XRM AT A BILATERAL TRADE ORGANISATION

Designing a system that is processless; has at least an organisational context environment view of the business network; and is collaborative social software; that allows you to manage firms, contacts, interactions and the relation. Advising to use an available SaaS solution that fits the bill.

Solution design study

as a MSc Business and IT graduation project

from The University of Twente, The Netherlands

by

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MDBC Malaysian Dutch Business Council

MANAGEMENT SUMMARY

Introduction

The Malaysian Dutch Business Council (MDBC) is a bilateral trade organisation. Both firms as wel as individuals can become members. The organisation is funded trhough yearly subscription fees. Members must have a clear link with both The Netherlands and Malaysia to be admitted. MDBC offers members information benefits, representation benefits and networking opportunities.

Perceived problems

Within the organisation we identified four causal chains. These chains are the result of the investigation of the perceived problem. The chains are:.

1. Implicit contact relationships and undocumented processes create high employee dependency and cause coordination errors.
2. The existence of multiple databases create duplicate work (and is thus inefficient)
3. Sensible information is not easily accessible as data from multiple databases must be combined manually and must then be expanded with implicit knowledge .
4. The growth in the number of yearly organised events and the amount of members has increased. Both increased the amount of manual labour needed for day-to-day operations.

These inhibit the following business objectives:

- Easier access to useful information
- Increasing MDBC's growth potential
- Increasing MDBC's continuity of services

Diagnosis

Causal chains show that

(a) decreasing the amount of manual labour needed;
(b) decreasing the amount of databases; and
(c) making knowledge about relationships and processes explicit

will have a positive impact on reaching these business objectives.

Project goal

MDBC is wondering what is the best software package to improve MDBC's business network management. It hopes to lower manual labour in day-to-day activities; to lower dependencies on personnel; to make implicit knowledge explicit and to make useful knowledge accessible. This, while keeping the complexity of the solution to a minimum, the user-friendliness of the system maximised and the incurred costs within reason.

Methodology

We look at the suitability of traditional CRM systems for trade organisations and MDBC in particular. This is done via both a scenario based analysis survey (Chapter 4); and via an in-depth analysis of the history of CRM systems (Chapter 5). The scenarios used for the survey reflect typical trade organisation behaviour. The in-depth analysis reviews the history of CRM and investigates alternative concepts related to supporting the business network of a trade organisation.

We then investigated the ideal solution for MDBC. For this ideal solution we ignored all technological and financial limitations. We reviewed business relationship and business network literature. And we explored MDBC from three interdependent views: (a) MDBC's business network; (b) MDBC's delivered offerings; (c) MDBC's current information needs and sources. These results were synthesised into a high-level design model. The results were then validated through seven case studies. A summary of the design can be found in Chapter 6.

The results from the CRM review and the resulting ideal solution design were used as input for the creation of a business case. In this business case we explored multiple off the shelf solutions for MDBC. A long list of 89 systems was created and filtered down to a short-listed 19 systems. These 19 were compared using a semi-non-weighted multi-criteria analysis.

Advice for MDBC

Based on the multi-criteria analysis, we found several systems that obtained a decent score, however BatchBook stood out. It obtained a higher score based on objective analysis. As the business case is framed within the challenges and criteria for MDBC specifically it is suitable for MDBC only and not all trade organisations in general. Furthermore, BatchBook is not a perfect fit: It has benefits and drawbacks as explained in Chapter 8. In general, it tics the 'Must Have'-priorities as formulated in collaboration with MDBC, but it can be improved by implementing some 'Should Have'-benefits.

Project status

Keeping a relationship management tool up-to-date is a continuous process. As user demands change over time, the suitability of the configuration should be evaluated; BatchBook should then be reconfigured to meet needs; and data must be continuously updated. To our knowledge MDBC is still inserting data into the system and day-to-day use of the system has commenced.

Academic findings

1. We investigated the evolution of typical CRM packages and found that its origins and developmental path focussedlinked to the sales pipeline. It focussed on customer relationships, and not on relationships with all types of actors within a business network. Because of the inherit shortcomings, a typical CRM package is not most benefical for MDBC. (Chapter 5)

2. In the scenario based analysis survey we found that traditional CRM systems were somewhat tedious and not suitable to perform the tasks as sketched in the scenarios. (Section 4.3)

3. After reviewing typical CRM systems and similar system types, we defined a new combination of factors to define a type of systems: Collaborative social software (Section 5.2).

4. The type of system required by trade organisations is summarised as being (Section 5.3)

- Collaborative social software
- With an extended (xRM) business network scope.
- Processless (without SFA and/or ERP functions restricting data entry and usability),
- And able to store, display and aggregate data about relations & interactions. Including contacts and firms

5. We provide a conceptual, 2nd iteration high-level design for the ideal solution. Other scholars can build upon our transformation from theory to information technology views. And developers can use the initial design to implement a new generation of systems. We hint towards using a rapid prototyping technique and stripping away what does not seem to work. (Chapter 6.and Appendix VI)

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And upon request[1]:

[1] You can request these documents at the first author via the contact information as specified on the title page.

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GLOSSARY

Concept	Definition	Cf.
Analog (information source)	References non-digital & non-implicit stored information sources within the organisation. For example, paper records and lists.	
API	Application Programming Interface. "Generally speaking, an application programming interface (API) specifies how some software components should interact with each other." In our use, how 3rd party software can interact with the SuD	http://en.wikipedia.org/wiki/Application_programming_interface
B2B	Business-to-business	
Baligh-Richartz effect	Reducing coordination costs by lowering the number of connections in the network by institutionalising an intermediary.	
barter (membership)	"Barter is a system of exchange by which goods or services are directly exchanged for other goods or services without using a medium of exchange, such as money"	http://en.wikipedia.org/wiki/Barter
BC	Business Case. Document detailing a project proposal, migration remarks and specifying the expected risks, benefits, costs.	
BC	See Business Council.	
Bilateral trade	The exchange of goods between two countries.	(Investopedia)
Bilateral trade agreement	An agreement between countries to give preference to certain countries in commercial relationships, facilitating trade and investment between the home country and the foreign country by reducing or eliminating tariffs, import quotas, export restraints and other trade barriers. Bilateral trade agreements can also help minimize trade deficits.	(Investopedia)
Bilateral trade organisation	An organisation that facilitates member firms with trade and investment between its home country and a foreign (group of) countries and represents the interests of the member firms.	
Board of Directors	In the case of MDBC, a selection of elected member-firm employees and/or individual members that form the board of the association.	
BoD	See Board of Directors	
Boundary spanning	"Boundary-spanning roles link and coordinate an organi[s]ation with key elements in the external environment. Boundary spaning is primarily concerned with the exchange of information to (1) detect and bring into the organi[s]ation information about changes in the environment and (2) send information into the environment that presents the organi[s]atioin in a favorable light."	(Daft, 2007 – Org. theory design, p. 60)
Business Council	Private (non-governmentally supported) trade association	
Business market management	The process of "understanding, creating and delivering value to targeted business markets and customers is called".	(Anderson J. N., 2008, p. 4)
Business Network	A set of two or more connected business relationships. Here connected means the extent to which exchange and/or non-exchange in one connection influences another relationship	
Business Network Relationship Management (BN.RM)	A newly launched type of system. See Chapter 5.	
Business relationship	"a process where two firms or other types of organizations 'form strong and extensive social, economic, service and technical ties over time, with the intent of lowering total costs and/or increasing value, thereby achieving mutual benefit' "	(Ritter, Wilkinson, & Johnston, 2004, pp. 176 cf (Anderson & Narus, 1991, p. 96))
Chamber of Commerce	Governmental or semi-governmental trade association	

CM	Communications Manager, Employee at MDBC	
CoC	See Chamber of Commerce.	
Collaboration	Collaboration is working together to achieve a goal	http://en.wikipedia.org/wiki/Collaboration
Collaborative commerce	"[t]he use of digital technologies to enable multiple organizations to collaboratively design, develop, build, and manage products through their lifecycles"	(Laudon & Laudon, 2004, p. 58)
collaborative social software	Software that provides an interface to a shared environment to support the asynchronous collaboration of groups of people	
Commonality-Variability analysis	A methodology used to investigate overlapping and differentiating features (with the aim of forming some sort of ontology describing the unit under investigation).	
Contact Management Application	Simplified: A digital contact/address book (potentially with some extra information fields relating to the contact).	
Cooperation	Cooperation (sometimes written co-operation or cooperation) is the process of working or acting together	http://en.wikipedia.org/wiki/Co-operation
Coordination	the act of coordinating, making different people or things work together for a goal or effect -	http://en.wiktionary.org/wiki/coordination
CRM	See Customer Relationship Management. Distinctively different from Contact Management Application	
CRM-360 system	CRM package that creates a 360-degree overview of a customer combining front-office and back-office functions.	
CRUD	Computer Science acronym that stands for "Create, Read, Update, Delete". A CRUD-matrix combines all software functions as columns and checks if there are requirements for the CRUD functions.	
Customer Interaction Management	"Customer Interaction Management (CIM) refers to a type of Enterprise Software Application which is responsible for managing the interaction between an organisation and its customers. Normally, a CIM application will be deployed in a contact centre and used by the agents while communicating with customers of the organisation."	http://en.wikipedia.org/wiki/Customer_interaction_management
Customer Relationship Management (CRM) systems	Traditionally based upon a Contact Management Application with extended Sales-automation functions. See Chapter 5.	
Customer Relationship Management 360	See CRM-360 system.	
Daily tasks	Day-to-day activities within an organisation	
Database normalization	See Normalization.	
design	Design of an IT system under development: "how it will do it". Also see specification.	(Wieringa, 2010)
Digital (information source)	References the digitally stored information sources within the organisation. For example, spread sheets.	
Divide et Impera	Related to Burt's structural hole theory. A situation where the third party actively tries to keep two non-related actors apart, to attain or maintain supremacy (as a connector). Alternatively it means: Divide and conquer. Strategy to bream a large problem into smaller chunks. By conquering all separate chunks one solves the larger problem.	http://en.wikipedia.org/wiki/Divide_and_rule
Downstream	Direction through the supply-chain towards the end-user or customer.	(Laudon & Laudon, 2004, p. 55)
e-CRM	"The eCRM or electronic customer relationship marketing concept is derived from e-commerce. It also uses net environment i.e., intranet,	http://en.wikipedia.org/wiki/ECRM

	extranet and internet. "	
ED	Executive Director, Employee at MDBC	
ERP	Enterprise Resource Planning. See chapter 5.	
ES	Enterprise System. See chapter 5.	
Embassy	Typically used to specify the Embassy of the Kingdom of the Netherlands in Kuala Lumpur, Malaysia. Otherwise used to specify an Embassy or Consulate of some foreign nation.	
enacted environment	Organising context, extended with those actors relevant to the development of the firm that it cannot systematically influence.	(Johannisson, Ramírez-Pasillas, & Karlsson, 2002, p. 299)
EUMCCI	EU-Malaysia Chamber of Commerce and Industry. "UMCCI is a non-profit organisation financed by memberships, projects, events and sponsorships. Our mission is to promote, support and develop EU business interests in Malaysia as well as facilitate trade, commerce and investments between European Union and Malaysia."	http://www.eumcci.com/
firm members	A firm that is a member of the trade organisation	
Goal, external	Goals for/noticeable by actors outside of the organisation	
Goal, internal	Goals for the internal organisation('s employees).	
Groupware	"Computer-based systems that support groups of people engaged in a common task (or goal) and that provide an interface to a shared environment."	(Ellis, Gibbs, & Rein, 1991, p. 40)
IC	Internship Coordinator, Employee at MDBC.	
Implicit (information source)	References implicitly stored (non-tacit) stored information sources within the organisation. For example, "strength" of a relationship.	
individual members	Members of the trade organisation that do not work for a firm that is a member of the trade association.	
industry trade organisations	Trade organisation specifically for firms within a certain industry.	
Information source	Data source that has meaning (through potentially non-rigid semantics).	
Interaction Management	Systems that focus on the contents a mediums of transmitting interactions between two actors.	
Intermediary	Also called middle-men. Organisations that mitigate some market-imperfection.	
Intermediation	The services provided by an intermediary.	
Inter-organisational network	See Business Network	
m-CRM	One subset of Electronic CRM is Mobile CRM (mCRM). Connected through a mobile medium.	http://en.wikipedia.org/wiki/ECRM
MDBC	Malaysian Dutch Business Council	
MDBCs enacted environment	See Enacted environment.	
Memorandum of Understanding	Agreement between MDBC and the Dutch Embassy positioning services/offerings of both parties	
Net	See Business Network	
Netchain	Tool developed by (Lazzarini, Chaddad, & Cook, 2001) to visualise networks of (business) actors.	See (Lazzarini, Chaddad, & Cook, 2001).
NGO	Non-governmental organisation. Usually non-profit/charity organisation with some idealistic goal.	

Normal form	See Normalization.	
Normalization	"Database normalization is the process of organizing the fields and tables of a relational database to minimize redundancy and dependency."	(Wikipedia, Database normalization)
offerings	That what the organisation sells/offers/provides.	
Processless xRM (systems)	Our broad view of CRM/xRM systems with little to no business process logic. See chapter 5.	
Reactive systems	Systems that only operate reactively. Each stimulus has a response.	
Real-time groupware	Simultaneous activity in groupware	
Relationship Management	To improve a firm's relationships with both partner firms and customers.	Also see, http://www.investopedia.com/terms/r/relationship-manager.asp
RM	See Relationship Management.	
SaaS	"Software as a service [...] is a software delivery model in which software and associated data are centrally hosted on the cloud."	http://en.wikipedia.org/wiki/SaaS
Second Normal Form	See Normalization.	
SFA	Sales Force Automation. "abbreviated SFA, sales force automation is a technique of using software to automate the business tasks of sales, including order processing, contact management, information sharing, inventory monitoring and control, order tracking, customer management, sales forecast analysis and employee performance evaluation. SFA is often used interchangeably with CRM; however, CRM does not necessarily imply automation of sales tasks."	http://www.webopedia.com/TERM/S/Sales_Force_Automation.html
Simmelian tie	"Two people are Simmelian tied to one each other if they are reciprocally and strongly tied to each other and if they are each reciprocally and strongly tied to at least one party in common."	(Krackhardt, 1999, p. 186)
Simple-CRM	See Processless xRM systems.	
social-CRM	"Social CRM (Customer Relationship Management) is use of social media services, techniques and technology to enable organisations to engage with their customers."	http://en.wikipedia.org/wiki/Social_CRM
Social Software	"It's software that supports group interaction"	(Shirky, 2003)
specification	Specification of an IT system under development: "describes what a product will do". Also see design.	(Wieringa, 2010)
SRM	Supplier Relationship Management	
Stakeholder	A stakeholder is a biological or legal person affected by solving problem. Including, but not limited to actors being hurt by, beneficial to, influential in, or involved with the implementation of the solution.	(Wieringa, 2010, pp. Slide 6, Chapter 5.1)
Stakeholder	All actors tied to the project. E.g. being hurt by, beneficial to, influential in, or involved with the implementation of the solution.	
stimulus-response behaviour	See reactive system.	
Structural hole	A link between two separate cliques of actors with no/limited overlap.	
SuD	System under Development	(Wieringa, 2010)
Supplier Relationship Management	"Supplier relationship management (SRM) is the discipline of strategically planning for, and managing, all interactions with third party organizations that supply goods and/or services to an organization in order to maximize the value of those interactions."	http://en.wikipedia.org/wiki/Supplier_relationship_management
Surroundings	"Surroundings reflect the existence of an environment not (yet) known to, or imagined by, the firm(s)"	(Johannisson, Ramírez-Pasillas, & Karlsson, 2002, p. 299).

teamware	Teamware facilitates asynchronised information sharing (e.g. a wiki)	cf. (Laudon & Laudon, 2004, pp. 322-323 / 205-206)
Tertious Gaudens	Related to Burt's structural hole theory. Two competing parties do not have a strong relationship but are connected through the structural hole (the tertious gaudens). The third party (Tertious actor) can take advantage of the conflict.	
tertius actor	Related to Burt's structural hole theory. The person between two otherwise non-connected actors.	
The organizing context	"The organizing context is a collectively enacted environment where the firms interactively co-create, i.e. socially construct and actuali[s]e, their own development conditions."	(Johannisson, Ramírez-Pasillas, & Karlsson, 2002, p. 299)
Trade organisation:	An organization that represents the interests of the member firms of an industry	(Entrepreneur)
Upstream	Direction through the supply-chain towards the suppliers.	(Laudon & Laudon, 2004, p. 55)
xRM	Extended Relationship Management. See chapter 5.	

PREFACE

Thank you for taking a look at my thesis. It has turned out to be an extensive piece of text that could benefit from summarising and rewriting. I recommend that areas deemed most interesting and relevant are investigated upon.

The Malaysian Dutch Business Council (MDBC) is what we call a 'bilateral trade organisation', an intermediary within the market imperfections of geographical distance and cultural differences. But also an intermediary offering benefits of scope and scale. In my thesis I focussed on elements that would help MDBC document, manage and grow its network. In the simplest explanation: I explored the dimensions an ideal solution would need and I searched for an existing software package that neared the demanded functionality. We continued by configuring and testing the software package.

Customer Relationship Management-systems

It sounds so simple, search for and implement a readily available Customer Relationship Management system. But do you indeed want to manage relations to 'customers' only? And who are these customers? What do you sell to these customers and what do you hope to gain from 'managing the relationship'? It turns out that traditional Customer Relationship Management systems are unsuitable for a trade organisation. For one, they focus on the buyer-seller relationships between two actors.

In a trade organisation, such as MDBC, the business network is much more diverse, and so are the interactions that entail the relationships in that business network. The interface and data fields in traditional CRM do not fit the bill. This thesis is –to our knowledge- the first to transform business relationship and business network theories to a relationship management software solution for trade organisations.

A special thank you

During this project I had periodic interaction with my supervisors and colleagues at MDBC, several student colleagues in the Netherlands and the University of Twente's supervisors. First of all, I wish to thank Mr. De Winter and Mr. Kosters made certain the research remained of practical use. Whilst prof. Von Raesfeld, prof. Van Eck and prof. Sikkel focussed on the academic relevance and clarity of the deliverables. My student colleagues in The Netherlands assisted as devils advocates when methodology changes seemed a necessity. All, with the aim of bettering this study wich I am truly grateful for. Thank you all.

As all scholars, I have also built upon the results of many others. Most are visible in the bibliography section, but I which to thank four sources in particular that quick-started the thesis. First of all, (Westrik, 2012) who was kind enough to provide me with some appropriate selections of her literature review. And furthermore three University of Twente study tours to Malaysia: (Mosaic, 2012), (SerbaBoleh, 2011) and (SangKancil, 2010). And finally, I must thank all case study validation organisations who helped me increase the external validity of the study and the internal validity of the advice for MDBC.

1. Introduction to the study

This introduction explains why corporations enter the global arena and why they might choose Malaysia. A short overview of The Malaysian Dutch Business Council (MDBC) is given. MDBC – a private trade organisation - is looking for a way to make sense out of all its databases and business network. A typical CRM solution seems undesirable. The chapter continues by investigating the perceived problems and challenges. Followed by the goals stakeholders want to obtain. The chapter concludes by formulating the research question together with two sub questions; discussing alternative research questions; and scoping the assignment.

1.1. Why companies enter the global arena and Malaysia

Many companies cross borders and there are various reasons why these firms want to enter the global arena. (Daft, 2007, p. 116) stated: *"Today's companies must think globally or get left behind. The world is becoming a unified global field."* The combination of economic, technical and competitive forces is forcing many companies to a global focus. (Daft, 2007, p. 117) references (Bartlett, pp. 94-96), which have shown that there are -in general- only three primary factors to motivate companies for international expansion: Economies of scale, economies of scope, and low-cost production factors.

(Porter) stated in 1996 *that "Foreign markets provide firms with a means for profitable growth, because they can leverage comparative advantages that they have developed in their home-country markets. This source of growth is preferable to pursuing business from prospective customers in the home market that have requirements and preferences different from what the firm does well,"* explaining why firms can obtain success abroad.

The Netherlands Ambassador His Excellency Paul Bekkers, stationed in Kuala Lumpur-Malaysia, stated in the Business Directory of 2012/2013 that *"in recent statistics, The Netherlands features as Malaysia's no. 2 trading partner and no. 1 export destination among the 27 EU Member states,"* signalling the important relation the two countries have with each other. (MDBC, Business Directory, 2012-2013, p. 7) But why do Dutch companies want to enter Malaysian markets? The next section describes why Dutch organisations might start a (subsidiary) business in Malaysia.

Several business market properties help suppliers to do business across borders. Within Malaysia we see the following aspects that erode the barrier of geographical distance between the supplier and their prospective customers (Also see *Appendix I: About Malaysia (starting page - 1 -)*). Between The Netherlands and Malaysia we see the following positive trends:

(i) **Annual average Economic growth of 4.8% over the past 12 years**

The Malaysian Economic growth has been much higher on average then the Dutch. Respectively 4.8% versus 1.0% annual average over the past 10-12 years. (See *Appendix I: About Malaysia > Economical > Economic development – 30th largest of the world and growing (page - 5 -))*

(ii) **Reduction of trade barriers and tariffs, good competition law and protection of intellectual property**

Malaysia is a member of the Asia-Pacific Economic Cooperation, which tries to lower trade barriers between states in the APEC region. And Malaysia is currently negotiating the terms of a free trade agreement with the European Union – as well as several of the member states individually. (More information in *Appendix I: About Malaysia* > Economical > Asia-Pacific Economic Cooperation (APEC) and Free trading zones *(page - 7 -)*).

Competition law and anti-monopoly law are comparable between The Netherlands and Malaysia. (See *Appendix I: About Malaysia > Economical > Competition law and Anti-monopoly law (page - 7 -))*

(iii) **Investments in transport capabilities**

90% of Malaysia's goods are shipped via sea. Efficient seaports, six international airports with good cargo facilities and a well maintained network of highways have been developed, linking all major growth centres (See *Appendix I: About Malaysia > Technical> Improved transportation infrastructure and logistics (page - 12 -)).*

(iv) **Advances in communications**

In the last decade state of the art 3G and 4G cellular networks have become available in all urban areas. Currently, 15M out of 29M have internet access (See *Appendix I: About Malaysia > Technical > 4G-telecommunications with good coverage (page - 12 -)*).

And issues related to doing business in other countries and cultures can be partially mitigated between The Netherlands and Malaysia. (Anderson J. N., 2008, pp. 15-21) found several inhibitors of successful entry of international markets, summarised these inhibitors are:

(v) **Language (which can be mitigated between NED and MY)**

(Anderson J. N., 2008, p. 17) stated that English is regarded as the language of international business. The English speaking skill of the Malaysian people is high compared to other Asian countries. And within Dutch companies speaking English is also widely accepted. (See *Appendix I: About Malaysia > Social > Spoken languages (page - 9 -))*

(vi) **Culture (cannot be mitigated between NED and MY)**

"Culture is an abstract and imprecise concept [... that] comprises a set of assumptions, values, beliefs and norms [..]" (Anderson J. N., 2008, p. 18). The Malaysian culture is based on Islamic beliefs, compared to the Dutch that is based on Christian beliefs. Differences are there, as explained using the dimensions of Hofstede. (See *Appendix I: About Malaysia > Social >Social > Hofstede dimensions (page - 10 -))*

(vii) **Cross-Border Negotiation and Dispute Resolution (mitigated by MDBCs offerings and network)**

There are at least eight different aspects that can differ with regards to negotiations in an international context (Anderson J. N., 2008, p. 19). These are all applicable to Dutch-Malaysian ventures: Culture, unfamiliar and uncomfortable settings, the influence of ideology, greater involvement of government in businesses, defining which country's laws govern the business transaction, instability and sudden change in the foreign market, dispute resolution and foreign currencies. But most aspects to negotiation and resolutions can be written down in contracts. Companies are advised to do so.

Making both offshoring production facilities[1], and expanding the offset market to Malaysia (or Asia-Pacific region) interesting options for organisations.

1.2. About MDBC

MDBC was founded in 1996 and reached 200+ members in 2010. MDBC is categorised as a private bilateral trade organisation and is different from embassies in several ways (explained in the Appendix). As such, cf. (Clark, 2002), MDBC is a non-profit organisation where members are engaged in common business persuit. In the case of MDBC there are annual fees but no initiation fees. All applicatans with a clear link to Malaysia and The Netherlands are accepted to become members. *"The Malaysian Dutch Business Council (MDBC) helps to forge and foster business ties between Malaysia and The Netherlands. The broader aim of the Council is to further facilitate investment by Dutch and Malaysian companies in each other's countries and to increase trade opportunities."* (MDBC, Business Directory, 2010-2011, p. 6). MDBC is a non-commercial private (i.e. non-governmental) ***bilateral trade organisation***. The Board of Directors is the highest power within the organisation but is mostly active on strategic issues. The day to day operations are managed by Mr. M. Winter, and executed by 3 employees and 2 or 3 interns. The organisation currently consists of a little over 200 members.

The MDBC member companies pay a yearly subscription-fee and are allowed free access to all MDBC events; receive all information MDBC publishes and can use other services provided by MDBC. MDBC classifies its main activities into three categories:

- Information
- Representation
- Networking

Information is provided one-way through information events and updates in the MDBC Business Directory, its magazine and the occasional e-mail. Information is shared between members through member-for-member events and specialised theme information forums. MDBCs members are ***represented*** by MDBC by its attendance at many corporate and (semi-)governmental forums, functions and through its contacts with influential actors. ***Networking*** and business development activities are supported by embedding network moments (e.g. cocktail receptions) to the hosted events)[2]. To support its information, representation, networking and internship activities MDBC maintains a large network with external actors.

[1] Keep in mind that wages in Malaysia are not the cheapest of the region.
[2] The given list of MDBCs offerings is not exhaustive and merely functions to sketch an outline of MDBCs activities.

MDBC is an intermediary and its adds value to its members through lowering transaction costs. According to (Rose) (cf. Gümbel) there are three structural *'principles of transactions'* that intermediation can exploit to reduce transaction costs (Rose, 1999, pp. 59-62) and four *functional* services in which transaction costs can be lowered. Exploitation of the structural principles does require asset specific investments. We found MDBC aims to lower transaction costs via (based on ***Appendix V***):

<u>**Structural sources:**</u>

1) **MDBC exploiting economies of scale concerning contract volumes** – for nation/sector-wide promotion. Lowering Coordination costs and Transaction execution costs.
2) **MDBC offering benefits of scale concerning transaction frequency** – for e.g. for internship visa approvals. Lowering Coordination costs and Transaction execution costs.
3) **Utilisation of the `Baligh-Richartz effect`**. MDBC has created and is managing a business network, lowering the joint contract costs and other costs related to maintaining business relations. (More details about this effect follow below).

<u>**Functional sources:**</u>

4) **MDBC as a matchmaker (searching & matching)** for networking, business development, local services&contracts. Reducing Search cost and Opportunity costs of time[3]
5) **MDBC as an information channel** - by supplying information benefits (Direct sale of information). Lowering Search cost.
6) **MDBC as a "contractor" intermediary** – offering discounts between members. But more importantly to improve its power position.
7) **Contracting MDBC exploiting its (combined) bargaining power** to represent the interests of members. Lowering negotiation & lobby costs.
8) **MDBC as a monitoring and guaranteeing** service providers (local contractors and/or those supplying information benefits). Lowering Information costs, Costs resulting from uncertainty, Investments in expertise.

MDBC is ***an informal organisation*** with little documentation about procedures, manuals and job descriptions. Its employees have ***empowered roles***, with little specialisation to single tasks. To facilitate these empowered roles there is a ***broad span of control***, but mayor decisions must be backed by multiple members of the Board of Directors. Currently, there is ***low organisational technology*** as there are few tools used in day to day operations.

A more detailed description of MDBC can be found in *Appendix IX: About MDBC (page - 111 -, onwards).*

1.3. Problem diagnosis

MDBC is a bilateral trade organisation within the "networking service industry" [4]. We see this networking service industry as a set of firms whose added value is derived from its business network (composing of actors and ties between the focal firm and those actors). MDBC is dependent on its information/knowledge and its business network capital (links with other organisations, experts, institutions and individuals) to deliver value to its customers. Within MDBC there are many databases that store information. Most in the form of a spreadsheet or as an analog collection (I.e. hundreds of business cards in several holders). These databases contain information (or facts) but information about relations of these contacts to MDBC is not stored in them[5]. That is stored in the minds of the employees.

When we first spoke with MDBC late August 2012 the assignment was to implement a customer relationship management system. The problem was that *the offerings of MDBC most likely included some (in)tangible products that could conflict with standard Customer Relationship Management systems. Hence we question if MDBC will benefit from using CRM systems, or if other approaches (i.e. Knowledge Management, Network Management, Contact Management, ...) might be more rewarding*[6] [as Relationship Management systems].

During analysis as depicted in the following sections these ***perceived problems*** will be formalised and changed to better serve the goals of the organisation. It shows the result of the internal problem investigation as done by us. A reformulated research and design question will be given in section *1.5 Research question*.

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3 Opportunity costs of time: is "the reduction of buyer's and seller's waiting time for a transaction" (Rose, 1999, p. 63).
4 Based on the week-36 HR-Forum briefing, free citation from the Executive Director.
5 See *Appendix IV: MDBCs current information sources (page 3, onwards)* for a detailed description of these datasets.
6 cf. First version of the job description, as proposed by the first author on August 21st 2012.

1.3.1. The problems MDBC perceives

MDBC is a growing organisation. Its staff has grown to up to 7. The number of members has grown to over 200 and is expected to grow further (but slower) in the coming years. The number of external contacts with which MDBC has ties is expected to be above 2000[7]. Due to this growth, the workload for the organisation has increased[8]. These facts support the view that MDBC is a healthy organisation. But it is also experiencing inefficiencies due to its growth during the past years. This has encouraged the Board of Directors to reflect upon MDBC's endeavours. The board of directors and executive director believe there are several issues that will inhibit the future growth and limit service continuity potential of the organisation.

The following four causal chains have been identified during several informal sessions, with the vice chairman of the board of directors and the executive director:

- *Firstly*, implicit contact relationships (between MDBC employees and member firms) together with undocumented processes create high employee dependence and cause coordination errors[9]. Limiting MDBC's potential for growth and endangering the continuity of services.
- *Secondly*, the existence of multiple databases (ranging from excel sheets to many analog contact card folders) create the need for duplicate data entry work, causing a rise in manual labour, and thus inefficiency[10].
- *Thirdly*, multiple databases cause data inconsistencies and the need to manually combine data from multiple databases. Together with much implicit knowledge within the employees of MDBC these databases limit the availability of easy accessible sensible information[11].
- *Fourthly*, due to a larger number of members and a larger number of organised activities, the number of people attending and involved with activities has increased over the years. This results in more manual labour[12] and thus inefficiency limiting MDBC's growth potential. In this regard MDBC is working at its limits[13], and there is little room for higher performance in the current setting.

This is a problem that needs to be solved because relationships create network benefits such as information and bargaining power. However, maintaining relationships costs resources and these resources are scarce. Also, the number of relations an actor can actively maintain is cognitively limited. Therefore, making sense out of the network, documenting the network and trying to increase the value to harvest from the network increases both MDBC's internal organisation as it benefits its individual members.

The four causal chains described above are also depicted in a directed causal chart (See *Figure 1, below*). The light blue rectangles (the base of the causal chain) hint us towards possible treatments to achieve three goals, denoted in green rectangles. White rectangles show other factors that are either beneficial for MDBC, or not base causes. The causal chains have been discussed and approved with the Executive Director in week 41 and were verified by the Board of Directors during their week 42 meeting.

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7 cf. Executive Director in week 41 meeting.

8 For further explanation, see *page 7e*.

9 cf. Executive Director in the week 37 meeting, and Vice Chairman in week 38 meeting.

10 cf. Executive Director in the week 41 meeting.

11 cf. Vice Chairman in the week 38 meeting; the need for the project arose when multiple excel sheets needed to be compared between the Dutch Embassy and MDBC.

12 I.e. easy overviews of member-groups, contact information, easy production of name tags, guest lists, etcetera.

13 cf. Executive Director in the week 41 meeting, during discussion of an older version of the causal chart

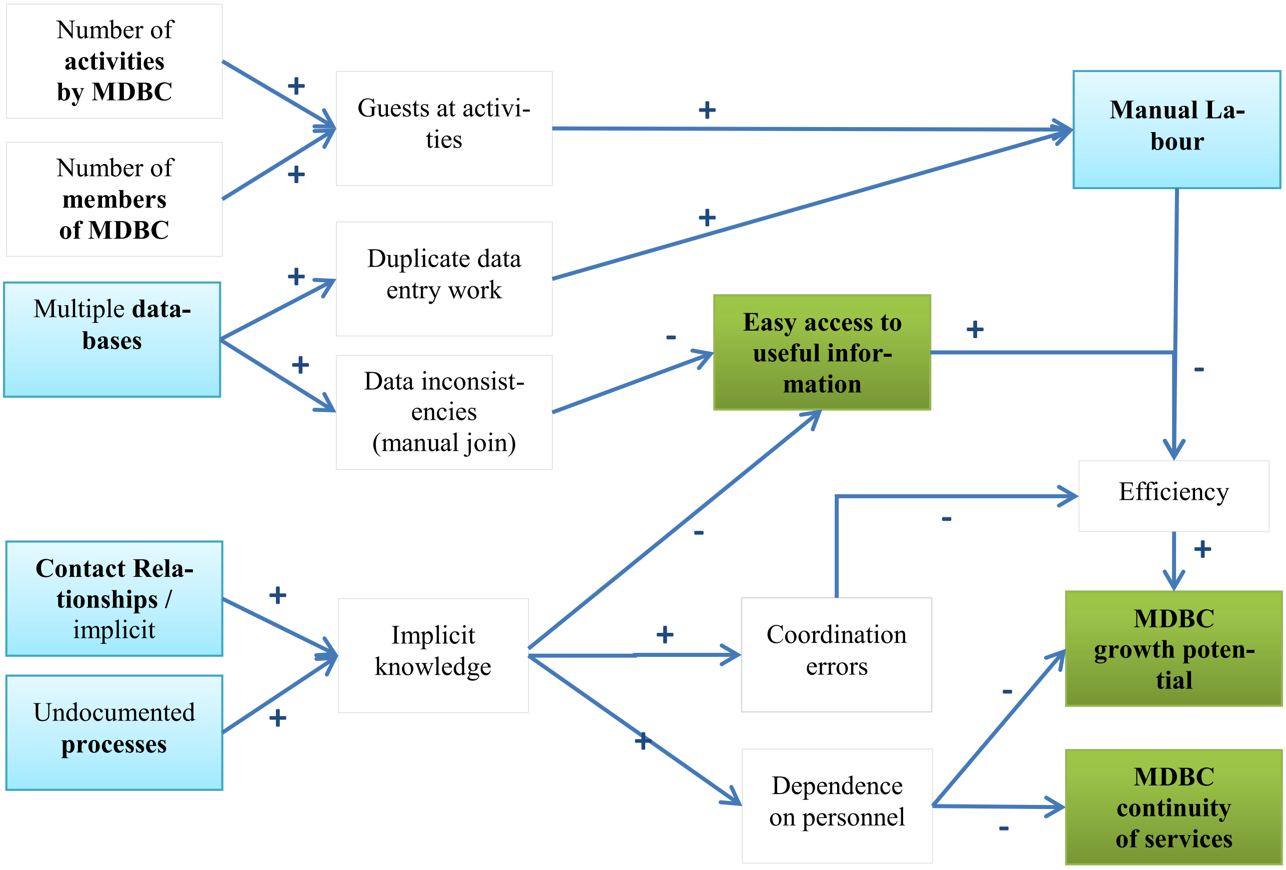


FIGURE 1: CAUSAL CHART SHOWING THE KEY VARIABLES INHIBITING MDBC'S GROWTH AND CONTINUITY IN THE FUTURE.

Goals:	Easy access to useful information (+)
	MDBCs growth potential (+)
	MDBC continuity of services (+)
Diagnosis:	Manual labour
	Multiple databases
	Implicit knowledge of relationships
	Implicit knowledge of processes

TABLE 1: LEGEND OF FIGURE 1, ACCOMPANIED BY THE DESIGN GOALS EXTRACTED FROM THE CAUSAL CHART.

1.3.2. THE CHALLENGES MDBC PERCEIVES

Through validation of the causal chains by the Board of Directors (week 42 meeting) they identified several ***challenges*** for this project:

Challenge (Ch-1): Complexity of the system: CRM systems can span several divisions of the organisation, resulting in a complex system with too much functionality.

Challenge (Ch-2): User-friendliness of the system: CRM systems can have interfaces that demotivate users to use the system.

Challenge (Ch-3): Expenses incurred by buying/using the system: Some systems might be too expensive for MDBC.

1.3.3. THESIS' DIAGNOSTIC THEORY: INHIBITING EXPLOITATION, THREAT TO CONTINUITY.

In summary we see the core problem within MDBC as follows: The current set of databases ***inhibits the efficient exploitation*** of MDBCs business network. From the organisations viewpoint - the databases data formats, redundancies and the amount of implicit knowledge within the organisation are a ***threat to the continuity*** of MDBC. The design direction or the treatment is to model a ***high-level ideal IT-based solution for companies such as MDBC***. In essence a Relationship Management System that can support both MDBCs network as its offerings.

1.4. Stakeholders and stakeholder goals

To see which parties are affected by solving the problem a stakeholder analysis was performed. This list of stakeholders includes but is not limited to actors being hurt by, beneficial to, influential in, or involved with the implementation of the solution. We formulated the list on several interviews with MDBC employees and the list was extended using the Clements & Bass-checklist (cf. (Wieringa p. R., 2010, pp. Slide 7, Chapter 5.1)). The stakeholder list was then checked for exhaustiveness by comparing the found results with those we would find using an approach exhibited in (Daft, 2007, p. 23): Major Stakeholder Groups and What They Expect.

We found that stakeholders are affected either by the thesis, by the result (implementation of the suggested solution for MDBC), or by both. To manage stakeholder satisfaction we identified each stakeholder's experience level[14] of the perceived problem together with the utility[15] of each stakeholder.

The list of stakeholders was summarized to contain only directly affected internal stakeholders and is included below. The stakeholder goals[16] were appended based on several semi-structured interviews[17,18] we have aggregated several internal and external stakeholder goals. We have elaborated these goals to theories on how they can be reached. The elaborated goals have been verified by the Executive Committee on October 16th.

#	Stakeholders	Goal	Achievable	Affordable
IG-1.	**Board of Directors** **Executive Director** **Employees**	**To** make sense of the information & MDBC's network **by** integrating the several databases and adding implicit knowledge about relations (if needed) **and is reached if** the number of different databases has decreased	Y	Y
IG-2.	**Board of Directors** **Executive Director** **Employees**	**To** improve MDBC's growth potential **by** improve efficiency of day-to-day activities **and is reached if** multiple day-to-day activities can be performed/supported by the system under development, or need to be administrated in less systems	Y	?
IG-3.	**Board of Directors** **Executive Director** **Employees**	**To** assure the continuity of services **by** lowering the personnel dependencies **by** making implicit knowledge explicit **and is reached if** the work-in time of new employees can be lowered (judged by the Employees)	Y	Y
IG-4.	**Board of Directors**	**To** improve inter-employee coordination when communicating with relations	Y	Y

[14] A stakeholder's perception of a problem, or experience level is disjointly and exhaustively divided into four subsequent types: Latent, Aware, Active, Problematic problem. Ranging from undesirable experiences for an unaware stakeholder, to a problem stakeholders want solved but cannot solve themselves. (Wieringa p. R., 2010, pp. Slide 4, Chapter 4.1)

[15] An indication of what a stakeholder gains or loses by the effect of solving the problem. (Wieringa p. R., 2010, pp. Slide 10, Chapter 5.2)

[16] "A [stakeholder] goal is a desire for which a stakeholder has allocated a budget" (Wieringa p. R., 2010, pp. Chapter 5.3 - Slide 18). Before a goal can be reached, two criteria must be valid. First, the stakeholder must believe it can be reached. Second, he must be willing to spend resources to reach it. It is considered the task of the designer to elaborate stakeholder goal theories and find a viable means that will generate an effect that satisfies the goal criteria.

[17] IG-1 is based on week 37 – Executive Director – weekly meeting;
and based on week 38 – Vice-chairman of Board of Directors meeting
IG-2 is based on week 37 – Executive Director – weekly meeting, concerning improving efficiency of manual labour tasks
IG-3 is based on week 37 – Executive Director – weekly meeting, concerning lowering the dependencies on personnel
and based on week 38 – Vice-chairman of Board of Directors meeting
IG-4 is based on week 41 – Executive Director – weekly meeting
IG-5 is based on week 38 – Vice-chairman of Board of Directors meeting

[18] EG-1 and EG-2 were added in line with the long term goals as shown in the causal chart.

	Executive Director **Employees**	**by** providing the employees with information about other communications within the relationship **and is reached if** we keep better track of our relationships and this information is available to all employees		
IG-5.	**Board of Directors** **Executive Director** **Employees**	**To** answer basic management queries **by** integrating the several databases **and is reached if** the Board of Directors can answer basic queries without relying on employee's implicit knowledge.	Y	?
EG-1.	**Board of Directors**	**To** increase member satisfaction **by** making our operations more effective and improving MDBC's resilience to personnel changes **and is reached if** we can help members more effectively when they communicate with MDBC	Y	Y
EG-2.	**Board of Directors**	**To** streamline contact with external relationships **by** centrally storing vital information **and is reached if** we can answer questions more effectively when we communicate with them or they with MDBC	Y	Y

TABLE 2: LIST OF GOALS TO ACHIEVE, DIVIDED BY INTERNAL GOALS (IG-X) AND EXTERNAL GOALS (EG-X).

Note that the organisational goal to grow is not stated as an external goal. This is because this project does not influence the size of MDBC's client base. It does however change the growth potential of the firm. The complete list of identified stakeholders can be found in ***Appendix II***.

1.5. Research question

Given the problems and challenges MDBC perceived, together with our causal analysis resulted in a diagnostic theory. This theory was discussed with the identified stakeholders and their individual goals for this project were identified. All goals have criteria to measure when the goal has been reached. To scope the project, the criteria of the stakeholder goals have been re-formulated to define the research question for the Malaysian Dutch Business Council. The resulting re-formulated research question is:

The Malaysian Dutch Business Council is wondering

What is the best software package **to** improve MDBC's business network management

such that the number of different databases can be decreased

and the criteria (a) multiple day-to-day activities can be performed/supported by the system under development, or need to be administrated in less systems,
(b) the work-in time of new employees can be lowered (judged by the Employees),
(c) we keep better track of our relationships and this information is available to all employees, and
(d) the Board of Directors can answer basic queries without relying on employee's implicit knowledge
are satisfied

and the challenges

(Ch-1) Complexity of the system

(Ch-2) User-friendliness of the system

(Ch-3) Affordability

are optimized?

The stakeholder goals are linked to the research question criteria as visible in the table below. This transformation was to scope the project and steer the end result to an IT solution.

#	Stakeholder Goal	Link to research question
(IG-1)	Make sense of the information & MDBC's network	Main goal of the research question, by integrating the several databases
(IG-2)	MDBC's growth potential is increased	Criterion (a). Focussed on increasing efficiency.
(IG-3)	Assure MDBC's continuity of services	Criteria (b) and (c). Focussed on lowering dependencies on personnel. Making tacit knowledge tangible.
(IG-4)	Improve inter-employee coordination when communicating with relations	Criterion (c). Tracing relationship interaction and making the information available in the system.
(IG-5)	Answer basic management queries more easily	Criterion (d).
(EG-1)	increase member satisfaction	Criteria (a), (b) and (c). External goal to be reached after the system is in place.
(EG-2)	streamline contact with external relationships	Criteria (a), (b) and (c). External goal to be reached after the system is in place.

TABLE 3: STAKEHOLDER GOALS TRANSFORMATION TO RESEARCH QUESTION CRITERIA

1.5.1. (SQ-1) ASSESSING TRADITIONAL CRM-SYSTEM SUITABILITY FOR MDBC

We pose that current IT-driven CRM solutions have the wrong starting point in mind. CRM is usually seen as a customer centric strategy. CRM solutions *"[create] a unified view of customers"* (Fletcher, 2001, p. 4). This evidently helps in managing a business network. Gebert et al. (2003, p. 2) summarised the history of Customer Relationship systems as; *"(CRM) emerged as an amalgamation of different management and information system approaches, in particular relationship marketing and technology-oriented approaches such as computer aided selling (CAS) and sales force automation (SFA)."* New IT innovations have spurred the creation of CRM systems. These systems allow *"companies to gather customer data swiftly, identify the most valuable customers over time, and increase customer loyalty by providing customized products and services"* (Rigby, 2002, p. 101).

CRM systems are -by its history- driven by sales departments, making its systems focally dependent on buyer-seller relationships, marketing processes and/or customer interaction. Yet, we ***hypothesise*** that to support a bilateral trade organisation such as MDBC we must look at its offerings and must support managing relations with ***all*** entities in its primary and secondary relationships.

> **We hypothesize that the criteria** [as defined in the research question above]
>
> **<u>cannot</u> be justified by** systems adhering to the typical sense of Customer Relationship Management systems.

However, hypotheses cannot be proven to be correct – they can only be proven incorrect. Therefore we will suffice by –to a reasonable degree of certainty- disproving the opposite[19].

1.5.2. (SQ-2) THE IDEAL SOLUTION FOR MDBC

Assuming that traditional CRM is indeed not a suitable solution, MDBC requires an information system that either (a) is called different, or (b) does not exist. In both cases it is beneficial to know in detail what the organisation requires. We therefore investigated MDBC's ideal solution for its environment, giving the following design question:

Design Question: **Improve**	business network management, information storage and accessibility – of MDBC
by	designing a *generic high-level functional* business network management model
that is compatible with	bilateral trade organisation-sectors' offerings and MDBCs in particular
in order to	*(See research question criteria)*
such that	this model can be used to find an appropriate off-the-shelf solution for MDBC[20]

[19] This is explained quite wellon Yahoo Answers (Ron971, 2007): "In short, we can never demonstrate the absolute truth of a hypothesis because we do not have perfect knowledge or control of all variables affecting that hypothesis. The best we can do is point to evidence that supports the hypothesis. After extensive tests results that support the hypothesis, we can be sure to a specified probability of its truth short of 100%. "

This ideal solution is based on the combination of several academic fields and a traceable methodology. We investigated several fields regarding business theory and information technology theory as well as the environment in which MDBC and other bilateral trade organisations are active. This was done via ***six knowledge questions*** regarding business network (modelling); business/consumer/customer relationship management; relationship/contact management systems; relationships between firms and individuals and intermediaries; and reasons behind internationalisation/globalisations in business.

We used some literature as input for the ideal solution, and other literature was incorporated in the methodology to explain what characterises MDBCs business network, to investigate MDBCs business offerings and explore its implicit and explicit analog and digital information sources. We aim to derive a solution that is applicable to most to all information-broker intermediaries. But first, and foremost, we aim to gain insights in from which system MDBC will benefit the most.

The challenge of affordability has been omitted for this design.

1.5.3. MDBC's challenges mitigated

Challenge (Ch-1): Complexity
Complexity of the system: CRM systems can span several divisions of the organisation, resulting in a complex system with too much functionality. For the ideal solution we assume a 360-degree view is most beneficial. As MDBC is a small organisation one cannot say there are many divisions to be spanned.

Challenge (Ch-2): User-friendliness
User-friendliness of the system: CRM systems can have interfaces that demotivate users to use the system. This challenge was one of the selecting criteria for the final MDBC advice.

Challenge (Ch-3): Affordability
Expenses incurred by buying/using the system: Some systems might be too expensive for MDBC. This challenge was one of the selecting criteria for the final MDBC advice. For MDBC ***a SaaS solution*** seemed most applicable.

1.6. Alternative approaches to mitigate the perceived problems

As in most studies there are multiple approaches to achieve the goals MDBC formulated:

- *A first* alternative is to invest in employees, allowing further growth of both members and activities. They could aggregate the available data to useful information manually. However, via this approach the dependencies on personnel would not decrease, and the relational information would remain mostly implicit.
- *A second* alternative is to study other strategic paths MDBC could walk. A possible answer would be a proposed merger with other trade organisations or a government institution.
- *Or a third* alternative, researching how to exploit strategic alliances. For example, the Student Internship Program could also be coordinated by an external party. This however, would outsource value adding services (or key assets) to external parties, lowering the potential for continuity of MDBC.

Other alternatives can be gathered. We chose to look at a static MDBC (not interfering with its network or offerings) and investigate how to support current activities with relationship management systems. This is relevant for the academic field as it posed a great case for network analysis. It also gives us insight in if and how we can support 'the networked firm' and intermediaries with information technology. For MDBC it creates knowledge and insights in how to work with their network more effectively, without changing their network position – which has proven to be quite successful during the growth of the past several years.

Furthermore, one can –with good reason- pose that the required answer will align with **`Customer Relation Management systems`** (**`CRM-systems`**). We studied CRM-systems and CRM-system history and argue that

[20] The formulation of this design question is according to the template as proposed by (Wieringa p. R., 2010, pp. Chapter 4.2 - Slide 16) with exception of our 'and use this model to'-addition. It has been added to provide clarity and to embed the explicit wish of MDBC to find an off-the-shelf solution.

CRM systems are -by its history- driven by marketing departments, making its systems focally dependent on buyer-seller relationships, marketing processes and/or customer interaction. Therefore they do not align properly with a bilateral trade organisation.

1.7. Scope

The aim of this thesis is to 'make more sense' out of the information available, to create growth potential & continuity, and to create insight in MDBCs network & coordinate interactions. As all projects have finite resources (in terms of man-hours, project timespan and money) to allocate. Therefore we are unable to research all aspects to this casus. Some elements we must exclude by assumption. Others we can exclude from the scope.

1.7.1. Inclusions

For our thesis we will focus on MDBC's **current** information sources and needs. MDBC's **current** business network and possible ways to intelligently funnel that information via filters. And MDBC's **current** offerings (value proposition) to its members. These components are interrelated and serve as checks for each other.

We aim to propose an ideal system design for MDBC. We will search for a commercial off-the-shelf solution nearing that ideal design. And we focus on implementing that system in MDBC's environment, including a plan to fill the system with its primary data sources.

Based on validation results we will make recommendations on how to alter the system to suit the broader Business Council industry.

1.7.2. Assumptions

We will *assume* MDBCs network, information sources and offerings are static and will not change during the study. Additionally, we must assume they will not change drastically in the near future. Note that we have deducted its enacted environment (business network) is relatively 'stable'. Furthermore, there is no indication the set of offerings from MDBC to its members will change drastically[21]. This means that we will ignore the results of a Business Development study being performed by an MDBC intern (batch 2012-2).

1.7.3. Exclusions

We *exclude* understanding the dynamics of all relationships between MDBC and external actor types. We will only look at dimensions described by generic theories on ties and relationships.

There are multiple area's related to the thesis that could benefit from extra research. However, we will not focus on these areas and thus they have been omitted from the literature review.

We *exclude* researching how to improve MDBCs offerings to customers. We will not apply our theories on MDBC with the aim to improve its offerings. We are focussed on understanding and supporting the current offerings. For example, Chapter 9: Managing in the Business Network (H Håkansson, 2009).

We also *exclude* researching how to change customer-firm interactions (theories such as 'customer driven organisations'). Transforming the organisation towards a full customer-driven-organisation will change many of the current offerings and network actors. For this study we see the network and offerings as stable during the project.

And we *exclude* researching the processes behind business network formation and evolution. We will not look into how MDBCs business network can be developed strategically, or how it has evolved to its current state.

As it is considered beyond the financial possibilities of the organisation, we will *exclude* the possibility of developing the proposed ideal solution of this thesis. Nor will we invest in developing additional plug-ins for a current solution.

[21] MDBC might add one extra offering regarding mediating between Dutch job-seekers and member firms looking for personnel.

Rather, we will propose to buy a standalone application that nears our functional requirements. The ideal solution is focussed on MDBC and not bilateral trade organisations in general. The case studies serve as a validation of the solution for MDBC, not to generalise the results directly to their organisations.

We will *not look at* trust and the risks associated with relationships: malfeasance, force, fraud, deliberates disorder and betrayal of external actors, whereas they are viable scenarios (for example, as described as embeddedness risks by (Granoveter, 1985, pp. 490-493). Nor will we look at mitigating these risks. This will make our analysis quite a lot simpler.

And finally, we will *exclude* the potential organisational changes needed for a proper IT implementation at MDBC. We will not give an academically sound description on how employee attitudes or internal organisational processes must change. Some elements are included in the business case for MDBC as they are of importance to the implementation process but not per se translatable to the implementation of the 'ideal solution'.

2. Research Methodology

The Research Methodology chapter specifies what path was followed to answer the research and design questions. Several background sections aid to answer the hypothesis that typical CRM systems are undesirable. This is followed by several sections on designing an ideal solution for MDBC. This design is validated through a.o. case studies and then translated into a Business Case-based advice for MDBC.

This study was based on a structured methodology. We started with an ***exploratory study*** about MDBC and the field of international business and business networks in general. The process continued with ***a literature review*** on several theoretical aspects. All search queries and decisions have been recorded for future reference. We continued with a scan and analysis of ***current solutions in the market place***. This resulted in a non-exhaustive but 1500+ long list of self-proclaimed CRM systems. Therefore, we created a shortlist of the most popular CRM systems. The hypothesis was tested via a questionnaire held with several IT students. Parallel we took a more detailed look at the Malaysian Dutch Business Council, including an ***analysis of MDBC's*** network and added value to its customers.

Given MDBC's offerings, customers and network, we distilled ***high-level requirements for a future system***. These requirements have been ***evaluated*** through discussions with domain experts and several case studies at other bilateral trade organisations.

This verifies the stability of the design. With an updated design and the overview of available off-the-shelf systems we created ***a business case*** for the Malaysian Dutch Business Council. Together with the firm an implementation route was chosen ***and implemented in the organisation***. The thesis concludes with a validation of the thesis and advice, in several ways.

See Figure 2 below for a schematic overview of the methodology. A more detailed description of all elements in the figure is given in the following subsections.

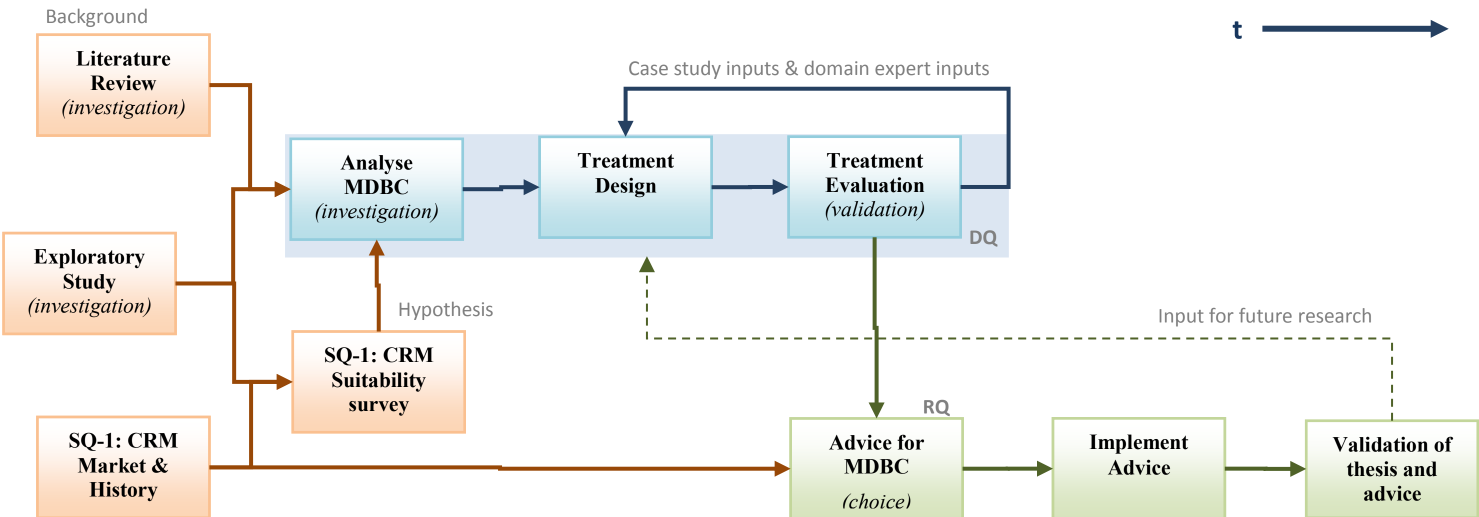


FIGURE 2: SCHEMATA SHOWING THE RESEARCH METHODOLOGY.

The methodology is based on the design and engineering cycle (Wieringa p. R., 2010). Note the colour coding, light blue shows the design cycle and light green shows the engineering cycle. The same colour coding is found in the methodology overview *figure above.*

2.1. Exploratory study

The goal of the exploratory study is to gain insight into MDBC, Malaysia and the academic field in general. The results of the analysis is embedded in several sections of this thesis. The study is focussed around several sections that help the reader understand the macro (Malaysia) and micro (MDBC) environment.

First off, we are interested in the macro forces working between Malaysia and The Netherlands. So why do businesses enter the global in general, and specific forces that influence Malaysia-Dutch relations. For this, we performed a PES-TE-analysis *(Appendix I).*

Secondly, we are interested in the Malaysian Dutch Business Council as an organisation on micro level (internally) and its context. We looked at common definitions and interpretations of bilateral trade organisations, and similar types of intermediaries to see if MDBC behaviour conforms to this definition. Furthermore, an organisational chart was built and internally verified[22] conform (Mintzberg, 1981) 's five parts of a business and (Daft, 2007, p. 16)'s explanations; gaining insight in the internal division of work and power.

Furthermore, can we classify this bi-lateral trade organisation as an intermediary, or only as a network firm?

Third, we looked at how MDBC describes itself and its services based on:

(a) interviews with personnel,
(b) talks with the Executive Director and Vice chairman of the Board of Directors,
(c) information found in the MDBC (Business Directory, 2010-2011) and (Business Directory, 2012-2013),
(d) information found on MDBCs website and
(e) personal insights gained by participating in MDBCs daily operations.

Several conceptual offerings (documented in the form of a s cenario) were designed. These scenarios were used to asses traditional CRM suitability (See *section 2.4: (SQ-1) CRM suitability survey*). The designed scenarios were referenced to the results of the MDBC offerings & tasks results (as explained in *methodology sub-section 2.5.3*) which gave insight in the trustworthiness of the found result regarding the hypothesis.

Fourth, we investigated MDBC's growth and success. Data about the number of members that joined and left MDBC in the past decade was aggregated by summarising information in multiple databases. This information was then discussed with the Executive Director to look at the trustworthiness of the numbers. It was decided that several years of data could not be trusted, and here guestimates were added. There are multiple types of members. These are discussed in small detail and for 2012, data was gathered to see how many members of each type there are. These numbers are estimations of facts: They are aggregated results from several internal databases – but no guarantee on their correctness can be given and thus are only used as illustrations.

Fifth, we looked at the organisation through the theory of intermediaries from (Rose, 1999). For this subsection we used the offerings that are the result of our analysis in *Appendix V: MDBC's Offerings (page - 49 - and onwards).*

2.2. Literature Review

A set of twelve sub questions were formulated and required further analysis. Some of these were knowledge questions to be answered after literature analysis. The results that are of interest for this thesis have been embedded in the literature review. For each separate knowledge question we identified appropriate literature fields and search queries (which were documented for future reference) and reviewed the resulting information. Depending on the area the review was

(a) Based on a scholar search – followed by literature review
(b) Based on the materials as thought in an appropriate course at the University of Twente

The chosen actions and the academic literature fields can be found in *Table 4 below*. The goal of each field analysis is to gather sufficient knowledge to answer the sub question it is linked to. .

Academic literature field name	Type of review
Notion of Value	Scholar search
Intermediaries	Based on course materials[23]
Business Networks and Business Network Modelling	Scholar search + course materials[23]
Relationships, contacts and their management	Scholar search
IT System high-level functional specification	Scholar search + course materials[24]

[22] The organisational chart first created in discussion with vice-chairman of the Board of Directors (meeting week 38) and was verified with Executive Director during the week 41 meeting.

[23] Specifically the course Business Development in Network Perspective (194108040), as taught by dr. A.M. von Raesfeld Meijer – 2010/2011 materials.

IT requirement completeness evaluation	Based on course materials[25]
CRM systems and alternatives (Cooperative software)	Iterative web search[26]

TABLE 4: LITERATURE REVIEW SUBJECTS AND CORRESPONDING RESEARCH APPROACH

For each of the literary areas under scholar search review we formulated several search queries. These search queries were inserted into Google Scholar. The first 5 pages of 10 results were scanned for titles that matched the sub-question related to the search query. This means we only looked at the first 50 results, as returned by the proprietary Google Scholar page ranking system. For the papers that remained after the title selection, the papers' abstract was reviewed to further scale down the amount of literature for the review. If the abstract of the paper was considered relevant the entire paper was read and summarised for use in the thesis. This does not imply it is used and referenced within the thesis.

All selected papers were read and subsequently, additional papers were added to the pool. In total 51 papers were added to the bibliography during the literature review. The papers were all published between 1985 and 2011. And the mean year of publication is 2000. The papers were, on average, cited 768 times.

For the areas that correspond with courses thought at The University of Twente, and in the case this course was followed by the main author, the set of materials was added to the pool. These materials in turn could also hint to additional papers during analysis, which –just as with the scholar search- were added to the pool.

2.2.1. NOTEWORTHY EXCLUSIONS AND INCLUSIONS

Not all found papers and their contents were used in this thesis. A summary of the most important inclusions and exclusions follows. The inclusions are added within either literature review or within the methodology of the thesis.

Section summary		Includes	Explicitly excluded
Notion of Value	Quantification of value and costs in business networks and relationships have not been incorporated in the thesis.		Value Increasing value Offerings
Relationships, contacts and their management	Insights now form a part of Chapter 3: Literature insights (page 31, onwards).	Dimensions of business relationships (relational, structural) Issues related to classifying ties Why business invest in relationships (+ B2B Relationship Marketing)	Relationship interdependence and embeddedness Benefits of maintaining relationships B2C Relationship Marketing
Business Networks and Business Network Modelling	Insights now form a part of Chapter 3: Literature insights (page 31, onwards).	Types of connected forms Organisational Boundary Structural and Process dimensions of Business Networks Network Benefits and Limitations Exploitable Network Effects Business Network Modelling	ARA framework and IMP framework Interdependence and embeddedness Power structures Business Network emergence and evolution
Intermediaries	Insights now form a part of Appendix IX: About MDBC	Rose's view on intermediaries lowering transaction costs Sources of cost reductions	Structural and functional sources are severely summarized Effects of intermediation

[24] The found materials were amended with the materials from
(a) the course Specification of Information Systems (192330301), as taught by dr. M. Daneva and prof.dr. R.J. Wieringa – 2010/2011 materials.
(b) the book 'Software Requirements: Styles and Techniques' by Soren Lauesen (Lauesen, 2002) – as recommended course materials of Requirements Engineering as tought by dr. N. Sikkel – 2008/2009 materials.

[25] Specifically (a) the course Design of Software Architectures (192111332), as taught by prof.dr.ir. M. Aksit – 2011/2012 materials. And (b) the book 'Software Requirements: Styles and Techniques' by Soren Lauesen (Lauesen, 2002) – as recommended course materials of Requirements Engineering as tought by dr. N. Sikkel – 2008/2009 materials.

[26] We found a freesearch most appropriate as terminology of ***groupware*** and ***collaborative systems*** has been co-opted by marketing, and definitions sometimes span so broad they include everything (Allen, 2004) and has polluted the field and thus has lost its meaning (Allen, 2004, p. cf. Eric Clay). A freesearch approach was the only way we could gain insight in current terminology used by vendors.

		Baligh-Richartz effect	Exchange function vs. coordinating function of intermediaries is severely summarized
IT System high-level functional specification: Requirements	Insights incorporated in methodology.	Quality influences and mitigating principles Requirements Elicitation Requirements Representation Requirements Verification	*Note: We want to test a specification through scenarios. The scenarios will also be added to the specification as clarification.*
IT System high-level functional specification: Software Requirement Specification Documents	Insights incorporated in methodology.	Reactive System specifications by Wieringa Transactional System specifications by IEE 830-1998.	*Note: Not exhaustive overview of approaches, but two sound methodologies.* (Wieringa R. , Design Methods for Reactive Systems, 2003) names the Postmodern Structured Analysis (PSA); The Unified Modelling Language (UML); Not Yet Another Method (NYAM). Many other modelling techniques and standards exist.
CRM systems and alternatives (Cooperative software)	See next section; results visible in Chapter 4: Survey shows 'typical CRM' unsuitable for set of scenarios (page 43, onwards) Chapter 5: CRM system development history vs. the trade organisation's needs (page 48, onwards)		

2.2.2. Limitations

We accept that using only one scholar search engine, and looking only at the first 50 results can have an impact on the completeness of the found results. For a more exhaustive review on this validity issue we refer you to section *10.2: Validation of thesis*. Upon request the entire literature review overview can be made available, including the search queries and an overview of papers that were selected via title selection or discarded via abstract selection. This list also contains information regarding which papers were added during analysis of other papers.

2.3. (SQ-1) CRM market search and development history

A first attempt to investigate the commonalities and variabilities became unfeasible due to the shear amount of products to investigate. The commonality-variability analysis would have to take place on over 1200 potential products resulting from a free flow between all sorts of flavours within the fields of Customer Relationship Management, Supplier Relationship Management, Vendor Relationship Management, Collaborative Software, Social Software, Enterprise Relationship Management, Contact Management System and Cooperative Software.

The second attempt focusses around a qualitative (instead of quantitative) analysis of theoretical views on Information Technology Systems and Collaborative Software Systems in academics and online. With respect to MDBC's off-the shelf advice in a later stage, we believe it will suffice to limit our search to only one smaller section of products identified by keywords found through the free search.

The analysis summarises the results from several disjoint reviews.

First, the four major system types as defined by (Laudon & Laudon, 2004) with extra detail on Customer relationship management systems *(Results in section 5.1).*

Secondly, during the free search for CRM systems we discovered they are closely linked to collaborative software (and similar concepts). These concepts have been explored, and the terms groupware, collaborative software and social software have been added to the discussion. The free search returned collaborative software and groupware as being related to CRM systems. We therefore reviewed materials from the course Computer Supported Cooperative Work-field[27] and the book Management Information Systems (international edition): Managing the digital firm, 8th edition by Laudon and Laudon (Laudon & Laudon, 2004). *(Results in section 5.2).*

Thirdly, we aimed to match typical 'base technologies'' to certain system types but the results were inconclusive and have been omitted from the thesis.. We see base-technologies as default common individual types of systems with a single purpose. Such as a Forum or Memo-share service (Bulletin Board). The result from this analysis was not of fundamental use and was therefore omitted from the report.

Fourthly, we investigated the differences from an IT perspective on reactive and transitional systems. These results have been omitted from the thesis as the distinction posed little difference to the end result.

The overview has implications for MDBC and other trade organisations regarding the choice and options for software solutions. These implications have been listed *(section 5.3)* and show which 'flavour' of CRM systems best matches MDBC.

2.4. (SQ-1) CRM suitability survey

In the introduction section we posed traditional CRM would not be a correct fit with MDBC. To assume our working hypothesis is acceptable we needed to the reject the opposite beyond reasonable doubt. This was done by letting the respondents check if certain scenarios were supported by one of nine CRM systems (that resemble the CRM systems portfolio).

- *First*, a questionnaire was created by selecting a subset of CRM systems, creating scenarios, and searching for participants.
- *Second*, the questionnaire was sent to the participants and the results were processed.
- *Third*, the results were used to answer the hypothesis.

The questionnaire invite was distributed via e-mail. The questionnaire was cloud-based and conducted via Google Docs™. Participating in the questionnaire would take approximately 45 minutes, thus severely limiting the amount of willing participants.

The three steps identified above are explained in more detail in the remainder of this section.

2.4.1. Step 1: Creating the questionnaire

Three elements of creating the questionnaire are highlighted below as they form the basis of the questionnaire. The complete questionnaire can be found in *Appendix III > Questionnaire-section (page - 25 -).*

Step 1.1) Selecting a popular CRM product subset

As discussed in the *2.3: (SQ-1) CRM market-section*, we found over 1200 CRM systems in a preliminary free search on "Customer Relationship Management". It was impossible to create a near exhaustive list, nor was it possible to find data on all systems to create a ranking on dimensions such as 'Number of users', 'Annual turnover', 'Number of customers' and 'Average account size'. Adding phrases such as "most popular", "list of best", "best and why" yielded many classifications and subsets of CRM systems – but none was found with a verifiable methodology.

Therefore, we formed two main search queries and once again looked at the first 5 pages of 10 results as returned by the Google search engine.

- "(top OR review OR best) customer relationship systems"
- "top alternatives to salesforce"

In total we found 31 mentioned CRM systems through seven separate sources that –to our insights- are objective (e.g. no financial or political gain was found that could influence their choices and ranking). Out of the 31 found systems we shortlisted all that were listed more than twice. Resulting in a shortlist of 9.

step 1.2) Writing the scenario's

[27] Specifically, the materials as tought in the course Computer Supported Cooperative Work (192340070) – as tought by dr. K. Sikkel in 2010/2011.

Based on our preliminary insights from the exploratory study regarding MDBCs offerings, we formulated six scenarios that mimic typical trade organisation behaviour, and one that mimics a typical production organisation. These were later on evaluated for their alignment with the postliminary insights regarding MDBC.

STEP 1.3) SELECTING PARTICIPANTS

The author has created, formed and defined the scenarios. Whether or not the author can participate in the survey is questionable. There are two disjoint reasonings to this question:

(1) As the authors fully understands the scenarios and their intentions, they are best fitted to classify if a system offers the functionality, or not.
(2) As the authors fully understand the scenarios and their intentions, their mind is no longer objective. Yet it is subjective to attitudes towards companies, brands and products that were formed when making both the long list and the functional groupings.

In fact, psychology studies have shown the latter is likely to influence research results. The phenomenon is called ***confirmation bias***[28], and is related to selective exposure theory (the tendency to favour information that reinforces the subjects pre-existing views whilst avoiding sources with contradicting information) and attitude polarization (when two parties disagree on a subject and are given the same mediating new information, their attitudes tend to polarize). We therefore concluded that it is unjust if we would create and fill a two-dimensional matrix showing all systems as tuples and the functionality-groups as columns.

Our solution was to ask students, alumni and friends and colleagues of the first author with at least basic knowledge of IT systems via social media (Facebook) to help us. We invited 118 friends with IT knowledge via Facebook to join an open event called "Help [author] graduate". These Facebook connections were invited to share the event with friends. At the submission deadline 49 Facebook friends had joined ("Am going", "Maybe going"). Each participant was randomly assigned 1 of the selected systems, for which they received a generated e-mail with the request to read a webpage and then fill in a questionnaire. The webpage was the supplier's webpage describing the product's functionality. If available, login information for the DEMO was also provided. In total **15 people**[29] accepted and sufficiently completed their questionnaire.

2.4.2. STEP 2: QUESTIONNAIRE RESULTS PROCESSING

The questionnaire consisted of six scenarios, several opening questions and several closing questions. After each scenario the respondent was asked to answer a question aimed to measure the dimension:

Q. Dimension 1: ***Suitability*** of the system to complete task of scenario – on a 1 to 7 scale.

For some tasks (differentiating over the tasks) we also measured other dimensions:

Q. Dimension 2: ***Tediousness*** of task – on a 1 to 7 scale
Q. Dimension 3: ***Ability*** to perform task – multiple choice { yes; probably; not sure; probably not; no; information not available }

Note here that the dimensions tediousness and ability are more specific measures then, and partially overlap with suitability.

Though the dimensions were not defined prior to the survey, we believe we stick to the dictionary meaning of the words and therefore no further clarification was needed.

Suitability:	*"the quality of having the properties that are right for a specific purpose"*	Citations from WordNetWeb from Princeton.edu.
Tediousness:	*"dullness owing to length or slowness"*	
Ability:	*"the quality of being able to perform; a quality that permits or facilitates achievement or accomplishment"*	

[28] The introduction as given on Wikipedia is a good start for novice readers: http://en.wikipedia.org/wiki/Confirmation_bias . Or the text on The Skeptic's Dictionary (by Bob Carrol): http://skepdic.com/confirmbias.html .
[29] We later learned that in several cases the invitation to participate in the survey was not received. It is expected this is due to a problem in the mail relay of the sent mailmerge. Unfortunately this has resulted in a lower n than preferred.

2.4.3. Step 3: Assessment

As a verification of our aim to question IT experts we included questions to measure the educational background and progress of each respondent. To verify the clarity of the questionnaire it concluded by asking if the respondent understood the scenario's and related questions for each scenario.

To explain the found results qualitative questions were included for each scenario.

