

UNIVERSITY OF TWENTE.

Faculty

Management and Governance

Supervisor

Dr. Ehrenhard, M.L.

Second Reader

Dr. Wijnhoven, A.B.J.M.

Anonymised

Software Requirements for Municipal Engagement

Topic

The identification of stakeholder engagement functionality requirements from municipalities for implementation into project and portfolio management software.

Author

Rolf de Jong

Programme

Bachelor Industrial Engineering and Management

Student number

s0210641

Email

r.dejong-2@student.utwente.nl

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Preface

In today's information-rich world, people are accustomed to getting all the information they want instantly, and expressing their concern in any way that suits them. This makes that stakeholder engagement is becoming incredibly important, since an informed and heard customer is probably a happy one. So for me, getting to dive into the quickly developing field of stakeholder engagement was a rewarding opportunity.

Even more so, because I could combine it with two other areas that interest me: Cutting-edge project management software and the large, complex customer-centric organizations called Dutch municipalities. For this assignment, I got to work with highly creative, entrepreneurial people, who taught me how to be goal-oriented and pragmatic. And that is a good thing, since at the time of commencing this research I was a fairly annoying perfectionist. I looked at the details, but forgot to focus on the big picture. Unsurprisingly, this attitude made that this assignment took a bit longer to complete than the usual 10 weeks. It was however one of the most rewarding and educative times of my life.

I want to thank everyone who guided me in this assignment, the municipal employees who so cooperatively and enthusiastically provided their insights, my friends and girlfriend who stood by me when things got tough, and my family who gave me the energy and optimism to continue getting the most out this experience.

And of course I want to thank you, the reader, for allowing me to share my thoughts and findings with you through this bachelor's thesis. Because I now know that getting your attention is the most valuable privilege in today's information-rich world.

Enschede,
November 25th

A handwritten signature in black ink, appearing to be 'Rolf de Jong', written in a cursive style. A long, thin diagonal line extends from the top right of the signature towards the top right corner of the page.

Rolf de Jong

Management summary

Dutch municipalities nowadays face a number of challenging trends. Firstly, youth care, additional care for disabled residents and stimulating participation by helping disabled individuals in getting a job are becoming municipal concern instead of state or province concerns. Second, the government aims to become more 'customer oriented'. In coping with these changes, municipalities digitalize their front- and back offices to become more efficient, while municipal partnerships and mergers help smaller municipalities cope with the increased workload. These trends may present opportunities for new stakeholder engagement functionality in Project Portfolio Management (PPM) software. To research this, the following question is central:

Research question: "What requirements do municipal project employees have for stakeholder engagement functionality in PPM software?"

Six municipal employees involved in project management and communication at six distinct municipalities have been interviewed and the findings have been processed using the framework of requirements engineering. Chapter 4 answers the research question in depth. The key findings are:

- The importance of stakeholder engagement for municipal projects is increasing.
- Municipalities use communication planning as an increasingly important part of project planning.
- Support for existing external communication channels is deemed sufficient in general. There are however unique opportunities for creating new external communication channels using the information that is stored in PPM software, such as an external project website that automatically displays current project information.
- Support for basic internal communication and collaboration functions, such as task lists, document management and calendaring, is desired in municipalities of all sizes. Larger municipalities desire proportionally more advanced internal communication and collaboration features, such as Access Control Lists, which allow a project manager to finely set the information access rights of each stakeholder.
- Municipal project employees highly value simplicity, intuitiveness and flexibility from stakeholder engagement software functionality; it should allow for easy, step by step deployment, and it should be extensible, so a municipality can extend the functionality as needed.

PPM software vendors should consider the above points when developing and marketing stakeholder engagement functionality. Municipalities should consider them when procuring new stakeholder engagement software.

Managementsamenvatting

Nederlandse gemeenten staan vandaag de dag voor een aantal uitdagende trends. De jeugdzorg, aanvullende zorg voor gehandicapten en het stimuleren van de participatie door gehandicapten naar de arbeidsmarkt te begeleiden, worden taken van de gemeente in plaats van de provincie of Staat. Intussen streeft de overheid er naar om 'klantgericht' te gaan werken. Gemeenten digitaliseren hiertoe hun front- en backoffice processen, zodat ze efficiënter worden. Enkele kleinere gemeenten verdelen de groeiende werklast door samen te werken of te fuseren met naburige gemeenten. Deze trends kunnen kansen bieden voor 'stakeholder engagement' (belanghebbenden betrekking) functionaliteit in Project Portfolio Management (PPM) software. De onderzoeksvraag gaat hier op in:

Onderzoeksvraag: "Welke eisen stellen gemeentelijke projectmedewerkers aan stakeholder engagement functionaliteit in PPM software?"

Zes gemeentelijke project- of projectcommunicatiemedewerkers bij zes verschillende gemeenten zijn geïnterviewd, en de bevindingen zijn verwerkt door middel van 'requirements engineering'. Hoofdstuk 4 geeft het uitgebreide antwoord op de onderzoeksvraag. De belangrijkste bevindingen zijn:

- Het belang van stakeholder engagement voor gemeenteprojecten neemt toe.
- Gemeenten gebruiken communicatieplanning als een steeds belangrijker onderdeel van projectplanning.
- Softwareondersteuning voor de huidige externe communicatiekanalen wordt voldoende geacht. Er bestaan echter wel mogelijkheden voor het ontwikkelen van nieuwe externe communicatiekanalen, gebruik makend van de informatie die in een PPM systeem staat. Een voorbeeld is een externe projectwebsite die automatisch recente projectinformatie weergeeft.
- Software ondersteuning voor eenvoudige interne communicatie- en samenwerkingsfuncties, zoals takenlijsten, documentbeheer en agenda's, is gewenst in gemeenten van elke grootte. Grotere gemeenten wensen proportioneel geavanceerde interne communicatie en samenwerkingsfunctionaliteit, zoals Access Control Lists, waarmee een projectmanager de precieze informatietoegangsrechten voor elke belanghebbende kan instellen.
- Gemeentelijke werknemers waarderen eenvoud, intuïtiviteit en uitbreidbaarheid in stakeholder engagement software functionaliteit; het moet in eenvoudige stappen uitrolbaar zijn, en het moet mogelijk zijn om de software aan te passen en uit te breiden om aan de wensen van de gemeente te voldoen.

PPM softwarebouwers kunnen de bovenste bevindingen in acht nemen bij het ontwikkelen en verkopen van stakeholder engagement functionaliteit. Gemeenten kunnen de punten in acht nemen bij het inkopen van stakeholder engagement software.

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1 Introduction

Dutch municipalities are being assigned an increasing number of responsibilities that were formerly state or province concerns (Overheid.nl, n.d.). Meanwhile, there is a trend of making municipal processes more 'customer oriented' (Hoogwout, 2010). One way of achieving these goals is through digitalisation and standardisation of processes government-wide. (Kwaliteitsinstituut Nederlandse Gemeenten [KING], n.d.). Another way is through municipal mergers. Smaller municipalities may choose to cooperate with their neighbours in order to more effectively cope with increased number of tasks at hand (Rijksoverheid, n.d. c).

A relatively greater size of municipalities implies challenges for internal communication, while more responsibilities and quality-of-service to 'customers' imply more challenging external communication. A municipal IT and project coordinator and a PPM software vendor, noted that these trends may present opportunities for stakeholder engagement support in PPM software for municipalities. The goal of this report is to identify these opportunities, which is done using techniques from the field of requirements engineering. Given this goal, the research scope is limited to projects at Dutch municipalities and PPM software. As such, the research goal and research question have been phrased as follows:

Research goal: "Compiling a set of requirements that municipal project employees have for stakeholder engagement functionality in PPM software."

