabled the group to gain knowledge from various perspectives. To integrate these values, norms, experiences and practices, in the 1980s, the group developed a management system to link and unite resources, capabilities and identities. The management system was called ATQC, and adapted from the Japanese-style TQC. Accordingly, the group introduced a “quality control circle” approach to generate actual improvements, mostly in production. Along with the intensive introduction of ISO 9000 to Indonesia in the early 1990s, the group integrated the principles of a quality assurance system into ATQC. The group formed an implementation team and encouraged member companies to comply with the ISO 9000 quality assurance system. AAC was certified in 1994, with support from the group implementation team, and was able to renew it in 1996 without help. As a follow-up, AAC initiated a change from a downward, vertical approach to cross-functional activity management with a sharing of responsibilities and target fulfilment.

In 1997, the group reorganised its business that affected AAC. Within the revised structure of business, AAC was the sole assembler of products, while the design and marketing-related activities were given to PM. Under the new structure, the mission of AAC was to produce cars based on specifications set by PM. A major re-organisation of the manufacturing facilities took place creating a complete single assembly line. Japanese engineers were involved in this re-organisation and some of them remained in the company to monitor production. They also cooperated with top management in problem solving and improving manufacturing performance. The Japanese gave "a different touch" to managing production, which previously was characterised as procedural. To promote flexibility, top management promoted a bottom-up quality improvement approach by adopting a "find the defect" philosophy from the Japanese. Based on this approach, top management aligned the way of managing quality including employees' obligations for proposing improvement suggestions, in a PDCA (plan, do, check, and action) cycle. This new arrangement implied employee awareness for incremental quality improvement. This development affected the degree of specialisation of employees and created a rigid manufacturing system with a high degree of decentralisation and formalisation. One result was a target production time of 2.6 minutes per car. This was considered impossible. At that time, AAC found it difficult to produce a car within 10 minutes. After intensive improvement actions, AAC was able to produce a car every 4 minutes. This production time fitted with the current average monthly demand as set by PM.

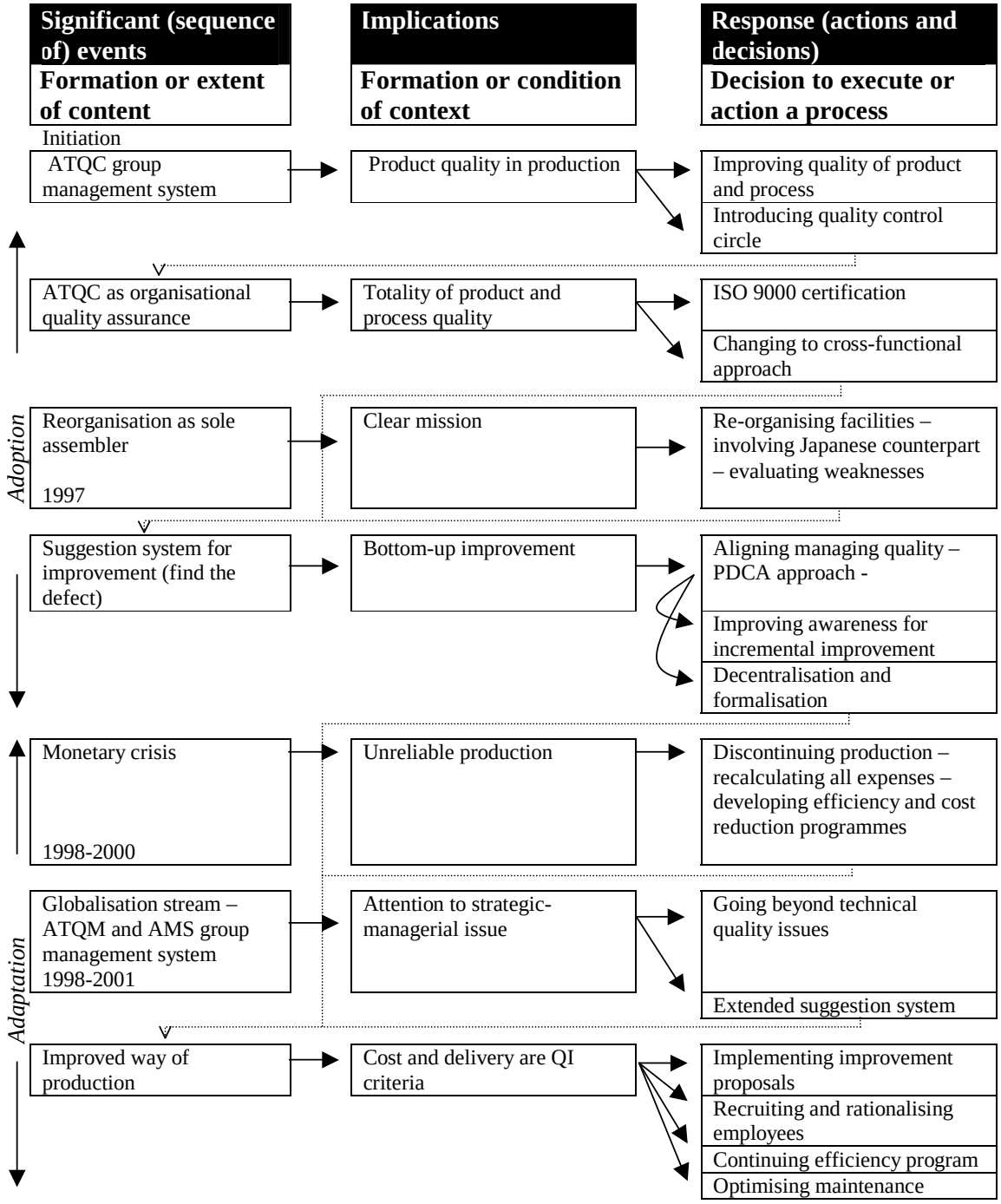
Shortly after the first re-organisation, a monetary crisis occurred in Indonesia, which had severe consequences for the automotive industry. The production costs increased significantly because many components were imported. One year after the crisis, AAC ceased its production activities and kept only 257 employees on as a core team to ensure survival. The management of the group calculated all implications on cost of production to be competitive in the post-crisis Indonesian automotive market. AAC re-evaluated its production processes and launched a comprehensive program for efficiency and cost reduction. The effectiveness of the improvement effort was measured in terms of reduction of time, energy required and the use of material, which were then combined in terms of a reduction in production cycle time and cost. Within one year, the top management considered that certain proposals were feasible, and started to implement these improvement projects. At this stage, AAC recruited an additional 150 experienced employees. Close coordination with PM resulted in a plan to restart production because AAC had succeeded with a relatively new way of production that met the targets for reduced production costs. In 2000, AAC operated with full production with about 1700 employees, while continuing with a second wave of efficiency and cost reduction programmes. After successfully achieving the production target, top management continued with a plan to optimise maintenance. As a result, without reducing the rate of production, top management successfully rationalised the

employee numbers with about a 13% reduction and reduced working hours (only four working days per week), while maintaining the rate of production.

During the survival period, further transformations changed the group-orientation by following advanced management methods introduced in the west. Successful improvement projects were presented in international seminars in order to gain advanced feedback from non-Japanese professionals. Top management from production and human resources also participated in international management training. As a result, the group started to consider the importance of strategic management and conducted training for managers of its member companies. This development brought the group to the decision to change its management system to ATQM in 1998. This change expanded the attention from only technical-operational issues to include attention to strategic-managerial issues. In 2001, the group renewed its management system to AMS with two objectives. Firstly, the plurality of the various companies' characteristics was considered as the wealth of the group, and thus the implemented management system should be flexible to fit the unique features of the companies. Secondly, to accommodate the introduction of new of management tools and concepts, the implemented management system should be an open system. Accordingly, each company was expected to build its own management system autonomously. They were encouraged to use advanced tools, approaches, or concepts. The top management of AAC responded by promoting the totality of quality improvement beyond the technical product quality. Suggestions for improvements were not limited only to one's own jobs, but could cover problems throughout the organisation, or related external issues such as environmental protection.

The chronological approach in the implementation processes is shown in Figure 4.14. This provides a picture of how the quality management system and practices were developed.

Figure 4.14
The process of quality management implementation at AAC



4.4.5 Content of quality management

The review of the appropriateness of the EFQM model for AAC involved respondents selected from among the employees. From the collected data, the reliability testing and the appropriateness of the model are discussed in Section 4.5. The content analysis of the quality management system is given below.

a. Leadership

Since the board of directors rarely visited the company, the heads of divisions handled the daily leadership in the company. Compared to the finance and human resources division, the head of the manufacturing division held the major authority and responsibility, and thus influenced the leadership style in the company. Having more than ten years of experience in automotive manufacturing, the head of the manufacturing division put the standard operating procedures to the fore which also set a progressive target for achievement within a short-term cycle, which was regularly re-evaluated for the subsequent cycles. Authorisation for decision-making was decentralised. This style of management made the leaders of each group of employees involved with evaluating performance to determine the next achievement target. Reports of production performance (and also related problems) were made twice a day, while responses from the section head were on the same or the following day. These were all evaluated at the managerial level once a week under the supervision of the division heads, who were kept aware of any "abnormal situation" called a "defect". The manager or the head of division usually took a decision depending on the scope of the resulting conclusion. Even if the head of division had an exclusive right to make certain decisions, he usually let the managers to do so to maintain a bottom-up process in decision-making.

The top management showed their commitment to quality by highly appreciating successful improvements. Formally, the improvement ideas through the suggestion system and its related practices were the major input in employee appraisal. Informally, in daily shop floor monitoring, the division head expressed his direct appreciation to the employees or group that accomplished an improvement. Within this practice, the AAC leadership intensified the process of diffusion of the idea of the importance of continuous improvement. However, when top management showed recognition to a particular group, there were mixed responses from other groups due to a lack of understanding of tasks and responsibility. These groups often felt that there were different levels of appreciation from top management and this influenced coordination between groups. The coordination was only fruitful between groups involved in production, or in a situation where there was a common need such as a critical situation. However, it was difficult to realise coordination based on trust. Coordination was achieved without much difficulty at the managerial level, while in many instances its

execution at the lower levels was achieved through a top-down directive, occasionally with coercive instructions.

b. Policy and strategy

In developing policy and strategy, AAC was under a strong influence from the value system of the group. The group management system was expected to transform sets of values (i.e. business and work ethics, basic principles and the philosophy of the group) into sets of behaviours as a unique organisational culture of the company. The formal vision of the group was a customer focus, total participation, and continuous improvement and innovation. Within this vision, AAC focused on customer satisfaction for its policy and had a strategy that was characterised by a distinctive method of deployment consisting of elements of a quality management system, the use of information, a structure for planning, communication, and evaluation for improvement feedback. All of these elements had standard operating procedures that, in general, covered no more than the operational-tactical issues in manufacturing. The board of directors, who commonly also held similar top positions in other companies within the group, handled the strategic issues in human resources and finance as an integrated part of the group's policy and strategy. In its operationalisation, the heads of divisions were responsible for autonomously bridging these strategic issues into an operational plan.

With this "guided" strategy and policy, the top management formally explained the strategic issues in terms of company objectives, and encouraged the middle-level managers to discuss the appropriate substance. If they met crucial objections, top management reformulated the objectives, or took these strategic issues back to the group for re-evaluation. Otherwise, the middle-level managers proceeded to determine the targets and the working instructions to achieve them, and communicated (occasionally as directed) with the lower-level supervisors in the weekly meetings. These meetings often resulted in bottom-up feedback that would be considered in seeking solutions, corrections or improvements. At the same time, as part of the bridging mission, the head of the manufacturing division closely monitored the actual implementation. Consequently, manufacturing performances were communicated transparently throughout the company, while financial performance was communicated in terms of positive or negative trends.

c. People management

The group's management took most decisions on technical and managerial training, and on human resources management, including salary and career paths for employee middle managerial level employees and above. The group's management exclusively made decisions over the positions of directors and heads of divisions at AAC. Their rewards were not solely determined by the achievement of the company, but also by the achievement of the related companies in the group. Accordingly, they were expected to

have a high level of concern for both internal and external developments. The top management of AAC made the decisions over recruiting lower-level managers and operators. Before being formally accepted, new recruits for the middle-managerial level were employed as management trainees on a temporary contract, and were evaluated within one year. Within the company's policy on human resources, a superior exclusively evaluated a subordinate. Directors appraised the performance of middle-level managers based on a recommended evaluation by the division head. Their conclusion could include a recommendation for promotion to another company in the group. For the lower level employees, their direct superior in the hierarchy regularly appraised work performance, and the human resource manager evaluated the result in consideration of salary, reward, promotion and need for training. Promotion to another company was not possible unless they were being promoted to the middle managerial level, except in cases where there was a very specific requirement. Apart from salary, bonuses for the lower and middle level employees were fixed.

In terms of the group's training policy, the group handled about 80% of the training budget, and AAC the rest. For the lower-level employees, AAC put a high priority on "on-the-job-training" while the target for "classroom" training was 20 hours per employee per year while taking into consideration the time available. The human resources department formally was responsible for organising both types of training. However, in its operationalisation, direct supervisors in the manufacturing division directly supervised the on-the-job-training since they usually used a problem-solving approach with actual events and clear results. Without active knowledge acquisition on the dynamics of manufacturing, the role of the human resources department in this training was diminished. After a one-year pre-employment period, the lower level employees would be examined to see if they had acquired the minimum required skills; if not the company would not extend their temporary contracts, or they could be transferred to other supporting sections such as security or cleaning services. For supervisory and managerial levels, the top management set a target of 80 hours of classroom training per employee per year including management training organised by the group's human resources development division. Part of this training was "training-for-trainer" in order to build a capability to mentor the operators' "on-the-job-training". In the interviews, various managers explained that the existing training program was only sufficient for the existing requirements, especially in production, but were not sufficient for the future. They realised that the efforts towards a tightly-controlled production system was beneficial for manufacturing efficiency, but not enough to ensure organisational development. They insisted that the human resources department should actively propose a stimulating training program to the group's human resource development division. During the research, a workshop about self-assessment using the EFQM model as a new perspective was considered valuable, and something that could be proposed as an example of the required managerial training.

d. Resource management

AAC had little authorisation in managing resources, such as the budget, information, equipment and technology. Each time AAC proposed its annual plan for production, the top management included the estimated activity-based financial requirements, which excluded expenses for salaries, major components and investments. The managed budget was small compared to the value of sales. Most of this budget was used for consumables and internal training. The finance department controlled the budget and regularly reported to the group. Since the total was small, a deviation of about 10% was considered tolerable.

Data and reports were organised in AAC's information management system that had been standardised following the development of procedures for ISO 9000. Initially, top management ordered employees to collect data manually because the system was completely new to them. The department of information management was responsible for managing all the data, and performed analyses and distributed these to the related departments and sections for decision-making. The internal information system was not connected to the group information system, but a development towards an integrated enterprise system was in progress.

Problems in production mostly came from a breakdown of equipment. Accordingly, the company's annual plan mentioned the importance of maintenance activities, but this received less priority than manufacturing activities. Under the AMS agenda, maintenance was expected to be an integral part of daily activities, known as total productive maintenance. However, the accomplishment of this was difficult, and even created problems such as an increase in production lead-time. In the revised organisational structure, the maintenance department managed regular maintenance activities not in regular working days. On a regular basis, the management allocated time for maintenance in the weekly schedule while seeking suitable ways to implement total productive maintenance. In a few cases of breakdowns, the problem turned out to be caused by parts' non-conformity, and not by the equipment. Parts' non-conformity mostly occurred due to administrative error or miscommunication with suppliers. As a direct response, the quality department intensified quality assurance of incoming material and reported to the head of the manufacturing division as a basis for appraising suppliers. The handling of non-conformances also required top-level discussions with PM's top management who was responsible for procurement. This usually took a long time. Employees in the maintenance department felt that the head of the manufacturing division unfairly put a higher priority on solving problems with parts' non-conformity than on maintenance.

e. Process management

The top management of the company focused on a cycle of identification, evaluation and improvement of all processes critical to product specification, planned budgets and delivery schedules. However, in the initial stage, what happened was a cycle of identification, evaluation, and adjustment rather than improvement. Most of the foremen were satisfied with this way of managing the processes. Up to this stage, employees preferred following standard operating procedures to thinking about opportunities for improvement. Process management was performed without any improvement. In the revised standard operating procedure, each year, employees were asked to submit an improvement proposal, referred to as a suggestion system. The ideas for improvement were not restricted to their own tasks. The direct superiors of the employees evaluated the expected benefit of the proposal as part of individual performance appraisal. With this practice, the company encouraged employees to actively participate in improvement and innovation. The lower-level employees have participated, but so far there have not been substantial ideas for improvement. Significant bottom-up improvement ideas usually resulted from in-depth inter-departmental discussions at middle and senior levels. Occasionally, these discussions were cross-company and involved employees at PM and suppliers. The company acknowledged the best idea in its annual convention. Most of the improvement ideas noted at the annual convention came from the manufacturing division.

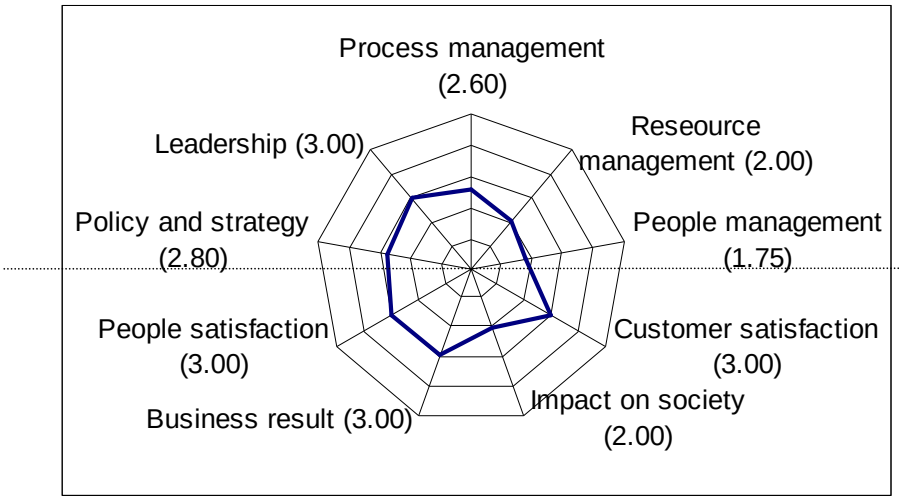
The standard operating procedures emphasised conformance to specification under the zero-defect program. The management had a strong belief in the "find the defect" philosophy introduced by their Japanese counterpart, which was operationalised through the suggestion system. To 'find the defect', inspections were made within and between the processes. Under this inspection program, production management received a summary of major defects daily, and directly made decisions on anticipated problems or improvements for the following day. The quality control department was responsible for decisions about conformance to specification, while the engineering department was responsible for the evaluation, supervision and improvement of the processes. Since this could lead to conflicts, the head of the manufacturing division closely supervised the co-ordination between these departments, and at the same time maintained the whole process in line with the objectives of the company. On a formal basis, top management reviewed the whole process monthly, and could propose a revision to the existing standard operating procedures. Only after a successful trial, would such a revision be communicated to the stakeholders, especially to the customers for confirmation of quality assurance before it was formally documented.

4.4.6 Current state of implementation

The implementation process has determined the present level of quality management achievement, as shown in Figure 4.15. In a flat organisational structure, the central role

of leadership, represented by the head of manufacturing division and the middle level managers, is important in supervising the development of quality management. In practice, cross-departmental cooperation continued smoothly. However, the role of the group in resource and people management led to differences in the level of achievements between policy and strategy, and people and resources management. These dependencies, however, gave positive impacts on results as shown by the high achievements for people satisfaction, business result, and customer satisfaction. These results indicate that quality management was managed well at AAC.

Figure 4.15
The spider web showing the status of quality achievement at AAC



4.4.7 Conclusion

The company's operations had started more than twenty years ago, but the present, effective quality management was only developed during the last six years. The change of ownership in becoming a member of an automotive conglomeration influenced the current way of managing the business and the company. During the development process, AAC experienced three significant events that critically influenced its quality management system, i.e. the change of the group management system from ATQC to AMS, the reorganisation of business as Isuzu's sole assembler, and the monetary crisis. These events led the company towards top-down control in the managing manufacturing processes, with a well-organized identification, evaluation and adjustment cycle. Through its development, employee cooperation in seeking improvements was encouraged but this did not lead to internally driven improvements, especially at the lower-level. However, in general, process management in a cycle of identification, evaluation and adjustment resulted in an effective bottom-up improvement process through the co-operative role of middle management.

AAC followed the management style and regulations of the group with restrictions on some issues, such as finance and human resource management. As described in the quality management assessment result, these restrictions led to a relatively low achievement in terms of resources management, people management and impact on society. Within these restrictions, on the one hand, the AAC management worked under given conditions that limited their efforts to make fundamental improvements and go beyond the present stage of development. On the other hand, these restrictions provided a focus that led to operational improvements being successful. Top management realised that this was a process-based strategy for gradual development. This strategy was in line with the development strategy of the group, which was highly influenced by the Japanese.

4.5 Summary of the case descriptions

The case descriptions in the previous sections highlight the similarities and differences in the approaches to implementation in the studied companies. A summary of the content, context and process of implementation is given in the following subsections, which will be used in the analysis and discussion in Chapter 5.

4.5.1 The content of quality management

Before evaluating the content of the quality management implementation, a review is made of the appropriateness of the elements of the EFQM model for describing the quality management content in the studied companies. The relationships between the elements of the EFQM model as measured using a correlation analysis [4]. The respondents involved in the study were selected from the employees who had experience of quality management programmes and/or education that could be considered equivalent to the required experience. In this measurement, a simple random method was used as the sampling method and data were collected from 24 respondents at MEC, 26 respondents at HEC and 25 respondents at AAC. The data analyses are as follows:

- **Reliability of the measures**. The results of the reliability testing are provided in Table 4.2. The results show that all the Cronbach-alpha coefficients are high; indicating that the measurement tool is reliable and appropriate for subsequent analyses.

[4] Part of the analyses in this subsection was presented at the 3rd Academic Meeting of the Indonesian Industrial Engineering Association August 2002, at Solo, hosted by State University of Surakarta – Indonesia.

Table 4.2
The Cronbach-alpha coefficients for reliability testing

Elements	MEC	HEC	AAC
Leadership	0.890	0.897	0.924
Policy and strategy	0.899	0.922	0.911
People management	0.892	0.898	0.884
Resources management	0.917	0.912	0.924
Process management	0.927	0.953	0.960
Customer satisfaction	0.916	0.927	0.946
Employee satisfaction	0.943	0.927	0.940
Impact on society	0.941	0.694	0.871
Business result	0.961	0.969	0.952

- **Internal validity**. An internal validity can be obtained if each item of the instrument has suitability with the whole items. The measurement tool includes 92 items (see Appendix B). In this study, the critical value r_α is determined based on the sample size and the significance level, and the critical values of r_α ,in these internal validations, are 0.349 (MEC), 0.469 (HEC), and 0.408 (AAC). For HEC and AAC, all of the items have correlation coefficients higher than the critical value. For MEC, most of the items have higher correlation coefficients than the critical value, except for item #1 - policy and strategy, item #5 - people management, and item #10 - employee satisfaction. In further observations of each company, the attributes with low correlations should be eliminated from the list for further analysis.
- **Canonical correlation analysis**. This analysis measures the linear combination of *m* predictors of variable X with *n* predictors of variable Y. The model consisted of 9 variables of the EFQM model that form 12 relationships as in Table 4.3. The figures in this table show the canonical correlation coefficients for each relationship. For MEC, HEC and AAC all the relationships, in general, have a high significance. The relationships between employee satisfaction and business result, and impact on society and business result at MEC are not as high as the others.

Table 4.3
The canonical correlation coefficients of element relationships

Relationships	MEC	HEC	AAC
Leadership – Policy & strategy	0.923	0.881	0.762
Leadership – People management	0.857	0.918	0.728
Leadership – Resources management	0.952	0.931	0.765
Policy & strategy – Process management	0.904	0.929	0.782
People management – Process management	0.987	0.831	0.776
Resources management – Process management	0.943	0.832	0.829
Process management – Customer satisfaction	0.998	0.832	0.864
Process management – Employee satisfaction	0.994	0.825	0.796
Process management – Impact on society	0.978	0.834	0.788
Customer satisfaction – Business result	0.943	0.832	0.944
Employee satisfaction – Business result	0.667	0.832	0.790
Impact on society – Business result	0.676	0.872	0.829

A high value of the correlation coefficient in this measurement implies that the quality management structure in the EFQM model is suitable for modelling the quality management content of these companies. The results of fitting the relationships to elements of the EFQM model show that there are significant linear relationships between variables, and thus it confirms the first research issue concerning its appropriateness as a quality management model for these companies. This result does not imply an appropriateness of the model for the Indonesian situation in general. To investigate generalisation, the analysis continues by integrating the data in a cross-case analysis in the next chapter.

Based on the quality management model developed by the EFQM, the leadership holds a central role in guiding the operationalisation of quality management in the company. With regard to quality management implementation, the leadership conveys the essence of the organisational vision about quality into the plan, which is deployed in the policy and strategy to guide managing resources and people. These elements are important in managing the quality management process, in which the capability of the supporting systems and the influence of the related context have an influence on the effectiveness. A summary of the constructed quality management content (i.e. leadership, policy and strategy, people management, resource management, and process management) in the studied companies is given in Table 4.4.

Table 4.4
The summary of the developed quality management content

MEC	HEC	AAC
Leadership		
Leadership style was a top-down patronising approach based on formal procedures. Authorisation was formally decentralised, but a bottom-up approach was not easy because employees expected guidance. The brainpower at the top of the company generated all decisions. Top-bottom coordination was so formal that it did not function.	Leadership style strongly considered human inter-relationships through direct (informal) communications and real examples. Responsibilities were decentralised to the middle level managers who led based on practical experience. Top-bottom coordination was formal, but was not often restricted.	The leadership closely monitored based on standard operating procedures and short-term targets, utilised feedback of daily reports, and acted directly and immediately. The authorisation for decision-making was decentralised and this encouraged a bottom-up process. Coordination was at the managerial level while execution was at the lower levels.
Policy and strategy		
With a customer-oriented vision, quality management was to maintain competitiveness. Top management presented general strategic information about progress, successes and the future plans. Quality assurance department took responsibility for the reorientation of quality management principles to the rest of the company. The goals of departments had not been streamlined towards a coherent objective.	The top management vision was to produce high quality products and improving the people. The meaning of the vision needed a set of understandable examples with achievable objectives. The department heads merely set operational targets by referring to the marketing target in the annual plan, which acted as the company policy. In this case, a flexible way of implementing the policy was preferable and it flowed as a "trial and error" approach with an assumed direction.	Under the formal vision of the group, the internal policy and strategy were directed to focus on customer satisfaction. Top management set the objectives and encouraged middle managers to discuss the substance. Middle management set targets and work instructions, and communicated or occasionally directed them to the lower-level supervisors in weekly meetings. The meetings often resulted with bottom-up feedback for a solution, correction or improvement, which was monitored by the head of the manufacturing division.

MEC	HEC	AAC
Managing People		
The human resource department developed systems for reward, promotion and training to promote people development. Top and middle level employees benefited from the opportunities of these supporting systems, but the lower-level employees failed to do so. Employees in production were rated daily and earned bonuses as a group based on quality and production achievements. The production department was characterised by standardisation and division of labour into small tasks governed by formal rules and extensive procedures. In contrast, the degree of formalisation in non-production work was low.	The company had a reward system for operational performance that was measured by monthly targets, for both individuals and groups. The financial reward was considered insignificant; it lowered the commitment towards quality improvement. Individual achievement as a consideration in promotion was more appreciated than the financial reward. The training effectiveness had never been properly measured or evaluated and had little effect on promotion. The priority for training was lower than that for achieving production target.	The group made decisions on training and human resources management, including salary and career paths for the managerial level. The top management's performance rating was assumed to correlate to business performance, but reward was not solely determined by the rating. Middle level considered the appraisal in terms of promotion, while lower-level employees considered the result in terms of reward, training and salary. The company put a high priority on "on-the-job-training" compared to classroom training. The training was focused on problem solving; it was exploitative rather than explorative for further development.
Resources Management		
Most supplied materials were standardised, and thus the supplier relationships were considered as good in terms of quality and quantity. There were a lot of budget, supporting facilities and knowledge resources available in the company to back up improvement efforts. MEC built a library not only for production technology but also for management technology and best practices, but the valuable information seemed only to give benefit to the top and middle levels managers.	The purchasing department held responsibility for supplier relationships and used criteria of quality, delivery and cost, which were measured and reported regularly. Considering the fluctuations in quality, all supplied products were protected by a contract as a formal guarantee agreement. It was still difficult to build a sustainable relationship based on trust. Additional investment for facilities was not significant; the company relied more on the employees' skills.	AAC had little authorisation in managing budget, information, equipment and technology. The annual production plan included the estimated activities based on budget but excluding costs for salaries and investment. The data and reporting were organised by a standardised information management system based on ISO 9000 procedures. The priority for maintenance was less than the priority given to production activities.

MEC	HEC	AAC
Managing process		
The quality department (separated from production) took major role in managing quality activities. Audit teams from the quality department checked the compliance of activities with standard procedures. Sufficiently advanced in practising the SPC and the QC circles, but often ineffective. Facts about qualitative and quantitative performances were circulated across departments and the status reports were distributed weekly to production and staff managers. The QC circles lacked the information and capabilities needed to make intelligent decisions and create feedback to complete the PDCA cycle.	Managing quality activities meant handling customer complaints. The marketing department mostly reacted by immediately replacing faulty products. Later, the marketing and quality assurance departments followed up by forming a taskforce, with a problem-solving approach, including purchasing and production departments. The taskforce followed a similar procedure to in a quality circle but with unclear priorities for decision-making. Direct intervention of the quality assurance department in production and assembly was frequent. Kept the manual processes and promoted an intensive maintenance program for efficiency and productivity.	The QC department was responsible for specification, while the engineering department was responsible for evaluation, supervision and improvement. The existing standard operating procedures promoted conformance to specification under the zero defect program. Actual process management amounted to identification, re-evaluation and adjustment based on standards. The head of the manufacturing division supervised, co-ordinated and maintained the implementation process. Suggestions for improvements as part of performance appraisal did encourage participation. Improvement ideas mostly came from production where most of the problems originated.

4.5.2 The context of the implementation

Quality management experts hold the opinion that participation of all people contribute to the effectiveness of the implementation process. Participation by the people in an organisation has an effect on the construction of organisational culture and the structure as an influential context for quality management implementation. The variations in participation can be complementary, reinforcing or cancel each other out in terms of the impacts on the desired effectiveness. A summary of the influences and the developed context of organisational culture and structure, at the studied companies, is given in Table 4.5.

Table 4.5

Summary of the influences of context on implementation

MEC	HEC	AAC
General external context		
• The manufacturing companies were facing difficulties in investing in advanced and efficient technology; as it was expensive and created dependencies on support. • Low educational level of production employees. • Limited experience in advanced management methods.		
General context (specific to the company)		
• Unclear focuses in terms of regulations about the industry, technology and labour.	• Tight specification of product defined by the customer.	• Japanese values in vision and policy. • Partial direct involvement of the group (including the Japanese counterparts) in operational and strategic management, especially on human resource and financial issues.
National culture		
• Most employees were suburban females with short-term employment periods. • The employees were characterised as having a high power distance, individualistic, uncertainty avoiding, feminine, and with a short-term orientation.	• Most employees came from rural areas near the company with traditional agricultural values. • The employees were characterised as having a high power distance, individualistic, uncertainty avoiding, evenly maculine-feminine, and with a short-term orientation.	• Most of employees were male came from urban and sub-urban area of a metropolitan. • The employees were characterised as having a high power distance, individualistic, uncertainty avoiding, feminine, and with a short-term orientation.
Organisational culture		
• The organisational culture was characterised as result-oriented, job-oriented, parochial, evenly closed-and open-oriented, tight control, and normative.	• The organisational culture was characterised as result-oriented, job-oriented, parochial, evenly closed-and open-oriented, tight control, and normative.	• The organisational culture was characterised as result-oriented, job-oriented, parochial, open-oriented, tight control, and normative.
Organisational formation		
• Decentralised. • Highly formalised.	• Decentralised. • Highly formalised.	• Highly decentralised. • Extremely formalised.