Suitability	Tediousness	Ability	Implication
Not suitable	Not tedious	(Probably) able	Implies the opposing hypothesis **can only be rejected <u>if</u>** the unsuitability inhibits a criterion from being reached, or inhibits reaching a business goal.
Very suitable	Very tedious	(Probably) able	Implies the opposing hypothesis **can only be rejected <u>if</u>** the tediousness (in essence) inhibits a criterion from being reached, or inhibits reaching a business goal.
Not suitable	Very tedious	(Probably) able	Implies the opposing hypothesis **can only be rejected <u>if</u>** the tediousness/unsuitability inhibits a criterion from being reached, or inhibits reaching a business goal.
Very suitable	Not tedious	(Probably) able	Implies the opposing hypothesis **<u>cannot</u> be rejected** without proving all scenarios' assumptions incorrect.
All	All	Not able	If the task should be supported (according to MDBCs offerings analysis) and/or the task is deductively linked to one of the measured criteria – this implies the opposing hypothesis **<u>can</u> be rejected.**

Table 5: Cross matrix showing the implication of potential outcomes of the measured dimension on the opposing hypothesis

2.5. Detailed analysis of current situation at MDBC (via 3 components)

To design a treatment we need insight in the ***organisation's information needs***. The elicitation of information needs is the result of the interaction between three approaches.

<u>Viewpoint - Information sources:</u> The current organisational information sources were identified through Observation and Unstructured Interviews. The details of the methodology can be found in *section 2.5.1: Investigating MDBC's Information sources: Exploration of existing (analog,* digital, implicit) data sources and publications.

<u>Viewpoint - Enacted environment:</u> The organisation's enacted environment was analysed through Structured interviews and Brainstorming. The details of the methodology can be found in *section 2.5.2: Investigating MDBC's organizing context explains the process for elicitating all actors in the network*.

<u>Viewpoint – Offerings and daily tasks:</u> The organisation's offerings to its members (customers) were inventoried. Employees of MDBC were asked to log their daily tasks (and information needs related). Some offerings were discussed through protocol analysis and scenario analysis. The associated methodology for this approach will be discussed in section *2.5.3: Investigating MDBC's offerings, actions and tasks*.

The results of the different viewpoints overlap, and combined pose an exhaustive picture of MDBC. They also validate each other for exhaustiveness. The steps and relations between the two approaches are depicted in the *figure below*.

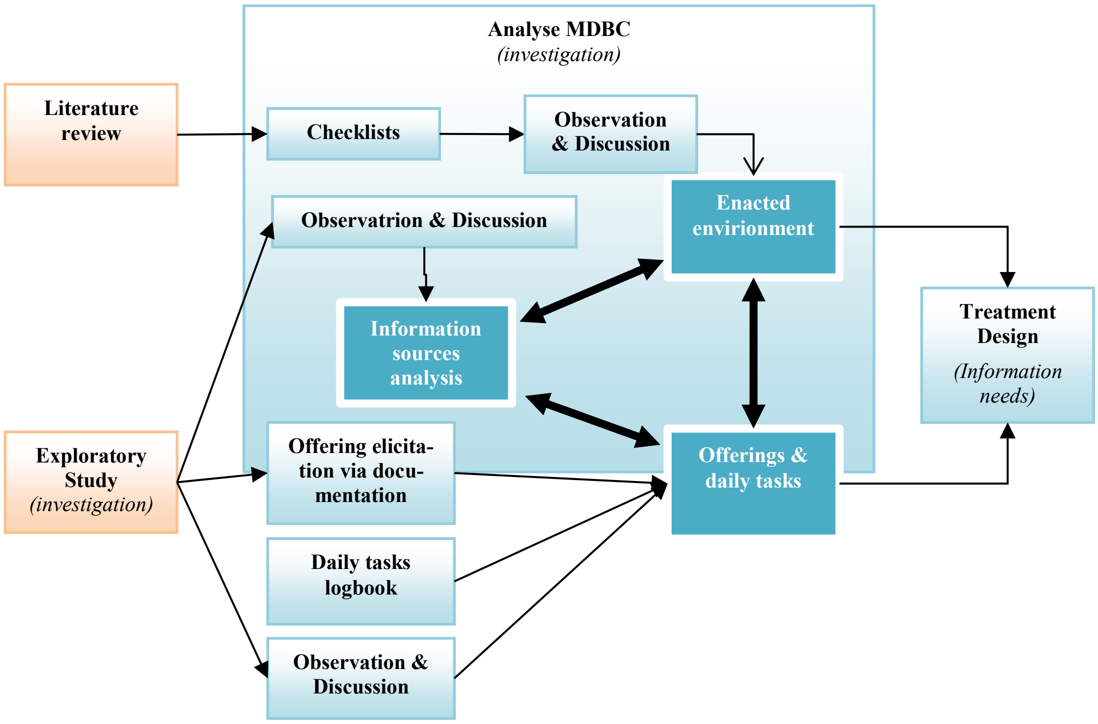


FIGURE 3: OVERVIEW OF INPUT AND ACTIVITIES TO ELICIT ACTORS AND OFFERINGS IN MDBCS ORGANISATIONAL CONTEXT.

This section continues by describing the selection of information elicitation techniques. We used the ACRE framework (Maiden & Rugg, 1996) for choosing elicitation techniques: thus we can shortlist viable elicitation techniques by filtering on five dimensions:

First off, the goal of the requirement design process is designing a ***new system***. Not selecting a commercial off-the shelf system (which is the end-goal of the thesis). Nor making a legal contract for system procurement.

Secondly, we want to focus on ***eliciting behaviour and data***. Process knowledge (i.e. the order of the behaviour and the data information needs) is of less importance.

Thirdly, as much information is not accessible through conscious introspection (i.e. the completeness of an elicited overview cannot be proven) we must classify the to-be-elicited information as ***semi-tacit knowledge***. With appropriate models semi-tacit knowledge is accessible (whereas non-tacit knowledge is only accessible under reasonable circumstances).

Specifically: Recognition of non-tacit knowledge and Risk of taken for granted knowledge

Fourthly, ***not all phenomena are observable***. For example, representation and networking can include political aspects; non-formal commitments or quid-pro-quo originated services. But some (domain entities / information queries) are.

Lastly, MDBCs resources in the acquisition context are constrained on the dimensions of

- Number of meetings possible
- Time to prepare session (partially)
- Time for acquisition session (partially)
- Number of requirement engineers
- Number of stakeholders

Several of the (non-exhaustive list) of elicitation methods as proposed in ACRE are not applicable for this project due to time and personnel constraints (E.g. RAD, ethnographic methods). Several others were used in different settings. The selection (via multi-criteria analysis) is shown in the table below. And the table concludes with an overview of which selected method is used in which analysis perspective.

Dimension:	Observation	U. Interviews	S. Interviews	Protocols	Card Sorting	Laddering	Rep. Grid Analysis	Brainstorming	Rapid prototyping	Scenario Analysis	RAD	ethnographics
Purpose: Packages unknown	- -	-	+	- -	++	+	++	-	++	-	--	--
Knowledge type: Behaviour	++	+	+	+	-	+	+	+	+	++	++	++
Knowledge type: Data	-	-	-	-	++	++	+	-	+	+	++	+
IRofK: Recognised knowledge	- -	- -	- -	-	+	-	-	+	++	++	++	--
IRofK: Taken for granted	++	-	-	+	-	-	-	-	+	+	+	++
Observable: observable	++	--	--	-	--	--	--	--	--	--	-	++
Constraint: Meeting needed	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Constraint: Preparation time	++	++	-	+	+	++	-	++	-	-	+	++
Constraint: Meeting time	+	++	++	++	++	++	++	++	++	++	--	--
Constraint: # req. engineers	1	1	1	1	1	1	1	1	1	1	1	1
Constraint: # stakeholders	1	1	1	1	1	1	1	1	1	1	6	2
Result	U	U	U	U	n/a	No	No	U	NV	U	NV	NV
Used in 2.5.1 (Search db)	Yes	Yes										
Used in 2.5.2 (BN)			Yes					Yes				
Used in 2.5.3 (Offerings)		Yes		Yes						Yes		

Within results: **U**: Used, **n/a**: Other scholars advised against using; **No**: Not used; **NV**: Not a Viable based on constraints/method.

TABLE 6: SHOWING THE IMPORTANT DIMENSIONS AND CONSTRAINTS MULTI-CRITERIA ANALYSIS BETWEEN SEVERAL ELICITATION TECHNIQUES AND THE CONCLUSIONS.

As is shown in the multi-criteria analysis of the *table above*, different elicitation techniques are used for the analysis from different viewpoints. The separate results are interconnected and the analysis was iterative (As shown in *Figure 3*). The end results form the basis for the system design as discussed in section *2.6: (SQ-2) Treatment design*.

2.5.1. INVESTIGATING MDBC'S INFORMATION SOURCES: EXPLORATION OF EXISTING (ANALOG, DIGITAL, IMPLICIT) DATA SOURCES AND PUBLICATIONS

This section aims to answer explore current 'databases' in use by MDBC. The analysis looks at both digital and analog sources of information, and describes how these were merged into a semi-coherent model. Semi-coherent due to limitations of the found information sources: some are outdated or depict specialised columns that are included in the analysis but might not be embedded in the final system specification.

FINDING DIGITAL SOURCES

MDBC stores all files on a shared network drive. The 'Z-drive'. We searched for documents containing databases on that drive.

- <u>**Microsoft Excel documents**</u>
  Search filter: *.xls -backup -administration -budget -schedule -itinerary -cash –invoice
  Manual exclusions: Everything related to Finances, Back up-directories, Magazine materials, Time-lines (of development), Workflows, Questionnaire results, Survey results, Checklists.
  Resulted in: 3.309 found items. However, we only looked at the 1.329 items that were changed after Jan 1st 2010 (and until Dec. 31st 2012).
- <u>**Microsoft Access databases**</u>
  Search filter: *.mdb
  Resulted in: 1 found database

The list of found digital sources was expanded with the results of unstructured interviews with employees.

Finding analog sources

Through observation, unstructured interviews with employees and through the analysis as proposed in *section 2.5.3 (Investigating MDBC's offerings, actions and tasks)* we found several analog data sources.

Finding implicit sources

Implicit knowledge sources are hard to structurally identify as it is often 'taken for granted', that employees know. Techniques viable for elicitation are observation, as done by us. But also protocol and scenario analysis, as used in *section 2.5.3 (Investigating MDBC's offerings, actions and tasks)*. This list was expanded with the results from the daily tasks logbook information as described in *subsection 2.5.3*.

Merging similar sources

For all found sources we screened the documents for data dimensions.

- Regarding *digital sources*; conform the meaning of that particular documents rows/columns. But note that many files are duplicates of each other, or older versions of the same document. Or a document containing similar information (such as generated lists and old templates).
- For *analog sources;* the common-structure of the elements in the set was described to our best capability and with the lowest possible bias. As the data types were discussed with the Executive Director and Communications Manager the results have been verified for completeness of fields.
- And for *implicit sources*; the fields were discussed during the sessions.

Overlapping types of documents were merged. This resulted in several 'tables', which are shown and explained in ***Appendix IV: MDBCs current information sources*** *(page - 35 -)*. Exhaustiveness of the found information sources can never be obtained. We do believe –within the boundaries of the system scope- we identified the most common fields).

Translate to Entity-Relationship-Diagram (ERD)

The found 'tables' as shown in ***Appendix IV: MDBCs current information sources*** *(page - 35 -)*, have been summarized in an Entity-Relationship-Diagram (ERD). Please note that the notation form here conform a standard as the current situation only semi-coherent, and this required us to be more flexible in the nation of weak/strong relations.

Out of scope business divisions

Given the organisational chart of ***Appendix IV*** *(page - 111 -)* we have excluded the following divisions of MDBC from our information sources analysis:

- Secretariat
- Finance and Legal-committee
- Internal Governance-committee

And the exclusions as specified in the individual sections above.

2.5.2. Investigating MDBC's organizing context

MDBC's organisational environment (or context) was investigated as one of three interrelated components. All actors are involved, in some way, with activities within MDBC.

As discussed in the literature section, boundaries of firms get blurred as firms rely more on external. We acknowledged that the firm's identity –especially in the case of MDBC- is derived from much more than just its 'environment' of direct interactions. We therefore decided to look at the organisational 'context' of MDBC, which –cf. (Johannisson, Ramírez-Pasillas, & Karlsson, 2002) – lead to defining (a) The organizing context, and (b) The enacted environment of an organisation. For clarification the difference between both is illustrated below.

	The organizing context is	The enacted environment is
(Johannisson, Ramírez-Pasillas, & Karlsson, 2002) definition:	a collectively enacted environment where the firms interactively co-create their own development conditions	the organizing context extended with all firms that all firms that are relevant to the development, but cannot systematically influence.
Difference:	Includes all entities that **can** be influ-	Also includes relevant actors that it **cannot** sys-

	enced systematically.	tematically influence.

Exploring the organizing context is sufficient for our purpose

As described in the same literature review section, and shown *in Figure 7 (page 39)*, the enacted environment includes all organisations the focal firm is connected to, as well as the 2nd tier connections (connections to organisations through primary connections). Social clubs and economic institutions can fall in both categories, depending on the type of relationship.

We will investigate MDBC's organisational 'environment' to the detail-level as provided by the ***organizing context***-level. Including the supply chain, competitors, government institutions, complementors, partners, social clubs and economic institutions. We will not model indirect links to 2nd their connections such as our competitor's suppliers.

A structural view on the business networks. We do not strive to change MDBC's network thus we do not have to model the structural view (e.g. relative power gains). We do strive to gain insight in the interaction between members, contacts and MDBC. Thus we should have a process view when modelling MDBC's business network. Furthermore, we can assume the amount of 'embeddedness' is constant, and not influenced by us modelling it.

Egocentric perspective for researching and modelling the organizing context is required as we neither have access to the entire network, nor do we have the resources do identify all relations. Nor do we have to identify indirect links.

We will try to understand MDBC by looking at its dyadic and triadic relations. Thus allowing weak and strong ties (there can be a week tie in a triadic relationship). But all ties must see MDBC as the focal firm

Insight in appearance of 'Network externalities' (positive and negative feedback loops)-effect not of direct interest as it does not change the structure of the network, the information flows over ties or the current offerings of MDBC. Changing any of the above falls out of the scope of this thesis.

Insight in appearance of 'Structural holes'-effect not of direct interest as it does not change the structure of the network, the information flows over ties or the current offerings of MDBC. Changing any of the above falls out of the scope of this thesis.

Insight in appearance of 'simmelian ties and cliques'-effect not of direct interest as it does not change the structure of the network, the information flows over ties or the current offerings of MDBC. Changing any of the above falls out of the scope of this thesis.

Identifying actor-types in the context

Identifying all actors and/or classifications of these actors in entity-types within the organisational context of MDBC is the result of three separate approaches that extend each other's results. The combined result is believed to be mostly exhaustive but might still lack some latent contacts that are only seldom used.

See *Figure 3 (above)* for a graphical overview of the process.

Eliciting types through discussions with MDBC employees

All interviews with MDBC employees and observations of the main author have resulted in the elicitation of actors in MDBCs organisational context. But also a more structured approach was used to elicit actors from MDBC employees.

During three separate but similar sessions (with the Executive Director, the Communications Manager and an Intern) an unstructured interview was conducted. During this semi-structured interview three documents were discussed.

(a) the conceptual business network Netchain diagram[30],
(b) the conceptual offerings overview, and
(c) the conceptual information sources overview.

After discussing the materials the interview continued to discuss the employee's daily activities: focussing on tasks, interaction with entities and the use of information sources. This component was managed as a brainstorming session with some directed questions (See explanation in *2.5.4: Regarding the quality and exhaustiveness of the result*).

[30] The netchain diagrams have been omitted in the final version of this thesis. A netchain is focused on visually depicting a supply chain. More on this is discussed in section *10.3: Academic relevance*

Eliciting types through published documentation and existing information source analysis

Several types of actors (and many attributes of these actors) were found by exploring existing MDBC publications. In particular the MDBC Magazine and the MDBC Business Directory. Specifically, the information regarding MDBC members in the Business Directory and “useful contact information” section of the website were useful.

Other actors and attributes were found exploring the information sources around the office. See methodology in *section 2.5.1: Investigating MDBC’s Information sources: Exploration of existing (analog,* digital, implicit) data sources and publications. Specifically, we focussed on the contact-card holders and current contact / member / mailing lists.

Some offerings were investigated through process analysis; related actors (if needed) were added to the context).

Improving exhaustiveness of actor-type analysis trough checklist-based checks

The model was created via several iterations and is based on input from the executive director and executive communications of the Malaysian Dutch Business Council, combined with input as found on their website, found in the business directory (MDBC, Business Directory, 2012-2013) and as found in the analog collection of business cards.

Completeness of the model was discussed through (Daft)’s overview of domains in the international external environment of an organisation (Daft, 2007, pp. 51 - Exhibit 2.1 / An Organization's Environment). This exhibit lists forces of 10 domains that can affect organisations. These forces are between the focal firm and an external actor, which are part of the enacted environment. Discussing the forces identified external actors, which were added to the network.

1. Industry Sector Competitors, industry size and competitiveness, related industries **2. Raw Materials Sector** Suppliers, manufacturers, real estate, services **3. Human Resources Sector** Labour market, employment agencies, universities, training schools, employees in other companies, unionization **4. Financial Resources Sector** Stock markets, banks, savings and loans, private investors **5. Market Sector** Customers, clients, potential users of products and services	**6. Technology Sector** Techniques of production, science, computers, information technology, e-commerce **7. Economic Conditions Sector** Recession, unemployment rate, inflation rate, rate of investment, economics, growth **8. Government Sector** City state, federal laws and regulations, taxes, services court system, political processes **9. Sociocultural Sector** Age, values, beliefs, education, religion, work ethic, consumer and green movements **10. International Sector** Competition from and acquisition by foreign firms, entry into overseas markets, foreign customs, regulations, exchange rate

Furthermore, the completeness of the set was compared with (Moller & Halinen, 1999, p. 3)’s focal firm perspective for business relationships and networks (As explained in the *literature review, section 3.2.2*). The results were embedded in the results.

To discuss the preliminary results with MDBC staff the information was visualised via a “**Netchains**” cf. the description given by (Lazzarini, Chaddad, & Cook, 2001). We are interested in both primary as secondary functions of the relationship. Furthermore, some authors focus on modelling the (vertical relations in) a value chain. Others focus on modelling (horizontal relations between) competitors, economic institutions and social clubs. The integration of horizontal and vertical modelling is needed as they are obviously interrelated to each other (Moller & Halinen, 1999, p. 414).

We found that the ***Netchains*** modelling technique as proposed by (Lazzarini, Chaddad, & Cook, 2001) fulfils our requirements. They allow the grouping of actors, integrate the vertical modelling of a supply chain with the horizontal modelling of partnerships, competitor and complementary firms. One key alternation was needed to the Netchain: We omitted the notion of structuring cliques horizontal and vertical on paper conform their respected horizontal and vertical collaboration. This as with MDBC there is neither a clear supplier nor customer. More on this is discussed in section *10.3: Academic relevance*

2.5.3. INVESTIGATING MDBC'S OFFERINGS, ACTIONS AND TASKS

On a strategic level, value networks are analysed via the individual firm's exchanges involved in interaction. This lays in the general working hypothesis that a network is the sum of all individual triads and dyads[31]. Creating an overview of MDBCs offerings, explains MDBC's added value to members and involved actors in these offerings. And is used in conjunction with the two other viewpoints to create a consistent and exhaustive view of MDBCs information needs.

Within our analysis of MDBC we expect to find both dyads as triads.

> *Dyads* for example in the information services of MDBC. When broadcasting information pro-actively from MDBC to a random other actor there is little embeddedness, nor is there a 3rd party directly related to the offering[32]. (See *Figure 4(c)*)
>
> *Triads*, for example in requesting mediation in a buyer-seller relationship. For MDBC this could be mediating an internship between an Applied College and one of its Members. (See *Figure 4(a)*). For now, we will assume that all requests from members are a triad, and thus interact with another actor in MDBCs network (potentially being only an information source).

Both types of exchanges can use several internal information sources (databases). However, as much information is solemnly available implicitly at MDBC, the resource can be an employee. Making dyads potential triads and triads potential quads. The potential use of internal databases has been depicted in grey in *Figure 4(a).* Thus, an actor can be either an IT actor or a business actor[33]. This definition of an 'actor' is potentially broader than many scholars intended but still appropriate for use in our setting.

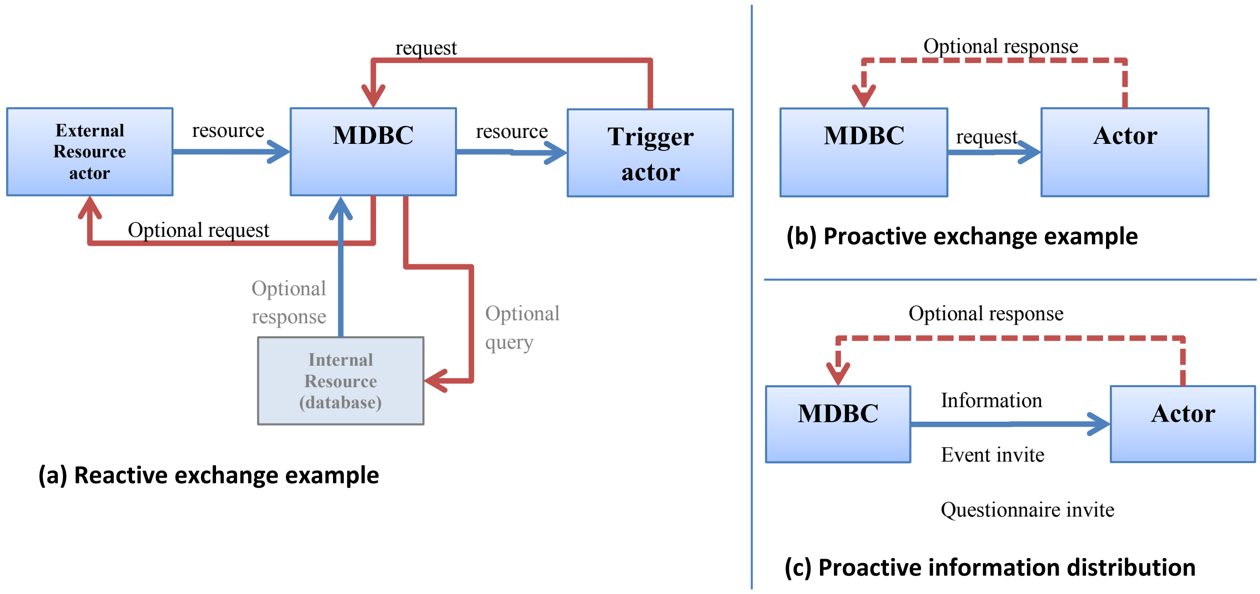


FIGURE 4: SCHEMATIC OF INTERACTION TYPES: PRO-ACTIVE AND REACTIVE

(A) SHOWING A TRYAD WITH AN OPTIONAL INTERNAL RESOURCE INTERACTION. FOR EXAMPLE, A MEDIATED BUYER-SELLER RELATIONSHIP.

(B) SHOWING A DYAD INITIATED BY MDBC REQUESTING SOMETHING FROM AN EXTERNAL ACTOR. FOR EXAMPLE, REQUESTING AN INTERNAL AUDIT.

(C) SHOWING A DYAD BROADCASTING INFORMATION FROM MDBC TO AN EXTERNAL ACTOR. FOR EXAMPLE, SENDING OUT THE MONTHLY NEWSLETTER.

For specifying reactive IT systems we look at (cf. (Wieringa R. , Design Methods for Reactive Systems, 2003)) the:

external stimulus:	in the environment someone contacts us for something via a medium
internal event&action:	internal work done

[31] Our literature review on Business Relations contains information on both Dyads and Triads. The conclusion is that most scholars a network can be divided into a set of individual (though inter-related) relationships. Some scholars argue that the smallest type of relationship is a dyad, whilst others claim the smallest form is a triad (when accounting for embeddedness).

[32] Objectively speaking the broadcasted information was not created by MDBC. Thus making it a triad including also news and other information sources. Subjectively we argue that

[33] IT system as an actor cf. (Wieringa R. , Design Methods for Reactive Systems, 2003).
A role embodied in a business , or an individual working within a business as a Business-actor.

external response: as visible to our environment

The exchange between the actors can be described via several methods, including the ARA-model (Actor-Resource-Activity-model) or as Roles (of Actors) that manage Transactions and Deliverables. This modelling technique (based on management-theories) inconsistent with the internal and external view on system behaviour as described above. When we combine the internal and external view on exchanges analysis with modelling reactive and transactional IT systems we find that the following integrated table. Depending on the type of exchange certain columns can(not) be filled. But it can be used to facilitate the discussion of the completeness of the report (table row).

Stimulus			Event&Action				Response deliverable			Relation dimensions
by	medium	request	Internal action	Database + criteri-on	External re-source	External request	To	medium	response	Embedded-ness
E.g.	Email	# events	On NAS, count #directories	Count(event), year=2012	n/a	n/a	E.g.	Email	#	

TABLE 7: TABLE-TEMLATE. FILLING ALL FIELDS OF THIS COMBINED TABLE

Notes to the use of the table:

- A stimulus can be temporal (cf. reactive system modelling) and comes in the system as an event[34]
- A stimulus can invoke several internal actions and generate several queries (database+criterion). We are interested in the query, even if it is not currently processed by a computer. E.g. a query on an employee's implicit knowledge is also relevant information.
  1. The database field helps find hidden (uncommon) sources of information
  2. The criterion helps us aggregate potential interesting search filters.
- An internal action can require interaction with several external resources/actors.
- The action can result in multiple responses.

A tuple (exchange) can be highly interrelated with another tuple; this should be noted at Embeddedness in relationship dimensions.

The following subsections explain how the table was filled.

ELICITING OFFERINGS FROM MDBC TO ITS MEMBERS

Under offerings we see the documented offerings from MDBC to its members. They were identified through

- exploration of ***calendars and schedules***,
- exploration of ***yearly reports*** – as published in the Directory
- reviewing the ***newsletter*** (the sent e-updates to MDBCs members)
- exploration of the structure of MDBCs ***email archive*** and ***network attached storage***
- ***brainstorming*** with two interns[35]

The offerings as found in these sources were then discussed via ***scenario analysis*** with the responsible employees. In the same session the employees were also asked to brainstorm about other offerings they provided to their members.

ELICITING 'DAILY' INFORMATION NEEDS & TASKS

MDBC receives many phone calls and emails each day. Some trigger MDBC to retrieve, structure or aggregate information. This information is the response to the triggering actor. The used information sources and the used filters are directly related to the requirements for the system.

The Communications Manager and Executive Director were asked to keep a log-book between December 20th and the end of January. The logbook is a report of their reflective-observations plus domain specific insights and was formed by logging tuples containing the following information:

[34] The event column is not included in this table. An event is directly linked to a stimulus in the environment context and in this stage we are only interested in the environment side of the offering. The event will be added when these offerings are translated to requirements for a future system.

[35] As we use the Executive Director and Communications Manager to validate and extend the found materials (to improve exhaustiveness) we cannot use them here. The usable amount of stakeholders in this analysis is small.

- Who requested the information
- Dimension of what they wanted to know
- Selection criterion to filter the information

Or in template form: *<Who> wanted <Dimension> where <Criterion>*

Example 1: Member-A *wanted* a list of Companies, *where* Company-sector = Oil & Gas, and Sells = 'Christmas valve'.

Example 2: BoD *wants* to know number of members, per category, *where* the company visited at least one event.

Other phone calls and emails trigger MDBC to perform an action. These tasks can process or mutate information sources. Or they can use implicit knowledge. These daily tasks were also logged during the same period as discussed in the above subsection. For these daily tasks we requested the following information:

- Which company was contacted
- What task we requested from them
- What MDBC offering it supports

Or in template form: *Contacted <Company> for <Task> supporting <Offering>*

Example 1: Contacted HotelA *for* the venue + f&b *supporting* event X.

Example 2: Contacted DeliveryCorp *for* picking up payment check *supporting* membership-payments.

This was an interactive session where the logbook was discussed together with several other materials. The results are documented in the corresponding minutes, and potential changes embedded in the appendices and appropriate chapters.

2.5.4. Regarding the quality and exhaustiveness of the result

Eliciting the information needs for MDBC and transforming them into system requirements follows the IRD phases (Information Retrieval; Requirement Representation; Requirement Validation). Much of the information used in this phase is retrieved during

- *2.5.1: Investigating MDBC's Information sources: Exploration of existing (analog, digital, implicit) data sources*
- *2.5.2: Investigating MDBC's organizing context*
- *2.5.3: Investigating MDBC's offerings, actions and tasks*

(Browne & Ramesh, 2002) identified problems that influence the quality of the gathered information used in requirement elicitation. With regards to Information gathering they identified: (a) Motivational biases; (b) Hawthorne effect; (c) Cognitive biases; (d) Satisficing; (e) Faulty reasoning; (f) Automaticity; (g) Variety and complexity problems; (h) Recall problems; (i) Communication problems; and (j) Most other problems. By using their framework, we can cover the 10 identified problems by embedding three principles in our methodology:

> *Pre-elicitation conditioning* addresses the issues 'motivational biases', 'Hawthorne effects' and 'most other problems'. This principle permits the "explanation of key terms, and allows analysts to create and/or influence incentive scheme for decision maker. Also allows analyst to determine need for specific types of questions (e.g. counter-arguments) to reveal inconsistencies in decision maker's answers, potentially reducing cognitive and motivational biases" (Browne & Ramesh, 2002, p. 633).
>
> *Directed questions* addresses the issues of 'cognitive biases', 'satisficing' and 'faulty reasoning'. Directed questions "stimulate user's memory, causing associations to be made and causing user to think of things he otherwise may not." (Browne & Ramesh, 2002, p. 633)
>
> *Using flowcharts* addresses 'automaticity', 'variety and complexity problems', 'recall problems' and 'communication problems'. Flow charts "represents event as a linear process, reducing working memory demands and allowing all parties to comment on correctness of flow." (Browne & Ramesh, 2002, p. 633). We will, however, not use flowcharts, but netchains in conjunction with Data-Flow-Diagrams – but we believe the same logic is applicable.

These principles were embedded in our efforts to research the organisational context.

First, Employees and interviewees were informed about potential cognitive biases and other effects prior to their involvement in the elicitation process.

Second, The results they retrieved were discussed with the main author, and several directed questions were placed to make sure the reasoning is sound – and well documented.

Third, Data flow diagrams and netchain-diagrams were used to lower the amount of information the user needed to process – and ensured a complete and exhaustive coherent end-result.

2.6. (SQ-2) Treatment design: Specification of the ideal solution

The aim of this section is to create the ideal solution (SQ-2). Which was formulated in *section 1.5.2: (SQ-2) The ideal solution for MDBC (page 8 onwards.* The words specification and design have many definitions. We will adhere to the definition as given (Wieringa R. , Design Methods for Reactive Systems, 2003, p. 8): "a **specification** describes what a product will do [… whereas …] a **design** describes how it will do it." Conform these definitions we will specify the ideal solution, not design it.

In the previous section we discussed how to gain insight in MDBCs offerings and information needs. This gave us insight in MDBCs network, its current information sources and their structure and MDBCs offerings. This has been documented using techniques that are easily transformable into information system requirements. This section explains the translation of these insights into system requirements. The elicited requirements must be represented. The evaluation of the proposed set of requirements is the subject of the *next section (2.7)*.

2.6.1. Eliciting requirements from the offerings and daily tasks

The proposed system is specified using various techniques. Some aspects from MDBCs offerings are *reactive* and are translated using the methodology for reactive systems as proposed by (Wieringa R. , Design Methods for Reactive Systems, 2003). This methodology translates stimulus-response services to event-action pairs to be handled by a system. Our inventoried offerings are easily translated to stimulus-response services. Hence Wieringa's approach is able to assist us to translate the offering via stimulus-response tuples to event-action pairs.

2.6.2. Eliciting requirements from the information needs and existing data sources

Other aspects (such as the information needs) are *transactional* in nature. These are modelled as Class Diagrams with (aggregated) entities and may incorporate design principles. This class diagram does show data relations, but might not be implementable on each platform.

2.6.3. Elicitation of non-functional requirements

Usability and other non-functional requirements to the system. To be embedded in subsection 5 of the elements below. Is based on the quality grid-method as developed by Jens Brix Christiansen and Lauesen. This is a table showing many quality factors as rows, and the relative importance of the factor in columns. Each factors importance is explained by describing the concerns associated. The quality factors of IEEE 830 will be used as a checklist.

Quality factors for system X	Critical	Important	As usual	Unimportant	Ignore
Subsection: Operation					
Factor: Integrity/security		X			

Table 8: Sample quality grid table cf. (Lauesen, 2002, p. 227)

The shortlist of quality factors of the system were filtered by the main author based on his interpretation of the domain. The importance and related concerns were discussed with the Executive Director.

2.6.4. Elements in the system specification

But because the proposed system itself does not directly alter its environment the system is not reactive. We must specify the system as a transitional information system. Based on the elements in the specification methodologies for transitional and reactive systems we will embed the following elements in our specification:

1. **Introduction**
   System name and acronym
   System scope
   Document overview and applicable other documents
2. **System decomposition**
   Composition of high level elements
   Responsibilities of the system
   Exclusions of responsibilities of the system
3. **For each decomposed element: Software requirements**
   For each feature related to the component we describe the: Introduction/Purpose of feature, Stimulus/Response sequence, Associated functional requirements. For future 3rd iteration it would also include detailed explanations for all data entities related to the component.
4. **Data requirements and dictionary of important concepts**
   Platform independent organisation specific Class Diagram[36] showing the dependencies between Entities (dimensions of information) of all system components.
   Classified for priority with "potential" or no status, which means mandatory functionality[37].
5. **Non-functional requirements**
   Based on ISO 9126 checklist and IEEE 830 checklist. Could include:
   <u>Performance:</u> Sizing, Timing
   <u>Operating:</u> Security, Safety, Restart, Backup, Fall-back
   <u>Platform:</u> Memory, Disk, Operating System, Window System, CPU, Peripherals, Network
   <u>Usability:</u> Look&Feel, Response times, …
   Prioritising of the non-functional requirements proceeded via a Quality-Grid in open conversation between ED and main author.
6. **Appendices**
   Appendices are used to provide extra context to difficult design issues in the report. In our case these appendices could be references to subsections of the thesis, as this also contains contextual information.

The resulting Requirement Specification Document can be used to make a system design that can be implemented. Or in our case – as a source document for the required functionality of the future system. The entire specification document can be found in ***Appendix VI*** and is consistent with the template as sketched in the Software Requirement Specification recommendations of IEEE Std 830-1998 (SRS organised by feature) (IEEE-830, 1988, p. 23).

2.7. Treatment evaluation

2.7.1. Internal evaluation

A high-level design was discussed with several internal stakeholders to validate the exhaustiveness of both the components as a whole. The validation took place only on a high-level, given the complexity of the system, and the novelty of the actors in the validation.

2.7.2. Case studies

Furthermore, the found high-level components were discussed with several different but comparable organisations as case-studies. The goal of the case study evaluation was to improve the generalizability of the SuD to the entire Business Council / Chamber of Commerce intermediary sector. Therefore we selected our case study on three alternating dimensions, giving us insight and confidence to predict in which regions and by which organisations the design should be function. The dimensions used to select the case study nominees were:

Dimension I. The location in which the BC is active:
- Malaysia,
- Other countries in Asia-Pacific region,
- ~~Other regions~~ (not included in this review)

Dimension II. The home country of its members:
- Netherlands,
- (Countries from) Europe region,
- (Countries from) other regions

[36] In this specification we do not always adhere to a specific platform, programming language and/or data structure normalization guidelines.
[37] Note that theory prescribes a much more detailed analysis of prioritizing requirements. However, as we are desigining the ideal solution for MDBC (which we will not impelement) there is no need to classify the functionality by priority.

Dimension III. The type of organisations:
- Chamber of Commerce,
- Business Council,
- Embassies.

In total, we contacted eight organisations. Of these eight, one was unable to assist us in the given timeframe. Of the seven others, two could only provide a limited set of information via non face-to-face contact. These two, together with five other case studies form the basis of the validation. We cannot claim the system will not work in the regions and cultures other than those investigated via case-study.

2.8. Advice for MDBC

The aim of this section is to answer the Research Question. Which was formulated in *section 1.5: Research question (starting page 7)* surrounding "What is the best software package?" All previous elements in the methodology come together to answer this question. The question is answered by creating a business case for the focal firm MDBC.

Prioritising features: From the Treatment design we extracted what functionality is best suitable to support MDBC's processes. These distinct components are all desired, but resources will most likely prevent us from purchasing an ideal solution. Therefore discussion with the Executive Director yielded a prioritization of the separate components in terms of MoSCoW: "Must have", "Could have", "Would like to have", "Won't have".

Create long list: From the scan of current types of systems we know which types of systems offer which types of functionality, which helped us creating a long list of potentially suitable systems. All 89 found systems from the selected types were added to a long list of viable alternatives.

Filter down to viable long list: The long list was filtered down to 19 potential solutions via investigating several deal-breaker criteria.

Filter down to short list: This viable list was reduced to a short list of 6. We removed systems that lacked certain important components, had a strong focus on SFA (without the holistic view of a contact as MDBC prefers), or inhibited other criteria.

Multi-criteria analysis: A multi-criteria analysis scored each short listed product on several criteria. A non-weighted score differentiated the six solutions. The highest scoring also had fewest negative side notes placed to its functioning.

More details about the search and filtering process can be found in ***Appendix VIII,***

Sub Appendix: Long-list to shortlist and the measures *used*.

For the best suited (and advised) system a Business Case (BC) was written for internal purposes. The BC includes the

- expected costs incurred to execute the plan,
- expected benefits experienced during/after execution,
- limitations of the system,
- risks of the system (implementation),
- organisational impact (of implementation)
- pull out costs

MDBC has –given its organisational size and power structure - two benefits increasing the possibilities for this study. First off, the organisation is small, lowering the organisational impact of a solution implementation. Secondly, a decision of buying a certain product can be made in a very short time span.

2.9. Implement Advice

See the migration timeline in ***Appendix VIII***.

2.10. Validation of Thesis and Advice

See the validation section of this thesis (*Validation of thesis, (page 80, onwards)*) for a structured overview of remarks on the validity of this thesis' methodology, the validity (including generalisation) of the ideal solution, the validity of the given advice and the suitability of the implemented solution. For the validation and discussion regarding the quality of the work we looked at both internal validation (transparency of work methods, consistency of work, tracability, and strictness of deduction) and the external validation (to what extent the found results are applicable to changing contexts).

2.11. Academic value of this thesis

The work of this thesis has resulted in several new insights for literature and the industry of CRM. The academic relevance of this theis is discussed in more detail in *10.3: Academic relevance*.

- We believe our thesis provides an argument to steer research away from up-selling, cross-selling and the sales pipeline and towards xRM/CRM research based on the relationship and interaction. (10.3.1)
- We pose a new conceptual classification of software: Collaborative Social Software. Where collaborative software focusses on teams working on tasks and social software focusses on asynchronous collaboration, we propose a combination of the two. (10.3.2)
- As CRM is not suitable and somewhat tedious for the aims of trade organisations and no fully aligned solutions were found while creating the Business Case for MDBC it appears that there is a niche market with zero competition. (10.3.3)

3. LITERATURE INSIGHTS

Chapter 3 summarises the most important insights as found in the literature review. It only contains subjects that have an impact on the ideal solution for the trade organisation system. The literature therefore focusses on business relationships and business networks. For each subsection, the link to trade organisations is discussed. In Chapter 6, the literature is translated to system insights. Other literature, explaining the methodology decisions, has been included in the methodology section where appropriate.

3.1. Business relationships

A business is part of a marketplace and every marketplace has a social structure. This social structure consists of **actors** and **ties** between these actors. These actors must trust and cooperate with each other. Hence, a firm is linked to other actors in the marketplace. These links, (or ties) between two organisations is what we call the business relationship.

Formally we define a business relationship as

> **Business relationship:** "*a process where two firms or other types of organizations 'form strong and extensive social, economic, service and technical ties over time, with the intent of lowering total costs and/or increasing value, thereby achieving mutual benefit'* " (Ritter, Wilkinson, & Johnston, 2004, pp. 176 cf (Anderson & Narus, 1991, p. 96))

3.1.1. TYPES OF TIES BETWEEN ACTORS

On a structural level we see ties that are **dyadic** in nature (a typical buyer-seller relationship). These ties can be weak or strong. And they can be direct or indirect. The several types of structural dimensions have been illustrated below in *Figure 5*.

Direct ties are ties that link two actors together without an intermediary third actor. **Indirect ties** are ties where a direct tie between the two is absent, yet both are strongly connected to a third actor. The connecting actor is the **bridge** between the two. Several bridges may link the two together, making each a **local bridge**.

Strong ties signal relationships of trust and or obligation (Bian, 1997, p. 369). She continues to describe that in Chinese cultures strong interpersonal relationships are "Guanxi"

- Intimate: "they must know a great deal about each other and share with each other frequently" (Bian, 1997, p. 369). Favours tend to be exchanged.
- Trustworthy: Resulting from prolonged interaction. Partially required as "guarlxi networks are not formally or legally instituted, trust established on this personal level is necessary"
- Reciprocal: There is a moral obligation to return favours or the actor will lose face.

Strongly connected actors have "greater motivation to be of assistance and are typically more easily available" (Krackhardt, Chapter 8: The Strength of Strong Ties: The Importance of Philos in Organisations)

Two actors that are strongly connected should have overlapping social norms (Krackhardt, The ties that torture: Simmelian tie analysis in organizations, 1999, p. 188) as these norms are sets of rules about behaviour against each other to maintain the relationship. As strongly connected actors are more likely to be part of the same clique, their benefits are overlapping, lowering the information benefits of the whole. (Tiwana, 2008, p. 251) states strong ties are associated with redundant knowledge, perspectives, and capabilities.

A large portion of the Malaysian society is of Chinese origin, but the moral obligation to pay back favours is more widespread, including the Indian and Malay races and to some extend also Western culture[38]. A characteristic of interest for trade organisations is that strong ties are more easily available and have greater motivation to help.

[38] Observation from main author from exposure to the main cultures.

Weak ties are “relationships characterized by infrequent interaction or low intimacy” (Bian, 1997, p. 366). Weak ties are often considered to provide better information benefits as they connect the focal actor to different cliques of people. But findings are mixed (Bian, 1997, p. 367) [39].

(Tiwana, 2008, p. 251) states Obstfeld (2005)’s found tension between strong and weak ties. Groups of collaborators with weak ties are often more successful in generating innovative ideas. Whilst strongly tied groups have ‘greater capacity’ to implement the idea.   “No relationship between tie strength and the social status of contacts was observed in a Detroit-area Survey (Marsden and Hurlbert 1988), which implies That strong and weak ties might be equally important in mobilizing social resources.” (Bian, 1997, p. 367)

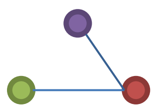
Within MDBCs connections we will encounter both strong and weak links. As the two have different characteristics, they should be managed and utilized in different manners. More is discussed in a separate

The ***bridge*** function is unlikely to persist over time. As both actors are strongly connected to the bridge, the two contacts can and shall meet, creating a weak tie between the two. If the indirect tie is beneficial, it is likely the two indirectly linked actors will create link themselves without the need of the bridge. As a rule of thumb: “No strong tie is a bridge” (Granovetter M. S., 1973, p. 1364).

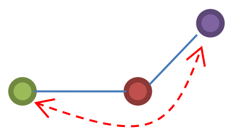
As Mark S. Granovetter explains in ‘The Strength of Weak Ties’ (Granovetter M. , 1983), ties are either strong, weak or absent. Though other classifications of relationship strength exist, this is a simple classification required to frame many other theories (that largely assume networks are based on strong ties only).

Between the actors in a trade organisation’s network links can be absent. Meaning that these forbidden triads exist. Yet, it is part of MDBCs role to bridge and create new ties where beneficial. These new links can become both weak and strong. Beneficial here is the key word, and this depends on how the member-firm utilises the trade organisations’ offerings.

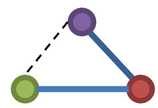
(a) **Dyadic** relationship between two actors; linked via **direct tie**.



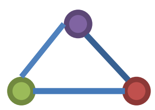
(b) A **triadic** relationship between two actors. Two actors tied together only through a middleman (**bridge**).



(c) **Indirect** tie formed via two direct ties. Will most likely evolve into (d) or (e). This is considered the **forbidden triad**.



(d) **Weak** versus **strong** ties.



(e) A **clique** formed from three strongly tied actors.

FIGURE 5: OVERVIEW OF SEVERAL TYPES OF RELATIONS DESCRIBED IN THIS SECTION

(More on direct and indirect ties in *section 3.2.3: Network effects for business networks (page 39, onwards)).*

[39] Regarding the information benefits of strong vs. weak ties (Bian, 1997, p. 367) - unverified listing of results:
Weak ties have better information benefits: (Granovetter, 1974), (Lin, 1982) and (Lin, 1990), and others.
Strong ties have better information benefits: (Watanabe, 1987), (Bian, 1997), and others.

3.1.2. Evolution of the business relationships with MDBC

According to (Holm, Eriksson, & Johanson, 1999, p. 480) relationships evolve through four steps (1) Business Network Connection, (2) Mutual Commitment, (3) Mutual dependence, (4) Value Creation[40]. Their causal relations have been tested and show that "business network connection has a strong (0.58) effect on mutual commitment. Mutual commitment, in turn, has a strong (0.68) effect on mutual dependence. Finally, mutual dependence has a strong (0.52) effect on relationship value creation." (Holm, Eriksson, & Johanson, 1999, p. 479).

Step		Definition (Holm, Eriksson, & Johanson, 1999, pp. 469-473)	Member ↔ MDBC	Contact ↔ MDBC
	(1) Business Network Connection	Business relationship that exists in a value-creation business network context (p. 469)	Relation between MDBC and member are part of a value-creating business network context (Lowering transaction costs).	Relation between MDBC and non-member contacts are valuable relationships to lower the transaction costs for the member firms.
	(2) Mutual Commitment	Firms (collective actors) interactively increase their commitments to the relationship (cf. Exchange theory) (p. 472)	Members can utilise MDBC's offerings. In turn MDBC utilises the members resources. E.g. Borrowing television screens.	Mutual commitment arises as MDBC in turn helps the relations increase sales and/or achieve other goals
↓	**(3) Mutual dependence**	I.e. the "coordination of interdependent activities in a way that increases the level of joint productivity" (p. 472) E.g. Workflow interdependence.	Mutual dependence grows as the relationship is used more actively.	Mutual dependence grows as the relationship is fruitful and MDBC's members value the connection.
	(4) Value Creation	"the effect of the engagement in the relationship on the joint profitability of the partner firms." (p. 473)	Value is created when both organisations collaborate on differentiated activities.	The relationship increases MDBC' s role as an intermediary and increases the profitability of the partner firm.

This thesis has been scoped and does not investigate if, and/or how the evolution of business relationships must be incorporated in the end result. The above model has been included to educate the reader.

The thesis has been scoped to assume all existing relationships are in the fourth stage (value creation). However, for a dynamic future, it should allow for the creation of new relationships that according to scholars evolve through phases.

3.1.3. Why businesses engage in business relationships

According to (Biggeman & Buttle, 2005, p. cf Ford and McDowell (1999)) the value (of the social capital) of relationships is a sum of more than the financial dimension. "*They propose knowledge transfer, reputational gains, and network access as forms of relationship value*" (Biggeman & Buttle, 2005, p. 2). It therefore comes down to the firm's perceived value of the relationship versus the costs of maintaining/building the relationship. Quantifying the value of, or creating a valid measuring construct for, a business relationship falls out of the scope of this thesis.

There are various reasons for firms to engage in inter-organisational networking relationships (Biggeman & Buttle, 2005, p. 1). However, according to (Ebers, 1997, p. 3) all these motives can be summarized in only two:

- **I.** Co-operation in an attempt to increase their own revenue, I.e.:
  1. Collude against common rivals
  2. Reduce competitions to making competitor allies
  3. Gain access to complementary resources and capabilities
- **II.** Co-operation in an attempt to lower costs, I.e.:
  1. Economies of scale / scope

[40] cf. (Anderson J. H., 1994) we must note that there are many other models and frameworks to help us understand 'working relationships between firms in business markets'. Among them are: (Scanzoni, 1979); "(Anderson and Narus 1990); (Frazier 1983); Anderson and Weitz, 1989); (Hallén, Johanson, and Seyed-Mohamed, 1991). And the here cited (Dwyer, Schurr, and Oh, 1987)" – as found by (Anderson J. H., 1994).

2. Economise governing costs of coordination (e.g. buy know-how)
3. Risk reduction

We partially agree with (Ebers): There are two main arguments for firms to engage in inter-organisational relationships when looking from an economic (transaction cost theory) perspective. However, that does not account for external sources and social influences. Thus there are other arguments of why firms establish inter-organizational relationships with each other. (Ebers, 1997, p. 3) shows us that Oliver (1990) proposed six predictive contingencies of inter-organisational relationship formation (Freely cited based on (Ebers, 1997, p. 3) cf. (Oliver, 1990)):

(1) ***necessity****, when organisations are mandated through law or regulation by higher authorities to establish relationships;*

(2) ***asymmetry*** *that allows one party to exercise power or control over another one or its resources;*

(3) ***reciprocity****, when through co-operation organisations can pursue common or mutually beneficial goals or interests;*

(4) ***efficiency****, when through co-operation organisations can achieve higher input/output ratios;*

(5) ***stability****, when through co-operation organisations can better forestall, forecast, or absorb uncertainty affecting their activities; and*

(6) ***legitimacy****, when through co-operation organisations can establish or enhance their reputation, image, prestige, or congruence with prevailing norms.*

Understanding why a contact is (and wants to be) part of your network in forms of internal and external factors gives MDBC a better understanding of how to utilise and maintain its relationship.

3.1.4. Dimensions of a relationship

(Holmlund & Törnroos, 1997, pp. 2-3) studied ***the overall nature of relationships***, and categorised them into 5 main dimensions. For each dimension they found several indicators, followed by one or multiple measures per indicator. The five main dimensions are: *mutuality* of the relationship in terms of symmetrically, power-dependence and resource dependency between the actors. *Long-term character* of the relationship in terms of continuation[41] and strength against disruptions in the network. *Process nature* of the relationship in terms of frequency, dynamics and potential of the cooperation. And *Context dependence* in terms of how this relationship and other relationships potentially influence each other. Also see the table below:
In a triad two or three relationships must be considered simultaneously to understand the triad-relation.

Dimension of relationship	Indicator	Measures
Mutuality	**Degree of mutuality**	Trust, Commitment, Conflict Resolution
	Symmetrically	Power to influence in the relationship (Balanced vs. dominant)
	Power-dependence structure	Relative organisation size (Symmetrical/Asymmetrical)
	Resource dependency	Complementary of the organisation (resources, skills, dependencies on network)
Long-term character	**Continuation**	Effectiveness over time, Evolution of the relationship, Past influences on the relationship.
	Strength	Resistance to disruptions in the network – *should increase as partners learn how to work together and are influences by switching costs*.
Process nature	**Exchange interactions**	Multitude of exchanges, Process adaptions made over time, Content of the exchange (products, money, social contacts or

41 “Continuation might also be a competitive tool where the manifestation of relationships forms a specific asset and creates entry barriers for competitors.” (Holmlund & Törnroos, 1997, p. 3)

		information)
	Dynamics	Relationships are characterized by change
	Use-potential	Relationships are valuable as they provide access to resources
Context dependence	**Embeddedness**	Changes in one relationship will influence other relationships the firm has.

TABLE 9 SUMMARY OF THE RELATIONAL DIMENSIONS OF BUSINESS RELATIONSHIPS AS FOUND BY (HOLMLUND & TÖRNROOS, 1997, PP. 2-3)

These dimensions, indicators and measures give insight into the type of relationship a contact or member has with the trade organisation. A subset Is relevant for employees of the trade organisations to judge how the relationship is most productively used.

3.1.5. THREE ISSUES RELATED TO CLASSIFYING TIES: TEMPORARINESS, EMBEDDEDNESS, DYNAMIC

The problem with classifying relationships giving the triadic permutation method or the relational dimensions of business relations (or for any other method of classifying relationships for that matter) is two sided. Relationships change over time and relationships are intertwined. Thirdly we discuss the dynamic on-going nature of relationships.

RELATIONSHIPS CHANGE OVER TIME

Business relations change over time. E.g. "*In the real world the interacting firms continuously structure and restructure their business networks and the corresponding workflow interdependencies*" (Holm, Eriksson, & Johanson, 1999, p. 481).

Though this assignment is scoped to assume relationships stable over the time of this project, we cannot assume that relationships will not change in the time afterwards. There is a contact turnover in multiple ways as discussed in (Holm, Eriksson, & Johanson, 1999, p. 481). This, in its own, is part of why implicit knowledge sharing is of importance to MDBC.

Contacts working at member firms can change careers, creating a new link between MDBC and a potential member firm. The same goes for non-member contacts: People working in these organisations will have a career path. The higher in the organisation the contact is positioned, the more valuable (in general terms) the contact is for MDBC. Note that a high ranking official is not always the person that gets things done, but is the one that gives support to the relationship[42].

RELATIONSHIPS ARE INTERTWINED

Business relations are intertwined (or 'embedded'). E.g. "*In exchange network theory, two exchange relations are said to be connected if exchange in one is contingent on exchange in the other*" (Holm, Eriksson, & Johanson, 1999, p. 481). Theoretical insights vary: From (Blankenburg Holm, Erikson, & Johanson, 1999, p. 473), stating "*Although business relationships are distinctive entities that can be analysed in isolation, they can be better understood if looked at in context.*" – to (Granoveter, 1985) and (Grabher, 1993) claiming relationships are always interdependent with other relations in the business network. (Johannisson, Ramírez-Pasillas, & Karlsson, 2002) explain that the notion of embeddedness in literature is used in two main ways (p. 297):

a) **Structural embeddedness**
"the structure of relations that tie economic actors together"
b) **Substantive embeddedness**
"the social strands supplementing economic strands in each relation"

Intertwined relations (structural embeddedness)

Scholars commonly see relationships as intertwined and this is a notion that is also present in MDBCs network.

Because of the size of a trade organisations network, it becomes more interesting for third parties that see the member base as their clientele. For example, AmCham sees that many local Malaysian firms want to become members to promote and network their organisation (E.g. relocation; Marketing; Recruitment) to potential U.S. firms. When more members with the same aim join the member base their relationships with MDBC start to effect each other. For

[42] Observation during the organisation of events. When multiple contacts are available in an organisation, often it is not the highest ranking but a mid-management official that can honour MDBC's request. Sometimes after higher approval.

example, a relocation service will see other relocation services as competitors fishing in the same pool of potential clients.

In MDBC's matchmaking services it links two contacts to each other, in effect creating a relationship between the two. The creation of the link will make both contact-MDBC links stronger as they have used the intermediary successfully.

Collective actor (structural embeddedness results in substansive embeddedness)

Though legally speaking there is a contract between MDBC and a member firm (structural embeddedness), in practise a set of social ties is used to communicate between the two (substansive embeddedness). A subset of the organisation's employees is invited and involved in MDBC events, receives MDBC mailings, etcetera. The same goes for non-member contact firms: in larger organisations MDBC maintains contacts with a few key employees.

This phenomenon can be explained by viewing firms as a collective actors, created by (amongst others), employees, hierarchy, formal procedures, social norms and roles. This review does not look into the specifics behind collective actors.

Relationships are dynamic and on-going

<u>*Third*</u> - In 1987 Dwyer et al. (Dwyer, 1987) argued that buyer-seller relations are not discrete (as most scholars of the time assumed) but are instead on going. Each *"transaction must be viewed in terms of its history and its anticipated future"* (Dwyer, 1987, p. 12); cf. (Macneil, 1978); (Macneil, 1980). In essence saying that all transactions of a customer are related to all previous and future transactions. Relationships change over time in both relational and structural dimensions. For example, structurally links can become stronger/weaker

'I owe you one' – often heard after one friend performed a favour to another. Apparently, doing something today entitles you to ask for a comparable favour in the future.

The same goes for business networks. Though the study focusses more on previous and future purchase orders we believe it can be interpreted in a broader sense. But dynamics also have a downside. A bad experience will lower the strength of the relationship. The history of interaction experiences is a determinant for the anticipated future.

3.2. Business networks: The interdependent view

Traditionally firms have tried to lower transaction costs between themselves and buyers/suppliers. However, "*we seem to be entering an era where traditional markets are being replaced by networks of interrelated*" (Moller & Halinen, 1999, p. 414). Next to an increase in the number of alliances, joint-ventures and other partnerships we also see the development of horizontal relationships of commercial firms with non-commercial actors (including governmental agencies, research and social institutions and universities (Moller & Halinen, 1999, p. 415). As firms collaborate and interact with more entities from its environment we must also switch from looking at separate relations to investigating a business network as a whole.

We define a **business network** as a set of two or more connected business relationships. Here connected means the extent to which exchange and/or non-exchange in one connection influences another relationship. Or, more specifically, it is a move from looking at ***atomised relationships*** to an ***interdependent view***.

The increase in cooperation/collaboration with actors in a firm's environment also influences the firm's behaviour and the behaviour of the network as a whole: "*Network theories suggest that a specific firm's behaviour is primarily controlled by its relationships with other firms rather than by internal firm factors or external factors such as markets for supply and demand. The behaviour of the whole network, in turn, is controlled by its specific pattern of interrelated firms*" (Campbell & Wilson, 1996, p. 6).

3.2.1. From a dyadic relationship to triad relationships

When conceptualising dyadic business relations there is a risk of "dyadic atomization" (Anderson J. H., 1994): where the relationship between a pair of firms is explored outside their embedded context. While much research focuses on dyadic relationships – several claim dyads do not capture the essence of a network (E.g. (Burt, 2000) and (Granoveter, 1985), and cf. (Anderson J. H., 1994, p. 3)'s primary and secondary functions).

They do not capture the essence of a network as two types of effects must be captured to grasp embedded context of the network. "Primary [effects] are effects on interaction in a focal dyadic relationship, secondary are effects caused by other direct/indirect relationships. Every relationship need to be viewed as being part of a network and the firm's identity lies in the network through relationships" (Anderson J. H., 1994). As a dyad only consists of two actors, inherently when looking at dyads one does not look at the effects on other relationships. Triads do look at the effects of a relationship on a second relationship. By looking at all triads with consisting of at least the dyad we can investigate the interdependence of the dyad with the business network. Dyads are therefore less suitable to look at relationships within a business network context then triads.

A dyadic relationship between two actors differs fundamentally from triads on three grounds (Krackhardt, The ties that torture: Simmelian tie analysis in organizations, 1999, pp. 185, cf. (Simmel, 1950)).

1. Relatively to triads, dyads preserve the individualism of both actors. In a dyad no majority can be formed to outvote/outcast an individual. In a strongly connected triad (or larger group) a minority can be outvoted. Hence in a triad the actors are more likely to suppress their own interests in favour of the group interests.
2. Within a dyad the individual has more bargaining power, then when opposed with multiple partners (e.g. a triad). The effect of one partner dissolving a dyadic relationship may seem radical, but in the context of a network the effects could be less or negligible.
3. Within a dyad the risk of conflict escalating is larger than in a triad where the third actor can mediate between all parties. Conflicts in groups tend to be more moderate.

Trade organisations' offerings are largely based on utilisation of their business network. As dyadic relationships do not cover the embedded context of a business relationship, we must look at using business relationship triads. When documenting interactions or delivered services, several actors may be involved or affected. Making the interaction of interest for more than two actors.

Trade organisations are intermediaries. Changes in ties have an effect on the 'value' of the trade organisations business network and offerings.

3.2.2. Cooperation with the actors around a focal firm: Organisational boundaries are context dependent

(Moller & Halinen, 1999) showed that there are several ways an organisation can cooperate with actors around itself. A focal firm can chose for vertical integration; partnerships with suppliers and customers and distributors. Or for horizontal integration; alliances with competitors or cooperative alliances with agencies and institutions.

"*Supply chains are defined as a set of sequential, vertically organized transactions representing successive stages of value creation. The literature on supply chain analysis (SCA) suggests vertical interdependencies require a systemic understanding of resource allocation and information flow between firms engaged in sequential stages of production*" (Lazzarini, Chaddad, & Cook, 2001, p. 7). Horizontal versus vertical cooperation is also depicted in *Figure 6*.

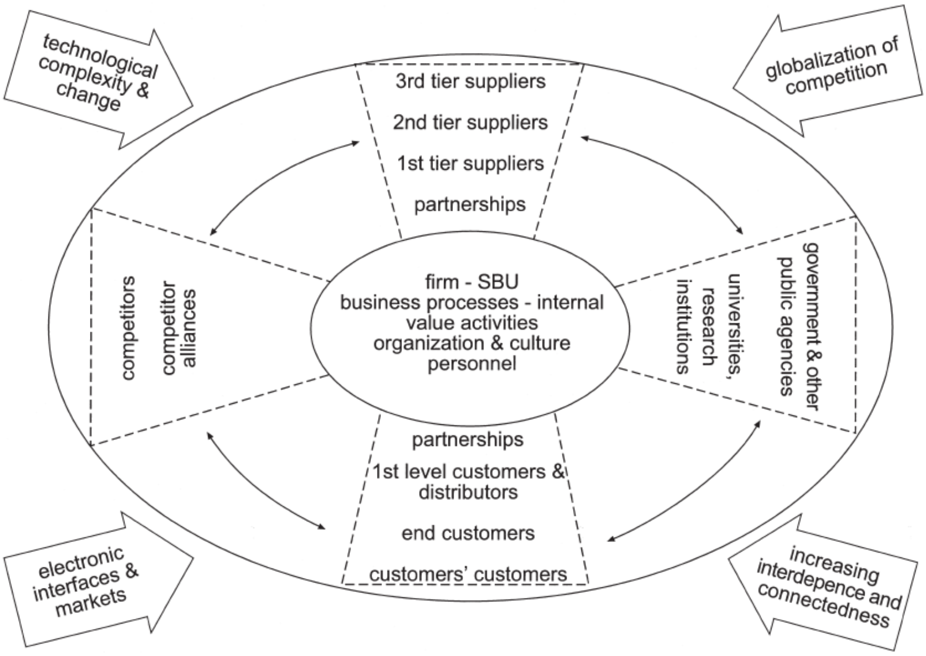


FIGURE 6: BUSINESS RELATIONSHIPS AND NETWORKS – A FOCAL FIRM PERSPECTIVE (FROM (MOLLER & HALINEN, 1999, P. 3))

Though most trade organisations are not involved in a production setting with customers, distributors and suppliers, it is highly partnered with competitors, complementors, research institutes etcetera. This model was included to illustrate the common organisational boundaries in most commercial firms. The following section will discuss the active organisational context for trade organisations.

Boundaries of firms get blurred as firms rely more on external cooperation. The firm can become a "*dense collection of communication links within a larger network through which there is continuous knowledge flow*" (Ozman, 2009, p. 42). This implies that we must re-determine where to place the organisational boundary.

Conform (Hakansson & Snehota, 2006, p. 261) we acknowledge that the firm's identity –especially in the case of MDBC- is derived from much more than just its 'environment' of direct interactions. The "*(inter)dependence of an organization on other entities makes it difficult to disconnect the organization from its network, since a business organization without its interactive environment loses its identity. It is therefore useful to adopt the concept of the 'context' of an organization rather than its environment, when we want to refer to the entities that are related to the organization*" (Hakansson & Snehota, 2006, p. 261).

This is broader as is common in the strategy management doctrine, which intends to include only those resources and activities that be *controlled* by the organisation into '*the boundaries of the organisation*' and the conventional view that boundaries are given by the '*hierarchical control of resources*' via proprietary or contractual rights (Hakansson & Snehota, 2006, p. 262).

We therefore chose to use the following definitions of the organizing context:

"`The organizing context` *is a collectively enacted environment where the firms interactively co-create, i.e. socially construct and actuali[s]e, their own development conditions*." (Johannisson, Ramírez-Pasillas, & Karlsson, 2002, p. 299) In our literature analysis we found this includes competitors, suppliers, customers, complementors and other types of partners. But can also include –if they can be influenced systematically by the focal firms- government institutions, social clubs and economic institutions.

The `enacted environment` is an even larger set of firms and includes all firms from the organising context and adds those relevant to the development of the firm that it cannot systematically influence. (Johannisson, Ramírez-Pasillas, & Karlsson, 2002, p. 299)

"`Surroundings` reflect the existence of an environment not (yet) known to, or imagined by, the firm(s)" – (Johannisson, Ramírez-Pasillas, & Karlsson, 2002, p. 299).

Together with the insights of (Johannisson, Ramírez-Pasillas, & Karlsson, 2002, p. 299), we show the following overview of environmental terms:

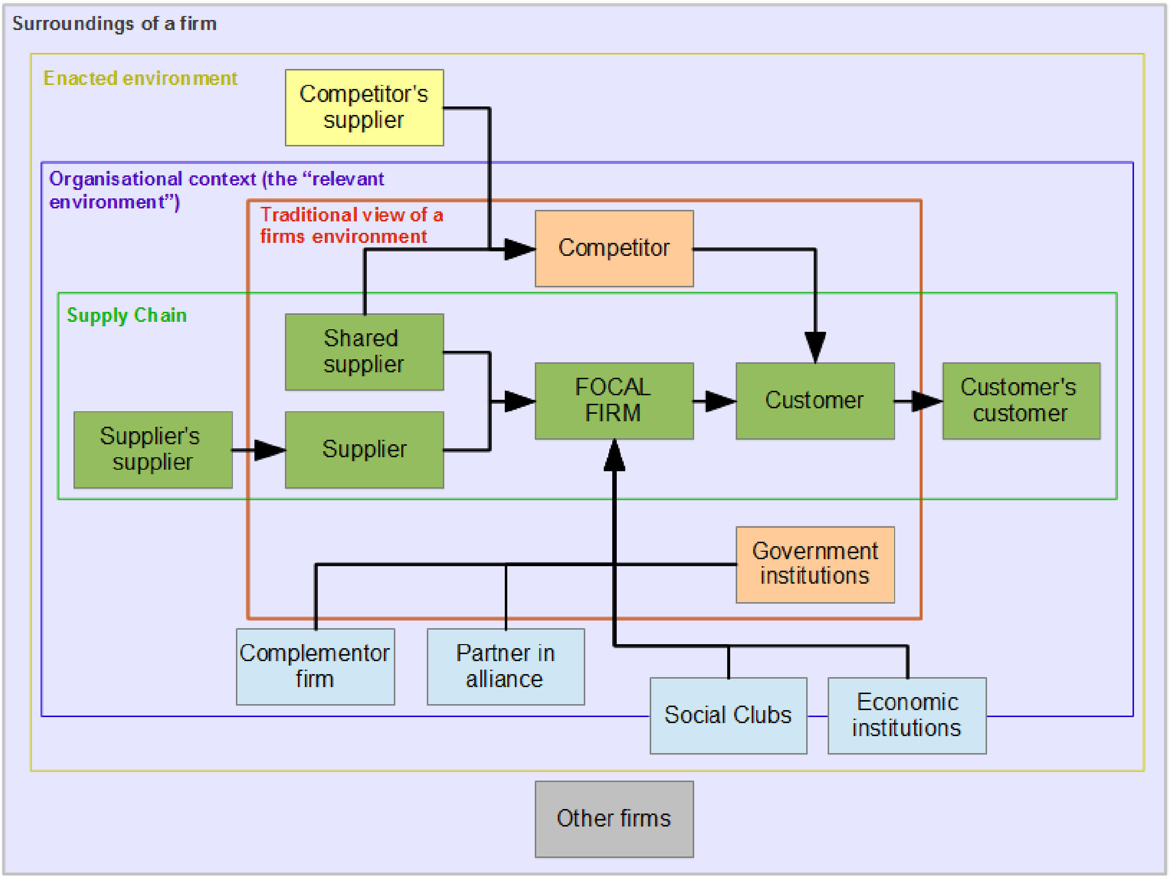


FIGURE 7: SCHEMATIC OVERVIEW SHOWING DIFFERENT DEFINITIONS OF THE ORGANISATIONAL BOUNDARY.

The above figure illustrates the organisational boundary for trade organisations is much broader than the traditional view of a firm's environment. Yet it is more horizontally tied to justify a classical value chain analysis of the environment. To create a view of the relevant actors within the business network of a trade organisations we must look at the ***organizing context***-level. . Including the supply chain, competitors, government institutions, complementors, partners, social clubs and economic institutions. We will not model indirect links to 2nd their connections such as our competitor's suppliers. While excluding other firms and firms it cannot (directly) influence as there is no existing tie.

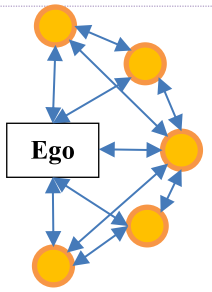
However, where no connection currently exist, one might evolve in the future, or might have existed in the past.

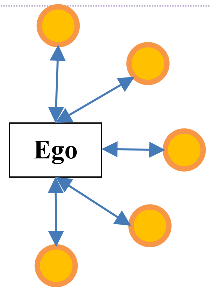
3.2.3. NETWORK EFFECTS FOR BUSINESS NETWORKS

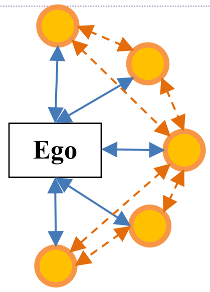
Within a network several effects can occur. Several will be discussed in this section but many more exist. Network effects can be both positive as negative for the business network and/or the focal firm (ego actor). The following sections will discuss dense/sparse networks, Metcalfe's law, costs & benefits of maintaining relationships and Dunbar's number of the maximum social network size. These notions provide us with a better understanding of what happens in MDBC's network – as is explained after each subsection.

DENSE AND SPARSE NETWORKS

Dense networks are categorised by having many direct links. Sparse networks are characterised by having many indirect links. Views on which settings is more productive differs: "According to one view, densely embedded networks […] are facilitative for ego" whereas an alternative view shows "social structural advantages" by an open (sparse) structure. (Ahuja, 2000, p. 425). In the table below a few characteristics are depicted:







(a) Redundancy (by cohe-sion) in a **dense** network.	(b) **Sparse** network for the same costs to the Ego.	(c) Intermediary form with weak ties.	Materials
Large costs to maintain all relationships	Lower costs for the whole, same for the Ego.		(Burt, 2000)
Good to implement ideas, less innovative.	Good for innovation, less productive in implementations.	*Balance between the two depends on context.*	(Bian, 1997)
Clique that must have overlapping social norms.	Allows conflicting social norms		(Krackhardt, The ties that torture: Simmelian tie analysis in organizations, 1999)
Resembles the clique of trade organisation's members base	Resembles the Baligh-Richartz effect for the network of non-member contacts of the trade organisation.		For the trade organisation

The effects of the described density or scarcity of the network on the thesis and CRM are considered low. The effects of structural holes, simmelian ties and cliques have been omitted from this thesis for the same reason. The theory above has been embedded to give the reader a slightly broader context of business network possibilities from the Ego context.

Shapiro and Varian's notion of (positive) feedback loops (Shapiro & Varian, 1999)

The first discussed aspect of networks is the existence of feedback loops. (Shapiro & Varian, 1999, pp. 174-180) explained that networks can be of strategic importance of the firm: By creating Positive Feedback loops organisations can create high-value networks (and hopefully lock-in customers or suppliers). Positive Feedback will make stronger firms stronger and weaker firms weaker. Creating Positive Feedback loops is especially of interest when the value of a network depends on the number of people already connected to it (Shapiro & Varian, 1999, p. 174).

For example look at Social Networking Sites. They are worth little when only 10 users are connected. More when a 1000 users are connected and a lot more with 1.000.000+ users connected to the site. This creates a positive feedback loop: people want to be a user of the largest site as it gives them the most benefits, hence making the strongest stronger and the others weaker. The value of such a network is often explained with Metcalfe's law as the square of the number of users (Shapiro & Varian, 1999, p. 184).

These loops are not present in all organisations and industries. But in some ways they must be present for trade organisations and intermediaries. A larger member network will increase transaction volumes and frequencies. In turn lowering prices and increasing the trade organisations' power position thus strengthening their competitive position.

A larger member network also increases the power position of the trade organisations and the individual members – which may be exploited as 'bargaining power' against (semi-)governmental.

For members a larger network of contacts will provide them with more potential matchmaking opportunities and information benefits. Also see Burt's notion on structural holes.

Positive feedback loops also have a negative side. If a trade organisation's contact and/or member base does not reach a critical mass (or falls below it) the offered benefits might not outweigh the upkeep costs of the intermediary functions. When the intermediary falls towards the negative side of the 'Vicious cycle' it will lose the battle.

However, the 'Virtuous' cycle - at the other end of the spectrum – is beneficial for the existing intermediaries. A successful larger network of connected members will create a customer lock-in. This can inhibit firms from joining a competitor trade organisation and/or inhibits start-ups from entering the market space.

METCALFE'S NETWORK EFFECT AND LAW OF EXPONENTIAL CONNECTION GROWTH

"The network effect describes the value of a service to a user that arises from the number of people using the service. At its core, it captures that value increases as the number of users increases, because the potential links increase for every user as a new person joins. This is best quantified by what has come to be known as Metcalfe's Law. [..] Metcalfe hypothesized that while the cost of the network grew linearly with the number of connections, the value was proportional to the square of the number of users." (Hendler & Golbeck, 2008, p. 14). This is illustrated via the image below, showing the number of connections between telephones increases exponentially whilst the number of phones only increases linearly.