Research question: "What requirements do municipal project employees have for stakeholder engagement functionality in PPM software?"

Answering the research question should be valuable to PPM software vendors, project and communication employees at Dutch municipalities, and literature. A PPM software vendor will be more successful in selling their product to municipal customers, if they have a better understanding of these customer's requirements. Municipal project and communication employees will benefit, as the set of requirements that results from this research will help them in more clearly expressing their needs to software vendors. Literature should benefit from the insights on stakeholder engagement processes at Dutch municipalities, and how software can support these processes.

The remainder of this report comprises a literature review, methodology, results and conclusions. The literature review chapter covers the concepts relevant to the research: stakeholder engagement, PPM software, Dutch municipalities, requirements engineering and current trends. The literature review leads to a number of propositions, which will be assessed through empirical research. The methodology chapter introduces the tools and concepts used in collecting and analysing empirical data. The results chapter presents the findings from research at several Dutch municipalities, answering the research question. Finally, the conclusions chapter summarises the steps taken during the research and lists key findings and practical recommendations for PPM software vendors and Dutch municipalities, followed by an assessment of research limitations and options for further research.

2 Literature review

This section elaborates in the concepts relevant to the research: stakeholder engagement, PPM software, Dutch municipalities, requirements engineering and current trends at Dutch municipalities. The literature review leads to a number of propositions, which will be assessed through empirical research.

2.1 Stakeholder Engagement

A stakeholder is "any group or individual who can affect or is affected by the achievement of an organisation's objectives." (Freeman, 1984, p.46 as cited in Beringer et al., 2013). This is the most prevalent definition, of which more specific definitions are often derived (Achterkamp & Vos, 2008; Beringer et al., 2013). The project-oriented definition of a stakeholder used in this research is "...an individual, group, or organisation who may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome of a project." (Project Management Institute [PMI], 2013). Goodpaster (1991) has noted that Freeman's definition implies the notion of two types of stakeholders: strategic (affecting) and moral (affected). Further, Freeman differentiated between internal and external stakeholders from a firm's viewpoint. (Beringer et al., 2013). As such, this research also makes a distinction between internal and external communication, with internal and external stakeholders respectively.

Creating an overview of the stakeholder in a project, i.e. through stakeholder identification, is a fairly practical task, given the unique nature of each project. Municipalities may use guidebooks for this process. For instance, the Municipality of Amsterdam (2004) has created an extensive checklist of possible stakeholders for spatial development projects. Once the stakeholders for a project are identified, stakeholder analysis methodology may be used to understand their influence, attitude and interests in a project. A common tool for this purpose is the salience model, which groups stakeholders into seven groups by acknowledging whether a stakeholder has a legitimate claim, whether the claim requires immediate attention (i.e. is urgent) and whether a stakeholder possesses the power to influence an organisation's activities (Mitchel, Agle & Wood, 1997).

Table 1: Stakeholder classification according to the Salience model (adapted from Mitchell et al, 1997)



Figure 1: Salience model (adapted from Mitchell et al, 1997)

Once stakeholders have been identified and analysed, an organisation may decide to engage them. Stakeholder engagement covers a broad range of activities, aimed at informing, involving

and/or building constructive working relationships with an organisation's stakeholders. (Department of Immigration and Citizenship, 2008). Given the goal of the engagement with a certain stakeholder, several levels of engagement are possible (Krick, Forstater, Monaghan, & Sillanpaa, 2006, pp. 60-61). In general, the higher the intensity of the engagement (Empowering being the highest), the lower the number of involved stakeholders. (IFC, 2007). The table below displays the levels of stakeholder engagement. The means of realising a certain level of engagement are referred to as engagement instruments or communication channels in this research.

Table 2: Description of engagement levels (adapted from Krick, Forstater, Monaghan, & Sillanpaa, 2006)

Stakeholder Engagement level	Description	Examples of engagement instruments /communication channels (not exhaustive)
Empower	Delegate decision-making on a particular issue to stakeholders.	Sub project teams, contracts, design & build tenders
Collaborate	Partner with or convene a network of stakeholders to develop mutually agreed solutions and joint plans of action.	Lessons learned lists, wiki's, public-private cooperation, joint ventures, meetings, issue trackers
Involve	Work directly with stakeholders to ensure that their concerns are fully understood and considered in decision-making.	Discussion forums, online chat, social media, telephone, videoconferencing, brainstorm sessions, focus groups, advisory boards, participation gatherings, live discussions
Consult	Gain information and feedback from stakeholders to inform decisions made internally.	Questionnaires, surveys, social media, external internet forms, letters, email, consultation procedures, meetings, one-on-one conversations
Delegate	Work together in a contractual relationship where one partner directs the objectives and provides funding.	Tendering platforms, contacts, task packages, concessions, licenses
Inform	Inform or educate stakeholders.	Brochures/posters/flyers, municipal website, project website, reports, letters, advertisements, intermediaries (such as the Chamber of Commerce, intranet, personnel magazine, structural visions, progress reports, memo's, reminders, handbooks, budgets, communication plans, speeches, open house, interviews, the press, traffic signs, information signs, information gatherings/centers, the media, readings, briefings
Monitor	Monitor stakeholder views.	Social media, external discussion boards, suggestion boxes, reading reports, contact forms, the Internet

A notable tool in stakeholder engagement is the communication plan, which outlines every aspect of a stakeholder engagement strategy. Although implementations vary, it usually involves the following steps: stakeholder identification, stakeholder analysis and goal setting (e.g. by deciding on the desired level of engagement for each stakeholder), engagement instrument selection (including timing: when and how frequently is a stakeholder engaged), execution (including appointing end-responsibles) and evaluation. (Krick et al., 2006; Dept. of Immigration and Citizenship, 2008; Revit, 2007; IFC, 2007; Municipality of Amsterdam, 2004; Weese, 2010; Snethlage, Delbaere, Elliot, & Jones-Walters, 2012).

2.2 Project Portfolio Management software

Project Portfolio Management, or PPM for short, is "the discipline focussing on strategic alignment, prioritisation and governance of initiatives, projects and programmes." (Stigter, Van Schie, & Dunnik, 2009). PPM may be delimited by comparing it to 'Business As Usual' (BAU). Hereby PPM induces a change in an organisational environment through projects and programmes. These deliver products such as 'a reorganised office building' or 'a new creditors policy'. These products are then used to improve the daily operating routine, referred to as BAU. Conversely, BAU produces new ideas and initiatives for projects that may be executed, completing the cycle (Office of Government Commerce [OGC], 2011). The field of PPM involves two sets of activities: Portfolio definition and portfolio delivery. The former involves deciding which projects and programmes to undertake, continue or put on hold. The latter involves managing the projects and programmes themselves (OGC, 2011).

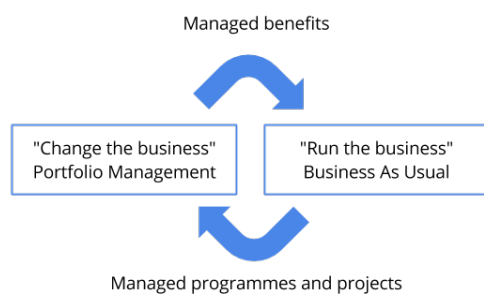


Figure 2: BAU and PPM (OGC, 2011)

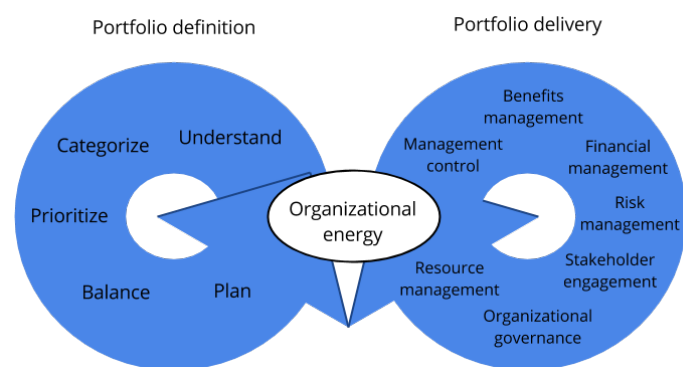


Figure 3: Portfolio definition and portfolio delivery (OGC, 2011)

PPM software is software that supports activities in the discipline of PPM. Stigter et al (2009) describe a sorting of PPM software functionality into eleven areas (see table below), which allows for comparing PPM software.