4.5.3 The implementation process

Based on the occurrences of significant events, a summary of actions and their expected impacts is given in Table 4.6. The contents of the quality management implementation were often fundamental, in which the components and their features were mostly new to the existing organisational contexts. In this situation, the role of top management was considered important in managing the implementation processes and in developing capabilities for change. Referring to Figure 4.4, Figure 4.9, and Figure 1.14; a summary of the significant events, the strategic decisions and the expected impacts on the developed quality management is given in Table 4.7.

Table 4.6
The implications on the strategic decisions and the expected impacts

The significant events	The strategic decisions	The expected impacts
MEC		
The change of ownership from American leadership to Indonesian and Singaporean entities.	Reorganise the management and its systems. Change and adopt a suitable way of managing the company. Build and improve marketing capability and create customer-oriented attitudes. Improve management in handling customer complaints. Change from mass production to mass customisation.	New effective organisation and management. Improved marketing with a customer-oriented attitude. Improved procedures for handling complaints and internal improvement. Operating production as mass customisation.
Order cancellation due to the absence of quality assurance system certification.	Create plan for quality assurance certification. Institutionalise the quality management system.	Developed quality assurance system in the company. New content and philosophy for quality management.
HEC		
The recognition by a producer of a well-known product.	Plan for standardising product specification. Build production capability. Seek opportunity for marketing.	Standard specification. Established mass-customised production system. Improved market share.
Rejection of own brand name by foreign market.	Build and set up production as sub contractor.	Established mass customised production system.
The increase in demand to over one million units.	Improve production capabilityand intensified quality control and management.	Established higher capacity and efficiency in production through maintenance.
AAC		
The change of group (and owner) business orientation.	Reorganise the existing organisation. Seek a new philosophy for the company.	Reorganised structure. Institutionalised new philosophy.
The change of status to a sole manufacturer that created a clear business focus.	Set the objectives of the company. Change the production system.	A reliable production target. Dedicated production facilities with an operational quality management system.
The national monetary crisis that forced the management to introduce a policy for efficiency.	Create plan for efficiency.	Significant reductions in production cost and time. Intensive maintenance.

Table 4.7

Summary of the implementation process

MEC	HEC	AAC
The role of top management		
• Due to external pressure, the change of leadership demanded a change of vision about quality management, i.e. customer satisfaction. • Developed policy covering product performance, delivery, employee improvement through training, and continuous quality assessment. • Downward communication was formal and used strategic objectives that focused on targets.	• The vision was developed through experience of trading to subcontracting manufacture, which was highly influenced by the success in satisfying customers. • The importance of customer specifications led to product-oriented quality management. • Focus on production effectiveness through a direct communication approach for product assurance.	• Top management carried the vision from the group into an operational plan that focused on production. • Introduced the "find the defect" philosophy as operationalised by a suggestion system with close monitoring and immediate actions. • Performed informal communication through direct monitoring. • Encouraged direct involvement in improvement.
The implementation means		
• Initiated with a new quality assurance system, which a quality implementation team started with the existing system plus necessary modifications. • Diffusion by the quality assu-rance department through training, functional documentation and auditing. • These were relatively new (except for the training), and thus a directive and coercive means were considered necessary.	• Initiated by an inspection attitude that all activities should deliver the best products based on customer specification. • Used technical and real examples for vertical diffusion of product-oriented QC. • Built a quality assurance system (with consultant support), which was institutionalised as a formal standard operating procedure.	• Changed from a vertical orientation to cross-functional activity management with a clear definition of responsibilities and target fulfilment. • Vertical diffusion through communication (in monitoring) and direction (in problem solving). • Horizontal diffusion with involvement in problem solving.
The developed capability		
• Following the predetermined standards and specifications. • The need for improvement was focused on efforts to meet targets. • Do-check-adjust.	• Mixing experience with the determined standards and specifications. • Used a contextual approach for problem-solving and improvement. • Do-check-adjust-(and occasionally improve).	• Active improvement based on the found defect in the suggestion system. • A high degree of specialisation created a solid manufacturing system with a high degree of decentralisation and formalisation. • Suggest-do-check-adjust or improve-standardise.

CHAPTER 5 CROSS-CASE ANALYSIS AND DISCUSSION

5.1 Introduction

This chapter presents a cross-case analysis by comparing the cases side-by-side in order to gain an overall insight into the quality management implementation. The presentation follows a structure, as outlined in Chapter 3, in which the findings from the field research will be evaluated in relation to the developed research issues. Based on this evaluation, the analysis continues by addressing the constructions of the dimensions of content, context and process, through which the typical ways of quality management implementation at the studied companies can be identified. Discussions on the ways of implementing quality management continue through the perspectives of structure and action, an organisational model, implementation sequence and strategy, cultural formation, and achievements and impacts on inter-organisational relationships. The findings from the cross-cases analyses, and the discussions on these perspectives, lead to a discussion on the typology of ways of implementing quality management.

5.2 The quality management content

5.2.1 The appropriateness of elements of the EFQM model

Research issue 1:
To investigate the relationships between elements of the EFQM model to assess its appropriateness as a quality management model in the Indonesian situation.

Before evaluating the elements concerning quality management content, it is important to check their appropriateness by reviewing the relationships between elements based on the EFQM model as a reference construct. The details of the canonical correlation analysis used for reviewing the relationships between the elements of the quality management model for each organisations were given in Section 4.5.1. A high value of the correlation coefficient implies a closeness of an element to another, and thus the overall closeness in a constructed model (as in the EFQM model) indicates an appropriateness of the chosen elements for describing a quality management model empirically. Since the results show a close relationship between the elements of the model at each studied company, this provides reassurance concerning the first research issue. A further canonical correlation analysis of all the cases to assess the appropriateness of the elements in constructing a general quality management model is now done. This analysis involves combining data from all three studied companies. The

result of this correlation analysis (as shown in Table 5.1) is lower than the values of the correlation coefficients at each studied companies as shown in Table 4.3.

Table 5.1
The canonical correlation coefficients for the combined data

Relationships	Correlation coefficients
Leadership – Policy & strategy	0.617
Leadership – People management	0.520
Leadership – Resources management	0.660
Policy & strategy – Process management	0.526
People management – Process management	0.467
Resources management – Process management	0.404
Process management – Customer satisfaction	0.633
Process management – Employee satisfaction	0.567
Process management – Impact on society	0.686
Customer satisfaction – Business result	0.467
Employee satisfaction – Business result	0.587
Impact on society – Business result	0.678

Without completely disregarding the possibility of errors in the measurement instruments and the process of data collection, the correlation coefficients in Table 5.1 indicate the existence of unexplained variability in the combined data. The strong correlation within each company (see Table 4.3) forms a specific pattern of relationships. A pattern of relationships in one company can be different from the patterns in other companies. If this is the case, then combining data from multiple companies can result in a mixed pattern, which can lead to lower values of the correlation coefficients (as in Table 5.1). Even though all these companies had built their quality management systems based on the ISO 9000 quality assurance system, the inconsistency in the results of the correlation analysis (on individual and on combined data) indicates that there are considerable discrepancies among the companies. These differences in patterns of relationships could be caused by differences in (i) the individual perceptions of items in each element, (ii) the actual level of quality management achievements, and (iii) the existing approaches to quality management implementation. The first cause invites a redesign of the measurement tools. The existence of the last two causes cannot be explained only through the statistical analyses: they will have to be considered further in the subsequent cross-case study analyses.

5.2.2 The content of quality management

Research issue 2:
2.a. To investigate how leadership formulates the desired end state of an organisation in its vision, policy and strategy, and as an explicit (action) plan for managing quality.
2.b. To investigate the influence of the developed policy, strategy and plan on resource and people management in order to perform a quality management process.
2.c. To investigate the effectiveness of supporting systems in the operationalisation of managing people, resources and process.

With respect to research issue 2.a, the roles undertaken by top and, to an extent, middle level managers, in general, represented the leadership in all three studied companies. At the lower levels, the role of supervisors in non-technical issues, such as leadership or decision-making, was not significant. The owner, who was formally external to the company, made key contributions to leadership and decision-making at AAC. At the studied companies, the leaderships contributed in formulating the companies' visions which, as they should be, were also stated in the objectives of the company. The developed visions reflected the significance of implementing quality management, which then shaped policy, strategy and the explicit action plans for managing quality. The role of leadership, and the desired end state of the organisation, are shown in Table 5.2.

Table 5.2
The role of leadership in formulating the desired end state

Scope	Characteristics	MEC	HEC	AAC
Leadership role	• Formulate the vision autonomously	+	+	-
	• Communicate the vision directly	+	+	+
	• Monitor the operationalisation effectively	-	+	+
	• Decentralise the needed authorisations	-	+	+
The desired end state	• Stated in general definition as the policy	+	+	-
	• The policy makes clear the strategic objectives	+	+	+
	• The policy clarifies the operational objectives	-	+	+
	• The details for operationalisation are clear	-	-	+

Notes: (+) Performed or stated.
(-) Not clearly performed or stated.

Unlike the other two companies, the owner of AAC had a direct involvement in internal matters. This involvement limited the scope of the responsibility of the AAC management. As a result, AAC defined its policy and strategy that put into detail only in product quality and delivery. This focus on product quality and delivery resulted in an explicit operational plan for production. This focus enabled middle-level management to internalise the essence of the policy and its implication in a strategy and a concrete plan, which then formed the basis for managing quality. In contrast, in the two other companies, wide definition of visions ensured that the understanding of quality management remained a philosophical concept that was understood only by top management. As a result, its realisation into policy, strategy and plan was complicated. A top-down patronising approach characterised the style of leadership that insisted on formal procedures in an effort to direct the vision. In addition, HEC's top management promoted informal personal relationships through direct communications that provided actual examples and improved the understanding of the concept. This approach was effective in smoothing the processes in realising the conceptual objective as a reasonable end. From these findings, it can be concluded that the leadership formulates the objectives of an organisation as a vision that reflects the importance of quality management. However, although the scope, clarity and focus of the vision, and the approach to communication specify the objective into the policy, inconsistencies can occur in defining the strategy and plan.

With respect to research issue 2.b, in all studied companies, the vision translation into policy, strategy and plan was done as expected at the introduction stage, but later it did not precisely determine the people and resources management, so that the expected impact on managing process varied. The characteristics in managing people, resource and process at the studied companies are given in Table 5.3.

Table 5.3
The characteristics of people, resource and process management

Scope	Characteristics	MEC	HEC	AAC
People management	• Formal approach for performance appraisal	+	-	-
	• People development through effective training	-	+	+
	• Building motivation through rewards	-	-	-
	• Building motivation through promotion	-	+	+
	• Constructive impact of development and motivation on quality practices	-	+	+
Resource management	• Build trust-based external relationships, instead of formal contracts as guarantee	-	-	+
	• Build extensive internal resources (budget, training, library etc.)	+	-	-
	• Intensified (effective) information system	-	-	+
	• Intensified maintenance of facilities	-	+	+
	• Constructive impact of managing resources on quality practices	-	-	+
Managing process	• Quality department is dominant	+	+	-
	• Product-orientation in managing quality	+	+	-
	• Encourage decentralised improvements (e.g. quality control circles)	-	+	+
	• Constructive impact of managing processes on quality practices	-	-	+

Notes: (+) Performed or stated.
(-) Not clearly performed or stated.

Based on the developed policies and strategies, the studied companies focused on two aspects of managing people, i.e. people development and building motivation which, however, were guided normatively. In terms of people development, the companies developed training programmes to improve skills and knowledge. Two approaches to training were used, i.e. classroom and on-the-job, but only the on-the-job-training significantly contributed to skills improvement, especially in production. This positive result subsequently influenced the strategy for people development at HEC and AAC. In both companies, intensive communications about actual practices played a key role in problem-solving activities that eventually led to significant improvements in the way of managing the process. However, a decrease in attention from the top management due to the high rate of production at HEC allowed lower-level supervisors to proceed in their own contextual ways. This practice led to a trial-and-error approach. In building motivation, the studied companies developed reward systems to encourage employees' participation in improvement. The reward systems provided a scheme to show

appreciation for efforts in terms of improvements through financial bonuses and merit for future promotion. In terms of financial bonuses, the reward scheme did not work for two reasons. The first reason was that the reward system was not transparent and provided only small bonuses. The second reason was that the bonus was not individually distributed. It was given to a group of employees with different capabilities, and thus the different contributions and roles in the improvement effort were not recognised. In terms of gaining merit for promotion, the reward system was motivating since it had an impact on individuals and had a clear end state. Employees felt that the reward system was not only linked with payment but was also recognition of their contributions.

Two of studied companies fully managed various resources, i.e. supplier relationships, budgets, facilities, information, and technology, while AAC only had partial responsibility for these resources. In terms of supplier relationships, fruitful experiences in customer relations influenced the way of managing suppliers. MEC and HEC built their customer relationships on formal contracts to provide assurance. In managing their suppliers, HEC tried to build trust-based relationships and did experience certain results, e.g. purchase contracts with few detailed specifications, but it did not succeed further because the volume of purchases increased significantly and as a consequence it could not reach the quality standards. In a different situation, as a co-maker, AAC acted as the production division of the group, and thus the production was closely monitored in a cooperation between AAC, Isuzu and the customer (PM). This cooperation was performed under a formal, but flexible, contract. This showed that trust between them was developing since they shared a common objective defined by the group. Likewise, AAC was practicing a flexible approach in managing its suppliers. All the studied companies had a tight system for managing their budgets. HEC provided flexibility in disbursement decisions only in relation to efforts to improve customer satisfaction. Production facilities in the studied companies utilised equipment ranging from manual, through mechanised, to automated. The limitations on new investments led the managements to keeping operations within the existing facilities. Consequently, they intensified maintenance activities that heavily relied on the skills of their employees. However, they made little effort to develop such skills because engineering and maintenance tasks had lower priorities than production. The management considered maintenance only in the event of failures; this implies that maintenance was not seen as directly related to quality, and thus was only considered for corrective action instead of as a way of preventing failures. Recent developments at AAC have improved the effectiveness of maintenance by providing additional authorisation for preventive maintenance. Regarding supplier relationships, budgets and production, all three companies did not benefit from information systems and technology. Managers preferred to react to actual problems, instead of anticipating future problems.

The developed policy and strategy, and the way of managing people and resources, reflected the way of managing the process. Except at AAC, the quality departments had a dominant role in managing quality and this occasionally created unnecessary friction with the production department. This implies that even though quality assurance certification had been awarded, the quality management system was not well institutionalised. The quality departments acted as though they were still in a project aiming for certification and pushed close monitoring of the standard operating procedures, especially the inspection activities. The strong power held by the top management at HEC contributed to the formation of this inspection attitude while, at MEC, it was due to the internal complexity of the quality management system. To avoid a deteriorating climate, AAC encouraged middle-level managers to adopt a mediating role through the decentralisation of authorities which eased the decision-making process in managing quality.

From these findings, it is concluded that the vision translation was as expected in the introduction stage, but later it did not fully determine the people and resources management. As a result, the expected impact on the managing process was not achieved, with the exception of AAC which had a clear focus on production, and had simple procedures for managing people and resources. The lack of clarity and focus in organisational policy led to deviations from the decided path towards the objective which, in turn, created difficulties in managing the process.

With respect to research issue 2.c., the supporting systems, i.e. rewards, promotion and training, were developed as part of the people and resources management changes, and thus their effectiveness was determined by the practices in these fields. The effectiveness of the supporting systems at the studied companies were characterised as shown in Table 5.4.

Table 5.4

The effectiveness of supporting systems

Scope	Characteristics	MEC	HEC	AAC
Supporting system for quality practices and improvement	• Effective financial reward system	-	-	-
	• Effective employee promotion system	-	+	+
	• Effective (classroom or on-the-job) training	-	-	+
	• Effective information system	-	-	+
	• Effective maintenance and engineering	-	+	+

Notes: (+) Performed or stated.

(-) Not clearly performed or stated.

Information systems, as an important support item in the implementation, were not properly utilised. Based on the developed quality management systems, the operating procedures and their rules for action were not integrated into the existing information system. The findings showed almost a dichotomy between MEC and AAC. Within the

studied companies, only AAC was able to make use of the information system effectively, especially for intensive monitoring, reporting and decision-making. As the benefits were becoming clear, the management proposed a plan to build an enterprise system that would accommodate and significantly improve the existing information system. At MEC, however, an advanced integrated enterprise system was installed by the Information System Section but failed to be effective due to the complexity of the integrated system and the lack of support from other departments. The information system manager responsible restarted the installation process by individually tailoring the operationalisation of the system. During the study period, the information system was not yet fully developed. The maintenance system component was inappropriately used in the studied companies. At MEC and HEC, the failure of production equipment was considered to be accidental, and so it was handled as a curative adjustment action. AAC had started to optimise their maintenance system since interruptions caused major losses of time and costs compared to other problems in the company. Fundamental changes were made to the maintenance operations that resulted in a planned schedule for thorough preventive and predictive maintenance.

5.3 The implementation context

Research issue 3:
3.a. To investigate the influence of organisational contexts on the formation of organisational culture and structure.
3.b. To investigate the formation of a particular organisational culture and structure as a constructive foundation for quality management.

The formation of organisational culture and structure at the studied companies was influenced by national, organisational and individual contexts. The findings on formation and the impact of culture and structure at the studied companies are summarised in Table 5.5.

Table 5.5
The formation and impact of culture and structure

Scope	Characteristics	MEC	HEC	AAC
Impact of culture and structure	• The developed organisational culture positively influences the quality management	-	-	+
	• The developed structure positively influences the quality management	-	+	+

Notes: (+) Performed or stated.
(-) Not clearly performed or stated.

Hofstede (2001) characterises Indonesian society as having a high power distance, being collectivist, avoiding uncertainty, and masculine; and time orientation is not discussed. In relation to research issue 3.a., individuals at the studied companies were found to favour high power distance, be individualist, avoiding uncertainty, have feminine traits and a short-term orientation. These characteristics were determined from statements by respondents about each of the dimensions - whether they agree or disagree. In this assessment, the overall characteristics are based on the most responses. For example in the dimension of collectivism-individualism, the respondents in all the companies favoured individualism over collectivism. Similarly, the respondents in all the companies indicated high power distance, femininity, and short-term orientation, but the differences between agree and disagree were not as high as in the collectivism-individualism dimension. In terms of uncertainty avoidance, respondents from AAC favoured low uncertainty avoidance, whereas respondents in the other two companies agreed with high uncertainty avoidance. The only difference result between these findings and Hofstede (2001) is for the dimension of individualism-collectivism. Our findings showed an individualist character in all the studied organisations (more than 60% respondents selected statements that could be characterised as individualist). However, further observations such as in the interviews and in visual observations, characterised practices that were more likely to occur in a collectivist culture, such as being tolerant of other members of a group, or commenting that togetherness was more important than the result. This implies that our cultural measure was not properly representing the practice.

The characteristics of individuals, assessed through dimensions of national culture, influenced the construction of organisational culture. The characteristics of the organisational cultures in the three studied companies were similar. The clear differences in terms of the national culture dimension of uncertainty avoidance at AAC appeared to influence the open-close and pragmatic-normative organisational culture dimensions. AAC was more open and normatively-oriented than MEC and HEC. Small differences were also found in the dimensions of result-process, employee-job, parochial-professional, and loose-tight. The differences between the agree and the disagree responses were small on most dimensions, except for the dimensions of process-oriented and parochial. For the open-close dimension, the responses varied; MEC was slightly close-oriented, HEC was slightly open-oriented, and AAC was clearly open-oriented. With these findings, the organisational culture dimension at the studied companies were concluded as being result-oriented, job oriented, parochial, tight controlled and normative.

The individuals at two of the studied organisations (MEC and HEC) showed a high power distance and high uncertainty avoidance. These culture characteristics contributed to the formation of control-oriented and mechanistic organisations that supported the development of parochial and normative orientations. With the impact of

the economic crisis as the national context, the difficulties in investing for advanced and efficient technology led the companies go on using the existing manual processes that highly depended up on the employee's technical skills. In this situation, the organisations needed to maintain a balance between the conditions (i.e. the use of manual processes and technically skilled employees) and the implications (i.e. limited product quality and low salaries). From the interviews, it is concluded that top management considered that skilled employees with low salaries were still in line with the workforce availability that, in general, was characterised as having technical skills and low educational levels. This situation had two implications at the organisational level. Firstly, tight customer specifications were operationalised by a strict control of technical specifications, which led to tight control. This practice built an attitude of "meeting customer specifications" that focused on technical specifications. It implied that the orientation was on the job rather than on the employee. Employees were directed towards understanding the specifications technically, monitoring their outcome, self-evaluating in terms of the specifications, and following standard procedures. Accordingly, employees assumed that (i) the developed standard operating procedures were correct, which led to a result-oriented culture, and (ii) judged any non-conformances as employees' mistakes, which led to a normative culture. Secondly, the adopted vision, such as customer satisfaction or a "find the defect" philosophy, contributed to creating a problem-solving orientation. With a lack of the necessary knowledge, and without sufficient guidance, however, employees understandably turned to a trial and error approach. The lack of knowledge also limited the problem-solving to internal issues, which influenced the formation of a parochial-oriented culture.

The structure of the studied companies was highly decentralised and formalised. In this situation, decentralisation is a condition in which top management delegates authority for decision-making to managers lower down in the hierarchy. Johnson and Scholes (1999) use the term "devolution" for such decentralisation, and see the transition as a continuum rather than a black-and-white choice. In general, wide gaps in income between the lower and upper levels commonly results in a high hierarchy of organisational structure. In Indonesia, one's position, as social status, and income (or money), as a measure of wealth, commonly determine the degree of power of an individual (e.g. Robison, 1996). Considering income as a measure of power, this high hierarchical system has a tendency towards creating a high power distance within an organisation. In contrast, in terms of the categorization of tasks, the functional structure of the organisations were flat. As a consequence, decentralisation in functional terms could be realised easily. Instead of creating flexibility, a high hierarchy plus a high power distance led to a high degree of formalisation for three reasons. Firstly, based on their good knowledge, experience and formal position in the structure, the top management centralised the decision-making. Secondly, the superficial understanding of customer satisfaction had led to inspection-oriented quality management, and thus

created a result-oriented culture. Considering the requirement for results as the final target, employees adopted a trial and error approach to improvements due to their limited skills. In anticipation and to avoid further deviations from the plans, the management responded by giving directions (and occasionally coercing) the workers to follow the standard operating procedures that structured formalisation in the organisation. Thirdly, besides quality, the studied companies paid attention to delivery deadlines as an important requirement in mass-customisation. With this new requirement, employees were no longer working at their usual speed. They experienced pressure to meet the due dates for each job order. With high volume production, employees just did their job and became mechanistic, exhausted, and passive, and thus heavily relied on standard-operating procedures.

From these findings, it can be concluded that the transformation of the organisations into decentralised and formalised structures at the studied companies was influenced by the national, organisational and individual contexts. However, the decentralisation of tasks was not always followed by the decentralisation of authorisation for decision-making. This condition led to a high degree of formalisation rather than the flexibility which is favourable for the implementation of quality management.

5.4 The implementation process

5.4.1 The role of significant events

Research issue 4:	
4.a.	To investigate how motivation building initiates a decision to implement.
4.b.	To investigate how top management makes influential decisions and actions in achieving the reorientation of strategic and operational issues.

The implementation of quality management actions was, in many instances, initiated by significant events that motivated the decision-maker. At the studied companies, the implementation was triggered by internal and external events that sometimes turned into pressures and opportunities. The significant events, which are seen as initial reactions and decisions in response to these occurrences, are presented in Table 5.6.

Table 5.6

The significant events and critical actions-decisions.

	Non-technical issues	Technical issues
Significant events	• Change of ownership • Change of business orientation or status • Change of management system • Rejection of own brand • Order cancellation due to lack of certification • Influence of foreign quality philosophy • National monetary crisis	• Recognition of product quality • Increase in production rate
The critical actions-decisions in response to the events	**Strategic decisions**	
	• Adopt strategic norm, value, mindset or philosophy • Restructure organisation • Decision to subcontract • Restructure management system • Improve marketing capability	• Adopt and certify quality assurance system • Restructure production system
	Operational decisions	
	• Institutionalise quality management principles • Adapt quality principles into concrete activities	• Quick response to customer complaint • Plan for efficiency • Standardise product specifications • Improve capability in production • Improve quality control activities • Improve maintenance effectiveness

All the significant events are considered to be external pressures, e.g. the domination of external entities and unavoidable external situations, which in many cases originated from uncontrollable and uncoordinated events. The companies considered these pressures to critically affect both non-technical and technical issues, and motivated the company to react. Since the events were triggered from the external environment, the pressures were usually sensed and internalised by the top management. As a result, initial actions were mostly rationalistic normative strategic decisions as an approach that follows the continuum of decision-making processes as described by Johnson (1987). Similarly, Chaffee (1985) defines it as a linear strategy. On the one hand, such events motivate top management to engage in improvement programmes. On the other hand, the impacts of these events were foreseen in both operational and strategic decisions that critically affected the process of quality management implementation, either directly or indirectly. Once a decision was made, the organisation was forced to consider it in terms of its policy, strategy and operations. Specifically, these significant events determined the company's policy on quality management which, consequently,

had strategic and operational impacts on the internal structure and its elements. Based on these normative strategic decisions and the expected results in relation to quality management implementation, the challenge created by the significant events motivated the organisations to initiate quality management implementations, which, however, were mostly directed at technical-operational issues.

These significant events mostly came as pressures on non-technical strategic issues, for which only the top level of the organisations had the necessary knowledge, and capabilities to sense and make initial and subsequent reactions. Accordingly, in response to these events, the top management directed strategic and operational decisions, fully-based on their held values and experiences, which rarely conformed to the characteristics of the lower-level employees. The reactions and decisions were expected to have an effective impact on quality management practices, but their realisation in the operationalisation phases was varied. At MEC, for example, the reorientation was successful and resulted in ISO 9000 certification, but the process of diffusion was only executed by the quality department. In contrast, at AAC, the adopted philosophy triggered top management to not only enforce quality improvement, but also to institutionalise quality management practices for lower level employees. In the operationalisation, in general, only a few decisions actually led to successful strategic and operational reorientation.

5.4.2 Quality management implementation processes

Research issue 5:	
5.a.	To investigate how awareness and willingness create participation and involvement.
5.b.	To investigate the sufficiency of the participation and involvement of people to execute the process of change in quality management implementation.
5.c.	To investigate how the developed quality management system supports organisational learning.

With respect to research issue 5.a, significant events had motivated a decision to implement quality management, through which the organisation presumed the desired impacts would take place. The significant events at the studied companies were mostly strategic issues as external pressures, which were translated by top management into their visions, policies and strategies. The implications of such strategic decisions and their direction for operations are given in Table 5.7.

Table 5.7

The implications of strategic decisions and operational directives

Scope	Characteristics	MEC	HEC	AAC
Strategic action and decision in creating awareness	• Develop vision.	+	-	-
	• Develop policy.	+	+	-
	• Develop a strategic objective or key concept.	+	+	+
	• Decision to adopt system, procedure or operational method.	+	+	+
Direction for operations in creating willingness	• Develop operational objective or direction.	+	+	+
	• Conduct monitoring directly or with formal procedures.	+	+	+
	• Perform communication directly or with formal procedures.	-	+	+
	• Make decision over operational matter.	-	+	+
	• Encourage involvement.	-	-	+

Notes: (+) Performed or stated.

(-) Not clearly performed or stated.

The developed visions show that the top managements at the studied companies put a high priority on customer satisfaction in anticipating the impact of events. The visions were expressed as different formal statements, i.e. customer-oriented, product conformance and zero-defect achievement, which were followed by developing key concepts such as a strategic view and stating an intention as an operational directive. Strategic decisions and actions influenced the development of visions, policies, objectives, and key concepts, which led to the decision to adopt a quality management system and the development of operational guidance or procedures. The process of translation from the development of a vision to a decision for adoption includes processes that develop awareness about important principles of quality management, such as customer satisfaction. In the later stages, the top management amplified this awareness into understandable objectives, such as zero defects, which later were translated into operational guidance, such as the need to conform to the specifications. In execution, the lower-level managers developed procedures for producing and inspecting within the specification limits. Since the operational guidance was clear and measurable, employees were willing to participate in the quality management activities. The way in which the top management operationalised the systems, procedures and methods determined the subsequent implications. After developing their operational objectives, the studied companies continued in different ways with monitoring the operations while using communication to maintain the activities in line with the objectives. This communication was also used to encourage involvement in improvement activities. Employee involvement in improvement occurred only at AAC, through a suggestion system. Employees internalised the impact of their involvement as

providing improvement results in terms of a reduction in costs and production time, and this created willingness for further improvement. In conclusion, the early stages of implementation created awareness of improvement activities in all the studied companies. However, in two of the studied companies this hardly led to any participation and involvement because of a lack of clear deployment of company policy and strategy in operational activities.

With respect to research issue 5.b., the sequence of implementation processes at the studied companies can be characterised as (i) adoption of an instrument and (ii) means for adapting the instrument in the organisation. To minimise the risk of failure, the studied companies developed specific means for implementation beginning with strategic decision-making prior to implementation, and this determined the agent and method of diffusion as described in Table 5.8.

Table 5.8
The decision, agent and method of implementation.

Aspects	Characteristics	MEC	HEC	AAC
Strategic decision prior to, and after, instrument adoption	• Introduced necessary management concept or approach	-	+	+
	• Formed an exclusive implementation team	+	+	-
Agent for implementation	• Top management direct involvement	-	+	+
	• Production as a whole	-	+	+
	• The quality department	+	+	-
	• The implementation team	+	-	-
Method of diffusion	• Top down diffusion of concept or philosophy	-	+	+
	• Horizontal diffusion from department or team to the whole organisation	+	+	-
	• Diffusion through people	-	-	+
	• Diffusion through operational practices	-	+	+
	• Effectiveness of formal or planned methods, training, workshop, etc.	-	-	+

Notes: (+) Performed or stated.
(-) Not clearly performed or stated.

The studied companies had a common preference for a specific quality management system (i.e. the ISO 9000 quality assurance system) as the basic framework for quality management implementation. Apart from its role in international trade regulations, the senior-level decision for ISO 9000 certification was based on considerations that this quality management system covered elements of strategic and operational issues with a fact-based management approach. However, the decision was cautiously seen as having

a risk of failure since certain constituents were both fundamental and relatively new. Prior to adoption, the studied companies stated the necessity for the concept of quality management. However, only HEC and AAC clearly introduced the concept into the organisation. MEC introduced the concept formally but without using "understandable language", and thus only the implementation team and the quality department understood the concept. In AAC, the implementation process successfully attracted the participation of employees through the diffusion of operational practices to the whole organisation. With transparent authority in decision-making, this diffusion approach led individuals to adopt a "find-the-defect philosophy" in their working attitudes. Although limited to production and assembly areas, a comparable result was achieved at HEC, although the diffusion process involved only partial participation of individuals at the managerial level.