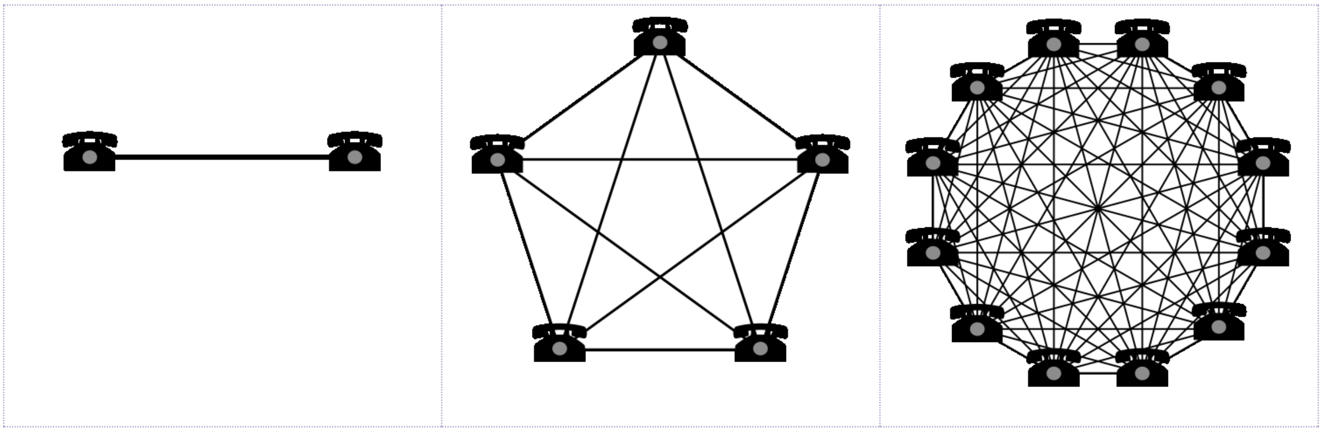


FIGURE 8: METCALFE'S NETWORK EFFECT, IMAGE COURTESY OF WIKIPEDIA[43]

Discussions around 2006 suggest that value in a network does not growth exponentially, but logarithmic. The argument is that not all connections are of equal value. Neither formula has been tested in practice, but the existence of network effects is accepted as real (Hendler & Golbeck, 2008, p. 15). Other network effect utility calculations include (this list I not exhaustive as measuring and improving network utility is not the end-goal of this thesis) (Reed, 1999):

- *Sarnoff's law*, that sees the utility of a one-to-many broadcast network as linear.
- *Reed's law*, that predicts that the utility that can be achieved from a network also increases exponentially. Not only does the number of connections increase, also the number of possible subset increases exponentially. However, several scholars disagree on his simple calculation method ((Reed's Law), cf. (Reed, 1999)).

There are other factors (such as saturation) that will limit the growth of the perceived value of this utility (Reed, 1999, p. "real" networks).

Independent of the actual costs of maintenance and benefits of utilisation, it is clear that a network with more actors increases its value by more than one node as the amount of connections increases. Trade organisations are intermediaries and thus try to streamline the creation of these connections using the Baligh-Richartz effect.

When a new contact is added to the network of the trade organisation not all firms should create a connection with the new node, only the trade organisation invests to build the relationship. Thus keeping the network sparse (lowering costs for all participants). Its members can then utilise this relationship on the trade organisations behalf. The sparse network yields innovative and information benefits.

When the new node is a member firm, more firms will form a direct relationship with the new node as members amongst themselves may have more in common than the other contacts. Such as operating in the same territories, language benefits and expatriate experiences regarding standard operating procedures and laws. Creating this denser network yields relationships with organisations that may help you with favours in the future.

43 Image URL, published under Creative-Commons ZERO: http://en.wikipedia.org/wiki/File:Metcalfe-Network-Effect.svg , author Woody993.

COSTS OF MAINTAINING RELATIONSHIPS
This social network the actor has built around him is his **social capital** – and social capital brings benefits (Burt, 2000, p. 281). But building and maintaining relationships is not free. Relationships are the result of investment of time and financial resources. Furthermore developing strong relationships takes time and effort (Moller & Halinen, 1999, p. 423).

In most networks, the costs of participating in that network increases as that network increases in size. In essence because every single relationship must be maintained through investments of resources (time, money, …). A further analysis of how these costs behave in growing networks falls outside of the scope of this review. (I.e. See Connected-Graph-Squaring-Problem and/or Transaction Cost Economics within the context of business networks.). It is our hope and ambition to keep these costs to a minimum or, alternatively, increasing the value of each link.

DUNBAR'S MAXIMUM NUMBER OF STABLE MAINTAINABLE RELATIONSHIPS – LIMITS ACHIEVABLE UTILITY
Dunbar argues that there is a ceiling of the number of relationships an individual can stably maintain. For humans, this number is expected to lay around 150 relationships (Bialik, 2007, pp. cf. Dunbar, R.; 1993)[44]. However, this number is the amount of maintainable contacts for humans without electronic aids – and humans have developed technological aids to surpass other physical limitations as well: E.g. speeds via bicycles and the ability to process information. "It's perfectly possible that the technology will increase your memory capacity," Dunbar said to (Bialik) in an interview.

Trade organisations are relatively small organisations with a few employees that manage the organisation and its business network. Therefore we can assume these employees are affected by Dunbar's number limiting the amount of maintainable contacts in their business network. Luckily Dunbar keeps open the possibility of technological advancements to increase the amount of maintainable contacts. Most likely this can be done by lowering the physical impact of maintaining cognitive data about each relationship.

3.3. Relevance

In the above chapter we summarised several topics related to business relationships and business networks. This review gives us insight in how and why relationships and networks exist, their potential and their weaknesses. Each subsection summarises the found results and continues to explain the impact it could have on trade organisations such as MDBC. The found results are incorporated in *Chapter 6: Treatment Design - of the ideal solution*. And also offer a framework for *Chapter 8: Results for Malaysian Dutch Business Council*.

[44] "This limit was derived by extrapolating from social groups in nonhuman primates and then crediting people with greater cAPECity because of our larger neocortex, the part of the brain used for conscious thought and language." (Bialik, 2007, pp. cf. Dunbar, R.; 1993)

4. SURVEY SHOWS 'TYPICAL CRM' UNSUITABLE FOR SET OF SCENARIOS

In Chapter 4, we review several 'typical CRM' systems' suitability for a set of scenarios. The data is recovered via a questionnaire. Although the result is not statistically significant (*n-respondents* is too small for thorough statistical analysis), we do see qualitative signs that show that CRM systems are indeed not the best choice.

This survey is a cornerstone of the thesis in two ways – which is related to the explanation of the problem in *Section 1.3: Problem diagnosis*:

- *First of all*, the initial question that MDBC posed to the author was regarding implementing CRM in a trade organisation for better managing their business network. During the project several high ranking officials within MDBC also questioned if we could just install a certain off the shelf CRM system.
- *Secondly*, both the author as MDBC questioned the suitability of 'typical CRM' systems for trade organisations such as MDBC.

The analaysis of these 9 CRM types does not give an exhaustive elimination of all CRM systems but does show general unsuitability. Furthermore, if a trade organisation questions wether or not to use a certain CRM they can build upon the scenario analysis as used in this questionnaire. Results of this chapter are further explaned with the literature review on CRM in the next chapter.

4.1. Format of the questionnaire

4.1.1. SHORTLISTED PRODUCT LINES

From several sources we created a subset of systems that represent the field of current CRM solutions. It includes both standalone as SaaS solutions, both new brands as traditional brands, and they are referenced on the internet as the best of breed systems. The analysis (in *Appendix III: Detailed table of selecting a popular CRM product subset (page - 24 -)*) resulted in the list as presented in *Table 10 (below)*:

No.	Vendor	Product line	#customers	#users	Revenue	Specifications	Demo
1.	SalesForce	SalesForce.com	100.000 [2]		2.1B [1]	Platform: SaaS[45] Self-proclaimed largest vendor	Yes
2.	Microsoft	Dynamics CRM	33.000 [1]	2.25M [3]	2.5B [2]	Platform: SaaS	Yes
3.	SAP	Business By Design	30.000 [1]	2M [2]		Platform: SaaS	No
4.	SugarCRM	SugarCRM	7.000 [2]	500K+ [2]		Platform: SaaS	Yes
5.	Sage	SageCRM	63.000 [4]	3.1M [4]		Platform: SaaS	Yes
6.	Oracle	CRM On Demand	5.000+ [5]	5M+ [5]		Platform: SaaS	No
7.	LeadMaster	Leadmaster CRM				Platform: SaaS	Yes
8.	Oracle	Siebel Sales (not On Demand)				Platform: On Premise Hosting[46]	No
9.	Zoho	Zoho CRM				Platform: SaaS	Yes

[1] http://www.sfdcstatic.com/assets/pdf/investors/AnnualReport.pdf

[2] http://www.zdnet.com/the-best-crm-suite-1339324237/

[3] http://www.microsoft.com/en-us/news/press/2012/mar12/03-19Convergence2012PR.aspx

[4] http://www.sage.co.uk/crm

[5] http://www.crmsearch.com/oracle-crm-review.php

TABLE 10: SUMMARY OF SELECTED CRM SYSTEMS FOR QUESTIONNAIRE – RESULTS OF TABLE 26 **(ON PAGE - 25 -). EXTENDED WITH FINANCIAL INFORMATION IF AVAILABLE.**

All packages were explored as the basic account version without enabling plugins or purchasing upgrades.

[45] SaaS stands for "Software as a Service", these systems are often web-based and do not require installation or inhouse housing. Customers pay via a subscription business model.

[46] Customers host this application themselves on inhouse servers. This is called On Premise Hosting.

4.1.2. Scenarios used to test the products

With the help of six designed scenario's we asked multiple respondents to evaluate the suitability of the system. These scenarios were formulated prior to finishing the offerings-analysis as embedded in *Appendix V: MDBC's Offerings & value proposition (page - 49 -, onwards)*. A summary of the scenario's is given in the table below, followed by an evaluation of the used scenario's versus the found tasks and offerings within MDBC in the paragraphs to follow.

Summary of the used scenario's

S#	Scenario name	Summary	Alignment with MDBC
S1.	PenCorp manufacturing	Customer requests call back from sales representative via colleague. Insert communications log and attach the to-do item,	**Partially aligns.** Observations of day-to-day activities
S2.	Oil and Gas TradeAssoc	Trade association matchmaking between two member firms.	**Aligns.** Membership administration & Matching and networking services.
S3.	Regionally active TradeAssoc	Trade association link firm with member firm employee via the network from your colleague.	**Aligns.** Matching and networking services.
S4.	Administrating a conference	Administrate guest list for event organising.	**Aligns subset.** Organising exhibitions and events
S5.	Use of local contacts	Trade association matchmaking of member with non-member contact	**Aligns subset**. Matching and networking services.
S6.	TradeAssoc becomes a recruitment agency	Matchmaking between job-seekers and job opportunities of members and administrating communications.	**Partially aligns.** Internship program

Table 11: Summary of the scenario's used in the questionnaire

Cross-reference evaluation of the six scenarios with the grouping of 46 common tasks in MDBC *(See Appendix V > Summary of found offerings and tasks within MDBC (page - 49 -))* have resulted in three absent elements. These conflicts with the results of the questionnaire in only one direction: Programs passing the scenario review with flying colours could still fail to accomplish the tasks of the missing three elements. The validity of lower scoring product lines is not affected.

These are, *firstly* MDBC's member-4-member-card program; these cards are in circulation but the discount program is not actively updated with recent discounts and opportunities. *Second*, representation and using MDBCs bargaining position is not covered by these scenarios. And *third*, its information booklets are not cored in terms of distribution and creation.

Additionally two elements are underspecified in the scenarios. For these two elements the scenario sketched too simplified world of required tasks. Once again this does not reduce the validity of low scoring product lines but it questions the validity of the measure for high-scoring product lines. These elements are *first off*, the internship program where more functions are required besides the matchmaking of a job-seeker with a job-opportunity. For example the coordination of visa applications. And *furthermore*, the membership management functions where the scenario only asks to export a list, ignoring its maintenance and corresponding payments and required information fields.

4.1.3. Measured dimensions

For each scenario we measured the suitability of the system for the tasks related to that scenario. For some tasks we also measured the tediousness of the task, and/or the ability of that particular system to perform the task itself. Based on these three dimensions we might be able to reject the opposing hypothesis (*See Table 5 from the methodology section for more details*).

4.2. Survey results

Only 15 people participated in this survey making statistical analysis unsuitable. However, we believe statistical analysis is not needed in this case. We are not examining correlations or relations but are interested in the functioning of a system. Though the measures are somewhat subjective, they are rooted in the expertise of the respondent making this a qualitative study. Our respondents are all Western-cultured IT-savvy students. The respondents study Business, IT or Mathematical courses and have obtained sufficient credits to be considered experts. As University students their judgement should be objective and the students are by far more qualified to operate the system then its average user. Therefore we have no reason to question the integrity of the results.

For the questionnaire we use on their objective expertise to judge

(a) If the system is **suitable** for the applicable scenario's;
(b) If the system is **tedious** in its use;
(c) If the system is **able** to perform day to day tasks.

Furthermore most of the participants had no prior experience with the system and are therefore not biased in their judgement though they will require slightly more time to explore the systems' features then an experienced user. A full review of the results can be found in *Appendix III: CRM Suitability survey (page - 29 - and onwards),* and the most relevant results will be presented and discussed in the subsection that follows.

4.2.1. Traditional CRM is not suitable for the scenarios

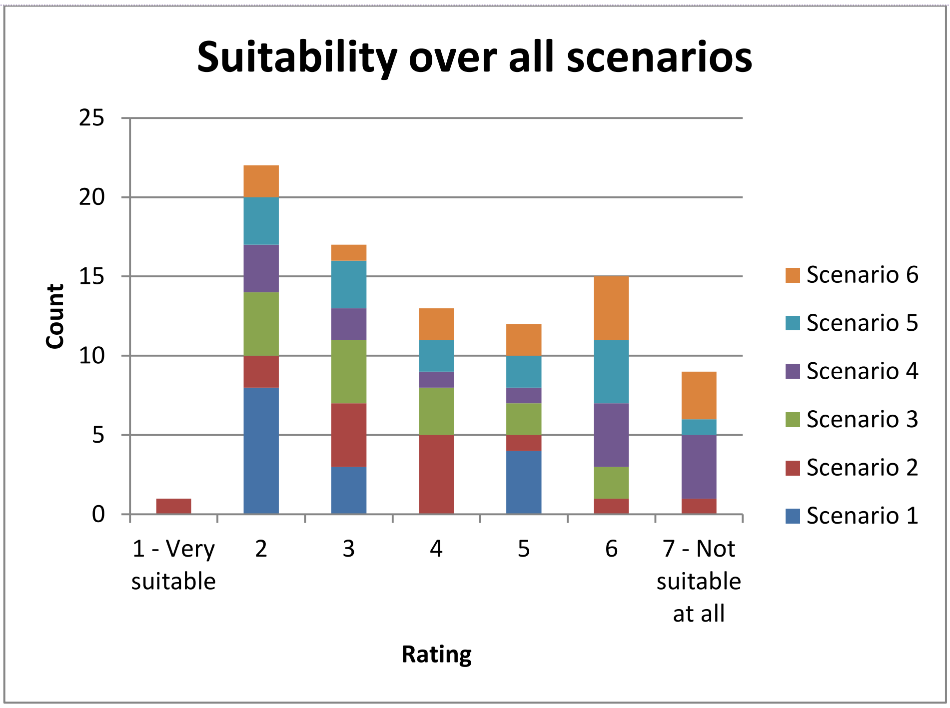


Figure 9a: Aggregated results (over all scenarios)

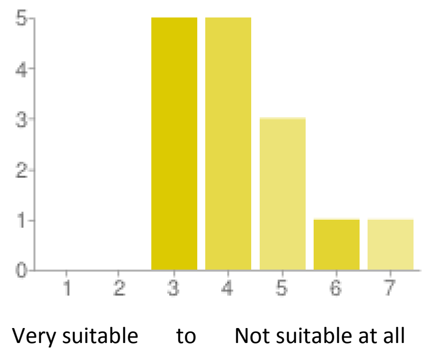
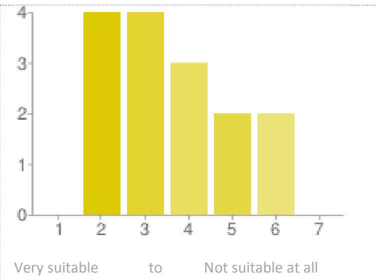
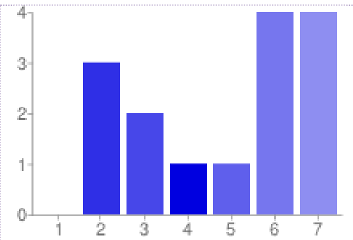


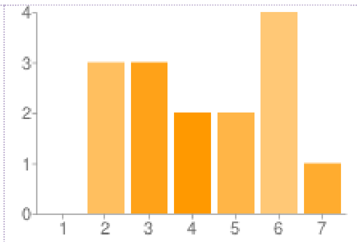
Figure 9b: Closing remarks question for "over-all suitability" of the product (results of one question)

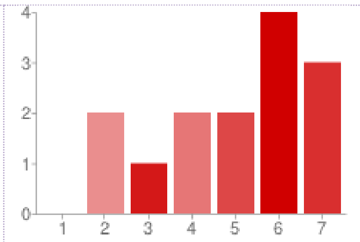
Figure 9: Perceived suitability of product for the scenarios

Over all scenario's we see that the system is 'averagely suited' for all scenario's. But, when we discard the scenario's 1 and 2 as they have a typical buyer-seller relationship focus and only look at the last four scenario's, this image shifts towards the negative side:









S3. Regionally active trade association	**S4. Administrating a conference**	**S5. Local contacts**	**S6. Recruitment agency**
The respondents classify the products towards a relatively positive suitability average. Not convincing that the products are indeed strongly suited for the tasks.	Responses diverge. Some see the product towards the positive; others rate it at the far negative spectrum of suitability. Suggesting non-suitability for most of the	Non-conclusive results over all products.	Classifications lean towards the stronger negative end of the spectrum. Suggesting non-suitability for most selected products.

	selected products.		

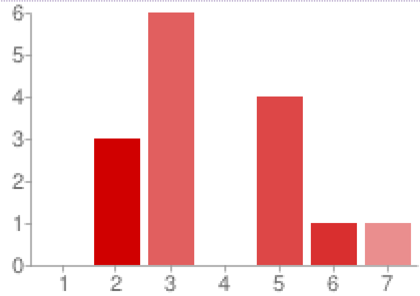
FIGURE 9C: OVERVIEW OF SUITABILITY OF SCENARIO'S 3 TO 6. [1: VERY SUITABLE; 7: NOT SUITABLE AT ALL]

The unsuitability of the CRM-products on one scenario directly influences it suitability of the entire product for MDBC as none of the scenarios have been classified as obsolete for MDBC's situation. We see this in scenario S6 which is strengthened further by S4. The apparent averaged suitability over all scenarios is not relevant as a mitigating factor. A claim that is strengthened by the overall suitability scores given by the respondents (See Figure 9b). ***Therefore we deem the CRM sector unsuitable.***

4.2.2. TEDIOUS INTERFACES WITH PRODUCTS

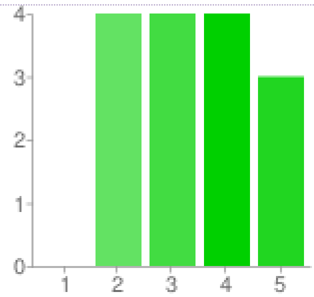
An inherit to CRM issue seems to be the tediousness involved in keeping the system up to date. This is also visible in S3's measure of tediousness of the solution. Here most respondents see the system as slightly, to somewhat tedious.

The same becomes apparent from the overall measure of willingness of the respondent to work with the system on a day to day basis given the scenarios. Only a few are somewhat willing to work with the system whereas most would not like to use it in the illustrated settings.



Very tedious to Not tedious at all

FIGURE 10: TEDIOUSNESS OF SCENARIO 3 ADMINISTRATION OF TASKS.



Yes please! to No, I would not

FIGURE 11: WILLINGNESS TO WORK WITH THE SYSTEM IN THE ILLUSTRATED SCENARIOS

4.2.3. ABILITY DATA INCONCLUSIVE

Scenarios 2, 3 and 4 included measures for the ability of a system to perform a certain set of tasks. Only for the fourth scenario the information is negative, however, this measures only a small task which is tedious to do manually but not sufficiently to classify the product lines unable. Nor is the complete set of measures regarding ability complete. Thus we cannot generalise the found results to the sector. ***Therefore we interpret the found information as inconclusive.***

4.3. Conclusion: Somewhat tedious and not suitable

In Table 5 we discussed the possible outcomes of the questionnaire and its implications on the opposing hypothesis. Given the questionnaire results we conclude that CRM systems are ***somewhat tedious*** and ***not suitable*** to perform the tasks as sketched in the scenarios. We have also argued that the scenarios in itself do not pose measure invalidity and can be used to reject a certain product line. The ability ratings are inconclusive.

Therefore we can only accept that our assumption (working hypothesis) is acceptable **<u>if the tediousness/unsuitability</u>** of traditional CRM inhibits a criterion from being reached, or inhibits reaching a business goal.

Evaluation of the business goals (*Section 1.3.1: The problems MDBC (page 4)*) with the insights from the questionnaire does provide us with the necessary inhibitors.

<u>Primarily</u>, to improve MDBC's growth potential it is needed to improve efficiency of day-to-day activities or by lowering the amount of systems/databases in use during these activities (IG-2). The unsuitability of a traditional CRM for the internship program and event organising largely diminish the potential benefits for the organisation.

<u>Secondly</u>, a CRM that focusses on products, after-sales and upselling clutters the interface, lowering the opportunities of creating a 360 degree overview surrounding MDBC's databases. In essence not lowering the amount of databases, and not increasing MDBC's overview of its network and organisational information capital (IG-1).

Thirdly, a perceivingly tedious job of maintaining the system's information lowers the exhaustiveness and trustworthiness of the information source. This results in lower end-user satisfaction, not improving the dependence on implicit knowledge of employees (IG-3) and may result in failure of IG-4 and IG-5 regarding coordination and streamlining of contact.

These three combined given a traditional CRM system MDBC would only use the contact tab[47] - which is a waste of money and time. ***Thus, we may reject the opposing hypothesis. Therefore the alternative must be true, the hypothesis is correct.*** This implies MDBC should search for a non-typical Customer Relationship Management solution. And justifies the in-depth exploration of MDBC in the following three component chapters followed by the design of MDBC's 2nd iteration ideal solution.

[47] This we have seen at one of the case study organisations.

5. CRM SYSTEM DEVELOPMENT HISTORY VS. THE TRADE ORGANISATION’S NEEDS

Chapter 5 describes several different types of systems that support business processes and departments. It looks at supply chain management systems, enterprise systems, knowledge management systems and customer relationship management systems. The history of the latter is explained in detail. The chapter continues by explaining collaborative and social software. Both approaches are then translated in implications for the system for MDBC. This needs to look at the enacted environment (xRM); processless; show relational & interaction knowledge; and be collaborative social software. This is 1 out of 2 reasons to reject the opposing hypothesis.

Chapter 5 relates to chapter 4 in that it uses literature to investigate why traditional CRM is not suitable for the scenarios. It also looks into other types of software that may reduce the tediousness of a solution for MDBC.

5.1. Systems supporting business processes and/or departments

(Laudon & Laudon, 2004, p. 7) shows us that there are (in their eyes) four major systems that define ‘the digital firm’. They describe these four systems in some detail in their book about Management Information Systems. The key distinction is that each organisational department can have their own IT systems, but most often these are horizontally integrated to reduce redundancy. Furthermore, each level of managers has their own IT aggregation systems to provide them with necessary performance indicators. Here again, these are often vertically integrated to the systems on the work floor.

Their typology is (Laudon & Laudon, 2004, p. Quotes from p. 7):

- **Supply chain management systems:** “seek to automate the relationship between suppliers and the firm to optimize the planning, sourcing, manufacturing and delivery of products and services.”
- **Customer relationship management systems**: “attempt to develop a coherent, integrated view of all the relationships a firm maintains with its customers.”
- **Enterprise systems:** “create an integrated enterprise-wide information system to coordinate key internal processes of the firm, integrating data from manufacturing and distribution, sales, finance and human resources.”
- **Knowledge management systems**: “seek to create, capture, store and disseminate firm expertise and knowledge.”

In a typical pyramid firm with several different departments (Laudon & Laudon, 2004, p. 27) classifies the system by which departments they span, and which management-level they support. Such, information systems will serve one or several ‘groups’ (Senior manager, middle manager, knowledge and/or data workers, operational workers) and will span one or multiple functional business area’s (Sales and Marketing, Manufacturing, Finance, Accounting, Human Resources) (Laudon & Laudon, 2004, p. 39). See the image below:

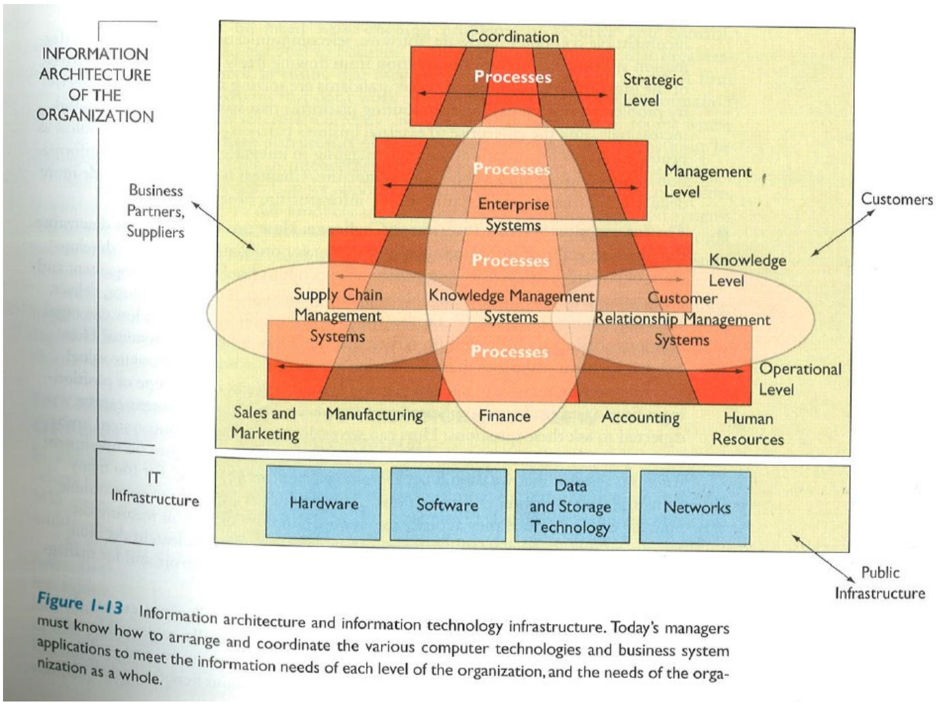


FIGURE 12: SHOWING THE SPAN OVER BUSINESS DIVISIONS AND HIERARCHY OF AN ORGANISATION (IMAGE FROM (LAUDON & LAUDON, 2004, P. 27))

Further information about the typical examples of systems for each business function per type of system; or information about their respective information inputs, processing tasks, information outputs and generic users, we refer you to (Laudon & Laudon, 2004). Specifically to the tables (Laudon & Laudon, 2004, p. 40) and (Laudon & Laudon, 2004, p. 41)

5.1.1. Supply chain management systems

Supply chain management system are outward-facing and focus on linking and coordinating the activities involved in buying, making and moving a product (Laudon & Laudon, 2004, p. 55). "It integrates supplier, manufacturer, distributor, and customer logistics processes to reduce time, redundant effort and inventory costs. The supply chain is a network of organizations and business processes for procuring materials, transforming raw materials into intermediate and finished products, and distributing the finished products to customers." The supply chain contains flows of information, resources (goods) and cash both ***downstream*** (towards end-customer) and ***upstream*** (towards suppliers' suppliers) (Laudon & Laudon, 2004, p. 55). It provides benefits such as reducing time, and inventory. And helps prevent the 'bullwhip effect': the effect that a small order at the end of the chain can cause large fluctuations in demand upstream.

The information sharing down- and upstream in the supply chain creates the opportunity to collaborate. **`Collaborative commerce`** is "[t]he use of digital technologies to enable multiple organizations to collaboratively design, develop, build, and manage products through their lifecycles" (Laudon & Laudon, 2004, p. 58). Specifically for the supply chain there is ***Collaborative planning, forecasting and replenishment (CPFR)***.

5.1.2. Enterprise systems (ES)

Systems that integrate the information stored in the systems of multiple business functions (departments) are Enterprise Systems (Laudon & Laudon, 2004, p. 52). These systems "create an integrated enterprise-wide information system to coordinate key internal processes of the firm, integrating data from manufacturing and distribution, sales, finance and human resources." (Laudon & Laudon, 2004, p. 7). Often ES is regarded as ERP with additional departments attached to the system. An overview of enterprise system literature was omitted from this thesis as it is not used in the final design.

5.1.3. Knowledge management systems (KMS)

Knowledge management systems are systems "that support the creation, capture, storage and dissemination of firm expertise and knowledge". The scope of a KMS can be fairly narrow up to organisationally wide. An overview of knowledge management system literature was omitted from this thesis as it is not used in the final design.

5.1.4. CRM: Focus on the customer

Relationship Marketing is the practice of *"concentrating on the lifetime value of customers rather than their value in the single transaction"* (Blythe, 2009, p. 368). Thus it comprises building long-term relationships with customers. In Business-to-Business organisations it has long been practised within B2B-marketing (Blythe, 2009, p. 367). According to Blythe (p. 367) this is due to the lack of possible customers and suppliers in the B2B market, hence losing one customer can have serious consequences.

Companies can increase sales by (a) offer better perceived value than other companies or (b) try to up-sell and cross-sell to existing customers, which can be done through relationship marketing. Research by Bain & Co has shown that cross-selling (i.e. *"selling new product lines to an existing customer"* (Blythe, 2009, p. 369)) costs one-sixth of the expenses endured to sell to a new customer. But there is little academic proof that (a) customer satisfaction leads to loyalty and (b) that long-term customers would be more profitable than short-term customers (Blythe, 2009, p. 368).

It is coined by several websites that ACT! By Sage (first launched in 1987) is considered the pioneering **`Contact Management Application`**. Since its launch, many vendors created similar applications. In the 1990s Contact Management Systems increased their scope to also embed tasks from the sales force: Lead Management, Opportunity Management, Deal tracking – and other types of Sales Force Automation where included[48]. These extended systems were called **`Customer Relationship Management (CRM) systems`**.

[48] Reasoning and facts derived from the timeline as published on: http://www.softwareadvice.com/crm/,

CRM systems focus on "managing all the ways that a firm deals with its existing and potential new customers. [… It ..] uses information systems to integrate all of the business processes surrounding the firm's interactions with its customers in sales, marketing, and service" (Laudon & Laudon, 2004, pp. 61-62).

CRM systems became a truly front-office oriented system, focussing on the business-to-customer touch points of the organisation. Customer touch-points are (traditional physical and electronic) locations where customers interact with the organisation, such as stores, telephone call centres and e-mail. (Chen & Popovich, 2003, pp. 672-673) argued that CRM systems also link the back-end systems (e.g. finances, operations, logistics, …) to the touch points. CRM integrates all different touch points around a 'common view of the customer'. If the CRM system includes information sources from throughout the front- and back-office, it is called a **`CRM-360 system`**.

The concept of CRM has been redefined by some manufacturers to also include connections to different departments. In 1997 Enterprise-Resource-Planning system vendors expand their operations from the organisational back-end to include the front-end as well. Oracle Sales and Marketing, Baan Aurum and other software packages are the result. Siebel (later bought by Oracle) bought another company, creating the first Sales&Marketing&Customer Service-CRM system. CRM systems had become broad suites of front-end applications for use in multiple departments[48]. Since the new millennium, CRM has gone electronic (eCRM), mobile and cloud-based (e.g. Salesforce.com).

Front office functions (associated with CRM)[49]		Back office functions – sometimes also available	
Marketing Management	Order Management	Receivables and Payables	Profitability Analysis
Sales Management	Sales Planning & Customer Analytics	Production Planning	Inventory Management
Pricing	After Sales Customer Service	Shipping	Payroll
Field Service Management		Personnel Planning	
Social CRM	Cross-CRM		

Given (Laudon & Laudon, 2004)'s division of systems into 6 types, spanning a potential 5 business functions we would say that typical CRM systems focussed on the Sales and Marketing function; as a TPS and/or MIS. Later also including aftercare which would be Knowledge Management System (KMS). A CRM-360 solution would also span the Finance-function. Some CRM systems also generate abstract reports, suggesting also Decision Support Systems (DSS) or Executive Support System (ESS) functionality.

Next to CRM there is also '**`Customer Interaction Management`**' -systems. These systems focus on the contents and mediums of transmitting interactions between focal firm and customer. Merging Interaction Management and CRM together is also explained in (Doyle, 2001).

As CRM systems have expanded in scope several times (also see the milestone section below for a summary), we see that traditional Contact Management Systems have positioned themselves differently in the marketplace. These systems often call themselves "**`Simple CRM`**". These systems differentiate themselves by

1. Not providing the rigid process structure from SFA (leads, opportunities, sales). Thus not all contacts are customers.
2. Their main screen surrounds either contacts or interactions with contacts - instead of the leads and sales.
3. Customer care, after sales and regular interaction with contacts are considered equal and the same. Thus independent of the contents of the interaction, it is administrated in the same view.

However, consequently we do see that they tend to offer users the opportunity to administrate the same information in the system as full-SFA-oriented CRM systems. Thus they do hold the information, but lack the processes or integrations. Therefore, we propose to call these systems "**`Processless xRM systems`**".

The milestones of CRM

Aggregated from (Software Advice, 2013) & (Start2Cloud, 2013) & (Customer Service Zone)

1980s: **Evolution of Database Marketing.** Direct marketing starts using statistical methods and computerised databases

[49] Based on input from http://www.gartner.com/DisplayDocument?doc_cd=228746&ref=g_sitelink . Expanded with functionality added as stated by http://www.softwareadvice.com/crm/,.

1987: **ACT! was released.** First Contact Management Software package was released, and now considered the pioneering contact management application

Late 1980's: **Client-server architecture** creates the possibility to add a client computer at every desk.

Early 1990's: **Contact Management expands with Sales Force Automation.** "These systems automated standard processes for sales professionals to promote efficiency in tracking their leads, opportunities and deals." (Software Advice, 2013). Includes Lead management, Opportunity management and Deal tracking.
E.g. Siebel (1993),

1995: **Research institute Gartner coined term "Customer Relationship Management".** It will become the most popular title for front-office applications.

1997: **ERP systems include CRM functionality**
E.g. SAP (1998).

1998: **CRM-360.** CRM expands to broader suites including Marketing and After-sale services. Combining all customer to firm 'touch points' creates "CRM-360"

1999: **e-CRM and m-CRM.** CRM goes to the web and CRM goes mobile.
SaaS CRM: Software as a Service CRM. The start of SalesForce.

2001: **Extended Relationship Management (xRM)**[50] **cf** (Laney, 2001)**:** "which expands traditional CRM to encompass the management of all relationships, internal and external, for-profit and non-profit, and government and municipalities." (Software Advice, 2013)

2008: **Social-CRM:** Switch from "transaction" to "interaction" based CRM. Interaction with customers via mass social media creates media attention and positive attitudes.
Later on, also self-help Customer Service services; creating online communities to help customers and other social platforms are linked.

5.2. Collaborative and social software

5.2.1. Collaborative software

A special type of information system is the "groupware" category – nowadays also called collaborative software. "Groupware reflects a change in emphasis from using the computer to solve problems to using the computer to facilitate human interaction." (Ellis, Gibbs, & Rein, 1991, p. 39). Where regular information systems go to "great lengths to insulate users' from each other," groupware focusses on that computer mediated interaction and sharing of information (Ellis, Gibbs, & Rein, 1991, p. 40):

> `Groupware`: *"Computer-based systems that support groups of people engaged in a common task (or goal) and that provide an interface to a shared environment."*
>
> `Real-time groupware`: specifically aimed to simultaneous activity.
>
> In some definitions groupware facilitates working together at the same time (e.g. multiple editors working on one document) and `teamware` facilitates asynchronised information sharing (e.g. a wiki) - cf. (Laudon & Laudon, 2004, pp. 322-323 / 205-206).

IT innovations have shaped an environment in which geographical location no longer really matters (Bafoutsou & Mentzas, 2002, p. 281). Or at least the claim of collaborative group systems is it no longer matters for jobs in the service industry. "E-collaboration and collaborative systems bring geographically dispersed teams together, supporting communication, coordination and cooperation" (Bafoutsou & Mentzas, 2002, p. 281). But collaborative systems can also mitigate other inhibitive factors then distance. The study of how groups can cooperate through IT systems is often defined as the field of Computer Supported Cooperative Work (CSCW).

Several attempts have been undertaken to create a taxonomy of collaborative systems, several are named in (Bafoutsou & Mentzas, 2002, p. 282): The taxonomy that yields the best results is dependent on the question at hand, but in-detail investigation of these taxonomies falls outside of the scope of this thesis.

---

[50] When web-searching xRM one only finds systems based upon xRM: Microsoft Dynamics CRM. No typical xRM focused applications are known to the author.
More on xRM can also bee found in the following book: *Greenberg, Paul (2009). CRM at the Speed of Light (4th ed.). McGraw Hill.*

5.2.2. Social software

The term social software came into common usage around 2002. According to (Allen, 2004), this was probably due to a 'Social Software' summit organised by Clay Shirky that year. As is often the case many different interpretations and definitions exist. Some focus on positive feedback loop network effects. Others state that it is social because the software adapts to its environment. And others name it social because the output of the system is dependent on a user other than the input done by the current user. We chose none of the above views.

Shirkly -a New York University Associate Arts Professor- defined social software quite simply in 2003:

> **`Social Software`:** *"It's software that supports group interaction"* (Shirky, 2003)

"(…) because that seems a sub-set of groupware, leaving out other kinds of group processes such as discussion, mutual advice or favours, and play" (Allen, 2004, p. Quote from Shirkly). Social software and collaborative software are often seen as overlapping. And also Shirkly sees social software as a subset of collaborative software. We differentiate between the two concepts in the following way:

Collaborative software:	Social Software:	
Computer-based systems that	Software that	
support groups of people	supports the group's	
engaged in a common task (or goal)	*asynchronous collaboration*	The main ***difference*** arises here. Groupware focusses on engaging group members in a common task, whereas social software is only interested in ***facilitating the group's asynchronous collaboration***.
and that provide an interface to a shared environment		

In a 2004 interview Shirky even states that the social software definition of 'support' can also be the supporting of an offline interaction (Allen, 2004). We argue, given the above definitions, social software is not per se collaborative software. It is missing an element describing the collective insertion, adaption and upkeep of information within the system – that is implied by other definitions. The discrepancy is illustrated through the example below:

Example of collaborative software:	A project management tool supports a group of programmers during a software development cycle.
Example of social software:	A (read only) contact address book tool facilitates a group of students to reach each other via telephone (a communications device).
Example of collaborative social software:	A contact address book tool facilitates a group of programmers to create, maintain and share a joint contact book, used by all to communicate with 3rd parties. – similar to "teamware" of (Laudon & Laudon, 2004, p. 322)

As a working definition we define **`collaborative social software`** as:

> ***Software that*** *provides an interface to a shared environment*
> ***to*** *support the asynchronous collaboration*
> ***of*** *groups of people*[51]

5.3. Implications for MDBC and other trade organisations

In the sections below, we will deduce what type of solution is most suitable for MDBC. We will deduce that a typical CRM system is not the most promising path for MDBC. This will be explained in the following sections by

1. Deducing that the business network scope of xRM suits MDBC over the customer-only orientation
2. Deducing that a processless environment better serves MDBC's offerings
3. Deducing that MDBC's information needs are broader then the customer relationship would provide.

And fourthly we will note, idem to the typical CRM solution, that the system should be collaborative social software that supports asynchronous collaboration of groups of people.

[51] Compared to regular collaborative software we have removed the element 'engaged in a common task (or goal)'. We believe a system does not per se have to facilitate specific goals or tasks to be collaborative or social. Groups with clearly defined common goals and tasks are often described as teams – and can of course use such systems.

These three deviations provide us with sufficient reason to justify our broad investigation of literature, MDBC and the bilateral trade organisation industry. (Especially combined with the opposing hypothesis rejection in the next chapter.)

5.3.1. xRM scope of the Business Network

Within every organisation a much broader set of contacts is present then solemnly customers and suppliers. This includes hired help such as lawyers, lobbyists and market research companies. But also friends, acquaintances and business contacts. Perhaps they are working in other companies, or in government. In all examples above theory ((Krackhardt, 1999) and (Burt, 2000)) prescribes that maintaining a connection with these actors will provide you with information benefits. However, in many organisations one may question if the cost of maintaining these relationships outweighs the benefits.

The illustration *below* shows the xRM-scope more clearly. With this image we merely wish to show the broadness of the business network compared to the supplier and customer focus. We neither claim that the illustration is exhaustive nor that the classifications are disjoint.

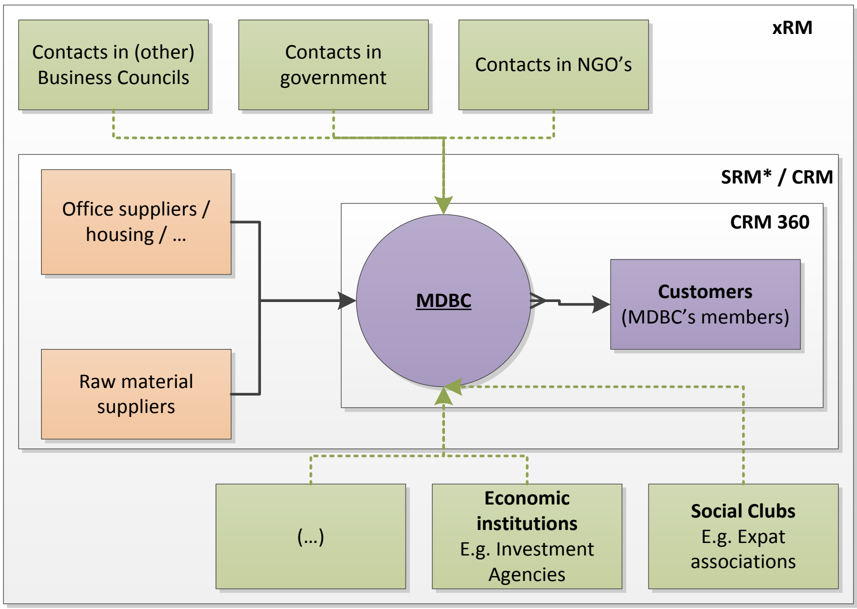


FIGURE 13: NON-EXHAUSTIVE ILLUSTRATION OF DIFFERENCES BETWEEN CRM(360) WITH SRM+CRM AND xRM. SEE ENACTED ENVIRONMENT LITERATURE FOR A BROADER OVERVIEW OF ACTORS WITHIN xRM.

It is MDBC's goal to do more with its current network of actors, latent or otherwise. They wish to gain more insight into the network and generate more added value from the network. Here, the rationale is that the increase in maintained relationships indeed does outweigh the network coordination costs and aligns with MDBC's value proposition. Thus, the enacted environment scope of xRM is the aim.

5.3.2. Processless (and without SFA or ERP)

ERP/ES developments have focussed on optimising collaboration throughout the supply chain, and has recently also incorporated Customer Care and Customer Relationship Management. Both are of huge added value to sales oriented firms as: strong relationships lower transaction costs and upselling, cross-selling and increasing customer retainment is a profitable business.

None of the inventoried offerings provided by MDBC regard the typical supply chain or production process. For an organisation such as MDBC this view is unbefitting: there is no upselling, and no cross selling of goods[52]. Therefore the SFA functions of a typical CRM system are a negative side of CRM.

[52] One might argue that the services MDBC offers are indeed upsellable and crossellable.

Instead MDBC benefits from a simple interface surrounding a contact or firm. Giving the end-user insight in the current state of the relationship between MDBC and the actor(s in the firm). Therefore, not a rigid workflow engine is needed but the direct opposite: a processless interface that is rich in information & aggregated information.

5.3.3. Store/display/aggregate relational & interaction knowledge

Consequently (given the previous section), MDBC's offerings require the employee to have insight in the current state of the relationship between MDBC and the actor(s in the firm). For example, when asking a TV-production plant to loan MDBC several screens for an event – they which to know who to contact & if they have agreed to such requests in the past. Or alternatively, what barter agreements have been made enabling MDBC to file such a request.

The outlined requests above and many others are not day-to-day administrative tasks for a typical CRM system. Yet they are vital information regarding MDBC's network efficacy. Implicit knowledge about relationships and interactions must be made tacit via certain tools that have no function for customer relationships. A flexible interface with loads of opportunities to display custom information fields and aggregated data is preferred over an interface showing billing and credit details.

5.3.4. Collaborative social software package

MDBC employs up to four employees, together with three alternating interns (each semester). Each of which collaborates with the others in the team by answering phone-calls and/or jointly organising events. Especially with the high intern-turnover an easy to learn system with easy insights into MDBC's network is preferred. Moreover, as the employees work part-time, asynchronous collaboration is preferred. Resulting in our definition of collaborative social software: *Software that provides an interface to a shared environment to support the asynchronous collaboration of groups of people*

6. TREATMENT DESIGN - OF THE IDEAL SOLUTION

The chapter gives details regarding the current situation at several similar organisations and then synthesises the information retrieved from the three components' analysis (See appendices for details), the case studies and the literature review. This is translated into an advised type of system, and typologies of contacts, firms, interaction and relationships. A high-level decomposition for the ideal MDBC system is provided. The system overview is a summary of the ideal system as designed for bilateral trade organisations as provided in ***Appendix VI**: **Software Requirements Specification-Document**)*

In the introduction chapter we posed that probably traditional CRM is less suitable for trade organisaitons such as MDBC. In Chapters 4 we surveyed 9 often used traditional CRM systems for the needs of trade organisations and found that they are indeed not suitable, somewhat tedious and might be unable to perform all required tasks. We then continued to investigate the history of CRM in chapter 5 and found that systems for MDBC should focus on xRM instead of CRM; should be processless instead of focussed on sales pipelines; should focus on interaction knowledge instead of sales orders; and should be collaborative social software in general. Thus CRM is indeed not the solution. Therefore we choose to investigate the ideal solution for MDBC in quite some extent – integrating the results of chapters 1, 3, 4 and 5.

Though the high-level decomposition is validated and verified, two remarks must be made about the detailed design in the appendix: *First*, the data requirements are normalized to **`Second Normal Form`**. We do not claim normalisation to 2NF is most appropriate for a SuD, but it is sufficient for selecting commercial off-the-shelf products. *Second*, note that this summary is **not** meant as a ready documentation for developers. It is merely a draft.

6.1. Similar projects at similar organisations

During the process of this thesis, and before the actual advice for MDBC was given we contacted eight potential case study organisations. Eight participated, and provided us with information regarding the current situation in their organisations. We also discussed potential issues with their setup and future plans. A detailed overview of these results is documented in *Appendix VII: Case study results (page - 78 - onwards)* and a summary is provided below.

1. **Embassy of The Netherlands in Kuala Lumpur:**
   Workstations at the Embassy are centrally managed. Contact information regarding the tasks most closely related to MDBC is stored in Microsoft Outlook's address books (server side) of the job-function mailbox, not the employee's personal mail. There are also contact databases n Excel.
   On occasion (approximately once per year) the different databases are merged for comparison. Conflicts are resolved at that time. Currently, there is a risk of having incorrect contact details in parts of the organisations. And contacts need to unsubscribe from multiple Embassy functions as they might be present in multiple address books.
   The Embassy is looking into resolving the issues but is also awaiting information regarding national initiatives.
2. **Dutch Chamber of Commerce Singapore**
   Memberships and member-contacts are managed via Excel when applicable to DutchCham('s mailings). Other contacts are maintained via social media, analog name cards and the e-mail address books. Partially this is implicit knowledge but not yet an issue due to the size of the organisation. It may become more troublesome in the near future as the organisation aims to grow. DutchCham is interested in CRM but does not have concrete plans of its own.
3. **Malaysia Australia Business Council**
   Memberships and member-contacts are managed via Excel. Other contacts are maintained via social media, name cards and the e-mail address books. MABC is interested in CRM packages and other work processes but does not have concrete plans of its own.
4. **EU-Malaysia Chamber of Commerce and Industry**
   EUMCCI managed its members and member-contacts via a plugin on their website, which currently malfunctions. Therefore they temporarily reverted to using excel sheets for sending out mail blasts and maintaining a list of their members. They also require insights in the members of their partner business councils (of which MDBC is one of several). This information is also stored in spread sheets and most use different templates.
   EUMCCI is planning to fix the issue with their website-based system.
5. **American Malaysian Chamber of Commerce**
   To manage their memberships and members AmCham uses SalesForce CRM (basic version, monthly subscription). It only uses the companies and contacts tabs and some employees update interaction information in

the system. They do not use other functions of the system. AmCham (long term) wants to upgrade their website to become a proper membership management tool.
Contact information regarding non-members is stored by each individual employee in different formats, including lists in spread sheets and e-mail address books. The information is shared to some extend but not available in aggregated form.

6. **Malaysian French Chamber of Commerce and Industry**
MFCCI is currently involved in a similar project where they are investigating the use of a membership management system that can support their back-office. They focus on memberships, and not on the enacted environment. Currently, no system has been chosen but some have been shortlisted.
7. **Indonesia Netherlands Association**
INA does not use a CRM system, but is interested in procuring a proper system and/or joint-development together with other business councils. Currently databases include social media websites and INA has a proprietary in-house developed members database. This database is a 'traditional solution' with limited functionality and flexibility. It is linked to their website.

From this initial overview we can conclude that none of the case study organisations have a centralised overview of their business network contacts. Most organisations do use some form of 'contact systems' such as the e-mail client's address book. We also found that all participating organisations are interested in the results from our study and are indeed interested in procuring a similar system as they believe they will benefit from such a system. They believe the functionality adds value to their organisation and are willing to invest[53] in procuring a product. We therefore conclude that we are investigating the correct type of systems – though the functionality is only specified on a high-level.

The required functionality is further described in the next sections which are based on the analysis at MDBC, the input from the literature analysis and together with the results from the case study validation.

6.2. Insights from literature

Insights from literature prescribes what types of information is beneficial and how it should be used. From an IT perspective it does not describe the potential values of the information, nor does it describe how it should be stored or how it can be gathered. If users must insert all data manually, the system will become tedious in operation.

Therefore, the insights from literature should be interpreted as a prescriber of what could be beneficial. Only to be included in the system if a decent way of gathering complete, exhaustive and trustworthy information can be guaranteed. When data is presented in the SuD it should be available for all actors or relationships as lack of data may create the illusion of insight while no true judgement can be made.

When developing our proposed incorporations we strongly advice to use a rapid prototyping technique. If functions are included that users are not using or their added value is uncertain, they should be removed from the product in a later release. Simplicity and usability thrive system usage.

#	Literature insights - section:	Incorporated in Treatment design section - under:
3.1.1	Types of ties between actors	6.6.1: Dimensions of a relationship
3.1.2	Evolution of the business relationships with MDBC	n/a
3.1.3	Why businesses engage in business relationships	n/a
3.1.4	Dimensions of a relationship	6.6.1: Dimensions of a relationship
3.1.5a	Relationships change over time	6.6.3: Relationships are on-going, and dependent on history and future
3.1.5b	Relationships are intertwined	6.6.2: Relationships are embedded in a business network
3.1.5c	Relationships are dynamic and on-going	6.6.3: Relationships are on-going, and dependent on history and future
3.2.1	From a dyadic relationship to triad relationships	6.6.2 Relationships are embedded in a business network

[53] Several case study organisations have mentioned that their funds are limited. One has indicated it halted its search for solutions when it realised no suitable free solutions existed.

3.2.2	Cooperation with the actors around a focal firm: Organisational boundaries are context dependent	Processed via 3-component analysis; incorporated in 6.5: Typology of a Firm
3.2.3a	Dense and sparse networks	Indirectly in the 3-component analysis and typologies
3.2.3b	Shapiro and Varian's notion of (positive) feedback loops	
3.2.3c	Metcalfe's network effect and law of exponential connection growth	
3.2.3d	Costs of maintaining relationships	
3.2.3e	Relationships are dynamic and on-going	

TABLE 12: INCORPORATION OF INSIGHTS FROM LITERATURE IN DESIGN

6.3. Type of software

The *team* working at MDBC is engaged in the *common task* (or goal) of helping its members cope with the market imperfections between The Netherlands and Malaysia. We believe for this, they need an IT system to help create a more coherent interface to *the shared-environment* of members and other external actors. This interface should give insight in the network as a whole and the stand-alone relationships (dyads, triads).

We therefore propose the use of ***collaborative social software.*** Based on our analysis in *section 5.2.1: Collaborative software, page 51).*

6.4. Typology of a Contact

Integrated results from all three analysis components. The typology includes all remarks found in the case study validation.

<u>Contacts work at least at one firm.</u> But they can also work at multiple firms. For example, the Vice-chairman of the BoD of a complementary Business Council can also be an employee from one of MDBC's members.

<u>Contacts can be individual members of MDBC.</u> MDBC has individual members and several types of corporate membership types. Thus not only firms can be members.

<u>Not all employees have a strong relationship with a contact.</u> Usually, one MDBC employee (or on occasion BoD / Committee member) has a stronger relationship with a certain contact. The person(s) with the strongest connection should be documented as requests should come from them. Especially in Asia this is of interest as some nearby cultures will only do business if there is a personal relationship between the two parties. This is a type of substansive embeddedness.

<u>Contacts can be part of an MDBC Committee</u>

- Membership committee
- Special events committee
- Student Internship Programme committee
- Finance & Legal committee
- Communication committee
- Internal Governance committee

Though not applicable to all case studies, some trade organisations have committees. Employees of members can take part in these committees together with some VIPs that are not necessarily members of the trade organisations. The function, and number of committees differs per organisation.

<u>Contacts can have a special MDBC status</u>

- MDBC patron
- Honorary member

- [Individual member]

Other case study organisations had different special statuses for contacts; and they found innovative ways to 'tag' these people in their systems. For example 'Favourites' (strong connections) as used by the Dutch Embassy (C-2013Wk05-Embassy).

<u>A contact can also be a member of social clubs</u>, but we have found **no** evidence that this should be a documented in the system. For example, contacts can be a member of a social association to stay in touch with their national roots.

<u>Contacts have their own network,</u> potentially giving MDBC access to indirect contacts. We have found **no** evidence that this could be (or should be) administered in the system. However, if MDBC gets contact details via a direct link they should document who brought them the contact as that strengthens the original direct tie – or note that it is a new/fresh contact.

These bridges can be of interest, but a trade organisation only has a view of its egocentric network, and has a very limited influence on how the network shapes around it. It cannot perceive the extend of the network of a bridge. Maintaining information about bridging functions is only of interest for Firms as they have a more predictive set of customers and suppliers in their network.

<u>(Non-member) contacts can be involved with MDBC via</u>

- Student Internship Programme
    - Students looking for an internship
    - Students from previous internship batches
    - Internship coordinator – at Partner University
    - Internship coordinator – at Member
- Committees
- Specific events
- (…)

<u>Specific actors in the network are (expanded)</u>

- Local contact (Name card holder)
    - <subcategories unknown>
- Useful contacts (Name card holder)
- Media (news)
- International contacts (EDs desk)

<u>Relevancy of the contact</u>

- General contacts: Might be relevant
- General contacts: Don't seem relevant

<u>Contacts can visit MDBC events.</u> Their contact cards are kept – as they might show job-switches. This is a sign of strength of the relationship.

<u>Document (some clear types of) relational embeddedness.</u> Embeddedness for contacts can be both negatively as positively exploited. A contact can have secondary activities and involvement in social and business clubs where the MDBC organisation can benefit.

C-2013Wk05-Embassy stated: <u>Some 'business relations' are actually 'private relations'</u>, and thus not all colleagues can contact them. Different 'privacy'-types of a contact are:

- A personal contact (that is in the system for personal purposes)
- A work contact
- A private work contact – which others should not contact

- A highly-ranked person – which others should not contact

6.5. Typology of a Firm

Integrated results from all three analysis components. The typology includes all remarks found in the case study validation.

Firms join a trade organisation for a reason.

Theory states that there are various (but finite) reasons for firms to engage in inter-organisational networking relationships. Unfortunately, this choice is made on a strategic level. Therefore we cannot expect all connected firms and contacts to supply their trade organisations with a truthful answer. Nor can we expect that they made a conscious choice. And lastly, we cannot assume there is only one reason why they became a member. Furthermore, the reason for starting the alliance does not always coincide with the current reasons for an ongoing relationship.

Therefore, documenting this type of information considered too prone for error. Similar and more reliable information might be deduced when looking at the offerings used and the interactions started by the member firm.

Each firm is either a member or a non-member:

- Member
  - Gold
  - Silver
  - Orange
  - Outstation

  C-2013Wk06-AmCham / C-2013Wk07-DutchCham / C-2013Wk06-MABC: Different organisations have different types of memberships. Some focus on individual memberships, others on corporate memberships. Different versions of these memberships are available.
- Non-member
  - Previous Member
  - Potential member
  - [Other]

Note: This leaves a potential issue for individual members as not all members are firms.

Firms have their own network, potentially giving the trade organisation access to indirect contacts through the bridge-firm. These bridges can be of interest, but a trade organisation has a very limited influence on how the network shapes around its contacts. It cannot perceive the extend of the network of a bridge. Maintaining information about bridging functions is only of interest for firms and organisations where we can predict what types of contacts are in their network. E.g. suppliers, employees, customers. This depends on goods and services offered which is part of the public domain.

Each firm is active in a subset of industries

- All industries / not applicable to industry
- Subset of industries
  - There is an existing list of industries that is currently being used by MDBC. Different organisations will use different lists.
  - Additionally to that list there are "Partner University SIP program"-firms; to be used as an easy filter.
  - And additionally, "Government / Semi-governmental" should also be added.

Each firm is **'from'** in a subset of countries

- Does the firm have an office in Malaysia; versus being headquarted in Malaysia
- And a similar question regarding the Netherlands

C-2013Wk06-Amcham / C-2013Wk07-DutchCham: The set of relevant countries is different per Business Council.

<u>Each firm is **'active'** in a subset of countries (or markets)</u>

- Netherlands
- Malaysia
- Europe
- APEC
- Worldwide

C-2013Wk06-Amcham / C-2013Wk07-DutchCham: The set of relevant countries is different per Business Council. Other additions could be

- [America's]
- [Middle East]
- [Singapore]
- [Australia]
- [Oceania]
- (… and many others…)

<u>Specific actors in the network are</u>

- A trade organisation, specifically the following:
  - Regional Trade Organisation: Chamber of Commerce, Business Council or Embassy
  - Industry Trade Organisation:
- Government body
  - Type of body
    - Regional
    - Ministry at national level
    - Municipality
  - Jurisdictional area
    - World-wide
    - Regional
    - Federal
    - State
    - Province
    - Municipality
- Institute
  - Research institute
  - NGO
- Corporate, specifically:
  - Non-profit
  - For-profit
    - SME
    - Multinational

<u>Members can be based in</u> (MDBC Rep-office)

- Penang
- Kuala Lumpur

C-2013Wk05-Embassy: Other organisations have other rep-offices. The Embassy has rep-offices in most countries around the world. The NFIA is sharing its contact and job-history details world-wide (currently in pilot version). Therefore, KL can see if the embassy in Singapore is also involved with a certain company.

<u>Firms can provide services (see literature) – potentially relevant to MDBC members</u>

- Credit Unions (Theory)
- Development finance institutions (Theory)
- Export credit agencies (Theory)

- Private Equity firms / Venture capitalists (Theory)
- Land owners and developers
- Banks
- Investment agencies
-
- Moving company
- Office supplies
- Housing
-
- (…)

Firms have employees who know each other. Employees know and talk to each other and hence there is some embeddedness within an organisation.

Firms' employees have different jobs. Not all queries can be answered by the same contact no matter how strong the relationship is.

C-2013Wk05-Embassy: Especially interested in seeing who we have had contact with within a company.

Power-dependency structure as relative organisation size (symmetrical/asymmetrical) can be documented in the typology of Firms[54]. But it can also be documented as a relationship feature.

Document firms core-assets. Resource dependencies can be documented by noting core capital assets (resources, skills, dependencies on networks) and more. These are also interesting search filters for a members query by ED or CM.

6.6. Typology of a 'relationship'

Knowledge of interactions and relations is currently unstructured informal knowledge. Therefore our elicitation techniques were unable to find a suitable set of data and measures to create an ontology of interaction. Our literature review, however, provides us with multiple dimensions that influence the relationship. In this section we will first discuss the implications of the found literature, followed by creating a typology of a 'relationship' for the SuD. This typology contains operationalised literature concepts, results from the case studies and details from the detailed analysis of MDBC (3 component-analysis).

In an egocentric business network (such as the SuD entails) many of the advices given below can actually be modelled under 'Typology of a Contact' and/or 'Typology of a Firm'. From an IT perspective this is wrong, but it may simplify the user interface.

6.6.1. Dimensions of a relationship

Depending on the expected usage the trade organisation benefits from having either a strong or a weak relationship. As described both types have different characteristics. With regards to (event) sponsors a strong tie is more beneficial since they have greater motivation to be of assistance and are more easily available. Overlapping social norms will help streamline the relationship. With regards to information benefits a multitude of weak ties will bring more innovations and information benefits to the network.

However, the difference is often defined as the (a) frequency of contact, and (b) intimacy / trust / perceived sense of obligation.

Strength of the relationship

[54] Several informal, unstructured and ondocumented talks with member-contacts and interns by the main-author suggest that multinational firms are willing to sponsor events but are not frequent visitors of events, perhaps focussing on MDBCs representation and marketing opportunities. Smaller firms tend to be more active visitors of events, perhaps indicating they look for business development and information benefits.

A relationship with a trade organisation can be

- Strong
- Weak

But during the case study interviews we noticed they were more likely to react positively to words that are more common for relationships in real life:

One of these were the terms to classify the relationship status as

- Warm (recently used in a positive fashion), or
- Cold (unused for prolonged period or had negative experience)..

Another measure regarding the history (strength) of a relationship was based on how long the contact was a relationship. The relationship is:

- Relatively new
- Long existent
- Recently spoiled by negative experience

After the interview, one case study organisation has started documenting which relationships are considered “cold”.

CONNECTED TO BRIDGES

Bridges bring connections to different business networks that the trade organisation itself is not connected. Most likely these bridges will be ‘local bridges’, meaning that there are multiple actors in the trade organisations network that can link the trade organisation to the requested subject.

Being connected to bridges is beneficial as it lowers costs of maintaining networks and it increases information benefits. But for trade organisations it also has benefits for its matchmaking services. Suppose that a member firm is looking to form an alliance but it does not yet know which firm is most suitable for the cooperation. Then, this member firm may contact the trade organisation and request a list of potential firms. This trade organisation may not have the requested contacts themselves, but can inform with their colleague trade organisations (e.g. neighbouring countries or industries) if they can aid in the matchmaking. These colleagues are bridges and are of extra value.

It also creates a weak link between the new joint-venture-firm and the trade organisation, yet potential future interactions should still flow through the bridge as they have a stronger relationship together. Hence, documenting where weak links come from, and/or via which bridge the contact should receive interaction increases the chances for positive outcomes.

FREQUENCY & TYPE OF INTERACTION - IMPACTS STRENGTH OF BUSINESS RELATIONSHIP

Frequency of interaction (or contact) is a prescriber for the strength of the relationship. The more frequent the interaction is, the stronger the relationship should be. Note that some interactions can be negative, inverting the prior statement.

Different types of interactions may provide different impacts on the evolution of the relationship. For example, sending somebody a birthday card has a different impact on the relationship then signing a sponsor agreement.

INTERACTION HISTORY AND POTENTIAL FUTURE INTERACTION – IMPACTS BUSINESS RELATIONSHIP

Part of the perceived relationship is based on the history of prior interactions and the perceived future interactions. An organisation will be more willing to grant you a favour when it expects to sign a large business deal in the future. Or alternatively, an organisation will be more willing to lend out equipment if this is done frequently (and has become common practice).

MEASURES OF RELATIONSHIPS

(Holmlund & Törnroos, 1997) explored the dimensions of relationships, and designed a number of indicators with measures to quantify and compare these dimensions. As they are quantifiable, the trade organisation can gain insight in all separate business relationship. By comparing the data of all known relationships, an IT solution can help aggregate the information into a coherent overview of the business network.

However, at least two reasons exist why users must be very careful when relying on metrics for relationships:

- First off, one must use caution as many scholars have expressed the risks of using such (and specifically these) metrics as tools to 'optimise' ones business network or relationship efficiency.
  - Partially as relational embeddedness may exist outside of the focal firm's view;
  - But alternatively also because relationships change over time.
- Secondly, the cost of implementation of these metrics & maintaining the information on which they are based
  - Might be disproportional given the potential benefits;
  - Might be outdated, inconsistent or incomplete

At several case study the existence of some of these indicators have been mentioned. The dimensions are: Mutuality, Long term character, Process nature, and Context dependence. Many of the given indicators or measures are based on aggregating data from each interaction instance that uses the relationship. These have been incorporated in the typologies of interaction in the section below; and should – when deemed beneficial by end-users - be aggregated in the system views.

Dimensions that are relatively stable over time and dependent on a relationship are:

- **Mutuality: Power-Dependence-structure**
  Usage of relationships depends on the mutuality in power-dependence. Symmetrical organisations (where all actors have similar power over the other actors) are more likely to be useful then when the trade organisation is an underdog.

- **Long-term character: Continuation**
  Effectiveness over time, evolution of the relationship and past influences on the relationship may be positive or negative remarks. Though these can be noted as a specific interaction, and they are temporal, they are different from regular interactions. These carry a more strategically important message and are of higher impact to the relationship strength.

- **Process nature: Exchange Interactions**
  The process adaptions made over time must be documented as they, apparently, differ from the standard operating procedures inside the trade organisation. For example, an organisation may have different HR protocols for internships then the trade organisation internship operating procedure prescribes. A note must be made in the relationship.
  Contents of the exchange and multitude of the exchange is documented inside the interaction.

- **Process nature: Use-potential**
  The internally perceived use-potential for the relationship, including standard requests made to that partner. For example, whether or not they should be used as a bridge and to whom they might connect. But also, contacts that owe you favours or that are willing to help the trade organisations deliver their offerings.
  For example, sponsor deals for events, power-brokerage in diplomatic issues, increasing economies of scale, etcetera.

- **Context dependence: Embeddedness**
  (See the above section 6.6.2: Relationships are embedded (below))

The other indicators and measures are embedded in the 'interaction' of a relationship section below. They can be aggregated by either the system, or visualised in a way that the user of de system can aggregate the information themselves.

TRUST

Concepts surrounding trust have been omitted from this thesis as they are excluded in the scope. Research into trust might provide the ideal solutions with more (aggregateable) measures and indicators.

The degree of trust and commitment between actors. Preferably a difference is made here between individual-strength and organisational strength of the connection. Two organisations can have historically strong ties (e.g. two nation) where the individuals (e.g. two ministers) have never met or interacted. Yet they will be more inclined to keep the strength of the tie by adhering the others request.

C-2013Wk05-Embassy: The degree of trust and commitment can be gaged by the employees. Some relations stay strong over long periods of time. Employees are a fine judge of that, and can mark them as 'Favourites'.

6.6.2. Relationships are embedded in a business network

A relationship is intertwined with other relationships, firms-actors, employee-actors, etcetera. This interrelatedness of relationships can exist in a multitude of ways. Some examples are:

- A firm may be a contact with a trade organisation as collaboration is beneficial. For example, TalentCorp (a skilled worker visa semi-governmental) utilises MDBC to reach out to potential clients whereas MDBC offers this as an information benefit & matchmaking service. This relationship embedded through its matchmaking services, but if the delivered services are to standard – the relationship is mostly between the firms and not individual employees.
- A member firm may be a member only because a C-level executive is of a certain nationality. Or because they operate in a certain market. This means that the relation between the firm and the trade organisation is dependent on the relationship between that C-level executive and its employing firm and/or his perception of the trade organisation.
- A contact may be an active visitor of MDBC events only because its employer is a member firm of the trade organisation.
- A firm may be a known bridge to other networks.
- A firm may have known alliances with different firms that also have a connection with the trade organisation. Thus their relationship also influences the focal relationship.
- Anti-trust-law regulations

Furthermore we must discuss the concept of the **collective actor**. To fully understand the relationship the trade organisation has with a different firm, we must also look at the relationships the trade organisation's employees have with the external firm. The other way around, the relationships the external firm's employees relationships with the trade organisation and the ties between trade organisation employees and external firm employees.

Because relationships are embedded scholars suggest relationships should be explored in the context of other relationship. We therefore propose to create an overview that aggregates the relationships from a (subset of) the embeddedness into one view showing the relationship. This could be depicted as a graph, or as a timeline showing milestones.

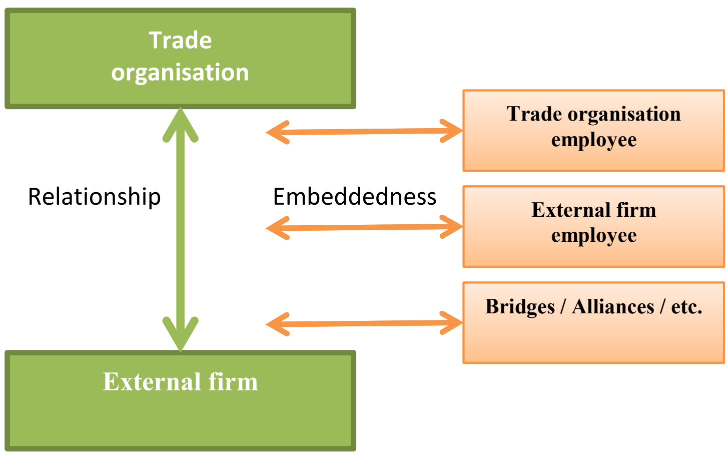


Figure 14: Embeddedness to make an embedded overview of the relationship.

As scholars advice analysing relationships in triads, it must be possible to filter the amount of actors that are shown in the embedded view of the relationship.

6.6.3. Relationships are on-going, and dependent on history and future

Relationships change over time. To investigate these changes, we propose to depict the relationship as a timeline including different types of temporal information. These will be discussed in *section 6.7: Typology of 'interaction' of a relationship (page 65 , onwards)*. Given the embeddedness discussed above, this timeline can also contain information from embedded relationships. The timeline should have filters to hide information that is not required.

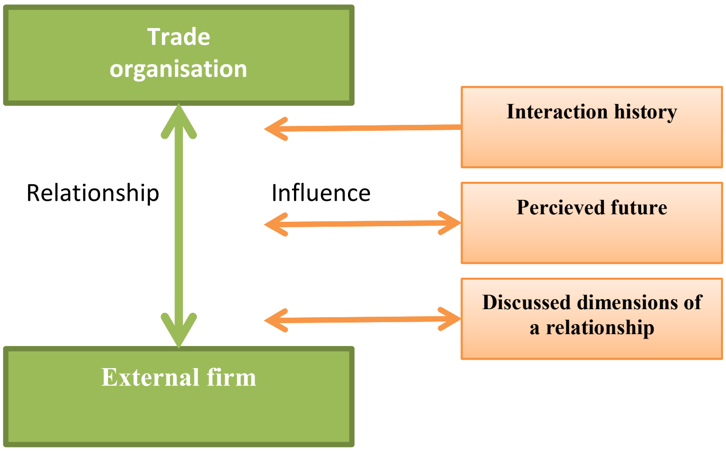


FIGURE 15: INTERACTIONS SHOW RELATIONSHIPS ARE ON-GOING AND DYNAMIC.

6.7. Typology of 'interaction' of a relationship

Potential disruptions and voiced complaints should be noted and managed. Successful relationships have a long-term character. They are characterised by resistance to disruption and continuation. In the typical CRM system this falls under Aftersales / Customer care.

Interaction should be documented. The SuD is there to aid the interactions, and should include information about the process nature and the multitude of the exchanges. The multitude of exchanges is easily documented by

- documenting interaction via telephone, e-mail
- attendance at events
- sponsor agreements
- involvement in events (speakers, etc.)
- involvement in SIP
- As the process nature is dynamic these logs should be time-coded

This historical overview is also an indicator on the continuation of the relationships: effectiveness over time and evolution of the relationship.

Adding the exact content of the exchange (and type of the content) to the log can be beneficial. Suggesting also to document – to different levels of details, depending the nature of the exchange:

- The subject and body of emails sent
- The contents of calls made
- Promises made by an employee, performed by an actor for a contact
- Tasks performed by an employee for a contact
- The value of the offering

By adding an extra element we can also track past influences on the relationships. See (3).

Track historic 'milestones' that can influence relationships, such as

- Management level changes
- Office openings, new product launches, (…)

Are temporal and therefore interaction.