Table 3: Functional areas of PPM software (Stigter et al., 2009)

Area	Description
Customer & Partner Management	Managing the interaction with both internal and external stakeholders. This also includes keeping records or contact data and business needs, and new business identification.
Idea & Portfolio Management	Idea management is the collection and combining of ideas for new initiatives, projects, or programmes to provide input for the Portfolio management process.
Programme Delivery Management	This area covers the discipline of programme management, from starting up, to governing and closing a programme.
Project Execution Management	Activities related to managing a project, from setting up a project, running the project to ending the project.
Resource Allocation Management	Matching and planning resources (such as employees) to projects and programmes
Time & Expense Management	Activities for recording, validating and approving time and expenses spent by employees while working on a project
Financial Project Management	Focuses on functionality aimed at managing monetary costs and benefits at a project level, including forecasting, budget management, balances, and records management.
Service Delivery Management	Activities for delivering services that need to comply with Service Level Agreements (SLA).
Workflow & Knowledge Management	Workflow Management is the ability to control the primary business processes in an integrated manner, including e.g. automatic notification functions. Knowledge Management refers to collecting, sharing and reusing information, often captured in documents. This area also covers audit trail management, which is increasingly important due to laws and directives such as Sarbanes-Oxley and Solvency-II.
Business Intelligence Management	Functionality for summarising and reporting information the possibly large amounts of information in PPM systems to managers.
Financial Accounting Management	Gives detailed insight into the contribution of each project, customer, department and professional towards the financial performance of the entire organisation.

On PPM market size, Laurie Wurster, research director at Gartner, said: "In 2012, the PPM software market had strong growth for the third consecutive year despite, or perhaps because of, slow economic growth, tight IT budgets, and merger and acquisition activity." 58% of the market is accounted for by the top five vendors: Oracle, Microsoft, CA Technologies, Planview and HP respectively. The current global revenue is \$1.65B (€1.29B). Global growth was 11% worldwide and 6.3% in Western Europe (Gartner, 2013, May 13).

2.3 Dutch Municipalities

A municipality is the smallest administrative body in the Dutch State system, under the government and the Provinces. Most rules and regulations imposed by the government or Provinces are similar in every municipality, however the inherent differences between municipalities (e.g. the difference between a major city and a small town) make it more efficient to decide on some policy at a local, municipal level (Overheid.nl, n.d.). As of 2013, there are 408 municipalities in the Netherlands (CBS, 2013b).

Every Dutch municipality consists of an administrative (*bestuurlijk*) part and an executive (*ambtelijk*) part. The city council is, by constitution, the highest legislative body in a municipality, and it is responsible for outlining policy. The city council consists of councillors and the mayor. Councillors (a part-time job) are elected, the mayor (a full-time job) is formally chosen by the monarch. The Board of Mayor and Aldermen, consisting of the mayor and aldermen, is in charge of and responsible for daily governance. The executive part of the municipality is responsible for implementing policy. It usually consists of an executive team and several departments or teams with distinct areas of responsibility, such as spatial development, taxes, real estate, or social affairs. (Overheid.nl, n.d.).

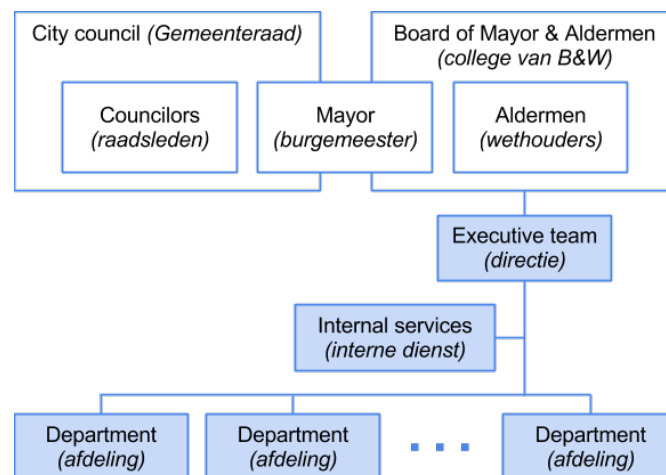


Figure 4: Basic organisational layout of a Dutch municipality (Overheid.nl, n.d.)

Two prime responsibilities of municipalities are spatial development and traffic management. This includes providing sufficient housing, proper road maintenance and construction, managing parking lots, cycle lanes, etc. The law on environmental management (Wet Milieubeheer) provides a municipality with the responsibilities it needs to manage environmental concerns and penalise offenders. The law allows a municipality to manage the offerings of education in a town and to check resident's compliance with the law on compulsory education (Leerplichtwet). However, more and more responsibilities are being transferred to municipalities (Overheid.nl, n.d.).

2.4 Requirements Engineering

Requirements engineering is “the process by which the requirement for software products are gathered, analysed, documented and management through the [software engineering] lifecycle.” (Aurum, 2005, p. vii). Requirements engineering covers techniques for activities ranging from the initial requirement elicitation to the drafting of requirement specifications at different levels of abstraction and the guiding of quality control. This chapter only covers the parts of requirements engineering that are relevant to the research. The practical requirements engineering methods that are applied in this research are described in the Methodology section. Requirements engineering is accepted as one of the most crucial processes in software design and development as it addresses the critical problem of designing the right software for the customer (Aurum, 2005, p. 1).

The practice of collecting the requirements for a system from users, customers and other stakeholders is referred to as requirements elicitation (Sommerville, & Sawyer, 1999). Laueson (2002, ch. 8) lists nineteen techniques for eliciting requirements for a system. It has been found that combining elicitation techniques increases the reliability of the outcomes (Stake, 1995; Yin, 1994 in Tellis, 1997). The Methodology chapter elaborates on the elicitation techniques that are used in this research.

Once user requirements have been elicited from the prospective users of a system, requirements specification is performed to organise them into 'system requirements', which constitute the first representation of a system in the design phase. Meta-models may be used to structure the requirements specification (Aurum, 2005, p. 48). Requirements may be classified along several dimensions. A useful dimension for this research is the distinction between functional requirements, which describe what the specified system should do, and non-functional requirement, which specify constraints on the type of solutions that will meet the functional requirements, e.g. accuracy, performance, security and modifiability. Non-functional requirements are also referred to as quality requirements (Aurum, 2005, p. 4; Lauesen, 2002). Software projects commonly have more candidate requirements than can be realised within time and cost constraints. Therefore prioritisation may be used to define the relative importance of requirements.

Requirements are collected in a requirements specification. A good-quality requirements specification should ideally be cohesive, complete, consistent, correct, current (i.e. up-to-date), customer/user-oriented, externally observable (i.e. internal system requirements should only be specified if needed), feasible, unambiguous, mandatory (i.e. only listing requirements that are truly important), annotated with metadata, relevant, usable, validatable (i.e. testable) and verifiable (Firesmith, 2003; IEEE, 1998).