With respect to research issue 5.c., the diffusion processes at the studied companies were performed through both top-down and horizontal approaches through people or using an implementation team. Operational practices also contributed to the internalisation of the concept as practices. However, the strong role adopted by top management influenced the rationalistic assumption of the effectiveness of quality management system, and so superseded the nature of the learning process. Top management specified directive approach that was assumed to be beneficial for the organisation. Their strict monitoring and active involvement in decision-making were occasionally considered as directive or even coercive to a certain extent, although this did contribute to internalising the practical knowledge in production. This approach, in general, implied that employees performed the "do-check-adjust" process, not yet as a habit but more as a formal regulation. In a different approach, the top management of AAC provided an opportunity for managers to contribute to the realisation of the philosophy. The managers made use of a suggestion system to generate participation by employees. However, at the beginning this was put into effect as a formal performance appraisal. In this company, the introduced knowledge for improvement was implemented as explicit knowledge in production. Later, after completing cycles of realising their suggestion ideas and practising this as routine standard procedures, employees accepted it as tacit knowledge. This is also known as the internalisation of explicit operational knowledge (Nonaka and Takeuchi, 1995). The created participation thus improved the "do-check-adjust" practices with an appropriate feedback response, to form a "do-check-adjust-improve-standardise" loop, which was essential for creating the learning characteristics necessary for quality management implementation. In a view of managing process management (as suggested in Benner and Tushman, 2003), all the studied companies mapped and improved their processes, but only AAC consistently improved and achieved system orientation as in the Dutch Quality Award model.

5.5 Characterising the quality management implementation

5.*5.1 Introduction*

Considering the cross-case analyses of content, context and process, at the studied companies in the previous sections, the quality management implementation can be described through the status of the investigated research issues, which can be summarised as follows:

(1) Correlation analysis supported the significance of relationships between elements of the EFQM model, and so it can be considered that the constructs of these elements are appropriate for describing the quality management content at the studied companies.

(2) (a) Leadership defined the vision, policy and strategy, and an explicit action plan for managing quality, but this was done in a formal way. As a result it formulated only part of the desired end state for the organisation. (b) The vision translation into policy, strategy and planning failed to specify the resources and people management. In this event, the organisations faced many difficulties in carrying out quality management activities towards their desired end state. (c) Some supporting systems effectively functioned, but others only moderately performed in the operationalisation of quality management elements.

(3) (a) The individual, organisational and national contexts specifically influenced the organisational formation at the studied companies. (b) Although the particular organisational formation resulted in a high level of decentralisation, it failed to promote flexibility.

(4) (a) The decision for implementation was initiated from motivation building, which was triggered by the occurrence of significant events. (b) However, the top management was not always successful in completing influential decisions and actions to achieve a reorientation of strategic and operational issues.

(5) (a) Awareness created participation, but it did not always lead to involvement in improvement activities. (b) Although there was participation and involvement of people, the process of change in quality management implementation only existed at the operational level. (c) Not all the studied companies developed an effective response feedback system for supporting continuous organisational learning.

The status of the investigated research issues indicates that the developments in quality management varied among the studied companies. These findings imply that the implementation of quality management at the studied companies did not have the sole direct impact on developing the quality management content. The implementation iteratively constructed the related context and process of implementation. From this viewpoint, the construction of one dimension resulted from interactions with the other two dimensions. The construction processes led to the developed context, content and

process of the implementation which were investigated during the research. Barley (1986) considers this progressive sequential development, into the "developed state", as structuring the cumulative effects.

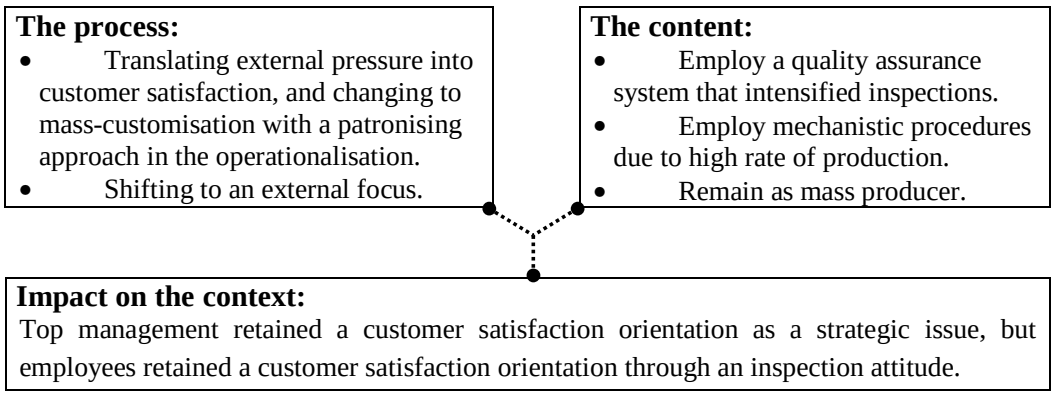
The iterative construction at the studied companies began with the occurrence of significant events that mostly originated externally, but which later turned into internal pressure, motivation, and objectives in the quality management implementation. In realising the existing internal conditions, only the top management had the capability to make appropriate responses in formulating policy and strategy. Later, the top management implemented the strategy in specific ways. The implementation is considered as ongoing. The quality management constructions used to characterise the ways of quality management implementation at the studied companies are given in the following sections. Based on the findings from the studied companies, these constructions can be re-formulated as ways of implementation. The use of labels for the ways of implementation (i.e. mechanistic, craftsmanship, or Taylorism) characterises the main or unique feature of the organisation ways in implementing quality management. These characterisations are aimed at showing the uniqueness of the ways of quality management implementation by highlighting significant events at the studied organisations.

5.5.2 Constructions and the way of implementation at MEC

Quality management implementation at MEC made customer satisfaction the key external motive. This motive was verified in the quality policy, in which developing a quality assurance system was aimed at ensuring customer satisfaction. One important implication of this policy was the decision to change the production style into mass-customisation. However, this decision covered only strategic issues, and the strong power of the top management dictated a downward execution. However, employees were forced back to mass-production due to two reasons. Firstly, a high production rate led to the specialisation of tasks with rigid standard operating procedures. This situation, later, led employees to become result- and job-oriented, which caused employees to re-appreciate the success of the past characterised by mass-production. Secondly, the implemented quality assurance system intensified the use of quality control tools, and put forward the role of the quality assurance department in inspection. This inspection-orientation only allowed products that conformed to specification. This resulted in customer satisfaction and so top management maintained the operations in this way. Intensive inspection, however, brought back the attitudes as in mass-production. Internally, these two reasons created differing views about the context of customer satisfaction. On the one hand, production employees realised the objective of customer satisfaction by delivering only conforming products through inspection. On the other hand, top management felt that they had successfully operationalised the customer satisfaction policy by developing the necessary quality assurance system. A

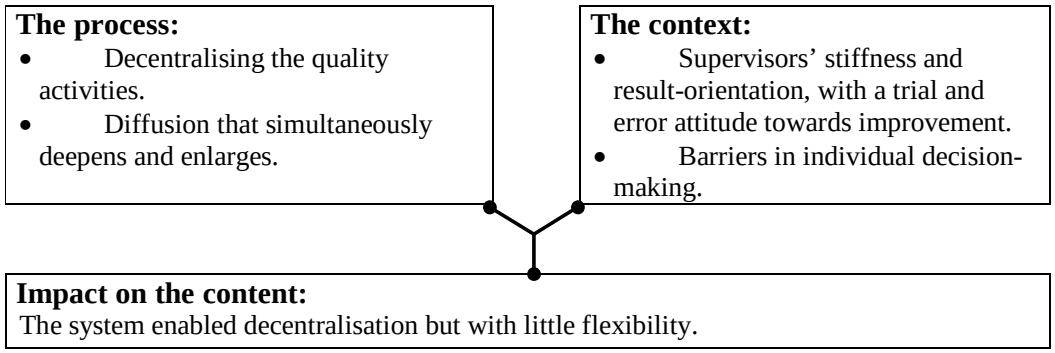
summary of the impacts of the process and content on context at MEC is given in Figure 5.1.

Figure 5.1
The impact of process and content on the context at MEC



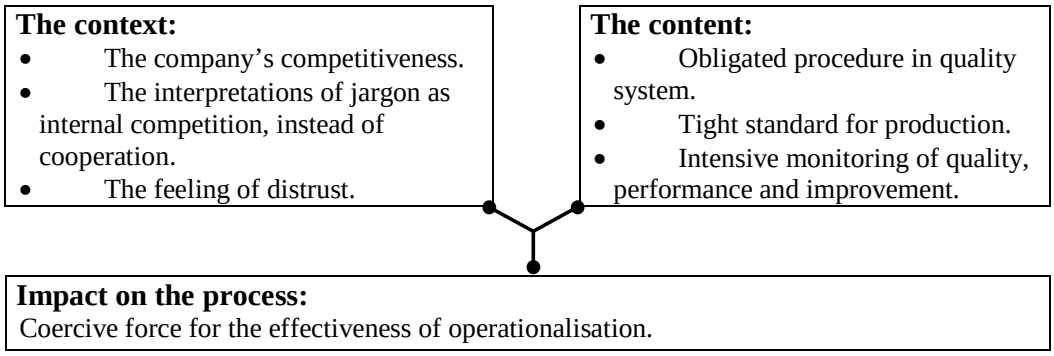
The top management at MEC decentralised the quality-related activities down to the supervisory levels, as required in the procedures of the quality assurance system. Instead of creating an atmosphere of flexibility, however, the top management rigidly guided all activities and this created a high degree of formalisation. Two reasons were identified as restricting the development of flexibility. Firstly, the quality assurance system was adopted and only then was it simultaneously deepened and enlarged. ISO 9000 certification was achieved in two years. In the adoption plan, the company formed a team for the adoption with the main task of internalising the idea in the employees. Since the team viewed certification as the target, they eased back after the certification. No substantial internalisation and socialisation program existed. Each department carried out subsequent internalisation under conditions in which their specific objectives diverged. Each department used their own understandings, based on their experiences, that led to a "trial and error" approach. Realising this situation, the top management reacted by emphasising the importance of following standards. Secondly, there was insufficient decision-making due to a lack of capability. In many cases, supervisors were promoted based only on technical skills, which made the handling of managerial problems difficult. Even if they found a solution, these supervisors frequently sought confirmation from higher levels. The problem-solving activities thus became unnecessarily complicated. As a result, they took the safest way, by merely following standard operating procedures. This implies that flexibility, as an objective of decentralisation, was rarely accomplished. A summary of the impacts of process and context on content at MEC is given in Figure 5.2.

Figure 5.2
The impact of process and context on the content at MEC



The changes in the top management set a new vision of quality management that established a number of views on the meaning of competitiveness. As a result, there were various responses. For top management, it was clear that to stay competitive was important for the organisation's sustainability. However, because of the intensive use of competitiveness jargon without a clear, understandable definition, the middle level management internalised the term competitive as "competition". The reward system was recognised as an acknowledgement of competitive performance, promotion was viewed as a winning competition with other employees, and the developed flexibility in management was considered as favouring production. These were all empirical examples of internal "competition". It was creating a "you and us" attitude, which later created a feeling of distrust. With a collectivist feeling as their background, competition was barely accepted by most employees, especially in their social relations. This condition became critical because the distrust grew intensely in the relationship between the quality assurance and production departments because the quality system forced procedures imposing tight standards on production. Both departments, which were expected to closely cooperate, claimed that they contributed most to the organisation. On one side, the production department felt that they made did the improvements while the quality assurance department only monitored their operations. Conversely, the quality assurance department considered that the production department often failed to follow up quality improvements appropriately, and thus needed to be controlled. When such a problem arose, the top management's decision referred back to the quality policy that forced employees to follow procedures. This implied that the quality assurance department held the key role. Under this presumption of superiority, the quality assurance department formalised the coercive force in their operationalisation of quality management. A summary of the impacts of context and content on the process of implementation at MEC is given in Figure 5.3.

Figure 5.3
The impact of context and content on the process at MEC



In the implementation of quality management at MEC, the following structures were found:

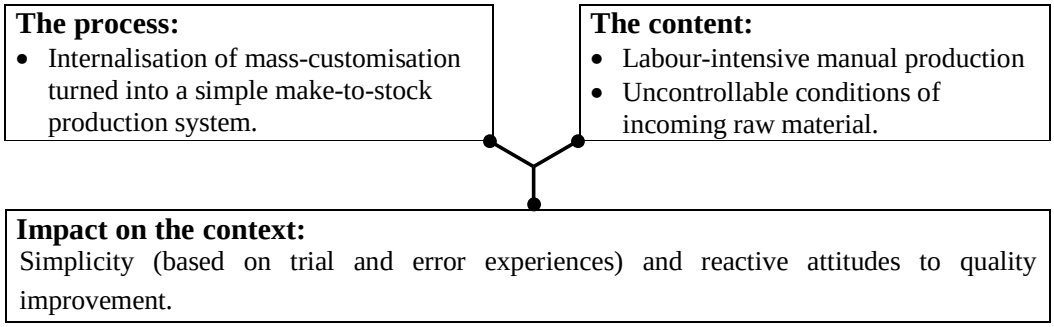
- ***The developed context.*** Top management maintained an external focus on customer satisfaction as a strategic issue, while the employees held an internal focus on customer satisfaction as an inspection issue in running the production.
- ***The developed content.*** The quality assurance system was developed and decentralised, however top management was too busy to build a capability for decision-making, and thus restricted the development of flexibility. The system enforced a mechanistic procedure as the basic characteristic of operationalisation.
- ***The developed process.*** Given a strong authority for achieving high quality, the quality assurance department established a coercive force to consistently follow the system and procedures towards effective operationalisation.

Within the developed context, the top management confidently adopted the ISO 9000 quality assurance system for two reasons. Firstly, ISO 9000 was internationally recognised as promoting customer satisfaction, which implied that it was in line with the objectives of the organisation. Secondly, this quality assurance system was widely assumed to have a direct impact on the quality management practices in the organisation. These reasons became a strong stimulus for the top management that was confident about the effectiveness of the system. The well-educated top management, with experience in the microelectronics industry translated this confidence into a rationalistic thinking on the adoption of the quality assurance system. Accordingly, the top management decentralised the task downwards, and was expecting a quick result. The top management failed to realise that the implemented system needed to be adapted, which in practice often fluctuated uncontrollably. In response, the top management enforced rigidity rather than flexibility. Since they expected a quick result, the rigidity led mechanistically to a coercive force to consistently follow the system and procedures. The term "mechanistic way" literally characterises the rigidity of a structure with a tight directive control.

5.5.3 Constructions and the way of implementation at HEC

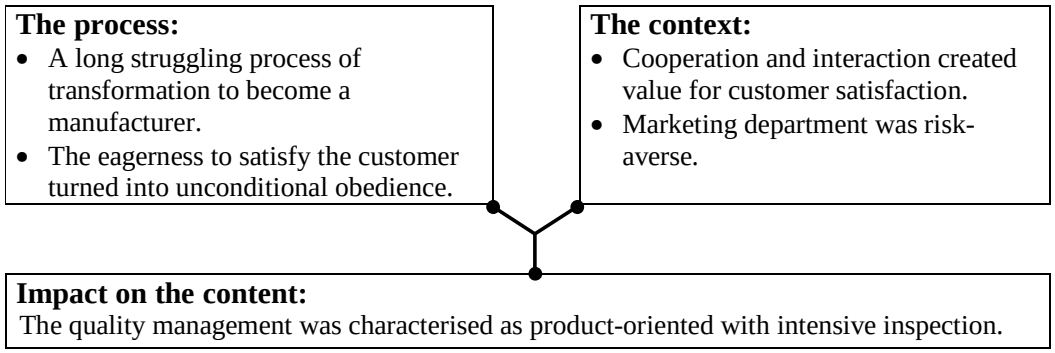
The transformation from trading to manufacturing led to a mass-customisation system that emphasised the key roles of marketing and production. However, because of a large increase in demand, the teamwork between marketing and production decayed and made coordination difficult. As a result, the production system turned into a make-to-stock process as in a mass-production system. In this way, the production became characterised as simply making products to the available capacity, storing them in the warehouse, and delivery based on incoming demand, while marketing only functioned as a sales activity. Since this is a simple approach, make-to-stock production was easily internalised into employees' practices. They simply made the products regardless of specific customer orders. It was common to produce more than the target in anticipation of demand increases due to having to replace defects. This practice resulted in employees being unaware of the change in their working attitude. Based on the fact that the demand was fulfilled, they assumed that they were good enough at the job. As an implication, without proper knowledge, they normally suspected uncontrollable external factors as the source of any problems. The contextual attitude to failures was created from experiences with manual rubber processing that actually did involve many uncontrollable factors. The raw material being natural rubber had properties that naturally fluctuated. It was common for employees handle it contextually, based on the actual condition of the rubber. In addition, the manual processing contributed to a long manufacturing lead-time, and thus the identification of the source of defects was difficult. With simple reasoning, employees followed their trial and error experiences in dealing with the source of defects. Employees learnt on the job, and built their skills so that they could react contextually. Correspondingly, the simplicity and reactive attitudes also occurred in making strategic decisions. For example, the formation of a management representative (a position one level below CEO) was based on the contextual reason of desiring ISO 9000 certification. The formation of management representative was a reaction based on short-term objectives. A summary of the impacts of process and content on the context at HEC is provided in Figure 5.4.

Figure 5.4
The impact of process and content on the context at MEC



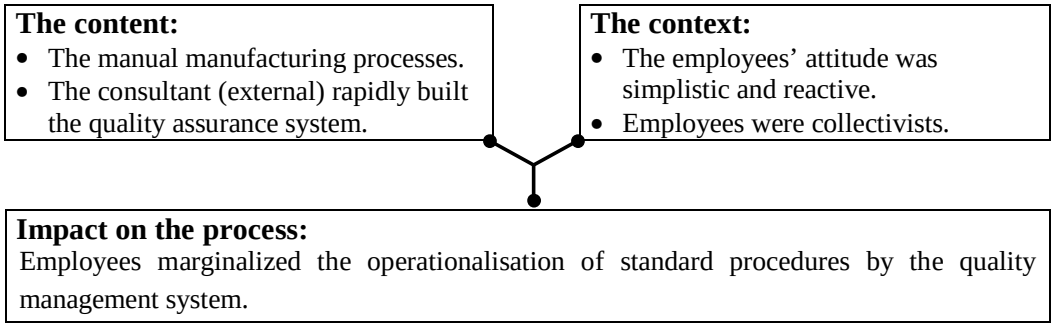
HEC started its operations as a trading company for foreign products. Long-term experience on technical and customer relationships had placed customer satisfaction as company policy. As cooperation advanced, the company had an opportunity to take on maintenance and engineering of components with close supervision of technical specifications. Further intensive cooperation encouraged the organisation to become a manufacturer. Some of the key people involved in this initial development have remained and hold key positions in the current organisational structure. As the heads of marketing, quality assurance, human resource and production departments, their roles characterised the detailed of quality management implementation. According to the structure, the marketing department deals with customer complaints and commonly issues immediate replacements. Since the customers highly appreciate this replacement policy, the marketing department has become accustomed to this practice. The replacement of non-conforming products became a widely accepted routine in response to customer complaints. This practise was recognised as the best way of keeping customer loyalty. Follow-up actions for improvement were rarely made. As the second priority, internal improvement actions were undertaken together with the quality assurance and production departments. In most cases, the managers of these departments formed a task force, often with little co-ordination by top management because they were too busy. Based on their diverse experiences, they also held various views on decision-taking and action. Production supervisors, as the executors, saw upper-level management participation as creating multiple objectives, and thus generating strategies in various directions. As a result, supervisors merely followed their own individual experiences in dealing with problems. They responded by delivering a conforming product as a replacement. As a result, inspection was considered to be the only effective action that characterised the quality management content. A summary of the impact of process and context on the content at HEC is given in Figure 5.5.

Figure 5.5
The impact of process and context on the content at HEC



HEC started with a limited manufacturing capacity. Due to a lack of financing capability, a few lowly-rated employees from the neighbourhood manually carried out manufacturing activities. As inhabitants of a suburban area, they were traditionally collectivists and so formed an "extended family" in their working relationships. They were willing to faithfully support, cooperate and complement each other. Employees were respected not merely for their job results, but also on their attitudes towards social relationships within the organisation and local society. Realising their background, accordingly, top management fine-tuned production and employee development. These efforts resulted in high employee satisfaction, while at the same time creating loyalty towards the organisation. This situation remained until customer demand increased significantly, which encouraged the organisation to implement an ISO 9000 quality assurance system. The desired quality assurance system was realised with the help of a consultant. The organisation intensified decentralisation of tasks and responsibilities, which was realised by grouping employees into divisions. The message on product quality was intensively indoctrinated into the lower levels. However, they became confused about their specific tasks and responsibilities. To speed up the diffusion, the implementation team and the consultant forced employees to strictly obey the new standard operating procedures. In an uncertain national economic situation, employees worried about losing their jobs. Accordingly, they tried hard to follow the procedures without explicitly expressing their opposition feelings. Employees felt that the change had disturbed their feeling of togetherness. Employees experienced it as 'dehumanising', moving from being a member of a family to part of the production resources with little authority and flexibility. As an implicit reaction, the employees marginalized the operationalisation of the standard procedures of the quality management system. They slowly eroded the strict role of standards while trying to re-promote the central role of people in a co-operative atmosphere. A summary of the impacts of content and context on the process at HEC is given in Figure 5.6.

Figure 5.6
The impact of content and context on the process at HEC



Concerning the implementation of quality management at HEC, the following structures were found:

- ***The developed context.*** Since employees tended to operate simply in a make-to-stock production approach with a strong context of manual production, simplicity and context characterised the attitude towards quality improvement.
- ***The developed content.*** To satisfy customers means delivering good products, while the internal evaluation of improvements was rarely followed up properly. The quality management is merely inspection of final product.
- ***The developed process.*** Accomplishing quality assurance certification and then institutionalising it amounted to an instant implementation strategy. In the operationalisation, employees were forced to follow the new system, which was completely different to their existing behaviour. Afraid of losing their jobs, they turned the existing practice into the requirements of the new system. As an implicit reaction, employees marginalized the standard procedures of the quality management system.

Learning from experience with long-term customer relationships, top management had a strong attitude towards customer satisfaction, and step-by-step built up the required capabilities. The progress was realised through incremental adjustment of product quality, starting from the simplest production process with simple knowledge and technology. During production, many uncontrollable influences from the environment and production were tackled pragmatically. This effort developed a simplicity and a contextual attitude towards improvement. In actual operationalisation, simplicity and contextual attitudes occasionally turned into flexibility, but often with a trial and error approach. Within these routines, customers highly appreciated the improved quality of products. Internally, this appreciation shaped a feeling of confidence that inspired employees to consistently maintain their way of working. Coincidentally, the simplicity and "trial and error" attitudes brought the employees to an over-simplification of the improvements. In this view, manual production and "trial and error" responses provided them with an opportunity to employ craftsmanship. The term "craftsmanship way"

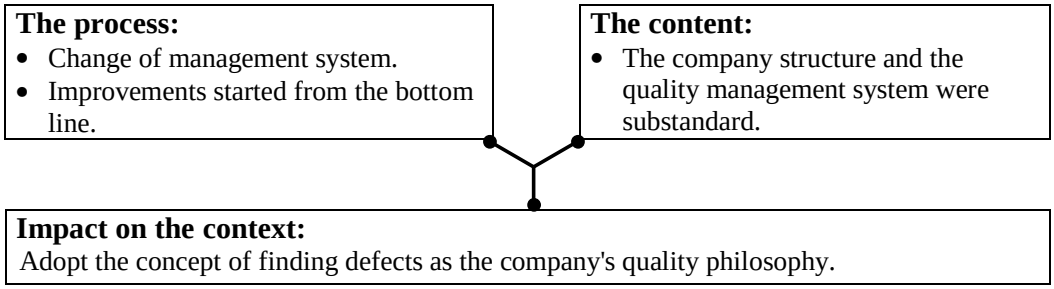
literally characterises their resourcefulness in dealing with rigid rules and procedures to find an enjoyable control of the process. On one hand, the craftsmanship successfully internalised a sense of ownership that encouraged involvement and participation. On the other hand, the craftsmanship created a perception of autonomy that led to ignoring standards and procedures. With a high rate of production, this ignorance resulted in inconsistencies that created a lot of losses. This problem redirected the top management towards a quality assurance system that would enable consistent production. With the help of a consultant, a new quality assurance system was quickly established and implemented by increasing discipline in production. To the craftsmanship proponents, this sudden implementation, that forced an attitude of following standards, was considered as dehumanising. Nevertheless, employees tried to adapt to this new requirement. At the same time, under a craftsmanship way of thinking, they were seeking opportunities to create preferable working conditions. Realising that they were still part of a wider collectivist family as suburban inhabitants, employees marginalized the role of the dehumanised standard procedures. They fine-tuned the system in seeking an acceptable alternative, which meant simplicity and handled in a manner which highly depended on the actual context of the situation.

5.5.4 Constructions and the way of implementation at AAC

The change in group management system from ATQC to ATQM (in 1998) and then to AMS (in 2001) was considered as transforming the organisation from technical-operational to one with total organisational orientation. The new management system provided guidelines with an opportunity for flexibility and a wider authorisation in decision-making to fit the unique characteristics of the organisation. The top management was expected to build an autonomous management system, which would act as a framework for organisational development. To initiate the transformation, AAC restructured key positions and personnel in order to qualify its manufacturing capabilities as the sole manufacturer for Isuzu. The new management team started from the bottom line by evaluating the existing level of manufacturing effectiveness and comparing the result to the targets adopted from Isuzu. This evaluation found a lot of weaknesses, which were viewed as opportunities for improvement, and so the objective of manufacturing improvement was clear. Considering that the existing capabilities were far from ideal, the manufacturing division introduced a “find-the-defect” philosophy. This philosophy was motivated by the opposite view of best quality; everything that did not result in best quality was considered defective. This was uncomplicated because the substandard situation in the structure and quality management system was obvious. Within a short trial period a few defects were identified and the management team formulated the necessary actions and decisions. They continued by developing the feedback and supporting systems for further operationalisation at the lower levels. The trial showed clear examples of finding,

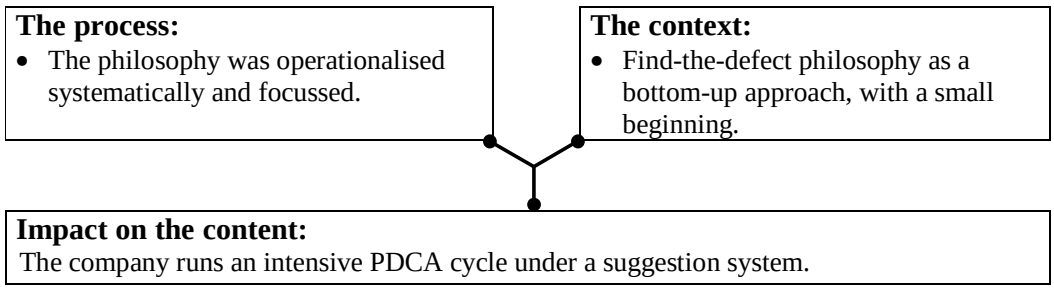
evaluating, proposing an improvement plan, executing the decision to fix the defects, and learning from what had been done. Since the philosophy as well as the method for improvement was not complicated, diffusion to all elements in the company was straightforward. A summary of the impacts of the process and content on the context at AAC is given in Figure 5.7.

Figure 5.7
The impact of process and content on the context at AAC



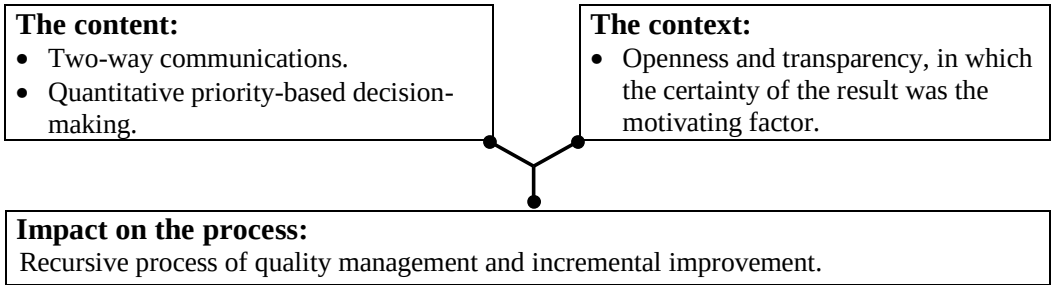
The find-the-defect philosophy was considered as a bottom line improvement strategy; starting from the defects and then systematic improvements and focus. With this philosophy, the management reflected upon the PDCA cycle, with close monitoring and immediate decision-making. Management introduced a suggestion system to identify defects as a key element of the feedback mechanism for improvement. As part of the reward and promotion system, the suggestion system indirectly forced employees to participate. Employees were asked (i) to identify sub-standard situations in their work place, and (ii) to propose ideas for improvements. Management set criteria for prioritising the suggestions and decided on an operational plan. The improvement project was executed in set periods. Concurrently, the head of the manufacturing division set a tentative strategic plan. To support both plans, reporting and authorisation for decision-making systems were developed. The reporting system was built to inform about the actual daily situation in production. The authorisation for decision-making system enabled managers to make some immediate decisions autonomously, which were reported to their superiors in weekly meetings. At an early stage of implementation, the management faced a heavy workload. As bottom-up suggestions occurred, the managers believed that they were on the right track. They consistently followed and executed the defined plans. They learnt from what had been done in proposing subsequent suggestions and in executing improvement projects. While the ISO 9000 quality assurance system was formally applied, actual quality management practices were characterised by intensive day-to-day PDCA cycles with close monitoring and immediate decision-making. Later, from recursive learning, any inconsistent formal procedure was remade. A summary of the impacts of the process and context on the content at AAC is given in Figure 5.8.

Figure 5.8
The impact of process and context on the content at AAC



Each suggestion for an improvement was evaluated and prioritised for execution. Only potentially successful suggestions would be discussed with related managers who then assessed the expected outcome in terms of understandable benefits. Qualitative judgment through direct communications was the usual approach, but this often resulted in different opinions. Cross-sectional evaluation was also performed to check the implications on other sections. In weekly meetings, managers and heads of division determined priorities preferably based on quantitative or scaled measures, i.e. reductions in costs and time, predicted effectiveness of operationalisation, and the availability of the required resources. Once a proposal was selected, the management communicated the decision to those affected for further comments and to confirm their commitment. In this way, the use of quantitative instruments endorsed the sense of openness and transparency. The top management considered that creating openness and transparency was important in order to encourage participation. Accordingly, progress with improvements was also communicated through out the company. This approach delivered key messages clearly: how improvement was accomplished, the implications, and the concrete and clear result. A downward diffusion process also made employees understand that quality improvements could be made alongside cost reductions. In return, as a benefit for the employees, the management provided rewards. However, in practice, employees were not interested in financial rewards but more interested in recognition for their contributions. These approaches to communication and recognition created motivation for employees to actively continue their contributions to the suggestion system. It enriched the developed quality management system through a recursive process of incremental improvements. A summary of the impacts of the content and context on the process at AAC is provided in Figure 5.9.

Figure 5.9
The impact of content and context on the process at AAC



In the implementation of quality management at AAC, the following structures were found:

- ***The developed context.*** Having a close relationship with Japanese organisations, the company adopted the Japanese value of quality and used the concept of finding the defects, which was easy to understand and thus could be easily adapted as a new way of thinking.
- ***The developed content.*** A bottom-up approach to finding defects was operationalised through a suggestion system. To facilitate the necessary action, the company run day-to-day PDCA cycles with close monitoring that enabled immediate decision-making.
- ***The developed process.*** To bridge between the need for concrete results and the need to develop criteria, each proposal should have clear implications on production processes in terms of reductions in cost and time. Such quantitative benefits motivated, and thus encouraged a recursive process of quality management and improvement.