Document (some clear types of) relational embeddedness. All relationships are intertwined. This context dependence (embeddedness) can be partially documented. For example, if there is a current issue with an executive-level contact, it would be quite futile to contact lower placed personnel that need approval from that same executive.

Embeddedness for contacts can consist of at least

- A contacts supervisor and/or subordinates
- A contacts spouse and children

- Previous jobs and positions of the contact
- Current secondary activities of the contact

Resource dependency, why the firms cooperate must be documented as it is an indicator that shows why and on which topics the firms are willing to cooperate.

Mediums of the interaction

Interactions can go via analog methods:

- Postal mail
- Face-to-face planned meetings
- Face-to-face unscheduled encounters. Including running in to each other at another event.

And via many technology driven methods:

- Email
- Telephone / mobile, Skype, Facetime, WhatsApp, …
- Fax
- Facebook walls, private messages, groups, etc.
- LinkedIn walls, private messages, groups, etc.

And many other mediums, both legacy systems as platforms to come.

Red flags

Computerised aid in flagging inappropriate use of relational ties may help prevent unwanted conflicts that can occur based on cultural differences between Dutch/Western organisations working in Malaysia/Asia-Pacific (Cultural differences are investigated in *Appendix I: About Malaysia*). Based on previously noted dimensions (and the related indicators and measures) we propose the system to enforce *symmetrically in choosing who utilises a tie between to organisations.* A freshly hired employee should not directly call the CEO of a large Asian organisation. Instead he should ask his boss to introduce him, or search for a lower ranking employee in the firm to contact they may also help him achieve his goal. (Mutuality)

6.8. Required flexibility of the solution

In the scoping of the assignment (*Section 1.7: Scope*) we assumed that MDBC's environment, set of offerings to customers and information needs are constant and will not change over time. In the literature review we have seen that business relations are not stable over time, but are inherent to change. We excluded researching how to monitor these changes and what end state would be most beneficial for MDBC on a strategic level.

In the 2nd semester of 2012, finishing in January 2013, (Bakker, 2013) performed an internship in Business Development: Attracting and contacting new members. One of his tasks included a member satisfaction questionnaire. 40 of the 200 members responded. A summary of his findings:

- 3.92 membership satisfaction on a 5-point scale
- Members are positive about MDBCs offerings
- About 1 in 4 respondents is interested in receiving CV's from Dutch people looking for a job in Malaysia
- Members seek Business Development opportunities (at Events, in Exposure, especially with Multinationals)

And his advice includes

- **A special membership type for job seekers**
- **Expanded exposure for members**
- **Other / more matchmaking services**
- PR-changes
- Changes in events (particular idea's, locations)

Please review his research document for further information. These points on the required flexibility will be kept in mind.

Furthermore MDBC expects the number of members has increased, but the growth rates are expected to decline (ED, Openings meeting Sept. 7th). Collaborations with other chambers could intensify, and it is possible, yet improbable, that another MDBC rep. office will open doors within Malaysia.

From our case study analysis we must note that

- Trade organisations can have 'Corporate Social Responsibility' programs where they are actively involved in a multitude of social projects. We do not believe this drastically changes the requirements for the system. Yet it is an extra element where triads are formed between a set of member organisations with a set of local organisations.
- Addition of (or integration with) to-do lists to the system is of additional value.
- Addition of (or integration with) digital calendars to the system is of additional value.
- Addition of (or integration with) mass mailing systems to the system is of additional value.
- Addition of (or integration with) payment solutions to the system is of additional value.
- Addition of (or integration with) job opportunity postings/mailings & job seeker postings/mailings to the system is of additional value.

(Not taking into account potential changes for supporting NFIA or the Embassy of the Kingdom of the Netherlands in Malaysia, Kuala Lumpur).

6.9. Summary of system specification SuD – *(Appendix VI)*

This section is a severe summary of the system design as is fully visible in ***Appendix VI***. Please revert to the appendix for full explanations regarding the systems responsibility and design issues. Also note that the final product is a 2nd iteration design for illustration purposes. It is not a functional design that can be implemented.

The purpose, scoping and diagrams provided in the following subsections were used as tools to explain the position of the SuD in the organisation, and to prioritise features before searching for an off-the-shelf solution in the Business Case *(Chapter 8: Results for Malaysian Dutch Business Council (page 74)).*

6.9.1. System purpose

System name:	Business Council and Embassy Relationship Interaction Tracking System
Acronym:	BCIS
Purpose:	The Malaysian Dutch Business Council (MDBC) is wondering: **What is the** best software package **to** improve MDBC's business network management **such that** the number of different databases can be decreased **and the criteria** (a) multiple day-to-day activities can be performed/supported by the system under development, or need to be administrated in less systems, (b) the work-in time of new employees can be lowered (judged by the Employees), (c) we keep better track of our relationships and this information is available to all employees, and (d) the Board of Directors can answer basic queries without relying on employee's implicit knowledge **are satisfied ?**

Table 13: Summary of system specification

6.9.2. System scope

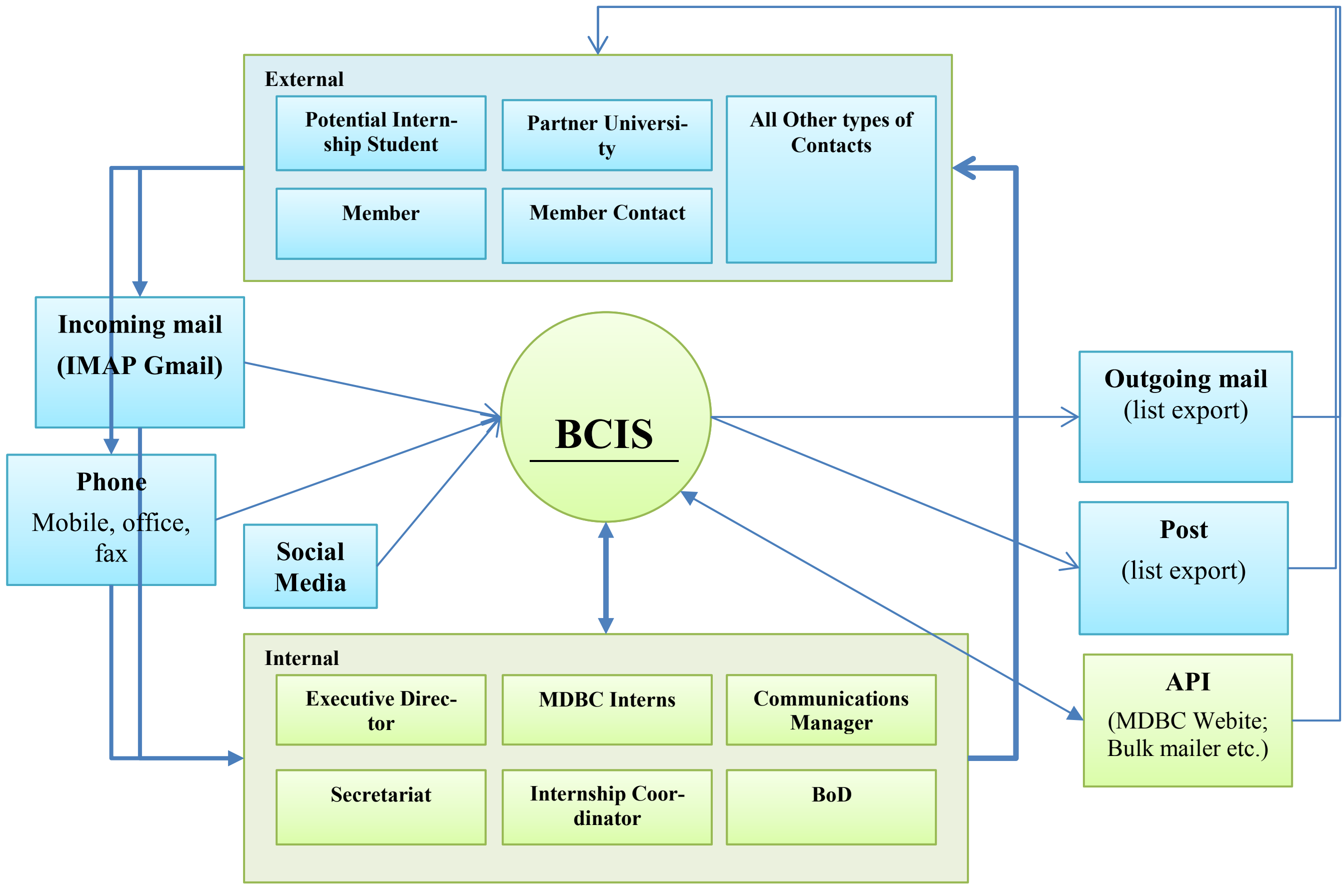
The purpose of the system can be decomposed in

(a) The need for ***Managerial (Aggregated) Information System***-behaviour to answer basic management queries
(b) ***Operational Information System***-behaviour to track interactions and to support automation / aid in multiple day to day activities.

For MDBC we are looking for (previously discussed in section *5.3: Implications for MDBC and other trade organisations (page 52))*

(c) ***Collaborative social software*** that enables the group of MDBC personnel to collaborate and interact asynchronous.
(d) To reach the criteria we require a broad view of MDBC's enacted environment. Therefore, the system falls under an ***xRM*** perspective.
(e) And we are looking for an ***information rich, processless system***
(f) That can store/display&aggregate ***relational and interaction knowledge***.

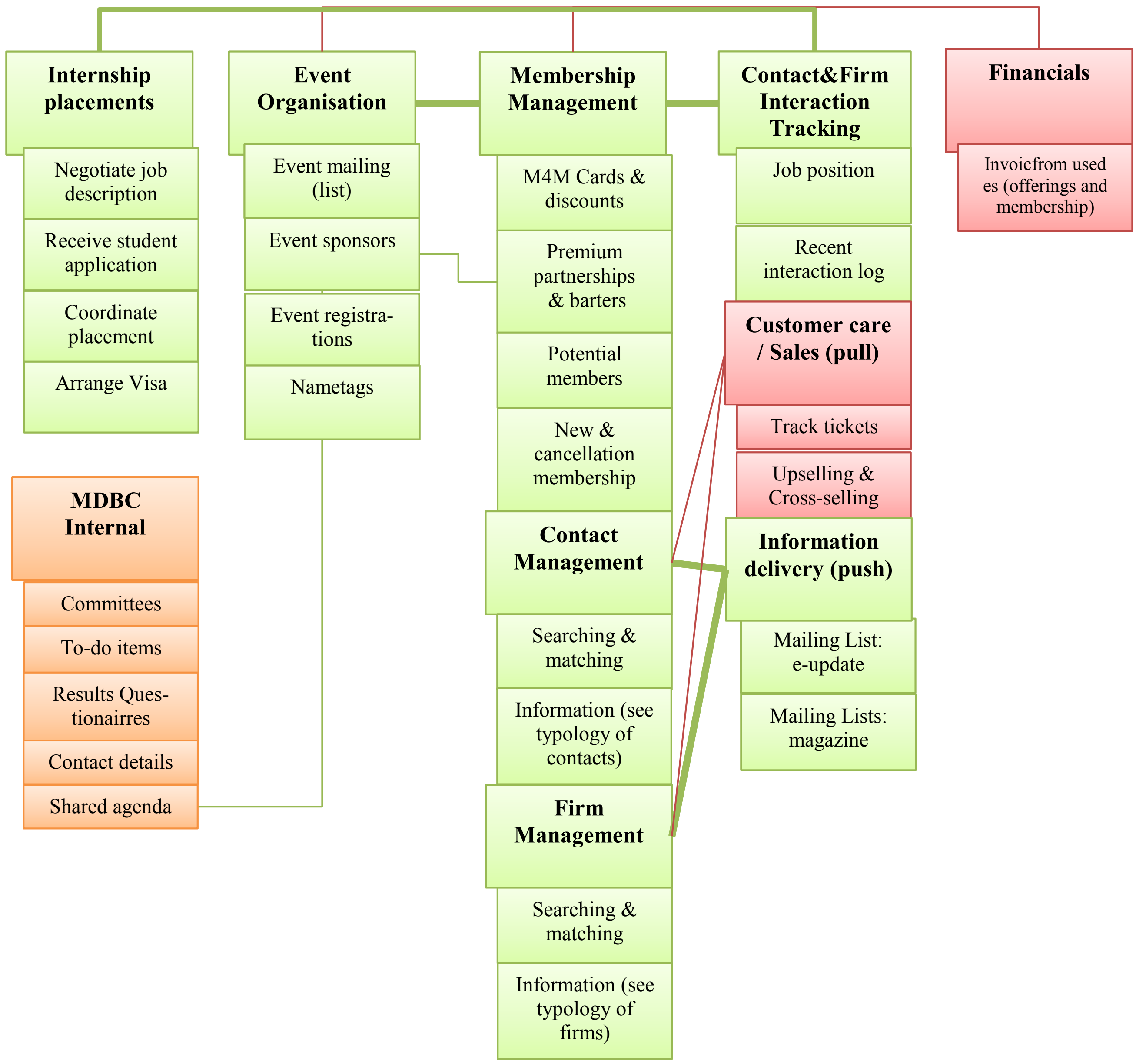
BCIS is an internally focussed system. No human external actors communicate with the system directly. External applications do interface with BCIS.



COPY OF FIGURE 25: SYSTEM SCOPE SHOWING THAT THE SYSTEM IS AN INFORMATION SYSTEM THAT GETS ITS INFORMATION VIA COMMUNICATIONS BASE TECHNOLOGIES AND INTERNAL ACTORS. OUTPUT FLOWS BACK TO INTERNAL EMPLOYEES OR SEVERAL CONNECTED SYSTEMS (EMAIL; BULK-EMAIL; REGULAR POSTAL).

6.9.3. ORGANISATIONALLY DESIRED FUNCTIONALITY

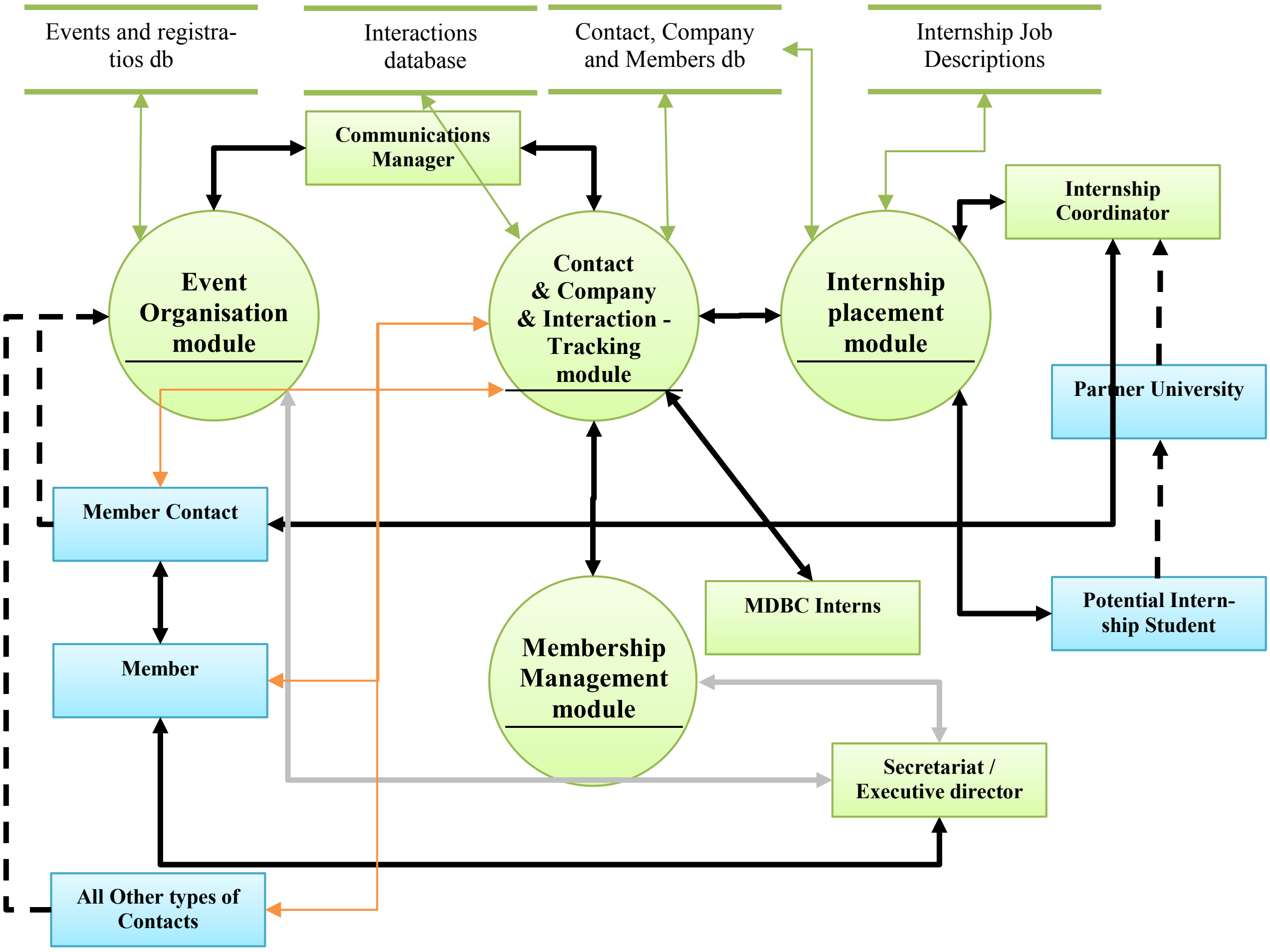
We have decomposed the functionality to comprise of at least:



COPY OF FIGURE 24: OVERVIEW OF SUD INCLUSIONS AND EXCLUSIONS BASED ON OFFERINGS. GREEN ELEMENTS ARE INCLUDED WHEREAS RED ELEMENTS ARE EXCLUDED. ORANGE ELEMENTS ARE EXCLUDED, BUT WOULD BE REGARDED BENEFICIAL IF ALSO PRESENT. (ORIGINAL IN APPENDIX ON PAGE - 61 -)

6.9.4. System decomposition

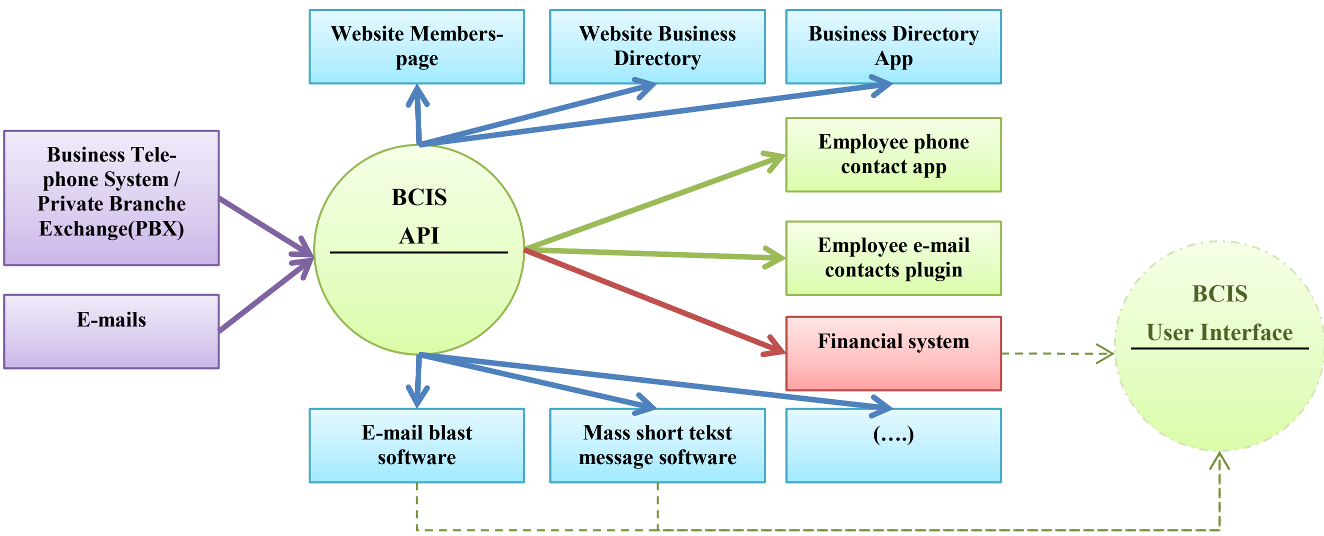
The system has been decomposed in several dependent modules to offer the functionality as posed above:



Copy of Figure 26: Context Diagram: Focussing on operational information needs.

6.9.5. API

The SuD will interface with many external applications. An overview of to-be expected 3rd party applications is given below. Note that other not depicted applications may also use the API.



Copy of Figure 27: Summary of system integrations (most likely external solutions communicating via API)

7. DESIGN EVALUATION

In chapter 7, the design evaluation is discussed. The ideal solution as proposed in the previous chapter is the result after 2 distinct iterations. Via internal evaluation and several case-studies. The case studies showed overlap with the elicited requirements and high-level decomposition, strengthening our belief that the found results are indeed beneficial for MDBC. Furthermore the case studies provided us with insight in the generalisation of the solution to the trade organisation industry.

The high-level design as proposed in the previous chapter (*section 6.9*) was discussed with several internal stakeholder to validate its exhaustiveness of both the components as the whole. Given the complexity of the system, and the novelty of the actors in the validation the validation took place only on a high-level. This poses a risk for the validity of the detailed design as provided in ***Appendix VI***, as well as the literature based recommendations of sections *6.4 to 6.7*.

The high-level components were discussed with several different but comparable organisations as case-studies. These case studies provided insight into the level of generalizability of the high-level component division of the SuD. The SuD is generalizability is limited to:

- Limited to use in Malaysia and surrounding countries only (Dim 1)
- Limited to use by the 1st world Western developed countries only (Dim 2)
- Limited to use by Chambers of Commerce and Business Councils only (Dim 3)

Within the scope of generalizability we found overlapping business networks, offerings and information sources, suggesting that indeed the SuD is also applicable for these sectors. The full case study results are available in ***Appendix VII***.

Furthermore, the found overlap also strengthens our belief that the found results are indeed correct for MDBC and that no vital components have been forgotten.

7.1. Flexibility remarks to be evaluated

In the scoping of the assignment (*Section 1.7: Scope*) we assumed that MDBC's environment, set of offerings to customers and information needs are constant and will not change over time. In the literature review we have seen that business relations are not stable over time, but are inherent to change. We excluded researching how to monitor these changes and what end state would be most beneficial for MDBC on a strategic level. However, two sources of information are of interest for the reader of this thesis.

(1) A business development study as performed by (Bakker, 2013). And,

(2) A study on two potentially conflicting structural network benefit theories as performed by (Boom N. , 2013).

No Scenario based evaluation method[55] has been used to test how the design would interact on these changes in the operating context of the SuD.

7.2. Iterative SuD development approach recommended

The dimensions, measures, and typologies as specified in the system design are based on literature and investigation but must be considered a draft as they lack real-world evaluation. <u>*We cannot guarantee*</u> that all found literature measures and indicators have been sufficiently evaluated for indicator bias. Thus we cannot guarantee that they will provide the end-user with the intended information. <u>*Furthermore*</u>, the design was created through observation, discussion and evaluation in organisations (mostly) without any previous experience with CRM & CRM system implementation. We therefore must expect their requirements to shift during the development/implementation of the SuD.

Therefore we recommend future implementers to use a highly iterative development approach such as prototyping. The modular setting of the system should accommodate the development of some basic functions at first, and can be later upgraded to better suit the industry.

[55] For example Scenario-Based Analysis of Software Architecture Methodolgy (SAAM) or another architectural evaluation method.

But before any type of implementation, the system requirement specification document must be further expanded and improved. The overall quality of software requirements could, for example, be verified and improved via (Fabbrini F. , Fusani, Gnesi, & Lami, 2000)'s natural language software requirement quality model: QuARS (Quality Analyzer of Requirements Specification). This is an automated measurement tool calculating the different proposed metrics is available, giving the specialist insight in the quality of his requirement.

QuARS looks at requirements on two levels: (i) Individual requirement sentences and (ii) The entire document (Fabbrini F. , Fusani, Gnesi, & Lami, 2000, p. 4).

8. Results for Malaysian Dutch Business Council

As the high-level decomposition is considered valid this was used as the main input for creating a Business Case for MDBC for procuring and implementing a readily available SaaS processless xRM package. The advice is to implement BatchBook. This system was rated best suited for MDBC based on a multi-criteria analysis of 89 compared systems. The chapter continues by explaining the expected benefits, costs, risks, and potential pull-out costs. It also launches the idea of a Configure-Use-Evaluate iterative cycle to constantly re-align BatchBook to a changing MDBC organisation.

Given the results from all previous chapters, combined with the project aims and the priorities as discussed with the host organisation, a Business Case was made exploring several possible solutions. Given the requirements and their prioritisation (above) a long-list of 89 systems was created. The long list was narrowed to a short list of 19 solutions. These solutions were then explored in more detail based on another set of dimensions. Please revert to the Sub Appendix for more information about the used metrics for this comparison.

The 19 short-listed solutions were compared via a semi-non-weighted multi-criteria analysis. Several solutions obtained a decent score, but one was objectively rated better in multiple components and was therefore classified as the most promising solution.

The entire Business Case can be found in ***Appendix VIII**: **MDBC Business Case for enterprise wide relationship management*** *(page **- 92 -**, onwards).*

8.1. Advice for MDBC: BatchBook

Service	Summary	Score
BatchBook.com **Best suited for MDBC !**	By far the most appropriate system to manage internship and membership information. Also a good fit for maintaining an overview of other actors in MDBC's network. Would improve if one could full text search notes; and can also improve its import/export functions' usability. It works slightly slower than the nr2 of this list, but can manage with much more complicated data (structures). Does not support events or finances, but none of the short-listed systems do. Does offer: To-do lists, saved searches, membership-maintenance forms, integrations with MailChimp mail blaster and an accounting package.	**11,5pts**

One row, copied from Table 37: Six top results from the multi-criteria-analysis

8.2. BatchBook in the organisation

The table below summarises how BatchBook matches our requirements. We see that all but two requirements are supported.

Priority	Requirement	*Status within MDBC*	
Must Have:	Management of members, potential members and previous members	*Memberships can be administrated via custom field sets.* *Potential members can be tagged or administrated via custom field sets.* *Previous members can be tagged or administrated via custom field sets.*	✓
Must Have:	Firm management and Contact management, for both members as well as non-members (enacted environment)	*Firms and contacts are alike but slightly different in BatchBook. Contacts can work at none, one or multiple firms. Both contacts as firms can be allocated these custom field sets.*	✓
Must have:	Contacts in firms that are not members	*Yes, can.*	✓
Must have:	Searching and filtering of the contacts and firms in the system	*Yes, can.*	✓
Must Have:	Exporting of email lists and (hard copy) mail lists	*Yes, can.*	✓

Should have #1:	Event organisation utilities for managing registrations, name badges and participant lists (etc.)	*The system is not designed to do so. There are ways to make it work, but it would be counterintuitive and it would also clutter the user interface severely. Thus assume it cannot, but neither can any of the other systems.*	✗
Should have #2:	Internship placement utilities to structure the documents and contracts related to the SIP program	*Yes, can.*	✓
Could have #1:	Financials[56]	*No, cannot. But it can be linked with another SaaS application that might offer sufficient functionality.*	✗
Could have #2:	Interaction tracking of e-mails, phone calls, sponsor deals, and other fields related to the relation.	*Yes, can – partially.* *All of the mentioned are possible but the user needs to add and update the information manually.*	✓
Could have #3:	Tasks sharing amongst employees	*Yes, can.*	✓
Must Have:	Runs on Windows without in-house server (can be SaaS)	*BatchBook is a Software as a Service*	✓
Must Have:	May not cost more than 1K USD / year for a basic version.	*240 US dollar per year for up to 2000 contacts and 5GB file storage* *600 US dollar per year for up to 10000 contacts and 15GB file storage* *2 months free (per year) for annual plans.*	✓
Should Have:	The system should be user-friendly	*"Friendly support to help you get the most out of BatchBook" and one hour free on boarding should get you started.*	✓

COPY OF TABLE 38: SUMMARY OF BATCHBOOK SUITABILITY PER REQUIREMENT.

In the table above we see that BatchBook aligns with most of the posed requirements for the business case. It lacks direct event organising and financial opportunities. It might be possible to link BatchBook with other services that do offer this functionality, but it will most likely not create the unified interface MDBC strives for.

8.2.1. COSTS, BENEFITS, RISKS, PULL-OUT

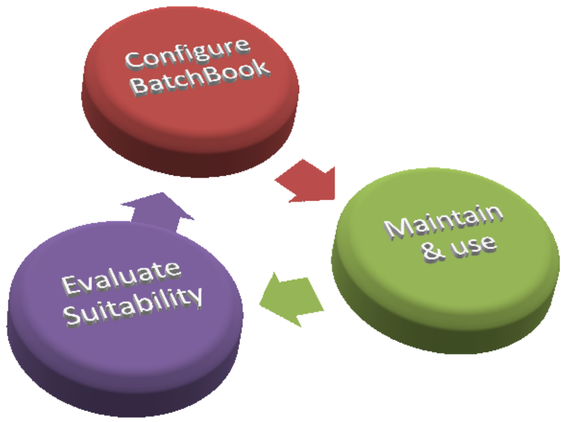
Costs:	For starters MDBC will require a Small-subscription allowing 2.000 contacts, 5GB storage and 1 hour of free on boarding per year. Total costs are US$ 200.00 per year (annual billing plan).
Expected benefits:	Implementing BatchBook lowers the number of databases, and increases data consistency / lowers error prone work processes. Implementing BatchBook will require digitalisation of implicit and analog data sources, creating a more complete overview of the network & possibilities. Implementing BatchBook (when used correctly) will lower the administrative workload
Potential risks:	Based on the risk inventory we see two main risks: *First*, failure to keep the system updated by one employee resulting in demotivated colleagues and disbandment of the system. *Second*, A halted migration path when the project leader (main author) exits the organisation and the project champion (Mr. Koster) is not in the position to push the project forward (for diverse reasons).
Pull-out costs:	Subscriptions can be cancelled one day before the start of the new period. Monthly billing is available. Migration to another system may be a bigger issue. As the semantics of the current system may not fully comply with the semantics of the future system a shear amount of manual translation might be required.

[56] This was excluded in the thesis scope. Therefore we cannot focus on detailed functional requirements for this element. However, we assume this regards Memberships (annual fees); Events (event registration fees); Internship Programme (student deposit, placement fee, application fee, corporate visa handling invoice) . We also assume this does not include other cash flows – such as buying office supplies.

8.2.2. Day-to-day operations

Same as for the SuD, we expect that the organisation and the requirements for the solution will change over time. Luckily, BatchBook is easily reconfigured with new and/or other information fields, searches and export possibilities. It is recommended to schedule regular (2 times per year) evaluation sessions where the suitability of BatchBook for day-to-day operations is evaluated.

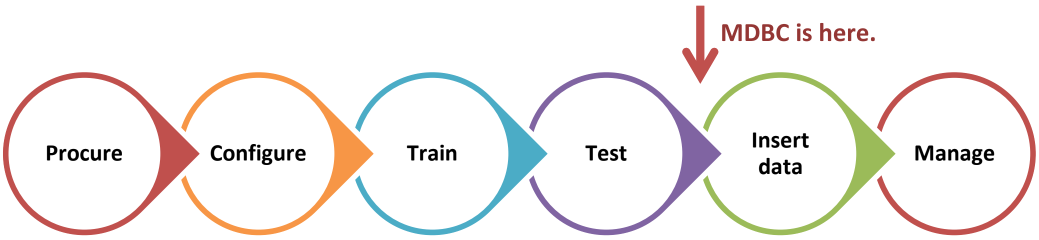
Potential remarks should be embedded in MDBC's BatchBook configuration, after which users can once again fully use & maintain BatchBook with the added pleasures they helped create.



8.2.3. Current status

Execution of the business case is currently on-going. The proposed system has been purchased and the personnel have received basic training. Migration and insertion of the data sources is currently on the way but has had issues and is currently behind schedule.

Migration path to BatchBook:



9. ANALYSIS AND DISCUSSION

In the conclusions chapter we look back at the research question, design question and CRM suitability question. We will deduce to what extent we reached the criteria of the research and design questions. The chapter ends with an evaluation of the stakeholder goal criteria. Most criteria are satisfied, but only if BatchBook is implemented, used and evaluated correctly.

9.1. SQ-1: Traditional CRM suitability

We hypothesize that the criteria

(a) multiple day-to-day activities can be performed/supported by the system under development, or need to be administrated in less systems,
(b) the work-in time of new employees can be lowered (judged by the Employees),
(c) we keep better track of our relationships and this information is available to all employees, and
(d) the Board of Directors can answer basic queries without relying on employee's implicit knowledge

cannot be justified by systems adhering to the typical sense of Customer Relationship Management systems.

In *Chapter 5* we investigated the evolution of typical CRM packages. We have seen that from the traditional Contact-Management-Systems, a shift took place towards Sales-Force-Automation, increasing the scope and offered functionality. This extra functionality comes with the 'benefit' of structured sales processes (required for management information). We have shown that MDBC would be negatively influenced by that rigidness.

Furthermore, we have seen that CRM packages have increased their scope to include After Sales and Customer Care functionality in CRM-360. We also showed a lack of focus in the business network view. Typical CRM packages still focus on the customer-relationship and have only limited views on the larger xRM / enacted environment focus required for MDBC. By deduction we showed that indeed a typical CRM package

- Cannot incorporate the xRM business scope network, thus not lowering the number of databases within MDBC
- Therefore the work-in time of new employees is only partially lowered
- And nor can we track all relationships in the same manner.
- Additionally, the amount of implicit network knowledge is only slightly reduced.

Therefore indeed, a typical CRM package will not be most beneficial for MDBC and similar organisations.

This claim was also investigated via a qualitative survey in *Chapter 4*. Several typical CRM systems were selected and a total of 15 students evaluated their suitability for several scenarios. Given the questionnaire results we conclude that CRM systems are somewhat tedious and not suitable to perform the tasks as sketched in the scenarios. We have also argued that the scenarios on itself do not pose measure invalidity in the use below. The ability ratings are inconclusive. Additionally, we have deduced that criterions remain unreached by inhibition through the tediousness/unsuitability of the typical CRM system. By this reasoning we could reject the opposing hypothesis and thus the alternate working hypothesis must be correct.

Both results justify the in-depth exploration of MDBC in the following three component chapters followed by the design of MDBC's 2nd iteration ideal solution.

9.2. SQ-2: Design question

Improve	business network management, information storage and accessibility – of MDBC
by	designing a *generic high-level functional* business network management model
that is compatible with	bilateral trade organisation-sectors' offerings
	and MDBCs in particular

in order to	(a) multiple day-to-day activities can be performed/supported by the system under development, or need to be administrated in less systems, (b) the work-in time of new employees can be lowered (judged by the Employees), (c) we keep better track of our relationships and this information is available to all employees, and (d) the Board of Directors can answer basic queries without relying on employee's implicit knowledge
such that	this model can be used to find an appropriate off-the-shelf solution for MDBC

Through synthesis of the results of a broad literature review combined with an in-depth analysis of three separate components regarding MDBC's environment we were able to design/specify an initial "ideal solution". This initial solution was iterated twice on a high level. First, by evaluation and validation with internal actors at MDBC. And second, by evaluation with several similar but distinct case studies.

The cases studies verified the expected overlap in typologies regarding business networks, offerings, members/firms/contacts/interaction and the type of internal information sources, suggesting that indeed the SuD is also applicable for these companies. Furthermore, the found overlap also strengthens our belief that the found results are indeed correct for MDBC as well and that no vital components have been forgotten.

We therefore feel that we can improve MDBC's business network management, information storage and accessibility through our designed BCIS. We have to some extend showed (through the case studies) that indeed BCIS is compatible for use by other bilateral trade organisations within the specified criteria.

By use of BCIS we believe the host organisation is enabling itself for growth. For example, by mitigating Dunbar's network size limitations. Further, more sensible information is available as specified in the typologies of contacts, firms and interaction. And lastly, by combining all this sensible information in one system the continuity of MDBC's services is improved. More information is semantically and explicitly available for all actors in the host organisation.

As explained in *Chapter 7*, the resulting ideal-solution specification is a decent first draft, but not ready for implementation. We recommend future implementers to use a highly iterative development approach such as prototyping. The modular setting of the system should accommodate the development of some basic functions at first, and can be later upgraded to better suit the industry.

9.3. Research question

What is the	best software package **to** improve MDBC's business network management
such that	the number of different databases can be decreased
and the criteria	(a) multiple day-to-day activities can be performed/supported by the system under development, or need to be administrated in less systems, (b) the work-in time of new employees can be lowered (judged by the Employees), (c) we keep better track of our relationships and this information is available to all employees, and (d) the Board of Directors can answer basic queries without relying on employee's implicit knowledge **are satisfied ?**

Based on the validated high-level ideal solution from the design question we can further investigate which software package is readily available and sufficiently satisfies the criteria. In *Chapter 8* we summarise the Business Case for MDBC showing that BatchBook is the most suitable candidate for implementation. However, the set of potential solutions is nearly limitless in size and researching all far exceeds the available resources for this project. We can therefore not guarantee that we found the most suitable system in the world. We can guarantee that we found the best suited system from our 'universe' of investigated systems.

a) The found package, BatchBook, indeed enables MDBC to decrease the number of databases significantly. For example there is no need to maintain separate e-mail lists, postal mailing lists, contact lists and several copies of membership information and the respective principal contacts.

b) Though not ideal, some day-to-day activities are performed/supported by BatchBook. Such does it help with the generation of lists; it is integrated with MailChimp (MDBC's mass e-mailing service) and it coordinates the information sources surrounding SIP+visas. It also stores membership details. Not supported are, amongst others, financials and event planning. Note that there are actually recent plugins for BatchBook that claim to mitigate this issue. These have not been reviewed.

c) First off, BatchBook allows us to automatically search and filter the relational and contact information in the system. Furthermore, BatchBook enables us to store interactional information for each relationship. Therefore it encourages MDBC to better track their relationships and makes this information explicitly available for all employees.

d) Depending on the use of BatchBook by MDBC it can be used to administrate the source information for management information for the BoD. For example, we have added date fields for the visa application. This information can (i) be used to mailmerge status updates to students. But it can also be exported to Excel and converted in aggregated management information regarding the response times from Immigration.

Based on (a) through (d) we conclude that the criteria have been sufficiently satisfied, and encourage MDBC to make the best use of what the system has to offer.

9.4. Expected stakeholder satisfaction

The research and design questions are based upon the stakeholder goals as inventoried in *section 1.4: Stakeholders and stakeholder goals (page 6, onwards).* In the previous sections we have concluded that both the research question and the design questions have been sufficiently answered. In this section we will evaluate the separate goals to validate the success of this thesis project.

Goal #		Achieved
IG-1)	To some extent relevant implicit knowledge regarding MDBC's network will be stored in BatchBook. BatchBook will also integrate several databases, lowering the total remaining number of databases. This enables further aggregation and through semantics gives more context to the meaning of the information.	Yes.
IG-2)	Some day-to-day activities are supported or performed by the system. And this change results in less work for the employees, improving the efficiency of day-to-day activities. We believe by using BatchBook MDBC will spend less time on administrative tasks, reducing its workload and improving its growth potential.	Yes.
IG-3)	By making MDBC's business network (enacted environment) more transparent implicit knowledge has been made explicit. Therefore, we believe new employees understand faster the broad scope of MDBC's network and can obtain more information without disturbing the CM or ED. This lowers the dependencies on MDBC staff and also assures continuity of MDBC's services and network utilisation during employee vacation or resignation.	Yes.
IG-4)	When used correctly and continuously, the notes attached to contacts within BatchBook improve the asynchronous collaboration possibilities between MDBC employees. The use of to-do lists within BatchBook will also help in this aspect. However, embeddedness is only documented with limitations and we do not expect MDBC to keep interaction transcripts on each interaction in BatchBook.	Partially.
IG-5)	Answering basic management queries is possible through exporting data to Excel and aggregating the information there. However, this all depends on the completeness and correctness of the stored information. There is no safe guard that ensures all information is properly inserted.	Partially.
EG-1)	By combining the several databases, work-in time for future interns should be lower. Enabling them to easier answer queries from members when they contact MDBC via telephone. This should make members happy, but may require more design iterations to perfect.	Partially.
EG-2)	When good interaction transcripts are held within BatchBook and BatchBook is consulted prior to interacting with a contact, it will enable MDBC staff to streamline this relationship. However, there is no organisational code requiring the employee to do this.	Partially.

Yes, we expect our stakeholders to be satisfied with the results, but only when the data migration risks have been mitigated and BatchBook is fully operational. When used properly many of the "partial" achieved goals may be upgraded to a "yes" answer. It all comes down to Configure, Use/Maintain and Evaluate-iterations. This iteration cycle have been proposed in the business case section.

10. VALIDITY

In this chapter we discus if the proposed solution (BatchBook) is valid. We do this, first by showing that the desired effects are created and that they in turn satisfy the project goal criteria. We once again stress the future work involved to mitigate the risk of implementation failure. The chapter continues by discussing the validity of all components in the methodology separately. We believe the solution is valid and to some extend the SuD is generalizable to a broader environment. The chapter ends with remarks about the academic relevance of the thesis and suggests areas for future work.

10.1. Validation of solution

Chapter 13 concluded the thesis and provided answers to the research and design questions. In this section we will investigated to what extend we trust the artefact design. This is explained by discussing three separate questions to question the design (artefact), the context and desired effects. Cf (Wieringa p. R., 2010, p. slide 14). There are no trade-offs to be made between different designs/solutions in this thesis.

1) DOES BATCHBOOK (GIVEN THE CONTEXT) GENERATE THE DESIRED EFFECT?

Yes, we believe so. See section *9.2: SQ-2: Design question (page 77).*

2) DO THE GENERATED EFFECTS SATISFY THE CRITERIA?

Yes, if used appropriately it will. See *section 9.4: Expected stakeholder satisfaction (page 79).*

3) HOW SENSITIVE IS BATCHBOOK FOR DIFFERENT CONTEXTS?

The custom fields are quite flexible, thus changes in information needs can be managed. The alignment of BatchBook with MDBC's needs is safeguarded by the introduction of a BatchBook Configure-Use-Evaluate cycle. Thus BatchBook is reasonably flexible for changing environments, but it is an organisational matter whether it will implement the cycle and keep BatchBook aligned.

10.1.1. FUTURE WORK

The main risks for the implementation of BatchBook as stated in the Business Case appendix still apply: *First*, failure to keep the system updated by one employee resulting in demotivated colleagues and disbandment of the system. Therefore it is of fundamental importance that the day-to-day operations are monitored and the proposed iteration cycle is implemented: Configure, Use, Evaluate!

Secondly, a halted migration path when the project leader (main author) exits the organisation and the project champion (Mr. Koster) is not in the position to push the project forward (for diverse reasons). Even after a few setbacks it is vital to push forward and migrate the data into BatchBook. Stay positive as it will deliver its value when used properly.

10.2. Validation of thesis

Throughout this thesis we aimed for tractability and transparency. As a result of these aims several large appendices have been appended to the report. In the following subsections the validity for the thesis components will be discussed. Overall, we believe all validation issues are sufficiently mitigated and do not pose a large risk on the advice for MDBC.

10.2.1. PROBLEM DIAGNOSIS

To better understand MDBC we performed a micro analysis. To frame this information we also performed a MACRO analysis between The Netherlands and Malaysia. For both we used standard analysis techniques and the resulting documents have been checked by internal actors. The macro analysis has also been verified by a Malaysian national. The diagnosis was made based on the micro&macro analysis combined with several internal discussions. The resulting causal problem chains, causal chart and diagnostic theory have been verified by the Board of Directors. There is no indication the analyses are incorrect or incomplete. There is always a (small/mitigatable) risk that we will manipulate the cause, but the desired effects do not arise appropriately. This was not fully mitigated as there were no extra actors available to verify the causal charts with.

The stakeholder analysis was based on the work of a highly regarded scholar and verified with several independent checklists. (Wieringa p. R., 2010). According to Google Scholar[57] Prof. Wieringa has an h-index of 38, meaning at least 38 papers have at least 38 citations which is a decent score. For each stakeholder related to the thesis we identified measurable goals. Construct validity of these goals has been checked an is not perfect. However, the found measures with better construct validity imposed such costs they were not affordable for this setting.

10.2.2. Literature review

Given the broad spectrum of required literature and the broad scope of the thesis the literature review imposed three risks to the thesis validity.

First, only one search engine (Google Scholar) was used to search for appropriate literature. This search engine uses a proprietary sorting mechanism and we only added the first 50 results per search query to our literature review pool. Beneficiary to Google Scholar is that it places papers with high citation counts and papers from scholars with high performance indicators higher in the results.

Secondly, the found papers were first narrowed on a title selection basis, potentially removing interesting papers. We accept that using only one scholar search engine, and looking only at the first 50 results can have an impact on the completeness of the found results. This validity issue could be mitigated by executing all searches on other scholars as well and embedding the found results in the literature review. We have not done so. Additionally, the bibliography from found literature was investigated to find addional critical papers.

Thirdly, given the imposed project constraints we may have missed vital papers related to one of the academic fields. We cannot guarantee the completeness of the literature review. However, we found no indication that we lack vital insights.

Where appropriate we used literature suggested by professors from the University of Twente via their taught courses.

10.2.3. Testing the hypothesis

As we formulated a working hypothesis, we assumed it would be correct. Therefore, when testing the opposing hypothesis, the desired outcome was known imposing confirmation bias[58]. We tried to mitigate this bias in multiple ways.

First off, we chose two separate paths to test the opposing hypothesis: Two disjoint measures for one construct.

- With regards to the deduction-proof (based on CRM evolution milestones and system scopes) we tried to maximise the tractability of the deduction such that each reader can follow the causality. This incorporates the reader to form their own opinion.
- With regards to the questionnaire-proof we blinded the respondents. They were unaware of the desired outcome up to the last question. Furthermore, the scenarios were chosen to reject systems but the questions were not. As we had no interaction with the respondents directly during the survey we call it double blind without experimenter bias.

Deduction proof

We cannot guarantee that our typology of systems as described in *chapter 5: CRM system development history vs. the trade organisation* is exhaustive. Creating an exhaustive and reliable overview of these fields is not possible within the resources of this thesis – and is not required for successfully designing MDBCs ideal solution. However, it does pose a risk for the validity of the Business case for MDBC.

Questionnaire validity

The selected applications represent the field of 'typical CRM systems'.

Cross-reference evaluation of the six scenarios with the grouping of common tasks in MDBC (See *section 4.3*) have resulted in three absent elements and two underspecified elements. These conflicts with the results of the questionnaire in only one direction: Programs passing the scenario review with flying colours could still fail to accomplish the

57 See his profile page at http://scholar.google.com.my/citations?user=tnnvSM8AAAAJ&hl=en&oi=sra

58 The introduction as given on Wikipedia is a good start for novice readers: http://en.wikipedia.org/wiki/Confirmation_bias . Or the text on The Skeptic's Dictionary (by Bob Carrol): http://skepdic.com/confirmbias.html .

goals MDBC has stated for this project. A product line failing to comply with the scenarios would still be unsuitable for MDBC's purposes. We therefore see no internal validity issue here. However, when another scholar would reinvestigate this section of the thesis he/she is advised to change the scenarios accordingly.

The scenarios were easily understood by participants.

The number of participants is small, but experts in the area of IT. This implies that they can understand the system more easily then novice IT students. And their academic background increases objective results. We do not feel there is a problem with selection bias in the participant group.

There is a risk for experimenter bias in the result interpretation as the data does not yield not statistically significant results. Alternate interpretations may arise. Alternate interpretations might result in reasonable 'alternative explanations' and therefore in failure to reject the opposing hypothesis. Future work is to make a proper set of scenario's and repeat the investigation with a larger set of participants.

10.2.4. Environment analysis

It is never guaranteed that all information is elicited. However, for the elicitation we used qualified proven tools in such a mixture that the elicitation risks were mitigated to reasonable level. Look back the related methodology *section 2.5 (page 18, onwards)* for further details. We do not see substantial risks for the validity of the results.

10.2.5. System design

The system design validity will be discussed in three separate sections: functional, non-functional and the component decomposition.

Decomposition of components

The decomposition of components was internally evaluated and validated with the help of several case studies. The validity of these techniques is discussed in the next section (*10.2.6*).

Requirements

The requirements provided in the appendix serve only as a rough draft upon which the decomposition is based. Always explore the solution to one level more detail than is actually needed to resolve the issue at hand. This reduces potential design issues in the solution.

Non-functional requirements and Quality gird

The shortlist of quality factors of the system were filtered by the main author based on his interpretation of the domain. This approach can be improved by interaction with more stakeholders on their concerns and interpretations on usability of the system. A semi-structured interview with directed questions and pre-elicitation conditioning seems appropriate in that setting. We have not chosen this approach as resources do not permit us to do so. The main author has been an active member of the organisation during a five month period, and we therefore assume his judgement based on observations is sufficient – posing only little risk to the validity of this section.

10.2.6. Design validation

Internal evaluation

The high-level design as proposed in the previous chapter (*section 6.9*) was discussed with several internal stakeholder to validate its exhaustiveness of both the components as the whole. Given the complexity of the system, and the novelty of the actors in the validation the validation took place only on a high-level. This poses a risk for the validity of the detailed design as provided in ***Appendix VI***, as well as the literature based recommendations of sections *6.4 to 6.7*.

Case study validation

Most of the contacted case study organisations participated in the study. During our visits we noticed positive attitudes, and exhaustive detailed trustworthy answers. The case studies were performed via a semi-structured interview technique. Preferably face-to-face (on site) and otherwise via video conferencing. Though we might have had some levels of confirmation bias the semi-structured interviews mitigate the risk that larger components were left non-discussed or that negative responses were neglected. But mitigating bias starts by identifying the bias.

Design validity

Overall we have no reason to question the validity of the high-level design for the SuD or the retrieved inputs from the evaluation sessions. Yet the more detailed design still needs further evaluation. Possibly with the insights from (Browne & Ramesh, 2002) regarding requirement elicitation, representation and verification.

10.2.7. ADVICE FOR MDBC

The lower validity for the detailed design has no impact on the validity of the business case for MDBC as this is based on the high-level decomposition. The business case was created via a reasonably normal long list to short list filtering technique based on multi-criteria analysis. The used metrics have been added to the appendix for the reader's reference.

We cannot guarantee that all possible solutions have been identified in the long list. Nor can we guarantee that we have not rejected a system under false pretence due to a lack of information. However, we can state that BatchBook is a sound solution for MDBC.

Potential benefits for MDBC are based on the systems functionality and are accompanied by proof in the proposed system configuration. The costs for MDBC are factually correct but do not include the costs of operation (e.g. man-hours). We key argument here is that we have deduced that the gain in efficiencies should result in less work and that the gained insights (and tacit knowledge) are otherwise worth the spent time. The other elements are based on literature or logic. In *Chapter 8* we have concluded that BatchBook does indeed answer the Research Question, and that the stakeholder goals are sufficiently answered.

10.3. Academic relevance

Much has been written about CRM. But as became apparent, this thesis is about xRM. And furthermore it projects several theoretical fields onto the environment of trade organisations. The result is a rough draft of measures, dimensions and properties that would form an xRM solution that ideally servers (bilateral) trade organisations. To our knowledge, this thesis is the first attempt to do just this.

Standing on the shoulders of giants, is definitely an important theme in this thesis given the broad span of literature influence. From requirement elicitation to (Rose, 1999) and (Granoveter, 1985). This also implies the use of several frameworks and tools. Some are relatively normal and often cited, such as PEST-E analysis, Organisational charts (Mintzberg, 1981), Design Science Methodology (Wieringa p. R., 2010), etcetera. But also some less cited and common tools have been used, including

- (Browne & Ramesh, 2002, p. 627)'s predictions a tools proneness for biases.
- Acquisition of Requirements (ACRE) by (Maiden & Rugg) to select appropriate requirement elicitation, representation and verification tools.
- Netchain modelling by (Lazzarini, Chaddad, & Cook, 2001) as a diagram technology to clarify business network structures in discussions.

10.3.1. WE FOUND TRADITIONAL CRM UNSUITABLE AND SOMEWHAT TEDIOUS FOR TRADE ORGANISATIONS

Via two ways we deduced that traditional CRM packages are unsuitable for trade organisations. Though some other flavours of 'CRM' exist (such as processless CRM) the sales driven history inhibits the alignment of CRM to the needs of trade organisations.

By looking at the evolution of CRM, and the current trends in the sector we find that CRM is and was focussed on sales and customers. And not on relationships with all types of actors (enacted environment) within a business network. Because of inherit shortcomings, a typical CRM package is not most beneficial for trade organisations. (Chapter 5)

Alternatively, via a survey set out amongst 15 experts we performed a scenario-based analysis. While the results are not statistically significant, we believe the data is qualitatively sound. We found that traditional CRM systems were somewhat tedious and not suitable to perform the tasks as sketched in the scenarios. (Section 4.3)

These findings need further exploration but are interesting to steer xRM/CRM research back to the relationship and away from up-selling and cross-selling.

10.3.2. COLLABORATIVE SOCIAL SOFTWARE – A NEW CONCEPT

We found definitions for collaborative software (teams working on tasks) and social software (asynchronous collaboration platforms). For trade organisations we deduced these two must be incorporated to one specific type of software: Collaborative social software (Section 5.2). We defined this as “Software that provides an interface to a shared environment to support the asynchronous collaboration of groups of people”.

We hope to see more about how these two types of software work together and what their key success factors are.

10.3.3. Trade organisation business network software

Summarised we see the ideal software package for trade organisations (Section 5.3)

- Collaborative social software
- With an extended (xRM) business network scope.
- The package should be processless (without SFA and/or ERP functions restricting data entry and usability),
- And able to store, display and aggregate data about relations & interactions, including contacts and firms

We created a more detailed but still conceptual, 2nd iteration high-level design for the ideal solution. Other scholars can build upon our transformation from theory to information technology views. And developers can use the initial design to implement a new generation of systems. We hint towards using a rapid prototyping technique and stripping away what does not seem to work (Chapter 6.and Appendix VI). As no fully compatible products were found in the Business Case for MDBC (Chapter 8) it seems that there is a niche market with no competition.

10.3.4. Future work

Developers with the interests of continuing this line of study are recommended to iterate the requirements with the help of additional case studies. A rapid prototyping technique may be beneficial to fully understand the impact of certain measures. This will also allow the host organisations to change its view on the desired solution as they gain an understanding of the possibilities of the system. From a usability standpoint we believe a slim implementation is better than a bloated one.

Scholars with the interest of continuing this line of study are requested to take a more in-depth analysis in any of the areas as discussed in the literature section. We have used older materials from known authors that were highly cited. This implies that we may have missed underdog theories or newer insights. We cannot claim our insights from literature are exhaustive. Nor can we claim that the measures will not influence each other. More research on each of these elements will increase the value of this work.

Networks are dynamic in nature. Some forms of changing relationships have been included in the design. But no decent analysis of dynamic network structures and/or influences of external conditions have been performed. This may yield interesting new insights in the type of data that should be administrated in the ideal solution

Currently, it is common practice for CRM packages to request users to manually update the system after every interaction with an actor. Manually inputting a summary of a phone call, text message or e-mail. We hope this tedious task can be improved as we deem the current solution tedious, time consuming and not user friendly. Keeping relevant up to date data in the system is important. Once the system is outdated other users will stop using the system.

Those that are searching for a similar solution or are experiencing similar issues as MDBC are invited to do their own business case analysis. There are many potential systems on the World Wide Web and on a regular pace new SaaS solutions are launched. Meaning, for you, perhaps another solution is more promising.

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Appendix I. ABOUT MALAYSIA

This appendix aims to highlight several key aspects of Malaysia. In some cases a clear comparison between The Netherlands and Malaysia is made. The tool used for the analysis, is a PESTE analysis which looks at **P**olitical, **E**conomical, **S**ocial, **T**echnological and **E**nvironmental aspects on a macro-level.

As shown in the Introductory section of this thesis there are three primary arguments for companies to expand operations to the global markets, to benefit from (i) Economies of Scale, (ii) Economies of Scope and (iii) Low-cost production facilities. Malaysia is an interesting country for trade as they; (i) are reducing trade barriers and tariffs, (ii) have invested heavily in logistics, and (iii) their recent advances in communications infrastructure (cf. Analysis in *section 1.1: Why companies enter the global arena and Malaysia (page 1)*).

Malaysia's past 400 years history is quite different from that of The Netherlands. The territory of Malaya was colonised (part of current Malaysia) in 1511 by the Portuguese. The colony changed hands several times. Only in 1957 the Federation of Malaysia was formed when it gained its independency from the British. The time between was summarised by (Mosaic, 2012) as follows:

1511	Portugal established a colony at the peninsular land mass
1624	The colony became Dutch
1824	The colony became British
1941	Japan occupied Malaya and Singapore during World War II
1944	The British defeated the Japanese in Malaya
1948	Struggle for an independent Malaya started
1957	Independence from the British formalised, formation of own constitution (CIA, NL&MY) regards Malaysia as an independent state since 1957.
1963	Formation of the Federation of Malaysia (CIA, NL&MY) regards this the formation year of the Federation.
1965	Singapore departed from the federation (CIA, NL&MY)
1967 – 1970	Development of “the Malaysian identity”, resulting in disturbances: Islam as the constitutional religion Bahasa Malay as the national language Introduction of a national education system New economic policies, favouring native Malay
1981	Tun Dr. Mahathir bin Mohamad became prime minister of the Federation of Malaysia
1987	The Internal Security Act was invoked

Political

The following information was gathered from (CIA, NL&MY). The Federation of Malaysia was formed in 1963 and then contained 14 states. Several located on the peninsular land mass, others on the Malaysian side of the island Borneo. In 1965 the state of Singapore left the federation, resulting in the current 13 states. Each separate state has its privileges, but its power is limited by the federal constitution.

Four of these states are ruled by governors, the others have a hereditary ruler (or sultan). Malaysia is a constitutional monarchy, and the 'king' is elected once every five years from the nine sultans (State). Although the monarch title is mostly ceremonial the title still brings some privileges.

The Malaysian Investment Development Agency (MIDA, 2012) promotes several supportive government policies to encourage investments in Malaysia:

- Pro-business policies
- Responsive government
- Liberal investment policies
- Attractive tax and other incentives, including a double taxation agreement with The Netherlands.
- Liberal exchange control regime
- Intellectual property protection.

Parliament

Malaysia knows a bicameral parliament, headed by the prime minister. The Prime Minister is selected from among the lower house members. The lower house is also called the 'House of Representatives' (or Dewan Raykat), and its 222 members are elected by the people via popular vote. Each of the 222 regions (or constituency) will fill one seat via a the-winner-takes-all principle. The upper house consists of non-elected members whom have been appointed by the king or by a state legislature.

The primary alliance for the House of Representatives, The Barisan Nasional, which currently consists of thirteen parties (Nasional, Component Party) has obtained the most seats in all elections since 1974[1]. As the alliance is formed prior to the elections, in essence Malaysia is a single-party state. The alliance strives for (cited from their website):

- *To foster and maintain a united and harmonious Malaysian nation;*
- *To strive for material and spiritual development and maintaining Islam as the religion of the Federation; but other religion may be practised in peace and harmony in any part of the Federation; and to uphold and practise the principles of the Rukun Negara;*
- *To strive for the achievement of a fair and just society;*
- *To promote closer relationship between the member parties.* (Nasional, Objective)

Views on this alliance differ; *"In 2005,* [Dr.] *Mahathir* [former prime minister] *stated that "I believe that the country should have a strong government but not too strong. A two-thirds majority like I enjoyed when I was prime minister is sufficient but a 90% majority is too strong. ... We need an opposition to remind us if we are making mistakes. When you are not opposed you think everything you do is right."* - (Wikipedia, Politics of Malaysia).

Corruption

In 2011 the Transparency International organisation released a new version of the Corruption Perception Index (International, 2011)[2].

Netherlands:	8.9	7th overall	5th in Western Europe
Malaysia:	4.3	60th overall	11th in Asia Pacific Region

1 List of General Elections in Malaya and Malaysia (Ahmad, 1999, p. 8)
2 The results are also visible online, Visit http://cpi.transparency.org/cpi2011/results/. Data given here were gathered September 26th.

Singapore:	9.2	5th overall	2nd in Asia Pacific Region

TABLE 14: CORRUPTION PERCEPTION INDEX SCORES FOR THE NETHERLANDS, MALAYSIA AND SINGAPORE.

Malaysia scores relatively low compared to Singapore and The Netherlands (thus there is more corruption). But does relatively well compared to its other geographical neighbours (Thailand: 3.4; Indonesia: 3.0; Philippines: 2.4; and Myanmar: 1.5). Also See *Figure 16 below*.

FIGURE 16: TRANSPARENCY INTERNATIONAL CORRUPTION INDICES FOR THE EAST-ASIA REGION. DARKER RED IMPLICATES MORE CORRUPTION. (IMAGE FROM (INTERNATIONAL, 2011) – WEBSITE, ADAPTED BY AUTHOR).

FREEDOMS

In the 1960s the Internal Security Act (ISA) has been in power. This Act is a piece of anti-terror legislation in Malaysia. Among other things, it allows the police force to detain any person for up to 60 days without warrant or trial. It also limits the rights on freedom of assembly, association and expression ánd the freedom of movement, residence and employment. In 2011 Prime Minister Najib Razak promised to repeal this and many other controversial laws. New laws are promised to replace them, and give more 'judicial oversight' (Mosaic study tour preliminary report). Subsequently the Internal Security Act was repealed and replaced by the Security Offences (special measures) act of 2012.

An issue that remains is the Freedom of press being relatively low. Freedomhouse describes Malaysia as "Not Free" ranking it 143rd on press freedom. The state has a lot of influence on television stations and newspapers. Some media are owned by political parties of the coalitions, others do not wish to run critical articles as they might lose their publications license (See: Printing and Presses Act; (cf. (Cambon, 2003)). As a comparison, The Netherlands is ranked 5th together with Switzerland, Luxembourg and Denmark.

Freedom	Malaysia/World	Malaysia/APEC	Netherlands/World
Freedom of the Press:	143rd	10th	5th
Freedom on the Net:	Partly Free[3]	--	n/a (Free[4])
Political rights:	129th	22nd	1st
Civil liberties:	114th	21st	1st

TABLE 15: FREEDOMHOUSE RATINGS FOR FREEDOMS IN THE WORLD - 2012 PUBLICATION DATA BY (FREEDOMHOUSE, 2012). POSITIONS ARE SHARED WITH MULTIPLE OTHER COUNTRIES.

THE NEW MALAYSIAN IDENTITY, NEW ECONOMIC PLAN, MALAY FAVOURITISM

In the mid-1960s the wealth within Malaysia was unevenly divided. Most of the economy was held by foreign and Chinese companies, leaving only 2.5% of the corporate wealth to the Malay. (Cambon, 2003, p. 36): "Something had to give."

[3] See http://www.freedomhouse.org/report/freedom-net/2012/malaysia .
[4] Claim is based on the German status as no analysis of The Netherlands is available. See http://www.freedomhouse.org/report/freedom-net/2012/germany .

In this time the Malaysian government tried to lower tensions by creating a Malaysian identity. Efforts involved making Bahasa Malay the national language and instituting a national educational system. As tensions rose, an election celebration march ended in full-scale riot. The new government instituted the 'New Economic Plan', targeting that 30% of Malaysia's corporate wealth had to be in the hands of indigenous Malays and 'princes of the land' within 20 years. Tools to achieve these goals are in heavy favouritism for Malay. Such as favouritism to Malay in government contracts; low-interest loans, only for Malay; and government grants for education abroad (Cambon, 2003, p. 36): The efforts worked as a Malay middle-class emerged.

Currently, these laws favouring indigenous Malay are still actively enforced.

Courts, law and legislation and Syariah courts

Malay are Muslim at birth by constitutional law, regardless of their ethnic heritage. If a Malaysian refuses to be a Muslim, they are –legally- not Malay, hence forfeiting the positive discrimination benefits as described above. Malaysia's government upholds Islamic tradition and beliefs in federal law, but is wary of religious extremism. *"Syariah (Islamic law) is the preserve of state governments, as is the establishment of Muslim courts of law, which since 1988 cannot be overruled by secular courts. Only Muslims are tried in Islamic courts"* (Cambon, 2003, p. 44). However, who is and who is not a Muslim is sometimes vague.

On a separate note, several of the states within the Federation of Malaysia have passed religiously tinted legislation. These laws have been enforced and are sometimes applicable to non-Muslim inhabitants as well. Example given, in the state of Kelantan, it is not allowed for a female hairdresser to cut a man's hair and vice versa. This 10+ year old law, has an Islamic background and is in place to – "safeguard women and curb sexual harassment at work places," - State Local Government, Culture and Tourism Committee chairman Datuk Takiyuddin Hassan said according to Malaysia's largest newspaper (Azhar, Samy, Shah, & Zulkifile, 2012). Contrary to many beliefs, it does also apply to non-Muslims (The Star, 2012).

The World Justice Project Foundation 2012 survey found Malaysia's government to be highly accountable (relatively compared to other upper-middle income countries). Politcial interference and impunity exist within the rule of law. Police have been known to abuse their power in some occasions and this is considered a problem, together with freedom of opinion and expression (Agrast, Botero, Martinez, Ponce, & Pratt, 2012, p. 31).

WJP RULE OF LAW INDEX FACTORS		SCORE	GLOBAL RANKING	REGIONAL RANKING	INCOME GROUP RANKING
Factor 1:	Limited Government Powers	0.57	45/97	8/14	11/30
Factor 2:	Absence of Corruption	0.69	28/97	7/14	4/30
Factor 3:	Order and Security	0.86	16/97	6/14	1/30
Factor 4:	Fundamental Rights	0.50	73/97	11/14	22/30
Factor 5:	Open Government	0.48	48/97	9/14	15/30
Factor 6:	Regulatory Enforcement	0.52	46/97	7/14	15/30
Factor 7:	Civil Justice	0.57	39/97	7/14	8/30
Factor 8:	Criminal Justice	0.61	31/97	7/14	3/30

Table 16: Eight factors that describe the rule of law quality, according to the World Justice Project. Table from (Agrast, Botero, Martinez, Ponce, & Pratt, 2012, p. 112)

Current: 10th Malaysia plan

In 2010 the New Economic Model was launched. This model focusses on increasing high income jobs and increasing the competitive economy and creating a better life in Malaysia. The Economic Model contains 10 big ideas (MDBC, Business Directory, 2012-2013, p. 111):

1. Internally driven, externally aware
2. Leveraging on diversity internationally
3. Transforming to high-income through specialisation
4. Unleashing productivity-led growth and innovation
5. Nurturing, attracting and retaining top talent

6. Ensuring quality of opportunities and safeguarding the vulnerable
7. Concentrated growth, inclusive development
8. Supporting effective and smart partnerships
9. Valuing environment endowments
10. Government as a competitive corporation

One of the direct results of the attracting talent goal is the new visa possibilities for expats. It is now possible to arrange 10-year renewable working visa via the Residence Pass-Talent (Malaysia T.).

Economical

Malaysia is a middle-income country, but since the 1970s it has transformed itself from a producer of raw materials into an emerging multi-sector economy (CIA, NL&MY). Especially economic developments during the 1980s are noteworthy. Partially thanks to the efforts of Prime Minister Dr. Mahathir bin Mohamad (in office from 1981 to 2003) (CIA, NL&MY). Since 2009, the new and current Prime Minister Mohamed Najib bin Abdul Razak "has continued these pro-business policies" (CIA, NL&MY).

The Malaysian Investment Development Agency (MIDA, 2012) summarises Malaysia's economic strengths as:

	In Malaysia (MIDA, 2012)	In The Netherlands (CIA, NL&MY)
Natural resources	Crude oil, natural gas, tin, timber, palm oil, rubber	Natural gas, petroleum, fertile soil
GDP growth	5.1% (2011)	1.6% (2011)
Gross national savings	34.6% of GNI	n/a
Per capita income	RM29,094 (US$ 9,508)	US$ 42,300
Unemployment rate	3.1%	5.2%
Inflation (CPI)	3.2%	2.3%
Export of manufactured goods	67.7% of total exports	n/a

TABLE 17: ECONOMIC STRENGTHS (ACCORDING TO MIDA) COMPARED BETWEEN THE NETHERLANDS AND MALAYSIA.

ECONOMIC DEVELOPMENT – 30TH LARGEST OF THE WORLD AND GROWING

Between 1999 and 2011 Malaysia's GDP has grown 12 out of 13 years, whereas the Dutch GDP has grown slower and only 10 out of 12 years (data is missing for 2001). See the image and table below.

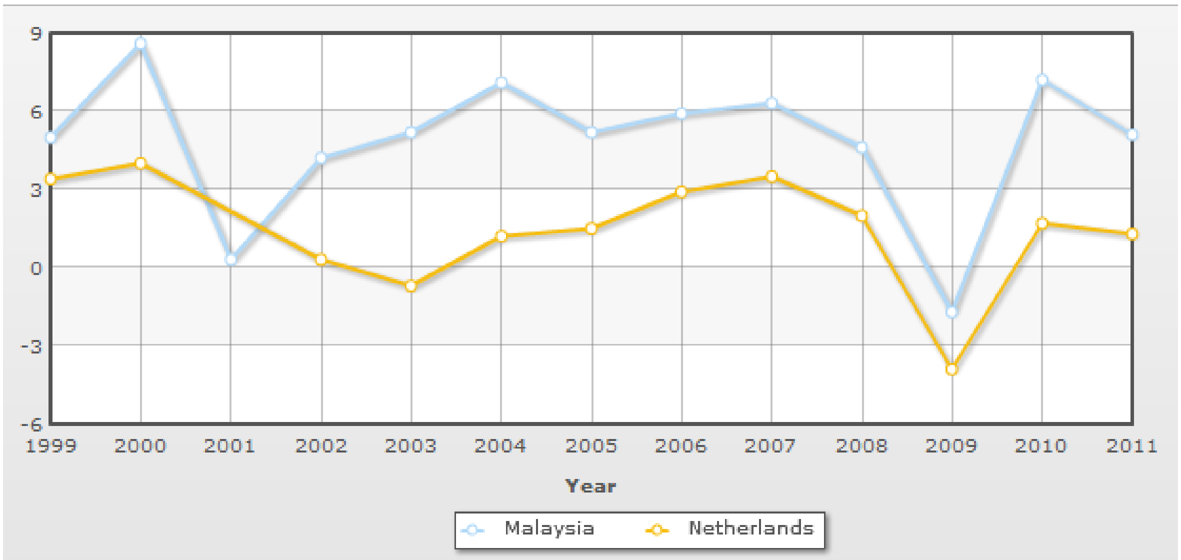


Figure 17: Economic GDP - real growth rate: This entry gives GDP growth on an annual basis adjusted for inflation and expressed as a percent. – Source CIA Factbook, retrieved via (Index Mundi, 2011).

Country	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Malaysia	229B	+8.6	+0.3	+4.2	+5.2	+7.1	+5.2	+5.9	+6.3	+4.6	-1.7	+7.2	**453B**
Netherlands	365B	+4.0		+0.3	-0.7	+1.2	+1.5	+2.9	+3.5	+2.0	-3.9	+1.7	**713B**
1999 and 2011: GDP (purchasing power parity) in billion US$ / year.													
Year inbetween is real growth rate: This entry gives GDP growth on an annual basis adjusted for inflation and expressed as a percent.													
Malaysia	10,700	10,300	9,000	9,300	9,000	9,700	12,000	12,900	14,500	15,200	13,800	14,700	15,800
Netherlands	23,100	24,400		26,900	28,600	29,500	30,300	32,100	39,000	40,400	39,400	40,300	42,700
Definition of GDP - per capita (PPP) in US$													

Table 18: Economic GDP – Source CIA Factbook, retrieved via (Index Mundi, 2011).

Currency: Malaysian Ringgit - valued about 1/4th of Euro

In Malaysia the Ringgit-currency is used. In the past six months we have seen a steady incline of the Ringgit compared to the Euro, as the Euro has lost ground compared to the US dollar. Also see *Figure 18 below*.