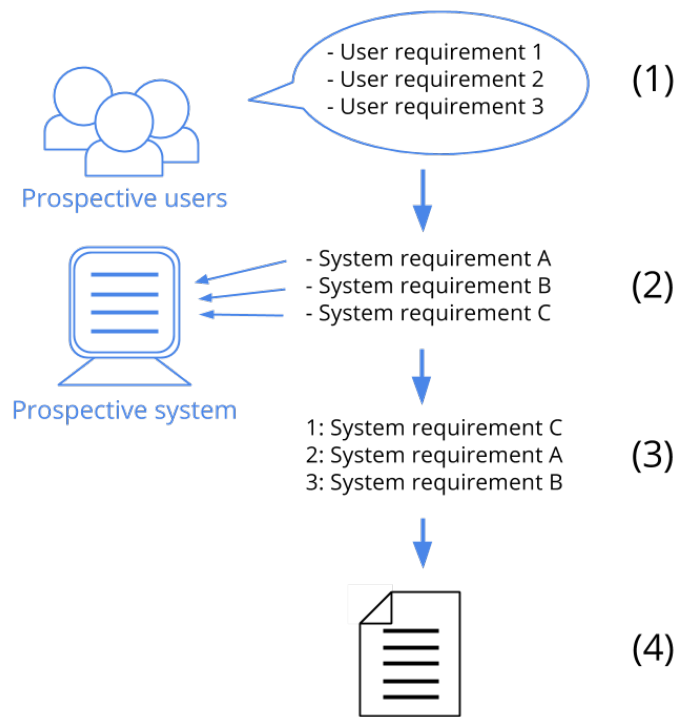


Figure 5: Simplified overview of the practices in requirements engineering that are relevant to this research. Requirements are elicited from users (1), organised into requirements that are usable for system development (2), prioritised (3) and collected in a coherent specification (4)

2.5 Municipal trends & propositions

Currently, there are some significant changes underway at municipalities. There are more responsibilities, which have to be carried out with relatively less money, while improving the quality of service to residents and companies. In particular, the following four trends are of interest to this research. Combined with the knowledge from prior chapters, these form a number of propositions.

Decentralisation. A number of responsibilities in the social realm are currently being transferred from state and province governments to municipalities. These are collectively referred to as the ‘three decentralisations’ (Verschelling, 2013, January 13). The first decentralisation is the AWBZ act transformation into the Wmo act. This act governs that people of age and/or with physical or psychological disabilities get additional care. The implementation of this act becomes the responsibility of municipalities, while the budget is lowered by 25% (Verschelling, 2013, January 13). The second decentralisation to municipalities entails the participation act (Participatiewet), which will be enacted January 1, 2015. It governs how incapacitated individuals are helped in getting jobs (Rijksoverheid, n.d. b). The third decentralisation is the youth act (Jeugdwet), which governs youth care for e.g. disabled youth and youth probation. The decentralisation is accompanied by a budget cut of 15% (Verschelling, 2013, January 13). Furthermore, on August 1, 2014 a new act on special education (passend onderwijs) will enact (Rijksoverheid, n.d. a). The law primarily affects schools, but as education is also a municipal responsibility, this law may increase the workload for municipalities as well.

Customer Oriented Government. The Dutch government is making its processes more ‘customer oriented’, also referred to as client oriented or ‘klantgericht’ in Dutch. The

municipality plays a large role in this, as it is closest to the 'customers' (Hoogwout, 2010). According to Hoogwout (2010), customer oriented thinking is a fairly new phenomenon, which gained ground in the last two decades. It entails thinking about residents as if they are customers at a large firm called the government.

More tasks in especially the social realm, and a stronger focus on service to government 'customers', may imply that stakeholder engagement is becoming more important to municipalities. As such, the following proposition is posed:

Proposition 1: The importance of stakeholder engagement for municipal projects is increasing.

Stakeholder engagement is commonly structured through communication planning. If stakeholder engagement is as important to municipalities as the mentioned trends imply, it may be expected that communication planning has become commonplace at municipalities. This leads to the following proposition:

Proposition 2: Municipalities use communication plans as an integral part of project planning.

Digitalisation. The Dutch government is working on a streamlined digital infrastructure for government services, which should reduce costs while increasing the quality of service to Dutch residents and companies (Kwaliteitsinstituut Nederlandse Gemeenten [KING], n.d.). It entails integrating governmental registers, upgrading municipal websites, providing every municipality with a short telephone number (14+ numbers), and many other improvements which should make interacting with the (local) government easier. The programme is referred to as i-NUP (King, n.d.). This trend is closely linked to the client oriented government trend, and once again municipalities play a large role. Indeed, an estimated €1.296 mln is spent on ICT (2011 full-year figure, including personnel expenses), which is a 15% increase from 2010 and previous years. On average, software expenditure made up 27% (±€ 350 mln) of the ICT costs in 2011 (Van der Graaf, 2012). An effort to reduce these costs, while increasing the quality of the software that is used in the digitalisation, is called the 'Basisgemeente', Dutch for 'default municipality'. It entails standardising processes that are used in every municipality, so that software can easily be built for many municipalities at once (Broumels, 2011; KING, 2013). The goal of digitalisation is sometimes referred to as Government 2.0, which covers the exciting possibilities of using present-day information technology to better serve and listen to the public. Although the technology is available, making true progress toward a 'Government 2.0' also requires proper transformational leadership, and genuine interest and trust from the public. (Meijer, Koops, Pieterse, Overman, & Ten Tije, 2012).

The trend of digitalisation for a great part entails streamlining routine external communication tasks. Examples include letting a resident change his home address or file a complaint. These tasks are known as Business As Usual in PPM terms. However, it is expected that municipalities also want their project-related external communication to be streamlined through (PPM) software. Therefore, the following proposition is posed:

Proposition 3: Support for external communication channels is a must-have need.

Partnerships and mergers. The main drive for this process is the fact that municipalities gain an increasing number of tasks. Through cooperation and mergers, municipalities can more efficiently cope with these tasks (Rijksoverheid, n.d. c). Merging in this context is referred to 'gemeentelijke herindeling' in Dutch. Indeed, on January 1, 2003, there were 489 municipalities in the Netherlands. 10 years later, this number has decreased to 408. (CBS, 2013b).

As municipalities are becoming larger due to mergers, while the number of responsibilities grows, it is supposed that municipal project employees have an increased need for advanced internal communication and collaboration functionality (e.g. document management and task lists). As it is expected that this need exists for PPM software, the following proposition is posed:

Proposition 4: Support for internal communication channels is a must-have need.

2.6 Summary

Stakeholder engagement entails communication and collaboration between the people and organisations that can affect or are affected by a project. It covers a broad range of communication forms, ranging from solely monitoring stakeholders and their interests, to fully empowering a stakeholder to manage (parts of) an initiative. A common tool for implementing the practice of stakeholder engagement is the use of communication plans. Actual implementations may vary, but in its full breadth these plans structure the process from stakeholder identification to evaluation.

Project and Portfolio Management comprises activities that deliver value to an organisation by managing projects and programmes that enhance the normal organisation's activities, referred to as Business as Usual. PPM software provides tools for supporting PPM activities.

Municipalities are the smallest legislative body in the Dutch administrative system. These organisations comprise an administrative and an executive part. Responsibilities include spatial development and traffic management, environmental and education policy, healthcare, well-being, culture, sports and recreation offerings.

Requirements engineering is "the process by which the requirement for software products are gathered, analysed, documented and management through the [software engineering] lifecycle." (Aurum, 2005, p. vii). The three parts of requirements engineering that are of importance to this research are requirements elicitation, requirements specification and requirements prioritisation. Requirements are collected in a requirements specification.