As a member of a group of automotive companies, AAC was only responsible for producing products. This limitation created a sharp focus on production with clear measurable objectives, i.e. quantity, specifications and delivery. As an internal implication, these measurable objectives enabled AAC to observe the gap between the existing conditions and the expected production performance. To close the gap, production managers sought out substandard conditions that constrained accomplishment, which later guided them towards a find-the-defect philosophy. The introduction of this philosophy had the following consequences: (i) the philosophy provided an opportunity to evaluate any possibility of defects occurring, (ii) employees viewed their jobs from different standpoints, (iii) employees identified a gap between the existing conditions and what could be achieved, (iv) employees communicated their improvement ideas concerning their jobs, and (v) the improvement ideas and results were introduced to others to create opportunities for improvement. These consequences established awareness of involvement, created a willingness to participate in

improvement efforts, and forced management to facilitate and organise the execution of improvements. For this purpose, the top management developed a suggestion system in a PDCA cycle, developed close monitoring procedures, and decentralised decision-making. The top management completed the suggestion system with criteria for cost reductions and saving production time, which were both widely known as internal measures of effectiveness. The use of cost reduction and time saving as the concrete measures of results made the objective of improvement understandable, and this motivated employees. After a period of implementation, the company achieved a supportive climate for continuous improvement. However, since the improvement only covered technical and operational matters, this climate was analogous to the "Taylorism approach", one that was characterised with providing better results incrementally and continuously by employing scientific methods. On some occasions, this supportive climate encouraged a mechanistic environment over people involvement, especially in its operationalisation in some sections of the company.

5.6 Discussions

5.6.1 Introduction

The previous sections emphasised that the implementation of quality management is set in iterative constructions within the dimensions of context, content and process. Over time, the main constructed issues in each dimension are as described in Table 5.9.

Table 5.9
The constructed context, content and process

Dimensions	MEC	HEC	AAC
Context	Customer satisfaction attitudes	Simplicity and contextual attitude towards quality improvement	Find-the-defect as the quality philosophy for improvement
Content	Decentralisation but with little flexibility	Product-oriented quality management	Day-to-day PDCA with suggestion system
Process	Coercive force for effectiveness of operationalisation	Marginalizing standard procedures of the quality management system	Recursive process of quality management and incremental improvement

These constructed dimensions finally led to the characterisation of the ways the organisations implemented quality management i.e. mechanistic, craftsmanship, and Taylorism. Referring to these characterisations, the implementation of quality management had implications for the quality management structure and actions, the

organisational model, the implementation sequence and strategy, the organisational culture formation, and an impact on inter-organisational relationships.

5.6.2 Structure and action

The quality management system, as a representation of structure, involves three levels of management coverage, i.e. management of strategic responsibility, resources management and quality process management, and the interactions among or within these levels. Interactions with external parties are the representation of such actions. At the studied companies, management responsibility was symbolized by the role of top management in leadership and in defining policy, while its downward operationalisation was set in standard operating procedures and was heavily focused on system-technical issues. All the studied companies achieved ISO 9000 (1994 version) certification without meeting considerable obstacles. Even though the quality management system was formally developed, the intensity of its functioning in process management, specifically in measurement, evaluation and improvement, was limited to technical issues at the operational level.

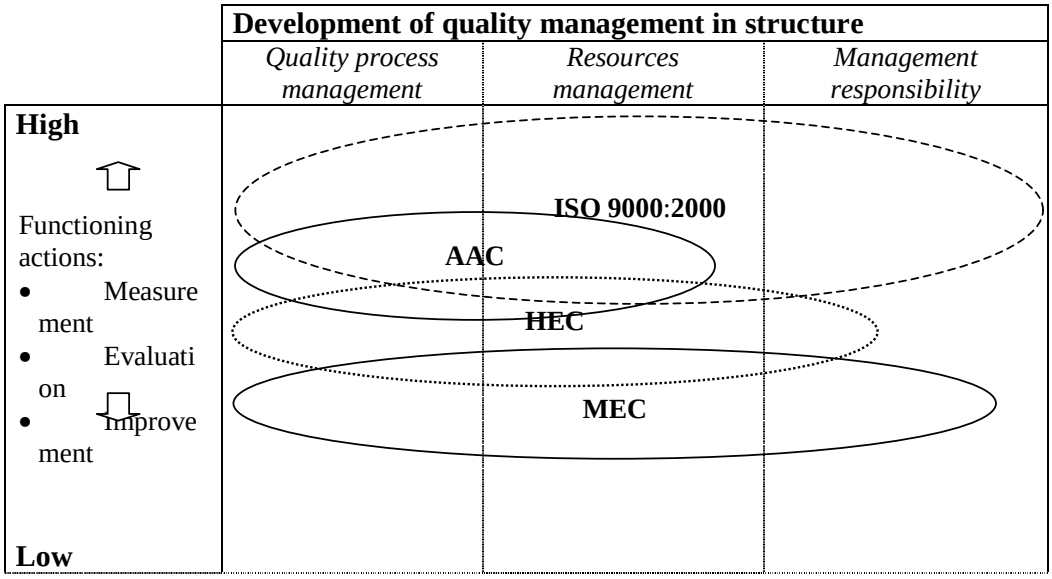
MEC tried to extend the coverage of process management from operational to strategic management, but the actions and decisions were merely mechanistic based on standards and procedures. Measurement was performed but with little evaluation and few improvement actions. At first, the middle-level management was directed to follow-up measurement results. However, since the coverage of action potentially included all aspects of the company, other problems occurred which often shifted the focus before there were any fruitful results. As a result of this, an unfinished agenda of evaluations and improvements accumulated. The developed technical skills and experiences at HEC did diminish the mechanistic way of working by introducing flexible efforts. Even though the coverage was limited to resources and operational management, consistent motivation for improvements was hard to build. Not all the measurement results, which were mostly rooted in customer complaints, were actioned, but only those that the employees thought interesting or challenging. The reaction was highly dependent on the situational variables, which often were independent of the company objectives. Without proper detailed guidance, in accordance with the company policy, this effort turned into a trial and error approach with a trend towards keeping the existing working conditions which were simple and enjoyable. These efforts did result in improvements in efficiency, especially in production, and so everyone in the company preferred to maintain the existing status. In a different approach, the top management at AAC gave a clear focus in obtaining improvements, so that employees were able to develop their capabilities for constructive measurement, evaluation and improvement. The top management encouraged bottom-up evaluation and improvement, and only actively participated to solve cross-departmental and/or strategic problems.

The practice at AAC is consistent with the relationship between process management activities and the development of exploitative innovation for the existing customer characteristics as mentioned in Benner and Tushman (2003). In comparison to HEC, the recent progress at AAC indicates the development of an "ambidextrous organisational form" (Benner and Tushman, 2003) that positively supports the relationship between process management and exploitative innovation as a contingency effect. This is indicated by the tight coupling within units and loose coupling across units. In this research, these are represented by the degrees of formalisation (of action) and decentralisation (of decision). Unlike the relationships proposed by Benner and Tushman (2003), in a contingency approach, this research considers the organisational form to be continuously constructed through interactions with process management activities and achievements or benefits of exploitative innovation. Without improved process management and observable intermediate benefits of innovation, it is predicted that an "ambidextrous organisational form" will hardly develop. In this research, the adopted approach utilises structuration theory to explain action-structure relationships from an interactive process perspective (as in Edwards, 2000), in which innovation is interpreted dynamically by appreciating the context dependency.

Subsequent progress at AAC is, however, unlikely in terms of exploratory innovation since there is no new challenge for radical innovation with the existing customer, while exploration on issues about emerging customers, markets and technology are not within the AAC task descriptions, but a function of the group. While it is true that exploitative and explorative innovations are essential for organisations, the required process management activities have to compete for the limited available firm-specific assets. Efforts in explorative innovation require additional use of or investment in, resources, but give no guarantee of a beneficial result and are thus considered unattractive. As indicated by March (1991), exploration and exploitation are preferably framed in terms of a trade-off. In this view, AAC was still focused on the exploitation of firm-specific assets in a vertical integration. This means that the used strategy is seen within a resource-based perspective, and thus AAC will need a lot of effort to develop the dynamic capabilities of the company (as suggested by Teece et al., 1997).

The distinctions among the studied companies in the dimension of structure (management responsibility, resources management and process management) and the dimension of action (measurement, evaluation and improvement) are shown in Figure 5.10. Their positions are compared with the expectations when adopting programmes and awards such as ISO 9000 certification.

Figure 5.10
Mapping implementation ways in the structure and actions



5.6.3 The organisational model

MEC took customer satisfaction as its quality policy, which later became a mechanistic approach in the implementation. The customer satisfaction orientation was, in practice, marginalized into product-orientation, with a goal of meeting quantitative targets. In this situation, the top management concentrated on target fulfilment while keeping the company stable, especially in production terms. As a result, MEC employees became passive and mechanistic, and just followed the procedures. Similarly, HEC also took customer satisfaction as the objective of its quality programmes. The significance of the objective initially came from the external customer's requirements, and was internalised through a long-term interaction with the customer. However, limited knowledge acquisition and the intensive use of manual processing restricted the company in going beyond technical and operational competence. HEC focused on product and process with the goal of producing in accordance with specifications to achieve quantitative targets, set as part of the annual plan. In practice, instead of carrying out quality improvements, employees concentrated only on the quantitative targets. Based on their working experiences, however, senior employees sensed that the current working environment as uncomfortable, and so they attempted to straddle stability and flexibility through contextual learning. Compared to MEC, the successful internalisation of customer satisfaction values and capability for learning made HEC's organisation less mechanistic. HEC tended to be more organismic but the learning process was still restricted to technical issues under simplistic and contextual attitudes, which was still in progress. Unlike MEC and HEC, AAC was able to manage the change into stability and progressing by learning. The role of AAC's top management in building a continuous

improvement philosophy and decentralising decision-making supported a lot of the efforts in quality management implementation. Since AAC had limited responsibility, the progress was restricted to issues related to production, which led AAC to employ scientific management methods. Considering the organisational model of Spencer (1994), the studied companies can be characterised as in Table 5.10.

Table 5.10
Organisational characteristics of the companies

Dimensions	MEC	HEC	AAC
• Quality definition*	Customer satisfaction	Customer satisfaction	Conformance to customer requirements
• Focus	Product	Product and process	Product, process and decision-making.
• Goal	Produce as target	Produce as target	Efficiency
• Structure	Chain of command	Process flow that turned into chain of command	Process flow
• Role of people	Passive and procedural	Reactive but procedural	Reactive and some self-controlling
• Philosophy of change	Stability	Stability but contextual learning from experience	Stability and learning in adaptation

***) As formally stated in the corporate quality vision or policy.**

Although the implementation methods are not mutually exclusive in the organisational model, (referring to the model of an organisation as given in Table 2.1) it can be concluded that MEC characterises the mechanistic model, and HEC and AAC characterise a mixture of the mechanistic and organismic models, whereas Spencer (1994) expects the cultural model to characterise a total quality management organisation.

5.6.4 Implementation sequence and strategy

The relevance of significant external events to the internal conditions characterises the motivation-building for quality management implementation. In the initiation stage, this relevance is justified by top management's commitment as reflections of pressure, interpretation, and objectives. This commitment became a sufficient condition for further implementation. The implementation steps are given in Table 5.11.

Table 5.11
The sequence of implementation

Steps	MEC	HEC	AAC
Initiation			
Fundamental challenge	Market demand.	Market and customer demand.	Customer demand and operational improvement.
Objective	Customer satisfaction and improved organisational image.	Customer satisfaction and internal awareness.	Customer satisfaction and internal willingness to improve.
Developed commitment	Customer satisfaction by fulfilling the quantity targets.	Customer satisfaction by meeting product specification.	Conformance to customer requirements with internal efficiency.
Quality system prior to adoption	Military-based quality assurance system.	Self-developed operating procedures.	Japanese total quality control.
Adoption			
Philosophical view	Produce to target.	Produce to specification.	Find-the-defect.
Implementation team	Middle management of quality assurance and production departments.	Top management and consultant.	Top and middle management of manufacturing.
Initially adopted system or technique	ISO 9000 quality assurance system.	Gemba kaizen and ISO 9000 quality assurance system.	PDCA triggered by suggestion system and ISO 9000 quality assurance system.
Adaptation			
Approach to diffusion	From quality assurance department to the whole organisation.	Top-down to production and assembly.	Bottom-up suggestions and top-down guidance in manufacturing.
Feedback mechanism	Formal communication of target fulfilment.	Formal communication of operational results.	Revised plan in PDCA cycles.
Knowledge creating process*	Combination.	Combination – internalisation.	Combination - internalisation – socialisation.

*) Referring to Nonaka and Takeuchi (1995).

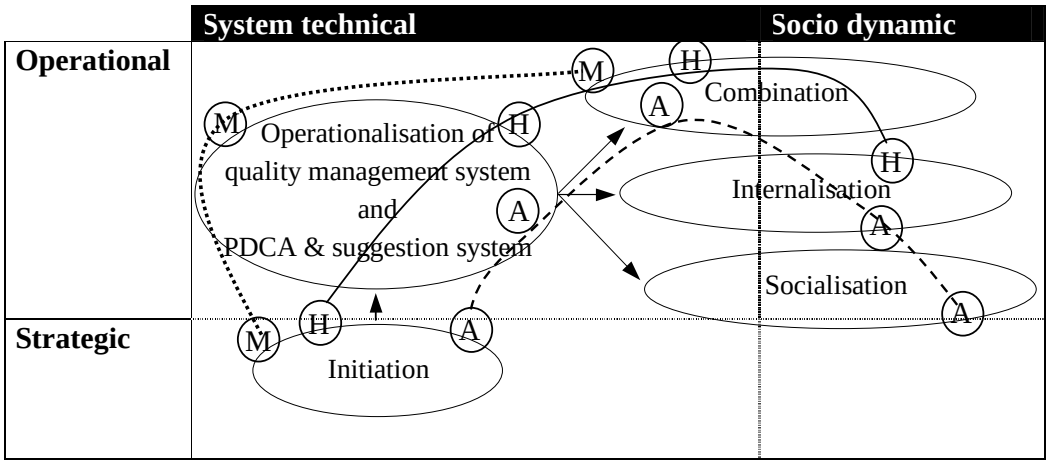
There are three categories of reasons for quality management implementation, i.e. external (compulsory) reasons, voluntary reasons and internal (improvement) reasons. With external compulsory reasons, the implementation is based on long-term diverging objectives that are essentially actuated by short-term targets. There is no guarantee that, in the long-term, it will achieve the predicted favourable conditions. This was the case at MEC. With a voluntary reason, the driver is either based on quality

management and is regarded as beneficial in systematising the organisation (mainly due to assurance motives and seeking competitive advantage), or as a precondition for creating quality awareness within the company. The need to create awareness is considered necessary prior to the adoption of a new method. For this reason, implementation is part of an unfolding mission aimed at improving quality and internal efficiency, and so improving the organisation, which implies a positive impact. This was the situation at HEC where top management made a decision to opt for ISO 9000 certification in a plan to launch new, tightly-regulated, health equipment. Internal improvement needs originated from two motives. Firstly, the internal operations were below standard, and secondly the need to be more than as a subcontractor. In meeting the first motive, as the improvement is successfully performed, an organisation may turn to the second motive as was the case with AAC.

In the initiation step, the external challenges remained as external strategic objectives with intentions to build internal awareness at HEC and also willingness at AAC. The development of external strategic objectives as the basis for developing commitment, such as at MEC, clearly followed a market-based strategy. The willingness to improve internal efficiency, such as at HEC, tended to be a resource-based strategy, while building awareness for quality improvement, such as at AAC and partially at HEC, showed a mix strategy. A strong top management contributed, to a great extent, to the formation of the implemented strategies at these companies. They initiated these by making a strategic decision to adopt a quality management system and methods. Under this strategy, the developed quality management system became a means for top-down control to achieve the objective. This principle of control corresponded to a mechanistic model of the organisation.

In the early adoption period, the decision to formalise the suggestion system as part of performance appraisal at AAC was made under a mechanistic control principle. The subsequent adaptation of the concept in the operation of the suggestion system went beyond a resource-based strategy since the implemented PDCA cycle involved combination, internalisation and socialisation that rebuilt skills, capabilities and competencies, especially in manufacturing. By doing so, AAC demonstrated a potency for developing dynamic capabilities, in which critical attention on socio-cultural issues, such as developing shared values, was necessary. During the adaptation, the knowledge creating processes (as in Nonaka and Takeuchi, 1995) involved combination (explicit to explicit), internalisation (explicit to tacit), and socialisation (tacit to tacit), while externalisation (tacit to explicit) was hardly performed at all. In contrast, HEC only performed combination and internalisation activities, while MEC seemed to only involve combination because attention to socio cultural issues, necessary for knowledge creating processes, was almost non-existent. The trajectories of initiation, adoption and adaptation within the total quality matrix are shown in Figure 5.11.

Figure 5.11
Implementation trajectories within the total quality matrix



5.6.5 Organisational culture formation

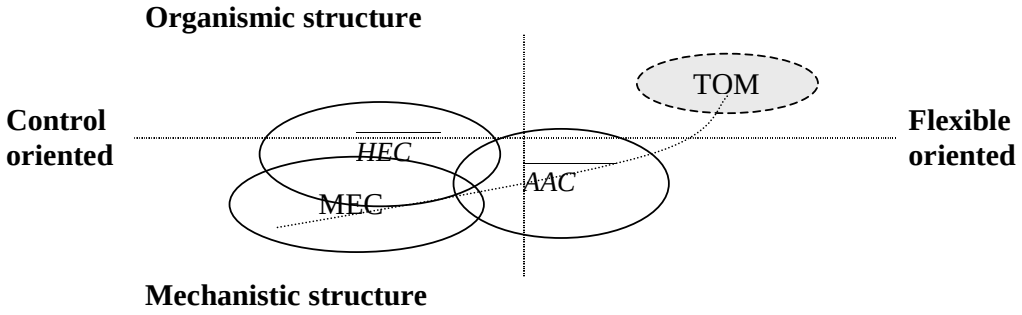
In organising quality management, employees are challenged by problems of (i) power in making decisions over action, and (2) procedures for attaining goals. The first type is influenced by the extent of power distance, while the second is influenced by the degree of uncertainty avoidance (Hofstede, 2001). In this relationship, the successful implementation of quality management corresponds to the organic structure (as opposed to a mechanistic structure) and a flexibility-oriented culture (as opposed to control-oriented) (Tata and Prasad, 1998). On one side, an organic structure and flexible orientation correspond to a low power distance and a low degree of uncertainty avoidance while on the other hand a mechanistic structure and a control orientation correspond to a high power distance and a high degree of uncertainty avoidance. In these dimensions of culture, the research findings showed that the respondents in the companies had similar characteristics in terms of power distance, but different characteristics in terms of uncertainty avoidance (see Table 5.12). The percentages indicate the responses of the respondents to the statements about power distance and uncertainty avoidance as in Tables 4.3, 4.8, and 4.13.

Table 5.12
The characteristics of power distance and uncertainty avoidance

Company	Power distance		Uncertainty avoidance	
	High	Low	High	Low
MEC	55%	33%	48%	40%
HEC	49%	43%	53%	39%
AAC	53%	34%	38%	49%

AAC was clearly different in terms of uncertainty avoidance; 38% of employees agreed with high uncertainty avoidance, while 49% of employees disagreed. These results indicate that MEC and HEC had a mechanistic and control orientation, while AAC had a mechanistic and flexible orientation. The mapping of the studied companies in terms of the formation of structure and orientation is shown in Figure 5.12.

Figure 5.12
Mapping implementation approaches in structure and culture



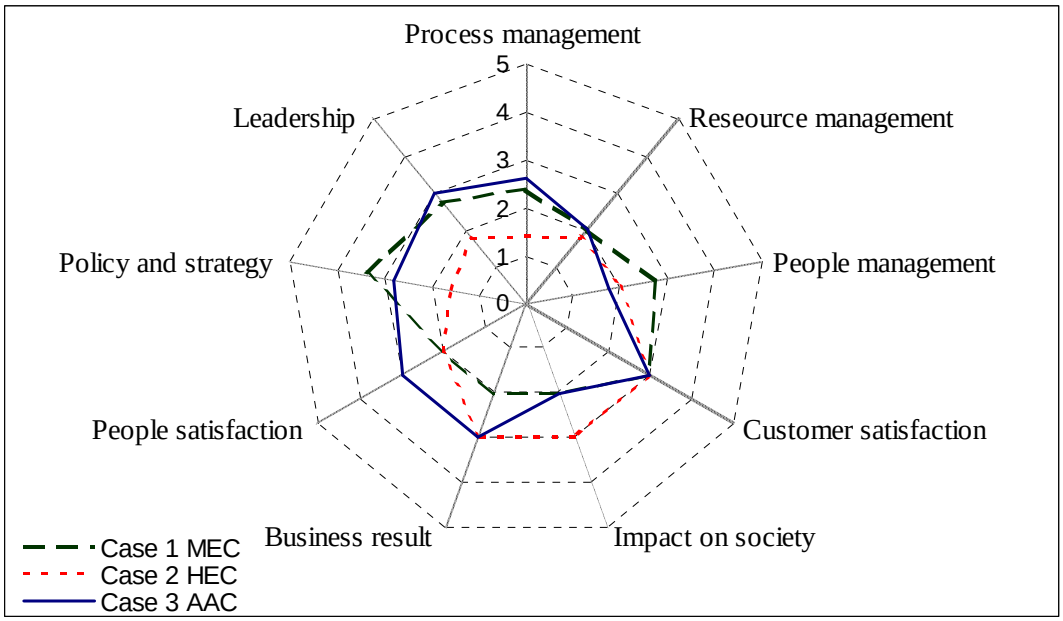
Originally, all the studied companies had a control orientation and followed the procedures of the quality management system mechanistically. By coincidence, flexibility was created at HEC since it was embedded in the development of contextual skills, especially in production-problem solving. Experience in manual processing under uncontrollable environmental effects were internalised as skills in sensing and solving problem contextuality. The development of flexibility at AAC was initiated by encouraging employees to propose improvement suggestions. Top management followed this with the decentralisation of the necessary authorisation in decision-making. At MEC, the development of flexibility and an organismic structure was severely restricted by the strong leadership, which mechanistically and prescriptively managed the company. Schein (1996) characterises such a situation as a series of obstacles based on short-run results involving minor improvements. In the case of HEC, the role of the developed systemic forces (such as the top management's autocratic way in managing the company) overruled improvement efforts such that employees behaved mechanistically.

5.6.6 Achievement and impact on inter-organisational relationships

The impact of an implementation is assumed to correspond to the achievement level in quality management. This achievement level can be assessed using criteria from the Dutch Quality Award (based on the EFQM model). This assessment assumes that the development of elements of enablers (i.e. leadership, policy and strategy, people management, resources management and process management) normatively influences the achievement of results (i.e. people satisfaction, customer satisfaction, impact on

society, and business results). Later, the development of enablers and results, which are assumed to be coherent, determines the level of quality management achievement in an organisation. The quality management achievement levels were related to the developed patterns at the studied companies. Assessment results at the studied companies indicated that the highest achievement level was in system orientation (level 3 of the DQA), as shown in Figure 5.13. This figure shows the different levels of achievements in enablers and results, which lead to further discussion on the consistency of the achievements of all the elements.

Figure 5.13
Measurements of achievement



This figure shows that the assumed coherence of enablers-results is only likely to occur at AAC, where most elements achieved a system orientation (level of 3 in the DQA measurement), with the exceptions of resource management, people management and impact on society. The lower scores for these elements did not mean that these elements were undeveloped, but were a result of the reduced authority. Authority for these elements belonged to the parent group. Even, the group's management directly performed some activities related to these elements. For example, in managing people, the group’s management made decisions for promoting top- and middle-level managers, determined the salary range, and carried out some management training. Accordingly, the assessment of people management shown in the figure has only a minor role for the human resource department of AAC. The involvement of the group's management in promotions and rewards at the managerial level did, however, result in a higher score for achievement of people satisfaction. If AAC had similar roles in managing people, it

could be expected that AAC would be able to improve the achievement score for people management. Similar limitations occurred in managing resources and in relation with society. The achievement levels on elements of leadership, policy and strategy, and process management resulted in corresponding achievements for customer satisfaction and business results. This coherence was a result of a continuous but incremental improvement process through an implementation which could be characterised as "Taylorism".

Different situations occurred in the other companies. At MEC, a good achievement in terms of leadership, policy and strategy, and process management resulted in a similar achievement level for customer satisfaction but with less achievement in terms of business result. This situation indicates that the top management of MEC saw customers as the most important factors and thus all efforts were directed at customer satisfaction. Given the tight specifications on production, the focus on customers led to attention focussed on system technical matters and ignored the important role of employee development. As a result, employee satisfaction was low with employees considered as technical resources. Too much focus on tight production led to a rigid implementation that was characterised by following standard procedures in a control-oriented ("mechanistic") way of implementation. Since the top management of MEC were satisfied with technical performance in fulfilling customer requirements, they considered that the present achievements were consistent with their prior expectations of quality management implementation. Accordingly, further improvement was considered unnecessary.

In contrast to MEC, the achievement at HEC showed significant achievements not in terms of enablers, but on customer satisfaction, business result and impact on society. These results were inconsistent with the assumed coherence of the EFQM model. The question is how can low achievement in terms of enablers result in high achievement in terms of results? Observations on practices related to the elements of the enablers showed that the climate for incremental improvement continued, especially in process management. Recently, the development of people management was also active, but the realisation of the objectives was not clearly obtained. The improvement efforts towards customer satisfaction were characterised by an accumulation of experiences in production and assembly. Initially, experiences with the success of technical-operational aspects led to a result-oriented attitude, in which improvements with successful direct results were highly appreciated. In this situation, the improvements were mainly influenced by technical experience, but the improvement activities tended to have a trial and error approach. With this approach, however, the improved activities often went beyond the standard operating procedures as would be expected in formal quality management systems. The top management considered this development as part of natural processes and were delighted as long as it produced fruitful results. Thus, the top management did not consider formal management and

organisational systems as that important. Accordingly the achievements in terms of enablers were low. Likewise, production supervisors usually re-defined the formal procedures once they were fully convinced of the positive impacts. This way of implementation at HEC can be characterised as a "craftsmanship".

Even though the existing achievement levels of these companies are different, the top managements of the companies stated that the assessment results conformed to their prior expectations. This statement reflects the processes of quality management implementation as described in Figure 4.4 (MEC), Figure 4.9 (HEC), and Figure 4.14 (AAC). Except at HEC, the intensive implementation processes occurred some years ago. Top management slowed down implementation activities in recent years based on the consideration that they were satisfied with the present achievements. As a result, the three companies retained their specific ways of quality management implementation, which were respectively characterised as mechanistic, craftsmanship, and Taylorism. Considering the existing achievements and the ways of implementation clearly indicates that the effectiveness of quality management implementation on organisational performance is more than a linear cause and effect relationship depending on a fit between enablers and results. The performance achievement is a combination of practices related to elements of enablers and the payoffs are likely to be inconsistent with the cumulative sum of the achievements with each element. This corresponds to "complementarity thinking", as proposed in Whittington and Pettigrew (2003), as an alternative way of explaining the relationship between organisational change (in this case through quality management implementation) and organisational performance. The complementarity theory is essentially about "fit" of content and performance, that extends such considerations from contingency theory (see e.g. Donaldson, 2001) and configurational approaches (see e.g. Meyer et al., 1993), as discussed in Chapter 2. Based on this thinking, the manner of quality management implementation has specific impacts on the operational and strategic such as inter-organisational relationships.

Quality management development at the studied companies had implications for their inter-organisational relationships, in both customer and operation orientations. Formally, these companies had successfully built an ISO 9000 quality assurance system as one requirement of their external relationships, but their sustainability was not guaranteed. All the studied companies gained benefits and witnessed increased sales, and two companies (HEC and AAC) also gained benefits from their increased efficiencies that reduced operational costs. If the companies remain with the current conditions, the following implications on inter-organisational relationships can be deduced.

- The "mechanistic" way of implementation (as at MEC) anticipates that inter-organisational relationships will not develop beyond being an independent partner (e.g. as a maker or short-term supplier) of other companies. In such an inter-organisational cooperation, the company has a weak bargaining position due to a low

level of trust, and thus has to completely follow the requirements on detailed specifications under a formal contract. The presence of customers in the MEC production facilities was a clear indication that the management was trying to deal with weaknesses due to lack of trust. Where a product specification is universal, a company can be run as a producer in a mass production system and seek operational efficiency as its only possible advantage. This strategy was implemented by HEC at the initial stages of becoming a new manufacturer of health equipment.

- The "craftsmanship" way of implementation (as at HEC) can be expected to create an inter-organisational relationship as an operational partner, such as a long-term supplier or subcontractor of other companies. In such an inter-organisational cooperation, a formal agreement is still needed, especially to assure that the delivered products meet all requirements in the specifications. This indicates that trust is not yet well developed. The developed capability in learning provides an opportunity to perform improvements not limited to the technical-operational issues. This may lead the company towards mass customisation, which has good prospects in a global value chain. In this progression, the role of top management is to converge strategy, program and activities because the richness of thought in craftsmanship can lead in different directions, i.e. incremental improvement.
- Being internally well-managed, the "Taylorism" way of implementation (as at AAC) can result in a transparency that provides external trust. These characteristics open opportunities for strategic and independent long-term subcontractor, co-maker, or manufacturing unit of other company as a strategic partner. Given these objectives, the top management of the company has to shift its focus from merely on operational efficiency towards strategic issues for organisational effectiveness. This is not easy, but will in turn promote satisfaction of all the constituents to create sufficient energy for continuous improvement and innovation.

5.6.7 Towards the implementation typology

Literature on quality management implementation characterises implementation typologies based on specific perspectives, some are based on theoretical formulations but others are based on empirical practice. The Dutch Quality Institute has developed characterisations of the developmental stages of elements of the EFQM model (Hardjono et al., 1996). These stages represent achievements in the orientation of product, process, system, chain and TQM. In this progression, quality management implementation triggers efforts for administrative control, which at the same time entails measuring, improving, and synchronising the improved processes (Benner and Tushman, 2003). Spencer (1994) links the concept, principles and practices of quality management to models of organisation, i.e. mechanistic, organismic and cultural ones. However, she notes that an organisation can be characterised as a combination of these types. Tata and Prasad (1998) characterise quality management implementation using

dynamism in structure (mechanistic-organismic) and formation of attitudes (control oriented – flexible oriented). Fisscher (1994) characterises the quality management using dimensions of structural coverage (operational-strategic) and essence of focus (system technical–socio dynamics). Theses characterisations do not form a typology of quality management implementation, but do show how an organisation deals with widening the issues in progression towards total quality management. Considering the change of orientation from operational to strategic, and the escalation of complexity from system-technical to social-dynamic, an organisation can develop a unique strategy for quality management implementation. Hardjono et al. (1996) define "European ways" and "other ways" of quality management implementation as their conclusion from observing how European organisations make use of quality management. They found that "quality management is not necessarily related to new or revolutionary ways of management" (p.96).

The discussions on the empirical implementations at the studied companies lead to the conclusion that the observed implementation ways are not fully represented in any one of the defined typologies. The implementations at the studied companies can be in the same direction in some aspects, in the complete opposite direction in other aspects, or only slightly different in some aspects. This situation can occur between two organisations or with all three organisations. From the perspective of quality management structure and actions, the organisations differed in the range of structures as well as in the intensity of functioning actions for measurement, evaluation and improvement (as proposed in Benner and Tushman, 2003). Referring to Figure 5.10, MEC focused on a full coverage of structure but put little effort into functioning the actions, whereas AAC had limited coverage of structure but highly functioned in terms of actions. In this perspective, the relative position of HEC was between MEC and AAC. Referring to Fisscher's total quality matrix (see Figure 5.11), MEC gave attention to the strategic and operational levels but only to system-technical issues. On the other hand, AAC only focused on the operational level but did give attention to the system-technical and socio-dynamic issues. The implementation approach at MEC followed a different path to AAC. MEC started implementation with a strategic view of quality and thus the coverage of the organisational area of interest was satisfactory, but the operationalisation was difficult. The approach in managing the implementation represented mechanistic and directive control. In contrast, the approach in managing the implementation at AAC addressed effective and systematic improvements. AAC started with attention to specific problems in production which led to a synergy between top-down guidance and bottom-up action, which was operationalised through a suggestion system. From this perspective, instead of building mechanistic and directive control, HEC created a room for flexibility in production, especially in handling fluctuations in the technical context. With this strategy, however, a trial and error approach characterised the improvement efforts. In the organisational formation perspective

(referring to Table 5.10), MEC was mechanistic, AAC tended to be organismic while, in between, HEC tended to have the characteristics of AAC in most dimensions and of MEC in certain dimensions. Though the organisational formation is assumed to directly relate to the organisational culture, MEC and AAC both had the same control-oriented culture. In this perspective, the implementation at HEC was somewhat different since the culture was more flexible than the other two companies.