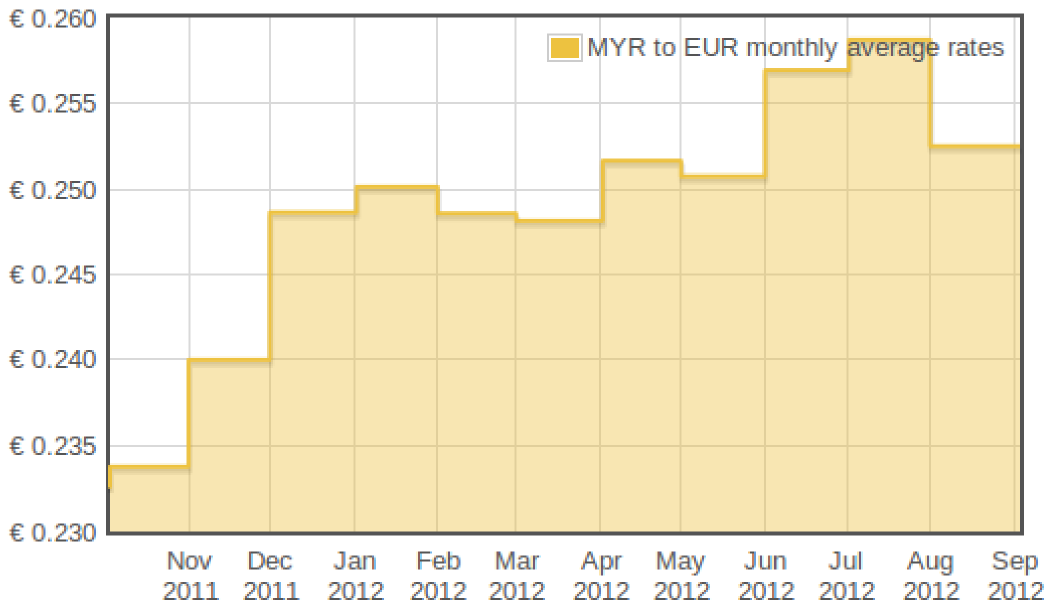


Figure 18: Exchange rate of Malaysian Ringgit versus the Euro (Image and data from (Fx-Rate))

Trade

Malaysia's trading partners are predominantly China, Singapore, Japan and the USA, together accounting for 46.3% of all trade. The Netherlands stands on the 13th place, accounting for approximately 1.8%, or 22.91 Billion RM. (MDBC, Business Directory, 2012-2013, p. 116). The Netherlands is Malaysia's no. 2 trading partner and The Netherlands is Malaysia's no. 1 export destination among the 27 EU member states.

Year	EXPORT		IMPORT		TOTAL TRADE		TRADE BALANCE
	Value (mln RM)	Change (%)	Value (mln RM)	Change (%)	Value (mln RM)	Change (%)	(mln RM)
2011	19,298.33	-4.5	3,612.30	6.4	22,910.63	-3.0	15,686.03
2010	20,218.54	9.76	3,398.00	-3.47	23,616.54	7.64	16,820.55
2009	18,420.64	-21.41	3,520.00	-4.41	21,940.64	-19.10	14,900.64
2008	23,439.10	-0.61	3,682.25	12.30	27,121.35	0.97	19,756.84
2007	23,583.07	9.15	3,278.83	-2.76	26,861.90	7.54	20,304.24
2006	21,606.13	20.61	3,371.87	0.43	24,978.01	17.42	18,234.26

Source: MATRADE (February 2012)

Table 19: MATRADE trade balance information between The Netherlands and Malaysia, showing a positive trade balance for Malaysia (source: (Embassy of the Kingdom of the Netherlands in Kuala Lumpur, Malaysia, 2012)).

The Netherlands exported 3.6 billion RM (+6,4% compared to 2010) to Malaysia and Malaysia exported 19.2 billion RM to The Netherlands (digits from 2011, source Malaysia's Trade Performance 2011 by the Ministry of International Trade and Industry (MITI) – retrieved from (Embassy of the Kingdom of The Netherlands in Kuala Lumpur, Malaysia)).

Foreign investments

Relatively, The Netherlands is a bigger foreign investor in Malaysia than it is a trading partner: Placing as the 9th largest foreign investment country worldwide - accounting for over 1 billion RM in 14 projects. (MDBC, Business Directory, 2012-2013, p. 120).

Asia-Pacific Economic Cooperation (APEC) and Free trading zones

APEC works to reduce tariffs and other barriers for trade across the Asia-Pacific region (APEC, About APEC, 2012). *"APEC is the premier Asia-Pacific economic forum. Our primary goal is to support sustainable economic growth and prosperity in the Asia-Pacific region."* (APEC, Mission Statement, 2012). Currently APEC has 21 members, most of them from the Asia-Pacific region (APEC, Member Economies, 2012). All members, including Malaysia, strive to meet the 'Bogor Goals of free and open trade and investment (www.apec.org/About-Us/How-APEC-Operates/Scope-of-Work.aspx).

Malaysia currently holds Free Trade Agreements with: Japan, Pakistan, New Zealand, India, Chile, Australia, China, Japan, Korea and India. But is also in negotiation with Turkey, the European Union, and several other regional agreements (Free Trade Agreement, 2012)

Competition law and Anti-monopoly law

Countries and regions can have different rules regarding allowed cooperation between organisations. The most important institutions and laws have been summarised below. It seems the laws for Europe (The Netherlands) and Malaysia do not differ significantly since the coming into force of the 2010 Competition Act on January 1st 2012.

Country/Region	Institute (Local name)	Institute (English name)	Main local laws	(1)	(2)	(3)
The Netherlands	**Nederlandse Mededingings Authoriteit (NMa)** www.nma.nl	Netherlands Competition Authority	Mededingingswet[5] And, energy-law, transport-law, etc.	N	N	N
European	**European Commission > Competition committee** ec.europa.eu/competition		Article 101 TFEU[6]	N	N	N

5 See legislation at http://www.nma.nl/en/legal_powers/default.aspx
6 See legislation at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:12008E101:EN:NOT

Malaysia	**Suruhanjaya Persaingan Malaysia** www.mycc.gov.my	Malaysian Competition Commission (MyCC)	Competition Act 2010 Competition Commission Act 2010[7]	N	N	N
Asia-Pacific	Competition Policy and Law Group: discussion platform, no regulating power[8].					

(1) Allowed to coordinate through horizontal agreements ("between actual or potential competitors operating at the same level of the supply chain"). (Cartel forming)
   i. Price-fixing
   ii. Limiting production
   iii. Market sharing
   iv. Customer sharing
   v. Bid rigging

(2) Allowed to coordinate through vertical agreements ("between firms operating at different levels, i.e. agreement between a manufacturer and its distributor"), through
   i. Applying dissimilar conditions to other trading parties for equivalent transaction
   ii. Restricting other partners in a way that is not directly linked to the commercial goal of the agreement

(3) Allowed to use a firm's dominant market power (often seen as "abuse").
   i. Charging unfairly high prices by limiting production or refusing innovation
   ii. Charging unfairly low prices to (start a price-war to) diminish new entry competition

TABLE 20: SUMMARY OF COMPETITION LAW

Social

The Malaysian Investment Development Agency (MIDA, 2012) describes Malaysians as friendly and hospitable. They continue to describe the country as being safe and comfortable, with excellent housing and medical facilities. The country offers an excellent educational system including international schools for expatriate children. There are world-class recreational and sports facilities and top of the bill shopping centres.

POPULATION, GROWTH AND BELIEFS

In July 2012 (CIA, NL&MY) estimated that there were 29,179,952 (+1,542%) people living in Malaysia, about 1.8 times that of The Netherlands (proximately 16.7 million, +0,452%), resulting in much less people per squared kilometre.

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Malaysia	21,793K	+1.96	+1.91	+1.86	+1.83	+1.8	+1.78	+1.76	+1.74	+1.72	+1.61	+1.58	**29,179,950**
Netherlands	15,892K	+0.55	+0.53	+0.5	+0.57	+0.53	+0.49	+0.46	+0.44	+0.41	+0.39	+0.37	**16,730,630**

	Malaysia	The Netherlands
Avg. age of total population:	27.1 years	41.5 years
Male:	26.9 years	40.7 years
Female:	27.3 years	42.3 years

TABLE 21: AVERAGE AGE OF POPULATION, JULY 2012 ESTIMATE (CIA, NL&MY).

Table 21 shows a large deviation between Malaysia and The Netherlands, which is also visible in the current life expectancy at birth. Malaysians are expected to live 74.04 years, the Dutch 80.91 years (CIA, NL&MY).

Where The Netherlands originally is a Christian nation, the Malaysian government is pro-Islam. This also translates to religion distributions:

	Malaysia	The Netherlands

[7] See legislation at http://www.mycc.gov.my/legislation.asp
[8] See more information at http://www.apec.org/Groups/Economic-Committee/Competition-Policy-and-Law-Group.aspx

No Religion:	0.8%	42.0%
Muslim:	60.4%	5.8%
Christian[9]**:**	9.1%	50.0%

Table 22: Religious beliefs dated 2000 for Malaysia, 2006 for The Netherlands, provided by (CIA, NL&MY). Note that Islam is the state religion in Malaysia.

Schooling

Literacy in Malaysia is about 10% lower than in The Netherlands. This counts especially for the female half of the country:

	Malaysia	The Netherlands	
Literacy:	92.0%	99.0%	for men
	85.4%	99.0%	for women

Table 23: Literacy figures from 2003 (The Netherlands) and 2000 (Malaysia). (CIA, NL&MY)

Furthermore, during the MDBC HR Forum on September 9th 2012, several speakers noted that Asia –and especially Malaysia- is entering a Global Talent Crisis. And as we speak much talent must be imported from surrounding countries such as India. On a separate note several Dutch business executives noted –off the record- that Malaysian students are lacking critical-thinking skills and creativity.

Spoken languages

With Malaysia several languages are spoken, such as: Bahasa Malaysia (official), English, Chinese (Cantonese, Mandarin, Hokkien, Hakka, Hainan, Foochow), Tamil, Telugu, Malayalam, Panjabi and Thai (CIA, NL&MY). Exact percentages are unknown, but we found that most inhabitants do understand simple English. English is broadly taught at schools.

Education First found Malaysia to have a High English Proficiency (57.95 EF EPI) compared to The Netherlands which scores a Very High Proficiency (66.32 EF EPI). "Malaysia and Singapore, the highest proficiency countries in Asia, are examples of how English can be used to bridge linguistic divides between different communities within the same country" (Education First, 2012, p. 28)

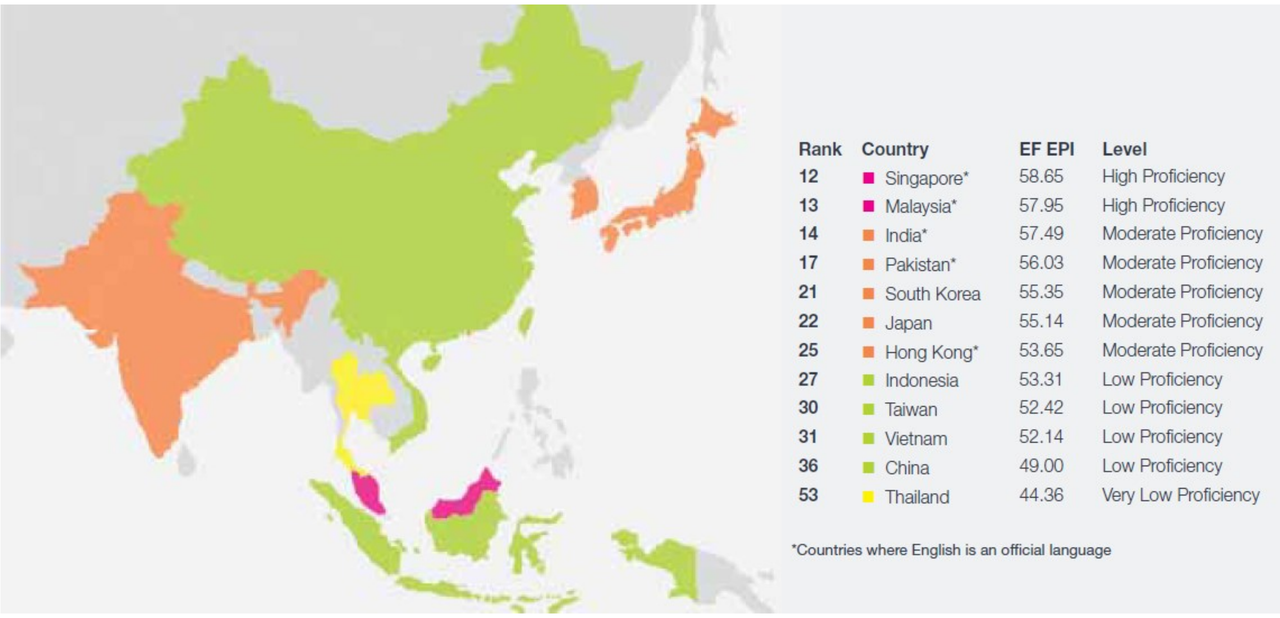


Figure 19: Overview of Proficiency scores of English in Asia (Education First, 2012, p. 28)

Work life

[9] Sum of Roman Catholics, Protestants, Dutch Reformed, Calvinist and other Christian forms.

	Malaysia	The Netherlands
Employment rate:	96.9% (+0.3%)	95.6% (+0.1%)
Labour force:	~ 40.8%	~ 46.7%
Agriculture:	13 %	2 %
Industry:	36 %	18 %
Services:	51 %	80 %

TABLE 24: WORK SECTOR DIVISION FIGURES FROM 2011 (CIA, NL&MY).

HOFSTEDE DIMENSIONS

One of the most prominent studies of cultural differences between nations was performed by Geert Hofstede and published in his book in 1980 (Hofstede, Culture's consequences: International differences in work-related values, 1980). He measured these differences in four dimensions. Later, respectively in 1988 and 2007, Hofstede and others added a fifth dimension (Hofstede, Asian Management in the 21st Century, 2007, pp. 8-9) and argued a sixth dimension should also be added (Hofstede, A European in Asia, 2007)[10].

- **Power distance**
  "The extent to which the less powerful members of institutions and organisations within a country expect and accept that power is distributed unequally."
- **Individualism**
  "The degree of interdependence a society maintains among its members"
- **Masculinity**
  "The fundamental issue here is what motivates people, wanting to be the best (masculine) or liking what you do (feminine)."
- **Uncertainty avoidance**
  "The extent to which the members of a culture feel threatened by ambiguous or unknown situations and have created beliefs and institutions that try to avoid these."
- **Long term orientation (5th dimension; added in 1988)**
  "The extent to which a society shows a pragmatic future-oriented perspective rather than a conventional historical short-term point of view."
- **Dependence on Others (6th dimension; added in 2007)**[11]
  E.g. "The need for guidance from parents and other authority persons and relationships with siblings and other relevant in-group members."

Hofstede's results are summarised in *Figure 20 below*. As you can see, there is no data available for the fifth and sixth dimension.

[10] The list of dimensions conform (Hofstede & Bond, The Confucius connection: From cultural roots to economic growth, 1988). Both the fifth dimension, conform (Connection, 1987), and sixth dimension are retrieved from (Hofstede, Asian Management in the 21st Century, 2007). Citations retrieved from (Hofstede, National Culture > Countries >What about Malaysia?).

[11] The point here concerns a working title and description. The sixth dimension has not been added officially by Hofstede, but (A European in Asia, 2007, p. 4) he states: *"In conclusion, there is a good case for expecting that an extension of the Big Five to a Big Six will improve its cross-cultural universality."*

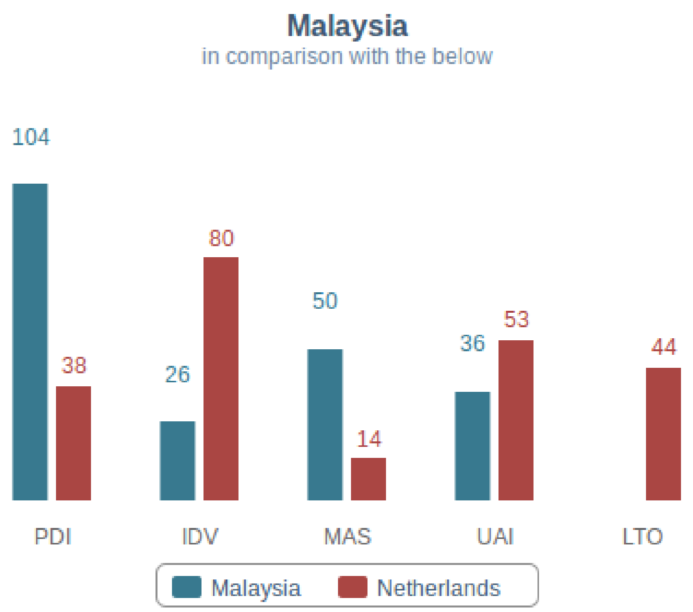


FIGURE 20: HOFSTEDE BIG-FIVE CULTURAL DIMENSIONS. SUMMARY GRAPH FROM (HOFSTEDE, NATIONAL CULTURE > COUNTRIES >WHAT ABOUT MALAYSIA?)

In *Figure 20 above*, several differences between Malaysia and The Netherlands are denoted. We see that the Malaysian inhabitants will accept a much greater difference (PDI) in power between themselves and their boss. Within Malaysia we also see a *respect* culture (cf. definition (Hofstede, Asian Management in the 21st Century, 2007, p. 7)). For example, it is considered rude to criticise one's boss[12]. Whereas in The Netherlands correcting your boss is acceptable. You will also see more hierarchy in Malaysian companies (Hofstede, National Culture > Countries >What about Malaysia?).

We also see that Malaysians are more collectivists then individualists (IDV). Within Malaysian companies one will see that employer/employee links are regarded more as a family link (Hofstede, National Culture > Countries >What about Malaysia?). Hofstede (Asian Management in the 21st Century, 2007, p. 7) notes that this cultural difference has profound implications on the type of management executed. Yet little research has been done about the effectiveness of different approaches.

Related to Masculinity versus Feminism (MAS) and Uncertainty avoidance (UAI) Asian countries differ just as much as European Countries (Hofstede, Asian Management in the 21st Century, 2007, p. 8). Compared to The Netherlands, Malaysian employees "live in order to work." Managers should be decisive as employees focus on performance (Hofstede, National Culture > Countries >What about Malaysia?).

No information about the Long-Term-Orientation of Malaysians are provided by Hofstede. However, most Asian countries (such as China) score long-term whereas most European countries score a short-term to medium-term orientation. Visible, for example, in long-term investment strategies (Hofstede, Asian Management in the 21st Century, 2007, p. 8).

Technical

Malaysia tries to become a knowledge economy (i.e. by attracting foreign talent). Currently Malaysia is spending 0.635% of its GDP on research and development. Significantly lower than The Netherlands (which is spending 1.884% of its GDP on R&D) (World Bank). This is also visible in the amount of researchers per million inhabitants. Here we see The Netherlands scores about 9 times higher: (3245 per million compared to 365 per million in Malaysia (World Bank, p. 2006 digits).

The Malaysian Investment Development Agency (MIDA, 2012) summarises the following positive technological and infrastructural elements of investing in Malaysia

12 cf. Malaysian-Dutch cultural briefing of Sept. 13th 2012. No minutes available.

- Network of well-maintained highways and railways
- Well-equipped seaports and airports
- High quality telecommunications network and services
- Fully developed industrial parks, including free industrial zones, technology parks and Multimedia Super Corridor (MSC)
- Advanced MSC Malaysia Cybercities and Cybercentres

Opportunities

Study tour Mosaic (2012) noted that there are several areas where Malaysia can benefit from Dutch expertise, related to:

- **Flood prevention measures** (MVO-Nederland)

  Malaysia is dealing with water maintenance issues and with climate change heavier rainfall is expected. Currently Malaysia is building small buffers to temperately accommodate the water, preventing other areas to flood.

- **Poor governance of drinking water and pollution of water catchment areas**

  Although Malaysia has plenty of rainfall (and thus clean drinking water), many of its sewers spew pollutions into rivers. The government is investing to create clean catchment areas to supply itself and Singapore with fresh drinking water.

- **Renewable energy**

  In recent years Malaysia has focussed on renewable Palm-Oils. Malaysia has not started using solar power generation panels in bulk.

Improved transportation infrastructure and logistics

Regarding transportation Malaysia has improved drastically in the past several decades. As 90% of the country's goods are shipped via sea, efficient seaports have been built. (MDBC, Business Directory, 2012-2013, p. 108). Next to the seaports there are six international airports with good cargo facilities (MDBC, Business Directory, 2012-2013, p. 109). On peninsular Malaysia a well-maintained network of highways has been developed, linking all major growth centres, airports and seaports (MDBC, Business Directory, 2012-2013, p. 109).

4G-telecommunications with good coverage

High-tech telecommunications arose during impressive expansion and upgrading during the past decade. (MDBC, Business Directory, 2012-2013, p. 110) This involves both land-lines (more expensive than The Netherlands) and wireless (3G and 4G, equally expensive as in The Netherlands). Currently around 15.355 million (of the 29M) people are connected to the internet (CIA, NL&MY).

Environmental

Malaysia consists of the peninsula bordering Thailand, and a section of the island Borneo (CIA, NL&MY), which also houses part of Indonesia and Brunei. Also see *Figure 21 below*.

FIGURE 21: EAST AND SOUTHEAST ASIA: MALAYSIA PENINSULA AND BORNEO' MALAYSIA (IMAGE FROM: (CIA, NL&MY))

Malaysia consists mostly of land mass 328.657 square km of land versus 1.190 square km of water (CIA, NL&MY). Of the land mass about 80% is covered in forests, and 45% of these forests are protected and certified as a "Permanent Forest Estate".

Malaysia's federal capital is Kuala Lumpur. Within the city an estimated 1.6 million people were living (Malaysia P. a.) in 2010. Within the metro area - the Greater Kuala Lumpur Area (better known as Klang Valley) - approximately 7.5 million people are living here. Ranking it the 42nd largest metro area around the globe (Gazetteer, 2012) , given that the Dutch Randstad is listed at position 61 and London is ranked 20th.

As the country is located near the equator there is a tropical climate (CIA, NL&MY) with high temperatures and annual South-West (April to October) and North-East (October to February) monsoons (CIA, NL&MY). Regarding climate change the World Bank's Climate Watch expects increasing temperatures and increasing rainfall (Wolrd Bank-Culture, 2012). Also see *Figure 22 below*.

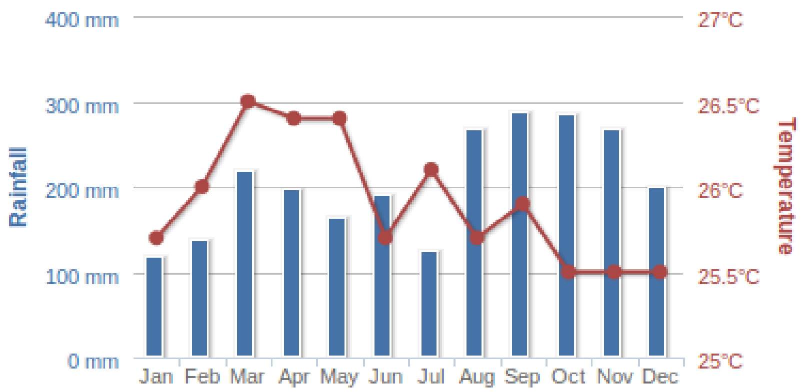


FIGURE 22: AVERAGE MONTHLY RAINFALL AND TEMPERATURE FOR MALAYSIA FROM 1990 TO 2009 (IMAGE FROM: (WOLRD BANK-CULTURE, 2012)) STABLE THROUGH-OUT ALL MONTHS.

Both The Netherlands and Malaysia are suffering from pollutions in their water supply. The reason behind the pollution is however quite different. Where Malaysia suffers from water scarcity due to raw sewage being released directly in the rivers, The Netherlands suffers from heavy metals in rivers and soil released by factories (Mosaic, 2012, pp. 33-34).

Another difference is notably about air pollutions. In The Netherlands most air pollutants are accounted for by factories and its infrastructure (cars, CO2, fine-dust). In Malaysia most smog is linkable to wildfires and agricultural fires in Indonesia. Here fire is used for land clearing to be used for agricultural use. Both Malaysia and The Netherlands have ratified the Kyoto treaty (Mosaic, 2012).

Land pollutions in Malaysia are mostly caused by insufficient waste management and recycling issues.

Appendix II. MDBCs ORGANISATIONAL CONTEXT, EXHAUSTIVE TABLE OF STAKEHOLDERS

This appendix shows the aggregated overview of MDBCs organisational context, derived from all entities involved with its offerings and entities derived from exploring MDBCs network. The exploration was done by exploring multiple sources, and used multiple unstructured interviews with MDBC employees. The result is intertwined with the information sources analysis and offerings analysis, and this appendix also includes those actors found during the information source analysis.

The enacted environment contains all firms with which the focal firm interactively co-creates, constructs and actualises its own development conditions, combined with all firms relevant to the development of the firm which it cannot systematically influence. In our literature analysis we found this includes competitors, suppliers, customers, complementors and other types of partners. And also includes government institutions, social clubs and economic institutions. This is a broad view of the organisational boundary, but is believed to give us a better understanding of MDBC's business network, which will be modelled and explained in this section.

The business network model is egocentric in nature, as little is known about relations between external actors.

Sources used as input

We have used multiple sources to aggregate information about MDBCs network. For each actor the source is noted in the S-column of the table. Sources used were:

1. Initial
2. From interaction with offerings-analysis
3. Based on one of the meeting transcript between the main author and MDBC internal actors
    a. WK39/ED
    b. Wk02-LB or Wk02-CM
4. (MDBC, Business Directory, 2010-2011)
5. (MDBC, Business Directory, 2012-2013)
6. MDBC Website
    a. (MDBC, MDBC Board of Directors)
    b. (MDBC, Membership Categories)
    c. (MDBC, Regional Dutch Business Associations) and (MDBC, Other European & Malaysian Business Councils / Chambers of Commerce)
    d. (MDBC, Malaysian Government Links) and (MDBC, European Embassies in Malaysia)
7. Internal database
    a. Member master copy
    b. Intern overview
    c. Contact cards (Analog)
    d. Magazine mailing lists: Diplomatic, M'sian Government M'sian Inter-chamber and BC, Penang, Netherlands Corporate & others -list
8. Observation
9. Case study reports, as noted in the several case-study minutes (C-2013Wk-*)

Scoping of the analysis

The overview of actors below is based on the typology of entity-types in the organizing context (Johannisson, Ramírez-Pasillas, & Karlsson, 2002, p. 299) (*See Literature review section* that includes: *Customers, Suppliers, Competitors,* *Complementors, Social clubs and Economic institutions*. To also function as a stakeholder analysis of the future system we have included another section: *Internal actors*. Unclassifiable entities are placed under *Other known partnerships* .

Each section of the appendix contains a table of the found stakeholders / entities in the environment. It has a label, potentially a name (of a person or company) or described function and was found in a source (column S).

For the internal actors, customers and suppliers the Experience-level of the stakeholder is also noted. For the other types of stakeholders these columns are not present. Evidently, fore these types of stakeholder groups the Experience level is 'Latent' and the Utility is 'n/a'.

The main types as described by (Johannisson, Ramírez-Pasillas, & Karlsson, 2002, p. 299) have a relationship with MDBC. The main flows between MDBC and the actor are documented in the 'Related to offering' column:

→ Flows from MDBC to the entity

← Flows from the entity back to MDBC

←→ Reciprocal connection signalling collaboration between the entity and MDBC

Roles and grouping

The found actors were grouped according to (Johannisson, Ramírez-Pasillas, & Karlsson, 2002, p. 299)'s typology of actors within a firms. Netchains as proposed by (Moller & Halinen, 1999, p. 414) were used to visualise the found relations and actors. A visual model proved to come in handy during discussion about why a certain type of actor was absent from the result list.

An important remark we must make is that the analysis technique is ***focussed on the supply chain***. Therefore, we needed to place found entities to the category where they belong from the view of MDBC's supply chain – and not under the name when they came out of our discussion results. For example, there are no economic institutions named in the Economic Institutions-section, where there are a few under Complementors or Suppliers – as can be found in the appendix. This is a counter intuitive classification for MDBC. They are **not** interested in if a contact in their network is working at an economic institution that is involved in MDBC's business. But they **are** interested in economic institutions able to help a potential member. That MDBC is not per sé a supply chain focussed organisation impacts the solution design. By filtering on one or several categories we believe most management queries can be answered. These criteria are embedded in our "Typology of a Firm" in the synthesis section.

Egeocentric network

Note that we will only model MDBC's egocentric network, and thus interconnectedness between entities is out of the scope of this analysis. Furthermore, we cannot say the list of 'name or function' of the actors is complete. Quite the opposite[13]. Many of the found actors have not been included in the list. They only act as clarification of the suggested typology.

Internal actors

Stakeholder	Name or function	S	Experience Level	Utility
Graduate student	N. Boom	1	Active	n/a
External supervisor	M. Winter	1	Active	n/a
Executive Director	M. Winter	1	Problematic	Internal and external goals.
BoD contact / Soundboard	R. Koster	1	Problematic	Internal and external goals
BoD ExCom	Chairman	3a	Active	
	Vice Chairman	3a	Active	
	Treasurer	3a	Active	

[13] Only a few of the many recievers of MDBCs magazine have been included

	Executive Director Mr. Marco Winter	3a	*duplicate*	
BoD (remainder)	BoD-5 (Embassy NL)	6a	Aware	
	BoD-6 (former trade org MY)	6a	Aware	
	BoD-7 (Member firm)	6a	Aware	
	BoD-8 (Member firm)	6a	Aware	
	BoD-9 (Member firm)	6a	Aware	
	BoD-10 (Member firm)	6a	Aware	
	BoD-11 (Member firm)	6a	Aware	
	BoD-12 (Member firm)	6a	Aware	
	BoD-13 (Honorary board member)	6a	Aware	
MDBC Patrons	Pa-1 (Minister)	6a	Latent	
	Pa-2 (Member of parliament)	6a	Latent	
MDBC Penang chapter	John Benoist	3a	Latent	
MDBC Committees	Membership committee	3a	Latent	
	Special events committee[14]	3a	Latent	
	Student Internship Programme committee	3a	Latent	
	Finance & Legal committee	3a	Latent	
	Communication committee	3a	Latent	
	Internal Governance committee	3a	Latent	
Internal supervisor	dr. P.A.T. van Eck	1	Active	Academic goals[15]
	dr. A.M. van Raesfeld	1	Active	Academic goals
Case study organisations	Embassy of The Kingkom of The Netherlands in Kuala Lumpur	9	Latent[16]	Access to this report and insights in how to solve similar problems present in their organisation.
	Singapore-Dutch Chamber of Commerce	9	Latent	
	Malaysia Australia Business Council	9	Latent	
	EU-Malaysia Chamber of Commerce and Industry	9	Latent	
	American Malaysian Chamber of Commerce	9	Latent	
	Malaysian French Chamber of Commerce and Industry	9	Latent	
	Indonesia Netherlands Association	9	Latent	
	(undisclosed 8th)	9	Latent	
		9	Latent	
MDBC Employees	Communications	1	Aware	Internal goals
	Student Internship Program	1	Aware	Internal goals
	Secretariat	1	Aware	Internal goals
MDBC Interns	Int-LB	1	Aware	Internal goals
	Int-WV	1	Aware	Internal goals
	Int-Future Interns	1	Aware	Internal goals
IT aid	Mr. Edwin R.	8	Aware	Internal and personal goals of lowering MDBC's dependency on his efforts.

TABLE 25(INT): OVERVIEW OF IDENTIFIED INTERAL STAKEHOLDERS

14 This committee is in cooperation with the Embassy of the Kingdom of The Netherlands in Kuala Lumpur (Weekly meeting WK.39/ED)
15 Available upon request, not included in thesis document.
16 Access to this report and insights in how to solve similar problems present in their organisation

MDBC's patrons are of extra interest as they "open doors" (Wk02-CM).

Customers

Stakeholder	Name or function	S	Experence level	Related to offerings
Members	Gold category	6b	Latent	Can be a premium partner
	Silver category			Can be a barter partner
	Orange category			Can be a penang chapter company
	Outstation category			Can have partner agreement
	Individual category			
	Honorary member category			
Academic institutions (Professors, student advisors and internship coordinators)	H-1:	7b	Latent	→ Presentations and internship possibilities ← Students for internships
	H-2:			
	H-3:			
	H-4:			
	H-5:			
	H-6:			
	H-7:			
	H-8:			
	H-9:			
	H-10:			
	H-11:			
	H-12:			
	H-13:			

TABLE 25(CUS): OVERVIEW OF DIRECT CUSTOMERS OF MDBC

Suppliers

Stakeholder	Name or function	S	Experience Level	Related to offerings
Academic institutions	*Duplicate, see customer*			
Members	*Duplicate, see customer*			
Barter agreement firms	V-1 : (venue)		Latent	→ Business and exposure ←Discount
	V-2: (venue)		Latent	→ Business and exposure ←Discount
Services for interns	Housing & Hotels for interns:	8	Latent	→ Business (Information supply)
Services for members	*There is no clear distinction between types of services to members. In some cases the service providers are a member of MDBC. In other cases they are "Contacts" MDBC maintains for match-making purposes.*	2	Latent	→ Business (Information supply)
Supplier of office materials	*Several n/a*			

Governmental Information suppliers	MG-4:	3b 6d	Latent	← Information ← Presentation at events ←→ Bargaining position to represent members.
	MG-8:	6d	Latent	
	MG-9:	6d	Latent	
	MG-10:	6d	Latent	
	MG-11:	6d	Latent	
	MG-13:	6d	Latent	
	MG-14:	6d	Latent	
	MG-16:	6d	Latent	
	MG-17:	6d	Latent	
	MG-6:	6d	Latent	
Other types of information suppliers:	Credit Unions		Latent	← Information ← Presentation at events
	Development finance institutions:	3b	Latent	
	Export credit agencies		Latent	
	Private Equity firms and venture capitalists		Latent	
	Land owners and developers:		Latent	
	Banks			
	Investment Agencies	7d		

TABLE 25(SUP): OVERVIEW OF SUPPLIERS OF MDBC

Note that many of the services MDBC buys from its suppliers are under a barter agreement. Such as, V-1 is a member and a used venue for MDBC events.

Competitors

Stakeholder	Name or function	S	Related to offerings
Social Clubs (potentially)	*See social clubs section*		
Complementors (potentially)	*See complementors*		

TABLE 25(CPT): OVERVIEW OF COMPETITORS OF MDBC

Complementors

Stakeholder	Name or function	S	Related to offerings
Umbrella trade organisations	EUMCCI: European-Union Malaysia Chamber of Commerce and Industry	6c	← Rules, regulations, industry specific information ←→ Joined events ←→ MDBC members welcome at EUMCCI events
	EU Delegation	6c	
	Nederlands Centrum voor Handelsbevordering NCH / Netherlands Malaysian Business Council NMBC	6c	←→ Queries MDBC for matchmaking
European bilateral trade organisations and Chambers of Commerce and Trade support organisations in Malaysia	T-1:	6c	←→ Joined events for networking and business development. ←→Exchange information
	T-2:		
	T-3:		
	T-4:		
	T-5:		
	T-6:		
	T-7:		

	T-8:		
	T-9:		
	T-10:		
	T-11:		
	T-12:		
	T-13:		
	T-14:		
	T-15:		
Embassy	Embassy of The Kingdom of The Netherlands in Malaysia	6d	←→ Queries MDBC for matchmaking ←→ Joined events ←→ Alignment of complementary services ←→ Bargaining position to represent members. ← Trade information digits (Dutch perspective)
	Embassy of Malaysia, The Hague	3b	←→ Queries MDBC for matchmaking
Non-European trade organisations	T-16:	6c	←→ Joined events for networking and business development. ←→Exchange information
	T-17:		
	T-18:		
	T-19:		
	T-20:		
	T-21:		
Industry trade organisations	ITO-1:	3b	← Trade information digits (Malaysian perspective)
	ITO-2:	7d	
	ITO-3:	7d	
	ITO-4:	7d	
	ITO-5:	7d	
	ITO-6:	7d	
	ITO-7:	7d	
Malaysian semi governmentals	MSG-1:	7c	← Information
	MSG-3:	8	← Presentation at events ←→ Bargaining position to represent members.
	MSG-2a:	7c	← Information
	MSG-2b:	7c	← Presentation at events ←→ Bargaining position to represent members.
	SMG-4: TalentCorp		← Information ← Presentation at events

Malaysian Governmentals in MY	MG-1:	3b	← Information
	MG-2	3b	← Presentation at events
	MG-3:	3b	←→ Bargaining position to represent members.
	MG-12:	6d	
	MG-5:	3b 6d	
	MG-15:	6d	
	MG-16:	7d	
	MG-17:	7d	
	MG-18:	7d	
	MG-19:	7d	
	MG-20:	7d	
	MG-21:	7d	
Malaysian Governmentals in NL	MG-16: Embassy of Malaysia in The Netherlands	7d	
Dutch Governmentals	DG-1:	7c	←→ Queries MDBC for matchmaking ←→ Joint events
	DG-2:	7c	
	DG-3:	7c	
	DG-4:	7d	
	DG-5:	7d	
	DG-6:	7d	
	DG-7:	7d	
	DG-9:	7d	
Dutch bilateral trade organisations in other Asia-Pacific countries	T-21:	6c	
	T-22:	6c	
	T-23:	6c	
	T-24:	6c	
	T-25:	6c	
	T-26:	6c	
	T-27:	6c	
	T-28:	6c	
	T-29:	6c	
European Governementals	EG-1:	7d	
Diplomatic: Municipalities	City of Amsterdam-Economic Development Dept.	7d	

	DG-8: Municipality of Groningen	7d	
Diplomatic: Research insitutes	Research institutions in The Netherlands	7d	
Diplomatic: Major companies	Mayor companies in The Netherlands	7d	
	E.g. Port of Rotterdam	7d	
	E.g. Malaysian Airlines	7d	

TABLE 25(CPL): OVERVIEW OF COMPLEMENTORS OF MDBC

Social clubs

Stakeholder	Name or function	S	Related to offerings
NL Vereniging Maleisie	*Dutch people working/staying in Malaysia*	8	←→ Network used to find potential members
NAAM: The Netherlands Alumni Association Malaysia	*Dutch people working/staying in Malaysia*	8	←→ Joined events
Previous MDBC intern batches	*From 2004 untill current, in total over 350 Dutch interns. Some of which have started working.*	3b	← Give presentations on behalf of MDBC for its student intern program ←→ Get togethers to foster ties / network
Malaysian Association of The Netherlands	*Malaysian people working/staying in The Netherlands*	8	
Vereniging Nederland-Maleisie	*Association for people with interest in Malaysia, staying in The Netherlands*	8	
Malaysian Local Community	*Network of Malaysian people (living in Malaysia) around MDBC, BoD, ED and CM.*	3b	
Dutch contacts in NL	*Network of Dutch people (living outside Malaysia) around MDBC, BoD, ED and CM.*	3b	
European contacts	*Semi-clique of European contacts*	3b	

TABLE 25(SOC): OVERVIEW OF SOCIAL CLUBS RELATED TO OR INVOLVED WITH MDBC

Note that social clubs should show signs of cliques ad defined by (Krackhardt, The ties that torture: Simmelian tie analysis in organizations, 1999). There should be many reciprocal ties between each clique. And issues might arise from being to closely linked to multiple cliques.

Economic institutions

Stakeholder	Name or function	S	Related to offerings
Bank			
~~**Credit Union**~~			
~~**Development finance institutions**~~			
~~**Export credit agencies**~~			
~~**Private Equity firms and venture capitalists**~~			
~~**Land owners and developers**~~			

TABLE 25(ECO): OVERVIEW OF ECONOMC INSTITUTIONS RELATED TO OR INVOLVED WITH MDBC

Economic institutions are not applicable to MDBC. MDBC is not a buyer or seller of these types of institutions. MDBC can have relationships with these organisations for its information, representation or networking functions. See suppliers.

Government institutions

Stakeholder	Name or function	S	Related to offerings
MG-7: Immigration Department		6d	

TABLE 25(GOV): OVERVIEW OF GOVERNMENT INSTITUTIONS RELATED TO OR INVOLVED WITH MDBC

Most government institutions are either a complementor (as they actively collaborate with MDBC), or merely a supplier of information that MDBC will distribute. Only MG-7 Immigration is named here as there is an active relation with this office for multiple purposes.

Other known partnerships

Including but not limited to:

Stakeholder	Name or function	S	Related to offerings
Ot-1:		3b	
Ot-2:		3b	
Ot-3:		3b	
Ot-4:		3b	
Ot-5:		3b	
Ot-6:		3b	

TABLE 25(OTH): OVERVIEW OF GOVERNMENT INSTITUTIONS RELATED TO OR INVOLVED WITH MDBC

Appendix III. CRM SUITABILITY SURVEY

Detailed table of selecting a popular CRM product subset

The table below was formed by combining the shortlisted products from seven separate lists. The reference number in the last row resembles those in *Table 10 (Table 10: Summary of selected CRM systems for questionnaire – results of Table 26 (on page - 25 -) above)* of the main document and *Step 1.1) Selecting a popular CRM product subset (page 16)).*

System: / Review	SalesForce CRM	Microsoft Dynamics CRM	SAP Business by Design	SugarCRM	SageCRM	Sage SalesLogix	Oracle CRM OnDemand	Oracle Siebel	Leadmaster	Campainger CRM	Maximizer CRM	InfusionSoft	ZohoCRM	FieldOne	GreenRope	Rightnow	CentricCRM	CiviCRM	Compiere	Concursive	Open Tabs
(ZDNet, 2011)[17]	x	x	x	x	x		x		x												
(Software Advice, 2012)[18]		x			x	x			x	x	x	x	x	x	x						
(CRMCafe)[19]	x	x	x					x								x					
(CRMSearch)[20]				x													x	x	x	x	x
(PC World, 2011)[21]	A			x									x								
(Trendslide, 2012)[22]	A	x		x	x								x								
(SocialMedia Today, 2011)[23]	A	x		x		x	x														
Brand known by main author:	Y	Y	N	Y	Y	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N
Reference no.:	**1**	**2**	**3**	**4**	**5**		**6**	**8**	**7**				**9**								

System (continued): / Review	SplendicCRM	vTiger	XRMS	XTuple	Landslide	Insight.ly	Stich Labs	Highrise by 37 signals	Streak	Netsuite OnWorld CRM
(ZDNet, 2011)										
(Software Advice, 2012)										
(CRMCafe)										
(CRMSearch)	x	x	x	X						
(PC World, 2011)					x	x	x			

17 Site by CBS Interactive publishing. "ZDNet brings together the reach of global and the depth of local, delivering 24/7 news coverage and analysis on the trends, technologies and opportunities that matter to IT professionals and decision makers." - http://www.zdnet.com/about/

18 "Software Advice is a privately held, internally funded company founded in 2005. We have helped 95,238 software buyers since we began operations and we work with 682 software vendors." - http://www.softwareadvice.com/about-us/

19 Self proclaimed unbiased helpful information provider to CRM buyers: "CRMcafe follows the CRM software market, examines the players and flushes out product differentiation, advantages and disadvantages for the major software categories" - http://www.crmcafe.com/about.php

20 CRMSearch promotes itself as "The Source for Independent CRM News & Views". However, their review is limited to open source systems only, thus is less complete than others.

21 "PCWorld helps you navigate the PC ecosystem to find the products you want and the advice you need to get the job done." – http://pcworld.com
No evidence that spots in reviews can be bought is present.

22 "Trendslide is a mobile dashboard solution for growing SaaS, eCommerce, and Media websites." -- http://www.trendslide.com/about/

23 "Social Media Today is an independent, online community for professionals (..)" - http://socialmediatoday.com/about

(Trendslide, 2012)								x		
(SocialMedia Today, 2011)										
Brand known by main author:	N	N	N	N	N	N	N	N	N	N
Reference no.:										

TABLE 26: OVERVIEW OF "TOP CRM SYSTEMS" AND ALTERNATIVES AS SPECIFIED BY SEVERAL SOURCES.

Questionnaire

WARM-UP QUESTIONS

- Thank you for participating in this questionnaire.

- ABOUT YOU
  - **Which educational program do you follow and at which institution do you follow it?**
    Open text
  - **What level best specifies your progress? ***
    Mandatory field, options:

- ABOUT THE ASSIGNED SYSTEM
  - **Which CRM system was assigned to you**?
    Mandatory field, options:
  - **How well do you know this system? ***
    Regards your knowledge prior to reading the via e-mail supplied information.
    Mandatory field, scale (1: Not at all, 5: Used it extensively)
  - **How does your CRM system define a 'lead to a potential customer' ? (optional)**
    This is a warm up question to gain insight in the system. Different systems use different terms and definitions. Can you find the term and definition for that defines a future potential customer?
  - **How does your CRM system define a 'potential (sale) opportunity' ? (optional)**
    This is a warm up question to gain insight in the system. Different systems use different terms and definitions. Can you find the term and definition for that defines a future potential sale?

SCENARIO 1: PENCORP MANUFACTURING

PenCorp manufactures pen fillings.

You are an administrative support-staff employee at PenCorp.

The manufactured fillings are sold to several hundred pen-assembly companies. As you can imagine, there are many sales people and much support staff involved in the sales activities of PenCorp.

You have just received a call from one of PenCorps customers (Alan Clarck from AssemblyCorp). He told you that

1) He met one of PenCorps sales people at a conference
2) Our salesman contacted him last week
3) He ordered 50.000 fillings from PenCorp

And asked you to make sure PenCorp salesman will call him back.

- **Given your system, could you find a record of the interactions 1, 2 and 3? If yes, where would you find it?**
  (Low level of detail required)
  Open text
- **Given your system, how could you make sure our salesman calls Alan back?**
  (Low level of detail required)
  Open text

- **How suitable do you find this system to handle sales opportunities and orders? ***
  Mandatory field scale (1: Very suitable, 7: Not suitable at all)

Scenario 2: Oil and Gas TradeAssoc

You are an employee at an industry trade organisation: TradeAssoc.

This organisation has members which are active in the oil&gas industry. Your members are active in several sectors (e.g. consultancy, transport, raw materials, drilling,…).

You have just received a call from one of TradAssoc members. This member (a drilling company called DrillCorp) is having issues with their shipments and is looking for another logistics partner.

You –as an industry expert- are asked for your input.

Specifically, you were asked to find and send DrillCorp the associations contacts in Logistics.

- **Given your system, could you maintain a list of member firms (and multiple specific contacts in these firms)? ***
- **Could you filter this list of members to show only those in a specific sector (e.g. logistics)? ***
- **How suitable do you find this system to handle such information requests? ***
  Mandatory field
  Scale (1: Very suitable, 7: Not suitable at all)

Scenario 3: Regionally active TradeAssoc

Again, you are working at the oil industry TradeAssoc. Again all your members are active in the oil/gas industry. But, also: your association only focusses on oil drilling in the Northern-Atlantic-region.

A non-member (PotentialCorp) contacts you with an information request.

PotentialCorp specializes in localization of potential wells and calculating their output. Currently, PotentialCorp is looking at expanding their operations into your association's region. For business development purposes (finding customers) they are contacting your association – hoping you can help them.

You know a current member offers the same service but you yourself do not have contact with this firm – but you have seen they will speak at the association's annual conference in two weeks.

- **Obviously, somebody in the organisation has contact with the firm you wish to contact, but you do not know who. Given your system, could you retrieve this information? ***
- **Suppose you would contact your current member via email or phone to check how they feel about adding this corporation as a member, how would you administrate this in the system?**
  (Low level of detail required)
- **Do you find this type of administration tedious (omslachtig)? ***
  Mandatory field, scale (1: Very tedious, 7: Not tedious at all)
- **How suitable do you find this system for such coordination tasks? ***
  Mandatory field, scale (1: Very suitable, 7: Not suitable at all)
- **This organisation is a potential new member, could your system facilitate the lead and hint your supervisor that he should contact the firm? ***

Scenario 4: Administrating a conference

As you learned in the previous scenario, TradeAssoc is organising a conference. You are receiving many emails from member firms telling you which employees within the firm will be participating in the event. Already about 130 people have signed up via e-mail.

Keep in mind that the TradeAssoc organises more than 50 events per year.

- **Given your system, could you administrate which people will attend the event? If yes, how?**
  (Low level of detail required)
- **Given your system, could you create (an export to create) name tags for each participant? ***
- **How suitable do you find this system to handle such organising tasks? ***

Mandatory field, scale (1: Very suitable, 7: Not suitable at all)

SCENARIO 5: USE OF LOCAL CONTACTS

A current member and good sponsor of TradeAssoc, called GoldMember, has contacted you. They are looking for a new office building.

You might have a non-member local contact in your CRM system that can help GoldMember.

- **Could your system keep track of both members and local contacts? Would this give problems/issues? Please illustrate the found issues with an example.**
- **Given your system, could you find out when a TradeAssoc employee last had contact with this external contact? Please explain how. In essence, you want to know if the contact has gone cold.**
  (Low level of detail required)
- **How suitable do you find this system to handle such organising tasks? ***
  Mandatory field, scale (1: Very suitable, 7: Not suitable at all)

SCENARIO 6: TRADEASSOC BECOMES A RECRUITMENT AGENCY

Your TradeAssoc association has decided to start a talent-pool. Highly skilled people can contact TradeAssco and they will try and find a job for them at one of their partners. Of course these people are diversely skilled – just as your pool of members. As you might have to contact several companies before you find a suitable job you would like to keep track of each talented employee ; the contacted firms and the related e-mails.

- **Given your system, could you create 'some entity' to link together an employee with a corporation and track the communication between them? Please explain how.**
  (Low level of detail required)
- **How suitable do you find this system to handle such organising tasks? ***
  Mandatory field, scale (1: Very suitable, 7: Not suitable at all)

CLOSING QUESTIONS

The following questions relate to all six given scenario's

Scenario 1: PenCorp manufacturing

Scenario 2: Oil and Gas TradeAssoc

Scenario 3: Regionally active TradeAssoc

Scenario 4: Organising a conference

Scenario 5: Local contacts

Scenario 6: TradeAssoc becomes a recruitment agency

- **Overall, how suitable did you find your system to the support the scenarios? ***
  Mandatory field, scale (1: Very suitable, 7: Not suitable at all)
- **Overall, would you want to work with this system as an employee at TradeAssoc? ***
  Mandatory field, scale (1: Yes, please!, 5: No, I would not)
- **Overall, your system might have different versions/flavours, which do you suggest for TradeAssoc? Why?**
- **Did you understand the scenario's and related questions? ***
  For each of the six scenario's: Mandatory field, scale (1: Not clear at all, 5: Very clear)
- **Do you have any closing remarks?**
  Related to the scenarios, questionnaire, given information, and others?

Thank you for your time.

Your answers will help me prove or disprove my hypothesis. Thus whether a CRM system -in the traditional sense- would or would not suffice for the intended purpose at a trade organisation.

- **Optionally, insert your e-mail address**
  And invite me for

- **Checkbox: Yes, invite me for your graduation thesis defence**
- **Checkbox: Yes, invite me for your after-graduation celebrations**

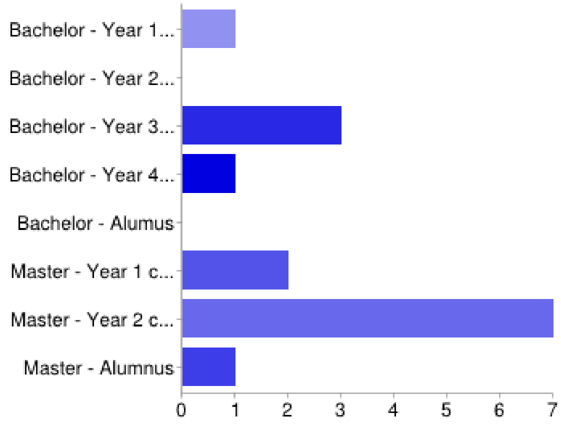
Exact dates are currently unknown.

Questionairre responses and results

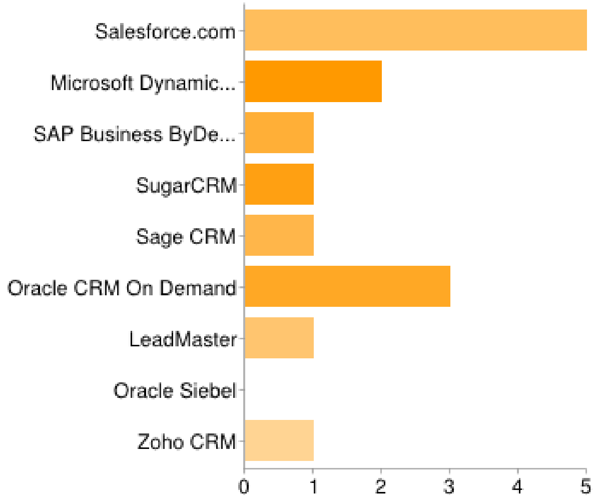
15 UNIVERSITY STUDENTS PARTICIPATED IN THE SURVEY AND RESEARCHED 8 DIFFERENT SYSTEMS

15 respondents participated.

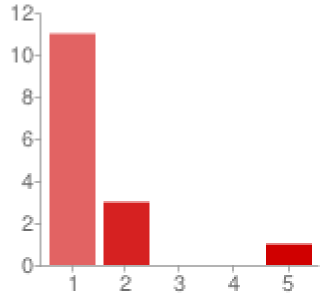
Qualified students with an education in Business, IT or Mathematics participated in the questionnaire.



The participants were allocated one of 8 possible systems randomly in the invitation e-mail. Not all systems have been studied. Three were studied by 2 or more students.

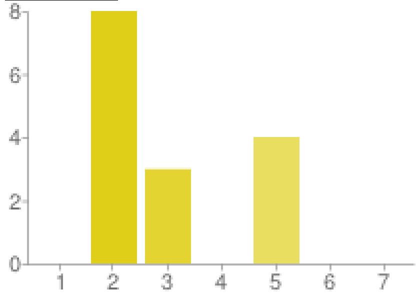
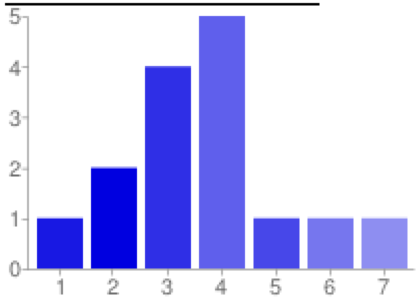
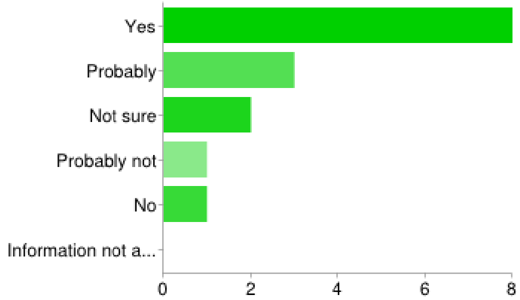
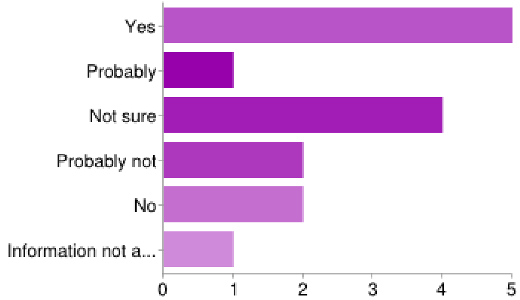


Most students had never used their appointed CRM system.



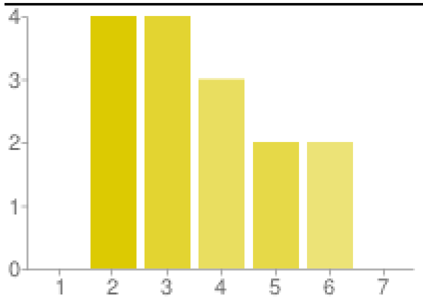
Not used at all – to – Used extensively

Results per scenario

Scenario	Suitability	Ability	Ability & Summary
1.	**PenCorp**  Very suitable to Not suitable at all	n/a (basic functionality / warm up scenario)	Most find their system suitable for scenario 1.
2.	**Oil and Gas TradeAssoc**  Very suitable to Not suitable at all	Given your system, could you maintain a list of member firms (and multiple specific contacts in these firms)?  Could you filter this list of members to show only those in a specific sector (e.g. logistics)? 	Most find their system mediocrely suited for the scenario, but over-all the participants are positive. As is visible from the ability graphs. most of the systems can handle the tasks required for this scenario.

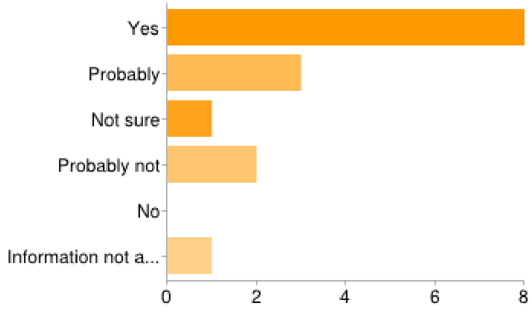
3.

REGIONALLY ACTIVE TRADEASSOCIATION

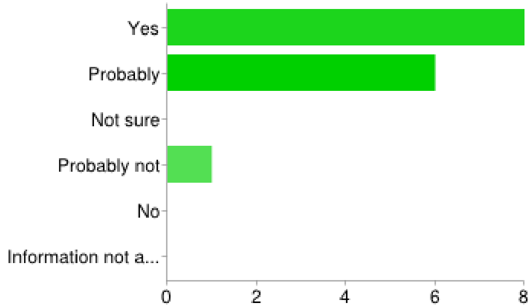


Very suitable to Not suitable at all

Obviously, somebody in the organisation has contact with the firm you wish to contact, but you do not know who. Given your system, could you retrieve this information?

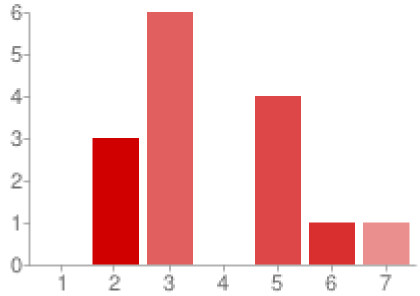


This organisation is a potential new member; could your system facilitate the lead and hint your supervisor that he should contact the firm?



In scenario three we see that more participants find their system unsuitable.

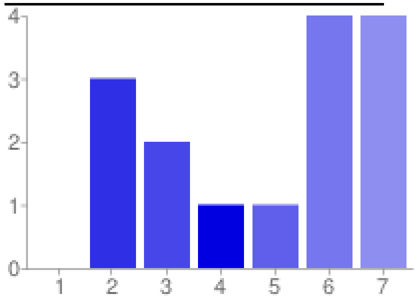
Also, we see that the participants find it quite tedious to adminis-trate their interactions in the system:



Very tedious to Not tedious at all

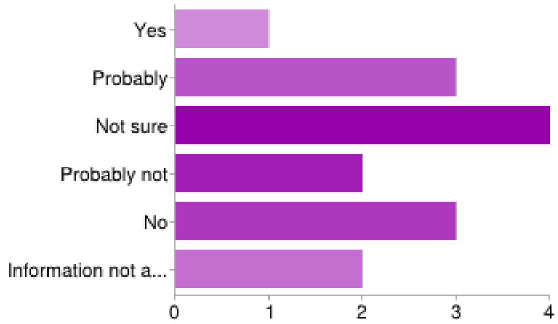
4.

ADMINISTRATING A CONFERENCE



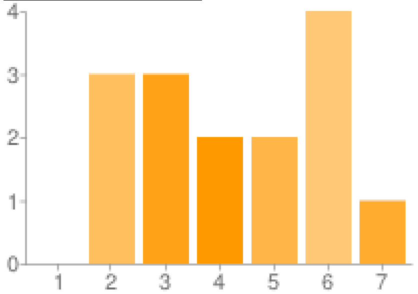
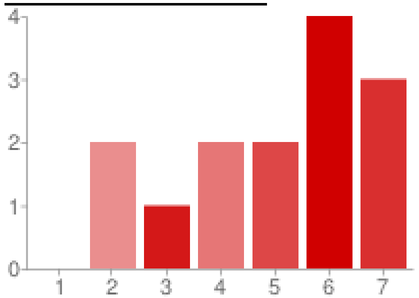
Very suitable to Not suitable at all

Given your system, could you create (an export to create) name tags for each participant?

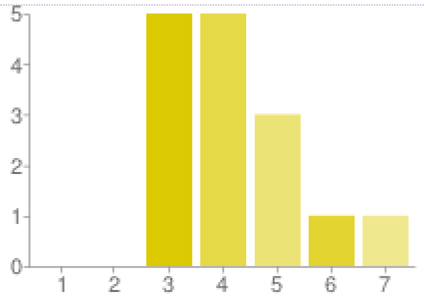


The participants find their system (on average) not suitable for the scenario.

For the task of creating name tags for each participant of the event, only 1 in 3 students believes their system could do that.

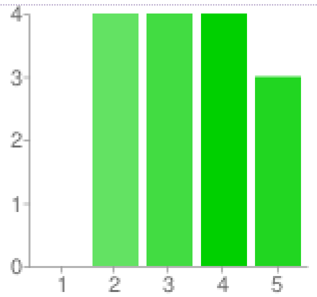
5.	**Local contacts**  Very suitable to Not suitable at all		Most students found their system not suitable.
6.	**Recruitment agency**  Very suitable to Not suitable at all		Most students believe their system is not suitable to be used for administrating job seekers and job opportunities.

Overall results



Very suitable to Not suitable at all

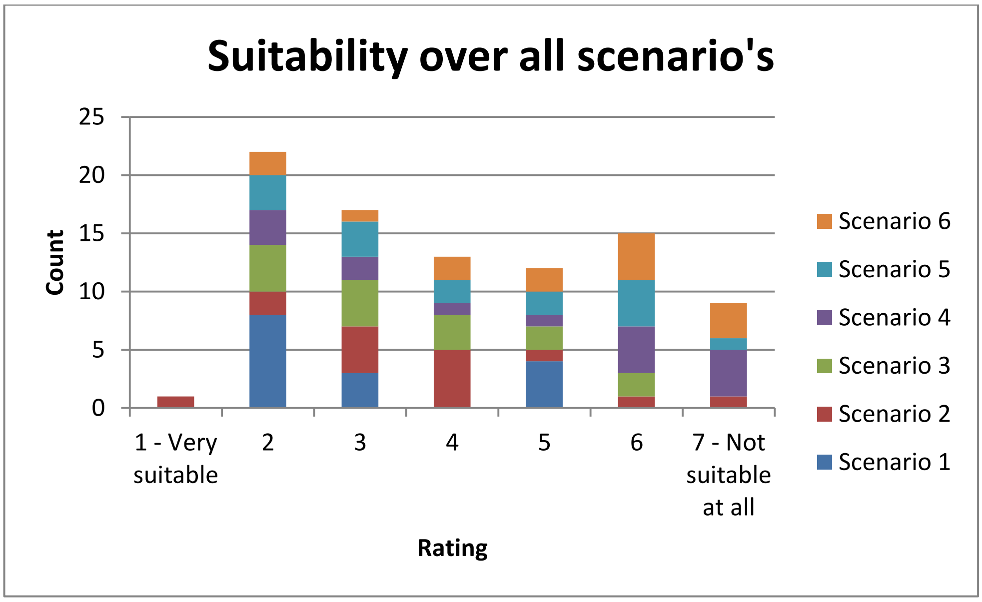
Most respondents find their system relatively not suitable for the scenarios. None rated it as somewhat or very suitable, but some have rated their system as 'Not suitable at all'.

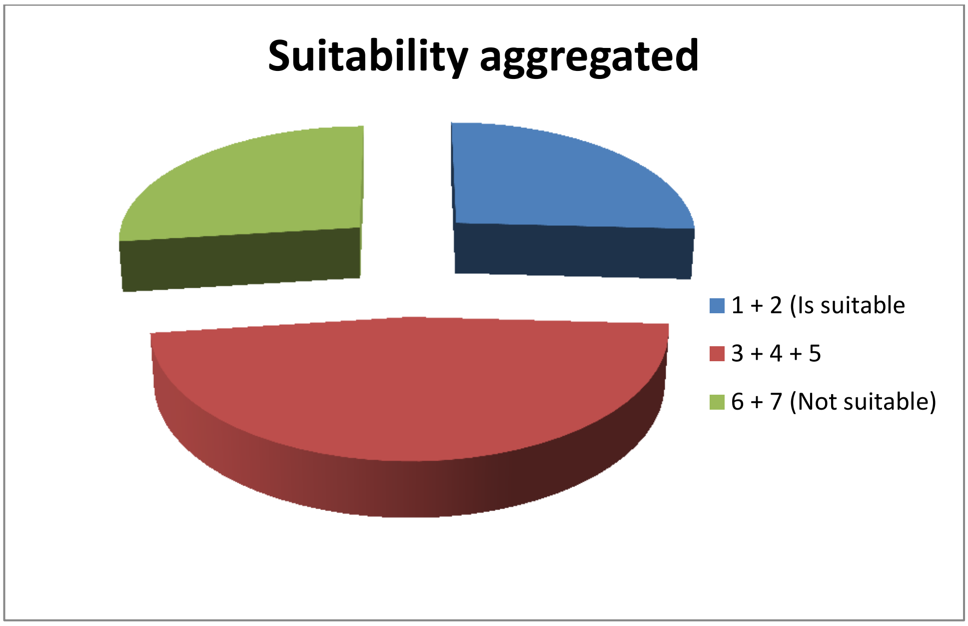


Yes please! to No, I would not

When asked if the respondents would want to work with the system for day to day use (as described by the scenario's) most responded negatively.

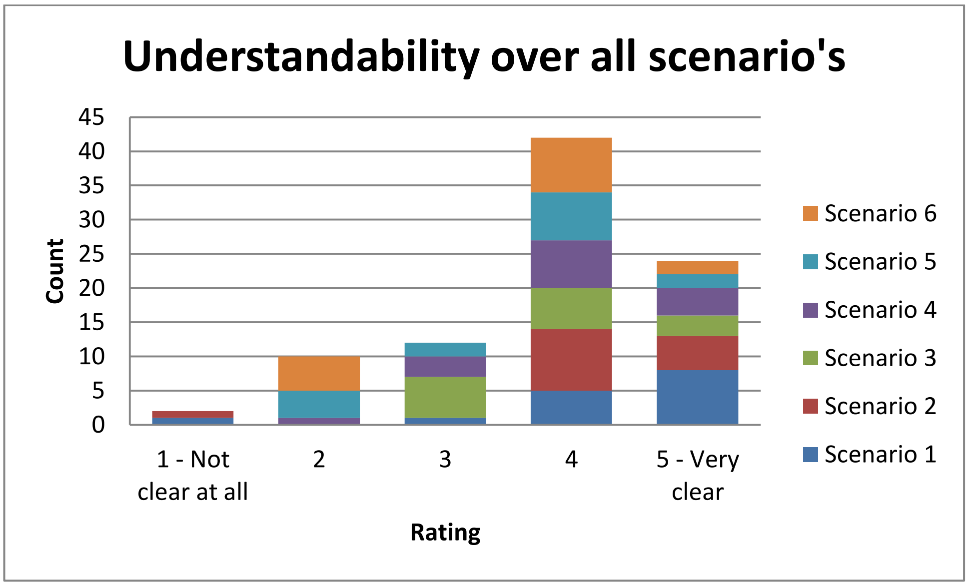
When we calculate the suitability over all scenario's (graphs below). On average no clear picture emerges. We notice that many are relatively 'suitable', but none are very suitable. Many are also relatively unsuitable. The pie chart shows that no clear result is noticeable in the aggregated data.





VALIDATION OF QUESTIONNAIRE

We asked all respondents if the scenario's and questions were clear. The aggregated results are visible in the chart below, where we see that most found the scenario's clear to very clear.



Appendix IV. MDBCs CURRENT INFORMATION SOURCES

Three separate components provide us with requirements for our solution. The 3rd component regards current **`analog, digital and implicit information sources`** at MDBC. Specifically we look at

(a) different types of files as stored on MDBCs network share (search), and

(b) the analog information sources found around the office (protocol & scenario analysis), and

(c) the through-observation found implicit knowledge types in the organisation.

The found results of are combined into a Business ERD showing the relations between existing data sources (entities). A detailed overview of fields associated with each table can be found after the summary diagram in the pages below.

Summary of results and translation

DIGITAL SOURCES

We found the following digital sources:

Name	Description	Source file locations
Committee Members and Board of Directors	There are several 'teams' involved in the governance of MDBC. First off, the Board of Directors. Accompanied by several committees: Membership, Special events, Student Internship Program, Finance & Legal, Communication, Internal Governance / Ad Hoc, MDBC Penang, ExCom: Executive Committee	(Restricted file) **Note:** Potentially outdated information. Please carefully verify results with ED.
Thunderbird Address Book Contact List	Several lists exist, including a list to which MDBC sends the e-update and event invites. Not all lists are of interest.	Secretary computer's Thunderbird client. **Note**: There is a project aiming to automatically synchronise the address books at all PCs. **Note**: Please check with ED and CM if any updates must be made.
Thunderbird Address Book Contact	Contains a contact name, company name and e-mail address.	Secretary computer's Thunderbird client. **Note**: There is a project aiming to automatically synchronise the address books at all PCs. **Note**: Please check with ED and CM if any updates must be made.
Premium partnerships List	Each year MDBC has a subset of members that have 'premium' status.	Z:\Membership\Premium Partners
Potential Premium partnerships List	List of potential 'premium' status partners in the following year. Used as a reference when contacting members for 'premium' partner status.	Z:\Membership\Premium Partners
Member List	Overview of all of MDBCs partners and their principal contacts (and contact information).	Z:\Membership\MDBC Member Listing
Year Member cancellations	Each year new members join MDBC and current members cancel their membership.	Z:\Membership\cancel* Z:\Membership\MDBC Member Listing Stored in separate tabs of the Member-List excel sheet.
M4M-Cards List	For the member-4-member discount program members are in the possession of a membership card.	Z:\Membership\MDBC Card Tracking
Potential Members List	For business development there is an (often outdated) list of potential members.	**Note**: Often outdated information. Verify if known contacts in the firm are still working there with ED, CM and IC.

Potential Members List – Call Log	When these potential members are contacted, a note (or follow up, or promises made) should be added to a 'call log'	**Note**: Often outdated information. Please aggregate contact per company. Verify last-interaction with ED and CM
Member-Industrial Sectors	For the Business Directory (and as published on the website) each member is placed under one industrial sector.	Important search filter.
Internship Opportunities List	List of member-companies and their contact information interested in participating in SIP. Includes Contact person can differ from MDBC principal contact.	Z:\SIP\SIP for year XXXX
Student Intern Overview List	List of all students (per batch) showing their contact information and overall status of the internship workflow.	Z:\SIP\SIP for year XXXX
Event Overview List	Overview of all events in a particular year.	Z:\Events\XXXX Z:\Events\Archived Events\XXXX
Event registrations	Registrations for a particular event. Each event has a separate file for this.	Z:\Events\XXXX Z:\Events\Archived Events\XXXX
~~**Sustainability award nominated companies**~~		
MDBC Magazine mailing list	Several lists exist, each describing a subset of interesting contacts.	Z:\Membership\MDBC Newsletter Mailing List\MDBC Mailing List yr 2012 Netherlands corporate & others **Note:** All people in these lists (latest version) must be added to the system as contacts (or companies) and flags to receive the magazine must be set to True.
G: MDBC Member-Event participation	**Aggregated list → Functional** requirement: Overview of how many contacts from a Member participated in events per year.	
G: MDBC Potential advertisers List	Manually generated list.	
G:Potential advertisers	Manually generated list	
G:Student intern list archive	**Aggregated list → Functional** requirement: Overview of all previous interns	

TABLE 27: DIGITAL INFORMATION SOURCES – SUMMARISED FROM APPENDIX (PAGE - 42 -, ONWARDS).

Appendix IV: MDBCs current information sources (page - 35 -) provides a detailed description of the found sources.

We ***excluded*** 'sustainability award nominated companies' as it is too detailed (and once-per-year functionality) and therefore out of the scope of the system. And we excluded several manually aggregated / generated lists. These are not true information sources but mere copies.

THE FOUND SOURCES ARE NOT PROPERLY STRUCTURED (CF. RELATIONAL DATABASES - NORMAL FORM)

The found tables as described in *Appendix IV: MDBCs current information sources (page - 35 -)* are a sorted aggregated version of the types of 'databases' we found in our analysis. This sorting and aggregating of many documents into a limited set of similar aggregated tables was done by the main author. As the found information sources in the organisation are not structured conform database normalisation theories[1] (concept from Relational Databases). Nor is there a solid version management. This means that issues can arise such as

Dimension I. ***Data inconsistencies through redundancy***, (e.g. Many fields contain the name and telephone number of that contact. This redundancy will result in errors once the phone number of the contact changes and is not updated in all tables.

Invalid as 2nd NF requires all attributes to be fully dependent on the primary key. For example, noting all contact-details of a participant in an event-registration-tuple is an infringement of this form.

Dimension II. ***Multiple rows showing one tuple***, (e.g. two main contacts provide two rows in the membership table, showing only one membership-tuple).

Invalid as 1st NF requires all tuples to be disjoint and it is not allowed to give meaning to the order of the tuples.

Dimension III. ***Incorrect dependencies between tables trough human readable 'foreign keys'***, (e.g. Free text fields with possible reformulations, use of acronyms or spelling mistakes limiting computer readability).

Infringes one of the aims of normalization. Relational data should be free from dependencies limiting insertion, updates or deletion.

Dimension IV. ***Versioning issues***, (e.g. where updates are entered in the correct version, but not in all tables; or were inserted in the wrong version).

These issues have not been addressed in the following overview of current types of information sources as visible in the *schemata below*. , shows a summary of the found information sources without mitigating the risks stated above. Dark blue blocks show digital information sources. Light blue blocks show analog information sources. Purple blocks show implicit knowledge sources. Red blocks show found (manually) generated/aggregated information sources – which contain duplicates of other information sources.