Several municipal trends are of significance to this research: Decentralisation, the customer oriented government, digitalisation and mergers. These trend lead to four propositions:

Proposition 1: The importance of stakeholder engagement for municipal projects is increasing.

Proposition 2: Municipalities use communication plans as an integral part of project planning.

Proposition 3: Support for external communication channels is a must-have need.

Proposition 4: Support for internal communication channels is a must-have need.

3 Methodology

The literature review provided an overview of the research area and requirements engineering. This section introduces the practical techniques that are used to describe the environment a prospective stakeholder engagement system will function in, elicit requirements from project employees at Dutch municipalities, specify these requirements into system requirements and prioritise them. In selecting the research subjects and tools, the following intended characteristics for a prospective stakeholder engagement system have been considered:

Type of system: Functional extension to a software project portfolio management system.

Type of customer: Dutch municipalities of any size.

Type of user: Municipal project managers/employees, involved in internal and/or external stakeholder engagement. Stakeholders involved in projects run by the aforementioned project managers/employees.

3.1 Requirements elicitation techniques

Interviewing forms the basis of the elicitation at every municipality. The interviewee is a municipal employee involved in municipal projects and/or the communication that goes with it. **Stakeholder analysis** is used to map common stakeholders for municipal projects and their interests. **Document studies** into annual reports of the municipalities, recent press releases and digitally available information provide a picture on how project communication is currently performed. Finally, **goal-domain analysis** is applied. Municipalities set explicit goals for their performance, and these are assessed at year's end in the annual report. These goals provide an insight into the issues that are (at least formally) current at a municipality.

3.2 Research subjects

The selection of interviewees covers small, medium-sized and large municipalities, and the interviewees hold expertise in a broad set of project types. This broad view also allows identifying correlations between characteristics such as the size of a municipality and the type of functionality required from a system.

Table 4: Interviewees

Interviewee	Function	Organization	Date	Time
Undisclosed				

3.3 Analysis approach

In describing and analysing the findings from the requirements elicitation, a principle from the Information Systems Design Approach (ISDA) is used. This approach discerns techniques for building the analysis layer, and techniques for building the design layer (Wijnhoven, 2012, p. 117).

The analysis layer describes the context a system will operate in, and models the user requirements for a system. In addition to the elicitation techniques mentioned in chapter 3.1,

the salience model and the levels of stakeholder engagement model are applied. These techniques have both been introduced in chapter 2.1. For the purpose of clarity, project employees, municipal employees, the mayor, aldermen and councillors are considered internal stakeholders. Other stakeholders are considered external stakeholders.

The design layer describes the actual system, based on the analysis layer. For this layer, the following techniques are used:

Gilb template is used for specifying requirements. Each requirement definition comprises a tag, which is much like a title, and a gist, which is a short description of the requirement. The requirement is operationalised using a scale and meter (the measurement and method for defining to what extent the requirement has been met), and qualifiers (one or more thresholds that have to be met for a requirement to be accepted). This template can be extended using additional parameters, such as 'status', 'version', 'owner', 'known issues', etc. (Laueson, 2002, p. 230; Gilb, 2001; Planguage).

MoSCoW prioritisation categorises requirements into 'must' requirements, which have to be met for the system to be acceptable, 'should' requirements, which are as important as 'must', but are not as urgent and may thus be implemented in a following release, and 'could' requirements, which would add the most value if time is left to implement them. 'Won't' requirements add too little value or cost too much for implementation at the time of drafting the prioritisation. (IIBA, 2011).

4 Results

This section describes and interprets from multiple angles the findings from research at six municipalities. First, an assessment of the perceived importance of stakeholder engagement and related planning for municipalities is made, elaborating on propositions 1 and 2. Then, current themes as from annual municipal reports are described. Thirdly, the stakeholder environment for a prospective stakeholder engagement system is described, including an overview of common engagement instruments in use. These parts form the analysis layer (see chapter 3.3). Finally, the requirements are specified and checked for completeness, comprising the basis of the design layer. Individual results for each municipality are available in the appendices.

4.1 Views on stakeholder engagement and planning

Table 5 summarises the views of the interviewees on propositions 1 and 2, which address the importance of stakeholder engagement and the usage communication planning. The views as elicited during the interviews at municipalities, allow for elaboration on proposition 1 and 2.

Table 5: Views on propositions 1 and 2

Municipality	Summary of interviewee's view
	Undisclosed

Proposition 1: The importance of stakeholder engagement for municipal projects is increasing. The research supports this proposition for external stakeholder engagement, but not for internal stakeholder engagement. Residents want to be kept informed more and more. Moreover, some groups of stakeholders increasingly desire influence. Illustrative of this is the power prospective residents nowadays desire on the shaping of their future neighbourhood and home. Annual reports underline the increasing importance of external stakeholder engagement, as elaborated on in chapter 4.2.

On the other hand, research at the six municipalities does not suggest a clear increase in importance of internal stakeholder engagement. However, recent reorganisations in two visited municipalities do make the departments within a municipal organisation more co-dependent. Thus, internal stakeholder engagement does not seem to gain in importance, unless there is a reorganisation that forces (newly formed) departments to work together more closely.

Proposition 2: Municipalities use communication plans as an integral part of project planning. In general, the case studies support this proposition. As an effect of the increasing importance of stakeholder engagement, project communication practices are being professionalised at most of the visited municipalities. The larger municipalities house a separate communication department, which is at the disposal of project managers. Smaller municipalities also employ communication personnel. However, the practice of formally drafting communication plans is still maturing, but it is becoming an increasingly important part of project planning. Communication plans are currently stored in a text-based form, such as a Word or PDF document. As communication planning is becoming more standardised and

integral to project planning, there will be opportunities for software that aids in creating, storing and using communication plans, possibly using more interactive forms than text-based document. Acquiring exact requirements for such software will require additional research into how communication planning is handled.

4.2 Stakeholder engagement themes in annual reports

Each year, municipalities publicise their annual report, which in addition to financial figures contains an accounting of the themes a municipality focuses on in particular. Table 6 couples the stakeholder engagement-related themes from these annual reports to the identified trends in 2.5.

Table 6: Current themes as from annual reports

Theme	Municipality						Related trends
	Municipality 1	Municipality 2	Municipality 3	Municipality 4	Municipality 5	Municipality 6	
Municipal website	Undisclosed						Customer oriented gov't, digitalisation
Front-office services							Customer oriented gov't
Public engagement							Decentralisation, customer oriented gov't
Regional partnerships							Partnerships and mergers
Formalising stakeholder engagement							Decentralisation, customer oriented gov't
Back-office processes							Digitalisation, customer oriented gov't

The one shared theme for all municipalities is the intent of upgrading the municipal website to become the central external information and/or services hub. This falls in line with the trends of digitalisation and the customer oriented government. Relatedly, municipality are streamlining their front-office services and related back-office processes to become more efficient, which should reduce costs and lead-times for municipal products while increasing the quality of service to residents. Some municipalities also explicitly state the intent of increasing engagement with the public and formalising stakeholder engagement, which should make a municipality more customer oriented, but is also necessary for efficiently implementing the three decentralisations (see chapter 2.5. In summary, the themes show that municipalities aim to become more efficient, serviceable and engaging, whereby digitalisation plays a major enabling role.