The positioning in terms of these characterisations falls short of providing a clear basic distinction between the ways of implementation in the studied companies from the perspective of change. However, the dissimilarity in the determined implementation features, i.e. mechanistic, craftsmanship and Taylorism, leads to an idea for a "new definition of an of implementation approach" that may contribute to further discussion on quality management implementation theory and practices. Considering implementation as a process of change, discussions on implementation approach lead to two dimensions of change, i.e. structural and behavioural, as summarised in Table 5.13.

Table 5.13
Perspectives of structural and behavioural changes

Perspectives	Structural change	Behavioural change
Process management (Benner and Tushman, 2003)	Progress of coverage from only technical-operational management to ambidextrous organisation form	The type of innovation is operationalisation of actions (i.e. measurement evaluation and improvement)
Organisational model (Spencer, 1994)	Progress in the dimensions of focus goal and structure	Progress in the dimensions of quality definition, role of people and philosophy of change
Total quality matrix (Fisscher, 1994)	Progress in quality management in terms of technical-system capability	Progress in quality management in terms of socio-dynamic capability
Cultural formation (Tata and Prasad, 1998)	Viewpoint of structure (mechanistic-organismic)	Viewpoint of orientation of frame of mind (control-flexible)

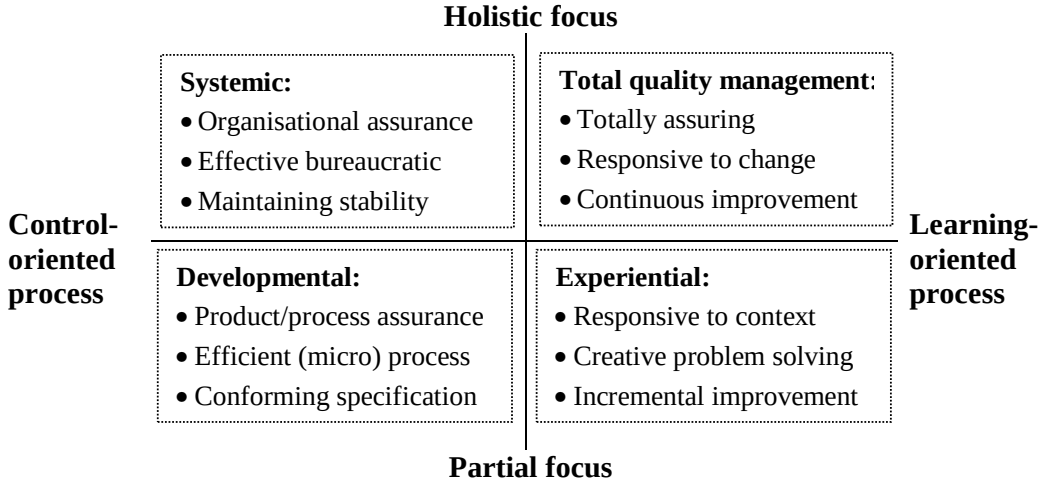
The first dimension, structural change, is defined as a continuum from a focus on part of the organisation to a focus on the organisation as a whole. The implementation of quality management, for instance, can be started only in production (as in the case of AAC) or the whole organisation (as in the case of MEC). From the perspective of the quality management system, the initial coverage is only on operational management, and later can involve resource management and strategic management responsibility. Within the perspective of the total quality matrix, this progression of coverage shows

progress in the quality management implementation in terms of control. Although it is not clearly explained through the quadrants of the matrix, the coverage of structural change corresponds to a separation between operational and strategic issues since these are also related to the coverage of system-technical and socio-dynamic issues. From the perspective of cultural formation, the view of structure as mechanistic-organismic is closely related to three dimensions in the perspective of the organisational model, and thus this explains the continuum of structural change.

The second dimension, behavioural change, is seen as a continuum from a focus on control orientation to a focus on learning orientation. Distinguishing control from learning in total quality management is mentioned in Sitkin et al. (1994) who contrast the control attitude in total quality control to the expectation of a learning attitude in total quality management. In explaining the approach to strategic management in which the development issue is addressed, Johnson (1987) considers three views to be discernable, i.e. rationalistic, adaptive and interpretative. In the rationalistic view, a development process explains how a consequential rational result is produced from a sequential and planned implementation action in finding a solution to a definable problem. The adaptive view describes a development process in which a result is generated from an evolution dealing with uncertain and complex context. In the interpretative view, a development process is seen as individual or collective sense-making about the organisation and the context in which it operates. In such views, behavioural change is observed as a continuum starting from the significance of logical-rationalism to cognitive considerations. Within the perspective of a quality management system, this continuum corresponds to levels of operationalisation of actions involving measurement, evaluation and improvement. As seen in Figure 5.10, major efforts in carrying out the action indicate that the organisation effectively uses measurement and evaluation to continuously perform improvement. In contrast, little effort directed at actions indicates that measurement and evaluation are performed as obligations of the standard procedure. From the perspectives of the organisational model and cultural formation, this continuum shows a range of orientations from a control attitude to flexibility attitude. As in the structural change dimension, from the perspective of total quality matrix, this continuum describes the transformation in terms from control to learning, and is characterised more by the coverage of issues (system-technical and socio-dynamic) than the levels of organisation (operational and strategic).

Using dimensions of structural and behavioural changes, an implementation can be classified as systemic (holistic- and control-oriented), developmental (partial- and control-oriented), experiential (partial- and learning-oriented) and TQM (holistic- and learning-oriented), as mapped in Figure 5.14.

Figure 5.14
The implementation of structural and behavioural changes



Starting with a developmental implementation, the organisation focuses on quality management implementation in only part of the organisation such as production, and manages the process with a control-orientation. The limitations (in terms of structural and behavioural) are usually caused by rationalistic assumptions on the internal effectiveness of managing the implementation process. Such an implementation is characterised as providing product or process assurance, progressing towards efficiency in production, and usually conforming to specification. In this view, successful implementation is achievable by limiting the focus to a specific subject, which then influences the rest of the organisation. The diffusion process, to the rest of the organisation will be structural or behavioural, or both. If the organisation decides to structurally enlarge the implementation later, the organisation will face an increase in coverage in managing the necessary processes leading to systemic implementation. If the organisation decides to change behaviourally towards a learning orientation, it will lead to experiential implementation. In a systemic implementation, the organisation enlarges the focus of the quality management to the whole organisation, but keeps the process control-oriented. The control orientation originates from difficulties in managing the increasing complexity of quality management as a whole, especially in handling socio-dynamic issues. This will be the case if an organisation adopts and implements a quality assurance system such as ISO 9000. This implementation can be characterised as providing organisational assurance, guiding the process with effective bureaucracy, and maintaining stability, which leads to the use of effective process control. With an experiential implementation, the organisational behaviour changes from a control orientation to a learning one. In terms of the organisational model, the organisation expects an active and self-controlling role for people, such that the change

and learning is valued in themselves. In this way, the implementation can be characterised as being responsive to the influence of context, involving creative problem-solving, and improving incrementally. In a TQM implementation, an organisation focuses on the whole organisation and manages the quality management process from a learning orientation. This ideal implementation corresponds to the characteristics as in the total quality management as described in Chapter 2.

CHAPTER 6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

Schein (1996) argues that, "breakthrough research was driven in part by the need to contribute to the solution of highly visible real problems" (p.232). The same need to deal with real quality issues in manufacturing firms in Indonesia is the chief consideration leading to the main research question *how can quality management be implemented in Indonesian manufacturing firms using their potencies and advantages in their specific business environment in order to improve their capability in managing inter-organisational cooperation?* This main research question was raised in the expectation of an advantage with quality management for improving product and process quality, people and customer satisfaction, and organisational performance which, in a practical implementation, involves a range of supportive and hindering factors. The supportive factors create success in some companies, while certain non-supportive factors are behind failures in the implementation. Accordingly, companies need to tailor their implementation processes so that they are appropriate for their practical operations, people, and strategies while considering the potencies and advantages of their environment. Such an objective is highly relevant for Indonesian companies in their efforts to achieve progress, especially for improving their inter-organisational cooperation. Within this objective, searching for a successful implementation in an Indonesian-specific context leads to addressing the main research question, which was broken down into three research questions for structuring this study on quality management implementation in Indonesian companies.

This chapter will address the research questions based on research in the literature, empirical findings from the multiple case study, and the analysis of the data obtained. As the main question is subdivided into three research questions, the conclusions in addressing the research question will likewise be tackled in three related parts. Addressing the first research question mostly involves the literature, while discussions on addressing the second research questions are mainly based on the empirical findings. Subsequently, in relation to the third research question, reflections regarding the lessons learnt from theoretical and empirical research will be given. The discussion on the reflections will bring in related literature. The recommendations for practitioners and directions for further research are presented in the concluding part.

6.2 Addressing the research questions

Research question 1:
To what extent do the theoretical and empirical aspects found in literature contribute to quality management implementation, and how can these aspects be constructed into a conceptual research framework for observing quality management implementation?

Literature views the development of quality management from aspects such as concepts, systems, and practices. In viewing it as a concept, organisation and management literature enriched the meaning of quality management, such as seems it as a comprehensive way to improve, or as a humanistic approach to management, or as a paradigm shift (e.g. special issue on "Total Quality" in *The Academy of Management Review*, 1994). In many companies, quality management is applied as a quality system that provides support in pursuing their quality objectives. In this view, ISO 9000 is well accepted not only as a supporting system, but also as an assurance system for external parties (e.g. Singels et al., 2001). In viewing it as practices, quality management is actively carried out in various aspects of the organisation and management. In linking the concept, system and practices, Fisscher (1994) contributed the total quality matrix that comprehensively describes coverage of quality management activities ranging from operational to strategic, and covering system-technical and socio-cultural issues. The Dutch Quality Institute views the scope of quality management as stages reflecting the understanding of the concept and the development of the system, which are judged by implemented practices (e.g. Hardjono et al., 1996). The levels of achievement can include orientations on product, process, system, chain, and total quality management. To support the operationalisation, Dean and Bowen (1994) classify the concept, system and practices into three principles, i.e. customer focus, continuous improvement, and teamwork. In other words, in addition to understanding concept, system and practices, these principles put forward the importance of the customer as the main objective, a focus on managing the process and quality continuously, and the central role of people. These principles have recently been formalised in elements of ISO 9000:2000, in which the focus is on a process-based structure together with an increased focus on continuous quality improvement and a customer orientation.

Considering the development of quality management in terms of concepts, systems and practices, then transforming the adopted quality management concept into a system of the organisation (and elements) is considered to be the main issue of this research, and realising the concept and system in practice is referred to as quality management implementation. The implementation of quality management is a noteworthy example of organisational change, in which, according to the principles, the

implementation puts together the objective, the process, and actions of change (Reger et al., 1994). Prior to formal adoption, usually starting as a concept, the quality management implementation plan is commonly based on the need to break down the internal inertia that leaves the organisation unchanged. The influence of internal and/or external significant events contributes to building substantial needs that lead to an adoption decision. These events concern uncertainty in the environment, stakeholders' changing needs, ambitions of the organisation or management, and the desire to improve (Hardjono et al., 1996). After the adoption decision, the process of implementation continues with the development of a system for technical-operational matters and the encouragement of related knowledge creation for further organisational improvements. To enable a well-ordered flow through the whole process, the implementation needs reliable media and systems, and supportive situational requirements. Using the three essential dimensions of change proposed by Pettigrew and Whipp (1991), observing quality management implementation involves the dimensions of content, context and process.

Literature also argues that the ultimate expectation of quality management implementation is organisational effectiveness. In this perspective, contingency theory establishes the general substance of fitting the organisational structure and process to the situational requirement for organisational effectiveness. The situational requirement is highly influenced by the nature of the situation and its condition, the rate of change, and the variability (Sitkin, et al., 1994). Accordingly, successful implementation highly depends on flexibility in fine-tuning the process (and also the structure) to fit the changing context. Since contingency theory assumes a direct link between technology and structure, Barley (1990) considers that the contingency theory is primarily static. Rather than a linear process, he notes that the fine-tuning is a recursive process interrelating the dimensions of change. It continuously renovates not only the organisational structure and process, but also the context-affected elements, such as organisational culture and formation. With this consideration, this research considered that institutional theory - inspired by Giddens' theory of structuration - that hypothesises that the influence of technology is as a social process of interaction for continuous construction. This process involves interactions between actors and structural properties of an organisation. Accordingly, the social constructions of content, context and process characterise the implementation of quality management in this research, and its conceptual framework as was described in Figure 3.2. However, since certain significant events originate from external sources, a contingency approach is also required. This consideration leads to the benefit of adopting these approaches in the research design in order to observe the quality management implementation. The detailed operationalisation of this conceptual framework including the role of significant events, led to the research framework for quality management implementation as depicted in Figure 3.6.

Research question 2:

How does such a research framework function in the actual situation of Indonesian manufacturing firms?

The implementation framework emphasises the constructions of content, context and process. The operationalisation of the implementation framework was expressed as research issues. Evaluating the framework with actual cases exposes the responses, so clarifying the investigated research issues.

For the dimension of content, quality management is represented by elements of the quality management system which, in this study, was based on the EFQM model as a reference. The EFQM model, as an established quality management model, maintains a balance of attention between a focus on process operationalisation on the innermost side (as the main issue in the Japanese DPA model) and customer satisfaction on the outermost side (as the main issue in the American MBNQA model). In addition to this, the Dutch Quality Institute has developed stages of achievement to help in assessing progress with the implementation process. In the Indonesian situation, the relationships among quality management elements, as structured in the EFQM model, had high correlation coefficients. For this reason this model was considered appropriate for describing the quality management content at the studied companies. However, further generalisation did not support the construct validity tested through correlation analysis. Apart from the differences in individual perceptions of items in each element, differences in relationship patterns can be caused by differences in (i) the actual levels of quality management achievements (as shown in Figure 5.13), and (ii) the existing approaches to quality management implementation.

In quality management implementation, the top and middle level managers, in general, represent the leadership of the companies. Based on their perceptions of quality management, a vision was formulated that later determined the policy, strategy and explicit action plan for managing quality in each organisation. The scope, clarity and focus of the vision, and the approach to communication further specified deployment. Within this setting, limiting the focus to a realistic operational objective enabled management to internalise the essence of the company policy and its implication into strategy and a concrete plan, which formed the basis for managing the quality practices.

The developed policy and strategy determined and coloured people management, resource management and process management in each organisation. Since a trigger for implementation was sensed by top management, the introduction into the company was achieved normatively, specifically through a formal corporate quality policy. This policy was then adapted through developed formal procedures as the main guide for performing all activities. However, inconsistencies, which occurred in defining the strategy and plan, led to a top-down patronising approach that insisted on rigid formal procedures towards achieving the objectives of the vision.

The focus on managing people was organised as people development and maintaining motivation for improvement. People development was mainly performed through training. However, only on-the-job training meaningfully contributed to capability improvement because, firstly, it directly touched upon the real problem and provided the “how-to” for improvement. Secondly, even though not always effective, a contextual approach to problem solving contributed to the creation of a trial and error attitude. Learning from this, the leadership was encouraged to improve their way of communicating with employees. Establishing motivation through a reward system, which was intended to encourage participation, did not work for three reasons; it was not transparent, it provided only a small bonus, and it was not applied individually. A reward in terms of merit towards promotion turned out to be more motivating, because it had an impact on individuals and had a clear end state.

Managing supplier relationships and production facilities were two relevant issues in managing resources. Experience in cooperating with customers influenced the way of managing supplier relationships. Two ways of managing suppliers were identified. Firstly, based on experience as a supplier, an organisation considered that a formal contract provided assurance, especially at the beginning of the relationship. Secondly, based on experience as a co-maker, an organisation considered cooperation as formulating the detailed characteristics of supply based on trust. In managing facilities, a limitation on investment led to intensifying maintenance activities. However, these activities heavily relied on the skills of the employees.

In the managing process, the role of the quality department varied. When quality management was newly introduced, the quality department had a key role in introducing and diffusing the concept into practices. The quality department's activities were dominated by the direct involvement of quality employees, especially in close monitoring of the actualisation of standard operating procedures. When the quality management was internalised, the quality department played a role in mediating the requirement for quality to the employees. The process management was decentralised to employees who actively performed the practices, and this was likely to give sufficient authorisation to ease the decision-making process.

From findings on the dimension of content; the vision, which signalled the top management's concept of quality management, was deployed as expected into policy, strategy and an action plan. However, in the later stage it failed to precisely manage the people and resources, so that the expected impact on managing process did not occur. Lack of clarity and focus in the organisational policy led to inconsistencies from the determined path towards the objective, which in turn created difficulties in the managing process.

Regarding the dimension of context, Indonesian culture is characterised as having a high power distance, being collectivist, avoiding uncertainty and masculine (Hofstede, 2001). However, our research found that people at the studied companies did

have a high power distance, were individualist, aimed at uncertainty avoidance, feminine with a short-term orientation. Regarding national culture as an indirect influencing background, the outcomes were discussed in Chapter 5, where the findings on the development of organisational culture and organisational formation were evaluated. Discussions on these elements of context, led to a number of conclusions. Firstly, the organisation assumed that the developed procedure was proper because it was successfully constructed as a formal quality assurance system. This meant that non-conformances were commonly judged as employee mistakes in operating the system. In this situation, employees became normative and result-oriented. Secondly, with lack of necessary knowledge or without sufficient guidance, employees performed problem-solving ambiguously, and tended to use a trial and error approach. With this practice, employees felt secure by doing only what they were told to do, and tended to be result-oriented. Thirdly, limiting the problem-solving to an inward-looking approach dictated a parochial orientation. Considering the high power distance and uncertainty avoidance as background, this corresponded to a controlled and mechanistic type of organisation, within which the developed climate supported the development of result, parochial and normative orientations.

With this type of organisational culture as the influencing background, the developed organisational formation was decentralised and formalised. The wide gap in income between the lowest level and the highest level, as a measure of power, indicated a high power distance. In contrast, in terms of the categorization of tasks, the functional structure of the organisation was flat. As a consequence, the flat structure supported decentralisation, but the high power distance did not create flexibility. Instead the organisation was formalised due to (i) the strong decision-making power of top management, (ii) the result-oriented culture with a directive control attitude, and (iii) the high rate and tight schedule in production. The failure to decentralise authorisation in decision-making in order to support flexibility was unfavourable in the implementation of quality management.

Regarding the process dimension, the quality management implementation proceeded through significant events that triggered decisions or actions. Specifically, the implementation processes were characterised by the introduction of concepts, the adoption of the instrument, and the adaptation of quality management concepts, standards and procedures in an organisation through practice. In the empirical observations, certain significant events were purely external influences that consequentially affected the strategic and operational issues of the organisation. These influences were sensed and internalised by the top management. As a result, actions were settled in terms of rationalistic normative strategic decisions, specifically as the company policy on quality management. Based on this decision, the organisation initiated the adoption of quality management, which then was expected to have an effective impact on the quality management practices. This re-orientation was

successful and resulted in building a quality system such as ISO 9000 certification but, after this, the diffusion was only partial. This re-orientation was adapted into a quality vision that built awareness about quality management. This awareness was translated into operational requirements to stimulate willingness for further participation, but in practice this encountered many difficulties.

Challenged by these difficulties, the companies preferred to reorganise the implementation by building a proper quality management system as the first step (i.e. by adoption of ISO 9000 quality assurance system). This system was used as the basic framework for subsequent implementation processes. However, since certain constituents were fundamental and relatively new to these companies, there was a risk of failure. To minimise the risk, the company management developed specific implementation means starting with a strategic decision that determined the agent and method of diffusion. Within this chosen scheme, not all employees were able to realise the introduced concept of quality management even though the management used an "understandable language". Only the implementation team (or the quality department) understood the concept. The diffusion of this concept through operational practices (e.g. through examples) attracted the participation of other people, which contributed to the internalisation of the concept as practices. However, the strong role of top management influenced the rationalistic assumption of effectiveness of the quality management system, which occasionally superseded the nature of learning process.

The implementation did not have a direct impact only on developing the quality management content, it also interactively reconstructed the related context, which was likely to form a unique process of implementation. The studied organisations had several similar aspects, but differed in other aspects. These lead to the following implementation approaches to conclude answering the question concerning the functioning of the quality management implementation framework in specific Indonesian companies.

- **The "mechanistic" way of implementation.** One organisation confidently adopted ISO 9000 as a quality assurance system for two reasons. Firstly, it was recognised as promoting customer satisfaction as the main policy goal in terms of quality. Since it had an external motive, the top management made the decision. Secondly, it was intended to improve quality management practices internally. These reasons converged with confidence into a rationalistic thinking on the adoption of a quality assurance system. It led the organisation to decentralise the task downwards, which then often varied uncontrollably at the lower levels. As a response, the organisation enforced rigidity rather than flexibility. As the organisation was expecting a quick result in terms of customer satisfaction, the rigidity led to a coercive force to follow the system and the procedures consistently, which in fact was mechanistic.

- **The "craftsmanship" way of implementation.** Learning from experience with long-term customer relations, one organisation had a strong attitude towards customer satisfaction. Progress was realised through step-by-step adjustment, which was influenced by routines in handling many uncontrollable contexts. Employees reacted with simple adjustments or corrections reading to the context, which later turned into flexibility but often involving a trial and error. In the longer term, this routine provided fruitful results, and internally shaped a feeling of confidence that inspired employees to consistently maintain the way they were working. Manual production and a contextual attitude provided employees with an opportunity for craftsmanship. Subsequently, the craftsmanship internalised a sense of ownership that encouraged involvement and participation. Further, the craftsmanship created a sense of autonomy that ignored the importance of standards and procedures. With a high production rate, inconsistencies redirected the organisation towards standard procedures to ensure consistent production. The craftsmanship proponents, forced to follow standards, considered this as dehumanising. In the collectivist culture, employees tried to adapt but at the same time search for preferable working conditions. They fine-tuned the system to find a more humanised one while holding on to the simplicity and contextual attitudes.
- **The "Taylorism" way of implementation.** One organisation limited the focus to production and resulted in a measurable objective: filling the gap between the existing conditions and the expected performance. Filling the gap implied investigating the cause of the gap (or finding the defect). This philosophy provided an opportunity to evaluate any sources of defects. In a sub-standard organisation, it was easy to find defects, and this eased the creation of awareness and willingness. To facilitate, and to organise, execution, a formal system with a concrete measure to improve effectiveness, such as a suggestion system, was required at initialisation. A concrete result encouraged employees to systematically comprehend the required climate for continuity. This situation was analogous to Taylorism and was characterised as providing a better result both incrementally and continuously by employing scientific management for adjustments, corrections, and improvements.

Research question 3:
How could organisations develop a strategy for quality management implementation in order to manage inter-organisational cooperation?

Addressing the second research question brought to light different ways of implementing quality management. The discussion on the achievements and impacts in the previous chapter provided implications for strategy for inter-organisational cooperation, i.e. improving technical capability as a manufacturer, improving technical

and managerial capability as a subcontractor, and improving technical, managerial and trust capabilities in a comakership. In improving the cooperation, developing the required characteristics is not a linear strategy of action and reaction. Developing strategy is concerned with linking the various pressures affecting the organisation to its decisions and actions to cope with the pressures. An organisation has to look carefully at the current conditions, the expectation of the objectives, and the dynamic contexts, from which it is able to define the gap. However, an internal inertia was observed that leads an organisation to remain with the existing routine. The need of Indonesian organisations to build inter-organisational cooperation was considered challenging, which became a motivation for the adoption of organisational improvement methods such as quality management. In this research, the motivation was initiated by the occurrence of significant events, which provided the drivers for continuing change. Implementing quality management can be considered as introducing, developing and executing an improvement strategy for dealing with significant events. In this regard, the quality management implementation included translating the related demands, acquiring understanding and motivation for adoption, and institutionalising the concepts in practice.

The extent to which managing inter-organisational cooperation had a fruitful result depends to a large extent on the degree of interaction between companies. The interaction is influenced by the degree of mutual self-assurance, known as inter-organisational trust. At the studied companies, achieving ISO 9000 certification was the main strategy for developing an internal assurance system, but the operationalisation and internalisation through practice for mutual self-assurance were not significant. The difficulties found in quality management implementation at the studied companies suggest that quality management cannot simply be implemented in a specific context of an organisation. These difficulties were discussed in Section 5.6 and relate to aspects of structure and action, the organisational model, the implementation sequence and strategy, and organisational culture formation. Certain implementation ways had a specific impact on achievement and inter-organisational relationship. In order to find a good strategy for implementation, a typology of the ways of implementing quality management in the dimensions of structural and behavioural changes was developed. Progressing the strategy towards total quality management is a path that involved structural and behavioural changes. Selecting a path by considering the context and objectives for inter-organisational cooperation addresses the third research question. Organisations can learn from the “find-the-defect philosophy”, and so identify the gap between their present and expected achievements in terms of the quality management elements. The strategy in quality management implementation is to fill the gap between present and expected conditions and, at the same time, fine-tune the construction of a supportive context in order to facilitate the process of implementation.

Main research question
How can quality management be implemented in Indonesian manufacturing firms using their potencies and advantages in their specific business environment in order to improve their capability in managing inter-organisational cooperation?

Addressing the main research question had led to detailed discussions on aspects of quality management, the Indonesian (company) situation, and the implementation process. In this research, these aspects were observed using dimensions of content, context and process. Discussions on these dimensions were aimed at *achieving a better understanding of quality management implementation in an Indonesian situation* as the first research objective. Subsequently, meeting the second research objective, the acquired knowledge from this empirical implementation will be used to develop a strategy on *managing the implementation to obtain the benefits of quality management.* Mapping the direction within dimensions of structural and behavioural changes represents the development of a strategy. Mapping the implementation approach in these dimensions expresses not only the opportunities, but also the difficulties, in implementing quality management. Organisations also need to consider the contradictory forces that impact on inter-organisational cooperation, i.e. cooperation-competition, rigidity-flexibility, and longterm-shortterm orientation (Das and Teng, 1998). Johnson and Scholes (1999) characterise this issue into firstly analysis, then developing options, and finally implementation. In terms of developing options, organisations can focus on key issues as lessons learnt from the empirical study in an Indonesian situation.

6.3 Reflections from the research

6.3.1 Key issues of implementation

In building a management theory, Mintzberg (1977) proposed a sequence initiated by the inducement of explanations from data, followed by deduction in raising research issues, and the induction. A similar sequence is carried out in this research in order to learn by reflecting on empirical findings. In the first chapter, three examples of quality management practices provided an overview of empirical cases of quality management implementation in Indonesia. From these examples it was shown that improper practices in quality control and management led to negative consequences for an organisation. Based on these observations, the literature on quality management and its implementations was studied. This investigation led to the research issues that guided the empirical research on quality management implementation. This empirical study provides a link between a strategy for improving organisational capability and quality management implementation. The link puts a strong emphasis on improving internal

aspects of an organisation through quality management implementation, specifically for improving inter-organisational cooperation, which also has other implications.

The impact of quality management implementation on improving inter-organisational cooperation led to a reflection on the key issues of this empirical study. The impact of the quality management implementation on inter-organisational cooperation is the first key issue. Improvements in inter-organisational cooperation cover operational capability, managerial capability, and developing trust, all of which can be obtained through quality management implementation. As the implementation is considered as a process of change, the discussion on key issues will be presented in terms of the dimensions of change, i.e. context (control and learning attitudes), content (leadership, quality department, and quality management system), and process (motivation and learning, and incremental process). The discussions on these issues incorporate the related literature in order to enriche the discussions as it contributes to the body of knowledge on quality management implementation, especially that related to Indonesia.

- **Inter-organisational cooperation**

  The main motivation behind implementing quality management in Indonesia is to improve organisational effectiveness in order to improve inter-organisational cooperation, especially with foreign partners. In building cooperation, companies will review not only their partners' existing situation, but also their partners' potential. In relation to quality management implementation, the details of actual improvements in enabler elements of quality management are not always visible to partners. The achievements in terms of elements of enablers do not assure similar achievements with element of results. Building a trust-based relationship was shown to be difficult. The limited success implies that inter-organisational cooperation should involve a formal agreement. The findings from the studied companies indicated that three types of inter-organisational cooperations, i.e. independent partner (maker, or supplier), operational partner (subcontractor), and strategic partner (co-makership, or manufacturing unit). In each type of cooperation the differences involve issues of operational capability, managerial capability, and trust-based relationship, and thus cover not only system-operational issues but also socio-cultural issues.

  In setting out their business strategy for inter-organisational cooperation, a company can use a range of strategies to benefit from their internal conditions and external opportunities (and risks). Among the types of inter-organisational cooperations, an independent partner is likely to only use a passive strategy, in which companies can benefit from exploitative innovation and follow the process of single product life cycle; which can decline in a short period, or over a longer period. A strategy of following only a single product life cycle can lead to complete termination of the business. Alternatively, companies can place a sustainable

objective in their business strategy, in which exploratory innovation will play a significant role (Benner and Tushman, 2003). From this viewpoint, exploratory innovation also provides external opportunities, such as in creating market sustainability. Benner and Tushman (2003) argue that an increase in process management practices promotes exploitative innovation but decreases exploratory innovation, unless the organisation forms an ambidextrous (both of tight and flexible) capability. In this research, this capability was observed through the extent of formalisation and decentralisation. Formalisation has a tendency towards tight coupling, while decentralisation is considered to promote flexibility. Even though the studied companies were observed to have a large degree of decentralisation, there was little authorisation for decision-making (except in AAC) such that this flexibility remained undeveloped. In such a situation, balancing the capabilities for exploitative and explorative innovations is unlikely to be straightforward. As quality management holds to the principle of continuous improvement, it can be a benefit to implement quality management alongside efforts to balance both capabilities. The following key issues, which are organised along dimensions of context, content and process, consider for structuring an organisational improvement strategy through quality management implementation.

- **Control attitude and learning attitude**

  The philosophy of continuous quality improvement (e.g. total satisfaction, fitness for use, and zero fault tolerance) normatively implies an idealised final end-state that is hardly expected to be realisable. Quality management implementation is viewed as a continuous process rather than a result-oriented path. Implementation is seen as being underway towards the end-state. Besides benefiting from the advantages of quality management in a result-oriented context, the companies also experience obstacles during the implementation process. Not all employees can realise a benefit or impact from their improvement efforts. For example, employees in one section of a company may be disappointed because their improvement efforts are not matched by the same efforts by employees in subsequent sections. Unless a company can change its employees' orientations into a process, the anticipation of the benefits of quality management is often threatened by becoming overshadowed by employee disappointment because of only marginal results, especially in the short term. The climate in a result-oriented context is not as constructive as in an implementation context since a control attitude dominates the learning attitude (as indicated in Sitkin et al., 1994). With a result-oriented process, as observed in this research, the implementation of quality management becomes focused on building the technical-operational side of the quality system, and not on developing the capability to deal with socio-cultural issues. A focus on building the technical-operational side of the quality system is likely to develop because it provides tangible results, such as a reduction in the number of defects.