The sources have been linked together to show their basic interdependence (e.g. A membership company is linked with several M4M cards). Different colours depict a different link (analog, digital, implicit). Thick lines show strong connections where most tuples are connected and this connection is documented. Thin lines show weak connections where only a few tuples are connected, or the connection is implicit.

ANALOG SOURCES

We found the following analog sources:

Name	Description	Source file locations
Holder of contact cards	Box containing alphabetically (on Corporation) stored Contact Cards.	ED: Desk CM: Desk Cabinet at Secretariat
Contact Card	n/a.	In the holders.

TABLE 28: ANALOG INFORMATION SOURCES – SUMMARISED FROM APPENDIX (PAGE - 47 -, ONWARDS).

Appendix IV: MDBCs current information sources (page - 35 -) provides a detailed description of the found sources.

IMPLICIT SOURCES

We found the following implicit sources:

Name	Description	Source file locations
Warm or cold con-	Is something	ED and CM and IC

[1] "**Database normalization** is the process of organizing the fields and tables of a relational database to minimize redundancy and dependency. Normalization usually involves dividing large tables into smaller (and less redundant) tables and defining relationships between them. The objective is to isolate data so that additions, deletions, and modifications of a field can be made in just one table and then propagated through the rest of the database via the defined relationships." (Wikipedia, Database normalization)

tact?		
MDBC contact or personal employee relationship?	Is something in the minds of CM and ED, potentially also internship coordinator.	ED and CM and IC
Contact job position	For very few contacts we have a digital copy of their current job position. Note that some of the information might be stored in ED's/CM's/IC's LinkedIn profile.	ED and CM and IC Relatively new Nametags – gathered at events
~~**Processes and work flows in MDBC**~~		
Tasks, to-do items	Each employee uses his own format to maintain a list of to-do items. Exchanges are communicated verbally or via an email.	n/a
~~**Results membership satisfaction questionnaires**~~		
Contact details of MDBC employees	Mostly, there is no aggregated overview of intern & employee contact information. It is exchanged verbally at some point	Ask interns, ED, CM and IC.
People and positions in MDBCs committees and BoD	Mostly, the location of the document is unknown.	Ask ED and CM.
~~**MDBC Employee presence at the office**~~		
Future MDBC Events and potential dates	Is known at CM, but not shared among personnel.	
~~**Schedule / calendar / appointments ED**~~		

TABLE 29: IMPLICIT INFORMATION SOURCES – BASED ON TABLE 30 (PAGE - 48 -) FROM APPROPRIATE APPENDIX.

Appendix IV: MDBCs current information sources (page - 35 -) provides a detailed description of the found sources.

Explanations of exclusions to this list:

- Excluded 'Processes and work flows in MDBC', as Workflow documentation/automation is outside of the scope of the SuD.
- Excluded 'Results membership satisfaction questionnaires', as it is aggregated feedback information, and not a factual operational information source. Therefore outside the scope of the SuD.
- Excluded 'MDBC Employee presence at the office', relevant to internal actions but not related to managing MDBC's network. Therefore a Would-like-to-have', but not mandatory functionality.
- Excluded 'Schedule / calendar / appointments ED', relevant to internal actions but not related to managing MDBC's network. Therefore a Would-like-to-have', but not mandatory functionality.

Schematic overview of current information needs

See *Figure 23: Overview of digital, analog, implicit and generated information sources, below* - for an overview of the discussed sources of the previous three subsections. Figure also includes the results from the previous chapter that also resulted information entities.

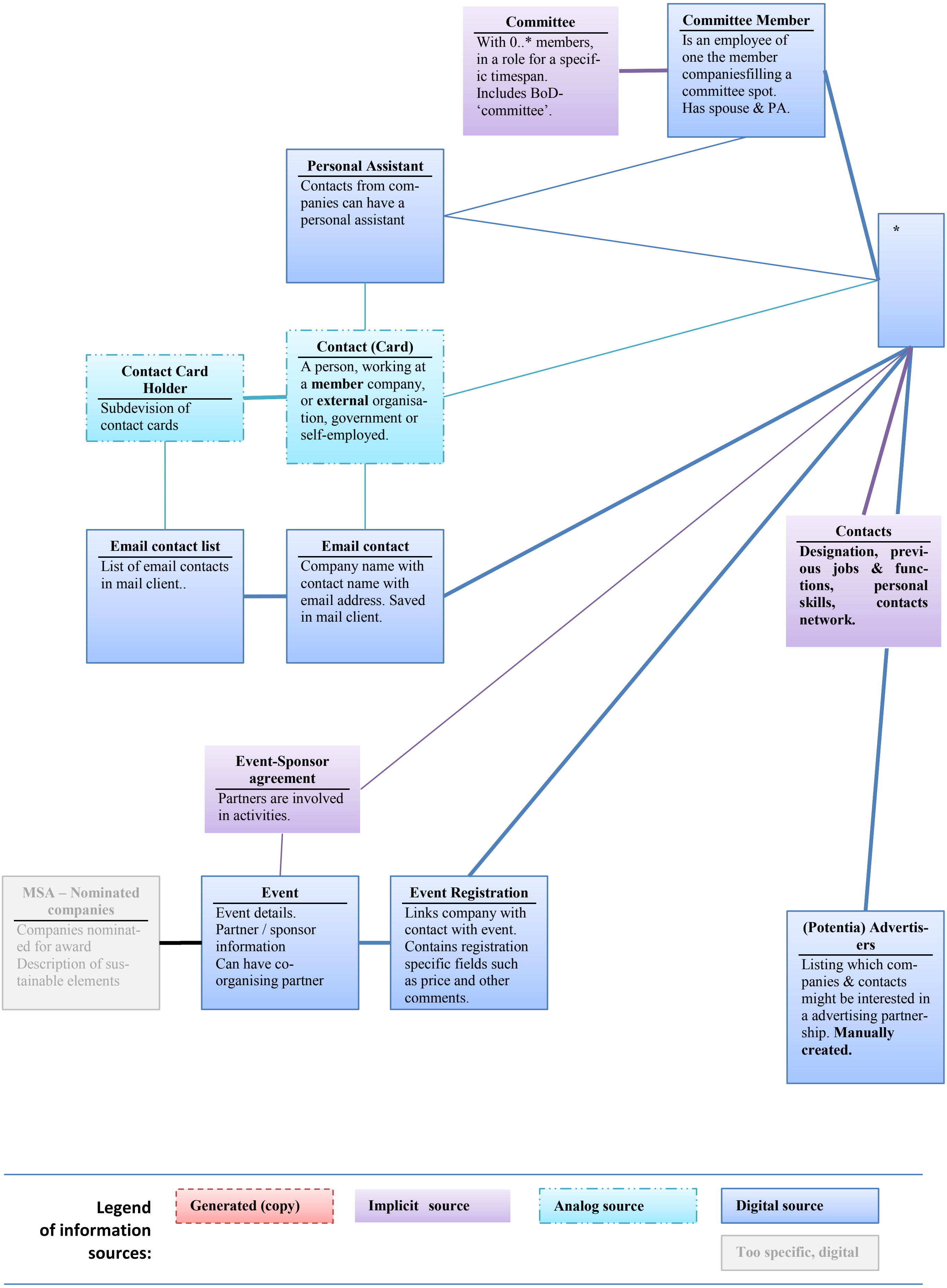
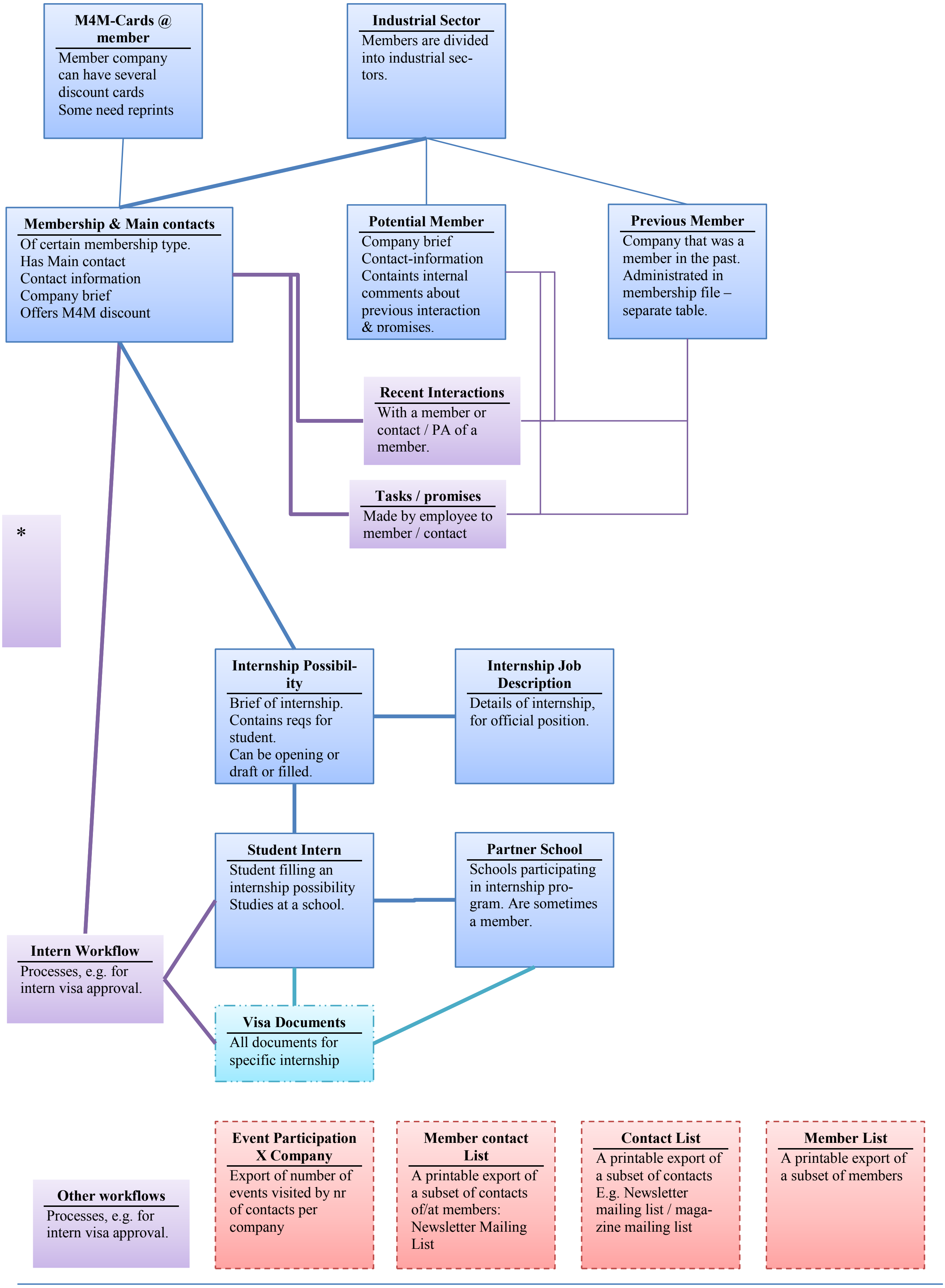


FIGURE 23: OVERVIEW OF DIGITAL, ANALOG, IMPLICIT AND GENERATED INFORMATION SOURCES


M4M-Cards @ member
Member company can have several discount cards
Some need reprints
Industrial Sector
Members are divided into industrial sectors.
Membership & Main contacts
Of certain membership type.
Has Main contact
Contact information
Company brief
Offers M4M discount
Potential Member
Company brief
Contact-information
Containts internal comments about previous interaction & promises.
Previous Member
Company that was a member in the past.
Administrated in membership file – separate table.
Recent Interactions
With a member or contact / PA of a member.
Tasks / promises
Made by employee to member / contact
*
Internship Possibility
Brief of internship.
Contains reqs for student.
Can be opening or draft or filled.
Internship Job Description
Details of internship, for official position.
Student Intern
Student filling an internship possibility
Studies at a school.
Partner School
Schools participating in internship program. Are sometimes a member.
Intern Workflow
Processes, e.g. for intern visa approval.
Visa Documents
All documents for specific internship
Other workflows
Processes, e.g. for intern visa approval.
Event Participation X Company
Export of number of events visited by nr of contacts per company
Member contact List
A printable export of a subset of contacts of/at members: Newsletter Mailing List
Contact List
A printable export of a subset of contacts
E.g. Newsletter mailing list / magazine mailing list
Member List
A printable export of a subset of members

Further usage of the found information entities are input for the systems

The information entities found in this chapter (together with some from the previous chapter) pose an exhaustive but unstructured set of facts interesting to MDBC. By separation of concern, the rules of normalisation and good design practices we can create an Entity-Relationship-Diagram (Data-model) to support MDBC. They will be used as input for the systems data requirements.

Non-summarized overview of found databases and fields

INTERNAL

Board of Directors			
Changes of time			
String	Name		
String	Position within MDBC		
String	Company Address		
	Position in Company		
	Company tel. no.		
	Company tel. no. ext.		
	Company tel. direct line		
	Hand phone no.		
	Company fax.		
	Corporate Email		
	Private Email		
	PA Name		
	Direct line PA		
	PA Email address		
	Spouse		
	House tel. no.		

THERE ARE TABLES SHOWING THE PEOPLE IN THE BOARD OF DIRECTORS AT THAT MOMENT IN TIME. WE ASSUME THE VERSION ON MDBCS WEBSITE IS MOST UP TO DATE.

Committee members			
Changes of time			
String	Name		
String	Committee		
String	Function		

THERE ARE TABLES SHOWING THE PEOPLE IN EACH OF MDBCS COMMITTEES AT THAT MOMENT IN TIME. IT IS NOT KNOWN IF THESE ARE UP TO DATE.

Thunderbird Address Book contact			
For each contact only two fields were filled in			
String	Name: Company		Contacted string with both Company name and Contact name
String	Email		Contacts corporate email account

A CONTACT CAN BE ADDED TO MULTIPLE CONTACT LISTS.

Thunderbird Address Book Contact List			
Has many contacts.			
String	Name		

CURRENT CONTACT LISTS:

- Contacts NL biz
- Contacts NL biz2
- Contacts NL note
- Contacts NL pers
- CSR café
- DBO regional
- EU Extended
- EUMCCI group 1
- Futsal team captains
- MDBC – BOD – PA's
- MDBC Chairman and Board
- MDBC contacts MY
- MDBC Penang Direct Members
- MDBC Penang group 2 indirect
- MDBC potentials
- MDBC Principal Reps. 2012
- MDBC SIP 2009-I
- SIP 2010-I
- SIP students 2008 III and IV
- SIP University coordinators
- Members in NL
- MSA11 Judges
- + Unstructured contacts

	------- And on SIP computer, extra: • + Unstructured contacts ------ And on Marco computer personal, extra: • + Unstructured contacts

Members and sponsorships

Premium partnerships (2013 renewals)

List of premium partners, that will renew in 2013

Numeric	CountNumber		
String	Company	L	
String	Contact Person	L	
String	Title / designation		… of contact person at company
String	Status		Details of arrangement / status of negotiation

Each year members can be a "Premium Partner" of MDBC. Each year there are tables showing this information for the exact details of the arrangement.

Premium partner potentials list

MDBC Has several premium partner sponsorship deals

Numeric	Nr		
String	Company		
String	Contact person		
String	Contact Title / designation		
String	Contact email		
String	Status		Email sent, No, Pending Discussion, Confirmed, Special arrangement, (..)
String	Remarks		

Each year members can be a "Premium Partner" of MDBC. Each year there are tables showing this information for potentials.

Member-Cards (to be printed)

List showing elements of member-4-members card

String	Company name		Or: "MDBC Guest"
String	Card Number		Format: NN-NNN-SS
String	[Handed to person]		

Overview of current cards in circulation. Sublist defines which new cards have to be made.

Member List – "Master Copy"

Overview of all current members of MDBC

Numeric	No.		Company nr, as sometimes two offices use two rows but are only one member.
String	Company Name		
String	Address1		
String	Address2		
String	Postcode / City		
String	Telephone nr.		
String	Fax nr.		
String	Contact Name		This is The principle representative for that company towards MDBC. Also shown in the business directory.
String	Contact Designation		
String	Contact Nationality		
String	Contact Email		
Photo	Contact Photo		
String	Contact corporate email		
Set	Category		Outstation, Orange, Silver, Gold, Individual, **Extra flags:** /Penang, /HalfYear, Orange(Half) **Special types:** Patron, Honerary member, Embassy Member, BoD-member
	Barter/PP		Barter agreements arrange special deals that lower MDBC membership fees in exchange for other services.
String	Business Activities		Internal remarks, similar to type of business of the Business Directory
String	Company Web-site		
	[Contact Secretary/PA Name]		Used in 2007-09-03 version
	[Former company name]		Distilled from Industry-sectors-list for 2012/2013 Business Directory.
Extra fields from an internally found analysis of membership types			
Bool	Is MNC in NL		
Bool	Is SME in NL		Fields describing the member company.
Bool	Is Dutch linked in MY		
Bool	Is Dutch linked in NL		
Bool	Is MNC in MY		
Bool	Is SME in NL		
Bool	Is MY SME-service		
Bool	Is Other		
Set[]	Industry		Linked to member-industry categories
String[]	M4M-card discounts		Freetext on given discounts to members
Photo	Company Logo		As shown in the Business Directory
Extra fields from business directory			
Numeric	Year of incorporation NL		
Numeric	Year of incorporation MY		
Numeric	Year of incorporation Global		
Numeric	Nr. Of employees NL		
Numeric	Nr. Of employees MY		
Numeric	Nr. Of employees Global		
Numeric	Annual turnover NL		
Numeric	Annual turnover MY		
Numeric	Annual turnover Global		
String	Type of Business		
String	Corporate description		

String	Sector		Same as the link to Industry sectors. Can change over time.

A list like this exists for every year, thus we must add a timespan of a membership.

On occasion, members cancel their membership between years.

Other flavours:

- Member list for printing

A company could have multiple addresses: NL/MY Post address, NL/MY office addresses, …

Has sublists

- Master copy (includes members, individual members, honorary members, BoD barter memberships, Embassy members
- Cancel in 2012 (separately documented)
- New members in 2012 (separately documented)
- NL Members

Note that "Dutch applied colleges" can be a special type of members as they are the supervisor of an intern.

Business Development: Potential Members			
Data collected by Intern for Business Development Other: In conjunction with the board.			
String	Contact Name		
String	Company Name		
String	[Contact information]		Emails/Tels/Remarks/
String	[Comments by Marco]		Allready a member ?? Ex member Potential!
String	[Contact from / via]		
String	[Their response / comment]		

Many versions of these tables exist. Unknown is which are up to date.

XXXX year cancellations			
Usually in a separate tab of the member list master copy.			
String	Company Name		
String	[Reason]		Reason for not renewing MDBC member-ship
Set	[Category]		Orange, Silver, Gold, Outstation, Barter, Individual,
Price	[RM]		Annual fee

Sub table of Member-list master copy, showing only those members that will not renew their subscription. Often embedded in that years mastercopy excell document.

Member industrial sectors			
2012 version			
String	Name		• Agriculture & Timber • Chemicals, Cosmetics, Medical & Pharmaceuticals • Construction & Infrastructure • Consultancy & Services • Consumer Products & Applianc-es, Food & Beverages • Corporate Services, Financial, Human Resources, Insurance, Legal • Diversified Conglomerate • Education • Entertainment & Production • Exhibitions, Hospitality & Tour-ism • Government Statutory Body • ICT • Individual Members

Business Development: Call log of potential members			
Data collected by Intern for Business Development. Log log not actively maintained ???? High overhead			
String	Company Name		
String	Contact Name		
	Contact Designation		
	Corporate nr.		
	Corporate nr. Ext.		
	Contact Direct Line		
	Contact Email		
	Dall - Date called		Date of contact
	Call – spoke to		
	Call – Follow up		Comments / follow up required

Many versions of these tables exist. Unknown is which are up to date.

			• Logistics, Transportation, Distribution & Storage • Manufacturing • Oil, Gas & Power • Trading

AS MEMBERS ARE LINKED TO FOR THE 2012/2013 BUSINESS DIRECTORY.

STUDENT INTERNSHIP PROGRAMME

Overview of internship opportunities

Overview of current and potential Job Descriptions of SIP

Numeric	CountNumber		
String	Company	L	
String	Job Title		
String	Contact Person	L	
String	Required Study		
String []	Potential Students		Comma separated list of students that might be interested
String	Actions		????
Bool	isPotential		Currently two sublists in excel sheet showing JD's: Some are definitive, others are currently in negotiation.

FOR EACH BATCH THERE IS AN OVERVIEW OF POTENTIAL INTERNSHIPS AT COMPANIES. AN INTERNSHIP OPPORTUNITY IS LINKED TO A PDF WITH A MORE DETAILLED "JOB DESCRIPTION". PLAN IS TO PROMOTE THIS "JOB DESCRIPTIONS" AT MDBCS WEBSITE.

Student Overview

Each batch of students is administrated in an excel sheet. The latest version shows the fields below.

Numeric	CountNumber		
String	Name		
String	Tussenvoegsel		
String	Surname		
String	Full Name		Calculated from other name fields
String	Email		
Date	Available_per		Date intern is available to start internship
String	School	L	
String	Study		
String	Year		[1,2,3,4,Master,Bachelor]
Boolean	welcomeEmail		
Boolean	verificationEmail		
Date	Last update		Date the student last had contact with MDBC/Internship coordinator.
String	Comments		Includes student interests Encountered issues Current status
String []	Suggested to Companies		Comma separated list of viable internship-firms for this student
String	History		
String	Remarks		
String	registrationFeePaid		Most often contains numeric value
Date	… paid on		
String	placementFeePaid		Most often contains numeric value
Date	… paid on		
String	depositFeePaid		Most often contains numeric value
Date	… paid on		
String	Student BankAccountNr		
Boolean	Added to Facebook group		
Documents needed for visa			
	Letter of Acceptance for Internship		From School
	Letter of Declaration of salary earned		From School
???	WPA		
	Grade transcript		From Student
	Copy of passport		From Student, all pages
	Student CV		
	Authorized Letter (LHDN)		From company
	Authorized Letter (IMMG)		From company
	IMMG Application Letter		From company
	LHDN Application Letter		From company
	Invitation Letter		From company
	Job Schedule		From company
	LHDN Approved Letter		From company
Documents needed for visa (static over all interns)			
	Company Profile		From company, same for all interns@c
	Company Forms		From company, same for all interns@c
	IM 12 2X Company sign		From company, same for all interns@c
	IM 38 student sign		From company, same for all interns@c
	LHDN Tax Form for co		From company, same for all interns@c
	Personal Bond		From company, same for all interns@c

	after stamping		
During / after visa approval			
Set	Status-Missing documents from		School, Student, Company
Set	Status- Income tax		Submitted, Approved, Declined
Set	Status- Visa		Submitted, Approved & awaiting pickup, Approved & processed, Declined
Date	Visa approved		
Scan	Copy of visa		

For each batch of students there is such a table. This table is extended with other fields needed to apply for the student visa.

Events and registrations

MDBC Event overview			
Set	Month		
Numeric	Date		
String	Venue	L	
String	Function		
String[]	Type []	L	
String[]	Partner / Sponsor []	L	
String	Partners contributions		
	# members participated		
	# non-members participated		
String	Co-organised with		EUMCCI, MABC, Embassy, … NLVM, NAAM

2003-2004 for [Academy]. Is most likely an aggregated list. The events are also published on the website.

Sustainabilitiy award nominated companies			
String	Company Name		
String	Description of what is sustainable		As found by employee on website, or as noted by nominating member

Event specific table.

(Sustainabilitiy award –) Event attendance / registration			
Numeric	Nr		
String	Company Name		
String	Contact name		
String	Contact designation		
String	Contact email		
RM$	Price		
String	Status		
String	Comments		
String	[Pick-up point]		
Boolean[]	[ProgrammeElement []]		Optional: Column for each element of the programme. True means participation.
Numeric	[nr. Sq. metres]		Booth space for exhibitions, as registered by a company, not a contact.
String	[sponsored elements]		Barter / services as sponsoring related to the attendance of a company

Table showing event registrations. Different events have different extra columns. The optional column-list above cannot be guaranteed to be complete.

Generated / aggregated lists (found) on Z

MDBC Magazine Mailing list			
List of addresses to where to send the Magazine.			
Numeric	[Nr.]		
String	Company		
String	Address1		
String	Address2		
String	PostCode		Sometimes combined with city
String	City		
	Country		
	First Name		

MDBC Member-Event participation			
Company X event-matrix showing the number of participants for all events per company.			
Numeric	Number		
String	Company Name		
Number[]	[Event name]		Columns showing all events, containing the number of participants per company per event.
Numeric	Total		Sum of participants for company

Aggregated matrix.

	Job Title / Designation		
Numeric	Copy		Range – How many copies to send there???
	[Dept.]		Only for Malaysian government: DID, EPU, FAMA, HDC, ICID, IRDA, MATRADE, BIO, MIDA, MPOA, MPOB, MPOPC, PMO, MOAAB, MDEC, etc. etc.

THE NEWSLETTER IS SEND OUT TO MAN TYPES OF ENTITIES. THESE ARE IN SUBLISTS (SEE LIST BELOW). THERE ARE 4 EDITIONS PER YEAR, AND THERE ARE LISTS FROM 2008 TO 2012.

- Sublists
  - Asean List (copy)
  - Diplomatic Database (copy)
  - Members list
  - Malaysian corporate and potential (copy)
  - Malaysian government list (copy)
  - Malaysian interchamber and business organisations
  - Penang
  - The Netherlands – Corporate and others
  -
- Similar
  - 2010 Directory MailingListLabels
  -

MDBC List of potential advertisers

Found one copy, last edited in 2010

Numeric	Number		
String	Abbreviation		
Set	Type		International School Governmental Travel Agency Car Rental Airline Port Authority Association Hotel Other
String	Company		
String	Country		
String	Comment		
String	Email contact person		
String	Phone contact person		
String	Email contact pers 2		
String	Phone contact pers 2		
String	Designation cont.per2		

MANNUALLY CREATED LIST OF POTENTIAL ADVERTISERS FOR THE MDBC MAGAZINE OR BUSINESS DIRECTORY OR PREMIUM PARTNERSHIP. ALTHOUGH PREMIUM PARTNERSHIPS ARE ALSO NOTED IN A DIFFERENT TABLE.

Student contact archive

An overview of all placed students

Numeric	Number		
String	Period		YYYY-X, E.g. 2012-2, 2012-1, 2011-3
String	Student name		
String	Company name		
String	Student email		
String	Comments		
Date	Student date of birth		Not used
Set	Type		100% MDBC, Half MDBC – MDBC arranged placement, or only visa application

AN AGGREGATED LIST SHOWING ALL STUDENT INTERNS OF ALL PREVIOUS BATCHES. CREATED BY INTERNSHIP COORDINATOR IN DECEMBER 2012.

ANALOG SOURCES AROUND THE OFFICE

Contact Card Holders

Within the office there are multiple holders for contact cards. There are labelled in different ways and currently sorted alphabetically on the corporate name.

String	Label		**Values in main cabenet:** • Local contacts, • MDBC Members, • Governments and Embassys, • Interchamber association / organisations, • MDBC Event visitor nametags, • Useful contacts, • Contacts in The Netherlands, • Former Members, • Media, • Potential Contacts **ED's desk** • MDBC members • Former members • Potential members

Contact Card

In the contact card holders there are many contact cards. They usually contain the following information

String	Contact Name		Includes: Contact designation
String	Contact position within company		
String	Contact info		Office telephone, Office fax, Office email, House telephone, House fax, House email, Mobile telephone
String	Contact info 2		Skype, Facebook, Twitter,….
String	Company Name		
	Company Address		
	Company website		
	Company contact info		Phone, Email, Twitter, Facebook?
	Company short		Short description of the services/industry
	Abbreviation		Ofen used by companies, government institutions, …

			• Media • Malaysian government related • Diplomatic • Business councils, chambers, associations • NL contacts • International contacts • General contacts: Might be relevant • General contacts: Don't seem relevant Explicitly not disjoint.	

Non-summarized overview of data types implicit in the minds of MDBC employees

Title	Fields	Description	Source trace
Warm or cold contact?	Boolean: yes/no	Is something	Observation
MDBC contact or personal employee relationship?	Set [MDBC, personal]	Is something in the minds of CM and ED, potentially also internship coordinator.	Wk02-CM
Contact job position	Function in company Previous functions at different companies	For very few contacts we have a digital copy of their current job position. Some of the information might be stored in EDs LinkedIn profile.	Observation
Processes and workflows in MDBC		A few word documents exist with detailed documentation of MDBC processes. From febuary 2nd onwards the new administrative help could help document this.	Observation
Tasks, to-do items		Each employee uses his own format to maintain a list of todo items. Exchanges are communicated verbally or via an email.	Observation
Results membership-satisfaction questionnaries	Several dimensions, questions, responses, results and formulated advice.	As performed by intern, or by MDBC itself.	Wk02-LB
Contact details of MDBC employees	Name Phone number Email address	Mostly, there is no aggregated overview of intern & employee contact information. It is exchanged verbally at some point	Wk-2-LB
People and positions in MDBCs committees and BoD		Mostly, the location of the document is unknown.	Wk02-LB
MDBC Employee presence at the office		On the phone interns cannot supply accurate guestimates of when ED / CE will be in the office. Internship coordinator presence is more structural	Wk02-LB
Future MDBC Events and potential dates		Is known at CM, but not shared among personnel.	
Schedule / calendar / appointments ED		On occasion the ED is out on conference/meeting. And the office gets a call from the other party. We however cannot see where the ED is, and if we can disturb him	Observation

TABLE 30: OVERVIEW OF IMPLICIT INFORMATION SOURCES.

Appendix V. MDBC’s Offerings & value proposition

During the week 41 meeting with the Executive Director he said he felt like he had done a 150 different things that day as each member organisation is a member for different reasons and thus has different wishes, problems and demands. This section focuses on MDBCs offerings to its members.

Via

- scenario and protocol analysis
- unstructured interviews with employees (Wk02-LB and Wk02-CM)
- the daily task and information needs logbook

Value, value perception and an ‘offering’

“*In short, value can be regarded as a trade-off between benefits and sacrifices. Some define value in business markets monetarily [2, 5] whereas others use a broader value definition, which also includes non-monetary revenues, such as competence, market position, and social rewards,”* (Walter, Ritter, & Gemunden, 2001, p. 366).

Value can be **increased** in two main ways: *First*, by decreasing costs and *second*, by increasing performance – given that the customer needs, wants and is willing to pay for that increase. (Miles, 1989, p. 5). Traditionally cost reduction sources are sought within the firm’s direct suppliers and customers or internally within a network perspective, one can also look at 2nd-tier, and 3rd-tier customers and suppliers to change the balance of value

We however add a third way to change the perceived value of an offering to the customer: By replacing the offering for an offering that creates a new type of value. For example by enabling customers to create their own added value. An example follows:

> *In 1993* (Normann & Ramirez) *looked at IKEA and found that this organisation was not positioned in a standard value chain with customers and suppliers, but was instead in the centre of a constellation of services, goods and design. In a way customers of IKEA were also suppliers (of time, labour, information) and suppliers were also customers (of IKEA business services)* (p. 4)*. Norrmann and Ramirez continue and argue that IKEA has succeeded to creating more value for itself, its supplier and its customer.*

This example illustrates the importance of the organisation’s Business Network. By re-aligning the organisation within the environment a firm can create new value for their customers. (Normann & Ramirez, 1993, p. 4) wrote that every delivered service or product is the result of a complicated set of activities. Thus we should not see services as “frozen activities”, but as “**`offerings`**”. This is important when the boundaries between products and activities become vague. What IKEA has done, is offer their products in such a way that it is not creating value for its customers, but instead mobilises customers to create their own value from the companies various offerings (e.g. via mass customisation).

Summary of found offerings and tasks within MDBC

Through (a) observation, (b) ED and CM keeping a task of daily tasks, and (c) the analysis of many published sources we found a set of offerings MDBC provides to its members. The found offerings were grouped together. Each group was then explored in terms of ‘daily tasks’ needed to support the offering. These tasks are shown in this subsection. For each task we note:

> **Information Entities** in bold
>
> **Actors** in bold and underlined
>
> *A certain value* of an information entity (attribute) in italic.

Some of the tasks have been strikethrough as they are out of scope.

Regarding Organising events

Task-01. Organise **Activity** for **Local contacts**, **Government institutions** and/or **Members**, including

a. Arrange **speakers**

b. Arrange **venue**
c. Arrange food and beverages-**caterer**
d. **(…)**

Task-02. Send out **Invitation** of **Activity** to **Members** and **other guests**
Task-03. Send out **Reminders** of **Activity** to **invitees**
Task-04. Process/Administrate **participant subscription** for **Event**
Task-05. Send out **Event itinerary / update** for **Event** to **invitees**
Task-06. [Send out **Event evaluation** to **participants** of **Event**]
Task-07. [Send out **Event thank you mail** to **participants** of **Events**]

SPECIFIC ADDITIONS FOR ORGANISING EXHIBITIONS

Task-08. Rent **exhibition space** from **Organising Party**
Task-09. Arrange a **subset of members** filling the space to sell **goods** at **exhibition** (or promote themselves)

M4M-CARD PROGRAM

Task-10. Give out **new card** to **member** or **member-contact**
Task-11. Arrange **yearly discounts** at **participating members**
Task-12. Register **card** as *lost*
Task-13. Update **offering information package**, and send to **members**

BUSINESS DIRECTORY PUBLICATION

Task-14. Update **Business Directory Member-profile page** for each **Member MDBC** has (**Member-list**)
Task-15. Launch **directory** at **Event** (See above for related tasks of organising Event)
Task-16. Distribute **Directory** via post to **Mailing list**
Task-17. Sell copy of **Directory** to **Non-member**

MATCHING SERVICE FOR NETWORKING BETWEEN MEMBERS (AND LOCAL CONTACTS)

Task-18. Receive **query** for **member/contact information** (for matching) specified with **potential filters**.
Task-19. Search through **Business Directory** to answer **query**
Task-20. Filter / drill-down **implicit knowledge** to answer **query**
Task-21. Send relative **Member-company information** and **Contact information**
Task-22. Facilitate meet between **contacts**

REPRESENTATION OF MEMBERS

Task-23. Bargain improvement of a *dimension* in the interest of most **MDBC members** in a *potential dispute*

INFORMATION PROCESSES FOR WEBSITE, SOCIAL MEDIA, MAGAZINE AND E-UPDATE

Task-24. Receive **information** from **External Network Actor**
Task-25. Create **digest** (filter relevant from irrelevant) of **information** and send to **Member Contacts mail list**
Task-26. Push message via **Webpage, LinkedIn, Facebook or separate mail** to **Member Contacts mail list**
Task-27. Write article for **magazine**
Task-28. Send out **magazine** to **Mailing lists**

RELATED TO THE INTERNSHIPS PROGRAMME

Task-29. Receive **job description** of **MDBC Member**
Task-30. Negotiating **job description** for **internship**
Task-31. Receive **CV of Dutch college intern** trough **Partner University**
Task-32. Send out appropriate **information mailings** to **Dutch college intern**
~~**Task-33.** [out of scope] – Administrate payment of Dutch college intern OR MDBC member~~
Task-34. Mediate in placement of **Dutch college intern** at open spot at **MDBC Member** by (a) introducing the **intern**; (b) streamlining **the information**
Task-35. **Weekly update** on internship placement progress to **intern** (from Internship Coordinator)
Task-36. Sending **Intern information documents** about *housing, rules, regulations*
Task-37. Collecting and checking **intern** & **school visa documents**
Task-38. Checking **company visa documents**
Task-39. Arrange **visa** for placed **Dutch college intern** at **MDBC Member**

ADDITIONAL DAILY TASKS

Task-40. Sending out **questionnaire, e-update, information mailing, event invite or reminder** to **<u>MDBC members, local contacts, and other contacts</u>**.
Task-41. Inventarising **potential advertisers**
Task-42. Contacting **<u>potential advertisers</u>**

ADDITIONAL, REGARDING MDBCS MEMBERSHIPS
Task-43. Process **form** for *new membership*
Task-44. Process **form** for *cancellation of membership*
Task-45. Inventarising **<u>potential premium partners</u>**
Task-46. Contacting **<u>potential premium partners</u>**

Found Information and actor entities summary

Cf. the above classification we see the Information types (Information Entities) and actors (Actor Entities) as shown below. Several were removed from the list (strikethrough) as they are duplicates or inapplicable.

All actor entities need further exploration before they can be added to the enacted environment (See the previous component-chapter). The discovered information entities form input for the systems data requirements section.

Information Entities		Actor Entities	
MDBC Activity / Event	Informal, Formal {Luncheon, Exhibition, Project, Visit to company}	**Company**	Any company or institution. Each firm provides certain offerings or sells certain goods, should be searchable for matchmaking. See the typology of a company from the previous chapter. Firms differ in size (SME / Multinational)
Guest-list	Those invited for an event **Or:** Those registered for an event	**MDBC Member (subset of)** **@isParticipating in M4M program** **@isParticipating in SIP**	Members from MDBC are companies paying the membership fee. Some members are involved in the M4M program or in SIP. Members can have a sponsor-arrangement, barter-arrangement with MDBC. Which should be administered in the system
Participation-list	Those present at an event	**Contact**	Any person or contact. See the typology of a contact from the previous chapter.
Goods for Sale	That what a company sells	**Member-Contact**	People working at the Members are contacts. Each Company has a principal contact and can have multiple other contacts.
M4M-card	Member for member card	**Local Firm**	Service providers in Malaysia
M4M-card status	The status of a specific M4M card: Active, Lost	**Government Institution**	Dutch and/or Malaysian (semi)-governmental organisations
M4M-dicount	The information about a discount deal a Member offers Card-holders	**~~Local~~ Speaker**	Speaker at an Event
Business Directory	Bi-yearly edition featuring MDBCs members and MY-NL macro analysis	**Venue**	Venue hosting an Event. Sometimes only hosting, other times also the main organiser.
Business Directory member profile	A page in the Business Directory featuring a member.	**~~Organising party~~**	Covered under 'Venue'.
Mailing-list	List of postal addresses (for magazine) or list of e-mail addresses (for eUpdate / invites)	**Malaysian Institutions**	Malaysian NGO's.

Member-list	List (or sublist) of MDBC's members	**~~External Network Entity~~**	
MDBC Webpage	Mdbc.com.my webpage	**Dutch College intern**	Dutch college student and applicant for the internship program.
MDBC LinkedIn group	Group for members, moderated by MDBC	**SIP Partner University**	Schools actively participating in the internship programme.
MDBC-SIP LinkedIn group	Student internship group, moderated by MDBC	**Other guests**	Too broad description. Further investigation showed some additional dimensions and these were added to the typology of a contact from the previous chapter.
MDBC Facebook page	MDBC general Facebook page, moderated by MDBC	**Non-member**	A contact at a non-member company, or a non-member company itself. Inconsistently used in the task description.
MDBC SIP Facebook page	Student internship page for potential interns, moderated by MDBC	*** @isPotential advertiser**	Every firm and contact can be a potential advertiser.
E-update newsletter	Electronic newsletter featuring MDBC's event, relevant Dutch, Malaysian and member news.		
MDBC Quarterly Magazine	Magazine featuring articles about Members, MDBC Events and other news.		
MDBC Event invite	Inviting a member, member-contact or contact to an event.		
MDBC Event reminder	Reminder for above event		
MDBC Event itinerary / update	Itinerary for above event.		
~~Relevant information~~			
Visa-application			
Visa-documents	Documents needed for VISA application, from Student, Company and School		
Student-CV	CV of potential intern		
Student Letter of Motivation	Letter of Motivation of potential Intern		
Internship Job Description	Description of a potential internship from a MDBC Member		
Query / Information Request	Information request query, including a number of 'filters'		
~~Implicit knowledge~~			
Contact Information	Contact information of a contact.		

TABLE 31: SUMMARY OF ENTITIES FOUND IN DAILY TASKS

INCLUSIONS AND EXCLUSIONS OF ITEMS

INFORMATION ENTITIES

Relevant information was considered too broad of an item to discuss here. The information sources 'relevant' to MDBC will be explored in the next chapter. Potential filters for contacts and companies are explored in the previous chapter.

Implicit knowledge was considered too broad of an item to discuss here, as it will also be explored via a different methodology in the next chapter.

Actor entities

Member was added as it is used to describe many other information sources.

Contact was added as it is used to describe many other information sources.

Non-summarized overview of found offerings and related tasks, processes and subject domain

An overview of distilled offerings (form several sources) is shown in the table below. The table shows a description of the offering, the source where it was found, examples of the offering and the source of the transaction cost reduction (based on the literature review of Offerings). Many offerings are related, which is shown by the thick border around the set. Each set is accompanied with a sub table showing

- the elements in the Subject Domain…
- extended with potential important DFD processes,
- and an overview or office tasks related to the set of offerings.

No.	Description of offering	Source	Examples[1]	Transaction cost reduction[2]
O-1.	**Business Development** possibilities at MDBCs events, through visits to companies, Luncheon presentations, exhibitions and projects	(MDBC, Business Directory, 2010-2011, p. 15)	Visit to the Smart Tunnel	Unstructured contact with MDBC as a matchmaker.
O-2.	**Networking possibilities with non-members** (local contacts, local firms and government institutions, …) at MDBCs events	(MDBC, Business Directory, 2010-2011, p. 15)	MDBC / MABC Inter-chamber Networking Evening MDBC New Year Reception 2011	Unstructured contact with MDBC as a matchmaker.
O-3.	**Networking possibilities with members** through informal activities	Added based on 2011 calendar	MDBC / TNT Virtual Golf Championships	Unstructured contact with MDBC as a matchmaker.
O-4.	**Partnership Development** possibilities at MDBCs events, through visits to companies, Luncheon presentations, exhibitions and projects	(MDBC, Business Directory, 2010-2011, p. 15)	Facilitation.	Unstructured contact with MDBC as a matchmaker.

Context DFD:	**Information entities:** Activity (Informal, Formal Event (Luncheon, Exhibition, Project, Visit company)); Guest-list (of those invited); Participation-list (of people actually there)	
	Actor entities: Member; Local Firm; Government Institution; Local Contacts; Speaker; Venue; Other guests;	
	Business processes: Network opportunity; Partnership possibility; Business Development lead; Send mail;	
Tasks:	Organise Activity for Local contacts, Government institutions and/or Members (including: Arranging speakers; venue; …)	Wk02-CM
	Send out Invitation of Activity to Members and other guests	
	Send out Reminders of Activity to invitees	
	Process/Administrate participant subscription for Event	Wk02-CM
	Send out Event itinerary / update for Event to invitees	
	[Send out Event evaluation to participants of Event]	
	[Send out Event thank you mail to participants of Events]	

1 Referenced events are retrieved from the 2011 events summary as published on MDBCs webpage: (MDBC, 2011 Events Calendar, 2011)
2 Cost reduction as specified in literature review.

O-5.	**Presentation & marketing opportunities** at exhibitions within a larger 'Holland Pavilion'	(MDBC, Business Directory, 2010-2011, p. 15)	2012 Malaysia International Gourmet Festival	MDBC exploiting economies of scale, reselling/filling floor space
O-6.	**Sales opportunities at exhibitions** within a larger 'Holland Pavilion'	(MDBC, Business Directory, 2010-2011, p. 15)	2012 Malaysia International Gourmet Festival	MDBC exploiting economies of scale, reselling/filling floor space

Context DFD: **Information entities:** Event: Exhibition; Goods for Sale;

Actor entities: Organiser; Members (subset of)

Business processes: Sales Opportunity; Rent exhibition space; Find members to place;

Tasks: Rent exhibition space from Organising Party

Arrange a subset of members filling the space to sell goods at exhibition (or promote themselves)

O-7.	**Sales opportunities** to MDBC members for a discounted rate through Member-for-member card		Members-for-members card	MDBC as a "contractor"-intermediary
O-8.	**Cheaper procurement opportunities** from MDBC members for a discounted rate through Member-for member card		Members-for-members card	MDBC as a "contractor"-intermediary

Context DFD: **Information entities:** M4M-Card; Card-Status (Active, Lost); M4M-Discount information per company;

Actor entities: Member (Boolean: participating in M4M program);

Business processes: Procurement opportunity; Sales opportunity; Discounts; Make new Card; Update M4M package information;

Tasks: Give out new card to member or member-contact

Arrange yearly discounts at participating members

Register card as lost

Update offering information package, and send to members

O-9.	**Business Activities and contact information of 200+ other MDBC members** every 18 months through the Business Directory.		Publication: Business Directory	MDBC 'selling' information, lowering search costs.

Context DFD: **Information entities:** Business Directory; Member-profile; Mailing list; Member-list; Event

Actor entities: Member; Non-member;

Business processes: Launch of directory; Distribution of directory

Tasks: Update Business Directory Member-profile page for each Member MDBC has (Member-list)

Launch directory at Event (See O-1 for related tasks of organising Event)

Distribute Directory via post to Mailing list

Sell copy of Directory to Non-member

O-10.	**Business Development / Knowledge sharing** possibilities in a broader context with other Business Associations and Chambers of Commerce. --- See subject domain of O-1 above --	(MDBC, Business Directory, 2010-2011, p. 15)	Joint events	MDBC 'selling' information, lowering search costs.
O-11.	**Business and contact matching** service provided by MDBC employees	Observation		Unstructured contact with MDBC as a matchmaker.
	Context DFD: **Information entities:** Information Request; Information Request filters; Business Directory; Implicit Knowledge; Contact information; **Actor entities:** Member; Contact person from Member company; **Business processes:** Search information; Send contact information; **Tasks:** Receive query for member/contact information (for matching) specified with potential filters. Search through Business Directory to answer query Filter / drill-down implicit knowledge to answer query Send relative Member-company information and Contact information Facilitate meet between contacts			
O-12.	**Representation of MDBC's members interests** through involvement of relevant Malaysian institutions in its events and meetings and dialogue sessions	(MDBC, Business Directory, 2010-2011, p. 15)	EUMCCI / MDBC VIP Luncheon with the EU Ambassador	MDBC Contracting – using bargaining position to represent interests of members.
	Context DFD: **Information entities:** Event (Meetings; Dialogue sessions); "Dimension"; **Actor entities:** Malaysian Institutions; MDBC Member; **Business processes:** Representation through bargaining; **Tasks:** Bargain improvement of a dimension in the interest of most MDBC members in a potential dispute			
O-13.	**Start-up consulting services** for newcomers to the Malaysian market on issues related to setting up a company or representative office	(MDBC, Business Directory, 2010-2011, p. 13).	Guiding a potential start-up to appropriate service providers.	Unstructured contact with MDBC as a matchmaker.
O-14.	**Knowledge sharing/creation** possibilities at MDBCs events and through member-for-member forums, panel discussions, visits to companies, exhibitions and projects	(MDBC, Business Directory, 2010-2011, p. 15) Extended with Colanders and schedules	Special 25th M4M! Netherlands – Your Logistics Gateway to Europe Seminar HR Forum	Cross-sectional reuse of information, MDBC monitoring and guaranteeing.
O-15.	**Business-Information benefits** through Informative and Educational events organised by MDBC for its members	(MDBC, Business Directory, 2010-2011, p. 13)	MDBC Penang: Briefing by the EU Ambassador	MDBC 'selling' information, lowering search costs.
O-16.	**Information about** XXXXX, provided through Quarterly Magazine	Magazine Analysis		MDBC 'selling' information, lowering search costs.
O-17.	**Business-Information benefits** through its e-Update topics	(MDBC, Business Directory, 2010-2011, p. 13)	eUpdate	MDBC 'selling' information, lowering search costs.
O-18.	**Business-Information benefits** through access to NL-MY related trading news as published on MDBCs webpage and Facebook page		Facebook Webpage LinkedIn	MDBC 'selling' information, lowering search costs.

	Context DFD: **Information entities:** MDBC Webpage; MDBC LinkedIn group; MDBC-SIP LinkedIn group; MDBC Facebook page; MDBC-SIP Facebook page; eUpdate newsletter; MDBC Quarterly Magazine; MDBC Business Directory; MDBC E-mail invites, reminders and updates, Relevant Information; Mailing list (eUpdate; Magazine) **Actor entities:** Member Contact; External Network Actor; **Business processes**: Receive; Digest; Broadcast information Tasks: Receive information from External Network Actor Create digest (filter relevant from irrelevant) of information and send to Member Contacts mail list Push message via Webpage, LinkedIn, Facebook or separate mail, to Member Contacts mail list Write article for magazine Send out magazine to Mailing lists			
O-19.	**Matching services of Dutch college interns** to MDBC members in the SIP-program, **including visa-mediation service**.	Magazine Observation	n/a	MDBC offering benefits of scale by increasing the frequency of the transaction.
	Context DFD: **Information entities:** Visa; Visa-documents; Student CV; Job Description; **Actor entities:** Dutch college intern; MDBC Member; Partner University; MDBC Member **Business processes:** SIP-Program; Arrange Visa; Placement-mediation; Tasks: Receive job description of MDBC Member Negotiating job description for internship — Source: SIP-Observation Receive CV of Dutch college intern trough Partner University Send out appropriate information mailings to Dutch college intern — Source: SIP-Observation [out of scope] – Administrate payment of Dutch college intern OR MDBC member Mediate in placement of Dutch college intern at open spot at MDBC Member by (a) introducing the intern; (b) streamlining the information Weekly update on internship placement progress to intern (from Internship Coordinator) — Source: Wk02-LB Sending Intern information documents about housing, rules, regulations — Source: SIP-Observation Collecting and checking intern & school visa documents — Source: SIP-Observation Checking company visa documents — Source: SIP-Observation Arrange visa for placed Dutch college intern at MDBC Member			

TABLE 32: OVERVIEW OF OFFERINGS PROVIDED BY MDBC, ACCOMPANIED WITH AN ANALYSIS OF POTENTIAL ENTITIES IN THE SUBJECT DOMAIN.

Discussion of the offerings during Wk02-LB and Wk02-CM did not result in extra offerings.

The found information sources were embedded in the Information Sources analysis of *Appendix IV*. The found organisational actors were embedded in the Environmental Context analysis of MDBC in *Appendix II*.

Full lists of tasks non-related to a set of offerings

Overview of elicited daily tasks that should relate to one of the offerings above:

No.	Cat.	Description of task	Source	{Information, Actor}-entities & Business processes
40	Information	Sending out questionnaire, e-update, information mailing, event invite or reminder to MDBC members, local contacts, other contacts	Observation, Wk02-LB, Mail templates	
41	Sponsors	Inventarising potential advertisers		
42	Sponsors	Contacting potential advertisers	Wk02-CM	
43	Membership	Process form for new membership	Website	
44	Membership	Process form for cancellation of membership	Email message	
	Financing	[Out of scope] Send invoices, reminders, ….		
45.	Membership	Inventarising potential premium partners	Observation	
46.	Membership	Contacting potential premium partners	Observation	

TABLE 32: OVERVIEW OF DAILY TASKS NOT EMBEDDED IN AN OFFERING

The found information sources were embedded in the Information Sources analysis of *Appendix IV*. The found organisational actors were embedded in the Environmental Context analysis of MDBC in *Appendix II*.

Full table of found information queries

Results from the logbook (For specifics in the approach, see methodology section: *2.5.3 Investigating MDBC's offerings, actions and tasks*). We did not have to add offerings to our overview above. The found information sources were embedded in the Information Sources analysis of *Appendix IV*. The found organisational actors were embedded in the Environmental Context analysis of MDBC in *Appendix II*.

Trace	Stimulus			Event&Action					Response deliverable			Relation dimensions
	by	medium	request	Internal action	Database	Criterion	External resource	External request	To	medium	response	Embedded-ness
1/L/CM	NL Embassy	Email	# members in Oil&Gas Sector	Mental thought process	Member List	[industry = Oil and gas]	Potentially: Members	Contact them to ask	Embassy	Email	Member detail []	Helping NL Embassy strengthens bond. For example for future joint events. And information benefits.
			Who are the big players in the Oil & Gas sector (in Malaysia)	Mental thought process	n/a						Fee text	
			Which of these players are Dutch	Mental thought process	Implicit						Free text	
			… and a member of MDBC?	Mental thought process	Member list or Business Directory	Contains (C) ?					n/a	
			Do these companies have experience with product X	Mental thought process	Business Directory: activities	Contains (X) ?					Boolean (interpretation)	
2/L/CM	xx	xxx	Members in, or related "Nuclear power generation"	Mental thought process	Business Directory	Industry = % Power % Activities like % nuclear % % power generation % % power distribution % (…)	Potentially: Members	Contact them to ask	xxx	Email	Member detail []	
3/L/CM	Internal	Verbal	Do we know anybody in company C	Mental thought process	Analog contact cards Thunderbird (…) LinkedIn Interns database	Company = C (Previous companies = C)	Potentially: Contacts	Contact them to ask	Internal	Verbal	Contact[]	
4/L/CM	NFIA for "Local contact"	Email	Looking for Malaysian company that can produce 'christmas valves' (oil & gas industry product).	Mental thought process	Business Directory	Industry = % oil gas % Products like % valve %	Potentially: Members	Contact them to ask	NFIA	Email	Members [] Contact []	Helping NFIA strengthens bond. For example for future joint events.
			Preferably foreign owned	Mental thought process	Implicit							
			Preferably European owners	Mental thought process	Implicit							
			Can cope with big order (100+ million)	Mental thought process	Implicit							
5/L/ED	xxxx		Contacts in the property developers industry	Mental thought process	Business Directory	Offering = % property development %	Potentially: Members	Contact them to ask				
				Mental thought process	Analog contact cards	Designation = % property development %	Potentially: Contacts	Contact them to ask				
			Contacts in the architect industry	Mental thought process	Business Directory	Offering =% architect %	Potentially: Members	Contact them to ask				
				Mental thought process	Analog contact cards	Designation = % architect %	Potentially: Contacts	Contact them to ask				
6/L/ED	xxxx		MDBC members who would be interested to attend a WWF briefing for possible cooperation	Mental thought process	Business Directory	n/a	e-update Potentially: Members	Embed in Contact them to ask				
			or other contacts (… similarly..)	Mental thought process	Analog contact cards	n/a	Potentially: Contacts	Contact them to ask				
7/L/ED	Internal request		Good partner for outside catering	Mental thought process	Analog contact cards	Offers = % catering %	Potentially: Contacts	Contact them to ask				

				Previous event folders on Z-drive	Partners at previous events	Relation = % catering %						
8/L/ED	Potential Investor		Wants contact with MIDA	Mental thought process	Analog contact cards	Company = % MIDA %	Potentially: Contacts	Contact them to ask				
			Wants contact with Ministry of Domestic Trade	Mental thought process	Analog contact cards	Company = Ministry of Domestic Trade **Or:** abbreviation	Potentially: Contacts	Contact them to ask				
			Wants contact with Bank Negara (the national bank)	Mental thought process	Analog contact cards	Company = Bank Negara	Potentially: Contacts	Contact them to ask				
9/L/ED	xxxx		Members in Logistics / Warehousing sector	Mental thought process	Business Directo-ry	Offerings = %Warehous-ing%	Potentially: Members	Contact them to ask				
				Mental thought process	Business Directo-ry	Industry = %Logistics%						
10/L/ED	Member-Contact		Assistance in the work permit application	**Assistance**	--	--	Immigration Office	Work Permit				
11/L/ED			Dutch persons who are interested to work in Malay-sia, if we can provide any contacts	Search through email	E-mail archive	searchingJob = true In practice: Unable to find, without implicit knowledge.						
				Mental thought process: dates such things arrived	Implicit knowledge of when such emails were received							
11/L/ED	Xxxx		How many / who does MDBC have as members in the financial sector	Mental thought process	Business Directo-ry	Industry = %Financial%						
12/L/ED	BoD query / internal		Who are the members that have not yet paid their membership fees (2012)	Sort excel sheet	Financial sheet	Out of scope						
13/L/ED	BoD query / internal		Other outstanding invoices from 2012	Sort excel sheet	Financial sheet	Out of scope						
14/L/ED	Member		How many people can we (a member) bring to an event	Website Implicit knowledge	Event details Partially implicit	Number of complemen-tary guests						
				Search through email	E-mail event itinerary							
15/O/MA	Future SIP intern	Telephone Email	Questions regarding Tax regulations for intern-ships, single-entry visa, housing, vaccinations, (…)	Mental thought process	Implicit knowledge Documented in manual (work-flow)				Student	Telephone Email	Answer to request Advice to contact IM via e-mail.	Other potential interns Partner University
16/O/MA	Current SIP intern	Email Telephone Verbal	Requesting status of his work-permit application	n/a	Implicit knowledge of Office help.	Visa applications status	Office help	Status application	Student	Email Telephone Verbal	Contact IM via e-mail, reply via e-mail.	All other interns Member hosting the intern Partner university
17/0/MA	Potential Future SIP student	Email Telephone	Requesting a status-update regarding his application for an internship in Malaysia		Implicit knowledge of				Student			Partner university Other potential interns

TABLE 33: LOG OF DAILY TASKS AS PERFORMED BY ED AND CM IN PERIOD DEC. 7TH – FEB 1ST

Note that the log is not exhaustive for that timespan. In some busier weeks the log was not actively maintained. The trace field consists of an index number, followed by the origin (L: Logbook or O: Observation), followed by the name of the supplier (CM: Communications Manager, ED: Educational Director; MA: Main Author).

Appendix VI. Software Requirements Specification-Document

1. Introduction

General

System Name: Business Council and Embassy Relationship Interaction Tracking System

Acronym: BCIS

Please see the Introduction of the thesis for more information about The Malaysian Dutch Business Council and its structure.

Purpose

The Malaysian Dutch Business Council (MDBC) is wondering:

What is the best software package **to** improve MDBC's business network management

such that the number of different databases can be decreased

and the criteria (a) multiple day-to-day activities can be performed/supported by the system under development, or need to be administrated in less systems,
(b) the work-in time of new employees can be lowered (judged by the Employees),
(c) we keep better track of our relationships and this information is available to all employees, and
(d) the Board of Directors can answer basic queries without relying on employee's implicit knowledge
are satisfied ?

System scope

The purpose of the system can be decomposed in

(a) The need for ***Managerial (Aggregated) Information System***-behaviour to answer basic management queries
(b) ***Operational Information System***-behaviour to track interactions and to support automation / aid in multiple day to day activities.

For MDBC we are looking for

(c) ***Collaborative social software*** that enables the group of MDBC personnel to collaborate and interact asynchronous.
(d) To reach the criteria we require a broad view of MDBC's enacted environment. Therefore, the system falls under the ***Business Network Relationship Management*** – network perspective.

The core concept of the system is to create a 360-degree overview around each separate module. The most important one being the contact & firm overviews. Here all details of a contact or firm including its employees and other related information sources (event attendance; internships; etcetera) should be easily visible. For an event the page shows all registrations, all event partners, sponsorships etcetera.

Based on the inventoried offerings and daily tasks we see the internal scope of the system as follows:

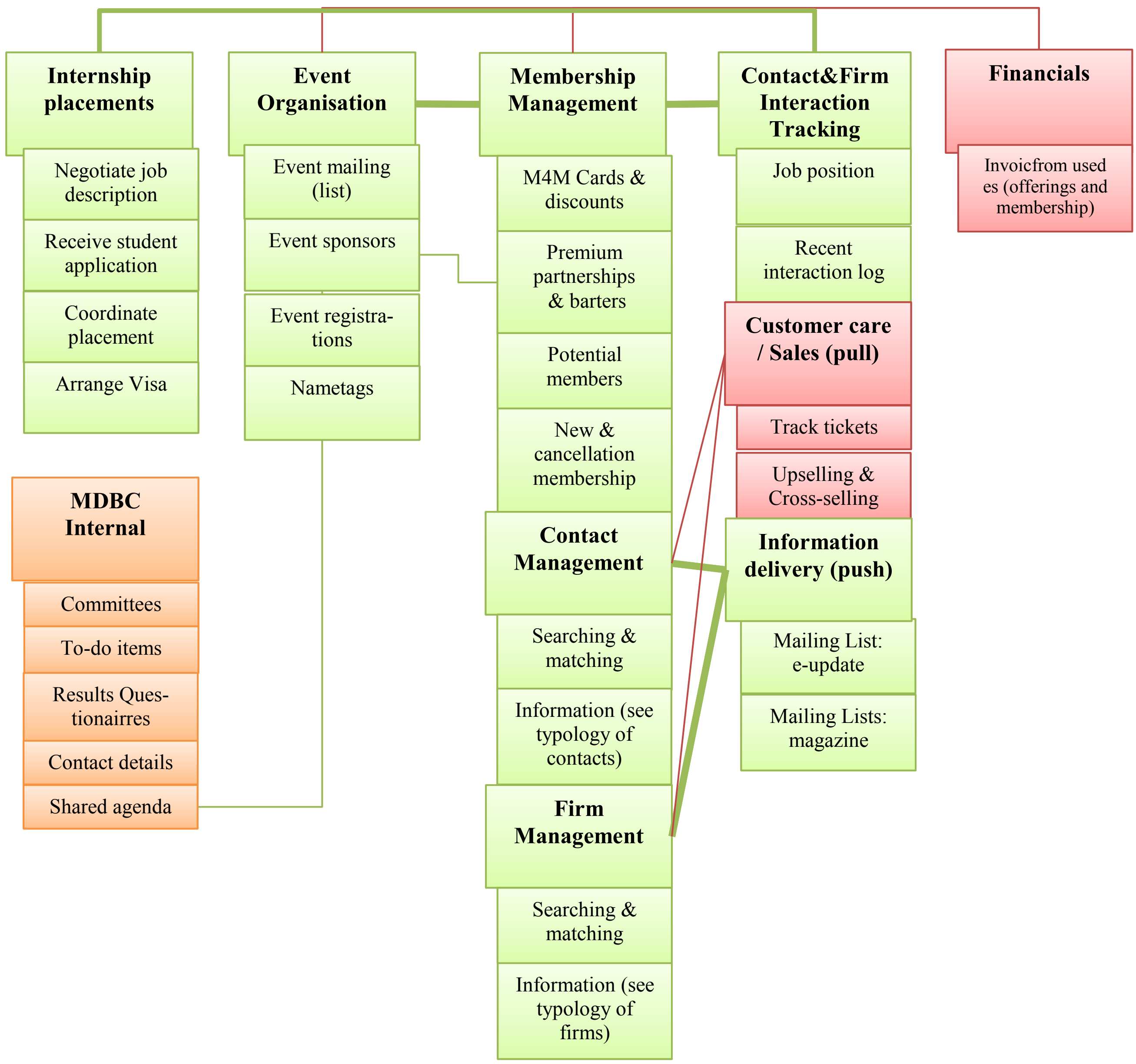


FIGURE 24: OVERVIEW OF SUD INCLUSIONS AND EXCLUSIONS BASED ON OFFERINGS. GREEN ELEMENTS ARE INCLUDED WHEREAS RED ELEMENTS ARE EXCLUDED. ORANGE ELEMENTS ARE EXCLUDED, BUT WOULD BE REGARDED BENEFICIAL IF ALSO PRESENT.

INCLUSION: MEMBERSHIP MANAGEMENT

MDBC is a trade **association**. Its members are companies based in The Netherlands and/or Malaysia. These members are of a certain membership-type and are active in different fields. MDBC also knows 'individual'-memberships where not a firm, but an individual is a member of MDBC. Memberships can be renewed (and/or cancelled) on a yearly basis. Firms can join MDBC at any moment in time.

INCLUSION: FIRM MANAGEMENT

Firms are companies, organisations, associations and institutions. Governmental, semi-governmental, NGO's, private undertakings etcetera. MDBC has members. But MDBC's network is much broader: it includes many more organisations. These types of firms have been identified in the analysis of MDBC's enacted environment.

Please also see the typology of firms.

INCLUSION: CONTACT MANAGEMENT

Each member firm has employees. Specifically one or multiple primary representatives, potentially, an HR-representative for the SIP. And potentially many other employees. But there are also many contacts in the non-member firms. For example, a relationship with a highly placed government official in the investment departments.

Please also see the typology of contacts.

INCLUSION: EVENT ORGANISATION

MDBC organises many events each year. These are of different types, and can be organised in conjunction with a partner organisation. It usually takes place in an external venue, with external catering facilities. All MDBC's members are welcomed to all Events.

For an event, MDBC will send out an invitation to all principal contacts in the firm. In some cases it also sends out a reminder. RSVP-ed invitations (via e-mail) are currently administered by hand. All registered guests will get an itinerary a few days prior to the event with specific details (route description, dress code, and etcetera).

INCLUSION: INTERNSHIP PLACEMENTS

MDBC has an active student internship program. It places up to 100 Dutch college students at one of its member firms each year. In most cases the student is from one of MDBC's partner colleges and the student pro-actively submits its CV and letter of motivation to MDBC. MDBC pro-actively contacts its member firms to request Job Descriptions of potential internships they have vacant.

MDBC tries to match the Job Descriptions to the students. If a suitable match is found (the member-company finds the students CV appropriate, the student finds the assignment appropriate, and the school finds the assignment appropriate) the student is welcomed as an intern. In some cases the school signs off in a later stage, or does not sign off at all. In some cases the student and company schedule a face-2-face (Skype) interview before accepting the assignment.

Once there is a match, MDBC collects all appropriate documents (froms student, member-company and school) for a Visa-application, which it will submit in the member's name.

Also see the results from the offering-analysis of the Student Internship Program.

INCLUSION: CONTACT & FIRM INTERACTION TRACKING

MDBC has a broad network through organising events with external speakers, interaction at events with guests, through its members and through its internship program. This is visible by the large amount of name-tags.

Analysis showed that most interaction with external parties goes through three channels:

(1) E-mail
   a. A request from a contact to MDBC
   b. A request from MDBC to a contact
   c. A response from a contact
   d. A response from MDBC
   e. Newsletter E-Update from MDBC

(2) Telephone:
   Often also transmitted via e-mail.

(3) Face-to-face
   E.g. during an event

We did not find evidence of substantial influence of interaction via

(1) Social Media such as LinkedIn, Facebook, Twitter. Yet it could be an interesting source of information.

The exact content of this interaction can be diverse and is often not of interest to the system. But meta-information should be gathered. And finding the exact contacts of the interaction (if public) should be possible.

Also see the typology of interaction.

INCLUSION: INFORMATION DELIVERY (PUSH)

MDBC sends its members updates via e-mail and hard copy magazines and business directory. It does not only send these to its members, but also to a (limited set) of other contacts. The system should be able to assist in this matter. Ideally

EXCLUSION: FINANCIALS

MDBC's members pay a per-year subscription fee. MDBC offers all members free access to all events. For some events only one complementary ticket is included, extra tickets can be purchased. MDBC's Business Directory is for sale separately (analog and digital). And non-members can buy access to events on a per-event basis.

Neither the management of selling tickets to individuals, nor the cost structure for the internship, nor the selling of its information media is included in the system scope.

OPTIONAL: MDBC INTERNAL

Several internal information needs regarding the formation of committees, when employees are in the office, general contact information, delegating/communicating/coordinating to-do items and the results from previous questionnaires are explicitly excluded from the system design.

When decomposing the functionality we found that this functionality is only loosely coupled with the other system components as it is not surrounding MDBCs external enacted environment, but is only connected to its internal actor employees. However, if a solution would be easily adapted to also embed the above mentioned information – it would be beneficial.

EXCLUSION: CUSTOMER CARE (AFTER SALES) AND SALES

Member and non-member contacts contact MDBC on a regular basis. It is not the systems task to help in the 'customer-care' processes of MDBC. Also see the thesis *section 1.7: Scope*.

Definitions, acronyms and abbreviations

(See Glossary of main thesis)

Document overview

This document exists of 6 sections.

1. Introduction
2. Overall system description and system decomposition and integrations
3. Per decomposed element a chapter, namely
   A. Memberships
   B. Firms
   C. Contacts
   D. Events
   E. Internships
   F. Interactions
   G. (Out of scope: Financials)
   H. (Out of scope: Customer care / Sales)
4. Data requirements and dictionary of important concepts
5. Non-functional requirements
6. Appendices.

2. Overall system description

Product perspective

The SuD is an independent system: The SuD does not rely on services delivered by external systems, but might be linked to some external information sources: Email, LinkedIn, Facebook, Calendars, Tasks, Mail merging (…). Given MDBCs current way of working the structural sources of interaction-fact information is limited to e-mail, potentially phone call (logs) and logging by the user itself. Additional information can be automatically gathered via social media (Facebook, twitter, LinkedIn, …).

Output of the system will consist of (a) an **`API`** (Application Programming Interface) giving the future MDBC website access to its data, and (b) flat tables exporting the queried information by the user.

The system will store information about numerous different types of external actors. The information will be queried by a limited set of internal actors. An overview of the links with external actors is shown in the figure below. External actors communicate via several mediums with internal MDBC staff. They communicate with BCIS, but to limit administrative overhead BCIS should get interaction notifications directly from the medium. On occasion BCIS will export data or have interaction with external services via its API.

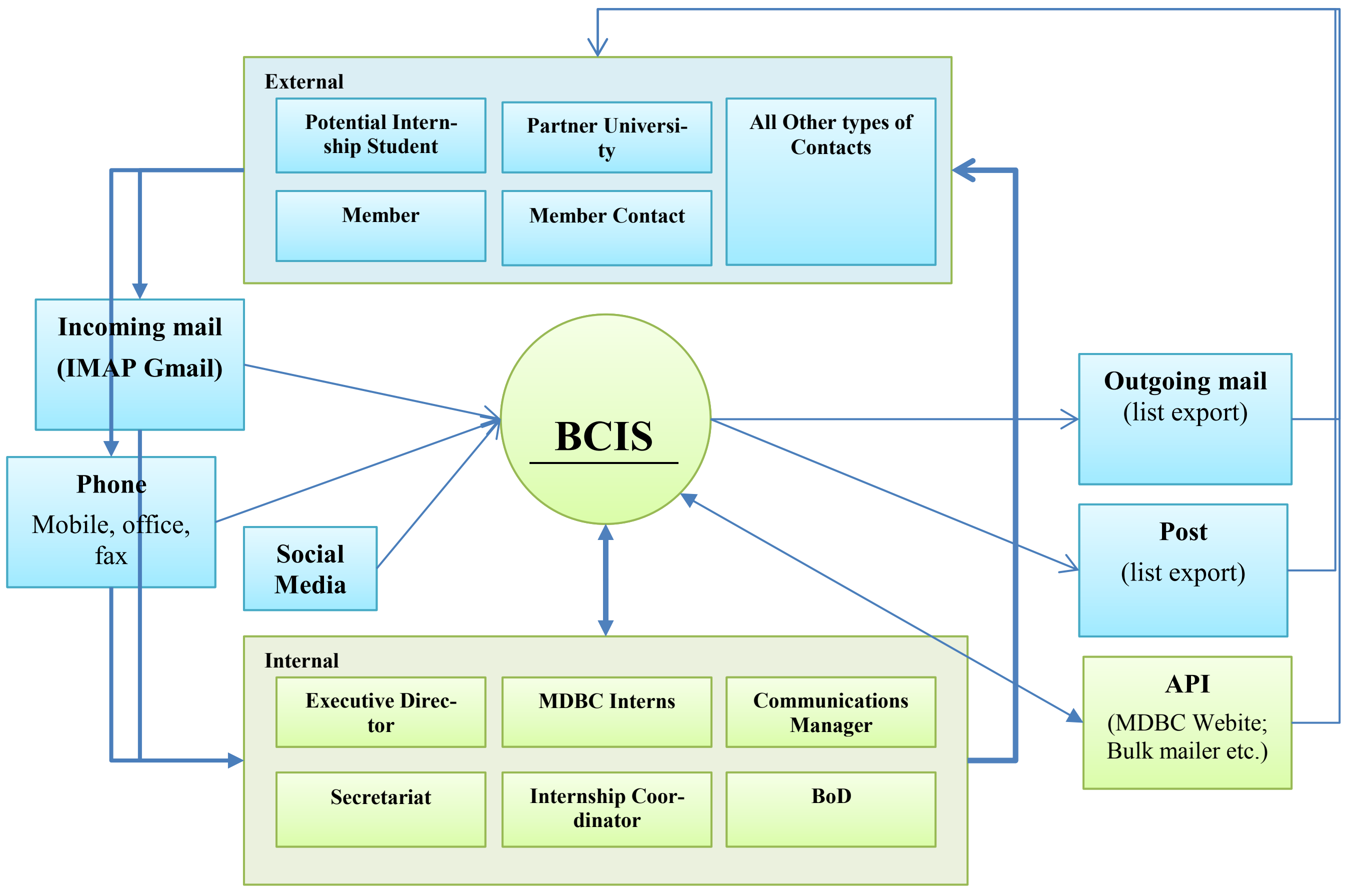


FIGURE 25: SYSTEM SCOPE SHOWING THAT THE SYSTEM IS AN INFORMATION SYSTEM THAT GETS ITS INFORMATION VIA COMMUNICATIONS BASE TECHNOLOGIES AND INTERNAL ACTORS. OUTPUT FLOWS BACK TO INTERNAL EMPLOYEES OR SEVERAL CONNECTED SYSTEMS (EMAIL; BULK-EMAIL; REGULAR POSTAL).