4.3 Stakeholder environment and engagement instruments

The number of stakeholders, either affecting or affected, is particularly large for municipal projects. Figure 6 shows an overview of the most common stakeholders, divided into external and internal stakeholders. The latter group is further divided into project stakeholders, which are involved (semi-)daily in a project, and municipal stakeholders, which are periodically

involved in a project. Table 7 lists these stakeholders, with the levels of engagement that are commonly used (from the perspective of the project team), and the instruments that are most commonly used. In terms of the Salience Model (see chapter 2.1), project stakeholders are generally high-priority stakeholders, municipal stakeholders are high or medium priority stakeholders and external stakeholders are medium or low priority. The question of how much power, legitimacy and/or urgency a stakeholder has, and thus how that stakeholder is typified in de Salience Model, depends on the specific project and stakeholder at hand.

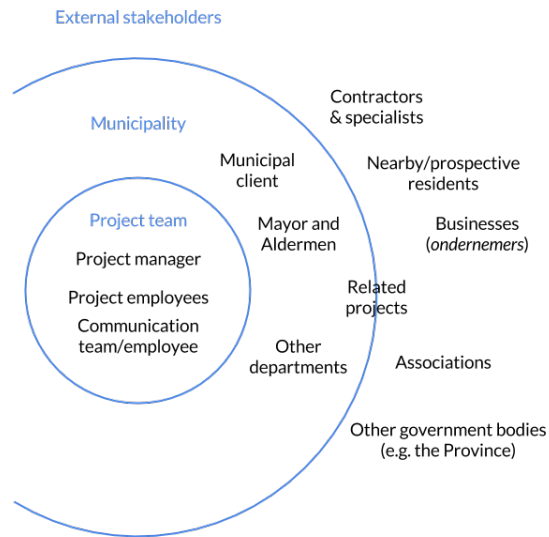


Figure 6: Stakeholder environment

Table 7: Common stakeholders, related engagement levels and common engagement instruments

Stakeholder	Desired engagement level							Common engagement instruments
	Empower	Collaborate	Involve	Consult	Delegate	Inform	Monitor	
Project manager	X	X	X					Personal communication, shared document management (often a network drive), meetings, email, telephone, PPM software, project plan (including communication plan)
Project employees	X	X	X					
Communication team/employee	X	X	X	X	X			
Municipal client	X		X	X		X		Personal communication, meetings, intranet, email, telephone
Mayor and Aldermen	X			X		X		
Other Departments				X	X	X		
Related projects (internal)		X	X	X		X	X	Municipal website, social media, information evenings, email, letters, telephone, formal procedures
Related projects (external)		X	X	X		X	X	
Contractors & specialists	X			X	X			
Nearby/prospective residents		X	X	X		X	X	
Businesses		X	X	X		X	X	
Associations		X	X	X		X	X	
Other government bodies	X	X	X	X		X	X	

Project team

In addition to a manager and employees, some municipalities also instate a communications employee as a full team member.

Personal communication ("stopping by someone's office) may be considered the primary engagement instrument. Most visited municipalities use a network drive for sharing documents, one municipality also uses a PPM software tool for this purpose in projects. One interviewee noted that more advanced document management supporting versioning would be welcome upgrade to the basic functionality offered by a network drive. A project plan is usually drafted early in the project, increasingly often comprising a comprehensive communication plan. Meetings, email and telephone complete the communication channels for most of the discussed project teams.

Municipality

The municipal client (or municipal commissioner) formally commissions a project. This may be an administrative (bestuurlijk) or official (ambtelijk) client. Major projects must be explicitly approved by the Board of Mayor and Aldermen. Furthermore, although departments are sometimes typified as 'little kingdoms', projects team members often need the support of other departments. Finally, project team members need to consider other related projects that may be led by the municipality or external parties.

The primary instrument for spreading arbitrary information on an organisational level appears to depend on the size of the municipality. For instance, in the smaller municipalities, personal communication is considered the primary tool for this purpose. In the medium sized municipalities, the intranet is the primary tool for this purpose. In the larger municipalities, much information spreading (at least project-related) is done via the project portfolio management (PPM) tool. Meetings, email and telephone complete the list of the most common engagement instruments.

Proposition 4: Support for internal communication channels is a must-have need. There is, especially at larger municipalities, a clear need for efficient communication and collaboration functionality. In the minds of the interviewee's, internal stakeholder engagement strongly overlaps internal collaboration practices. This corresponds with the higher levels of stakeholder engagement as discussed in chapter 2.1.

External stakeholders

The list of external stakeholders varies greatly between project types. The figure is not exhaustive in this regard, as it only depicts external stakeholder that were mentioned frequently during the elicitation at municipalities. Contractors & specialist are often hired, e.g. for their city planning or software development expertise. Planning and subsidies may involve collaboration with other government bodies. Finally, construction projects in particular have a long list of affected external stakeholders, including businesses, residents and sports associations.

The municipal website is the primary external communication channel, because of its constant availability for most informative needs at a low cost. More stakeholder-specific engagement is primarily handled using the traditional means of letters, email, telephone and information evenings. Social media gains ground. For instance, every municipality has a frequently updated Twitter account, that is also used for receiving and answering questions. Furthermore, the law dictates a number of stakeholder engagement procedures to be carried out during projects, especially in the case of construction projects (www.centrumpp.nl). Many other (more incidental) engagement instruments have been noted during the elicitation, such as a promotional car and flyering at events. The interviews at the visited municipalities suggest that much creativity and flexibility is involved in choosing the right instruments for a specific project.

Proposition 3: Support for external communication channels is a must-have need. This proposition cannot be straightforwardly refuted or confirmed, as the views on external stakeholder engagement proved to be more elaborate than this proposition suggests. During the interviews, ideas for bringing together a multitude of external communication flows in one ‘dashboard’ were suggested, but it quickly became apparent that the number of used communication channels is simply too large and their uses too diverse for making such an implementation practical and uncomplicated. This point has further been confirmed by the reactions on a software mock-up that was shown at the end of half of the interviews. Conversely, the interviewees did note that external communication is coordinated among team members by using strong internal collaboration features. There are cases where a new instrument can be created using the information that is collected in a PPM system. For instance, one interviewee suggests an external dashboard or widget that displays information directed at a specification stakeholder. These suggestions use project status information from the PPM tool directly, reducing the time spent on reporting, while satisfying the need of residents and municipal employees of being able to quickly check on a project’s status.

Furthermore, several interviewees noted that ‘knowing what is going on in a society’ is very important to them, and a multitude of communication channels (e.g. forums) are being used for this. An interviewee suggested support for an external discussion board or ‘wailing wall’. Allegedly, concerned residents will use these channels to purge discontent or provide feedback. This functionality may easily be implemented as a widget on a project website/-page, similarly to the aforementioned stakeholder specific dashboard. Another interviewee noted how an engaging housing project website can foster cooperation between residents: prospective home-owners can choose to build a highly custom house together, and the municipality provides ample opportunity for providing input on the design of a new neighbourhood. The interviewee noted that this level of engagement is becoming more common in municipal housing projects countrywide.

In essence, the responses to the questions related to this proposition suggested that the wheel does not need re-inventing as tools for many communication channels (such as Tweetdeck for Twitter) are considered fine. But the interviewees showed high interest in new communication channels or tools that allow for more efficient, yet more engaging interaction with the public.

4.4 Requirements specification

This chapter comprises the answer to the research question: "What requirements do municipal project employees have for stakeholder engagement functionality in PPM software." The requirements are divided into non-functional requirements (also referred to as quality requirements) and functional requirements. The functional requirements are prioritised using the MoSCoW prioritisation technique (see chapter 3.3).

The requirements specification is checked for completeness in covering all relevant stakeholder engagement levels (see chapter 2.1) and municipal trends (see chapter 2.5). These issues are elaborated on further on in this chapter. Also, requirements may slightly differ depending on the size of a municipality and the type of project the software is used in. However, the research data is not specific and complete enough to quantitatively support this proposition.

Table 8: Non-functional requirements

Tag	Gist	Scale	Empower	Collaborate	Involve	Consult	Delegate	Inform	Monitor	Decentralisation	Customer oriented gov't	Digitalisation	Partnerships & mergers
Intuitiveness	A typical user shall need little time to use the system's functionality with confidence.	Time required by a typical user to learn to use the system's functionality with confidence											
Scalability	The system shall be designed such that a customer can deploy it in small functional expansions (e.g. modules) that are easy to roll out.	Time required by a typical user to learn to use a new functional expansion with confidence.										X	X
Integration	The system shall allow one-way and/or two-way synchronisation using standard protocols, to allow for easy extension and integration.	Percentage of system's data models that is accessible via standard computer-to-computer protocols.										X	X
Overview (project employee)	A internal stakeholder shall be able to quickly see the status and required next actions of a project.	Time required by a typical user to find and process recent information and next actions on a project.		X				X					
Overview (other stakeholders)	An external stakeholder shall be able to quickly see the status of a project.	Time required by an external stakeholder to find and process recent information on a project.						X			X	X	

Table 9: Functional requirements

Tag	Gist	Related actions	Empower	Collaborate	Involve	Consult	Delegate	Inform	Monitor	Decentralisation	Customer oriented gov't	Digitalisation	Partnerships & mergers
'Must' priority													
Project tasks	Project employees shall be able to manage tasks related to their project.	Create, view, edit (e.g. assign or change status), delete tasks		X									
Project document management	Project employees shall be able to upload and manage arbitrary types of documents (e.g. Word documents or images), related to a project.	Upload, view, edit metadata, archive, share, delete documents		X									
Shared calendar events	Project employees shall be able to manage a shared calendar of project-related events.	Create, view, edit, share, delete calendar events		X									
Shared contact list of internal stakeholders	Project employees shall be able to access and manage contact details of internal stakeholders.	Create, view, edit, delete contacts		X									
'Should' priority													
Access Control List	Project managers shall be able to manage access and editing rights for project resources.	Grant/revoke viewing/editing right to a certain resource for a certain stakeholder	X	X	X		X	X					
Integration with project websites	External systems shall be able to read and/or write selected project data automatically.	External systems: {read data from API, write data to API}; Project managers: {publicise data, unpublicise data}	X	X	X			X			X	X	
Minute management	Project employees shall be able to upload and manage minutes from talks with external stakeholders.	Create, view, edit, delete minutes				X				X	X		
Shared contact list of external stakeholders	Project employees shall be able to access and manage contact details of external stakeholders.	Create, view, edit, delete contacts		X						X	X		
'Could' priority													
Project discussion board/widget	Project employees shall be able to post and comment on messages related to a project.	Create, view, edit, delete posts and comments		X	X	X		X				X	
Internal discussion board/widget	Municipal stakeholders shall be able to post and comment on messages related to a project.	Create, view, edit, delete posts and comments			X	X		X	X			X	X

External discussion board/widget	External stakeholders shall be able to post (and comment on) messages related to a project.	Create, view, edit, delete posts and comments					X		X	X			X	X	
Communication plans	Project employees shall be able to create and manage communication plans	Create, view, edit, delete communication plans	X	X				X	X				X	X	X

Completeness in covering stakeholder engagement levels. Most requirements are directed at the collaboration level of engagement. This is in line with the findings on propositions 3 and 4 (see chapter 2.3); strong and flexible collaboration features help project employees in coordinating engagement on other levels. The delegation level of engagement seems underrepresented, even though this level of engagement is used in the interaction with numerous stakeholders (see chapter 2.3). More specific process-oriented research on how work is delegated to internal and external stakeholders in municipal projects may uncover additional requirements for this level of engagement. The monitor level of engagement is also underrepresented. Moreover, the fitness of the only requirements covering this engagement level (discussion boards/widgets) is arguable. As elaborated on in the findings on proposition 3, monitoring stakeholder views involves bringing together information from many different sources that may not be controlled by the municipality. Thus, monitoring can only be automated to a limited extent, and research on uncovering more requirements for this level of engagement should be directed at findings ways of easily storing ideas that have been captured from external sources.

Completeness in covering municipal trends. The mapping of requirements to municipal trends proves not to be an exact science. For instance, every requirement can be plausibly mapped to the trend of digitalisation. However, it becomes clear that requirements for supporting the tasks that are being decentralised to municipalities are underrepresented in the requirements specification. This may be because the trend of decentralising (see chapter 2.5) is fairly new, and the interviewees may not have determined the exact tools that are useful for supporting the new tasks being decentralised to municipalities. These tasks are currently handled by higher governments (the State and Provinces), and thus process-oriented research on how those tasks are handled there may uncover additional requirements.

5 Conclusion and discussion

The introduction of this research arrived at the following research question: “What requirements do municipal project employees have for stakeholder engagement functionality in PPM software?”.

As elaborated on in chapter 2, stakeholder engagement involves the communication and collaboration with stakeholders, both internal and external to a project. PPM software is software for supporting the practice of Project Portfolio Management, which is a collection of methods that is intended for guiding and streamlining projects and portfolios of projects. Dutch municipalities are the smallest legislative body in the Dutch administrative system. As of 2013, there are 408 municipalities in the Netherlands (CBS, 2013b). The methodology in this research uses requirements engineering practices (see chapter 3). Requirements have been elicited using interviewing, stakeholder analysis, document studies and goal-domain analysis at six Dutch municipalities.

5.1 Key findings

A comprehensive discussion of the research results may be found in chapter 4, including the list of requirements as mentioned in the research question. The most important findings are as follows:

- The importance of stakeholder engagement for municipal projects is increasing.
- Municipalities use communication planning as an increasingly important part of project planning.
- Support for existing external communication channels is deemed sufficient in general. There are however unique opportunities for creating new external communication channels using the information that is stored in PPM software.
- Support for basic internal communication and collaboration functions is desired in municipalities of all sizes. Larger municipalities desire proportionally more advanced internal communication and collaboration features.
- Municipal project employees highly value simplicity, intuitiveness and flexibility from stakeholder engagement software functionality; it should allow for easy, step by step deployment, and it should be extensible, so a municipality can extend the functionality as needed.

5.2 Practical recommendations

Municipalities

Municipalities currently cope with a number of unique challenges, that stem from the fact that more responsibilities have to be handled with a relatively smaller budget, while the public expects more opportunities for engagement. Automation has proven itself to be effective in addressing these challenges, but the regular media coverage on budget overruns and privacy issues shows that automation is challenging. When procuring stakeholder engagement software, the following points should be kept in mind:

1. First conduct a requirements elicitation among stakeholders, i.e. everyone that will significantly affect or be affected by the proposed system.

2. Strong, flexible internal collaboration features form the basis of a stakeholder engagement software system, as project employees can use these to coordinate both internal and external stakeholder engagement activities.
3. It has been found that software in municipalities is best accepted when introduced in very small increments, thus step-by-step. Prospective software should allow for such deployments.
4. PPM software can hold a unique collection of data on a project. With the proper safeguards to prevent unintentional publication of sensitive data, the systems may be used to feed up-to-date information to project websites.

PPM software vendors

When designing and building stakeholder engagement functionality for municipalities, the following points should be kept in mind:

1. Intuitiveness and flexibility are the most important requirements, thus software should be easy to learn, and deployment should be possible in small functional increments.
2. Basic internal collaboration features such as task lists, versioned document management and calendaring are in demand at municipalities of generally any size. More advanced internal collaboration features, such as Access Control Lists (ACL) and internal discussion functionality support is in demand for medium and large municipalities.
3. External communication channels are generally sufficiently supported, and one should prevent reinventing the wheel. However, the data that is present in PPM tools provides unique opportunities for creating new communication channels, such as automatic updating for project websites.
4. Before expanding a PPM tool with stakeholder engagement functionality, first choose a more limited scope than used in this research, such as the ones proposed in chapter 5.4.

5.3 Limitations

Interviewing is used as the principal way of collecting information. Although this is a flexible, simple, thorough, rich and direct way of eliciting information, it has some notable drawbacks. These include the considerable commitment required by each participant, the complexity of interpreting the answers, the risk of subjective interpretation and bias, and the risk of unintentionally leading the interviewee to give desirable answers. Furthermore, the quality of an interview and the proceedings thereof are highly dependent on the interviewer's experience and subject knowledge. (IIBA, 2009)

A major consequence of the choice of interviews is a limited transferability. Transferability is a measure of generalizability for findings from qualitative research, similarly to how quantitative findings' generalizability can be assessed along the yardstick of external validity (Trochim, 2006). Out of seven interviews, six were conducted at municipalities. The interviewee's held various functions related to municipal project management and communication. There are however 408 municipalities in the Netherlands, with possibly substantial differences (e.g. rural vs. urbanised, small vs. large, comprising one town vs. multiple towns). Furthermore, there are differences in organisational layout and division of responsibilities among employee functions. Combined with the wide research scope, six interviews, though augmented with additional research, is not sufficient for generalizable findings. This makes that the findings should be considered and applied with care.

Also, the requirements that have been compiled in chapter 4.4 are too coarse for direct implementation into software. A company planning to implement stakeholder engagement functionality is advised to first choose a smaller scope, and then do follow-up research with the aim of compiling concise requirements that are specific enough for software development. The following chapter proposes a number of advisable directions.

5.4 Further research

Accruing more external validity. As a way of accruing more external validity, Easterbrook et al. (2008) proposed a combination of research methods referred to as a sequential exploratory strategy. This involves testing the findings from this research using survey research. Compared to the qualitative method used in this research, survey research has the advantage being scalable (i.e. more respondents can be queried with less effort) at the cost of flexibility.

Expanding the scope. Further research could also expand the scope of potential customers by visiting public organisations other than Dutch municipalities. During this research, one interview was done at a former Rijkswaterstaat employee and current 'citizen values' assessment consultant. The results were promising, as Rijkswaterstaat has become an organisation that highly values proper stakeholder engagement in recent years. To this end, Rijkswaterstaat has developed extensive handbooks (e.g. Rijkswaterstaat, 2011) for managing external project communication, and internal collaboration is highly standardised as well. As the Dutch government in general moves to become more 'customer oriented', the same trend may be found at other Dutch public organisations.

Narrowing the scope. Conversely, a PPM software vendor that would like to develop new features in a short time-to-market would be advised to conduct a follow-up study with a smaller scope. Such studies may generate more specific and thereby more practical software requirements. The following five directions or a combination thereof are advisable:

- A focus on medium and/or large municipalities.
- A focus on how project teams delegate work to other stakeholders.
- A focus on how project teams monitor stakeholder views.
- A focus on how the tasks being decentralised to municipalities are currently handled at higher governments, and how these will be handled at municipalities once decentralised. (See 'decentralisation' in chapter 2.5 for more details on the tasks being decentralised).
- A focus on the activities surrounding communication planning.

More fundamental research on municipal stakeholder engagement. Finally, more fundamental research may aim to describe the changing relationships between external stakeholders and the municipality, or the changing relationships among internal municipal stakeholder under the influence of the four municipal trends described in chapter 2.5. The 'levels of stakeholder engagement' described in chapter 2.1 may be used as an ordinal scale.

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The municipality-specific references contain confidential information, and are therefore not included in this version of the report.

7 Appendices

7.1 Appendix 1: Interview questionnaire (Dutch)

Voorwoord

1. Voorstellen, bedanken voor de interviewmogelijkheid
2. Doel questionnaire:
 - a. Wat zijn de meest voorkomende projectcommunicatietaken?
 - b. Welke verbeteringsmogelijkheden ziet een projectmanager wat betreft projectcommunicatie?
3. Anonimiteit: Mogen uw naam, functie, en/of de naam van de gemeente gepubliceerd worden?
4. Geluidsopname: Is het akkoord als ik dit gesprek op neem, om zelf later terug te luisteren bij het verwerken van de resultaten?
5. Hoeveel tijd is er beschikbaar voor dit gesprek?

Beeldvorming

1. Met welk soort projecten houdt u zich vooral bezig? Kunt een aantal voorbeelden noemen? Is er een persoonlijke favoriet?
2. <Kies een representatief voorbeeldproject om door te spreken>

Externe communicatie

3. Had u bij project <VOORBEELDPROJECT> een goed beeld van welke externe belanghebbenden relevant waren en wat hun specifieke eisen waren (bijvoorbeeld middels richtlijnen)?
4. Wie was betrokken bij <VOORBEELDPROJECT>?
 - a. Wie had er invloed op het verloop van het project en hoe?
 - b. Wie werd er beïnvloed door het project en hoe?
5. Per belanghebbende:
 - c. Welke doelen werden er gesteld met betrekking tot deze stakeholder?
 - d. Welke communicatiekanalen werden er gebruikt?
 - e. Had de communicatie het gewenste resultaat?
6. Welke communicatietaken hebben relatief veel tijd gekost?
7. Werd er gebruik gemaakt van een communicatieplan?
 - f. Hoe gedetailleerd was het plan? Was er bijvoorbeeld voor elke belanghebbende een doel opgesteld?
 - g. Was het plan eenvoudig uitvoerbaar?
8. Hoe had de projectcommunicatie beter/eenvoudiger/beheersbaarder gemaakt kunnen worden?
 - h. In het algemeen
 - i. M.b.v. software

Interne communicatie

9. Had u bij project <VOORBEELDPROJECT> een goed beeld van welke interne belanghebbenden relevant waren en wat hun specifieke eisen waren (bijvoorbeeld middels richtlijnen)?
10. Wie was betrokken bij <VOORBEELDPROJECT>?
 - a. Wie had er invloed op het verloop van het project en hoe?
 - b. Wie werd er beïnvloed door het project en hoe?
11. Per belanghebbende:
 - a. Welke doelen werden er gesteld met betrekking tot deze stakeholder?
 - b. Welke communicatiekanalen werden er gebruikt?
 - c. Had de communicatie het gewenste resultaat?
12. Welke communicatietaken hebben relatief veel tijd gekost?
13. Werd er gebruik gemaakt van een communicatieplan?
 - a. Hoe gedetailleerd was het plan? Was er bijvoorbeeld voor elke belanghebbende een doel opgesteld?
 - b. Was het plan eenvoudig uitvoerbaar?
14. Hoe had de projectcommunicatie beter/eenvoudiger/beheersbaarder gemaakt kunnen worden?
 - a. In het algemeen
 - b. Dmv software

Samenwerking

15. Welke tools/methodes werden er gebruikt om samen te werken binnen de dienst/organisatie?

Extra info

16. Zijn er na dit gesprek nog dingen waar u meer over wilt vertellen, maar waar ik niet naar gevraagd heb?

Nawoord

1. "Kan ik nogmaals contact met u opnemen als ik aanvullende informatie nodig heb?"
2. "Kan ik u een gespreksverslag sturen, zodat u kunt controleren of ik het gesprek juist geïnterpreteerd heb?"
3. "Zal ik u een digitale versie van het eindverslag doen toekomen?"
4. "Nogmaals bedankt voor uw tijd."

7.2 Appendix 2: Results per visited municipality

This appendix contains confidential information, and is therefore not included in this version of the report.