From the case studies, it can be concluded that most of the obstacles come from accumulated complexities, which appear as paradoxes. The occurrence of a paradox is an indication that the adoption and adaptation of a quality system is not sufficiently advanced to be judged as a successfully implemented quality management system. These paradoxes often appear as inconsistencies in incomplete or unfinished agenda. Decentralisation without authorisation, flexibility without an understandable objective, and developing willingness through with coercive force are example paradoxes which have been found in this research. These opposing conditions originated from at least two unfavourable settings, which now have to be carefully assessed prior to continuing the implementation process. Firstly, people in the organisation hold a normative assumption about quality management implementation. This normative assumption reflects an implicit leaders' expectation about the quality management concept. This assumption leads to the expectation that creating an element of a quality management system will result in a substantial improvement, preferably in the short term. This excessive expectation leads to a quick yield attitude. Instead of maintaining progress towards the overall objective, once an element or operation is complete the ongoing effort is relaxed or even terminated. Given this, the desired congruence of elements of a quality management system is not easily constructed. During the implementation, this unfinished construction turns in conflicting directions. Secondly, a quality management system is often built with assistance from external consultants. On the one hand, an experienced consultant is accustomed to the details of the system and with the difficulties of implementation. On the other hand, a consultant brings empirical values from experiences in an organisation and then applies directly into others in a descriptive way. In a different context, which can lead to different interpretations, the implemented descriptive values often have multiple meanings, and thus they generate a range of responses. These descriptive values often contradict the objective, which is commonly defined prescriptively.

- **The renewal of leadership**

  Implementing quality management involves reviewing the quality management content, and improving or changing it as required. Leadership is the main triggering element in the quality management model, such as in the EFQM or MBNQA models. From this study, it is concluded that the need for improvement through quality management implementation is directly linked to the reconfiguration of the member of companies' leadership. This issue is refined by the assumption that if capable individuals act on behalf of the organisation then the organisation is capable of learning and changing (Argyris and Schon, 1996). The top management as the power holder in a company characterise the whole process of quality management implementation. Leadership has two components, i.e. maintaining and accomplishing tasks, in which managing the control and authority of tasks characterise the

management style. In the studied companies, the members of a leadership team were brought into the companies based on an assumption of an advantage in homogeneity of leaders in teamwork. However, homogeneity of members of a leadership team creates constraints, especially concerning the details of control and authority, because the very homogeneity of leaders often rules out any visible operational differences between departments at the lower operational level (this problem is indicated by Pfeiffer, 1977). In this situation, members of the organisational leadership should represent not only homogeneity but also differences, and this should influence decisions in choosing the members of a leadership team.

A decision to create a new leadership team is taken under specific conditions. Firstly, as has been found in two of the studied companies, changed leadership tended to perceive risk rather than opportunity in improvement initiatives, especially with improvements initiated by external pressures. Perceiving risk over opportunity can occur when the leadership has experienced a moderate growth in sales over several years. As the uncertainty in the business environment increases, and with risk avoidance as the background, this type of leadership sets a "survival reactive strategy" by keeping the operations unchanged. With this strategy, leaders apply neither a reactive nor an anticipatory strategy to the external pressures. They consider the current position as mature, and so enter the "trap of success" even though the organisation is not in a satisfactory condition. This trap can occur only in successful conditions, as assumed by Nadler and Shaw (1995) who define the trap of success as performing recursive processes, in which an organisation "does more" of the same thing. Secondly, as the holders of power in the organisation, the leaders have a strong belief that they are the only entities that have knowledge in translating the dynamic organisational environment into a motivating pressure. In many cases, translating the context is further claimed as their authorised privilege. Under these considerations, the sequence of implementation is likely to start with a strategic decision, and the implementation becomes a top-down process. In this setting, the leadership holds certain rationales for achieving success, such as prudence, thoroughness, nobility, ambition, or even a need for strictness. Within these rationales, however, the execution approach tends to be directive and rely on following procedures. As a result, this hampers the implementation process. Thirdly, based on external motives, the leadership often involves people from outside the company, which possibly have different cultures and management styles concerning quality management. This is the case when inter-organisational cooperation progresses towards a form of strategic partnership with direct involvement in operations, as was observed in the third case study. In this event, the decision for quality management implementation, which often includes new requirements, is made before any explicit definitions of what situations and strategies to pursue. As a result, the initiation fails to fulfil many

assumptions with respect to the existing conditions, which makes the subsequent implementation processes complicated.

Considering that there were always new leadership configurations in conjunction with initiating an implementation at the studied companies, it can be concluded that "renewal" of leadership was an important requirement for improving the quality situation. The term "renewal" was initially intended to reflect renewing the concept of quality management. However, given the three types of leadership as discussed above, in actual practice (in Indonesian situation), team "renewal" also implies inviting new individuals to form a new leadership team.

- **Roles of the quality department**

  The quality department was operated differently at the studied companies. The quality-related jobs were gathered in a quality department with two types of roles. Firstly, the quality department was directly involved in designing and characterising product and production, but then only has indirect involvement in quality practices during production. Production operators directly perform all the necessary quality activities integrated with their routine jobs. In this setting, the quality department functions independently of other departments. In relation to production, the Japanese use the terms "on-line quality control" for necessary quality activities in production performed by production employees, and "off-line quality control" for independent functions performed by non-production employees, such as those in the quality department (Taguchi, 1987). The quality department is only actively involved in solving fundamental problems, such as in response to customer complaints or advanced expectations. In this setting, the quality department functions on a non-routine basis, and the quality jobs are not always formally structured, and thus often lack distinct job descriptions. The details of quality jobs may be defined later in the form of projects, task forces or implementation teams, mostly for a limited period with a problem-solving objective. Secondly, in addition to the non-routine basis of activities as in the first type, the quality department also directly participate in quality-related activities on a routine basis, such as inspection of incoming material, process monitoring, and daily problem-solving. In this setting, the quality department functions alongside procurement, engineering and production departments. In this function, overlaps in control and authority are unavoidable. Accordingly, specific quality-related jobs have to be formally structured with clear job descriptions.

  At an early stage of quality management implementation, all the studied companies practiced the second type of role in their quality departments. In this stage, as quality management activities were given as the main priority, authority in decision-making was mostly held by the quality department rather than production, engineering or purchasing departments, which created an unsupportive climate for internal cooperation. In the later stages, only AAC successfully employed the first type of role, in which the routine quality activities were integrated in production

while the quality department performed specific problem-solving activities on a project basis. The important point in changing role from the second type to the first type is similar to the alignment of technology and structure as proposed by Barley (1990). He suggested that the introduction of technology change the occupational structures by transforming patterns of action and interaction. In changing the role of the quality department, it is important to note that both types have advantages and disadvantages.

In the first type, the quality department focuses on quality-specific tasks in which their accumulative experiences are crucial for going beyond adjustment, correction or exploitative innovation, such as for progressing towards exploratory innovation. Since the quality department is excluded from daily activities, each production employee performs quality-related activities as an integrated part of their production jobs. This integration is very important in order to enable them to complete the continuous improvement (PDCA) cycle in production. However, the internalisation of quality-related activities in production is not easy and takes time. For example, intensive technical training and people development programmes are often given low priority compared to achieving production targets. If the internalisation of quality management principles in routine production jobs fails after a period of time, the objective often crystallizes into only making the product based on the specifications. This forms a result-oriented attitude that is unsupportive for continuous improvement. As an alternative way of implementation, top management may prefer the quality department to function as in the second type during the initial stage. Intensive training about quality principles and techniques is given to quality department employees. Afterwards, they socialise these principles and techniques to production employees as co-workers in daily production jobs. In this setting, the crucial tasks of quality department employees are not only actively participating in production, but also to introduce, to guide and to train production employees in quality-related activities. If these tasks can be done well, all the quality-related jobs and responsibilities in production are gradually transferred to the production department.

The second type of role in the quality department directly contributes to the introduction of quality management practices to production employees through action and interaction. If the transformation is performed successfully, then the role of the quality department becomes as the first type. However, the second type of role for the quality department is not free of problems. As the first adopter in a process of diffusion, the quality department requires employees with higher level of skills and knowledge than the production employees. As a consequence, as in the studied companies, the working relationships between them can appear as one of superiors and subordinates (not as co-workers), and often with different salary levels. If the production employees fail to grasp the key idea of this process of diffusion properly,

they will position themselves only as production operators. Even though there are job descriptions, at the operationalisation stage, there is a possibility of overlapping activities between the quality and production departments. Since quality becomes central as the production rate increases, the role of the quality department during production becomes significant and has two implications, (i) the quality department dominates the production activities, and (ii) the production employees passively rely on the quality department. Case study observation has demonstrated such a situation in which production operators counted on all quality-related problems being solved by the quality department.

In both types of quality department roles, there are common problems, i.e. internalisation and domination (or friction). This suggests that the difficulties in relation to the role of the quality department are more on social-dynamic issues than on technical-structural issues.

- **The quality management system**

  The top management at the studied companies commented that a quality management system, such as in ISO 9000, is a necessary foundation for building quality management principles and practices in a company. Sequentially, as in our findings, building a procedural system comes first, before adapting the quality management principles, operating the elements of the system, and performing improvements which, in the later stage, will provide a quality assurance system. Such an assurance system is aimed at systematically structuring the operational and strategic management to enable effective actions for measurement, evaluation and improvement, as important activities in process management (Benner and Tushman, 2003). This consideration implies that the quality management system puts forward internal procedures that are more important than internal processes based on external objectives when it comes to improving quality at the initial stage. After the procedural system becomes routine, companies often fail to precisely translate the external needs into an internal focus. As a result, an organisation rarely accomplishes its objective of implementing an assurance system towards organisational trust as a way of improving inter-organisational cooperation. It was observed at the studied organisations that quality assurance system certification appeared as the final target. As noted in van der Wiele et al. (2000), the roles of external pressure and top management dominate the need for certification. Accordingly, it is quite common that a duality of internal and external orientations is built into the organisation.

  In terms of the total quality matrix (Fisscher, 1994), at the studied companies, the practices in developing quality management systems focused more on the system structure rather than on the social-dynamic structure. This focus leads to stagnation in maintaining process quality management towards building concrete activities that provide possibilities to anticipate change in the environment (as indicated in van de Water, 2000). The precursors for organisational change had motivated the leadership

at the studied companies towards their first decision to build a quality management system. However, the explicit follow-up to the management processes to stimulate action seemed to be insufficient since the certification of the quality management assurance system became the final target.

Specifically, two reasons influence the view of quality certification being the goal rather than supporting processes of quality improvement. Firstly, referring to the label as an international standard, many companies perceive the quality assurance system merely as an international trade regulation. Within this perception, an organisation pays more attention to the external trade risks of being not certified rather than on the opportunity for internal systematic improvement and later for an external, sustainable business, orientation. This was the case in the case study in that an organisation experienced business loss through order cancellation due to the absence of certification as the main motivation for building a quality management system. At the same time, governmental agencies and business associations in Indonesia were also responsible for a campaign highlighting the trade risk of not being certified which created a short-term objective. Secondly, the role of consultants greatly contributes to achieving certification. Where the assurance system is new for an organisation, the consultants are considered as having significant control over the process of adoption. Their role determines the successful construction of the system that leads to certification. In a paternalistic culture where a "highly educated" consultant is widely respected, a consultant can easily influence an organisation to obtain ISO 9000 certification as an accepted quality assurance system. Subsequently, since the elements of the quality assurance system are standardised, building the required standard operating procedure is straightforward. As a result, certification is usually accomplished in a short period of time. However, the subsequent operationalisation and internalisation are full of difficulties. After certification, the employees are expected to take on the jobs of the consultants, especially the implementation team or the quality department. In the diffusion processes, essentially the consultant has major roles in the adoption of the system, but no significant role in its adaptation. In this difficult situation, with a strong hierarchy and a large power distance as background, top management apply a directive approach to generate participation by employees. This approach contributes to creating an attitude for following the quality management procedures developed by the consultant.

These two reasons enforce an attitude towards system (and procedures) construction rather than using the system for continuing management improvement processes. Again, the obstacles to key issues of the quality management system are characterised as socio-cultural dynamic rather than technical-structural.

- **Motivation building and learning processes**

  Lessons learnt from the discussed key issues indicate a need to give further attention to the socio-dynamic issues when implementing quality management. From this perspective, introducing a quality management philosophy is considered as essentially cultural because it is a fundamental renewal (as indicated in Savolainen, 1999). Here, quality management implementation is a process of transforming the organisation, along with all of its elements, in which two important points can be observed: motivation building and the learning process.

  Motivation building is always necessary prior to implementation and/or during the implementation processes. There are several types of motivation for quality management implementation, such as (i) task accomplishment, (ii) an intrinsic basis of doing, growing, learning and developing, and (iii) a social incentive for sharing responsibility and providing recognition (Deming, 1993). Improvements within these classifications show an increase in degree of accomplishment, from only a technical-operational focus to include strategic socio-cultural issues (as in Fisscher 1994). Observations at the studied companies showed that motivation as a task accomplishment was explicit, but the other types of motivation were not found, even in interviews with top-management. Expressions that show a conformance to characteristics of the last two motivation types are not straightforward, such as discussing opportunities for problem-solving in order to satisfy customer needs. Solving daily problems as a part of individual tasks was a task accomplishment motive which, with the importance of continuous improvement towards customer satisfaction, led to a motivation that was a basis for doing, growing, learning and developing. However, a motivation towards sharing responsibility and providing recognition was never expressed. This lack of continuous motivation-building showed that even the top management of the studied companies restricted their attention and returned to technical-operational concerns as the main issue in implementing quality management. Considering their educational backgrounds and experiences, it is not clear what the reason is behind this restriction. It could be a mixture of limitations, in which (i) top management failed to recognise the benefit of increased motivation due to limited knowledge on fostering external cooperation, and (ii) lack of further strategic development for exploratory innovation due to risk avoidance. This restriction is closely related to the learning process.

  In relation to processes of learning, the view of continuous improvement through quality management implementation is that of an iterative process of learning and change to obtain a better result or condition. Literature shows that a “feedback mechanism” at the core of a quality management system enables learning. During operationalisation, people take the central role in all processes of learning, especially in controlling and directing, and so people determine the effectiveness of a learning process. In controlling and directing the learning, certain characteristics of people

create two often-opposing patterns in the process of learning, i.e. to adapt and survive, or to develop and improve. In the observations from the research, we found that people learn from each other about work processes in order to adapt and survive. However, without standard procedures, the adaptation leads to various ways of working at the operational level. Within this first pattern, the effectiveness of learning and change is also determined by the sufficiency of tools and the level of knowledge of people in utilising these tools. Failing to fulfil these requirements, as was observed in the case studies, the orientation becomes merely to get direct results or solve a problem rather than to learn. Contrasting with this, with proper motivation, knowledge (or information) for further analysis leads to a need for continuously reviewing the present work process in order to propose improvement. Accumulated knowledge is internalised implicitly in daily routines. With proper guidance from top management, this routine turns into learning about collective goals. In the second pattern, the flow of learning processes is referred to as unfolding and improving. This pattern is seen as double-loop learning, as advocated by Argyris and Schon (1996), and takes place in addition to single-loop learning. From a different point of view, recently, Benner and Tushman (2003) have discussed these patterns of learning in terms of pursuing exploitative and explorative technological innovations. In their jargon, the dynamic capability of an organisation in motivating and encouraging people to learn and change in terms of both patterns is labelled ambidextrous. In our research, this kind of capability was expected to create a limited degree of formalisation and a high degree of decentralisation. The studied companies however did not achieve this.

- **The incremental and flexible process**

  Literature sees transformation through quality management implementation as a process of change (e.g. Nadler, 1989). Many Indonesian companies are informed about quality management through successful examples or case studies from developed countries. Subsequently, the implementation is motivated as "following the route to success". This message, however, mostly reflects "the superficial most visible elements and characteristics of the idea". As found in this research, later, this message is likely to focus on the results rather than on the flow of processes in the implementation. Based on this finding, this research concludes that the developed mindset prior to implementation was result-oriented, and hence the implementation process was characterised as incremental through intermediate targets, and in which a flexible approach was also observed.

  The "well-informed" top management is considered to have strongly influenced the development of this orientation. Initially, top management learns about and appreciates the success stories of excellent organisations published in literature in developed countries. This appreciation turns into a challenging drive for their own organisation with a consideration that the implementation process is not easy. From

this starting point, a leader faces choices in forming strategies for the transformation, as discussed in this research. Firstly, the people at the organisation, in general, are characterised as favouring uncertainty avoidance, and thus showing the fruitful result of the initiation step is preferable to showing the difficulties of implementation. Consequently, the leader imposes tight control to keep the initial implementation process goes precisely on the right track, either in directive or coercive ways. With a high power distance as background, the employees react by merely following the imposed procedure. Accordingly, the progress heavily relies on the staging of the implementation plan set by the leader. Secondly, the leader not only shows the fruitful results, but at the same time, also explains the difficulties, including the uncertainty of the results. Within this approach, a leader may directly guide a small test case to show that the implementation is workable in order to overcome the concerns over uncertainty. Subsequently, a similar implementation method is diffused to the rest of the organisation. Consequently, all people can have their own interpretations on dealing with the workable results and the difficulties. Without a detailed definition of the objective, as in this research, a trial and error approach dominated the process of implementation. Thirdly, the leader starts out by considering the difficulties of implementation. Within such an approach, the leader formulates a system of rules and procedures for task operations, and that concurrently enables adoption of quality management principles. With this arrangement, people learn and implement the quality management system while performing their tasks and afterwards this is expected to facilitate the adaptation, however in practice it also creates a possibility of non-functional processes.

With these choices in leading the transformation, certain aspects play important supporting roles, i.e. communication in finding congruence between the views on results and process, learning and diffusion from real operational cases, and a reward system that respects people in teamwork. Such strategies for transformation have advantages and disadvantages that are strongly related to the changing context. In one studied company (HEC), top management managed the transformation processes incrementally and were flexible to conditions of context, and so these strategies for transformation were applied at different times. Consideration of a suitable context in incremental change is important because changing to overcome cognitive inertia, and at the same time relieving stress about future uncertainty can only be achieved through a “small change” (Reger et al, 1994). This evidence brings to an argument that this organisation fits the characteristics of an enterprise which is rational, natural, and as an open system (Scott, 1998). Such an enterprise's organisation is characterised as having a collectivist orientation in the pursuit of specific tentative goals and exhibits choices of socio-cultural constructions. In a collectivist society, such as Indonesia, through informal direct communications between top management and employees, there is an opportunity to develop simultaneously formal and

informal structures of relationships. This is an important characteristic towards socio-technical integration, which is an advantage for continuing quality management implementation (see Spencer, 1994).

From the issues discussed in this section, it is clear that no unambiguous answer can be given to the main research question that is valid for all organisations in Indonesia. However, the issues that have been covered are typical of the Indonesian situation and should be addressed according to the specific situation of the companies involved.

6.3.2 Research approach and methodology

This research is qualitative research, and the conclusions were likewise qualitative. This research has studied the issue of quality management implementation using a process approach through case studies. Within this research strategy, a research design, represented by the conceptual research framework, was developed, in which the dimensions of implementation were considered following the "three essential dimension of change" (as suggested by Pettigrew and Whipp, 1991). This consideration was based on the argument that the implementation of quality management is a process of change, and observations were focused on periods before, during and after the introduction of quality management, as a relatively new technology at three Indonesian companies. In its operationalisation, the research put emphasis on the longitudinal process of quality management design, because the subject of investigation was ultimately a systemic process of change. This diachronic approach is not always possible due to a lack of adequate resources or the technology having already been implemented (Barley, 1990). However, the continuity of processes in quality management, in principle, creates the possibility of observing the social dynamics of technical-operational change indirectly. In this research, the observations involved synchronising empirical facts and evidence of the developed quality management elements with the achieved performance under a pattern of interactions. Incremental constructions of content, context and process were observed, through which the formation of a dimension was realised as a process of socio-technical interactions influenced by other dimensions. Instead of using a contingency approach, the use of sequential processes of construction in this research has provided an understanding of the process of quality management implementation.

6.4 Recommendations

6.4.1 Recommendations for Indonesian companies

This research observed that significant events created triggers for performing improvements, which then turned into motivation for quality management implementation. There is no single best strategy for successful quality management implementation in Indonesia. The companies need to consider their specific influential

conditions. They can use these reflections in their efforts for quality management implementation. The recommendations based on the findings in the cases are summarised in the following:

- **Constructing a supportive context**
  The complexity of the process of quality management implementation is due to unfinished agenda because implementation is obstructed caused by misunderstanding the continuity approach. An improvement in one section could not always followed up by other sections. In this case, top management tightly controlled the process of implementation. Learning was promoted, but all actions to change the existing procedures are tightly controlled. As a result a controlled-oriented organisation developed instead of a learning-oriented organisation. The complexity due to individual actions led to this "unfinished agenda" that influenced the construction of the conditions. The first unfinished item corresponds to building motivation and awareness through the deployment of a quality management concept, in which the key components are (i) a process orientation, (ii) no quick results, (iii) continuity, and (iv) internalised in individuals. Since the concept is new to many Indonesian companies, it tends to be introduced as a top-down approach through understandable communications. This means that the concepts need to be expressed as practical examples when they reach the operational level of the organisation. Repeated expressions in different forms are useful. The use of specific words (such as find-the-defect) not only attracts employees but also shift the problem of grasping a concept directly to an understanding. In accordance with the deployment agenda, employee development is the second unfinished item. This item corresponds to developing willingness, skills, and knowledge. For this reason, an organisation needs supporting systems such as reward, promotion, and training systems. Considering implementation to be a continuous process, it is recommended that the systems' actual effectiveness should be evaluated regularly due to the influential effect of the constructed contexts. Reviewing supporting systems can be done to search for improvement since they are largely independent of the daily activities. The training system has a different situation in terms of review because it is highly related to production, and thus such review needs to consider the plan for manufacturing operation closely.
- **Building the required content**
  Among the elements of the quality management content, the leadership, the quality department and the quality management system are three important issues. In initiating the implementation, the leadership of an organisation is expected to open up awareness in grasping the internal and external conditions and events, and filter them to formulate the needs of the organisation. In managing the implementation, the leader holds specific rationales for success based on the specific background. The leader can be prudent or a risk taker, thorough or focussed, formal or informal,

ambitious or modest, and incisive or gradual. However, since strategy in implementation is relevant, for reactive and anticipatory reasons, to operational and strategic issues, a suitable capability of the leader is a substantial requirement. The required capabilities not only cover technical and managerial knowledge on quality management content, but also intuition and awareness of context and culture. This study does not result in one strategy as a recipe for managing implementation. Finding a composition based on the discussed key issues is likely to form a good strategy if it fits the organisational conditions (i.e. work, people, structure, and interactions) and related contexts. This has to be done repeatedly. Therefore, leaders should optimise their capability to understand the organisation and its current context prior to defining the implementation strategy. However, such an ideal capable leader was not found in the case studies. It appears that such complete capability is difficult to achieve. If this is the case, this research recommends that, instead of only pursuing success, a leader should also be realistic in defining mid-term objectives for the implementation through carefully balancing control and learning attitudes. In this situation, it is recommended that one considers quality management implementation as an incremental change rather than a discontinuous one. The emphasis is put more on continuous improvement (as part of exploitative innovation) than on explorative innovation.

In this research, two different roles for the quality department were found, i.e. (i) independent of production activities and (ii) engaged in production activities. In the first type of role, quality department employees cover only non-production activities, while the quality-related production activities are internalised in production employees. This condition can become the final objective, but the process towards this condition is difficult and takes a long time. In relation to the process of diffusion, as discussed previously, the second role, in which the quality department covers direct activities in production, is preferable. With this option, employees from the quality department evaluate production and provide direct suggestions for improvements, or form a task force to achieve improvements. Attention should be given to the occurrence of conflicts between employees from involved departments as production complexity increases. The diffusion will continue if involved departments can cooperate in handling quality-related problems, and then the role of the quality department will gradually reduce to cover only non-production activities.

Building a quality management system, such as ISO 9000, is a constructive initial step in quality management implementation. The leadership should explain the meaning of “assurance system” compared with “procedural system” in terms of both external and internal objectives. The elements of a standardised assurance system are well structured. Accordingly, building the required system of standard operating procedures is relatively easy, but the internalisation into routines as quality assurance achievement is difficult. In this regard, the clarity of the objective of the quality

management system is crucial. In a context where education levels are low, it is hard for the employees to distinguish the conceptual view from the practical objective of the quality management system. As a result, the implementation tends to focus on the standard operating procedures guided by normative and mechanistic controls, which later tend to become directive or coercive. Accordingly, developing further awareness and involvement towards an assurance objective is difficult. In response, it is recommended that an organisation decentralises the responsibilities and authorities for decision-making for two reasons, i.e. (i) to build a sense of ownership, and (ii) to ease involvement in performing improvements.

- **Managing the process of diffusion**
  Considering quality management implementation to be a process of organisational change, the reflections on this research have characterised three strategies for diffusion. Firstly, the strategy can start by introducing proven successful results to motivate and then immediately implement the quality management system. Secondly, the implementation can start with a pilot project to show systematically the method and the fruitful impacts from implementation, which will motivate others to continue. Thirdly, the strategy can start by constructing an achievable improvement system equipped with rules and procedures for operations. These strategies are not "one size fits all ones", but have to be applied selectively. Each strategy is strongly related to context, and thus an organisation may use one strategy at one time and change to another strategy at another time. Initially, organisations commonly initiate the implementation through certification of the quality assurance system. The first strategy is preferable when the quality management practice is new. Later, the organisation can combine it with other strategies. The second strategy is always preferable to the third strategy since the third is similar to the first strategy, but with a norrower scope and target. While engaged with fitting the implementation and operating the system, an organisation uses a "narrow-wide" approach so that a pilot implementation project provides an example of how to do it in the desired direction. A "narrow-wide" approach to implementation means an iterative change from a focus (or narrow scope) to widening change situation. With this approach, the first fitting step is allowed initially to deviate and then revise it. The third strategy is likely to be used when an organisation is expecting a discontinuous change due to a significant new challenge, and it is characterised as not improving fit but as building a "new" organisation (Nadler et al., 1995).

6.4.2 Recommendations for further research

This research has addressed the issue of quality management implementation from the view of a process approach through a multiple-case study. The research has established empirical conclusions for quality management and its implementation. Learning from this research, three recommendations are proposed for further research. Firstly, this

research has been restricted because the observations of the whole process were partially indirect, especially with respect to the initial stages of the implementation process. The use of secondary sources of information captured the content, but possibly missed valuable nuances in the contexts. For further research, similar observations using a longitudinal case study are required in order to capture further related contexts, especially during the initial stage.

Secondly, the selection of case organisations was based on the assumption that the organisations were implementing quality management. In this research, the studied companies were positioned according to the desired expectations of the organisational excellence, using the DQA model. However, these positions are far from the optimum within this model. As the DQA model was established in the Netherlands, it is necessary to check for limitations in the measured objects in specific for Indonesian organisations. For this purpose, it is necessary to study the implementation in other Indonesian companies since this will enrich the scope of the research, especially in terms of the dimensions of content and context, and this will lead to further insights into the implementation process. A case study involving an organisation further advanced in quality management implementation would be useful in refining the typology of the implementation approach towards organisational excellence. However, such an organisation probably does not yet exist in Indonesia. Moreover, there is no effective measure for quantifying the level of quality excellence; the only available measure is ISO 9000 certification, which this research has shown is not sufficient.

The limitations on the availability of quality management models lead to the third recommendation for research. This research reviewed the relationships between elements of a quality management model as structured in the EFQM model. This review led to the conclusion that the relationships in each of the studied organisation were generally strong. This result can be used as a basis for developing an Indonesian quality management model. For further confirmation, research searching for an appropriate quality management model for the Indonesian situation is required. Such research should consider the findings concerning the dimensions of content in this study, and propose relevant elements and their relationships to construct a quality management model. Two approaches can be used. The first is to extract relevant factors from this study to form manifest variables in order to construct latent variables through a descriptive study. The second is to consider manifest variables from other models such as in the details of the Deming Prize Award, or the Malcolm Baldrige National Quality Award in addition to variables obtained from this study (based on the EFQM model). Such additions are aimed at enriching the definition of variables that could be useful in defining the relationships between variables. Based on these approaches, a survey type study in many Indonesian organisations would contribute to generalising of the existence of these variables and their relationships in order to construct a quality management model for Indonesian manufacturing industry.

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APPENDIX A CASE STUDY PROTOCOL

Topic of the research:

The implementation of quality management in Indonesian manufacturing firms.

The research objectives:

1. To achieve a better understanding of quality management implementation in the Indonesian situation, including the characteristics of quality management elements and the influencing internal and external factors.
2. To develop a strategy so that the quality management implementation can realise the potential benefits of quality management.

The research problems:

How can quality management be implemented in Indonesian manufacturing firms using their potencies and advantages in their specific business environment in order to improve their capability in managing inter-organisational cooperation?

The research questions:

1. To what extent do the theoretical and empirical aspects found in literature contribute to quality management implementation, and how can these aspects be constructed into a conceptual research framework for observing quality management implementation?
2. How does such a research framework function in the actual situation of Indonesian manufacturing firms?
3. How could organisations develop a strategy for quality management implementation in order to manage inter-organisational cooperation?

Main research activities:

1. Study and review of literature (to address research question #1 and to develop research framework for case study research).
2. Multiple case study research and analysis (to address research questions #2 and #3).

The data collection methods for case study research:

- Assessments (questionnaires) for quality management model.
- Interviews, questionnaires, and formal data collections on the quaity management implementation.
- Assessments (visual and documents) and interviews on quality achievement.

Unit of analysis: company / organisation.

Sources of data: the individuals and the organisation/management.

Elements of the research framewok, propositions and key concepts as guidance for the interviews and data collections are as follows:

1. Review of elements of quality management model

Research issue:

To investigate the relationships between elements of the EFQM model to assess its appropriateness as a quality management model in the Indonesian situation.

Key concepts:

- Organisational enablers: leadership, policy and strategy, people and resources management.
- Process management.
- Organisational results: people and customer satisfaction, impact on society, operational and financial performance.

Research tools:

- Assessment using elements of the DQA model (translated into Indonesian) (see Appendix B).
- Statistical data analysis.

2. The quality management implementation

a. General information on the organisation

Key concepts:

- The existing products, processes, facilities, employees and other resources.
- Statement of vision, mission, goal and objective, policy and strategy.
- The stakeholders.
- The suppliers, customers and competitors.
- The documented quality system manual, procedures and documents.

Research tools:

- Top management meeting, interviews, workshop, and internal information or documents.

b. The quality management content

Research issues:

- *To investigate how leadership formulates the desired end state of an organisation in its vision, policy and strategy, and as an explicit (action) plan for managing quality.*
- *To investigate the influence of the developed policy, strategy and plan on resources and people management in order to perform a quality management process.*
- *To investigate the effectiveness of supporting systems in the operationalisation of managing people, resources and process.*

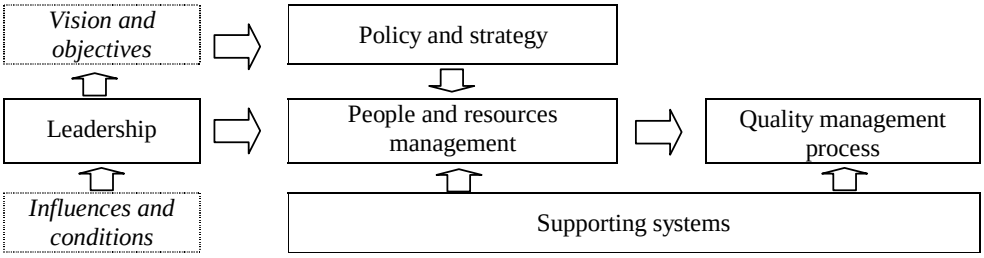
Key concepts:

- Leadership
- Policy and strategy
- People management
- Resource management
- Supporting system

Research tools:

- Interviews, workshop and internal information or documents.

The constructed model:



c. The context of implementation

Research issues:

- *To investigate the influence of organisation contexts on the formation of organisational culture and structure.*
- *To investigate the formation of a particular organisational cultures and structure as a constructive foundation for quality management.*

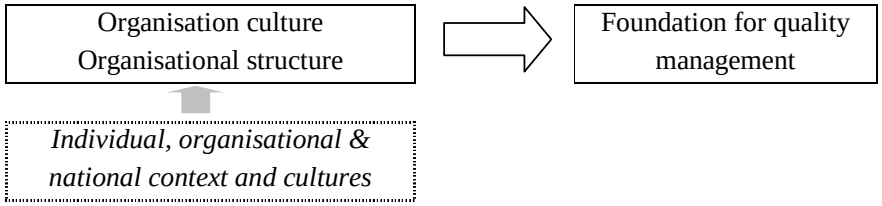
Key concepts:

- Context of individual and national cultures.
- Development of organisational culture and structure.
- Other organisational context: size, employee, technology and environment.