Req-1. The SuD client must operate on the Operating Systems:
- **Sub-a.** Windows Vista
- **Sub-b.** Windows7
- **Sub-c.** Windows 8 **[optionally]**
- **Sub-d.** Guarantee long-term support for future Microsoft-based Operating Systems **[optionally]**

Req-2. The SuD offers a client for mobile phones and tablets **[Preferably]**
- **Sub-a.** Android based
- **Sub-b.** iOS based

Req-3. The SuD client must support the languages
- **Sub-a.** English
- **Sub-b.** Dutch **[optionally]**

Req-4. The SuD must be able to export its data to flat spread sheets

Req-5. The SuD will give other services access (read, update, insert delete) access via an API

USER CHARACTERISTICS

The number of users of the system is low. Some user types do have a high turnover rate. User types are:

- Board of Directors-Member (**BoD**)
- Executive Director (**ED**)
- Communications Manager (**CM**)
- Internship Coordinator (**IC**)
- Secretariat Employee (**SE**)
- Intern (at most three, in the current situation)
- Potentially: Other Employees

Interns have a high turnover rate. BoD-members will not interact with the system often. The ED and CM will use the system with several interns. There is no clear distinction of privileges between the different employees as they have a broad job description. But, not all employees are privileged to perform all tasks (such as sending out communications to members). Therefore there must be a secure login, and a possibility to limit the rights per user per function (component X communication type X **CRUD**[1]).

Req-6. The SuD supports per-user login
- **Sub-a.** The SuD should support multiple users
- **Sub-b.** The user-accounts are disableable
  When an employee or intern leaves his position at MDBC he should no longer have access to the information.
- **Sub-c.**

Req-7. The SuD has per-user rights, limiting the information available for a user. **[Preferably | requirement is underspecified]**

Furthermore the API computer-to-computer interface is present, and requires security (per service) and each service has different privileges.

Req-8. The SuD supports secure per-service API access

Req-9. The SuD has per-service rights, limiting the access to and performed operations on data. **[Preferably | requirement is underspecified]**

Constraints

MDBC is in the midst of changing its IT infrastructure. The current situation consists of:

- Internal network
  - 300Mbit wireless WPA protected (n-class) network
  - Power-adapter wired network
  - Uplink to a stable internet connection of mediocre speed
- Four workstations running Windows Vista or Windows7
  - with Microsoft Office (Starter),
  - Firefox and/or Chrome internet browsers,
  - Thunderbird as its main e-mail client.
  - 2 workstations connect via Wi-Fi
  - 2 workstations connect via a wired network
- Three laptops with a similar configuration to the workstations
  - Connect via Wi-Fi.
- An internal CentOS (Linux) server, offering
  - Dovecot IMAP mail server.
  - Postfix outgoing e-mail relay to sapphire1.adrenalyn.my
  - Samba CIFS/SMB network share for file hosting.

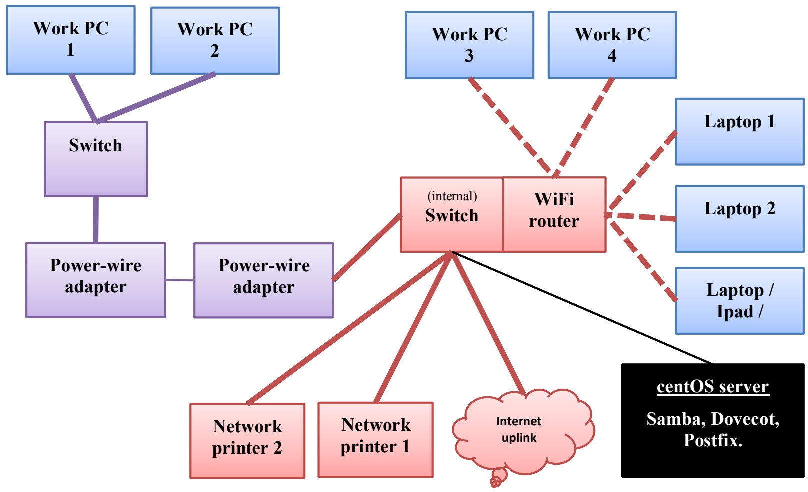


Table 34: Summary of the current MDBC infrastructure

For various reasons the to-be situation is one where there is **no** CentOS server on the premise. IMAP-based e-mail will be moved to the cloud. Files storage will be moved to a mid-market NAS. Outgoing e-mail will be relayed over a cloud solution. The to-be organisational infrastructure constraints our SuD in the following way:

Req-10. The SuD must operate **without** an on-premise server
- **Sub-a.** The SuD is allowed to store files on the NAS, accessible via at-least FTP and CIFS
- **Sub-b.** The SuD is allowed to relay outgoing e-mail (in small quantities) via SMTP over an SSL connection protected with a username and password.
- **Sub-c.** The SuD is **not** allowed to relay bulk e-mail directly.

Req-11. The SuD is **allowed** to run client-side applications, given that they are compatible with the current clients.

Req-12. **[Preferably]** The SuD is accessible via iPads and Android Phone.

MDBC has access to its domain name (mdbc.com.my) DNS settings.

[1] CRUD stands for Create Read Update and Delete. It is often used as a specification check as most information entities need to be created by an actor, must be read/updated by another subset of actors and can only be deleted (on occasion by a few).

System decomposition

We will adhere to the decomposition as visible in the 'System Scope'-section, based on the delivered offerings and performed daily tasks by MDBC. In the Figure below, these will be shown as processes. Internal actors interact with these processes. External actors only interact with the processes via an internal actor.

Context diagram

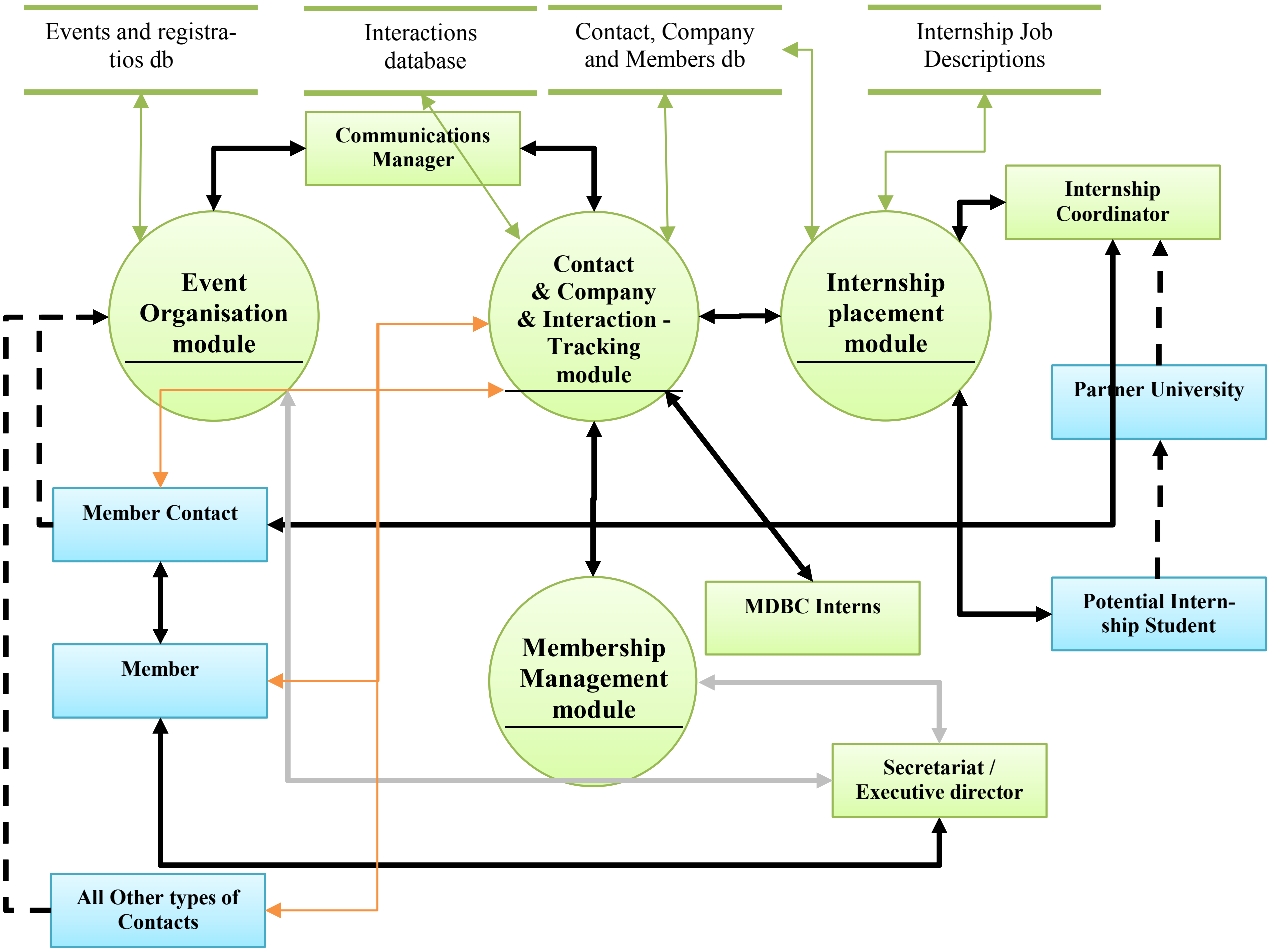


FIGURE 26: CONTEXT DIAGRAM: FOCUSSING ON OPERATIONAL INFORMATION NEEDS.

The BoD actor has been removed from this overview as it concerns aggregated information whereas the above diagram focusses on operational information processes.

Not showing externally interfaced applications (such as e-mail). But showing their 'information flow' in orange.

Responsibilities and exclusions of the system (product function)

Responsibilities

Req-13. The SuD must provide the user insight in Contacts
- **Sub-a.** Most contacts work at one or multiple Companies
- **Sub-b.** The specifics of a certain contact regarding his Job details and contact information.

Req-14. The SuD must provide the user insight in Companies
- **Sub-a.** The specifics of a certain company: regarding current and past employees
- **Sub-b.** The specific contact information and principal contacts of that company
- **Sub-c.** An overview of interaction with employees of that company

Req-15. The SuD must provide the user insight in Contact-Interaction and Company-Interaction
- **Sub-a.** In terms of current and previous correspondence via telephone, e-mail, social media
- **Sub-b.** In terms of visited events of MDBC

Sub-c. [Optionally] In terms of face-to-face interactions
Sub-d. In terms of sponsor and barter agreements made

Req-16. The SuD must provide a user insight in Internships and Students

Req-17. The SuD must provide aggregated information for the Board of Directors
Sub-a. Development of Member-count
Sub-b. Reasons of Member cancellations

Requirements to all components:

Req-18. The SuD shall record and visualise the history of stored data when changed.

Req-19. The SuD shall allow 3rd party applications secure access to its data via an API.
For example, but not limited to, events to be used on the MDBC webpage. Or membership details for an online version of the Business Directory.

Exclusions of responsibilities

Req-20. The SuD may (but is not designed to) record, display or interact with the financial elements of the organisation. Including, but not limited to:
Sub-a. (Invoicing of) membership fees
Sub-b. (invoicing of) participation fees
Sub-c. (Invoicing of) barter agreements
Sub-d. (Invoicing of) sponsorship agreements
Sub-e. Accounts payable
Sub-f. Accounts receivable

Req-21. The SuD may (but is not designed to) record, display or interact with the customer care / sales elements of this organisation. Including, but not limited to:
Sub-a. Tracking tickets for complaints and customer requested actions
- With the exception of those needed to classify the relationship between contact, member and the organisation.

Sub-b. Upselling of services and/or subscription products
Sub-c. Cross selling of services and/or products

Assumptions about environment of the system

The constraints section above has posed several constraint-requirements on the system environment regarding hardware and investments. In this document we will assume proper functioning of external services, networks, protocols, and etcetera. However, this is undesired behaviour for the system that will impact usability and reliability. Therefore:

Req-22. The SuD may not assume proper functioning of called API systems and must include, when possible
Sub-a. Checks and sums to verify the requested action has taken place
Sub-b. Pause and resume functions for batch assignments, including a restart of batch action at a user-specified index of the list.
Sub-c. Rollbacks on information fields when changed by external services
Sub-d. An overview of actions triggered by external services
Sub-e. The SuD may assume all stimuli from the environment to the SuD are correct.

Overviews of possible integrations (which are a part of the environment of the system) are displayed below.

Integrations of the system with other services

Integration of BCIS with external services is vital for its value creation. Furthermore integrations with other specialised shrinks the scope of this system and lowers initial development costs. We cannot guarantee that the list of integrated systems below is exhaustive and/or disjoint but it does illustrate the broad scope of the information sharing via the BCIS API. It also illustrates the need for CRUD access as not all external services require all privileges and the stored information is privacy sensitive.

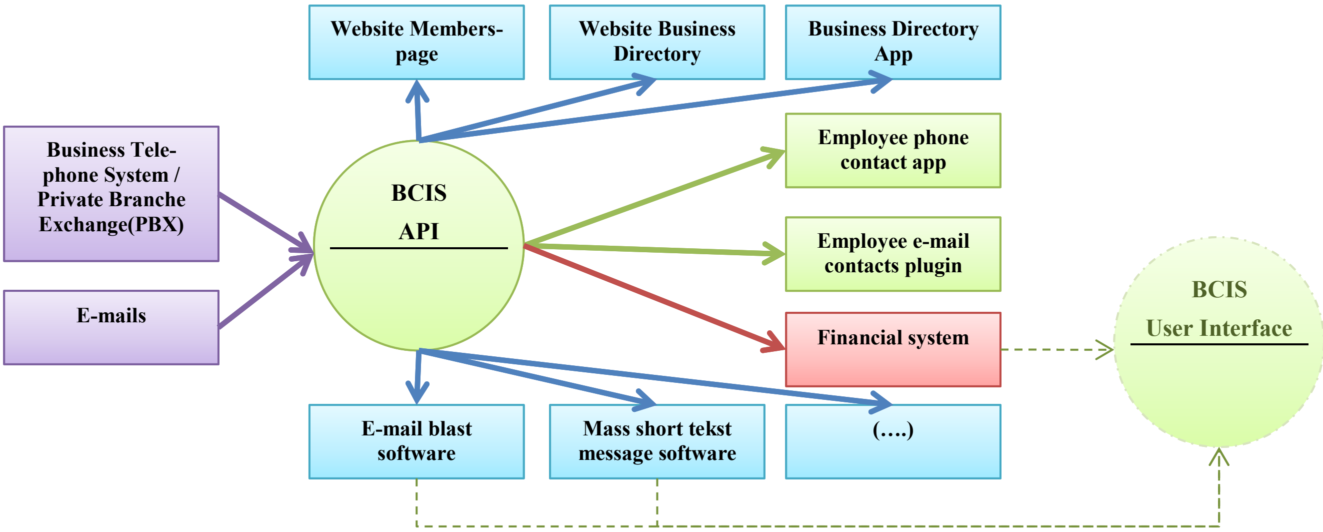


FIGURE 27: SUMMARY OF SYSTEM INTEGRATIONS (MOST LIKELY EXTERNAL SOLUTIONS COMMUNICATING VIA API)

3. Components

The following chapters will discuss each of the components as found in the decomposition of *Figure 26*. For each component the results from our case-study organisations have been embedded in purple with reference to the case study documentation.

Only when specified otherwise the SuD will not adhere to Create, Remove, Update, Delete (CRUD)-matrix guidelines. Implying that all fields and aspects of all components must be created, removed, updated and deleted via the interface of the SuD unless specifically specified otherwise by a requirement.

Req-23. The SuD will provide CRUD-functions via both API and user-interface for all specified data-fields, unless specified otherwise in one of the requirements.

The requirements af provided in the appendix serve only as a rough draft upon which the decomposition is based. Always explore the solution to one level more detail than is actually needed to resolve the issue at hand. This reduces potential design issues in the solution.

3.A. Component: Membership

Within MDBC both organisations as individuals can be members. There are different membership-levels. The membership-level is determined by the total paid-up capital of an organisation.

C-2013Wk06-AmCham: AmCham's membership types are differentiated by paid-up capital and/or the number of employees.

C-2013Wk06-MABC: MABC mostly has individual members whereas MDBC, AmCham, DutchCham and EUMCCI mostly have firms as members.

We must therefore conclude that the membership types differ between trade organisations.

Each different membership-level brings different privileges. The fee differs and the number of official representatives allowed to participate in events differs.

Req-24. The system shall document MDBC's members

Sub-a. Members can be both

- individual members, or
- one of multiple types of organisational members.

Sub-b. Each member type has different

- Yearly fees
- **C-2013Wk06-AmCham:** Initial fees
- Number of representatives at MDBC events
- Privileges

Memberships can be activated at any given date, but are valid until December 31st of that year. Memberships are automatically renewed each year. Fees are due somewhere in the first quarter of that new year.

Req-25. Memberships are per annum (Jan 1st till Dec 31st)

Author insight: Based on cultural differences and the existence of different calendar formats, it is realistic to assume different periods and starting dates are present at different organisations.

- **Sub-a.** New memberships can start any date but end on the last date of the specified membership period
- **Sub-b.** A different membership fee may apply for memberships that start on a different day then the membership period.
- **Sub-c.** Memberships are renewed automatically annually

Req-26. The SuD shall be able to add new, modify and delete memberships

Req-27. The SuD shall provide an overview of the history of the membership. Including, but not limited to:

- **Sub-a.** Invoices regarding fees and their status
- **Sub-b.** The type of membership
- **Sub-c.** Mutations in organisational names (mergers, carve-out's etcetera)

Members can have a barter-agreement, a sponsor contract or another type of partnership with MDBC. This may influence the height of the incurred invoices by the member.

Req-28. The SuD shall provide an overview of agreements

- **Sub-a.** Of the types of
  - Barter-agreements
  - Sponsor-contracts
  - Partnerships in the general sense
- **Sub-b.** In the timespans of
  - Current
  - Potential future
  - Historic

Contacts working at a member(organisation) are allowed to register and participate in MDBC events. See Events-component for more information.

Organisations that are a member of MDBC can apply for Dutch college interns at MDBC. See Internships-component for more information.

A member is either a contact or a firm

Only contacts (people) or firms/organisations can be members of MDBC. There are specific types of membership types. As members are always contacts or people, also see the properties of both as defined in the appropriate components.

Contacts and firms can have member-for-member cards (M4M-cards). These cards are proof of membership and give the holder a discount at several other member organisations.

Req-29. The SuD allows the documentation of the status and holders of M4M-cards.

Services to be delivered via the API and/or interface

See Task-10 to Task-13 regarding the Member-for-member card; and
See Task-40 to Task-43 regarding membership satisfaction and operations; and
See Task-14 to Task-17 regarding the Member-for-member card; and
See Task-18 to Task-22 regarding the matching of contacts; and
See Task-43 to Task-46 regarding memberships in *Appendix V (page - 49 -).*

3.B. Component: Firms

MDBC maintains relations with individuals and organisations. The organisations can be member organisations and non-member organisations. Non-member organisations can be of many types: complementary, firms; suppliers, etcetera.

Individual and organisational contacts help MDBC with its offerings of networking, matchmaking and information sharing/aggregating services.

Req-30. The system shall document information about firms

Sub-a. Firms can be a member firm, or a non-member contact. Membership forms are described in the membership component.

Sub-b. Non-member contact firms can be of several types and can be of different functional use to MDBC. *Appendix II: (MDBCs organisational context, exhaustive table of stakeholders, page - 15 -)* explains the different types of actors (including firms) in the enacted environment of MDBC. All these types of organisations shall be documented in the system.

Sub-c. Multiple contacts can work at a firm.

Sub-d. Firms can merge, split or cease to exist.

Req-31. See the "Typology of a Firm"

Of course people work within these member-organisations. MDBC (and its employees) indivertibly builds personal relationships with their employees.

TYPOLOGY OF A FIRM

See the complete set of properties of a contact in *section 6.56.4: Typology of a Firm (page 59).*

SERVICES TO BE DELIVERED VIA THE API AND/OR INTERFACE

Different types of firms will use the APIs and interfaces in different ways as interact with the system for different tasks. Review the common task list (summary) in *Appendix V: MDBC's Offerings & value proposition (page - 49 -, onwards).*

3.C. Component: Contacts

MDBC maintains relations with organisations and individuals. Individuals can be members. Individuals can work at one or multiple companies and these companies can be a member (also). In some organisations MDBC does have close contact with one specific employee, but very little contact with the organisation as a whole.

Individual and organisational contacts help MDBC with its offerings of networking, matchmaking and information sharing/aggregating services.

Req-32. The system shall document information about contacts

Sub-a. Contacts can be members or non-members

Be advised that Asian cultures are different from Western cultures in the sense that some nationalities write their names differently. Some write their family name first, followed by their first name. Others do not have family names, but note that they are the child of their father's name. Furthermore, it is documented that contact change their name on a regular basis, as an expression of their personality changes. This is why we must keep a history of previous names of a contact.

Contacts can participate in the internship programme. More details on this aspect in the internship-component.

TYPOLOGY OF A CONTACT

See the complete set of properties of a contact in *section 6.4: Typology of a Contact (page 57).*

SERVICES TO BE DELIVERED VIA THE API AND/OR INTERFACE

Different types of contacts will use the APIs and interfaces in different ways as interact with the system for different tasks. Review the common task list (summary) in *Appendix V: MDBC's Offerings & value proposition (page - 49 -, onwards).*

3.D. Component: Events

MDBC organises events. All members are welcomed to participate at these events. Different events have different aims, but in general terms they help the members by: Networking and Information (distribution/sharing). They can also use the event to urge MDBC to use its power of numbers in representational functions.

Next to the members, also highly placed non-members are welcomed to participate in the events. For most events, non-member contacts can participate, but only after paying a participation-fee.

Req-33. The system shall document MDBCs events

Req-34. The system shall manage the event registrations of the following types of individuals, and will refuse participation by others.

- **Sub-a.** Employees of members shall be able to register for participation in the events.
  - All employees of a member-firm are eligible to attend
  - If the member is an individual-member, only he is eligible to attend
  - The number of representatives one member can send is limited, based on the membership type
- **Sub-b.** Non-member individuals can register for some (but not all) events.
- **Sub-c.** VIP's (can be invited and register for events. These VIP's can be firms and/or individuals, and can be non-members.

Req-35. The system shall document involvement by members in events. Examples of member involvement include, but not limited to: speaking at an event; hosting the event; etcetera.

Services to be delivered via the API and/or interface

See Task-01 to Task-07 in *Appendix V: MDBC's Offerings & value proposition (page - 49 -, onwards).*

3.E. Component: Internships

MDBC has an active internship program where Dutch (applied) college interns can apply for an internship at one of MDBC's member firms. Some Dutch colleges and universities are themselves members of MDBC but a students' college is not obliged to be a member. The student pays an enrolment fee, a security depots and a placement fee. MDBC coordinates the placement between its members and its available interns and MDBC arranges the internship work permit at Malaysian immigration.

Req-36. The system shall administrate the interns, preferences and visa information.

Req-37. The system shall administrate the internship job openings and preferences

Req-38. The system shall administrate the intern-internship placement.

MDBC wishes to keep strong ties with their interns as they have a tendency to start working in international firms. These international firms might have a Kuala Lumpur branch and might become a member in the future. Or might be looking to start an abroad office and could be triggered by MDBC to come to Malaysia.

Services to be delivered via the API and/or interface

See Task-29 to Task-39 regarding the Internship programme in *Appendix V: MDBC's Offerings & value proposition (page - 49 -, onwards).*

3.F. Component: Interaction tracking

MDBC's information, representation and networking value proposition is based on interaction. Interaction and internal networking to create information benefits from the network. These information benefits are embedded in the e-Update; used as input for event brainstorming etcetera.

The interaction with a customer includes e-Updates and event invitations. But perhaps more important are the irregular emails and interactions. Promises, partnerships, sponsorships, event attendance, involvement with SIP / MDBC Board, MDBC Committees.

Typology of interaction / Mediums of interaction

Based on theory there are quite some measures related to business relations to incorporate in the product. Interaction tracking is a major collector of data needed for the measures. See the complete set of properties of a contact in *section 6.7: Typology of 'interaction' of a (page 65 onwards).*

3.G. Component: Financials

Excluded from the scope of this project as specified in *chapter 1. Introduction of this appendix, section System scope (page - 60 -)*. This conform the scoping of the thesis and in approval of the host organisation.

3.H. Component: Customer Care, Sales, After-sales

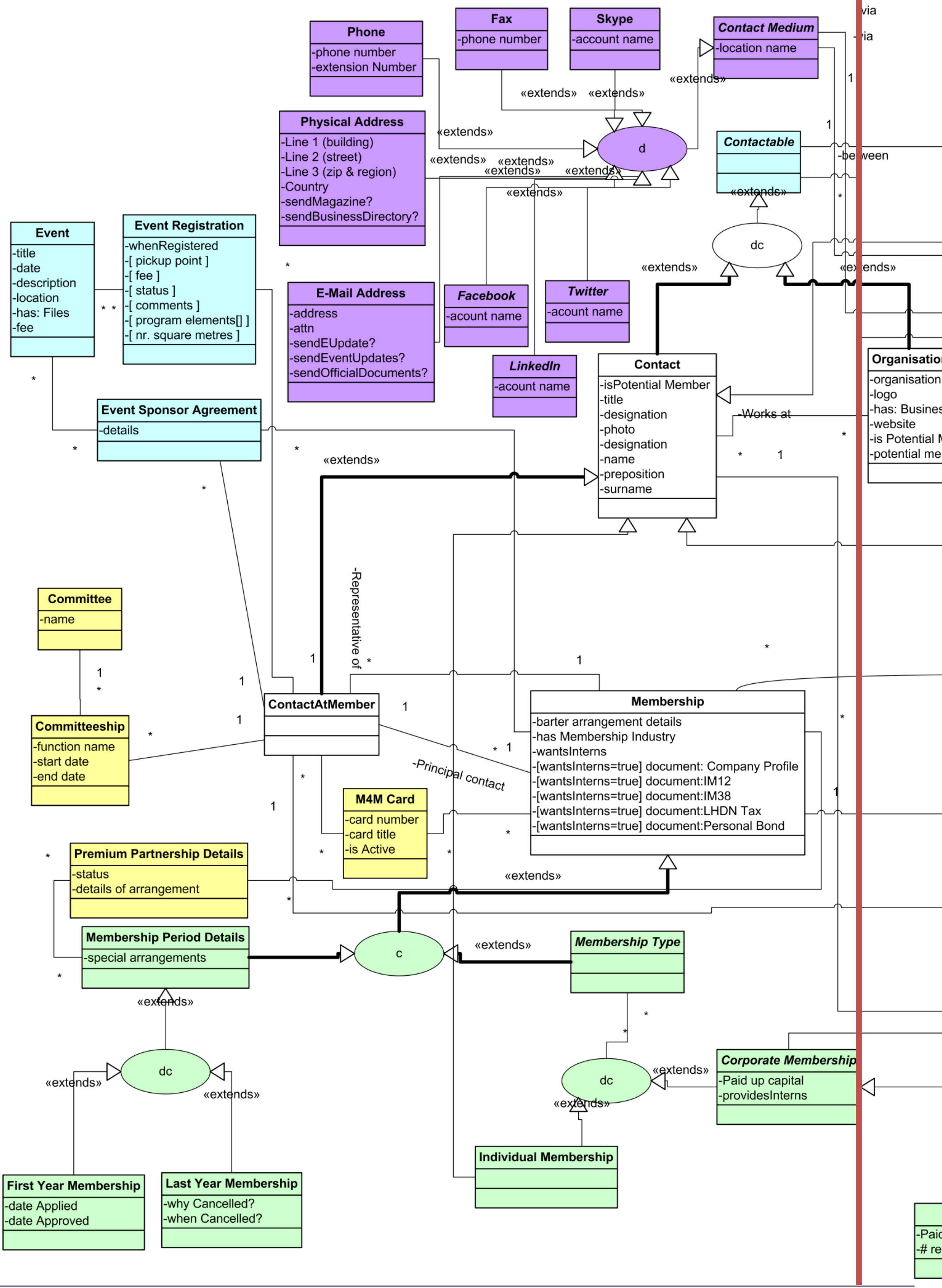
Excluded from the scope of this project as specified in *chapter 1. Introduction of this appendix, section System scope (page - 60 -)*. This conform the scoping of the thesis and in approval of the host organisation.

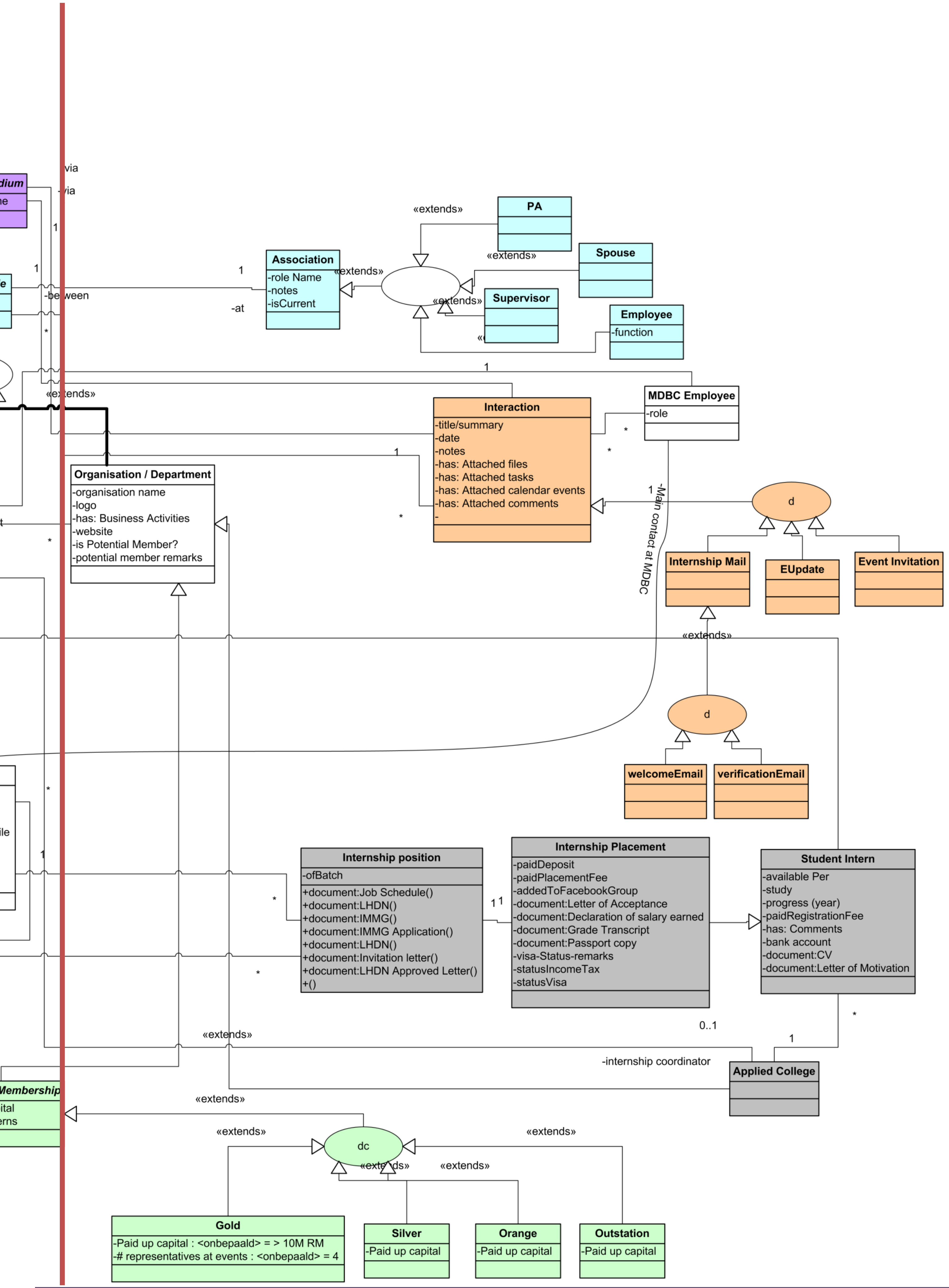
4. Data requirements and dictionary of important concepts

Platform independent organisation specific Class Diagram showing the dependencies between Entities (dimensions of information) of all system components.

FIGURE 28: ENTITY RELATIONSHIP DIAGRAM FOR MDBC'S INFORMATION NEEDS - WITHOUT AUTHENTICATION, PRIVACY, ENCRYPTION OR SYSTEM LOGIC

See image below.




PA
Spouse
Supervisor
Employee
-function
«extends»
Association
-role Name
-notes
-isCurrent
-between
-at
MDBC Employee
-role
Interaction
-title/summary
-date
-notes
-has: Attached files
-has: Attached tasks
-has: Attached calendar events
-has: Attached comments
-Main contact at MDBC
Organisation / Department
-organisation name
-logo
-has: Business Activities
-website
-is Potential Member?
-potential member remarks
d
Internship Mail
EUpdate
Event Invitation
welcomeEmail
verificationEmail
Internship position
-ofBatch
+document:Job Schedule()
+document:LHDN()
+document:IMMG()
+document:IMMG Application()
+document:LHDN()
+document:Invitation letter()
+document:LHDN Approved Letter()
+()
Internship Placement
-paidDeposit
-paidPlacementFee
-addedToFacebookGroup
-document:Letter of Acceptance
-document:Declaration of salary earned
-document:Grade Transcript
-document:Passport copy
-visa-Status-remarks
-statusIncomeTax
-statusVisa
Student Intern
-available Per
-study
-progress (year)
-paidRegistrationFee
-has: Comments
-bank account
-document:CV
-document:Letter of Motivation
0..1
-internship coordinator
Applied College
Membership
dc
Gold
-Paid up capital : <onbepaald> = > 10M RM
-# representatives at events : <onbepaald> = 4
Silver
-Paid up capital
Orange
-Paid up capital
Outstation
-Paid up capital

5. Non-functional requirements and constraints

Regulatory policies, privacy and data security are vital for MDBC as its business network is the core business value.

Req-39. The stored data is privacy sensitive and must be adequately protected via IT

- **Sub-a.** Where possible via encryption of stored data
  - cf. encryption standards of salting and hashing if applicable.
- **Sub-b.** Communications will go via secure mediums
  - HTTP with SSL for web based systems
- **Sub-c.** Signed security certificates must be used
- **Sub-d.** Servers must be properly secured and updated and audited by an external party

Req-40. The stored data is privacy sensitive and mis-use by users and services must be detectable and traceable

- **Sub-a.** Regular operations must be logged
- **Sub-b.** Batch operations must be logged
  - Especially exports of data must be logged
- **Sub-c.** Logs include –at least- the following information:
  - Which user performed the action
  - What the action entailed
  - When it was performed
  - Related changes

Req-41. [Out of scope] The SuD must comply with Malaysian privacy law

Its *importance* was once again illustrated with the yet to be verified statements of Mr. Snowden regarding PRISM[1] who alleged many nations of modern internet-based intelligence programs.

Hardware limitations and *Platform requirements* are present and leading as MDBC is a small organisation with no in-house IT staff. They are documented in the decomposition of the system section (above). These requirements are *critical* given the available resources of the organisation.

Interfaces to other applications are a vital part of this product and have been separately specified at the system decomposition chapter of the specification. These interfaces are interesting to increase the usability of the organisation, however no losses are incurred if they are temporarily unavailable. Therefore they must have a *normal* functioning.

Audit functions are required and specified above in the responsibilities of the system. Tractability of mis-use is important given the sensitivity of the information.

Reliability functions and Criticality of the application, the system shall have a decent uptime, maintenance can be done off-office hours (Malaysia). Preferably also not during Dutch office hours. However, though it is a true inconvenience, no direct losses will be incurred with short downtime.

Req-42. The SuD must be available

- **Sub-a.** At least 99.9% availability on Weekdays between 8am and 8pm GMT+08 Kuala Lumpur
  (Called: High-availability timespan.)
- **Sub-b.** At least 99.0% availability at all other moments
- **Sub-c.** In case of service disruption, the disruption must be resolved within 4 hours.

Req-43. Users must be notified of maintenance to the SuD infrastructure and/or updates at least 48 hours before commencement of the maintenance.

- **Sub-a.** Maintenance should be planned outside the high-availability timespan.

Safety and security considerations are conform the audit functions.

Req-44. The SuD must be actively protected against data-leaks and unwanted intruders
As MDBCs core value is derived from its network.

Pull-out restrictions, are wanted but can be programmed in a later stage

Req-45. The SuD can export the inserted information in a machine readable way at any moment desirable by MDBC.

---

[1] The U.S. "PRISM" project allegedly surveillances internet traffic and allegedly has direct interactions with large internet firms. Also see: http://www.policymic.com/articles/47083/what-is-prism-4-leaked-top-secret-slides-explain-the-latest-obama-scandal (Visied July 3rd 2013).

Sub-a. To be imported by a competitive product
Sub-b. As an in-house backup of the system

Timing, responsiveness and usability. As a day-to-day system, it should be responsive. Training time for the employee may be required, but given the high turnover rate of interns this training time should be as low as possible. *Parallel operation*, is required as MDBC has multiple employees working concurrently. However, some elements can be queued and processed in serial order without lowering usability of the systems core functions.

Req-46. Day to day operations of the SuD shall be responsive and 95% of the functions will progress within 0.5 seconds
Req-47. Simple searches shall return their results within 1 second, given 10.000 records
Req-48. Advanced searches shall return their results within 5 seconds, given 10.000 records
Req-49. Batch operations and exports are allowed to be queued and processed in the background.
Sub-a. Users must be notified when the batch operation is finished.
Sub-b. The system must remain responsive when processing the batch operation.

Req-50. The SuD must allow multiple concurrent users
Sub-a. With a limit of 5 (three interns + ED + CM)
Sub-b. [Optionally] Supporting more than 10 concurrent users is not needed.

PRIORITIES OF THE NON-FUNCTIONAL REQUIREMENTS[2]

The table below summarises the section above.

Quality factors for BCIS	Critical	Important	As usual	Unimportant	Ignore
Regulatory policies		X			
Hardware limitations and platform requests	X				
Interfaces			X		
Audit Functions			X		
Reliability and Criticality				X	
Safety / Security		X			
Pull-out restrictions					X
Timing, responsiveness, etc.			X		

TABLE 35: QUALITY GRID FOR BCIS CF. THEORY OF (LAUESEN, 2002)[3].

6. Appendices

Appendices are used to provide extra context to difficult design issues in the report. In our case these appendices could be references to subsections of the thesis, as this also contains conventional information.

Offerings & Tasks: Can be found in *Appendix V: MDBC's Offerings & value proposition (page - 49 -, onwards).* of this thesis.

[2] Authors interpretation, not verified with MDBC staff.

Appendix VII. Case study results

To review our findings we invited several similar and slightly different organisations to participate in a semi-structured interview between the main author and their organisation. In return for their involvement they would be included in the process and receive a copy of the main findings of the validation. The case studies were formed around informal meetings with a semi-structured interview method. In total 7 organisations participated, and the interviews consisted of multiple questions surrounding three aims of the validation.

In this appendix we first document the contacted and participating case study organisations. We then continue with details surrounding the semi structured interview method. The appendix concludes with a summary of the minutes of the meetings with the case study organisations following a fixed template for all organisations and some extra text illustrating other found important aspects.

Seven participating case-study organisations

In total, we contacted eight organisations. Of these eight, one was unable to assist us in the given timeframe. Of the seven others, two could only provide a limited set of information via non face-to-face contact. These two, together with five other case studies form the basis of the validation. The organisations were chosen on three key differences:

Dimension IV. The location in which the BC is active:
- Malaysia,
- Other countries in Asia-Pacific region,
- ~~Other regions~~ (not included in this review)

Dimension V. The home country of its members:
- Netherlands,
- (Countries from) Europe region,
- (Countries from) other regions

Dimension VI. The type of organisations:
- Chamber of Commerce,
- Business Council,
- Embassies.

The following eight organisations were contacted:

1. **Embassy of The Netherlands in Kuala Lumpur:**
   Collaboration was requested as MDBC has a strong relationship with the Embassy. Therefore their involvement was most likely to be strong, open/transparent and in-depth. It is also the most different organisation contacted in terms of tasks and goals. The most similar in terms of culture differences.
2. **Dutch Chamber of Commerce Singapore**
   Collaboration was requested as MDBC had heard from a third-party that DutchCham itself was actively using a CRM package. This claim itself was untrue, but the organisation accepted our request for collaboration.
3. **Malaysia Australia Business Council**
   Collaboration was requested as MDBC –at the time- was organising joint events with this Business Council. It is also regarded as an active council in Malaysia.
4. **EU-Malaysia Chamber of Commerce and Industry**
   Collaboration was requested as EUMCCI is an umbrella organisation. All members of most European Business Councils are automatically a member of EUMCCI. It is an organisation with similar offerings, but from a European perspective.
5. **American Malaysian Chamber of Commerce**
   Collaboration was requested as AmCham is one of the more active chambers, and is connected to the larger worldwide network of American Business Council.
6. **Malaysian French Chamber of Commerce and Industry**
   Collaboration was requested as we learned MFCCI was involved in a similar project, and might be further ahead than this thesis.
7. **Indonesia Netherlands Association**
   Collaboration was requested as it is a regional partner of MDBC and was considered a good case study to mitigate geographical influences in Business Councils. INA is regarded as the largest and most active Dutch Business Council in the region.
8. ~~**(undisclosed BC)**~~

Collaboration was requested as it is a regional partner of MDBC and was considered a good case study to mitigate geographical influences in Business Councils.

The similarities and differences between the eight are summarised in *Table 36: Overview of similarities and differences of case study validation organisations*. The case study organisations were approached with the notification that the Malaysian Dutch Business Council (MDBC) was involved in a *project to document and structure its network information* via **Contact Relationship Management-systems**. They were also informed that the goals of that project were to

(a) automate several administrative tasks;

(b) decrease the dependencies on personnel's implicit knowledge of contacts and organisations; and

(c) improve the overall structure and meaning of available information (to answer management queries).

Furthermore, they were invited to participate in the project, share information between the organisations and benefit from each other's results.

Semi-structured interview: discussed topics

The semi-structured interviews aimed to

A. Gain insight in their experiences with such systems
   a. Customer Management Systems,
   b. Contact Management Systems,
   c. Membership Management Systems

B. Academically validate the distilled requirements from MDBC, to create a more industry-standard solution design. Therefore we are interested in similarities and distinctions between the organisations.

C. To see if MDBC's study is in line with the view from similar organisations

At each case validation organisation the following elements were discussed via a semi-structured interview:

Questions	Aims	Discussed in thesis chapters	Results discussed under subsection:
1. Who are your members?	Validation		
2. How many members do you have?	Validation		
3. Do you encounter the same issues and challenges as MDBC?	Validation	Chapter 6.1 of the thesis	
4. Do you have the same offerings and tasks within the organisation as MDBC?	Validation	Chapter 6.1 of the thesis	
5. Are you interested in such a system?	Validation	*Necessity of the study, Real world applications*	
6. Do you see issues, challenges and/or limitations?	Validation		
7. Are you currently using a Contact management system?	Gain insight, In line	Chapter 6.1 of the thesis	
8. What were the goals to achieve when it was installed?	Gain insight, In line	Chapter 6.1 of the thesis	
9. Have you previously worked with such systems?	Gain insight		
10. Is it a typical CRM system (in terms of customers, leads, prospects, sales)?	Gain insight, Validation	Chapter 6.1 of the thesis	
11. When was it installed?	Gain insight		
12. Do you know of issues and design choices made during installation?	Gain insight, In line		
13. What kind of information is in your system?	Gain insight, Validation		
14. What kind of tasks does it support	Gain insight, In line		

====== Summary table =====

Organisation	Level of cooperation	Abbrev.	Type or organisation	Region of activities	… for	Activities, goals and tasks	Minutes in document
Malaysian Dutch Business Council	n/a	MDBC	Private* Business Council	Netherlands Malaysia	Dutch individuals and organisations	Information, Networking, Representation	n/a
Embassy of The Netherlands in Kuala Lumpur	Full cooperation	KL-NL Emb.	Embassy Foreign investment support office	Malaysia	Dutch individuals and organisations NO MEMBERSHIP	Foster diplomatic relations between countries Aid Dutch natives in Malaysia Aid Foreign investment initiatives	C-2013Wk05-Embassy
Dutch Chamber of Commerce Singapore	Full cooperation	Dutch-Cham	Private* Business Council	Singapore	Dutch organisations and individuals	Similar to MDBC.	C-2013Wk06-DutchCham C-2013Wk07-DutchCham
Malaysia Australia Business Council	Full cooperation	MABC	Private* Business Council	Malaysia	Australian individuals and organisations	Similar to MDBC.	C-2013Wk06-MABC
EU-Malaysia Chamber of Commerce and Industry	Full cooperation	EUMCCI	Governmental trade support office	Malaysia	European organisations, organisations from European countries	Similar to MDBC.	C-Wk07-EUMCCI And provided documentation.
American Malaysian Chamber of Commerce	Full cooperation	AmCham	Governmentally supported trade support office	Malaysia	American organisations and individuals	Similar to MDBC.	C-2013Wk06-Amcham And provided documentation.
Malaysian French Chamber of Commerce and Industry	Shared information	MFCCI	Governmentally supported trade support office	Malaysia	French organisations and individuals	Similar to MDBC.	C-2013Wk04-MFCCI
Indonesia Netherlands Association	Shared information	INA	Private* Business Council	Indonesia	Benelux' organisations and individuals	Similar to MDBC.	C2013Wk06-INA
(undisclosed BC)	Unable to participate	(undisclosed)	Business Council	(undisclosed country near Malaysia)	Dutch organisations and individuals.	Similar to MDBC.	C-2013Wk06-NonDisclosed

* Private business councils may receive some of their funding from governmental bodies.

TABLE 36: OVERVIEW OF SIMILARITIES AND DIFFERENCES OF CASE STUDY VALIDATION ORGANISATIONS

Case study results summary

Summary of: Embassy of The Netherlands in Kuala Lumpur

<table>
<tr><td>Challenges:</td><td>The Embassy currently faces several (external) challenges

Multiple Regional Support Offices have been created (a total of 10, of which 9 are outside The Netherlands). These RSO’s perform many of the back-office work of an Embassy’s consular-tasks. Lowering work at the Embassy itself, resulting in personnel cuts. They will partially be replaced for local staff.
Much of the representational tasks of the Embassy are now done by EU-Delegations. This is logical as the EU-countries have a shared foreign-nations-policy.
To lower costs at the embassy’s, government has decided to replace much of Embassy’s support staff for local personnel.

Given the above points, most of the 140+ Embassy’s will only keep about two native Dutch employees. On average it is expected 6 local staff members will be reduced per embassy.</td></tr>
<tr><td>Current situation:</td><td>
<table>
<tr><td>Summary:</td><td>Computers are centrally managed.

Contacts are stored in the mailbox of an embassy-function (not the employee’s personal account). These mailboxes are (partially) shared.

Files are stored on (shared) network drives.</td></tr>
<tr><td>Information Needs:</td><td>Interaction from Embassy to its Network goes via:

Email
Telephone
Scheduled meeting face-2-face, etcetera
Event, gathering, etcetera
Implicit via Facebook
Implicit via LinkedIn
Indirect via Website

Contacts can be of three generic types:

A personal contact (that is in the system for personal purposes)
A work contact
A private work contact – which others should not contact

But a contact can also be:

A highly-ranked person – which others should not contact

Before interaction, an embassy employee must think about:

If they are calling to somebody of the same ‘level’ in the organisations. Otherwise maybe they should let the Ambassador call himself, or contact a lower placed official.

The different departments have different information needs. Many of them focus around contacts (with fewer dependencies.</td></tr>
<tr><td>Issues:</td><td>

Discrepancies in the contact-records
No synergies through sharing contacts
If a corporate contact leaves Malaysia, he has to be removed from multiple DBs. This does not always happen, irritating the contact: he might have to signal 3x to get him from all ‘mailing-lists’. I.e. to get him out of all categories.
</td></tr>
</table></td></tr>
<tr><td>Future:</td><td>The Embassy wants to resolve the encountered issues, but also has the following external factors to keep in mind:

The NFIA is adding functionality to a system called ‘Agillis’, it is a workflow-tracker for service requests as handled by the economic department of the Embassy. KL is one of the partner Embassies.

This system generates management information
This system shares information (contacts, companies, services) from all different embassies – to benefit from overlap.

</td></tr>
</table>

	• Also, for over three years, the Embassy has been waiting for 'Systeem Registratie Nederlanden'. Apparently this is a plugin to 'Kompas', a system managing visa's, passports etcetera. This plugin should be able to track Dutch in foreign countries. Suspensions are that it is not activated due to political reasons or legislation. • A recent e-Update from the ministry of foreign affairs has indicated a ministry-wide CRM system will be implemented. However, there is **no** insight in the scope of the project, the aims and goals of the project and the expected implementation date. Suspicions are that the design is ready. Potentially it is linked to NFIA? **Possible temporary solution:** At her previous station the contacts were managed in the central-inbox' contacts manager. For each contact it was noted whose contact it was via categories. Multiple owners can exist. Rules to make it work: • Non-owners were not allowed to make changes to the contact, but had to e-mail the real owner the discrepancy. o If owners exist, you mail one, he will notify the others of changes made. Usability issues: • Will create a lot of categories added to 1 person. • Limits to 'private' contacts. This solution does not show easily: • Contacts in of a particular firm or industry • Last contact somebody had (sort by, etc.) – only as a note
Notes:	**Challenge:** Not all information about contacts etc. is public for everybody. • In the Embassy, for example, the Ambassadors' aid will also know about his private appointments, but not everybody from the Embassy requires this information. • Some contacts an employee has are private. Others are public. **Well received:** Embassy personnel would like to benefit from their networks (likes on pages, and personal) on LinkedIn, Facebook, and etcetera.

SUMMARY OF: DUTCH CHAMBER OF COMMERCE SINGAPORE

DutchCham offers networking activities; business development; joint events; information; and representation activities. DutchCham has approx. 100 corporate members, another 9 big corporate (Orange-sponsor) members and about 20+ individual memberships. These members and their contacts (multiple per corporate with a principal contact) are maintained in Excel.

Its offerings characteristics include:

- DutchCham does not help job applicants directly. Nor does it help in visa arrangements. It can forward you membership contact information.
- DutchCham organises events and co-organises events with others.
- DutchCham knows 2 type of corporate and 1 type of individual memberships.
- DutchCham's relation with the membership is sometimes corporation focussed, and in other occasions more contact-focussed.
- Important associations / relations / comments are stored at an individual+member row/record in Excel. Currently DutchCham is not large enough (2 employees at the office, the 3rd has recently started) to run into co-operation-issues.
- There are no shared to-do lists; and/or agenda's.

Challenges:	DutchCham currently does not use a CRM system. As the organisation is growing, DutchCham is looking into possibilities to procure such a system. This because for 2014 DutchCham might get more funding (including some governmental subsidies) and therefore can hire more staff. DutchCham does use Freshbook as accounting software. Nele is very pleased with this system (priced around 400USD per year). DutchCham has a pay-per-event subscription model, resulting in many more invoices.	
Current situation:	**Summary:**	Information gathered • Membership details (unspecified) • Mail batch via Wordpress (approx. 2000 contacts.) The membership and mail batch information is kept up to date by Nele, as she is the primary user of the system. However, the information is maintained in several databases (accounting, mail batches, membership, outlook....) - so it is not ideal. Information is missing in the mail batch-list. This list contains of name and e-mail address. Therefore there is no decent method to filter contacts.
	Information Needs:	Including memberships and their employee-contacts, non-member contacts, sponsorship details and events.
	Issues:	Versioning debacle of membership and contact database.
Future:	Increase of number of employees might spark need for CRM solution.	

DutchCham produces a monthly newsletter publication. It does not give out a Business Directory. The EuroCham does hand out a Business Directory that also includes DutchChams members. Furthermore, DutchCham is considering producing a 2-annual magazine.

DutchCham does not have an internship project. Upon one time they planned to start a program similar to MDBC, but recent complications to obtain permits has delayed the process.

SUMMARY OF: MALAYSIA AUSTRALIA BUSINESS COUNCIL

MABC has relatively MORE individual members. Approximately 336 members. Of which 40% are corporate members and the remaining 60% are individual members.

MABC organises a monthly networking event; yearly dinners and other events such as fundraisers, luncheons etcetera. Members profit from the following benefits

- Member information
- Information about Malaysia, legislation etcetera through publication
- Representation via Advocacy
- Networking events
- Joint social responsibility / charity initiatives

<table>
<tr><td>Challenges:</td><td colspan="2">(unspecified)</td></tr>
<tr><td rowspan="3">Current situation:</td><td>Summary:</td><td>They looked at EveGenesis for event organisation.
Event invites are mail-blasted via outlook. They are looking for a less spam-prone solution. This email contains a link to a signup form.</td></tr>
<tr><td>Information Needs:</td><td>
MABC has Members

Fields: Number, MEMBER NO, ADMISSION, ROC No. , COMPANY NAME, INDUSTRY SECTOR, SUB-GROUP, TITLE, NAME, NAME, DESIGNATION, SECRETARY DETAILS, TEL NO, FAX NO, ADDRESS 1, ADDRESS 2, ADDRESS 3, POSTCODE, CITY, STATE, COUNTRY, E-MAIL (general), E-MAIL (personal), WEBSITE
Members can be a “partner in progress” for a fixed fee per year. This is similar to the

Members have contacts (and one/multiple principal contacts)
MABC organises events
MABC does not have an (active) internship program. Requirements are therefore out of scope.
Members can be a sponsor of an event, or advertise in <u>magazine/website/newsletters</u>.
MABC has committees with BoD members and contacts from members (based on their website:)

Construction, Manufacturing & Property Development
Education & Training
Communication & Public Relations
Events
Membership
Services
Tourism & Hospitality
Trade Investment & Malaysian Government Relations

</td></tr>
<tr><td>Issues:</td><td>E-mail blast is prone for SPAM-classifications. Event-organising is currently time-inefficient. Membership database suffices but the versioning-debacle is known.</td></tr>
<tr><td>Future:</td><td colspan="2"></td></tr>
<tr><td></td><td colspan="2"></td></tr>
</table>

MABC gives out a Business Directory, Quarterly Magazine, and digital newsletter the same as MDBC does.

Summary of: EU-Malaysia Chamber of Commerce and Industry

Natalia has worked with SalesForce on previous occasions. She does not per se agree with the statement that the sales-pipeline is not needed for BC's. Both parties agree that member+contact+interaction is definitely of interest. She believes the pipeline is interesting to track potential members. And to give those discounts / coupons / ..., to attract more potential members (to events) AND make them members.

Member types: Currently, EUMCCI has approximately 150 direct members. Many more indirect members (data dependency on other councils).

EUMCCI's offerings characteristics include:

- EUMCCI is not involved with job-applications nor with visa approvals
- EUMCCI organises events and joined-events for direct members, indirect members (e.g. MDBC members are automatically a member of EUMCCI) and non-members. Different charges apply for each membership type.
- Most (to all) organised events charge a cover fee.
- EUMCCI has sector-committees that publish whitepapers with its vision on local jurisdiction.
- EUMCCI has members (see above), of different types. These members also take part in the committees
- Interaction-with-members tracking is important. Especially to see if the current lists are accurate (with regards to contact information).

Challenges:	Their Membership database system has broken down and EUMCCI has reverted to using excel sheets.	
Current situation:	**Summary:**	Currently the EUMCCI does not use a Contact Management System. One of their interns is looking into creating a temporary access-like database for them to manage their contacts. The current situation is described as the following set of lists (in Excel): • Members (direct members & indirect members) • Embassies • Ambassadors (including food preferences; spouses; ...) • EU Business Council members (indirect members) • Government offices • Spam mail list • Including adding all visitors to events to the spam list. • Committees and people in the committee • Sponsors • To be: MPSEG system (by Shinjiru) for spam list (currently in test phase). This system can make CSV exports and imports. • To be: Access-like system for memberships)
	Information Needs:	< See below> Additional "would like to have" Information needs: • Email blast open rates. • Email blast link click rates
	Issues:	The current solution shows many duplicate (old copies) of lists. Also, the lists are not well-formed. A column changes meaning in some lists. Also, there are a lot of empty fields. The columns were created at some point but those that were not used are no longer filled by employees. So yes, there is information they no longer use.
Future:	Re-instate the use of their Joomla-CRM plugin.	

EUMCCI produces a European business directory. Their committees produce “position papers” (white papers) about the sector’s future and sector legislation. Furthermore they bundle these information sources in a quarterly review document.

EUMCCI sells advertisements and charges cover fees for events. EUMCCI has associate members (premium partners) that give discounts for in most cases, a lower membership fee.

Their current information fields:

Members (Corporate):

- Name of Company
- Business registration no.
- Corporate Equity EU (%)
- Corporate Equity Malaysia (%)
- Corporate Equity Other (%)
- Number of employees
- Paid-up-capital (RM)
- Membership categories
- Corporate webpage
- Corporate username for EUMCCI account
- Location Asia hq office
- Location EU hq office
- Business Category/sector
- Membership application
    - Date of application
    - Accepted and agreed to Terms and Conditions
    - Boolean: Organisation in Malaysia?
    - Payment method
    - Preferred committees
- Applicant / principal contact, three:
    - First, Middle, Last name
    - Title/Designation
    - Position in company
    - Postal Address
    - Date of Birth
    - Email
    - Phone number
    - Fax Number
    - Nationality
- Description of business activities
    - Including connections with EU businesses
- Payment date for membership period

SUMMARY OF: AMERICAN MALAYSIAN CHAMBER OF COMMERCE

Little over two years ago AmCham 'revamped' their website. This was done using Joomla-technology. The goal is to fully integrate a CRM with the website. Currently, the CRM is non-existent. Goals of project: Similar to MDBC. AmCham want to lower the time spent on administrative duties by employees. AmCham is non-profit so minimising the expenditures is important.

AmCham currently has 346 members. Most members are corporate members. Not all members have a clear link with the US. There are many smaller Malaysian companies that would like to 'network' with the big-boys from the US. This is not always successful, as the big firms do not always send the highly-placed managers, but (just as the SMEs) send sales people.

Membership types are: (copy from their website):

Membership Category	Criteria	Entrance Fee (one time payment)	Annual Dues (Fiscal year: Feb 1st - 31st Jan)	Entitlement	Additional Representative
Large Corporate Member	Paid-up Capital: over RM2.5million; or Employees: Over 200	RM1000	RM3500	Corporate Representative (CR): 1 and Additional Representatives (AR): 5	RM450 each (for 6th AR and subsequent ARs)
Medium Corporate Member	Paid-up Capital: Less than RM2.5million; or Employees: Between 11 and 199	RM1000	RM2200	Corporate Representative (CR): 1 and Additional Representatives (AR): 3	RM450 each (for 4th AR and subsequent representatives)
Small Corporate Member	Paid-up Capital: Less than RM2.5million; or Employees: Less than 10	RM1000	RM1000	Corporate Representative (CR): 1 and Additional Representatives (AR): 1	RM450 each (for 2nd AR and subsequent representatives)
Individual Member	U.S. nationals not attached to corporate members, including visiting academicians, spouses, etc.	N/A	RM1000	Individual Membership: 1	
Non-resident Member	Companies or individuals not residing in Malaysia but otherwise qualified for membership	N/A	US$325	Non-Resident Membership (NR): 1	US$150 each (for additional representative from the same company)

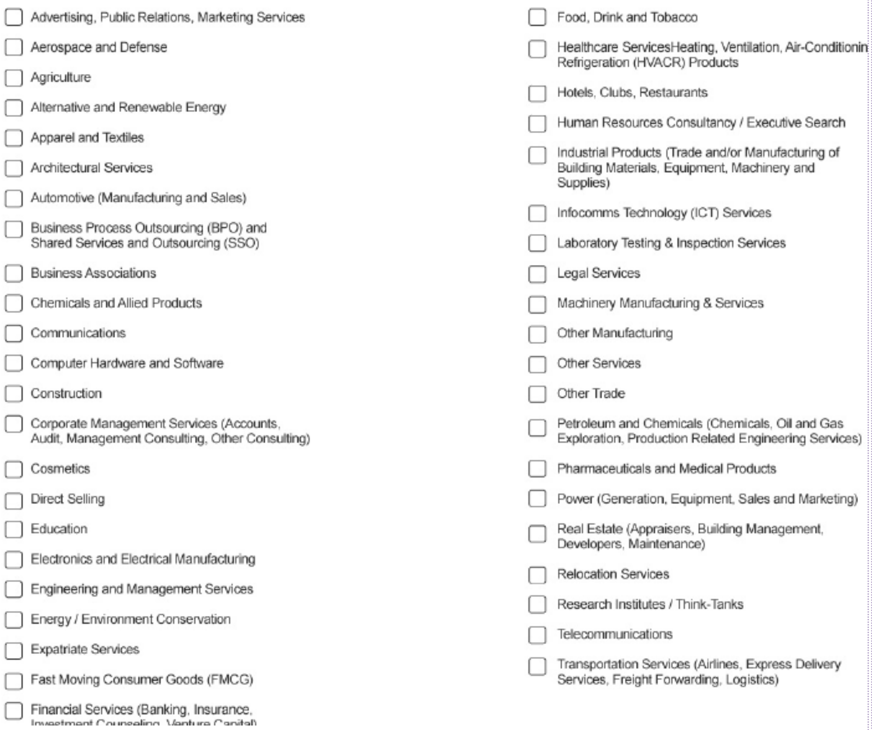
Previously the members list was managed by one dedicated employee in an Excel sheet, however, currently it is managed via the contacts-tab of SalesForce.

Challenges:	Create a CRM and event-organising software and integrate the CRM with their website.	

Current situation:	**Summary:**	• The website uses a **Joomla** plugin to perform 'mail-blasts' (mailing of events, newsletters, etcetera).
		  ○ The old solution (approx. 1 year ago) was to use **MailChimp** with a small monthly fee. For this, they exported SalesForce, imported that in MailChimp. Followed by making and sending the mail.
		• The website also offers a registration form for events.
		  ○ This is an event page, with an embedded (custom form + POST to a) Google Spread sheet (form) (that automatically places the results in a spread sheet in Google Drive).
		  ○ The event page has a social sharing buttons.
		  ○ The event page does not have social sharing
		  ○ The website sends the mail-batch for the invite
		    ▪ Attachments (such as the flyer of the event) can be added
		    ▪ The Link to the Google Doc is added / inserted manually.
		  ○ The previous solution was to send the invite via MailChimp.

		○ **To-be created functionality** ▪ Online payments ▪ Member-login before registration • To manage the member-list AmCham uses **SalesForce**. • Members often have to pay to participate in an event. They can do this ○ Prior to the event via bank transfer ○ Cash payment at the event ○ Cheques: prior to the event, or during the event. ○ Wish is to use online payments.
	Functionality:	• AmCham is currently inventarising the functionality they would like to include in the website. A final set of requirements will be made based on functional value vs. incurred costs. • Therefore, the status is considered pre-specifications phase. • To be created includes ○ Login for members for verified sign-up for events ○ Membership details updating ○ Contact details updating ○ Protected access to whitepapers/documents/event presentations Other offerings with information needs: Members can adopt local schools and colleges in the CSR programme CSR scholarship (1 per year, 4 years long) for a Malaysian student to study in the US. Current and former student contacts Currently the list of governmental and other types of contacts is not maintained in SalesForce.
	Information needs:	Manage contact details for Contacts and firms Members (can) have contacts. • AmCham does not have an internship programme • AmCham organises **events:** ○ Fields: Title, start and end date&time, venue (name and address), Cut-off-date (Discounted rate until), Original price, discounted price. ○ Has: Social sharing to invite friends ○ Events often are socially responsible / for a charity. • AmCham has **members** ○ Fields (minimal requirements for enrolment): Company name, Company address, Fax, City, Telephone, Postal code, Website address, Business registration number ○ Enrolment of new members ▪ Submitted on Date * ▪ This application was prepared and submitted by * ○ Additional fields: ▪ Company <u>address</u> (3 separate lines); Telephone; Postcode; Home page; Company general email; ▪ A company representative (see <u>contact</u>) ▪ Optional: 5 additional representatives (see <u>contact</u>) ▪ PIC for HR matters (see <u>contact</u>) ▪ PIC for Finance matters (see <u>contact</u>) ▪ PIC for PR and communications (see <u>contact</u>) ▪ About your company • <u>You organisation in Malaysia is</u> a (tick one) ○ Corporate HQ ○ Regional HQ ○ Representative / Branch office • <u>Location</u> of Asia Pacific regional headquarters

- Location of US corporate headquarters
- Description of business activities
- **Industry** listing (tick one)



- ☐ Advertising, Public Relations, Marketing Services
- ☐ Aerospace and Defense
- ☐ Agriculture
- ☐ Alternative and Renewable Energy
- ☐ Apparel and Textiles
- ☐ Architectural Services
- ☐ Automotive (Manufacturing and Sales)
- ☐ Business Process Outsourcing (BPO) and Shared Services and Outsourcing (SSO)
- ☐ Business Associations
- ☐ Chemicals and Allied Products
- ☐ Communications
- ☐ Computer Hardware and Software
- ☐ Construction
- ☐ Corporate Management Services (Accounts, Audit, Management Consulting, Other Consulting)
- ☐ Cosmetics
- ☐ Direct Selling
- ☐ Education
- ☐ Electronics and Electrical Manufacturing
- ☐ Engineering and Management Services
- ☐ Energy / Environment Conservation
- ☐ Expatriate Services
- ☐ Fast Moving Consumer Goods (FMCG)
- ☐ Financial Services (Banking, Insurance, Investment Counseling, Venture Capital)
- ☐ Food, Drink and Tobacco
- ☐ Healthcare ServicesHeating, Ventilation, Air-Conditionin Refrigeration (HVACR) Products
- ☐ Hotels, Clubs, Restaurants
- ☐ Human Resources Consultancy / Executive Search
- ☐ Industrial Products (Trade and/or Manufacturing of Building Materials, Equipment, Machinery and Supplies)
- ☐ Infocomms Technology (ICT) Services
- ☐ Laboratory Testing & Inspection Services
- ☐ Legal Services
- ☐ Machinery Manufacturing & Services
- ☐ Other Manufacturing
- ☐ Other Services
- ☐ Other Trade
- ☐ Petroleum and Chemicals (Chemicals, Oil and Gas Exploration, Production Related Engineering Services)
- ☐ Pharmaceuticals and Medical Products
- ☐ Power (Generation, Equipment, Sales and Marketing)
- ☐ Real Estate (Appraisers, Building Management, Developers, Maintenance)
- ☐ Relocation Services
- ☐ Research Institutes / Think-Tanks
- ☐ Telecommunications
- ☐ Transportation Services (Airlines, Express Delivery Services, Freight Forwarding, Logistics)

  - Members are firms,
    - based in the US with offices MY
    - based in MY, with offices in US
    - (SME's) based in MY with no offices in the US
- AmCham's members have **contacts** (working at the member firm). Contact can be a representative of the company
  - Fields: First & Middle name; Last name; Designation; Nationality; Direct fax; Direct telephone; Mobile number; Email; Social media account twitter; Social media account Facebook; Social media account LinkedIn
  - Publish (yes/no) of direct contact info per item;
- AmCham has **committees for Advocacy**, keeping track of changes/trends/legislation (We believe, formed by other associations)
  - Innovation, Technology, Telecommunication and Intellectual Property Committee (ITTIP) – ICT
  - Malaysian American Electronics Industry (MAEI) – Electronics
  - Malaysian Alternative and Renewable Industry (MARI)– Renewable Energy
  - Tax

Issues:

Future: Finish the website roadmap, incorporating CRM, event organising, payments and more.

AmCham publishes a quarterly magazine, business directory and e-mail newsletter just as MDBC. Furthermore it publishes white papers from its committees. Information benefits to its members via several media: Event invites and itineraries; Whitepapers (papers on upcoming changes)

Resources (documentation on processes); News about Business, AmCham and members; Blog.

SUMMARY OF: MALAYSIAN FRENCH CHAMBER OF COMMERCE AND INDUSTRY

MFCCI is currently investigating the possibility for investing in a CRM solution. They have shortlisted the following:

- CiviDesk as it is recommended by their parent organisation and several other French CCI's use it.
- Efficy, sued by FMCCI in Thailand
- Atemeis, used by FMCCI in Vietnam and other locations.

SUMMARY OF: INDONESIA NETHERLANDS ASSOCIATION

Wants to collaborate, is open to invest in a joint effort to resolve the issue. No clear information about offerings, information needs, etcetera.

SUMMARY OF: (UNDISCLOSED BC)

Are looking into such systems, but have not yet started. Were not able to cooperate in our timeframe.

Design remarks for flexibility

The Dutch Embassy has a broader set of activities/offerings as our other business councils. For example, their Netherlands Foreign Investment Agency tends to be active more internationally then the business council. (C-2013Wk05-Embassy). They therefore wish to share information over country boarders. Furthermore all (registered) Dutch natives in Malaysia receive some information benefits. And they have offerings for locally imprisoned Dutch natives, Dutch retirees (Malaysia my 2nd home), and etcetera.

They will therefore require an even broader contact classifying system.

Limitations of the case study

The organisations were chosen on three key differences. These were:

Dimension I. The location in which the BC is active: Malaysia, Other countries in Asia
Dimension II. The home country of its members: Netherlands, Europe, Rest of the world
Dimension III. The type of organisations: Chamber of Commerce, Business Council, Embassies.

Given the possible values for each dimension, we summarise the impact of our case study organisations mix on the generalisation of the SuD to the following:

DIM I: THE GENERALISATION OF THE SUD IS LIMITED TO USE IN MALAYSIA AND SURROUNDING COUNTRIES

We have focussed on organisations active in Malaysia and surrounding countries. Therefore we have a limited understanding of how offerings change based on the region the organisation is active in. This poses a direct limitation on the generalisation of the found results to other regions.

However, the author does not expect the offerings' information needs to change drastically, mitigating –to some extend- the limitations posed.

DIM II: THE GENERALISATION OF THE SUD IS LIMITED TO USE BY THE DEVELOPED COUNTRIES

The selected case study organisations span a broad set of originating continents, including the North Americas, Western Europe and Oceania. We lack the Eastern Europe region, South Americas, Middle East, African and (Central/Eastern) Asia regions. Therefore we have a limited understanding of how offerings and processes change based on the national/cultural influences of its members, board and management. This poses a limitation on the generalisation of the found results to the prior regions.

However, the author cannot mitigate this limitation.

DIM III: THE GENERALISATION OF THE SUD IS LIMITED TO USE BY COC AND BC

The selected case study organisations span a broad set of 'types of organisations' but focus primarily on CoC's and BC's which are relatively similar compared to the Embassy. We have seen that especially the Embassy had a much broader network span, size and set of offerings. This poses a limitation to the generalisation of this system to other work fields.

However, the author feels that a good API will mitigate this issue to a reasonable extent, lowering the required software changes required for usage of the SuD in this field.

Appendix VIII. MDBC Business Case for enterprise wide relationship management

Project aims

The Malaysian Dutch Business Council aims to grow its network and memberships in the future. It also aims to offer its services with continuity. To deliver its services efficiently, this requires easy access to its information sources. We have identified three inhibitors that limit MDBC's development:

- Multiple databases causing inconsistencies, extra work and aggregation inefficiencies.
- Implicit knowledge about contacts, networks, business relations and processes
- Manual labour is at its peak: there is more work than available staff.

This project aims to mitigate the three inhibitors in such a way that we enhance MDBC's potential to reach it goals. For more details please review section *1.3: Problem diagnosis. Also review Figure 1*.

The project is limited in terms of financial possibilities. The organisation is flexible due to its low staff numbers. Many of the design choices are made based upon the ideal system specification of *Appendix VI*.

Priorities and requirements to the solution

In *Appendix VI (Software Requirements Specification-Document , page - 60 - and onwards)* we identified the functional scope of the system. (*Chapter System scope, Figure 24*). In summary this included and excluded several core elements of the ideal solution.

In discussion with the Executive Director (2013Wk06/ED) we decided that in the case that we cannot find, or cannot afford the solution with all elements included we will adhere to the following priorities (based on MoSCoW's categories):

Must Have:	Management of members, potential members and previous members
Must Have:	Firm management and Contact management, for both members as non-members (enacted environment)
Must have:	Contacts in firms that are not members
Must have:	Searching and filtering of the contacts and firms in the system
Must Have:	Exporting of email lists and (hard copy) mail lists
Should have #1:	Event organisation utilities for managing registrations, name badges and participant lists (etc.)
Should have #2:	Internship placement utilities to structure the documents and contracts related to the SIP program
Could have #1:	Financials[1]
Could have #2:	Interaction tracking of e-mails, phone calls, sponsor deals, and other fields related to the relation.
Could have #3:	Tasks sharing amongst employees
Won't have:	Customer aftersales care
Won't have:	Results to internal questionnaires etcetera (i.e. knowledge sharing via collaboration tools as wiki's)

The other MDBC internal information entities can be embedded in the named function groups and are considered 'Won't have'.

Additionally, we have several constraints (given the ideal MDBC IT (Boom, 2013) architecture and several challenges (Subsection 1.3 of thesis)):

[1] This was excluded in the thesis scope. Therefore we cannot focus on detailed functional requirements for this element. However, we assume this regards Memberships (annual feeds); Events (event registration fees); Internship Programme (student deposit, placement fee, application fee, corporate visa handling invoice) . We also assume this does not include other cash flows – such as buying office supplies.

Must Have:	Runs on Windows without in-house server (can be SaaS)
Must Have:	May not cost more than 1K USD / year for a basic version.
Should Have:	The system should be user-friendly

The most promising solutions

Given the requirements and their prioritisation (above) a long-list of 89 systems was created. The long list was filtered down to 19 short-listed solutions. These solutions were then explored in more detail based on another set of dimensions. Please revert to the Sub Appendix for more information about the used metrics for this comparison.

The 19 short-listed solutions were compared via a semi-non-weighted multi-criteria analysis. The scoring for each criterion carried the same weight but some criteria could be a deal-breaker. In essence, when must-have functionality showed absent during the detailed review of the software package, the package was excluded. A summary top systems is shown in the table below.

Service	Summary	Score
BatchBook.com **Best suited for MDBC !**	By far the most appropriate system to manage internship and membership information. Also a good fit for maintaining an overview of other actors in MDBC's network. Would improve if one could full text search notes; and can also improve its import/export functions' usability. It works slightly slower than the nr2 of this list, but can manage with much more complicated data (structures). Does not support events or finances, but none of the short-listed systems do. Does offer: To-do lists, saved searches, membership-maintenance forms, integrations with MailChimp mail blaster and an accounting package.	**11,5pts**
HighriseHQ	A very attractive system suitable for digitalising the contact book. Can be used for the internships and membership details. And is great to use when keeping track of organisations and the people working at these organisations. Its aggregated corporate-view is something competitors should also 'borrow'. But its custom data types cannot keep up with BatchBook's supertags. Also the missing OR-search-operator is a pity. Does offer: to-do lists and has good exporting functions. Integrates with many other services including MailChimp.	**9,5pts**
Capsule CRM	Capsule CRM has potential, but much of its functions are far from perfection. Ok for cases, could do some event administration task and could do the memberships also. But retrieving the information from the user interface is an issue. Also its lack of searching possibilities limits the usability for MDBC.	**9pts**
WorkEtc	An overly complex system clearly created for a different purpose than MDBC has in mind. It could be used for the internships, events and memberships but its complex interfaces limit its organisational acceptance and given MDBC's high turnover rate of interns – will be problematic.	**8pts**
TimeToNote	A bit too simple for what MDBC should be able to do with the system. Good as an address book, but not good for internships, searching, exporting and custom data fields.	**7pts**
BigContacts	A bit too simple for what MDBC should be able to do with the system. Good as an address book, but not good when searching for 'cold' contacts, exporting and custom data fields. Cannot store internship information properly.	**6,5pts**

TABLE 37: SIX TOP RESULTS FROM THE MULTI-CRITERIA-ANALYSIS

This section will continue by describing each of the systems in more detail. In the next chapter of this appendix we will discuss the business case for the advised product (BatchBook).

Advice: BatchBook is the most appropriate system for MDBC

The table below summarises how BatchBook matches our requirements. We see that all but two requirements are supported.

Priority	Requirement	*Status within MDBC*	
Must Have:	Management of members, potential members and previous members	*Memberships can be administrated via custom field sets.* *Potential members can be tagged or administrated via custom field sets.* *Previous members can be tagged or administrated via custom field sets.*	✓
Must Have:	Firm management and Contact management, for both members as non-members (enacted environment)	*Firms and contacts are alike but slight different in BatchBook. Contacts can work at none, one or multiple firms. Both contacts as firms can be allocated these custom field sets.*	✓
Must have:	Contacts in firms that are not members	*Yes, can.*	✓
Must have:	Searching and filtering of the contacts and firms in the system	*Yes, can.*	✓
Must Have:	Exporting of email lists and (hard copy) mail lists	*Yes, can.*	✓
Should have #1:	Event organisation utilities for managing registrations, name badges and participant lists (etc.)	*The system is not designed to do so. There are ways to make it work, but it would be counterintuitive and it would also clutter the user interface severely. Thus assume it cannot, but neither can any of the other systems.*	✗
Should have #2:	Internship placement utilities to structure the documents and contracts related to the SIP program	*Yes, can.*	✓
Could have #1:	Financials[2]	*No, cannot. But it can be linked with another SaaS application that might offer sufficient functionality.*	✗
Could have #2:	Interaction tracking of e-mails, phone calls, sponsor deals, and other fields related to the relation.	*Yes, can – partially.* *All of the mentioned are possible but the user needs to add and update the information manually.*	✓
Could have #3:	Tasks sharing amongst employees	*Yes, can.*	✓
Must Have:	Runs on Windows without in-house server (can be SaaS)	*BatchBook is Software as a Service*	✓
Must Have:	May not cost more than 1K USD / year for a basic version.	*240 US dollar per year for up to 2000 contacts and 5GB file storage* *600 US dollar per year for up to 10000 contacts and 15GB file storage* *2 months free (per year) for annual plans.*	✓
Should Have:	The system should be user-friendly	*"Friendly support to help you get the most out of BatchBook" and one hour free on boarding should get you started.*	✓

TABLE 38: SUMMARY OF BATCHBOOK SUITABILITY PER REQUIREMENT.

COSTS

[2] This was excluded in the thesis scope. Therefore we cannot focus on detailed functional requirements for this element. However, we assume this regards Memberships (annual feeds); Events (event registration fees); Internship Programme (student deposit, placement fee, application fee, corporate visa handling invoice) . We also assume this does not include other cash flows – such as buying office supplies.

Figure 29: Pricing details from http://BatchBook.com/pricing/pricing-1.html - Accessed on March 28th 2013

For MDBC, at first 2.000 contacts should be sufficient. US$ 200 per year when purchasing the annual plan.

Benefits

It is not our aim to calculate a payback period for this system, however it does pose several benefits for MDBC. These are explained via comparison of the possibilities of BatchBook with the goals for this project and thesis.

Implementing BatchBook lowers the number of databases, and increases data consistency / lowers error prone work processes

BatchBook combines the membership list, several frequent contact lists, potential member lists and membership history. And it adds additional firms, organisations, individuals and contacts working at all the previously mentioned. This reduces the number of needed spread sheets and analog name card holders.

Implementing BatchBook will require digitalisation of implicit and analog data sources, creating a more complete overview of the network & possibilities

See above. If used properly, most of MDBC's vital organisational information should be stored in BatchBook – lowering the dependencies on personnel, improving the continuity of the organisation in case of illness or resignation.

Implementing BatchBook (when used correctly) will lower the administrative workload

Having multiple databases results in having to process changes in multiple tables as well. By combining these the workload is lowered.

BatchBook has many advanced search and export functions allowing MDBC to automatically create name tags, address lists for mailings. It is also possible to digitally migrate the lists to MailChimp, MDBC's new mass e-mail solution.

Task sharing and digital to-do lists (automatically) linked to actors reduce the number of post it's around the office (that can get lost before somebody calls back).

Risks

The critical success factors for CRM implementation and use for larger organisations & projects gave been summarised in the thesis of (Westrik, 2012, p. 9).

Category	*Critical success factors*
1. Strategic management factors (success factors that have to do with the direction and position of the organization)	• CRM strategy • Market orientation • CRM goals/objectives • Performance measures • Incentive system • Customer segmentation • Company-wide CRM
2. Organizational design factors (success factors that support the organizational strategy)	• Organizational structure • Customer-centric culture • Customer-centric philosophy • Internal communication • Customer-oriented processes (operational and management) • Cross-functional cooperation • Customer knowledge • Information technology
3. Employee skills factors (success factors regarding the employee's capabilities)	• Training program • CRM capabilities (operational and management) • Customer data collection
4. Employee attitude factors (success factors regarding employee's CRM working attitude)	• Management attitude • Employee behavior/attitude
5. Implementation related factors (success factors that have to do with the implementation project)	• Organizational alignment • Alignment with key stakeholder groups • Customer systems integration • Channel integration • Project champion

TABLE 39: CATEGORIES OF CRITICAL SUCCESS FACTORS FOR CRM EXECUTION BY (WESTRIK, 2012, PP. 9-11).

In the case of MDBC we see the following risks associated with each category:

1. CRM is meant to create a competitive advantage and therefore interferes with the entire organisation and its strategy. Organisational alignment with the CRM strategy are thus always needed to implement a CRM (or in this case, xRM) solution. For MDBC, no clear organisational strategy is present. But the organisation is aimed to provide added value for its members for low costs. This added value comes from networking, representation and information distribution. To gain most from the xRM the organisation needs to actively manage how it can increase the value from its "network" by using the xRM.

2. Next to the organisational strategy alignment with xRM, the organisational structure and employee work processes must change to actively maintain the xRM. For MDBC the horizontal structure of MDBC's personnel and their current (high) workload are possible inhibitors. If one key actor refuses to maintain and update the xRM it will demotivate others as the system is incomplete or outdated. All employees must work together to keep the xRM up to date to acquire the most benefits from the system.

3. When day-to-day operations change, employees require training and practice. In the case of MDBC the small organisational size is beneficial: The number of employees is low, enabling fast adoption and small-group training.
   The high intern turnover rates may be an inhibitor, but BatchBook is a relatively straightforward system with few buttons. And furthermore, it provides excellent online video tutorials ánd yearly free hours of online customer support (via video broadcasting).

4. Employee attitude factors (resistance to change) is not regarded as an issue as the employees were involved with the project and they themselves ordered the purchase of the system. In larger organisations this is a serious issue.

5. Implementation related enables are related to the project itself. The people involved, the required changes, the project champion, and the will to push the project further. Here there is a potential risk involved when the author exits the organisation. Management must continue to push the project, and Mr. Koster (the Project Champion) must try to keep all employees motivated to finish the migration.

Based on this risk inventory we see two main risks:

- Failure to keep the system updated by one employee resulting in demotivated colleagues and disbandment of the system
- A halted migration path when the project leader (main author) exits the organisation and the project champion (Mr. Koster) is not in the position to push the project forward (for diverse reasons).

In both scenarios the financial risks are limited to the monthly fee required to use BatchBook. The subscription can be cancelled on a Monty by month basis.

PULL-OUT COSTS

The pull out costs is the sum of all expenses related to migrating away from the BatchBook solution. The subscription to the BatchBook software can be cancelled each month, resulting in zero costs. All contacts and firms can be exported to open data formats, including all linked custom data sets. Communications, notes and attached files cannot be fully exported in one go, making it a labour-intensive project.

Migration to another system may be a bigger issue. As the semantics of the current system may not fully comply with the semantics of the future system a shear amount of manual translation might be required.

BatchBook system design

SYSTEM SUMMARY BASED ON REQUIREMENTS AND PRIORITIES

Internships:	Actors of an internship can be grouped in two ways: By adding them to a 'communication', or by linking them together as an 'associate'. It is possible to add files to both, and it is possible to add batch information to interns and internships via custom fields. With ease, this system offers the most flexible approach for internships as the custom-data-tags can be added only to interns and can hold more information.
Events:	Event registrations could be administrated with custom tags but this would clutter the interface. It is also possible to (after the event) add a note to all participants via a batch-update and then delete the tags. This however reduces the semantic information in the program, which is a pity. Compared to the other alternatives BatchBook handles events just as 'average' or maybe even slightly less bad as the others.
Memberships:	Yes. Very good, with all details without cluttering the interface for non-member contacts.
Contacts & Corporations:	The filtering and smart-lists are perfect, but it would improve if one could do full text searches on notes added to contacts, organisations and cases. There is no aggregated view of all personnel working at an organisation, but the interface does suffice.
Office automation	Does its job when asked to export mail and e-mail lists or membership overviews. Small learning curve to make smart lists and how to export to excel. Plus, all exports are logged – such that misuse can be spotted.

BATCHBOOK INTEGRATIONS

1. Link BatchBook to MailChimp. Export the contact lists (based on the Mailing Preferences) to Mailchimp and send your mass mailing to the up-to-date list. Manage your unsubscribers, learn from why they unsubscribe.
2. Link your contacts from BatchBook to Gmail and Thunderbird. Always stay tuned.
3. Send important e-mails through BatchBook. That way it automatically adds a specific BCC-address and BatchBook ensures the e-mail is also added to the company/contact's details page.

And a potential future improvement would be to:

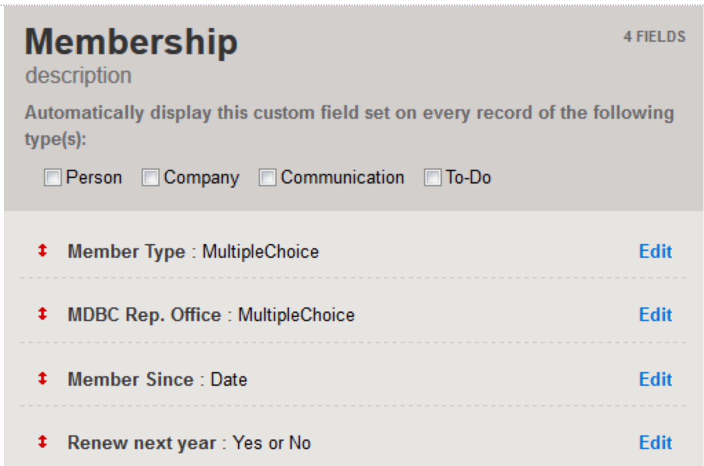
4. Integrate a signup link in your event invitatiosn that route the subscriber to an auto-populated google docs form. The results from these forms are stored in a spreadsheet. These spreadsheets are available on your desktop when you install Google Drive. And these spreadsheets can be used to mailmerge into nametags. You can also use the mail addresses from the subscribers to send the event itinerary.

CUSTOM FIELDS CONFIGURATIONS IN BATCHBOOK

The following custom fields have been configured in BatchBook to store the information needs for MDBC to lower its amount of spread sheets regarding committees, contacts, members, member-contacts and non-member contacts. It also functions as an aid for the internship program.

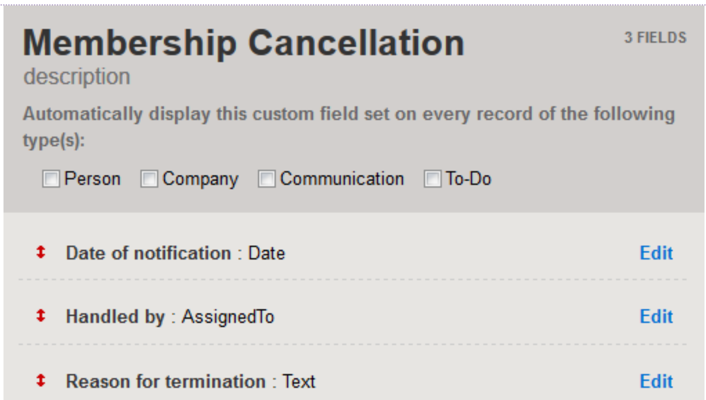
BatchBook component	Details	Potential issues
Committeeship 4 FIELDS For contacts with a position in a committee Automatically display this custom field set on every record of the following type(s): ☐ Person ☐ Company ☐ Communication ☐ To-Do Committee : MultipleChoice Edit Function : Text Edit Start date : Date Edit End date (blank = ongoing) : Date Edit	Contacts can be a part of a committee. A smart list is created to export and view the contacts in such a committee.	
Contact specifics 2 FIELDS description Automatically display this custom field set on every record of the following type(s): ☑ Person ☐ Company ☐ Communication ☐ To-Do Speaks Dutch : Yes or No Edit Speaks English : Yes or No Edit Add Field	Important individual characteristics such as the spoken languages and/or the preferred method of interaction.	When creating a smart search for 'English' using this custom field, you might want to append all records where both are set to 'unknown'.
Internal Notes 2 FIELDS description Automatically display this custom field set on every record of the following type(s): ☑ Person ☑ Company ☐ Communication ☐ To-Do Contact of : AssignedTo Edit Notes : Text Edit	An internal note attached to either a firm or an individual that can hold all sorts of information and the primary MDBC contact linked to that note.	

Mailing preferences 7 FIELDS description Automatically display this custom field set on every record of the following type(s): ☑ Person ☑ Company ☐ Communication ☐ To-Do **Receive E-update** : Yes or No — Edit **Receive Event invites** : Yes or No — Edit **Receive SIP Updates** : Yes or No — Edit **Receive Official invites (GMA etc, YES for members)** : Yes or No — Edit **Receive Magazine (hardcopy) #** : Number — Edit **Receive Business Directory (hardcopy)** : Yes or No — Edit **Receive region (select multiple):** : MultipleChoice — Edit	MDBC mails magazines, e-updates, internship updates and the business directory. The Mailing preferences field is attached to individuals, employees working at a member and/or member-firms and specifies what type of information must be sent to them. Smart lists then enable MDBC to create postal mail labels and/or export lists to MailChimp e-mail blast software.	A potential issue arises here as there is no safe guard that guarantees each member firm has 'at least' one principal contact receiving official invites and the business directory. **This must be manually checked periodically!**
Membership Barter 3 FIELDS description Automatically display this custom field set on every record of the following type(s): ☐ Person ☐ Company ☐ Communication ☐ To-Do **Year** : Number — Edit **Agreement** : Text — Edit **Usage** : Text — Edit **Membership-PremiumPartner** 3 FIELDS description Automatically display this custom field set on every record of the following type(s): ☐ Person ☐ Company ☐ Communication ☐ To-Do **Year** : Date — Edit **Status** : MultipleChoice — Edit **Arrangement details** : Text — Edit	Free text field enabling MDBC to maintain an overview of the most important barter agreements for that specific year for a member. (This goes for both the Barter as the Premium Partner field)	Not all barter agreement information will be embedded as not all employees need access to this information. BatchBook only has two account types, limiting this part of the system.

<table>
<tr>
<td>
</td>
<td>A Membership can be attached to either a person and/or a firm. MDBC specifies the membership type, whether its main rep-office is the Penang or the KL-office, and since when the organisation has been a member.

An extra field is set for the renewal of the membership. At the end of the year MDBC can perform a Batch Update to attach a Membership-Cancellation field to all non-renewal members.

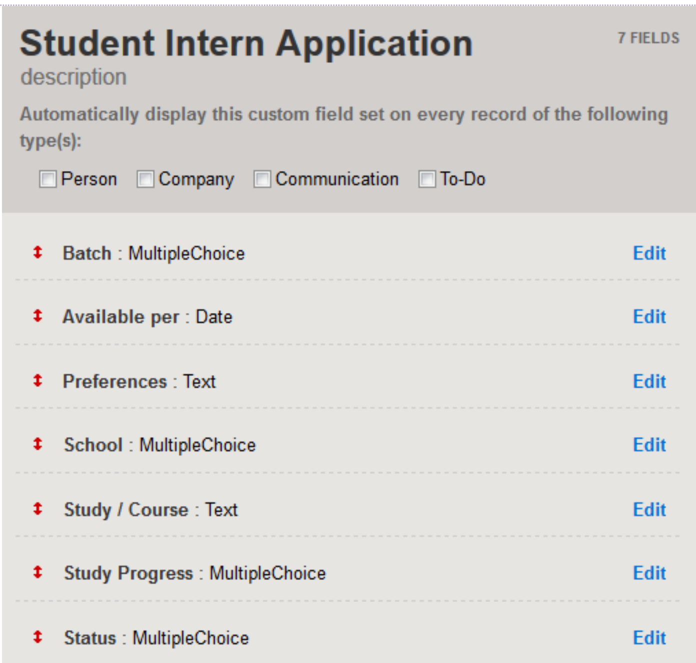
All to be renewed members can be exported via a smart list with their address information and membership type. This spread sheet can then be ‘Mail Merged’ into invoices to be sent out.</td>
<td>If the process logic as summarised in the left cell is not followed, the membership database can get corrupted.

MDBC should backup the database before doing any of the batch updates and verify the results afterwards.</td>
</tr>
<tr>
<td>
</td>
<td>Some memberships are not renewed, and thus will be cancelled. At the moment of cancellation notification (via telephone or e-mail, or any other communications medium) this custom field is attached to the firm or individual specifying when, why and by whom the membership is terminated.

This information can then be exported via a smart-list and/or search filter to provide management information about the amount of membership terminations.

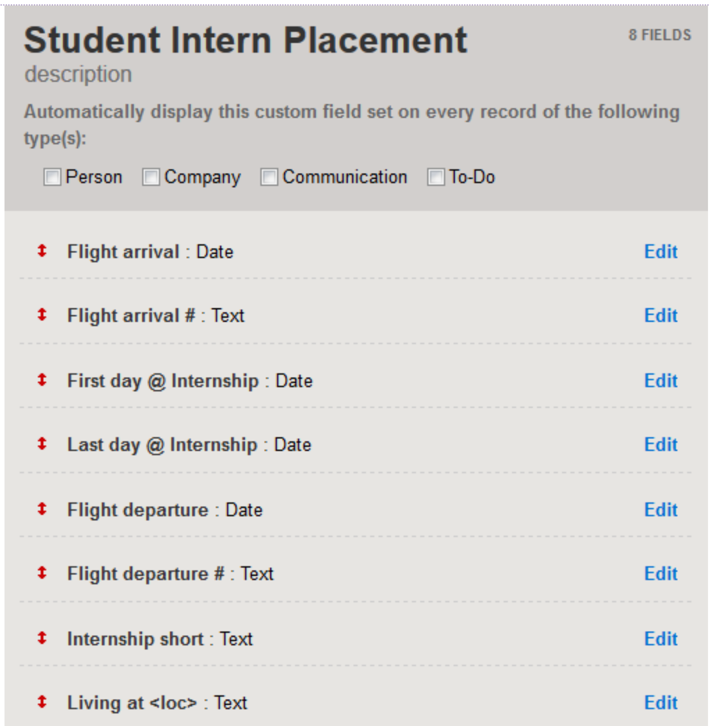
The cancellation field can be extended with several other variables requesting more information about the termination. By making this multiple-choice it is easy to aggregate the data into management information.</td>
<td>See above.</td>
</tr>
</table>

Membership-Specifics 12 FIELDS description Automatically display this custom field set on every record of the following type(s): ☐ Person ☐ Company ☐ Communication ☐ To-Do Corporate description : Text Edit Business offerings : Text Edit Incorporation MY : Number Edit Incorporation NL : Number Edit Incorporation Global : Number Edit Employees MY : Number Edit Employees NL : Number Edit Employees Global : Number Edit Turnover MY : Currency Edit Turnover NL : Currency Edit Turnover Global : Currency Edit Paid-up capital : Currency Edit	For each member (individual or firm) extra information is required. This information is visible, for example, in the business directory and on the website of MDBC. This information can be exported and converted into templates for the business directory.	
Membership-M4M-Card 3 FIELDS description Automatically display this custom field set on every record of the following type(s): ☐ Person ☐ Company ☐ Communication ☐ To-Do Card Number : Text Edit Status : MultipleChoice Edit Rationale : Text Edit	Members and individuals have membership cards. Their status can be managed via this custom field. Though it is not possible to move the record to another person. It is possible to export lists of all active cards.	**Currently not in use.**
Membership-SIP 3 FIELDS Attach to companies to show they are involved in the SIP programme. Automatically display this custom field set on every record of the following type(s): ☐ Person ☐ Company ☐ Communication ☐ To-Do Main contact name : Text Edit Open to receive interns : Yes or No Edit Summary of request : Text Edit	Members of MDBC can be interested in hosting Dutch interns in their organisation. Several files will be added to the organisation	

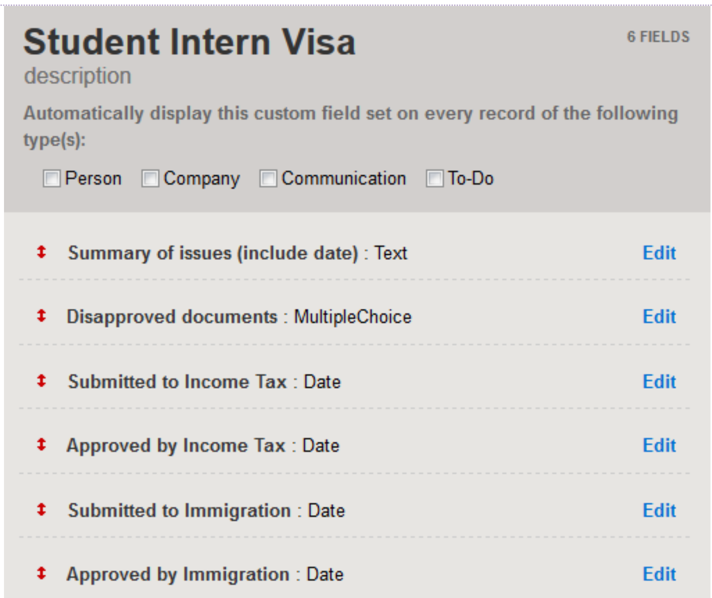


Similar record, but with information about a contact that is interested in becoming an intern, or has been an intern in a previous batch.

Smart lists can be used to create a list of students that yet have to be placed or to create lists of previous student interns. Including management information statistics.



After the application of a student to become an intern they must be placed by MDBC. For each placed student MDBC keeps a record of vital information for the delivered services upon arrival and/or communication between student and host-firm.



Each student-intern must have an internship visa. This is arranged by MDBC. Since issues have arisen in the past regarding the timeliness of the submissions and approvals this custom field can be used to document such information.

Smart lists can be used to generate throughput times for each visa.

Migration path to BatchBook

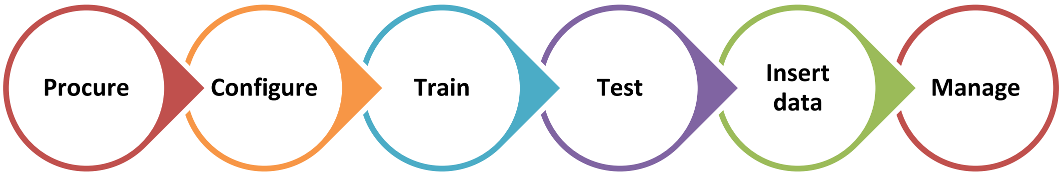


FIGURE 30: DIAGRAM SUMMARISING THE STEPS TO IMPLEMENT AND MIGRATE TOWARDS BATCHBOOK.

PROCUREMENT OF BATCHBOOK

Online subscription placed on credit-card.

INITIAL CONFIGURATION F BATCHBOOK

Cf. System design (see previous section).

INTRODUCE MDBC TO BATCHBOOK, DEMO FUNCTIONALITY, TRAIN EMPLOYEES

The initial demo and training will be done by the project leader, but subsequent training sessions will take place to learn new interns 'how to BatchBook'. The materials below can help you to structure these sessions.

1. Invite new employees to watch several videos of BatchBook online www.BatchBook.com. This shows them the basics of the system, allowing you to focus on the configuration specific elements during the demo.

2. Demo functionality basics of BatchBook via the steps below. Work from top to bottom.

FIGURE 31: CHART SUMMARISING THE OVERALL BASIC USE OF BATCHBOOK WITH MDBC'S CONFIGURATION. CAN BE USED FOR TRAINING PURPOSES.

Additionally you can also demo

- Membership cancellations
- SIP visa arrangements
- M4M card
- (Other custom fields)

3. Invite employees to use BatchBook. No better way of learning than by doing. If they have any questions colleagues can probably help them out.

TEST

Test and iterate the system, make changes when needed.

INSERT DATA

Once BatchBook has been delivered with the system design explained above, it is time to fill the system with data. They key to a successful migration is to transfer databases one at a time, and making certain the information in the system is up to date, correct and exhaustive. An overview of important information categories is shown in the table below. Each information type needs to be structured via the BatchBook import-template fields, and can then be imported into BatchBook.

Information type	In tab	Phase	Insertion remarks	Preparation and insertion by
Committee	Committee	C	(not inserted themselves, but must be inventoried)	Administrative
-- Committee Members	Contacts	C	As tags in Contacts	Administrative
Companies-Non-member	Companies	D	As companies First sort your existing sources and only insert those that are of relevance.	CM / ED

Companies-Members	Companies	A	As companies	Administrative
-- Barter agreement data	Companies	C	As a custom field (membership-barter)	CM / ED
Companies-Potential member	Companies	C	As a company with a "Potential" tag. Notes must be added summarizing the current status of the contact & an overview of historic contact.	Business Development
Companies-Previous member	Companies	C	As a company with a "Membership-cancellation" custom field. Especially fill in details on why the member has cancelled. Add a "Potential" tag to the company	Business Development With CM/ED
Companies-(Partner)Universities	Companies	A	As a company, with a "SIP-University" tag. Add the important files for visas to the company profile. Add notes describing current arrangements.	IC
Contacts at members	Contacts	A	See distinctions below	
-- Principal Contacts	Contacts	A	Add principal contacts. Link them as employees of the member. Add the "Mailing Preferences" custom field and enable the official mailings for this person.	Administrative
-- Personal Assistants (and spouses etc.)	Contacts	A	Add as associations to contacts	All
-- Other contacts	Contacts	D	First sort your existing sources and only insert those that are of relevance.	ED / CM
-- Interns	Contacts	E	Add "Student Internship Placement" custom field Add "Student Internship Application" custom field, fill in the Batch!	Internship intern
-- Previous interns	Contacts	E	See above	See above
Employees	Contacts / Users	A	MDBC employees should be added as users. Additional contact info should be added manually via the Contact interface	Administrative

TABLE 40: SUMMARISING THE SOURCE AND RESPONSIBLE ACTORS FOR DATA MIGRATION AND CONSISTENCY FOR THE INITIAL DATA MIGRATION.

Implicit knowledge to be added to Contacts & Firms

Whether the relationship is considered strong or weak, and is currently a 'warm contact' or a 'cold contact'.

Whether the relationship is a personal one (e.g. a MDBC employee knows an employee at the firm) or a professional one (MDBC and the firm have an (implicit) partnership).

Potential important previous interactions, deals and arrangements.

Knowledge to be added to Firms

The industrial sector in which they are active.

Issues to be expected with data insertion

Make sure you use the latest document & notify others in the organisation not to update that file!

Use the import template provided via e-mail and not the downloadable from the BatchBook site. If you do use the one from BatchBook make sure to remove all special symbols such as hash tags and apostrophes.

Currently tables are linked through human-readable links, and not machine identifiers (numbers/codes). Therefore you cannot import all data via a spread sheet. Information that you cannot place in the spread sheets fields, you can add to the "note" field in the appropriate row.

Each row in the spread sheet symbolises one record in the system, whereas in the current sheets –on occasion- multiple rows are used for one record. This is a sign that two or more separate sources of information have been combined in one document. You have to split these manually.

MANAGE
See the next section on managing the day-to-day operations.

Managing the day-to-day operations

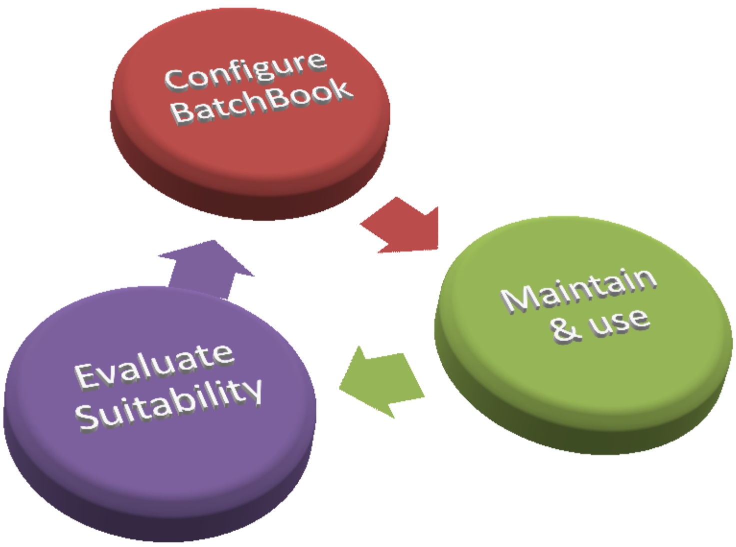


FIGURE 32: CONFIGURE, EVALUATE, USE, ITERATE. MANAGEMENT CYCLE FOR CONTINUALLY ALIGNING BATCHBOOK TO MDBC.

CONFIGURE BATCHBOOK
See the BatchBook system design for the first iteration field design for BatchBook. But feel free to update these fields when the need arises from the evaluations. And feel free to change BatchBook when your environment or value proposition changes.

MAINTAIN & USE BATCHBOOK
It is vital that the xRM remains up to date and complete. This is a task for all MDBC employees. Also revert to the risk section of this Business Case.

PERIODICALLY EVALUATE SUITABILITY OF BATCHBOOK
Take a moment once in a while to evaluate the alignment of BatchBook with your most important offerings. Are fields missing or in the wrong format? Are you inserting data that is never used? Are the saved searches still relevant? Do you use these saved searches or do you require new ones?

We advise MDBC to organise periodic evaluations sessions, and alter the system accordingly after each session. This keeps employees involved, motivated and in a positive attitudes.

Sub Appendix: Long-list to shortlist and the measures used

Generating the long list

Objectively there is no way to guarantee that our long list contains all relevant systems. Thus there is an inherit issue where we cannot guarantee that the short-listed systems are the best available in the market space. We have limited this liability by creating the long list from several other (to the sight seemingly separate) sources. These sources are:

Abbrev.	Description	Count
F:	Free search during the entire timeframe of the thesis, including the search terms from	
M:	MailChimp	
H:	Used in Questionnaire to disprove opposing hypothesis	
C:	Suggested by one of the case-study companies	
V:	http://www.vivalogo.com/vl-resources/web-based-crm-customer-contact-management.htm - Excluded everything with SFA focus based on their summary	
M:	All results from http://en.wikipedia.org/wiki/Membership_software	
I:	http://www.idealware.org/articles/fgt_ams.php	

TABLE 41: OVERVIEW OF SOURCES USED TO GENERATE THE LONG-LIST

All products in the above mentioned sources were screened prior to being added to the long list. Excluded products have not been documented, but can be retrieved by cross referencing our long list with the joined set of products available in the above sources. Products were excluded because they matched one or multiple of the following criteria

- There is not sufficient relevant information to be found about the product
  Given the available resources we cannot contact all vendors separately and ask them for quotations.
- The product is no longer available, will be terminated shortly, or has not been updated in several years
  MDBC requires a solution that is usable for prolonged amounts of time.
- The product is centred on workflows and workflow management solutions.
  MDBC is an organisation without the need for heavy business process support.

The result is a long list of 89 products and can be found in the "Potential Solutions Matrix"-spread sheet.

Filtering on functionality to create a short-list

The long list was evaluated based on the five Must-have dimensions as defined as priorities above. If one of these elements was absent, the product was disregarded and stripped from the list of suitable products. The most noteworthy reasons that disqualified many systems are:

- Systems support "contacts", but either as an individual or as a company. Yet MDBC requires maintaining a list of members consisting of individuals and members.
- When the system does support companies and individuals, many systems cannot manage the relations of other individuals working at a company.
- The system does not have a membership or contact-focus. MDBC's core asset is its network thus that should be the spine of the system. Thus, programs focussing on workflows or ERP systems focussing on business processes are not a proper fit and have been excluded.
- The system must be affordable: Under 800USD for maintaining a list of 1500 contacts with three separate users. These numbers are a rough estimate of the base requirements for MDBC.

Furthermore we excluded many membership systems because they did not support non-member contacts. And excluded many other membership systems because they did not support contacts within a firm. And excluded many membership systems because they focus on building website communities with paying subscribers to content ("members") – without contacts at each member-firm. Furthermore we excluded many SFA-focussed solutions as they do not provide proper membership functionality, event management, customisable contacts and accounts. If the solution is fully SFA (pipeline, campaigns, ..)-oriented, the accounts&contacts section is snowed under while this is our most important element.

When in doubt we looked at the potential of the system in extras such as integration possibilities with Mass-mailing software, preferably MailChimp. And if contacts and companies are integratable with their social media accounts. 19 systems passed the filters up to this point.

MORE DETAIL IN THE SHORT LIST ANALYSIS

Only of systems passing the previous steps were added to the short list further investigated based on the should-have and could-have criteria. For each of the must-have and should-have criteria we added sub measures.

- For contacts/companies we checked if there are advanced searching and filtering possibilities and if we can aggregate information stored in the system into management information.
- For internships we measure if we can track the process per traineeship with cases, if we can track documents related to the visa application and if we can track interns per batch.
- For events we measure if we can administrate event registrations by individuals, if we can export visitor lists and if we can aggregate event registrations to management information.
- For memberships we researched how we can manage the membership details, if we can administrate premium partnership agreement details, if there is membership-contract management and if we can administrate Member-4-member cards. Note that the card program is currently inactive and of less importance.

Furthermore, aligned with these elements but more directly related to the goal of office automation:

- Can we create mail lists for the MDBC Magazine?
- Can we create e-mail lists for e-updates and event invites?
- Can we make member exports?

For the could haves:

- Includes a financial function?
- Interaction, focus of the system, not measured in the short list analysis
- Tasks, if available these are discussed under extra's as they are not related to the organisation.

And we added several quality criteria

- Pricing as advertised
- Usability of the application
- Privacy promises
- Service Level Agreements

Each of the 19 systems was compared on the above dimensions. The details of this multi-criteria analysis comparison can be found in the "Short List Solution Matrix" –spread sheet.

Sub appendix: Detailed description of pros and cons of the shortlisted products

Each subsection below describes one of the shortlisted products in more detail. We start with the product given the lowest score (based upon the multi criteria analysis) and work up to the highest scoring product: BatchBook.

For each product we will describe its suitability for handing

- internships
- events
- memberships
- contacts & organisational details
- office automation tasks (potential)
- pricing

For more information about why we chose these subdivisions and what is included and excluded in the scope, please take a look at: *Figure 24: Overview of SuD inclusions and exclusions based on Offerings. Green elements are included whereas Red elements are excluded. Orange elements are excluded, but would be regarded beneficial if also present.*

BigContacts

Internships:	BigContacts does not offer support to group multiple contacts together in a 'case' or 'group'. But we can tag a contact being an intern. Tags are simple plain text tags, so we cannot embed extra details in the tag. Such we cannot track the batch number of a student, or we must accept that all contacts can be given a "Batch". We can upload and attach files to contacts and companies, thus keeping track of all visa and immigration documents should not be an issue.
Events:	BigContacts does not offer event organising functions.
Memberships:	Memberships can be managed via BigContacts via custom fields. But that means that the fields will state "not a member" at all non-member contacts. With custom fields we can also track premium partner sponsor agreements and contracts, again then the fields will be present for all contacts. Lastly, BigContacts can support Member-4-member-cards, with the same flaw.
Contacts & Corporations:	We cannot freely search the contents of notes attached to contacts and organisations. Limiting the flexibility and potentially resulting in an overflow of tags added to each entity. No aggregated batch-operations are available.
Office automation	Via customised reporting and exporting we can generate mail lists, e-mail lists, member lists etcetera. But the functionality is limited. No finance tasks are handled by the system.
Pricing:	US$ 39,00 a month for the team version with 3 users

TimeToNote

Internships:	All actors involved with an internship can be grouped in a 'Project'. To a project notes with attached files can be added, including but not limited to the files for the intern visa. Batches can be added as text in the project title and can be found via search.
Events:	TimeToNote does not offer event organising functions.
Memberships:	Memberships can be managed via Tags but all details would have to be added via free text, severely limiting the data as the notes cannot be searched.
Contacts & Corporations:	There is a distinction between organisations and companies. No full text search for notes.
Office automation	Very limited support to create mail and e-mail lists. It is possible to export member lists. No finance tasks are handled by the system.
Pricing:	US$ 190,00 per year

WorkEtc

Internships:	Internships can be grouped by adding them to 'customer care tickets' though that works counterintuitive. Files can be added to these tickets. Batch information can be added but only via smart lists which also seem to take some time to learn.
Events:	Events can be managed within WorkEtc, but we were unable to find buttons for exporting the registration list.
Memberships:	Memberships can be managed by adding custom fields to all contacts. Same goes for all details; these will be visible even for non-member contacts, cluttering the interface.

Contacts & Corporations:	Searching contacts and organisations is possible but once again fairly complicated. Aggregated overviews such as 'see who works at this company' is not visible by default.
Office automation	Mail and e-mail lists can be easily generated. No finance tasks are handled by the system.
Pricing:	US$ 78,00 per month for two users

Capsule CRM

Internships:	The actors can be grouped via 'cases', files can be added to 'notes' which can be added to the case. Advanced 'data tags' can be configured to include extra information such as to which batch the internship belongs.
Events:	Events cannot be managed, but the data tags might be just-sufficient to manage event registrations. This will clutter the interface.
Memberships:	Memberships can be managed by using data tags; however, the data stored in the data tag is not easily visible. Such a user is unable to easily see a members' membership type. Contracts can be added to members. Managing M4M-cards can be done with data tags, but once again the interface is not perfectly suited for this task.
Contacts & Corporations:	We cannot full text search notes nor can we select members with one tag OR another. Only AND searches are supported. There is an aggregated view showing all interaction for employees of a company.
Office automation	Due to the missing "OR" search functionality the exporting functions are severely limited.
Pricing:	US$ 144,00 per user. Up to 50K contacts and 2GB of files are supported.

Highrise HQ

Internships:	Actors can be grouped together using 'cases'. Files can be added to notes which can be added to the case. Batches can be documented by adding tags, but this is not ideal.
Events:	Events and event registrations cannot be properly documented and exported.
Memberships:	Memberships can be managed as tags, but premium partnerships and Membership cards cannot be properly documented. Contracts can be added by adding custom fields (of the file-type) to a contact. This is perhaps nicer then adding them to notes (see the above alternatives) as now you can specify types of files to attach and filter them with more ease.
Contacts & Corporations:	Searching is severely limited by the absence of an OR-operator. There is a good aggregated view showing all activity related to all employees working at a company.
Office automation	Exporting mail and e-mail lists is limited by the missing OR-operator, but further the exporting functions are proper.
Pricing:	US$ 288,00 for 6 users with 5GB storage; 5000 contacts and 10 concurrent projects.

BatchBook – Advised system

Internships:	Actors of an internship can be grouped in two ways: By adding them to a 'communication', or by linking them together as an 'associate'. It is possible to add files to both, and it is possible to add batch information to interns and internships via custom fields. With ease, this system offers the most flexible approach for internships as the custom-data-tags can be added only to interns and can hold more information.
Events:	Event registrations could be administrated with custom tags but this would clutter the interface. It is also possible to (after the event) add a note to all participants via a batch-update and then delete the tags. This however reduces the semantic information in the program, which is a pity. Compared to the other alternatives BatchBook handles events just as 'average' or maybe even slightly less bad as the others.
Memberships:	Yes. Very good, with all details without cluttering the interface for non-member contacts.
Contacts & Corporations:	The filtering and smart-lists are perfect, but it would improve if one could do full text searches on notes added to contacts, organisations and cases. There is no aggregated view of all personnel working at an organisation, but the interface does suffice.
Office automation	Does its job when asked to export mail and e-mail lists or membership overviews. Small learning curve to make smart lists and how to export to excel. Plus, all exports are logged – such that misuse can be spotted.
Pricing:	US$ 240,00 for up to 2000 contacts and 5GB of files.

Appendix IX. About MDBC

Bilateral trade, and trade organisations

For the remainder of this thesis we will use the following definitions regarding bilateral trade organisations:

Bilateral trade: *The exchange of goods between two countries.* (Investopedia)

Bilateral trade agreement: *An agreement between countries to give preference to certain countries in commercial relationships, facilitating trade and investment between the home country and the foreign country by reducing or eliminating tariffs, import quotas, export restraints and other trade barriers. Bilateral trade agreements can also help minimize trade deficits.* (Investopedia)

Trade organisation: *An organization that represents the interests of the member firms of an industry* (Entrepreneur)

Bilateral trade organisation: *An organisation that facilitates member firms with trade and investment between its home country and a foreign (group of) countries and represents the interests of the member firms.*

(Clark, 2002) classified the differences between several types of ***collective business systems for a US patent***: Trade Associations, Cooperatives, Franchises and for-profit Hub Business Entities (HBE's).

	Trade Association	Cooperative	Franchise	Hub Business Entity
Profitability	Non-profit	Non-profit	For-profit	For-profit
Description	Members are engaged in common business pursuit	Members cooperate, often on one facet of operations	Franchisees (members) offers proprietary products or services of the franchiser	Members are engaged in a common field of endeavour, jointly undertaking (part of) the front office and back office tasks.
Income	Annual fees Initiation fee	Members have equity interest. Overhead costs can be embedded in price of resold goods	(Annual) fee to become franchisee Percentage of business concluded goes to franchiser	Liquid asset base
Member criteria	Any applicant meeting membership standards must be accepted	Any applicant meeting membership standards must be accepted	Can be limited to create exclusive trade territories	Can be limited to create exclusive trade territories
Offerings often include	Group purchasing plans Discussion platforms Marketing materials Education programs	Create benefits of scale, lower costs by joint programs	Franchiser offers marketing support: Trademarks, copyrighted materials Franchisee are subject to control by franchiser	Premium business support mechanisms (on an out-source level) A nationally recognisable brand name

TABLE 42: (CLARK, 2002)'S SUMMARY OF COLLECTIVE BUSINESS SYSTEMS

The non-profit alternatives described are (a) the trade organisation and (b) a cooperative. Trade organisations focus on members that pursuit (mainly) business development whereas cooperatives often focus on only one facet (e.g. HR talent attraction, or procurement of scares raw materials). Both organisation types must limit their practises to comply with national and regional pro competition legislation. Adherence to these laws is policed by national and regional competition authorities[3].

[3] Competition law and Anti-monopoly law is similar between The Netherlands (Europe) and Malaysia since Jan 1st 2012. *See Appendix I > Competition law and Anti-monopoly law-section (page 99).*

The Malaysian Dutch Business Council (as of Feb. 2013)

"The Malaysian Dutch Business Council (MDBC) helps to forge and foster business ties between Malaysia and The Netherlands. The broader aim of the Council is to further facilitate investment by Dutch and Malaysian companies in each other's countries and to increase trade opportunities." (MDBC, Business Directory, 2010-2011, p. 6). MDBC is a non-commercial private (i.e. non-governmental) ***bilateral trade organisation***. The Board of Directors is the highest power within the organisation but is mostly active on strategic issues. The day to day operations are managed by Mr. M. Winter, and executed by 3 employees and 2 or 3 interns. The organisation currently consists of a little over 200 members.

The MDBC member companies pay a yearly subscription-fee and are allowed free access to all MDBC events; receive all information MDBC publishes and can use other services provided by MDBC. MDBC classifies its main activities into three categories:

- Information
- Representation
- Networking

Information is provided one-way through information events and updates in the MDBC Business Directory, its magazine and the occasional e-mail. Information is shared between members through member-for-member events and specialised theme information forums. MDBCs members are ***represented*** by MDBC by its attendance at many corporate and (semi-)governmental forums, functions and through its contacts with influential actors. ***Networking*** and business development activities are supported by embedding network moments (e.g. cocktail receptions) to the hosted events)[4].

Since 2004 MDBC offers Dutch interns to their member companies. To support this offering MDBC has expanded its network to include contacts with several Dutch colleges of applied science (HBO – in the Dutch system). Last year they placed over a 100 students in internship vacancies at their member firms.

To support its information, representation, networking and internship activities MDBC maintains a large network with external actors.

Theory (Clark, 2002) also sees MDBC as a trade association

Within MDBC we find that it indeed best matches the trade association criteria:

- MDBC is a non-profit organisation;
- Its members are engaged in a common business pursuit: namely expanding business and/or moving operations to the Asia-Pacific region trough Malaysia (or to Europe through The Netherlands);
- MDBCs income is mainly an annual fee, however some activities do require a surcharge;
- Any applicant meeting membership standards (a clear link with both Malaysia and The Netherlands) is an acceptable membership candidate;
- If offerings include
  - Group purchasing plans — E.g. the member-4-member card
  - Discussion platforms — E.g. the annual forum on HR practices in Malaysia and APEC
  - Marketing materials — E.g. floor space on international trade expo
  - Education programs — E.g. internships to support business operations.

We must note however, that the engagement in a common business pursuit must be defined in a broad way, as the trade organisation focusses on mitigating the geographical distance between Malaysia and The Netherlands and does not focus on a specific industry or economic sector.

MDBC versus Chambers of Commerce and the Embassy of the Kingdom of The Netherlands in Malaysia

MDBC is a neutral non-governmental non-commercial association of member firms. Its offerings align with several offerings the Dutch Embassy provides as well. However, there are several differences between the two[5]. First off, the Dutch Embassy is not neutral where MDBC can be. The embassy must always weigh national and commercial interests, whereas MDBC will only represent its member's interests. Secondly, MDBC tends to inform members on more

[4] The given list of MDBCs offerings is not exhaustive and merely functions to sketch an outline of MDBCs activities.
[5] Cf. Meeting with vice-chairman of the board of directors, in week 38.

specific topics than the Embassy. Thirdly, the Embassy is available for all companies. MDBC only tenders to its member's needs.

When comparing MDBC to other bilateral trade organisations we see that some are an extension of a governmental chamber of commerce (e.g. Indonesia-Dutch chamber of commerce) where the ministry of foreign affairs will subsidise the work done by the association. MDBC is not subsidised or related to a chamber of commerce, but does occasionally organise events in co-operation with the Embassy.

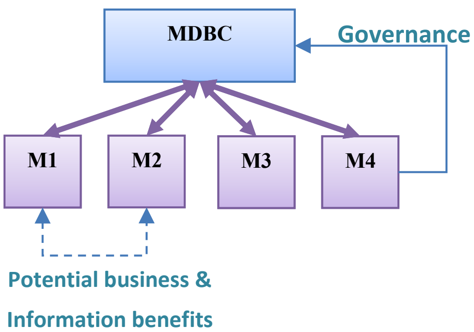
Apart from the Dutch Embassy and MDBC there is also a European Malaysia Chamber of Commerce and Industry (EUMCCI). All MDBC members are members of EUMCCI via an arrangement between both institutions. The EUMCCI provides information sessions –mostly about policies between governments- specified per industry, and focusses less on networking than would MDBC. The Malaysian Dutch Business Council's executive director has a seat in the Board of Directors (EU-MCCI).

Dimension	MDBC	Dutch Embassy (1)	Indonesia-Dutch CoC (2)	EUMCCI (3)
Type	Trade-association	Embassy	Trade-association	Umbrella association
Funding by	Annual membership fee Event surcharges Corporate partnerships	By the Dutch Government	Annual Fee And funded by The Netherlands Foreign Trade Agency (EVD)	Projects Event surcharges Annual membership fee Corporate partnerships
Between Malaysia and	The Netherlands	The Netherlands	The Netherlands Belgium Luxembourg	All EU Member states
Members	Malaysian and Dutch members	All Dutch companies	Indonesian and Benelux members	Malaysian and EU members.
Priority	Member interest	State interest	Member interest	Member interest

(1) Embassy of the Kingdom of The Netherlands in Kuala Lumpur-Malaysia
(2) Indonesian-Netherlands Association: The Indonesian Benelux Chamber of Commerce
(3) EU-Malaysia Chamber of Commerce and Industry (former European Union Business Council)

TABLE 43: OVERVIEW OF DIFFERENCES BETWEEN MDBC AND ALTERNATIVE TRADE INSTITUTIONS

ASSOCIATION-LIKE GOVERNANCE



MDBC has over 200 members. These members have a vote at the Annual General Member Assembly. The members appoint the Board of Directors (BoD). The BoD forms the governance guidelines, and a subset of the BoD forms the daily board of MDBC. The BoD will be explained in more detail in the next subsection.

There are no other parties with a position of influence or power over MDBC then its members. It is a financially privately sustained undertaking.

ORGANISATIONAL CHART

As (Mintzberg, 1981) describes each company consists of five basic parts; (i) Top management, (ii) middle management, (iii) administrative support staff, (iv) technical support staff and (v) a technical core. The organisational chart of MDBC shows a similar structure.

Top management ≡ Board of Directors (BoD)

Middle management ≡ M. Winter

Technical support staff ≡ Marketing by internal employees

Business Development by intern and BoD

Administrative support staff ≡ **Secretariat**

Technical core ≡ The other employees and interns.

TABLE 44: MAPPING OF THE ORGANISATIONAL CHART TO THE FIVE BASIC PARTS OF AN ORGANISATION AS PROPOSED BY (MINTZBERG, 1981)

Technical support staff "helps the organi[s]ation adapt to the environment," such as innovation and market research (Daft, 2007, p. 16). Whereas the Administrative support function "is responsible for the smooth operation and upkeep of the organi[s]ation," including HR and maintenance activities (Daft, 2007, p. 16). Within MDBC we see that several maintenance activities are outsourced. Cleaning and catering is supplied via building management. IT maintenance is done by one of the members on a voluntary basis; however there are concrete plans to change this arrangement[6]. MDBC does have a secretary to support all employees.

Based on several meetings we find the following organisational chart for the Malaysian Dutch Business Council:

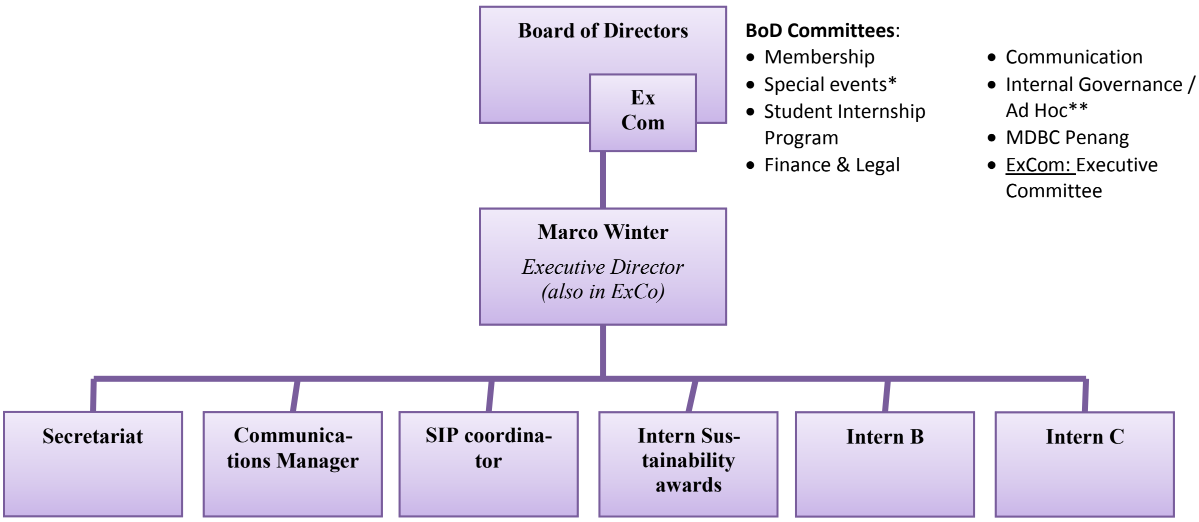


FIGURE 33: ORGANISATIONAL CHART OF THE MALAYSIAN DUTCH BUSINESS COUNCIL[7]

The Board of Directors consists of 13 members (MDBC, MDBC Board of Directors), and includes a chairman, vice chairman, treasurer, executive director and honorary board member, His Excellency, Ambassador of The Netherlands Mr. Paul Bekkers. The board-members can be active in one or several strategic advice committees. But also non-board-members are allowed to participate in these committees.. The board has formed an Executive-Committee (Ex-Co) to govern the organisation. Day-to-day operations are managed by the Executive Director.

This form ensures enough power is available for most operational decisions efficiently. For tactical decisions the Ex-Com must be involved, who meet regularly. For large (strategic) decisions the entire board must be involved, who meet periodically. The rules and mandates are formalised in the employee handbook.

EMPLOYEE REPLACEMENT TRAINING

Training internal staff currently takes approximately two weeks on the job (estimate). Of course, getting to know the members and all other relevant contacts takes quite a bit longer.

SHORT HISTORY

[6] One of the members is currently involved in maintaining IT systems including e-mail, file storage and backups and the MDBC website. As his workload is increasing he wishes to lower efforts maintaining MDBCs infrastructure, in turn MDBC has agreed to search for alternatives.

[7] Based on the input of M. Winter during the week-37 meeting; R. Koster in the week-38 meeting; and validated with M. Winter during the week-41 meeting.

* Special Events, this committee is in cooperation with the Embassy

** Internal Governance / Add Hoc committee, was involved with creating a 'handbook' with internal governance rules. And also looked for conflict of interest subjects. Most likely this committee will be terminated shortly.

	1996	MDBC was founded
1996 -	2003	Several expat partners (in a row) led MDBC, but quit once their other half had to relocate.
	2003	Marco Winter was asked to lead MDBC as Executive Director
	2004	First intern started at MDBC, soon the Student Internship Program started
	2009	Introduction of the MDBC Card, giving members discount at other member firms
	2010	MDBC member count exceeded 200
		The MDBC Penang Chapter was launched
		MDBC and the Embassy of the Kingdom of The Netherlands signed a **Memorandum of Understanding** to minimise overlapping activities and encourage cooperation and complementarities[8]
	2011	MDBC organises the Sustainability awards for the first time, should become a yearly event
	2012	MDBC Student Internship Program placed a 100 students at member firms
		MDBC Staff increases to 4 employees and 3 interns

FACTS AND FIGURES ABOUT MDBC

MDBC has

Members in 2012:	239	**Status:**	Private / Non-governmental Non-commercial
Number of events:	Approximately 42 per year[9]	**Founded:**	1996
Members:	Must have a link with M'asia and The Netherlands.	**Business model:**	Non-profit Subscription Business Model[10]
		No. staff:	4 (approx. 3FTE) + 3 interns

MEMBER COUNT GREW TO 200+ IN 2012

Late 2003 MDBC had 40 members. At the end of 2010 MDBC had about 200 members[11]. Between 2007 and 2012 on average about 20 companies left the business council per year. Exact growth digits are unknown but there are several old member databases. These databases, together with insights provided by the Executive Director we can sketch the following image of MDBCs member count history. Only the end-year total can be regarded as correct and therefore we have omitted the number of membership-cancellations and new-member enrolments.

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
End year total	~~107~~ **40**	~~108~~ **?**	~~100~~ **?**	129	161	180	141	~~214~~ **200+**	239	**239**

TABLE 45: OVERVIEW OF MDBC'S MEMBER COUNT. ILLUSTRATION PURPOSES ONLY AS ALL DIGITS ARE ESTIMATIONS[12]

CONTACT TURNOVER RATE AROUND 15%

Each year about 10 to 20% of all local contacts switch jobs or positions. MDBC usually has one or several main contact persons within the organisation. If these people leave the organisation it has a great impact on the relationship between MDBC and the contact's firm. The main contact turnover rate is lower than the overall contact turnover rate.

8 This is a one of a kind agreement in the world, cf. the week 41 meeting with the Executive Director

9 42 / year (2009, cf. (MDBC, Business Directory, 2010-2011));

10 Members pay a yearly subscription fee ("dues"), which gives the right to unlimited use of MDBC's offered services. The subscription must be renewed each January, paying the dues upfront for the entire year. In some cases members must reimburse endured costs by MDBC for their 2th till nth participant.
MDBC is a not-for-profit organisation. Its members form a Collective Business Network as described in the patent of for-profit collective business systems (Clark, 2002, p. 7).

11 Based on Week 39 meeting with the Executive Director

12 Strikethrough numbers are disregarded due to lack of trustworthiness. Bold digits were supplied by the Executive Director. Other numbers are based upon an analysis of several versions of the membership database. These numbers might not be entirely accurate, but give a good impression of the development of MDBC's member count.

Within member firms Dutch expats turnover each 3 to 4 years. A factual analysis of contact turnover rate is was not possible.

STUDENT INTERNSHIP PROGRAM GROW TO 100 PLACEMENTS IN 2012

The student internship program started in 2004. Since then 346 students have been placed at one of MDBC's members and for another 31 Dutch students MDBC arranged only their visa. Data based on internal documentation as prepared by the Internship coordinator ("Total MDBC Students").

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Term 1	-	1	10	3	11+3	13+1	16+2	33+4	32+1	53+2
Term 2	-	2	4	6	4+1	6	2	6+2	7	46+9
Term 3	-	-	-	-	4	12+1	15+1	25+4	34	-
End year total	**0**	**3**	**14**	**9**	**33**	**33**	**36**	**74**	**74**	**110**

TABLE 46: STUDENT INTERNSHIPS GROWTH DIGITS[13]. PROGRAM STARTED IN 2004 AND REACHED A 100+ PLACEMENTS IN 2012.

MEMBERSHIP TYPES

Companies can choose to become a member of MDBC and fall in one of three different types of membership categories, distinctive only by the companies 'paid up capital'. A fourth membership category exists for companies that are not based within the Klang Valley area (greater Kuala Lumpur area) but is located within Malaysia and/or The Netherlands. For individuals there is a fifth category (MDBC, Membership Categories). All member types have one vote during Annual General Meeting (AGM).

Gold membership

Paid up capital: above 10M RM

Appoint up to: 4 representatives

Silver membership

Paid up capital: 1M to 10M RM

Appoint up to: 3 representatives

Orange membership

Paid up capital: <1M RM

Appoint up to: 2 representatives

Outstation membership

For companies without an office in Klang Valley area (Greater Kuala Lumpur area).

Individual membership

For people without corporate representation.

Premium partner status

Partners that support MDBC activities

TABLE 47: OVERVIEW OF MEMBERSHIP CATEGORIES AS SPECIFIED IN (MDBC, MEMBERSHIP CATEGORIES).

MDBC as an intermediary in a market with imperfections

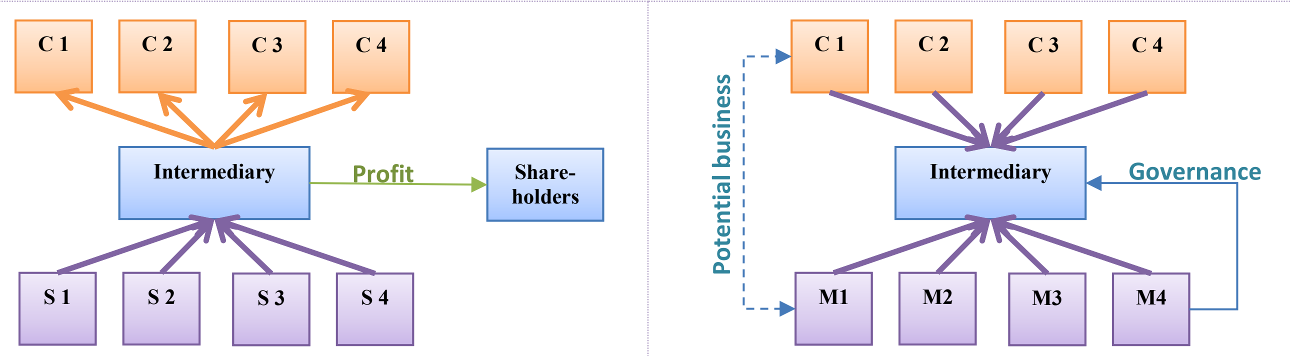
An intermediary is an organisation that mediates between buyers and sellers within a market with imperfections (Rose, 1999, p. 46) thus increasing market efficiency. The overhead generated by the mediation is called *transaction cost*. Intermediation is only advantageous if the transaction costs are lower than the value added through the intermediation (Rose, 1999, p. 46). Rose, gives the following definition of intermediaries and intermediation:

Intermediary: *"An intermediary is an independent, profit-maximizing economic agent mediating between two market sides in presence of market imperfections."* (Rose, 1999, p. 51)

[13] Be advised, the numbers are exploratory only and might deviate slightly from official counts.

Intermediation: *"Intermediation is the bridging the incompatibilities between the two (market) sides involved in a transaction by transformation of output attributes of the supply market side to appropriate input attributes of the demand market side."* (Rose, 1999, p. 51)

In the definition of an intermediary as given by Rose we see a focus on commercial for-profit intermediaries. We argue that (Rose)'s information regarding intermediaries is also applicable for non-profit intermediaries as they still generate value. For example an intermediary governed as an association by its members: The added value of intermediaries is the reduction of transaction costs occurring in the exchange of goods. Thus the gains of intermediaries must be interpreted as *'savings of economic resources'* resulting from the intermediation/coordination (Rose, 1999, p. 58). This is the added value of the intermediary and the saving of the linked entities. The concept does not change if the intermediary is either for-profit or non-profit:



Exchange function intermediary solving a market imperfection (linking Suppliers to Customers), profiting Shareholders.

Coordinating intermediary (linking Members to Contacts). Member-governed **non-profit** intermediary. Offers added value to the participants.

FIGURE 34: TWO EXAMPLES OF AN INTERMEDIARY ILLUSTRATING TWO DIMENSIONS: (A) EXCHANGE VS. COORDINATION TRANSACTION, (B) FOR-PROFIT VS. NON-PROFIT INTERMEDIATION

MDBC LOWERS TRANSACTION COSTS FOR ITS MEMBERS

A transaction can be either an exchange (redistribution of goods) or coordinative (coordination of activities) in nature and consists of several successive phases that are accompanied with specific costs (Rose, 1999, pp. 54-55):

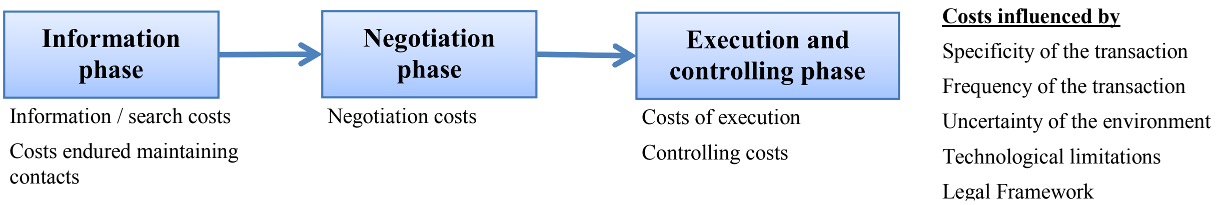


FIGURE 35: THREE PHASES IN A TRANSACTION – AND ENDURED COSTS AS DESCRIBED BY (ROSE, 1999, PP. 54-55).

According to (Rose) (cf. Gümbel) there are three structural *'principles of transactions'* that intermediation can exploit to reduce transaction costs (Rose, 1999, pp. 59-62) and four *functional* services in which transaction costs can be lowered. Exploitation of the structural principles does require asset specific investments. We found MDBC aims to lower transaction costs via (based on ***Appendix V***):

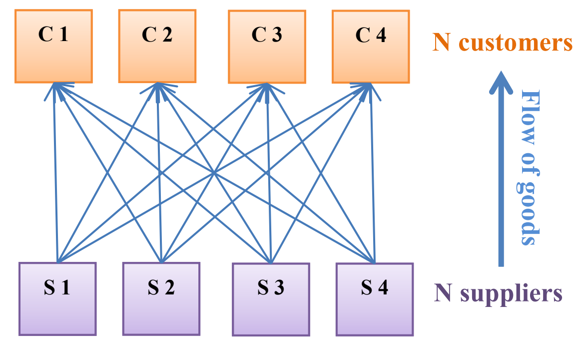
Structural sources:

1) **MDBC exploiting economies of scale concerning contract volumes** – for nation/sector-wide promotion. Lowering Coordination costs and Transaction execution costs.
2) **MDBC offering benefits of scale concerning transaction frequency** – for e.g. for internship visa approvals. Lowering Coordination costs and Transaction execution costs.
3) **Utilisation of the Baligh-Richartz effect**. MDBC has created and is managing a business network, lowering the joint contract costs and other costs related to maintaining business relations. (More details about this effect follow below).

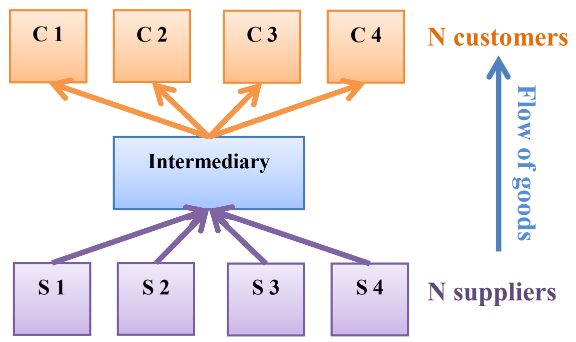
Functional sources:

4) **MDBC as a matchmaker (searching & matching)** for networking, business development, local services&contracts. Reducing Search cost and Opportunity costs of time[14]
5) **MDBC as an information channel** - by supplying information benefits (Direct sale of information). Lowering Search cost.
6) **MDBC as a "contractor" intermediary** – offering discounts between members. But more importantly to improve its power position.
7) **Contracting MDBC exploiting its (combined) bargaining power** to represent the interests of members. Lowering negotiation & lobby costs.
8) **MDBC as a monitoring and guaranteeing** service providers (local contractors and/or those supplying information benefits). Lowering Information costs, Costs resulting from uncertainty, Investments in expertise.

Please refer to Rose for background information regarding the sources of reduction. We will illustrate the **Baligh-Richartz effect** in the following section. Reducing the number of contacts necessary between suppliers and customers in a market lowers costs for both customer and supplier. The number of relationships between n consumers and m suppliers decreases from n*m to n+m due to intermediation, as is illustrated below.



Without mediation, high number of contacts.



With intermediation, lowering costs to maintain connections.

FIGURE 36: 'THE REDUCTION OF NECESSARY CONTACTS THROUGH INTERMEDIATION (BALIGH-RICHARTZ EFFECT)' – CF. GÜMBEL AND (ROSE, 1999, PP. 60 - FIGURE 8)

MDBC in a 'Stable' and complex environment

Daft (2007, p. 17) suggests that to understand an organisation one must examine both the contextual and structural dimensions. He suggests using the dimensions as researched by (Pugh, Hickson, C.R., & Turner, 1968).[15]. Strategically, MDBC aims to be a non-profit organisation that forms a bridge between The Netherlands and Malaysia for companies. The organisation has a western office culture, but interacts with Malay businesses which are less punctual.

MDBC is ***an informal organisation*** with little documentation about procedures, manuals and job descriptions. Its employees have ***empowered roles***, with little specialisation to single tasks. To facilitate these empowered roles there is a ***broad span of control***, but mayor decisions must be backed by multiple members of the Board of Directors. Currently, there is ***low organisational technology*** as there are few tools used in day to day operations.

We would categorise MDBC's environment as stable and complex[16].

[14] Opportunity costs of time: is "the reduction of buyer's and seller's waiting time for a transaction" (Rose, 1999, p. 63).
[15] Note that Daft used different titles for the dimensions compared to (Pugh, Hickson, C.R., & Turner, 1968, p. 89). The structural dimension 'centralization', 'professionalism' and 'personnel ratios' not discussed as we believe the organisation is too small for analysis. The contextual dimensions 'goals and strategy' and 'organisational culture' will also not be discussed. There are no official documents stating this information and it is of little relevance to the thesis.
MDBC organisation size and environment horizon are discussed in separate sections.
[16] Based on the 'Framework for Assessing Uncertainty' as shown in (Daft, 2007, p. 58). It shows the dimensions Environmental change (stable/unstable) versus Environmental complexity (simple/complex). Daft has adapted and reprinted the model from R.B. Duncan.

- ***Stable*** as the relation with elements in the environment is robust. Entities in the environment of an organisation reflect an organisation and not an individual. Since 2003, MDBCs number of relationships has increased. In effect lowering the risk that the relationship with a company changes dramatically if a single contact within that firm changes position or job[17].
- ***Complex*** as the number of external elements that are relevant to MDBCs operations is high and their dissimilarity is great: For example the Ambassador of The Kingdom of The Netherlands versus a private self-employed cultural coach.

' STABLE' ENVIRONMENT DISCREPANCY EXPLAINED

The view of a stable environment does not correspond to other observations stated above. According to the Contingency Framework for Environmental Uncertainty and Organizational Responses as proposed by (Daft, 2007, p. 67) within MDBC we should see (freely cited from (Daft, 2007, p. 67));

- A mechanic structure; formal and centralized
- Many departments, some boundary spanning
- Few integrating roles
- Some planning; moderate-speed response.

Yet, if we see MDBC within an unstable environment the framework prescribes aspects that mimic the informal organisation with empowered roles and a broad span of control, as deduced earlier. We also classified MDBC as an organisation with extensive boundary spanning: Boundary spanning concerns linking and coordinating an organisation with key elements in its environment. It is largely concerned with (1) generating information about changes in the environment and (2) sending out information that presents the organisation in a favourable light.

Freely cited from (Daft, 2007, p. 67), the predicted characteristics for organisations in unstable and complex environments:

- An organic structure with teamwork; participative employees and a decentralized structure
- Many differentiated departments, extensive **boundary spanning**
- Many integrating roles
- Extensive planning, forecasting; high-speed response

We explain this discrepancy between stable versus unstable, by referencing to the past and by noting that the framework itself does not provide a threshold to decide if an organisation is stable or unstable. Therefore it is a matter of interpretation of the author. MDBC's environment has become more stable in the past decade but its environment does change more rapidly than –for example- a business network of Dutch Universities. We must therefore acknowledge one of the following: Either that regarding academic theory is concerned, MDBCs network is unstable. Or alternatively, that the current working culture of MDBC conflicts with the used framework – possibly influenced by the small size of the organisation itself. We assume the latter is true.

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17 This reasoning is the end-result of a discussion that took place during the week 41 meeting with the Executive Director. Considering the facts, expats are leaving after 3-4 year terms, every year multiple companies join and leave MDBC, and locals grow within their organisation or change jobs. All suggesting an unstable environment. However, since 2003 the environment has become increasingly more stable. Therefore choosing to see MDBC as such.