Research tools:

- Interviews, workshop, and internal information and documents.
- Questionnaire (see Appendix C).

The constructed model:



d. Implementation process

Research issues:

- *To investigate how motivation building initiates a decision to implement.*
- *To investigate how top managementmakes influential decisions and actions in achieving the reorientation of strategic and operational issues.*

Key concepts:

- Motivation: reason for improvement, critical incidents, commitment.
- Planning and preparation: initiating improvement and support.

Research tools:

- Interviews, operational data (manual, procedure and documents).
- Documentation on ISO 9000 and other quality management certification
- Questionnaire (see Appendix D).

e. The process of change

Research issues:

- *To investigate how awareness and willingness create participation and involvement.*
- *To investigate the sufficiency of the participation and involvement of people to execute the process of change in quality management implementation.*
- *To investigate how the developed quality management system supports organisational learning.*

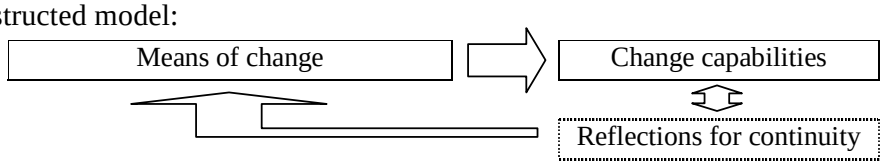
Key concepts:

- The means of change
- The capability to change
- Process of adoption and learning mechanismS.

Research tools:

- Interviews, workshop, visual observation, and internal information and documents.
- Questionnaire (see Appendix E).

The constructed model:



3. Assessment of level of quality achievement

Key concept:

Level of quality achievement measures the progress of quality management implementation towards the total quality management.

Key factors:

- Organisational enabler: leadership, policy and strategy, people and resources management.
- Process management.
- Organisational result: people and customer satisfaction, impact on society, operational and financial performance.

Research tools:

- Interviews and formal company data.
- Documents on ISO 9000 and other quality management certification
- Assessment forms based on DQA (see Appendix F)

APPENDIX B ASSESSMENT OF QUALITY MANAGEMENT MODEL

BAGIAN I : UMUM

Berikan informasi umum sebagai berikut :

Telah berapa lama anda bekerja di perusahaan ini : _____ tahun

Saat ini anda bekerja di bagian/departemen : _____

selama _____ tahun, dan posisi/jabatan anda adalah _____

Jelaskan secara ringkas lingkup tugas anda :

_____

Apakah anda merasa mampu melakukan tugas anda?

Jelaskan kaitan pekerjaan anda dengan peningkatan/perbaikan kualitas :

_____

BAGIAN II : PENDEKATAN KEORGANISASIAN

Pada bagian ini anda diminta untuk memberikan pendapat anda secara obyektif mengenai kepemimpinan, kebijakan dan strategi, manajemen personalia, manajemen sumber daya dan manajemen proses di perusahaan ini. Anda dipersilahkan membaca setiap pernyataan dengan teliti dan menjawabnya berdasarkan kebutuhan yang anda inginkan di perusahaan. Pilihan tingkat kepentingan anda terhadap pernyataan yang diberikan adalah :

Angka 1 = Sangat Penting
Angka 2 = Penting
Angka 3 = Sedang
Angka 4 = Kurang Penting
Angka 5 = Sangat Kurang Penting

Jawablah seluruh pertanyaan dengan melingkari salah satu angka yang paling sesuai.

1. KEPEMIMPINAN

Pihak manajemen berpartisipasi aktif dalam penyelesaian masalah-masalah perusahaan	**1**	**2**	**3**	**4**	**5**
Pihak manajemen memberikan petunjuk/ pengarahan atau pelatihan kepada karyawan dalam menyelesaikan masalah perusahaan.	**1**	**2**	**3**	**4**	**5**
Pihak manajemen melibatkan karyawan, konsumen dan pemasok dalam peningkatan kualitas perusahaan	**1**	**2**	**3**	**4**	**5**
Pihak manajemen memberikan dukungan untuk kegiatan peningkatan keterampilan dan pengetahuan karyawan.	**1**	**2**	**3**	**4**	**5**
Pihak manajemen mengusahakan kemudahan dalam birokrasi/administrasi baik di dalam maupun di luar perusahaan	**1**	**2**	**3**	**4**	**5**
Pihak manajemen memberikan pengakuan dan penghargaan terhadap peningkatan produktivitas karyawan	**1**	**2**	**3**	**4**	**5**
Pihak manajemen mengalokasikan dana untuk usaha-usaha menuju perbaikan kualitas perusahaan	**1**	**2**	**3**	**4**	**5**

2. KEBIJAKAN DAN STRATEGI

Pihak manajemen melibatkan staf dan karyawan dalam perumusan kebijakan dan strategi perusahaan	**1**	**2**	**3**	**4**	**5**
Sistem perencanaan dan evaluasi yang baik perlu dimiliki oleh perusahaan untuk mengantisipasi hal-hal yang tidak diharapkan	**1**	**2**	**3**	**4**	**5**
Dalam penyusunan kebijakan dan strategi perusahaan selalu menyesuaikan dengan kondisi lingkungan usaha disekitarnya.	**1**	**2**	**3**	**4**	**5**
Informasi dari konsumen dan karyawan digunakan sebagai dasar perbaikan sistem perusahaan	**1**	**2**	**3**	**4**	**5**
Evaluasi selalu dilakukan terhadap informasi-informasi yang ada untuk melihat relevansinya terhadap permasalahan.	**1**	**2**	**3**	**4**	**5**

Terdapat sasaran/target yang jelas pada masing-masing bagian yang diketahui oleh seluruh organisasi perusahaan.	**1**	**2**	**3**	**4**	**5**
Kebijakan dan strategi perusahaan dikomunikasikan ke semua bagian dalam perusahaan secara jelas.	**1**	**2**	**3**	**4**	**5**
Terdapat komunikasi yang baik dari perusahaan dengan pihak-pihak luar seperti konsumen, pemasok dan perusahaan-perusahaan lain.	**1**	**2**	**3**	**4**	**5**
Terdapat evaluasi secara rutin dari kebijakan strategi yang digunakan serta diusahakan perbaikannya.	**1**	**2**	**3**	**4**	**5**
3. MANAJEMEN PERSONALIA					
Pihak manajemen memberikan penilaian dan penghargaan sesuai dengan kinerja yang telah diberikan karyawannya.	**1**	**2**	**3**	**4**	**5**
Promosi jenjang karir dilakukan sesuai dengan kinerja karyawan.	**1**	**2**	**3**	**4**	**5**
Rekruitmen didasarkan kepada kemampuan dan keahlian individual.	**1**	**2**	**3**	**4**	**5**
Terdapat pelatihan karyawan yang ditujukan untuk peningkatan kemampuan dan pengetahuan karyawan.	**1**	**2**	**3**	**4**	**5**
Penentuan tujuan perusahaan melibatkan karyawan dan staf manajemen perusahaan.	**1**	**2**	**3**	**4**	**5**
Terdapat sistem dan prosedur dalam proses penyelesaian masalah-masalah perusahaan.	**1**	**2**	**3**	**4**	**5**
Terdapat keterlibatan pihak manajemen dalam proses perbaikan kualitas perusahaan.	**1**	**2**	**3**	**4**	**5**
4. MANAJEMEN SUMBER DAYA					
Alokasi dana untuk setiap bagian didasarkan atas produktivitas masing-masing bagian.	**1**	**2**	**3**	**4**	**5**
Evaluasi kinerja keuangan perusahaan dilakukan secara berkala.	**1**	**2**	**3**	**4**	**5**
Terdapat sistem informasi yang dapat digunakan dalam pengambilan keputusan pihak manajemen.	**1**	**2**	**3**	**4**	**5**
Sistem informasi yang digunakan dapat melayani kebutuhan pihak internal dan eksternal perusahaan.	**1**	**2**	**3**	**4**	**5**
Terdapat kriteria standar dalam pemilihan pemasok untuk pengendalian dan usaha perbaikan proses.	**1**	**2**	**3**	**4**	**5**
Terdapat sistem pengendalian persediaan yang baik.	**1**	**2**	**3**	**4**	**5**
Terdapat kemampuan perusahaan untuk memenuhi permintaan konsumen dengan tepat.	**1**	**2**	**3**	**4**	**5**
Terdapat sistem pengendalian kualitas terhadap bahan baku dari pemasok ke perusahaan.	**1**	**2**	**3**	**4**	**5**
Terdapat sistem pemeliharaan yang terencana terhadap aset perusahaan dan dilakukan secara berkala.	**1**	**2**	**3**	**4**	**5**
Pemanfaatan teknologi dalam peningkatan produktivitas tergantung pada orientasi perusahaan.	**1**	**2**	**3**	**4**	**5**
Pihak manajemen selalu mendukung perkembangan teknologi yang ada diperusahaan.	**1**	**2**	**3**	**4**	**5**
5. MANAJEMEN PROSES					
Terdapat dokumentasi yang baik di bagian produksi dalam bentuk peta-peta atau bagan proses.	**1**	**2**	**3**	**4**	**5**
Terdapat sistem informasi pengendalian proses dalam perusahaan.	**1**	**2**	**3**	**4**	**5**
Terdapat standar dan kriteria dalam setiap proses produksi yang selalu dievaluasi secara berkala	**1**	**2**	**3**	**4**	**5**
Terdapat sistem pengendalian kualitas pada setiap proses dalam perusahaan	**1**	**2**	**3**	**4**	**5**
Terdapat sistem penilaian terhadap output proses-proses dalam perusahaan.	**1**	**2**	**3**	**4**	**5**
Terdapat usaha-usaha perbaikan terhadap proses-proses dalam perusahaan.	**1**	**2**	**3**	**4**	**5**
Terdapat pendekatan yang sistematis dalam usaha-usaha perbaikan proses	**1**	**2**	**3**	**4**	**5**
Dilakukan pengumpulan dan penghargaan terhadap ide-ide dan usulan untuk perbaikan proses	**1**	**2**	**3**	**4**	**5**

Dilakukan perubahan-perubahan pada suatu proses didasarkan pada hasil penilaian proses tersebut sebelumnya.	**1**	**2**	**3**	**4**	**5**
Dalam penerapan perubahan proses, staf karyawan dilibatkan secara aktif.	**1**	**2**	**3**	**4**	**5**

BAGIAN III : KINERJA

Pada bagian ini anda diminta untuk memberikan pandangan (dan persepsi) anda atas kinerja organisasi yang dinilai oleh konsumen, karyawan dan masyarakat luas. Anda dipersilahkan membaca setiap pernyataan dengan teliti dan manjawabnya berdasarkan kebutuhan yang anda inginkan di perusahaan. Pilihan tingkat kepentingan anda terhadap pernyataan yang diberikan adalah :

6. PENILAIAN KONSUMEN

Penentuan kebijaksanaan operasional perusahaan, juga dilandasi oleh keluhan yang diberikan oleh konsumen terhadap produk/jasa	**1**	**2**	**3**	**4**	**5**
Konsumen memperoleh kemudahan dalam mengakses produk/jasa perusahaan.	**1**	**2**	**3**	**4**	**5**
Perbandingan harga tetap kinerja produk/jasa yang tinggi diperlukan oleh konsumen.	**1**	**2**	**3**	**4**	**5**
Perusahaan menyediakan sarana penanganan keluhan konsumen yang ditanggapi dengan cepat dan tepat.	**1**	**2**	**3**	**4**	**5**
Terdapat kesesuaian produk/jasa yang dibeli oleh konsumen dengan spesifikasi.	**1**	**2**	**3**	**4**	**5**
Dalam memberikan pelayanan terpadu terhadap konsumennya, perusahaan memberikan pelatihan tentang pengetahuan produk/jasa sebagai dukungan penjualan.	**1**	**2**	**3**	**4**	**5**
Perusahaan memberikan kemudahan dalam sistem pembayaran dan *financing scheme* yang disepakati dengan konsumen.	**1**	**2**	**3**	**4**	**5**
Perusahaan memberikan jaminan ketahanan dan kehandalan yang tinggi untuk produk/jasa	**1**	**2**	**3**	**4**	**5**
Perusahaan memberikan jaminan waktu pengiriman yang cepat dan kelengkapan produk/jasa	**1**	**2**	**3**	**4**	**5**
Inovasi produk/jasa dilakukan secara berkala	**1**	**2**	**3**	**4**	**5**
Perusahaan memberikan garansi terhadap produk/jasa yang dihasilkannya.	**1**	**2**	**3**	**4**	**5**
Perbaikan produk/jasa yang dilakukan oleh perusahaan merupakan usaha pelayanan terhadap konsumen.	**1**	**2**	**3**	**4**	**5**
Perusahaan memiliki dokumentasi mengenai keluhan konsumen.	**1**	**2**	**3**	**4**	**5**

7. PENILAIAN KARYAWAN

Karyawan memiliki lingkungan kerja (lokasi, ruangan dan fasilitas) yang baik dan ergonomis.	**1**	**2**	**3**	**4**	**5**
Karyawan memperoleh jaminan kesehatan dan keselamatan kerja	**1**	**2**	**3**	**4**	**5**
Perusahaan menyediakan fasilitas keselamatan kerja karyawan.	**1**	**2**	**3**	**4**	**5**
Perusahaan menyediakan ruangan untuk kegiatan sosial bagi seluruh staf dan karyawan.	**1**	**2**	**3**	**4**	**5**
Karyawan dilibatkan dalam penetapan tujuan dan strategi serta tindakan perbaikan kualitas perusahaan.	**1**	**2**	**3**	**4**	**5**
Karyawan merasakan adanya penghargaan tingkat menajerial terhadap performansi atau hasil pekerjaannya.	**1**	**2**	**3**	**4**	**5**
Karyawan bekerja berdasarkan deskripsi pekerjaan yang jelas.	**1**	**2**	**3**	**4**	**5**
Karyawan dinilai secara adil oleh perusahaan berdasarkan kinerja dan produktivitas individu.	**1**	**2**	**3**	**4**	**5**
Perusahaan memiliki dokumentasi mengenai pergantian staf karyawan (*staff turn over*)	**1**	**2**	**3**	**4**	**5**
Perusahaan memiliki dokumentasi mengenai banyaknya lowongan yang belum diisi.	**1**	**2**	**3**	**4**	**5**
Dalam meningkatkan kinerjanya, perusahaan melakukan peningkatan terhadap pengetahuan karyawan melalui pelatihan.	**1**	**2**	**3**	**4**	**5**

8. PENILAIAN MASYARAKAT

Perusahaan memberikan perhatian khusus terhadap taraf pendidikan masyarakat lingkungan sekitar perusahaan misalnya dengan memberikan program bantuan pendidikan.	**1**	**2**	**3**	**4**	**5**
Perusahaan memiliki program khusus untuk mencerdaskan masyarakat internal (keluarga karyawan) misalnya dengan program beasiswa bagi anak karyawan yang berbakat.	**1**	**2**	**3**	**4**	**5**
Perusahaan mengadakan kegiatan sosial dalam rangka membangun kesejahteraan masyarakat di sekitarnya dan menjalin hubungan sosial yang baik.	**1**	**2**	**3**	**4**	**5**
Perusahaan memiliki fasilitas pengolahan limbah khusus yang diinstalasikan oleh pihak perusahaan.	**1**	**2**	**3**	**4**	**5**
Perusahaan selalu memperbaiki performansi kerja sistem produksi sehingga tidak menimbulkan polusi dalam bentuk lain seperti kebisingan.	**1**	**2**	**3**	**4**	**5**
Perusahaan memiliki program kegiatan khusus bidang sosial budaya tingkat lokal, atau regional, atau nasional, seperti pembinaan budaya tertentu.	**1**	**2**	**3**	**4**	**5**
Perusahaan banyak menerima undangan untuk menghadiri acara seminar/ceramah/kuliah umum.	**1**	**2**	**3**	**4**	**5**
Perusahaan banyak dipublikasikan oleh media elektronik dan media lainnya.	**1**	**2**	**3**	**4**	**5**

9. PENILAIAN KINERJA

Kinerja finansial :

Biaya per unit produk/jasa	**1**	**2**	**3**	**4**	**5**
Perbandingan antara ongkos langsung dan ongkos tidak langsung	**1**	**2**	**3**	**4**	**5**
Laporan dalam bentuk *Cash Flow*	**1**	**2**	**3**	**4**	**5**
Tingkat jumlah penjualan	**1**	**2**	**3**	**4**	**5**
Nilai tambah dari produk	**1**	**2**	**3**	**4**	**5**
Modal kerja yang dikeluarkan	**1**	**2**	**3**	**4**	**5**
Tingkat kemudahan memperoleh anggaran (*solvency*)	**1**	**2**	**3**	**4**	**5**

Kinerja operasional :

Ukuran ongkos untuk produk rusak	**1**	**2**	**3**	**4**	**5**
Pangsa pasar	**1**	**2**	**3**	**4**	**5**
Jumlah skrap/produk yang rusak	**1**	**2**	**3**	**4**	**5**
Lamanya waktu menganggur (*downtime*)	**1**	**2**	**3**	**4**	**5**
Tingkat pemanfaatan kapasitas	**1**	**2**	**3**	**4**	**5**
Ketetapan waktu pengiriman	**1**	**2**	**3**	**4**	**5**
Lead time produk baru	**1**	**2**	**3**	**4**	**5**
Waktu pulang pokok (*break even point*) produk baru.	**1**	**2**	**3**	**4**	**5**
Tingkat pengembalian modal	**1**	**2**	**3**	**4**	**5**

APPENDIX C QUESTIONNAIRE FOR CONTEXT OF IMPLEMENTATION

Answer each statement with 1 (strongly agree) --- 3 (neutral) --- 5 (strongly disagree)

1. National culture (of individual in organisation).

Power distance1: agree (high power distance) --- 5: disagree (low power distance)

	Saya harus menanyakan pada pimpinan saya sebelum saya dapat melakukan semua pekerjaan saya. *I have to ask my superior before doing all my tasks.*
	Saya berharap dapat diberitahu tentang apa yang saya akan lakukan. *I hope my superior will tell me what to do.*
	Pemimpin ideal saya adalah figur yang otokratik dengan membuat keputusannya sendiri. *The ideal leader is autocratic in making decisions.*

Collectivism 1: (individual/less collectivism) ---5: (collectivism)

	Pekerjaan saya sangat menantang sehingga saya memiliki keinginan besar untuk mencatat prestasi. *My job is challenging and I am challenged to do my best.*
	Saya bebas menggunakan pendekatan cara saya sendiri untuk menyelesaikan pekerjaan. *I am free to use my own approach in doing my job.*
	Saya mempunyai pekerjaan yang menyisakan waktu luang untuk kehidupan pribadi. *My job allows me to spend time on my own private activities.*

Uncertainty avoidance 1: (uncertainty avoidance) ---5: (low uncertainty avoidance)

	Para karyawan takut untuk mengemukakan ketidaksetujuannya dengan atasannya. *Employees are afraid to disagree with their superior.*
	Saya memilih bekerja dengan orang yang dapat bekerja sama dengan saya. *I prefer to work with people who will cooperate with me.*
	Saya sering merasa tidak yakin atau tertekan pada saat bekerja. *I fell not confidence and experience stress in doing my job.*

Masculinity 1: (feminine) ---5: (masculine)

	Saya suka mempunyai kesempatan untuk mendapatkan pendapatan yang tinggi. *I prefer to have a chance of a high salary.*
	Saya sadar bahwa saya akan mendapat pujian bila bekerja dengan baik. *I like to be appreciated for my good work.*
	Saya suka mempunyai hubungan yang baik dengan atasan langsung saya. *I prefer to have a close relationship with my superior.*

Time orientation 1: (high) ---5: (low)

	Aturan perusahaan tidak boleh dilanggar walaupun karyawan berpikir bahwa hal itu merupakan kepentingan utama perusahaan. *Employees must obey the company regulations, even if they think that this is not matching the company objectives*
	Saya berpendapat bahwa tradisi dalam perusahaan saya sangat penting. *Tradition is important in our company.*
	Jika kesalahan terjadi di bagian kami, adalah penting menjaga agar pimpinan tidak malu. *If there is a mistake, we do not want our superior to lose face.*

2. Organisational culture.

Answer each statement with 1 (strongly agree with the left) --- 3 (neutral) --- 5 (strongly agree with the right)

Result - Process orientation 1: (result oriented) --- 5: (process oriented)

Setiap hari sangat menyenangkan. *Everyday is wonderful.*		Setiap hari selalu menemukan tantangan. *Everyday is challenging.*
Saya menghindari pekerjaan yang mengandung resiko. *I avoid any risk*		Saya dapat menyesuaikan diri dengan suasanan yang belum dikenal. *I am comfortable in unfamiliar situation*
Saya hanya berupaya secara terbatas berkenaan dengan pekerjaan saya. *I put efforts only to my job*		Saya berusaha secara maksimal, tidak terbatas dengan pekerjaan saya saja. *I put efforst which are not only restricted to my job.*

Employee - Job orientation 1: (employee oriented) --- 5: (job oriented)

Masalah pribadi sering terbawa dalam pekerjaan saya. *My private problems affecs my job.*		Perusahaan hanya berkepentingan dengan pekerjaan saya. *Only company concerns affects my job.*
Perusahaan ikut bertanggungjawab dengan kesejahteraan karyawan. *Company is responsible for employee's wealth.*		Perusahaan tidak peduli dengan kesejahteraan pribadi dan keluarga karyawannya. *Company is not responsible for employee's wealth*
Keputusan yang penting cenderung dibuat oleh kelompok atau suatu panitia. *Important decisions are is made by a group*		Keputusan yang penting cenderung dibuat oleh perseorangan. *Important decisions are made by individuals*

Parochial –Professional 1: (Parochial) --- 5: (Professional)

Norma-norma organisasi membatasi perilaku saya dalam bekerja. *My private life is my own business*		Kehidupan pribadi saya adalah milik perusahaan. *My private life belongs to the company*
Dalam perekrutan karyawan, latar belakang sosial dijadikan pertimbangan sebesar kompetensinya/kemampuannya. *Recruits are selected on social background as well as competence.*		Perekrutan karyawan hanya berdasarkan kompetensi pada pekerjaan. *Recruits selected only on competence*
Saya tidak melihat jauh ke depan. *I am not looking towards the future*		Saya berpikir jauh ke depan. *I am thinking about the future*

Open - Closed orientation 1: (open) --- 5: (closed)

Perusahaan dan orang di dalamnya terbuka pada orang baru atau dari luar perusahaan. *The organisation and individuals are open to newcomers or people from outside.*		Organisasi dan orang di dalam-nya tertutup dan menjaga rahasia bahkan antar sesama karyawan. *The organisation and individuals are closed and keep secrets, even between employees.*
Hampir setiap orang merasa cocok dalam perusahaan. *Almost everyone fits in the organisation*		Hanya orang tertentu yang mera-sa cocok dengan perusahaan. *Only certain employees fit in the organisation*
Karyawan hanya perlu sedikit waktu untuk merasa betah. *Employees need little time to fell comfortable at the company*		Karyawan perlu waktu bertahun-tahun untuk merasa betah. *Employees need a lot of time to fell comfortable at the company*

Loose - Tight control 1: (loose) --- 5: (tight)

Tidak ada seorangpun yang berpikir adanya kerugian atau ongkos. *No one thinks of loses or costs*		Kami sadar adanya kerugian atau ongkos . *We realised there were loses or costs.*
Waktu pertemuan tidak selalu tepat waktu. *Meetings start not always on time.*		Waktu pertemuan selalu tepat waktu. *Meetings start always on time*.
Canda dalam perusahaan dan pekerjaan sering dilakukan. *Jokes are frequently made*		Canda dalam perusahaan jarang terjadi. *Jokes are rarely made.*

Pragmatic - Normative 1: (pragmatic) --- 5: (normative)

Perhatian utama pada pertemuan adalah kebutuhan konsumen. *The focus is on customer's requirements.*		Perhatian utama adalah selalu mengikuti prosedur perusahaan. *The focus is on working procedures.*
Hasil lebih penting daripada prosedur yang benar. *Results are more important than procedures.*		Prosedur organisasi lebih penting dari pada hasil. *Procedures are more important than results.*
Saya memberlakukan lebih banyak pendekatan pragmatik daripada dogmatik dalam segala sesuatu pada etika perusahaan. *I prefer pragmatic over dogmatic work ethics.*		Etika bisnis dan kejujuran sangat diutamakan. *Ethics and honesty are the most important.*

3. Organisational structure

Answer each statement with 1 (strongly agree) --- 3 (neutral) --- 5 (strongly disagree)

Decentralisation – Centralisation 1: (decentralised) --- 5: (centralised)

	Struktur perusahaan tidak membatasi cara yang bisa saya lakukan disini. *The structure in the organisation does not restrict me.*
	Partisipasi dalam perencanaan strategis sangat dianjurkan di sini. *Participation in planning is encouraged*
	Manajer kami mendorong semua staf untuk memberikan pandangannya dan pada umumnya tanggap pada mereka. *Our supervisors support us in giving our suggestions.*

Formalisation – Flexibility 1: (formalisation) ---5: (flexible) (H2001-p.192)

	Saya merasa bertanggung jawab pada kualitas produk yang telah saya buat. *I feel responsible for the quality of my work.*
	Pekerjaan akan berkualitas baik dalam segala situasi bila didasarkan pada deskripsi pedoman dan prosedur yang ada. *A job will be well done if performed to standards and procedures*
	Petunjuk dalam prosedur pekerjaan di perusahaan kami sangat tepat/jelas. *Work instructions are very clear in our organisation.*

Inter-deptartmental cross check/control cooperations in term of quality management: (is my own job) ---… 5: (allow for cooperation)

	Tindakan koreksi dan penyelidikan atas kualitas yang rendah antar bagian jarang terjadi di perusahaan kami. *Inter-departmental correction and investigation of my deficient quality results is rare.*

APPENDIX D QUESTIONNAIRE FOR IMPLEMENTATION PROCESSES

Motivation (individual preferences toward quality and TQM program)
1: strongly agree (positive preference)…3: neutral ... 5: strongly disagree (negative preference)

	Saya percaya bahwa cara yang saya lakukan dalam pekerjaan saya secara langsung mempengaruhi kualitas produk akhir. *I believe that my job does have a direct effect on the quality of the final product*
	Semua anggota perusahaan ini menyukai pekerjaan mereka dan selalu berusaha pada kualitas pekerjaan yang tinggi. *All members of the company like their job and pursue progress towards better quality.*
	Saya mendapatkan umpan balik yang cukup dari atasan saya untuk membantu mempelajari pekerjaan saya. *I do have feedback on my job from my superior to enable some improvements.*
	Dalam perusahaan, inisiatif dari karyawan adalah penting untuk mencapai kualitas yang baik. *In the company, initiatives are considered important for reaching a better quality.*
	Alat yang diperlukan dalam pekerjaan saya selalu dijaga dalam kondisi yang paling baik. *All equipment is kept in its best condition.*

APPENDIX E QUESTIONNAIRE FOR THE PROCESS OF TRANSFORMATION

Transformation process (adoption and adaptation)
1: strongly agree (positive preference)…3: neutral ... 5: strongly disagree (negative preference)
Adoption process

	Pelaksanaan sistem kualitas belum melibatkan perubahan besar dalam cara yang telah saya lakukan untuk melaksanakan pekerjaan. *The implementation of quality system does not affect my job much.*
	Saya mengerti tentang sistem kualitas apa yang sedang diselesaikan dan saya juga mengerti tentang peranan saya dalam keseluruhan proses. *I understand the implemented system and I know my posisition in this system*
	Karena kami melihat adanya perbaikan di bagian dimana sistem kualitas pertama kali diperkenalkan, maka kami termotivasi untuk juga memperbaiki bagian kami. *We realised improvements with the implemented system, so we are motivated to do so again.*

Awareness development

	Perusahaan ini menjaga pegawai agar selalu mendapat informasi yang penting bagi mereka. *The company keeps its employees informed.*
	Terbuka dan saling tukar menukar informasi adalah dianjurkan di sini. *Openness and information sharing are supported*

Continuous Improvement (in a PDCA cycle)

	Saya dimungkinkan untuk memecahkan sendiri masalah pada pekerjaan saya. *I was allowed to solve all the problems with my work.*
	Saya aktif melibatkan diri dalam perbaikan kualitas produk. *I actively involve in quality improvement.*
	Tindakan salah yang terjadi didiskusikan kembali dengan semangat membangun. *Every mistake was discussed for achieving improvement*

APPENDIX F ASSESSMENT OF LEVEL OF QUALITY ACHIEVEMENT

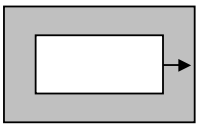
1. PENDAHULUAN

Model untuk evaluasi diri berdasarkan model European Foundation of Quality Management ditunjukkan oleh bagan di bawah. Sasaran yang ingin dicapai adalah performansi organisasi yang sempurna dan konsisten, yang pada gilirannya akan memberikan kemakmuran organisasi tersebut.

Realisasi pencapaian sasaran ditentukan oleh penilaian atas lima kelompok stakeholder. Dengan demikian sangat penting untuk menemukan fakta-fakta tentang performansi organisasi diterima dan diputuskan oleh kelima kelompok tersebut. Keterlibatan para stakeholder akan meningkatkan manfaat evaluasi diri. Dengan tujuan utama model penilaian berupa pengungkapan fakta, pengumpulan informasi dan proses komunikasi lebih penting artinya dibandingkan dengan hasil penilaian. Hal khusus dalam model evaluasi diri ini adalah bahwa model menunjukkan hubungan antara lingkup fokus dari pendekatan (enablers) dan performansi (results), yaitu hubungan sebab-akibat. Kelima lingkup pendekatan berfokus pada input dan proses, sedangkan lingkup performansi berkaitan dengan output dan pendapatan. Kesembilan lingkup fokus ini disajikan pada halaman berikut. Seluruh komponen model penting dalam evaluasi diri menuju kualitas total. Organisasi bebas menentukan sasaran kualitas dan mengalokasikan sumber daya yang diperlukan untuk mencapai sasaran.

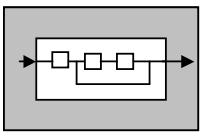
FASE-FASE PENGEMBANGAN

Fase I Orientasi pada produk



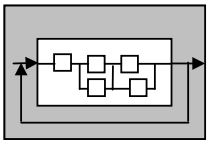
Karakteristik:
Output/hasil merupakan perhatian utama;
Menekankan pada pemecahan masalah setelah produk dibuat.

Fase II Orientasi pada proses



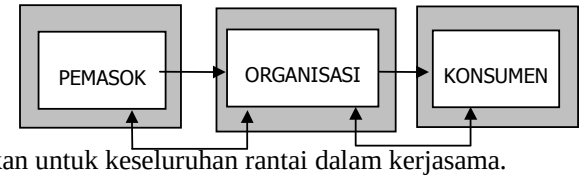
Karakteristik:
Proses produksi dan pengendaliannya merupakan perhatian utama;
Pengukuran dan pengetahuan tentang proses diperlukan untuk perbaikan.

Fase III Orientasi pada sistem



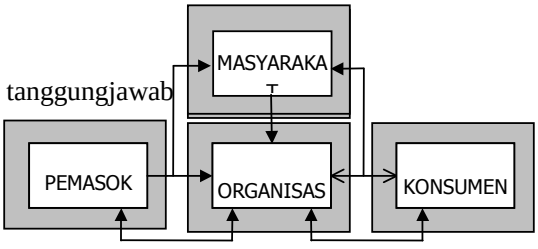
Karakteristik:
Keseluruhan organisasi termasuk fungsi pendukungnya dikendalian;
Orientasi pada konsumen eksternal merupakan perhatian dalam pengendalian;
Pengukuran terhadap kecenderungan bermanfaat untuk tindakan pencegahan.

Fase IV Orientasi pada rantai



Karakteristik:
Penggunaan secara maksimal atas keahlian dan ketrampilan dalam rantai produksi;
Penciptaan situasi yang saling menguntungkan untuk keseluruhan rantai dalam kerjasama.

Fase V Manajemen kualitas total



Karakteristik:
Visi dan kebijakan organisasi dilandasi oleh rasa tanggungjawab terhadap masyarakat;
Manajemen kualitas merupakan satu kesatuan di dalam dan di luar organisasi.

BAGIAN I – PENDEKATAN KEORGANISASIAN

Pendekatan dievaluasi dengan menggunakan sebuah matriks kualitas untuk setiap lingkup berikut:

- kepemimpinan,
- kebijakan dan strategi,
- manajemen personalia,
- manajemen sumber daya, dan
- manajemen proses/profesi.

Lima fase perkembangan diidentifikasi sebagai jenjang menuju kualitas total. Penjelasan untuk setiap fase dan karaktersitiknya diberikan dalam uraian di bawah ini. Beberapa lingkup fokus dalam setiap kategori pendekatan.

Langkah 1: Beri tanda semua pernyataan dalam fase I sampai dengan V yang sesuai dengan organisasi.

Langkah 2: Sebagi tim manajemen, rencanakan metoda pengukuran persepsi dalam organisasi dan persepsipelanggan dan pemakai. Pergunakanlah matriks.

Langkah 3: Setelah mendiskusikan temuan dalam tim manajemen, beri tanda pada pernyataan yang paling sesuai dengan organisasi anda.

Langkah 4: Berdasarkan kotak-kotak yang telah ditandai, tetapkanlah fase pengembangan awal dari organisasi

Langkah 5: Sebagai tim manajemen, lakukanlah evaluasi diri secara kritis. Apakah setiap hasil didukung oleh fakta. Apakah hal ini berlaku untuk seluruh organisasi?

Langkah 6: Berdasarkan hasil pada langkah 5, sesuaikanlah hasil pada langlkah 4 untuk finalisasi penilaian fase perkembangan.

Langkah 7: Isikanlah fase perkembangn untuk setiap aspek pada kotak yang sesuai. Kemudian, isikanlah nilai fase pengembangan rata-rata dari pada kotak.

MATRIKS KUALITAS 1 : KEPEMIMPINAN

Isikanlah fase perkembangn untuk setiap aspek pada kotak yang sesuai

1a		1b		1c		1d		

Kepemimpinan	**Fase I: Berorientasi produk**	**Fase II: Berorientasi proses**	**Fase III: Berorientasi sistem**	IV: **Berorientasi rantai**	**Fase V: Berorientasi kualitas total**
a. Komitmen manajerial	☐ Manajemen secara aktif ikut serta dalam pemecahan masalah ☐ Manajemen berorientasi pada kegiatan operational dan individual	☐Manajemen berpartisipasi dalam tim perbaikan kualitas ☐Karyawan senantiasi diarahkan perhatiannya pada pentingnya pengendalian kualitas	☐Manajemen mengambil tindakan pencegahan berdasar kecenderungan perkembangan ☐Manajemen mendapat pelatihan manajemen kualitas.	☐Terjalin hubungan personal dengan para pelanggan utama dalam rangka inisiasi perbaikan dan inovasi yang saling menguntungkan (win-win) ☐Melakukan hal yang sama seperti di atas dengan pemasok	☐Manajemen secara nyata mempromosikan kualitas masyarakat ☐Manajemen memberi jaminan bahwa proses perbaikan yang berkesinambungan tertanam dalam organisasi
b. Promosi budaya kualitas	☐ Memberikan perhatian pada kepakaran	☐Budaya perusahaan diarahkan penyesuaian proses utama; indikator kinerja (dasar dari sistem reward) ditujukan pada arah tersebut ☐Dikembangkan program untuk perbaikan langkah-langkah proses.	☐Hampir semua karyawan terlibat dalam tindakan yang berkaitan dengan kualitas ☐Hambatan antar departemen dihilangkan.	☐Pelanggan diperlakukan sebagai mitra; kerjasama ditujukan untuk memaksimalkan kinerja keseluruhan. ☐ Melakukan hal yang samaseperti di atas dengan pemasok.	☐Budaya organisasi merupakan salah satu tanggung jawab terhadap masyarakat. ☐Masyarakat berkeinginan untuk terlibat atau bergabung dengan organisasi.
c. Pengakuan dan pengahargaan	☐ Manajemen umpan balik untuk kinerja yang tidak memuaskan.	☐Penghargaan didasarkan pada pengendalian setiap langkah proses.	☐Individu dan tim mendapat pengakuan dan penghargaan untuk kontribusinya terhadap efisiensi dan efektivitas organisasi.	☐Individu dan tim mendapat pengakuan untuk kontribusinya pada efisiensi dan efektivitas berkaitan dengan pelanggan. ☐ Melakukan hal yang sama seperti di atas dengan pemasok.	☐Individu dan tim mendapat pengakuan dan penghargaan atas kegiatan mereka dalam kerjasama perbaikan kualitas masyarakat.
d. Dukungan untuk perbaikan	☐Tersedia anggaran yang dialokasikan untuk pelatihan dan peningkatan know-how.	☐Adanya peningkatan pengetahuan, know-how dan keterampilan dalam perbaikan kualitas.	☐ Tersedia anggaran yang dialokasikan untuk merubah orientasi ke dalam menjadi ke luar. ☐Rencana pelatihan terpadu dikembangan berdasarkan kebijakan organisasi.	☐Organisasi menginvestasikan hubungan baik dengan pelanggan untuk mendorong perbaikan dan inovasi. ☐ Melakukan hal yang samaseperti di atas dengan pemasok.	☐Menyediakan lebih banyak waktu dan sumber daya (dibandingkan kebutuhan minimum) untuk secara sistematis menjamin kelangsungan organisasi.

MATRIKS KUALITAS 2 : KEBIJAKAN DAN STRATEGI

Isikanlah fase perkembangn untuk setiap aspek pada kotak yang sesuai

2a		2b		2c		2d		2e		

Kebijakan dan Strategi	Fase I: Berorientasi produk	Fase II: Berorientasi proses	Fase III: Berorientasi sistem	Fase IV: Berorientasi rantai	Fase V: Berorientasi kualitas total
a. Keterkatian dengan manajemen kualitas	☐Kebijakan dan strategi dirumuskan oleh pimpinan. ☐Kualitas produk dievaluasi berdasarkan pengendalian proses.	☐Kebijakan dan strategi dirumuskan setelah didiskusikan dengan departemen-departemen terkait. ☐Pengendalian proses dilakukan dengan mengurangi kerusakan/ gangguan dan perbaikan secara berkesinambung an.	☐Adanya standar produk dan proses serta adanya definisi indikator keberhasilan. ☐Kebijakan dibuat untuk mencegah gangguan (tindakan pro-aktif) sebelum gangguan itu terjadi.	☐Tuntutan, harapan dan kebutuhan dari para pelanggan /pemasok menentukan kebijakan dan strategi. ☐Telah ada sistem perencanaan yang disiapkan untuk mengantisipasi kejadian-kejadian yang tidak diharapkan.	☐Kebijakan dan strategi dirumuskan berdasarkan perkembangan dan informasi dari lingkungan. ☐Kebijakan perusahaan menyesuaikan dengan perubahan lingkungan. ☐Organisasi telah menjadi “trend setter” untuk pembaharuan danperbaikan yang terus menerus.
b. Penggunaan informasi yang relevan	☐Kesalahan kerusakan dan keluhan pelanggan digunakan sebagai petunjuk untuk pengetatan kebijakan pengendalian produk.	☐Informasi dari pelanggan dan karyawan digunakan sebagai dasar untuk memperbaiki sistem pengendalian proses produksi.	☐Umpan balik dan evaluasi terhadap terjadinya penyimpangan digunakan sebagai dasar untuk penyesuaian dari seluruh sistem.	☐Telah ada kerjasama terencana dan terstruktur dengan pelanggan dan pemasok dalam perumusan kebijakan dan strategi. ☐Telah ada perbaikan yang dilakukan atas dasar analisis pasar dan pesaing.	☐Perusahaan selalu miliki seluruh informasi internal dan eksternal yang relevan sampai terbukti bahwa informasi tsb. tidak lagi relevan.
c. Orientasi perencanaan	☐Kebijakan dan strategi diterjemahkan menjadi standar-standar output yang diinginkan.	☐Tujuan dirumuskan secara global pada tingkat korporat. ☐Sasaran ditetapkan dalam bentuk waktu dan anggaran untuk proses – proses utama.	☐Tujuan organisasi ditrjemahkan ke dalam norma-norma dan tolok ukur prestasi untuk seluruh sub proses. ☐Realisasi (dari rencana) dievaluasi dengan mengacu pada kebijakan dan strategi perusahaan.	☐Rencana perusahaan diproses menjadi sasaran dan tolok ukur prestasi untuk tiap kombinasi product-market. ☐Pelanggan dan pemasok dilibatkan dalam pengujian realisasi (produk).	☐Kebijakan dan strategi perusahaan melibatkan aspek-aspek lingkungan masyarakat.
d. Komunikasi	☐Kebijakan dikomunikasikan secara top-down ☐Kesalahan dan kekurangan dikomunikasikan	☐Pihak manajemen diberitahu mengenai kinerja perusahaan. ☐Publikasi internal memberi tekanan pada pengendalian proses dan usaha perbaikan	☐Kebijakan dan strategi serta imple-mentasinya adalah tema standar dalam struktur komunikasi ☐Komunikasi dua arah tentang hasil-hasil perusahaan diketahui seluruhnya melalui organisasi.	☐Terdapat komunikasi terbuka dengan pelanggan dan pemasok	☐Komunikasi eksternal juga mencakup aspek-aspek politis perdagangan, pendidikan, dll..
e. Evaluasi dan perbaikan	☐Pengaduan-pengaduan digunakan sebagai dasar penyesuaian kebijakan dan strategi.	☐Penyesuaian dalam kebijakan dan strategi dilakukan atas dasar analisis mengenai gangguan dalam proses utama.	☐Kebijakan dan strategi dievaluasi dan disesuaikan berdasarkan trend. ☐Kebijakan dan strategi dievalua-si untuk menyesuaikan diri dengan inovasi dan tujuan pemasaran.	☐Kualitas pesaing, permintaan pelanggan dan kemampuan dari pemasok merupakan dasar tindakan perbaikan.	☐Benchmarking dilakukan dengan perusahaan terbaik di dunia.

MATRIKS KUALITAS 3 : MANAJEMEN PERSONALIA

Isikanlah fase perkembangn untuk setiap aspek pada kotak yang sesuai

3A		3b		3c		3d		

Manajemen Personalia	**Fase I: Berorientasi produk**	**Fase II: Berorientasi proses**	**Fase III: Berorientasi sistem**	Fase IV: **Berorientasi rantai**	**Fase V: Berorientasi kualitas total**
a. Kebijakan Staff	☐Biaya pegawai memiliki hubungan produktivitas kerja. ☐Terjadi hubungan langsung antara kinerja dan gaji. ☐Terdapat Departemen personalia.	☐Gaji dan penghargaan lainnya tergantung pada kinerja & posisi individu. ☐Lowongan diisi atas dasar persyaratan jabatan . ☐Kinerja pegawai dinilai secara periodik.	☐Tujuan pokok adalah pemanfaat-an tenaga manusia secara maximal. ☐Kebijakan pengawai diturunkan dari kebijakan perusahaan yang menyeluruh. ☐Penilaian dengan wawancara dilakukan secara periodik	☐Kebijakan pegawai terpadu dalam kebijakan perusahaan. ☐Kebijakan pegawai diarahkan sesuai dengan kebutuhan konsumen. ☐Kebijakan pegawai diarahkan sesuai dengan pemasok.	☐Kebijakan pegawai diarahkan sesuai dengan kebutuhan masyarakat. ☐Pegawai memiliki pengaruh terhadap gaji, pelatihan dan karir.
b. Kepercayaan/ Keahlian (Expertise)	☐Rekruitment dan promosi didasarkan pada keterampilan. ☐Pelatihan ditujukan untuk peningkatan keterampilan dan pengetahuan.	☐Keterampilan dikembangkan. ☐Pelatihan diarahkan untuk analisa dan perbaikan proses.	☐Pelatihan diarahkan pada bidang process control dan keterampilan sosial. ☐Karir direncanakan untuk meningkatkan flexibilitas dalam karir.	☐ Pengembangan penelitian ditujukan untuk peningkatan innovasi.	☐Pegawai mengetahui peran & kontribusinya dalam missi organisasi. ☐Pelatihan diarahkan untuk membentuk kemampuan melaksanakan pekerjaan secara mandiri.
c. Cara Penentuan Tujuan	☐Tujuan dan tugas ditentukan oleh manajemen.	☐Tujuan dan tugas ditentukan oleh manajemen kemudian dijabarkan menjadi tujuan dan tugas yang spesifik untuk setiap departemen/bagia n.	☐Objectif dan indikator-indikator kinerja ditentukan dengan konsultasi lebih dahulu dengan “Process Owner”. ☐Pelanggan internal terlibat dalam penilaian kinerja.	☐Objektif dan indikator kinerja ditentukan bersama-sama staff. ☐Pelanggan ikut terlibat dalam penilaian.	☐Staff berkontribusi dalam penentuan objektif yang didasarkan pada perkembangan masyarakat. (lingkungan)
d. Keterlibatan dalam perbaikan	☐Pekerjaan ditata dan dilaksanakan atas dasar instruksi.	☐Terdapat cara untuk memberikan usulan-usulan perbaikan. ☐Pengajuan usulan-usulan perbaikan sangat diharapkan & didukung oleh manajemen.	☐Perbaikan atas effektifitas, effisiensi dan flexibilitas didorong oleh suatu aksioma bahwa pengukuran adalah “knowledge”. ☐Perbaikan lintas departemen dilakukan atas dasar kemampuan yang dimiliki.	☐Team kualitas memusatkan usaha perbaikannya baik pada masalah internal maupun external (lingkungan).	☐Perbaikan dilakukan sebagai jawaban pada perkembangan masyarakat (lingkungan).

MATRIKS KUALITAS 4 : MANAJEMEN SUMBER DAYA

Isikanlah fase perkembangn untuk setiap aspek pada kotak yang sesuai

4a		4b		4c		4d		

Manajemen Sumber Daya	Fase I: Berorientasi produk	Fase II: Berorientasi proses	Fase III: Berorientasi sistem	Fase IV: Berorientasi rantai	Fase V: Berorientasi kualitas total
a. Keuangan	☐Pendekatan manajemen berorientasi pada penjualan. ☐Kinerja keuangan dinilai setiap tahun.	☐Keuangan dialokasikan atas dasar produksi penjualan dan analisa profitabilitas. ☐Budget dibuat per sektor, dan pemilik sektor menjadi penanggung jawab anggaran. ☐Revenue dan biaya dicatat untuk setiap proyek.	☐Anggaran dialokasikan atas dasar nilai tambah. ☐Indikator-indikator keuangan dipantau. ☐Analisa trend tentang ongkos kegagalan menjadi dasar untuk indikator-indikator preventif.	☐Alokasi dana didasari oleh tujuan organisasi jangka panjang dan jangka pendek. ☐Dana disediakan untuk tindakan perbaikan yang sistematis untuk peningkatan kepuasan konsumen. ☐Dana disediakan untuk perbaikan sistematis guna kepuasan pemasok.	☐Disediakan dana untuk memperkuat posisi dalam masyarakat.
b. Informasi	☐Informasi internal dicatat. ☐Informasi eksternal kadang-kadang dikumpulkan.	☐Informasi secara sistematik dikumpulkan, dicatat dan dianalisa.	☐Terdapat pertukaran informasi-informasi secara aktif dengan mitra kerja dagang atau industri. ☐MIS tidak hanya memberikan informasi tentang indikator-indikator keuangan saja. ☐Terdapat usaha-usaha yang sistematis di bidang manajemen atas dasar data yang diukur.	☐Komunikasi terbuka dilakukan dengan konsumen dalam usaha memenuhi harapan konsumen dengan ongkos yang rendah. ☐Dilakukan pengumpulan infor-masi secara sistematik tentang pemasok. ☐Dalam beberapa aspek organisasi dipandang sebagai kumpulan pimpinan-pimpinan industri.	☐Tersedia informasi perkemba-ngan masyarakat dan digunakan untuk perbaikan berkesinambungan. ☐Tersedia informasi secara bebas kecuali informasi yang dapat mengancam posisi persaingan. ☐Dalam beberapa aspek organisasi dapat dipandang sebagai kumpulan pimpinan-pimpinan dunia.
c. Material & Peralatan	☐Pemasok diselekesi atas dasar harga dan waktu penyampaian (delivery time). ☐Aliran material ditentukan oleh pesanan. ☐Investasi dilakukan atas dasar tujuan penjualan. ☐Maintenance dilakukan atas dasar tindakan curative.	☐Reliability dari pemasok dan mterial merupakan kriteria utama dalam pemilihan pemasok. ☐Pengendalian persediaan dan pengendalian produksi berjalan baik. ☐Diilaksanakan pemeriksaan terhadap material yang datang. ☐Kegagalan secara sistematik dicatat.	☐Pemasok harus memenuhi performasi standard. ☐Sistem logistik internal berjalan dengan baik. ☐Pemasok harus dapat menunjukkan kemampuan pengendalian proses dan usaha perbaikan proses. ☐Terdapat sistem perencanaan yang sistematis dalam penggunaan dan pemeliha-raan mesin/peralatan.	☐Tujuan jangka panjang dicapai dengan kerja sama dengan pemasok. ☐Sistem logistik external berjalan dengan baik. ☐Konsultasi dilakukan pula dengan pemasok dalam usaha perkembangan baru. ☐Pemasok mesin dan peralatan dimintakan pendapatnya dalam usaha-usaha perbaikan.	☐Material dinilai atas dasar pengarunya terhadap lingkungan, ketersediaan bahan baku & energi. ☐Sistem logistik terpadu berjalan dengan baik. ☐Ada perjanjian dengan konsu-men tentang pengelolaan “waste” serta daur ulang . ☐Terdapat kesepakatan dalam pengelolaan “waste” dan daur ualng produk pemasok.
d. Teknologi	☐Teknologi digunakan untuk mengurangi biaya.	☐Work processes dengan know-how dioptimasikan dan didokumentasikan. ☐Kebijakan investasi diarahkan untuk menurunkan tingkat kegagalan dalam produksi.	☐Pemasok terlibat dalam pemecahan masalah terstruktur. ☐Organisasi memberikan kesempatan serta dukungan atas berkembangnya keahlian & pengembangan tek.	☐Tingkat teknologi dan know-how cukup tinggi untuk menunjang daya saing. ☐Teknologi yang ada di organisasi dan teknologi yang ada di konsumen saling menunjang.	☐Organisasi mendorong kerja sama dengan lembaga pendidikan/ilmu pengetahuan. ☐Organisasi menjadi suatu contoh suatu penerapan teknologi tertentu.

MATRIKS KUALITAS 5 : MANAJEMEN PROSES

Isikanlah fase perkembangn untuk setiap aspek pada kotak yang sesuai	5a		5b		5c		5d		5d		

Manajemen Proses	**Fase I: Berorientasi produk**	**Fase II: Berorientasi proses**	**Fase III: Berorientasi sistem**	**IV: Fase Berorientasi rantai**	**Fase V: Berorientasi kualitas total**
a. Identifikasi process	☐Terdapat organization chart.	☐Proses utama didokumentasi dalam bentuk peta-peta dan prosedur serta manual kualitas.	☐Seluruh organisasi didokumen-tasi dalam chart dan prosedur. ☐Hubungan antara kegiatan operasi dan pendukung didefinisikan.	☐Hubungan antara proses internal dan proses internal di konsumen diketahui. ☐Hubungan antara proses internal dan proses internal pada pemasok diketahui.	☐Keterkaitan antara proses dan masyarakat didokumentasi-kan.
b. Manajemen dan pengendalian proses.	☐Iinformasi mengalir dengan pola top-down. ☐Aliran laporan kegagalan memiliki pola botton-up.	☐Standard dan kriteria ditentukan untuk setiap tahap proses utama. ☐Pemeriksaan mutu dilakukan pada setiap tahap proses.	☐Indikator performasi ditentukan untuk seluruh sistem. ☐Standard & kriteria ditentukan untuk proses-proses pendukung.	☐Sistem dikontrol dan diperbaharui atas dasar informa-si dari pemasok & konsumen. ☐Performasi diarahkan dengan melihat contoh-contoh pada pesaing yang memiliki leading position.	☐Pengaruh dari sistem terha-dap lingkungan dan sebalik-nya secara regular diperiksa. ☐Pengendalian terhadap kegiatan-kegiatan yang berhubungan dengan network dilakukan.
c. Screening dan perbaikan proses	☐Cacat, complaint dan warranty claim merupakan indikator kinerja.	☐Output pada setiap tahap proses diukur. ☐effektifitas dari prosedur diukur secara terus menerus.	☐Sistem secara proaktif diperiksa dan diperbaiki atas dasar analisa trend. ☐Jasa pendukung dinilai atas dasar pengukuran terhadap kepuasan pelanggan.	☐Audit dilakukan untuk memperbaiki kinerja pemasok. ☐Performasi dinilai atas dasar feed back dari pelanggan.	☐Performasi oergansasi dinilai, diperbaiki dan diperbaharui dengan melihat perspektif masyarkat.
d. Promosi innovasi & kreatifitas	☐Perhatian cukup besar terhadap perbaikan output.	☐Ide-ide dan usulan-usulan untuk perbaikan proses dikumpulkan dan dihargai.	☐Ada pendekatan yang terstruktur di dalam perbaikan produk-produk prosesi.	☐Terdapat pendekatan yang terstruktur dalam innovasi berkerja sama dengan konsumen. ☐Terdapat pendekatan yang terstruktur dalam innovasi bekerja sama dengan pemasok.	☐Ide-ide yang ada dalam masyarakat dikumpulkan secara sistematik untuk memperbaiki dan memperbaharui sistem.
e. Pengenalan perubahan proses	☐Modifikasi suatu proses dilaksanakan oleh engineer dan expert lainnya.	☐Perubahan-perubahan diterapkan pada suatu tahap proses atas dasar pengukuran pada tahap-tahap tersebut. ☐Staff dilatih tentang teknik-teknik perbaikan dan pengukuran proses.	☐Perubahan diterapkan menurut suatu rencana & tujuan internal. ☐Staff dilatih dalam modifikasi proses serta terlibat dalam penerapan perubahan proses.	☐Perubahan kebutuhan konsumen menyebabkan perubahan sistem dan pengurangan variansi proses. ☐Perubahan pada kemampuan pemasok membawa perubahan terhadap sistem.	☐Perekembangan masyarakat menentukan proses.

BAGIAN II - KINERJA (PERFORMANCE)

Bagian II evaluasi diri ini juga terdiri dari tujuh langkah. Daftar yang ada di halaman berikut digunakan untuk merangkum opini dari lima kelompok stakeholder pada setiap bidang kinerja.

Langkah 1 Tim Manajemen harus menetapkan indikator kinerja mana yang terdapat pada daftar untuk setiap bidang yang relevan terhadap organisasi, dan bilamana diperlukan, indikator khusus lainnya dapat ditambahkan pada daftar. Abaikan indikator yang tidak dapat diterapkan. Catatan: kriteria relevan ditentukan oleh penting tidaknya indikator tersebut untuk mengelola organisasi sehingga tujuan akan dicapai.

Langkah 2 Kumpulkan data pendukung yang berkaitan dengan situasi saat in dan perkembangan selama tahun-tahun terakhir

Langkah 3 Lengkapi isian pada daftar:

Isikan tanda "X" pada kolom "Relevan" , bila aspek-aspek yang berada dalam kolom tersebut relevan pada organisasi

Isikan tanda "X" pada kolom berikutnya, bila paling sedikit selama dua tahun terakhir terdapat data yang jelas dan terukur untuk aspek yang didaftar.

CATATAN : Bila data tidak tersedia, pengumpulan data harus menjadi tindakan utama (major action).

Nyatakan tingkat kinerja pada empat kolom berikutnya, dengan memberikan tanda (+) bila positif/baik , nol (0) untuk kondisi netral dan tanda (-) untuk negatif/buruk. Lengkapi untuk kolom-kolom :

Perkembangan atau kecenderungan selama tahun -tahun terakhir

Kinerja aktual dibandingkan terhadap tujuan

Pembandingan dengan pesaing

Pembandingan dengan organisasi lain yang dinilai istimewa pada umumnya

Isikan tanda tanya (?) bila tingkat kinerja tidak diketahui.

Langkah 4 Setelah tim manajemen mencapai kesepakatan dalam pengisian tabel secara lengkap tingkat kinerja awal untuk setiap bidang dapat ditentukan, melalui pengisian Tabel Penilaian berikut :

Tabel Penilaian untuk evaluasi diri Kriteria Evaluasi	Level
Umumnya tanda negatip (lebih banyak - dibandingkan +) Tidak ada atau sedikit sekali informasi yang tersedia	I
Tersedia informasi pada beberapa bidang relevan Jumlah + dan - kira-kira sama	II
Tersedia informasi penting pada sekitar setengah dari aspek relevan Jumlah secara signifikan positif lebih banyak dibandingkan negatif Sebab-sebab dari nilai negatif diketahui	III
Hampir semua informasi yang dibutuhkan tersedia Perkembangan yang positif pada kinerja Umumnya nilai-nilai positif Tindakan perbaikan telah diambil untuk memperbaiki nilai negatif	IV
Seluruh informasi relevan tersedia Tidak ada atau sangat sedikit nilai negatip Perbaikan berkelanjutan pada kinerja dalam beberapa tahun terakhir Terdapat indikasi kuat bahwa posisi yang istimewa akan tetap dijaga	V

Langkah 5 Setelah Kinerja Awal diputuskan, tim manajemen mengajukan pertanyaan kepada diri sendiri pertanyaan oto-kritik berikut ini.

Apakah berbagai kelompok stakeholder mempunyai kesimpulan yang sama ?

Informasi mana yang kurang lengkap untuk upaya perbaikan terhadap bidang pendekatan (misalnya tidak terdefinisinya sasaran yang jelas) ?

Apakah level yang dipilih berlaku untuk keseluruhan organisasi atau hanya berlaku untuk sebagian ?

Langkah 6 Tim manajemen akan menyelesaikan evaluasi untuk level hasil (results)

Langkah 7 Isikan level rata-rata dalam kotak "Kesimpulan Evaluasi diri" pada Tabel Penilaian. Plot hasilnya pada profil dan spider web diagram

MATRIKS KINERJA 6 : PENILAIAN OLEH PELANGGAN

Bagian 1

Indikasi langsung	Relevan	Informasi yang terdia	Kecenderungan pekemangan	Kinerja dikaitkan dengan tujuan	Perbandingan dengan pesaing	Perbandingan dengan organisasi lain yang istimewa
Ratio harga/kinerja						
Keseuaian terhadap spesifikasi						
Durabilitas dan kehandalan						
Pengirimman tepat waktu dan lengkap						
Penanganan keluhan (complaint)						
Asesibilitas						
Dokumentasi						
Pengetahuan produk; dukungan penjualan						
Pelayanan, orientasi pelanggan						
Inovasi produk dan pelayanan						
Cara pembayaran dan skema pembiayaan (financing scheme)						

Bagian 2

Indikasi tidak langsung	Relevan	Informasi yang terdia	Kecenderungan pekemangan	Kinerja dikaitkan dengan tujuan	Perbandingan dengan pesaing	Perbandingan dengan organisasi lain yang istimewa
Jumlah keluhan (complaint)						
Barang dikembalikan (volume dan nilai)						
Pembayaran garansi						
Perbaikan						
Tindakan korektif (tingkat yang dibutuhkan)						
Penghargaan (Award)						

Tabel Penilaian

Kesimpulan evaluasi diri	**Level**	

MATRIKS KINERJA 7 : PENILAIAN OLEH KARYAWAN

Bagian 1:

Indikasi langsung	Relevan	Informasi yang terdia	Kecenderungan pekemangan	Kinerja dikaitkan dengan tujuan	Perbandingan dengan pesaing	Perbandingan dengan organisasi lain yang istimewa
Lingkungan kerja ; lokasi, ruangan, ergonomik						
Provisi kesehatan & keselamatan						
Job security						
Ruangan untuk kegiatan sosial						
Keterlibatan dalam penetapan tujuan						
Keterlibatan dalam tindakan perbaikan						
Cara penilaian staf						
Job content dan peluang untuk self-realisation						
Metoda assesmen dan imbalan						

Bagian 2 :

Indikasi tidak langsung	Relevan	Informasi yang terdia	Kecenderungan pekemangan	Kinerja dikaitkan dengan tujuan	Perbandingan dengan pesaing	Perbandingan dengan organisasi lain yang istimewa
Ketidakhadiran dan sakit						
Turnover karyawan						
Lowongan yang tidak terisi						
Partisipasi dalam pelatihan						

Tabel Penilaian

Kesimpulan Evaluasi diri	**Level**	

MATRIKS KINERJA 8 : PENILAIAN OLEH MASYARAKAT

Bagian 1:

Indikasi langsung	Relevan	Informasi yang terdia	Kecenderungan pekemangan	Kinerja dikaitkan dengan tujuan	Perbandingan dengan pesaing	Perbandingan dengan organisasi lain yang istimewa
Kepegawaian						
Pendidikan						
Jaminan kesehatan						
Perbaikan keselamatan kerja (bahan berbahaya, bahaya ledakan, dsb.)						
Pengurangan kebisingan						
Menjaga lingkungan						
Menggunakan bahan baku langka						
Penghematan energi						
Daur ulang						
Pengolahan limbah						
Kegiatan sosial dan budaya pada tingkat lokal regional dan nasional						

Bagian 2 :

Indikasi tidak langsung	Relevan	Informasi yang terdia	Kecenderungan pekemangan	Kinerja dikaitkan dengan tujuan	Perbandingan dengan pesaing	Perbandingan dengan organisasi lain yang
Tingkat ketidaknyamanan/gangguan						
Kejadian/peristiwa						
Rekoknisi (pengakuan)						
Publikasi pada media						
Permohonan untuk memberikan ceramah/kuliah						
Trainee posts						

Tabel Penilaian

Kesimpulan Evaluasi diri **Level**

MATRIKS KINERJA 9 : PENILAIAN KINERJA OPERASI

Bagian 1:

Indikasi langsung	Relevan	Informasi yang terdia	Kecenderungan pekemangan	Kinerja dikaitkan dengan tujuan	Perbandingan dengan pesaing	Perbandingan dengan organisasi lain yang
Unit cost						
Rasio ongkos langsung/tidak langsung						
Cash flows						
Penjualan						
Nilai tambah						
Modal kerja						
Solvency						
Ongkos produk rusak/cacat						

Bagian 2 :

Indikasi tidak langsung	Relevan	Informasi yang terdia	Kecenderungan pekemangan	Kinerja dikaitkan dengan tujuan	Perbandingan dengan pesaing	Perbandingan dengan organisasi lain yang
Pangsa pasar						
Skrap/downtime						
Pemenfaatan kapasitas						
Waktu pengiriman						
Lead time produk baru						
New development break-even time						
Turnover rate						

Tabel Penilaian

Kesimpulan Evaluasi diri **Level**

Profil Pengkajian Diri (Self-Assessment):

Fase / Elemen	1 Orientasi produk	2 Orientasi proses	3 Orientasi sistem	4 Orientasi rantai	5 Manajemen kualitas total
1A					
1B					
1C					
1D					
2A					
2B					
2C					
2D					
2E					
3A					
3B					
3C					
3D					
4A					
4B					
4C					
4D					
5A					
5B					
5C					
5D					
5E					
6					
7					
8					
9A					
9B					

Diagram “Spider Web”: