
Towards an Insurance Process Management Maturity Model for the P&C Insurance Market

A Business Informatics Graduation Thesis

Martijn van Zetten
mdvanzetten@gmail.com
Master Business Informatics
Institute of Information and Computing Science
Utrecht University

Supervisors (Utrecht University)

Dr. Ir. Johan M. Versendaal
Dr. Rik Bos

Supervisors (Quinity B.V.)

Drs. Ralf Timmer
Ir. Maarten van Laarhoven

Preface

This document is my master thesis. It is the result of a seven-month thesis project as the final step of getting my Business Informatics master's degree at Utrecht University. I decided to start studying Business Informatics, after completing the bachelor Information Sciences at the same university in February 2010. This thesis project has been performed at Quinity B.V. in cooperation with Utrecht University. In this project, I aimed to combine process increments with BPM Maturity as a new way of maturity assessment. This closely relates to two topics that are central in our MBI education: business process management and method engineering. During the project, I received enthusiastic comments on my approach, from both the insurance market and the software market. I hope that this project will add some knowledge to the ever growing body of knowledge of business process management and method engineering.

Acknowledgements

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Abstract

In 2010, Gartner published a research report describing the market for Policy Administration Systems for the European general insurance market. Many insurance companies are still struggling with inflexible, monolithic and technologically outdated policy administration systems, which are often home-grown and heavily modified. Insurance companies do acknowledge the need to update or replace their systems with modern software solutions that are compliant with the current trends of SOA and software-as-a-service (SaaS) and/or web technologies. For insurance companies, however, it is often unclear what their position is at the moment and how an implementation of a modern IPMS can improve their performance.

This work aims to bridge the gap by providing a maturity model based on process increments and performance indicators. This way, insurance organizations can easily assess their current situation and the desired situation by making use of process descriptions. Performance indicators are used to identify how an organization will benefit from a process increment. Besides assessing the as-is and the to-be situation, a maturity score can be calculated to indicate how maturity increases after implementing one or more process increments.

The findings presented in this work are based on an extensive review of management and scientific literature and functional documentation, and expert interviews from both an insurance software provider and three insurance providers.

The results show that although process increments are not yet (widely) used in the industry, they do show promise for practical application. Insurance providers do make use of process descriptions, but not for the purpose of process improvement, but rather for risk management. The validation interviews show that process descriptions and process increments combined with maturity factors and a maturity model could simplify IPM implementation project, because they provide a relatively fast and easy way to visualize the as-is and the to-be situation. Maturity models are being used more often, but mostly on an organizational level (e.g. CMM-based models) and not on a process level.

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Terminology and Abbreviations

This section will list important terminology and abbreviations used in this document, in alphabetical order.

- **Business Process Management (BPM):** BPM is a structured approach for employing methods, policies, metrics, management practices and software tools to design, implement, execute, manage and continuously optimize an organization's activities and processes, towards the goal of improving agility and operational performance.
In this thesis project, we will predominantly use the term Insurance Process Management and use the term BPM for placing the research in a research domain.
- **Business Process Model and Notation (BPMN):** a graphical representation for specifying business processes in a business process model. It is a standard for business process modeling that provides a graphical notation for specifying business processes in a *Business Process Diagram*, based on a flowcharting technique very similar to activity diagrams from UML. The current version of BPMN is 2.0, which also will be used in this thesis project.
- **Insurance Process Management (IPM)** a structured approach for employing methods, policies, metrics, management practices and software tools to design, implement, execute, manage and continuously optimize an insurance provider's activities and processes, towards the goal of improving agility and operational performance.
- **IPM Maturity** is defined as the state of being complete, perfect, or ready and the fullness or perfection of growth or development (Rosemann & de Bruin, 2005) of the IPM in an organization.
- **IPM Maturity Model (IPMMM):** The main deliverable of this thesis project. It contains a standardized process model of the P&C insurance market, combined with process increments, maturity factors and performance indicators to assess the “as-is” and the “to-be” situation of IPM in an organization, using process increments to identify actions that need to be taken to achieve a higher level of maturity.
- **IPM System:** a software system that supports, executes or coordinates one or more parts of IPM.
- **Process Increments:** the introduction, modification and/or deletion of concepts, properties, relationships, activities, transitions and/or roles within an organizational process (van de Weerd, Brinkkemper, & Versendaal, 2010).
- **Property and Casualty (P&C) Insurance:** insurance against risks to property and insurance against accidents, not necessarily tied to any specific property. Also known as *General Insurance (GI)* in the UK or *Non-Life Insurance* (Continental Europe), P&C being the US and international term.

- *Policy Administration System (PAS)*: a software system that manages the production of policies, controlling the insurance process by activating a series of process flows, workflows as well as data editing and validation.
- Straight-through-processing (STP): STP enables an entire process to be conducted electronically without the needs for re-keying or manual intervention, subject to legal and regulatory restrictions.

1 Introduction

Gartner (2005) defines Business Process Management as “*a structured approach, employing methods, policies, metrics, management practices and software tools to design, implement, execute, manage and continuously optimize an organization's activities and processes, toward the goal of improving agility and operational performance*”. BPM is a widely adopted concept, the insurance industry being no exception. Celent named BPM amongst one of the seven technologies with the highest adoption rate in the industry (Insurance Networking News, 2011).

This thesis describes a BPM-oriented research in the insurance market, more specifically the property and casualty (P&C) insurance market in The Netherlands. Since we are dealing with BPM in a specific market, we introduce the term insurance process management (IPM) as a sub domain of business process management. Main reason for using that term is recognition. In the Dutch P&C insurance (in Dutch: “schadeverzekering”) market, the term BPM is not widely used, even though the concept it stands for is widely used. A term such as IPM is more recognizable for insurance companies in The Netherlands

Based on the Gartner definition of business process management, we define insurance process management as a situational form of business process management:

Definition: Insurance Process Management (IPM) is a structured approach, employing methods, policies, metrics, management practices and software tools to design, implement, execute, manage and continuously optimize an insurance provider's activities and processes, towards the goal of improving agility and operational performance.

Software systems are an important part of IPM. Such systems are designated as Insurance Process Management Systems (IPMS). We define an IPMS as follows:

Definition: An Insurance Process Management System (IPMS) is a software system that supports, executes or coordinates one or more parts of IPM.

In the following sections, we will discuss the problem domain, the research question and sub questions, a description of the end-product, the research approach and method, the contribution of this thesis project and an outline of the thesis document.

1.1 Problem domain

The insurance market can be divided into several sub-markets. One of the major sub-markets is the Property and Casualty (P&C) insurance (also known as General Insurance in the UK or Non-Life insurance (in continental Europe), P&C insurance being the international term. Insurance is a contract where the insurer promises to provide payments depending on the loss from a particular financial event. Put in

simpler words: P&C insurance is insurance against risks to property and insurance against accidents, not necessarily tied to any specific property. Well-known examples of P&C insurance include (but are not limited to) vehicle and home insurance, liability insurance (in Dutch: "aansprakelijkheids-verzekering") and worker's compensation (in Dutch: "ongevallenverzekering"). In this thesis research, we focus on the P&C insurance market in The Netherlands.

Like any other industry, the P&C insurance market has specialized systems for support of their business processes. An example is a Policy Administration System (PAS): a software system that manages the production of policies, controlling the insurance process by activating a series of process flows, workflows as well as data editing and validation.

Although PAS is an important part of any insurance company, it is only one system in IPM. Insurance companies and IPMS providers more and more move towards integrated solutions that combine process management of several insurance processes into a single software solution. An example of an IPMS provider is Quinity B.V., one of the Netherland's leading software providers for insurance companies, based in Utrecht, The Netherlands. Quinity is known for the development and deployment of their software solution (the Quinity Insurance Solution or QIS) for insurance process management. QIS provides support not only for policy administration, but for a wide selection of insurance processes, such as claim registration and -management, policy request and -underwriting, insurance product definition, broker management and re-insurance management. Besides insurance-specific processes, it can also provide more generic functionality such as relation management, contract management and financial management, delivering an integrated set of IPM supporting software.

In 2010, Gartner published a research report describing the market for Policy Administration Systems for the European general insurance market. The research states that many insurance companies are still struggling with inflexible, monolithic and technologically outdated policy administration systems, which are often home-grown and heavily modified (Weiss & Forte, 2010). Both business (e.g. changing expectations from the customer and faster product cycles) and technology issues (e.g. the rise of service-oriented architectures (SOA) and web technologies) make more and more insurance companies think of updating or replacing their systems.

Insurance companies do acknowledge the need to update or replace their systems with modern software solutions that are compliant with the current trends of SOA and software-as-a-service (SaaS) and/or web technologies. For insurance companies, however, it is often unclear what their position is at the moment and how an implementation of a modern IPMS can improve their performance. Insurers that intend to replace their policy administration systems are looking for sustainable technology partnerships and solutions that will support their needs for both personal and commercial lines (Weiss & Forte, 2010).

Furthermore, in the financial world (not limited to insurance) there is a shift from a product-oriented approach to a customer-oriented approach. For instance, in the mid 2000's, Fortis ASR (the insurance division of the larger Fortis Holding) performed a large CRM implementation project to move to a customer-oriented organizational approach and place the customer central in a large number of organizational processes. Although Fortis went through numerous organizational changes and acquisitions due to the financial crisis in 2010, it is an example of an insurance provider aiming to improve customer intimacy by implementing IT and optimizing business processes.

1.2 Objective

In the previous section, we have described the problem domain. Given the situation illustrated in that section, we conclude that many insurance companies often struggle with the modernization of their IPM. Underlying reason of this struggle seems not only to be a lack of understanding modern technologies and their capabilities, but also being unable to see what their current position is and how modernization will improve their performance. Particularly being unable to assess the "as-is" and the "to-be" situation, which is of major importance when implementing new IPM systems, is something that can be addressed with a conceptual solution. We propose addressing that struggle using a situational maturity model.

The approach to develop a solution that fits the problem domain will be an approach based on existing research. The solution will address the problem statement by making use of:

1. BPM Maturity: BPM Maturity can be used as a measure to evaluate the capabilities of an organization (Rosemann & de Bruin, 2005) in the "as-is situation". This way, an organization can get a good picture of the current state of affairs. Using the same approach, the software solution of a possible IPMS provider can be assessed on maturity, giving the organization an indication of where they can move using that software solution. Generic BPM Maturity models are available (Rosemann & de Bruin, 2005), (Melenovsky & Sinur, 2006), (Hammer, 2006), (Fisher, 2004), (Rohloff, 2010), but very few industry-specific maturity models, providing practical guidelines, have been developed (none for the insurance market). A BPM Maturity Model tuned to the insurance market (an IPM Maturity Model) would provide a practical tool in providing a solution to the problem statement.
- Through the use of a model incorporating process increments (van de Weerd et al., 2010), we can identify actions that need to be taken to achieve a higher level of maturity. This way, the model does not serve only as a tool for identifying maturity stages, but also provides a description of actions that need to be taken in improving IPM Maturity. Although fairly new, some research has been done on incorporating process increments in maturity models. For instance, Xing (Xing, 2009) developed an operational procurement maturity model for the construction industry, using process increments.
- Process descriptions to provide insurance companies and insurance software providers with a standardized process model of processes in the P&C

insurance market. Through the use of process models, the IPM Maturity Model will serve as a practical tool with process descriptions that those organizations recognize from the real world, making the placement of a software solution on those descriptions easier. The notation of these models will be the Business Process Management (BPMN) 2.0 standard.

- Performance indicators to indicate how achieving a higher level of maturity will contribute to an organization. This way, we can identify in what way an organization will benefit from implementing process increment. For instance, achieving a higher customer intimacy, operational performance or time-to-market.

We think that a model that incorporates all concepts described above can be an aid for organizations dealing with the problem described in the problem domain. We choose to make use of a situational maturity model instead of a generic maturity, because when using a situational maturity model, we can incorporate market-specific process descriptions and process increments. Using process models and process increments, we increase the recognizability of the model and making adoption of the model easier.

The objective of this thesis project is formally noted as:

Objective: The development of an IPM Maturity Model, focused on processes and IT, for the P&C insurance market in the Netherlands in terms of process models, which also includes process increments for achieving a higher level of maturity.

The thesis project is performed at Quinity B.V. in Utrecht. Quinity is a provider of P&C software solutions and is one of the top players in the Dutch P&C software market and has connections to small and large P&C insurance companies in the Netherlands.

1.3 Scope

The scope of this research is the development of a IPM Maturity Model, consisting of detailed process descriptions, including process increments for achieving a higher level of maturity for use in P&C insurance companies and P&C software providers in The Netherlands. The model takes more generic models into account, specifically the model of Rosemann and De Bruin (2007), but focuses on processes and IT.

Although the model might be applicable on a more generic scale, e.g. on a European level, the model will only be validated for use within Dutch insurance companies. Furthermore, the model will be constructed for use within the Dutch P&C insurance market and is not designed for use in other market within the generic, high-level insurance market. Further research might (or might not) show applicability of the model in the generic insurance market.

Quinity provides software and services to a number of non-Dutch insurance companies. To make the IPM Maturity model as broadly applicable as possible,

international insurance standards (such as ACORD) will be taken into account during this research.

1.4 Hypothesis and Research Questions

Central in this thesis project will be the research question, based on the problem statement. We have formulated the central research question as:

Research Question: How can IPM Maturity be assessed and improved in the P&C insurance market in the Netherlands, using process models and process increments, such that performance increases?

Following the research of Van de Weerd et al. (2010), who concluded that process increments can be used to achieve a higher level of maturity, we think that process increments can be used to increase the performance of an organization:

Hypothesis 1: An increased level of BPM Maturity will also increase the performance of an organization;

Hypothesis 2: Achieving a higher level of maturity will correspond to implementing one or more process increments.

Note that although the focus will be on processes and IT, we state that achieving a higher level of maturity will mean that other capabilities besides processes and IT need to be taken into account and aligned with the processes and the IT. The non-process-related factors need to be aligned with the process increments.

Performance will be measured in three areas: operational excellence, business innovation and customer intimacy, based on the value disciplines (operational excellence, product leadership and customer intimacy) as defined by Treacy & Wiersema (1993). We have chosen these three areas since organizations tend to be strong in one area and develop one or two areas further.

In addition to the central research question, we pose several sub questions:

1. What is the current state of IPM in the (P&C) insurance market? What are drivers for IPMS implementations? Are maturity models being applied?
2. How can a generalized process overview for P&C insurance be identified that is detailed enough to describe the processes in sufficient detail, but generic enough to apply to multiple organizations and is maintainable?
3. What are the advantages and disadvantages of using process increments in situational maturity models?
4. What maturity factors and performance indicators for achieving a higher maturity level, can be identified?

1.5 End-product description

The main deliverable of this thesis project is an Insurance Process Management Maturity Model (IPMMM), based on process descriptions and process increments.

Although the main deliverable is the IPM Maturity Model, it is composed of several sub-deliverables that make up the IPM Maturity Model:

- High-level process identification schema
- Process descriptions
- Process increments
- Performance indicators
- Maturity factors

Besides the main deliverable and the sub-deliverables, another deliverable will be the mapping of an IPM software product to the process model. This will serve to answer the related sub question and as a practical application of the process model. Finally, that mapping (the QIS Process/Functionality Mapping Model, or QPFMM), will serve as a practical application of the IPMMM and as a case study and possibly a practical validation.

In the following sections, a description of the main deliverable will be given.

1.5.1 Process descriptions

The main component of the IPMMM is the process model of the P&C insurance market. The process model consists of multiple process descriptions. Several levels of detail (generic – specific) will be identified. On the top level, a distinction will be made between organizational focus areas, such as business management, contract administration and finance.

It is possible to apply an even more generic level of detail, dividing the processes above into primary/secondary processes, general management and supporting processes.

Each focus area has one or several capabilities (Figure 1). For instance: Contract administration can be divided into policy administration/management and non-policy administration/management. A sub-capability can further be divided in processes, making the following division:

- Focus area 1
 - Capability 1.1
 - Process 1.1.1
 - Process 1.1.2
 - Capability 1.2
 - Process 1.2.1
 - Process 1.2.2
 - Process 1.2.3
 - Capability 1.3
 -

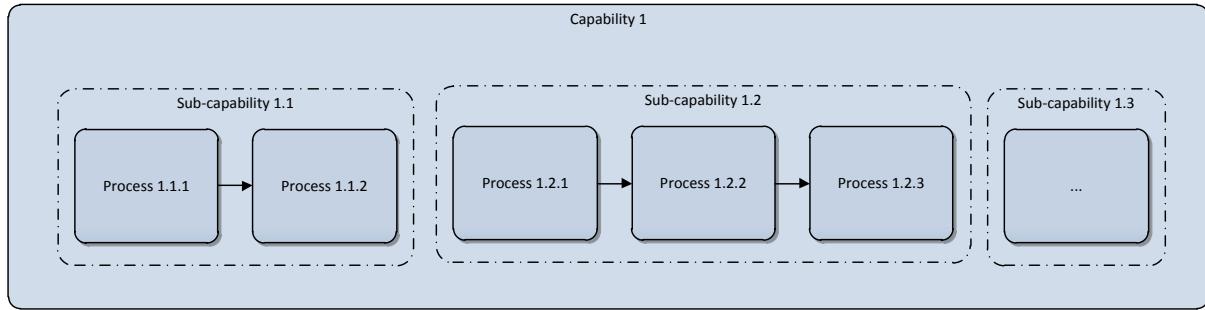


Figure 1: Capabilities containing sub-capabilities

Each process consists of several activities that are described in the BPMN2.0 notation. In Figure 2, an example of a process is visualized.

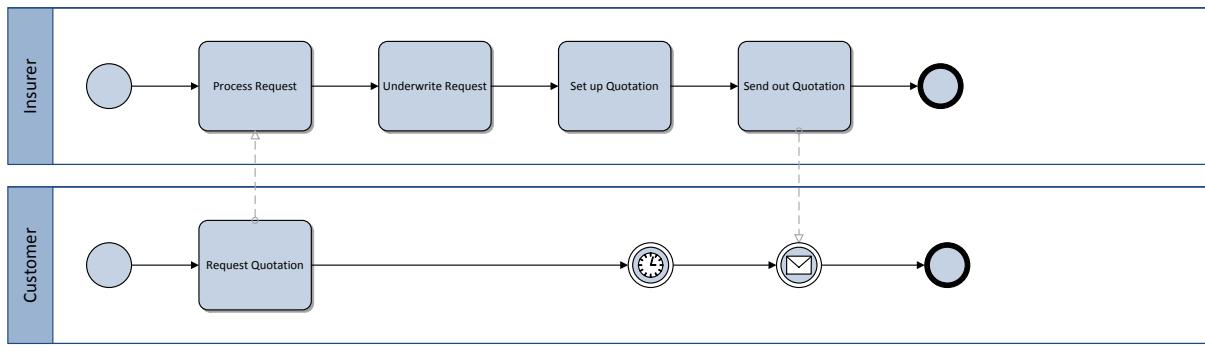


Figure 2: Process Description

All process descriptions are combined into the process model. This process model is the basis of the IPM Maturity Model. The Maturity component is identified within the process model. In the description above (Figure 3), all process parts are user actions. One can imagine, however, that when parts become automated, the maturity of IPM rises. In Figure 4, for example, parts of the process are automated (marked with green). Process parts (activities) can be automated, but also choices can be made by an IPMS rather than a person.

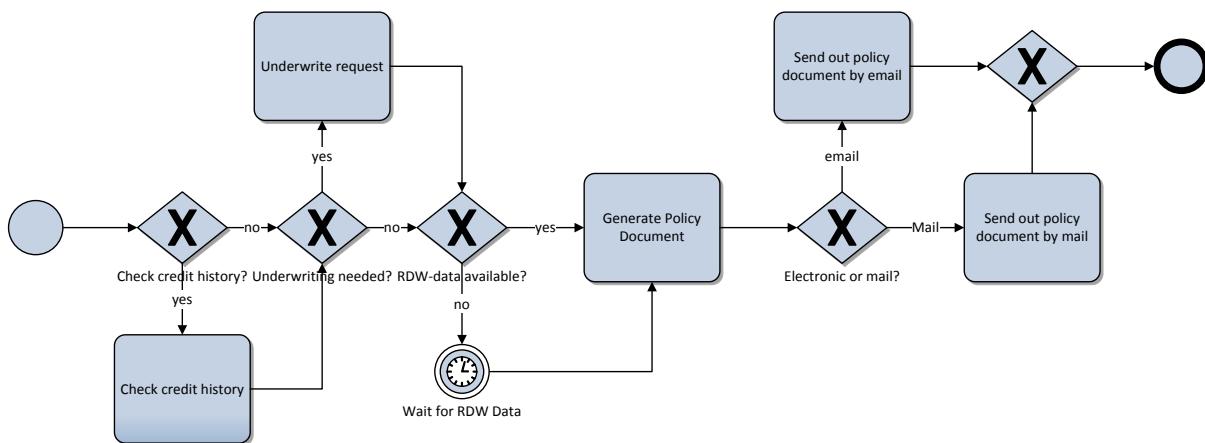


Figure 3: Manual process parts

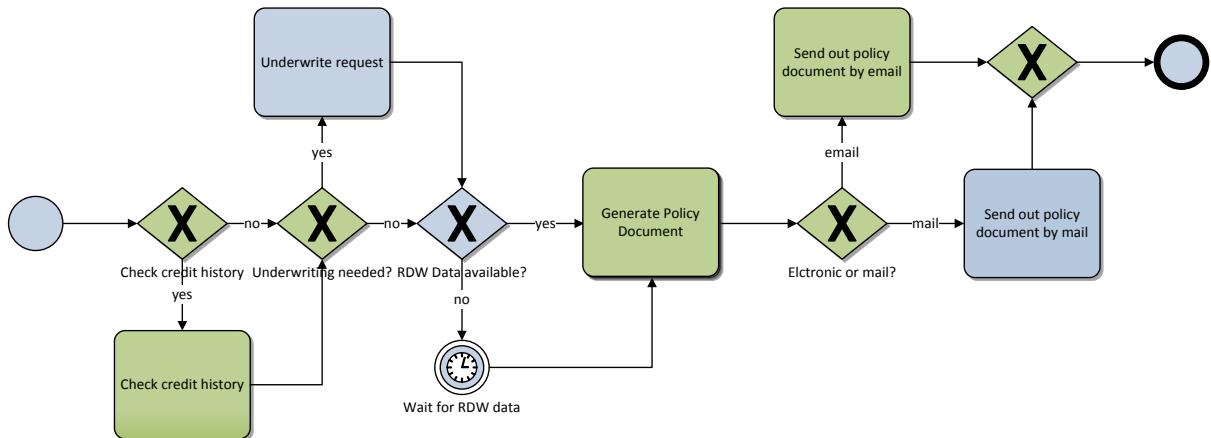


Figure 4: Automated process parts

The process depicted in Figure 4 is considered to be more mature than that in Figure 3. Or, more formal, the IPM Maturity of the organization in Figure 4 is considered to be higher than that in Figure 3. The detailed descriptions of a step in Figure 3 and 4, or more specific, the changes between them, are considered the process increments: how to get from Figure 3 to 4. It is to be decided later whether the model will have a predefined number of maturity levels or that another construction will be used.

1.5.2 Performance Indicators

Another part of the IPM Maturity model is a collection of performance indicators that indicate how a process increment will benefit an organization, generally on one of three levels. For instance, a performance indicator for the process increment "Melding fiatteren" (Authorize claim) could be:

Process Increment	Benefits	Description
Authorize claim	Operational Excellence	Automating the increment "Melding Fiatteren"(Authorize claim) will increase operational performance, since it shortens the time needed to either accept or decline a claim by eliminating human interaction. It includes automating checking both whether the claim needs to be authorized and the actual authorization.

Table 1: Performance indicator example

Each increment will have one or more performance indicators.

1.5.3 Maturity Factors

Finally, the model will contain a number of maturity factors. The maturity factors define the level of maturity, indirectly. A maturity factor is a factor that needs to be taken into account to achieve a higher level of maturity. They are achieved through

how the processes are executed, managed, automated and optimized. For instance, Policy Request and Underwriting can be done completely manually, but means for achieving straight-through-processing (STP) can be implemented, making human intervention minimal or obsolete. There are, however, several levels in-between that are hard to define and bridge the gap between a completely manual process, and a completely automated process.

Maturity Factor – Level of automation	
1. Manual	A manual activity is executed entirely by an actor.
2. Partly automated	A partly automated activity is executed partly by an actor and partly by the system.
3. Automated	An automated activity is executed entirely by the system.

Table 2: Maturity factor example

The maturity factors will be based on a maturity model from the literature. What model will be applicable and what elements will be used from that model will be discussed further on in this thesis.

1.6 Research method overview

The research methodology that we will use to conduct the thesis project is the design research approach. As Hevner, March & Park describe, "the design science paradigm seeks to extend the boundaries of human and organizational capabilities by creating new and innovative artifacts" (Hevner, March, Park, & Ram, 2004). It is a useful approach when the solution of the problem requires the design of an abstract artifact, such as a piece of software, a method, framework or a model.

Design research consists of a cycle of five steps (Takeda, Veerkamp, Tomiyama, & Yoshikawa, 1990):

- 1. Problem awareness:** Identify what the problem is and why it is a problem.
- 2. Suggestion:** Suggesting the solution to the in (1) identified problem.
- 3. Development:** The proposed solution (artifact), suggested in (2), is developed.
- 4. Evaluation:** The in (3) developed artifact is tested and validated. After evaluation, it might be necessary to improve or adjust the artifact and return to the development phase.
- 5. Conclusion:** The results are summarized and the artifact is delivered.

The problem awareness and suggestion steps are covered in the introduction (section 1) and the related literature (section 2). The development is discussed in section 4, evaluation in section 5. The conclusion will be provided in the final sections of this thesis document.

A more detailed description and operationalization of the research method will be discussed in section 3: Research Method.

1.7 Research contribution

In this section, the contribution of this thesis project will be addressed. We employ two typical perspectives: the scientific perspective that describes the benefits to the scientific/academic community, and the social perspective, that describes how society can benefit from this research project.

1.7.1 Scientific contribution

BPM is a subject that becomes more and more important to businesses (Hammer, 2006) (Smith & Fingar, 2003). Research in the field of BPM has been performed on several sub-domains. For instance, (Kohlbacher, 2010) indicates that BPM can aid an organization in gaining higher customer satisfaction, product quality, delivery speed and time-to-market. Besides generic researches on the topic of BPM, more focused studies such as (Vera & Kuntz, 2007) state that industry-specific BPM (in the case of the study, in the health care sector) has a positive effect on organizational efficiency. Seeing as IPM is a subset of BPM, this research can be placed in the research domain of BPM.

More recent developments in the area of BPM are maturity models and the use of process increments in maturity models. For instance, Gartner published a six-phase maturity model for successful BPM adoption. The Gartner Six-Phase Maturity Model contains six stages of BPM maturity, ranging from “Acknowledge operational inefficiencies” (phase 1) to “Agile business structure” (phase 6) (Melenovsky & Sinur, 2006). Besides Gartner’s Six-Phase model, other models that incorporate a similar, multi-phased approach to identifying are available, e.g. the Business Process Management Maturity model (BPMM) as described by (Michael Rosemann & de Bruin, 2005), that uses 5 stages of maturity. Furthermore, maturity models that are not directly designed for BPM implementations, such as (Batenburg & Versendaal, 2008)'s model for Procurement Maturity could provide valuable input for the construction of an IPM maturity model.

Process increments, as described by (van de Weerd et al., 2010) can be used in maturity models to indicate the actions that need to be taken to achieve a higher maturity level. This makes a maturity model using process increments a more practical tool for BPM implementations. An example of the use of process increments in maturity models is described by (Xing, 2009). However, research showing process increments used in maturity models is very limited. This thesis project can be used to extend knowledge of process increments in maturity models and their practical application.

The development of an industry-specific maturity model, based on process descriptions, can provide us with an alternative to matrix-based (CMM-based) maturity models. The inclusion of process increments in a maturity model can further establish process increments in the use of maturity models, seeing as process increments are not widely used in such models. Furthermore, the research adds a situational model to the existing BPM knowledge. Besides the scientific value, the

research also has a valuable practical value, which will be described in the next section.

1.7.2 Practical contribution

Quinity, as one of the Netherlands' largest P&C insurance software providers, encounters a number of problems when implementing their solution at new customers. For instance: during the sales stage, it is often unclear how an IPM solution can improve the current situation in terms of process support. Before the implementation of QIS, for a customer it is often difficult to compare the "as-is situation" with the "to-be situation". A model that can aid in this comparison, taking functionality-to-process mapping into account, can prove to be a valuable tool in implementing an IPM solution.

Although generic maturity models can be used for IPM implementations in the P&C insurance market, a situational maturity model, designed especially for that specific market, would provide a more practical tool for IPM implementations. This research aims to fulfill that desire and provide a situational maturity model, incorporating the practical benefits of process increments and performance indicators.

1.8 Outline

This thesis document is organized as follows. The first section contains the introduction of the thesis. It describes the objective and scope of the research, a description problem domain, a formulation of the hypothesis and the research questions. Furthermore, a global description of the model is provided and both the scientific and practical contribution are discussed.

Section two describes the research method of the thesis project. It describes in detail the methods and protocols used in executing the research project. It covers various aspects of the research project, including a description of the research method employed in the literature review and general design science research. Furthermore, it contains a description of employed methods for the semi-structured interviews for data gathering and the validation interviews.

The third section contains a detailed literature review of relevant scientific and domain literature. On the topics of BPM and Maturity Models, the dominant models and literature are discussed, along with lesser-known models to bridge the gap to IPM Maturity, which is a topic not yet deeply researched. Furthermore, literature on process increments is reviewed, which also is a fairly new topic in IS research.

Section four describes the construction of the model, divided in the major components of the IPM Maturity Model: the process models, the maturity levels and how it is determined, the performance indicators and the process increments (which are closely related to the process models. Furthermore, it contains a mapping of an IPM software product to the process model and a concept version of the model in its entirety.

The results will be presented in section five. It will contain the final version of the model and the validation results. Besides presenting the results, it will also serve as the evaluation of the thesis project.

In section six, a summary of the results will be presented, along with identified limitations of the research and suggestions for future research. The conclusion is presented in section seven.

2 Research Method

As described in section 1.6, the main research method that will be employed during this thesis project is design science research (Vaishnavi & Kuechler, 2004; Vaishnavi & Kuechler, 2008). The reason for choosing this approach is that the main objective of the research is to produce an abstract artifact: a maturity model.

2.1 Research Questions

At the beginning of the thesis project, the main research question was posed: *How can IPM Maturity be assessed and improved in the P&C insurance market in the Netherlands, using process models and process increments, such that performance increases?*

In addition, four sub research questions were posed in aiding the answering of the main research question:

1. What is the current state of application of maturity models for IPM in the (P&C) insurance market?
2. Can a generalized process for P&C insurance be identified that is detailed enough to describe the processes in sufficient detail, but generic enough to apply to multiple organizations and is maintainable?
3. What is the added value of using process increments in (situational) maturity models? What are disadvantages?
4. Can maturity factors and performance indicators, for achieving a higher maturity level, be identified?

2.2 Design research

In information research, a distinction is made between behavioral-science research and design-science research.

Behavioral science is concerned with theories that seek to predict and/or explain events that occur when an artifact is (intended to be) used, perceived usefulness and impact on individuals and/or organizations depending on system, service and information quality (DeLone & McLean, 2003).

Design science, on the other hand, creates and evaluates IT artifacts intended to solve identified organizational problems (Hevner et al., 2004). IT artifacts can be defined as constructs (vocabulary and symbols), models (abstractions and representations) and instantiations (prototype and implemented systems). In this case, we seek to develop a model, seeing as we want to develop a BPM maturity model. The process of constructing IT artifacts enables the researcher to understand the problem addressed by the artifact and the feasibility of the approach to its solution (Hevner et al., 2004). Figure 7 describes the design science framework as described by Hevner et al., 2004:

- Environment: Defines the problem space in which resides the events of interest. In our case, this is the P&C insurance market. It is composed of

people, organizations and their existing or planned technologies operating in the market. There is always a business need (a need to solve a problem) to develop an artifact. Framing research activities to address business needs assures research relevance.

- IS Research: The research is conducted in two complementary phases:
 - Design science is done through the development and building of artifacts and/or theories. In this case it is the development of the BPM maturity model.
 - Behavioral science is done through the justification and evaluation of the constructed model. In this case it concerns the validation of the model. There is a cycle of assessment/refinement between the behavioral and the design part.
- Knowledge base: Provides the raw materials on which the research is based. It contains foundations and methodologies provided by prior information systems research and provide the researcher with the applicable knowledge for his thesis project. In the case of our thesis project, applicable knowledge can be BPM (maturity) theories and models, insurance standards, vendor knowledge, insurance company's knowledge, and BPMN. Rigor is achieved by appropriately applying existing foundations and methodologies.

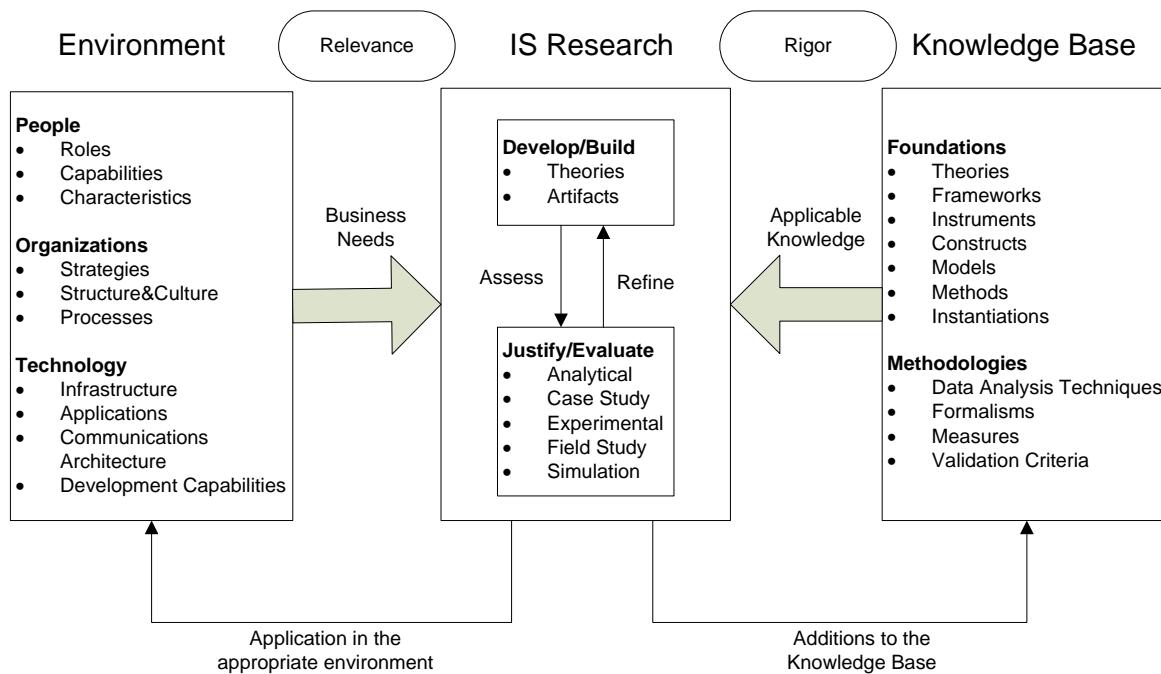


Figure 5: Design science research (cf. Hevner et al., 2004)

2.2.1 Guidelines to design science research

Besides a framework, Hevner et al. provide us with guidelines for high-quality design research. Below, we describe the seven guidelines and how they are achieved in this thesis project:

1. **Design as an Artifact:** The product of design science research that is developed must be an artifact in the form of a construct, a model, a method, or an instantiation (Hevner et al., 2004). In this thesis project, the goal is the development of an artifact in the form of a maturity model.

2. **Problem Relevance:** The objective of design-science research is to develop technology-based solutions to important and relevant business problems (Hevner et al., 2004). This guideline is addressed in the introduction, where the problem domain is discussed. The research question is based on market reports of a renowned market analyst agency.
3. **Design Evaluation:** The utility, quality, and efficacy of a design artifact must be rigorously demonstrated via well-executed evaluation methods (Hevner et al., 2004). Therefore, the IPM Maturity Model is evaluated using the *informed argument* evaluation methods that used information from the knowledge base and the opinions of experts to evaluate correctness, completeness and utility of the constructed artifact (Hevner et al., 2004).
4. **Research Contributions:** Effective design-science research must provide clear and verifiable contributions in the areas of the design artifact, design foundations, and/or design methodologies (Hevner et al., 2004). This guideline has been discussed in section 1.7.
5. **Research Rigor:** Design-science research relies upon the application of rigorous methods in both the construction and evaluation of the design artifact (Hevner et al., 2004). This section (research method) is the primary descriptor of how sufficient research rigor will be achieved.
6. **Design as a Search Process:** The research should be organized as a search for the solution of the problem (Hevner et al., 2004). In this case, the problem is the absence of an IPM Maturity Model. As a solution the search process is organized as a step-by-step approach with several research phases (awareness, suggestion, development, evaluation, conclusion), with set deliverables.
7. **Communications of Research:** Design-science research must be presented effectively both to science-oriented as well as practice-oriented audiences (Hevner et al., 2004). Communication to the science-oriented audience will be this final thesis, while the practice-oriented audience will be served better by a publication in an industry-oriented magazine.

Although the research is based on the design research framework discussed in previous sections, the project will adhere to the five phases of design research as identified by Takeda et al. (1990), which was identified in section 1.6, research method. This will be discussed in the next section, the research method operationalization.

2.2.2 Research Method Operationalization

While the previous sections described the general research approach and guidelines how to achieve high-quality design research results, this section will discuss how the research will be conducted in the form of the operationalization of the research method.

In section 1.6, we have described the research cycle described by Takeda et al. (1990). Whereas Hevner et al. describe a research framework (as described in section 2.2), Takeda et al. provide us with a research cycle. They provide us with a five-phase approach to design research, with the opportunity to follow an iterative approach. Below, the five phases are identified. Figure x visualizes the cycle. In the section below the identified phases, each phase will be discussed in detail.

1. **Problem awareness:** Identify what the problem is and why it is a problem.
2. **Suggestion:** Suggesting the solution to the in (1) identified problem. The suggested solution will be based on the results of a literature review and semi-structured interviews with domain experts.
3. **Development:** The proposed solution (artifact), suggested in (2), is developed.
4. **Evaluation:** The in (3) developed artifact is tested and validated. After evaluation, it might be necessary to improve or adjust the artifact and return to the development phase. Evaluation will consist of semi-structured validation interviews.
5. **Conclusion:** The results are summarized and the artifact is delivered.

Problem awareness: The beginning of the thesis project is identifying the problem. The problem awareness is described in the introduction section. To summarize briefly: many insurance companies are struggling with inflexible, monolithic and technologically outdated policy administration systems, which are often home-grown and heavily modified. Both business and technology issues make insurance companies think more and more of updating or replacing their systems. Although they do acknowledge the need to update or replace their systems with modern technologies such as SOA-based and SaaS-based software, they struggle with the modernization process, seeing as it is often unclear how a new software solution can improve their performance.

Based on the identified problem, we have deducted the main research question. The research question incorporates the envisioned solution to the suggested problem: to create a model that will aid in (partially) solving the problem. Besides the main research question, five sub-research questions were incorporated in the research, to aid in answering the main research question.

Suggestion: The primary function of the suggestion phase is to propose a solution to the problem identified in the problem awareness phase. The suggested solution is a

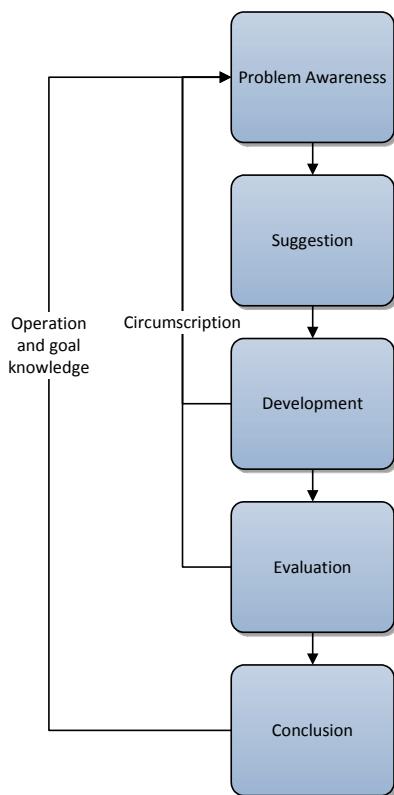


Figure 5: Design research cycle
(cf. Takeda et al., 1990)

maturity model for insurance process management, using process models to identify both the as-is (X) situation and the to-be (Y) situation. This way, organizations can identify their current state of IPM and identify where they want to go with their IPM. Using process increments, not only the as-is and the to-be situation are identified, but also the means (Δ) to move from X to Y ($X+\Delta=Y$). We think that a maturity model, based on a standardized industry process model can be used to identify the current state of IPM at insurance providers. By taking the current state of technology and the opportunities of modernization into account, we can identify the intended situation. The process increments can be viewed as the means to get there.

We think that the suggested solution will indeed be a valuable tool for IPMS implementation and modernization. As the literature research showed, no such solution is yet available for this market. Literature does indicate that maturity models using process increments can provide a valuable tool for achieving a higher level of maturity.

In section 1.5, a proposed model was constructed as the framework for the eventual model. Although the proposed solution in section 1.5 does not contain any actual data, but only the skeleton of the proposed solution, it does show the elements needed for the proposed model. The actual model will be described in section 4 (Model Construction). Construction of the model was based on both literature results and interviews with IT and insurance professionals.

Development: The development phase is closely related to the suggestion phase. The main difference, however, is that in the suggestion phase the proposed solution is actually only suggested. In the development phase, the proposed solution is actually developed. Whereas suggestion is the idea of a solution and the theoretical background of the solution, the development includes the practical development of the model. In this phase, interviews will be used to gather data on the proposed solution. For instance, the process model were constructed (based on interviews and literature), maturity factors will be identified (again, using literature and interviews) and the process increments were identified (using literature and interviews). These components were combined into the final deliverable, the IPM Maturity Model. It will, however, still need adjusting and validating before the model will actually be the final deliverable. In this phase we will also map an IPM software product to the process model to test the process model and provide us with a means of validation.

Interviews are an important source of information for the IPM Maturity Model and its components. To ensure that the gathered data are as reliable as possible, interviews were conducted several domain experts.

Evaluation: After the development phase has been completed, evaluation of the developed artifact can be performed. Evaluation of the artifact will be performed by validating the model at several insurance providers. Although during development, there will be several reviews by domain experts, the actual validation of the model will be performed in this phase. By making use of the knowledge of

experts of insurance organizations, we make sure that the model is validated by experts who will eventually use the model.

The evaluation (or more specific, validation) of the model will consist of a number of expert interviews at several insurance organization. The model will then be validated in terms of completeness, correctness and practical applicability.

Conclusion: Once the development and validation of the model had been completed the findings were summarized and analyzed in section five and six. This includes discussion on the conducted research, including limitations of the research and proposed future research.

In figure 6, a schematic overview of the thesis project is provided, which illustrates the different phases of the project and their activities.

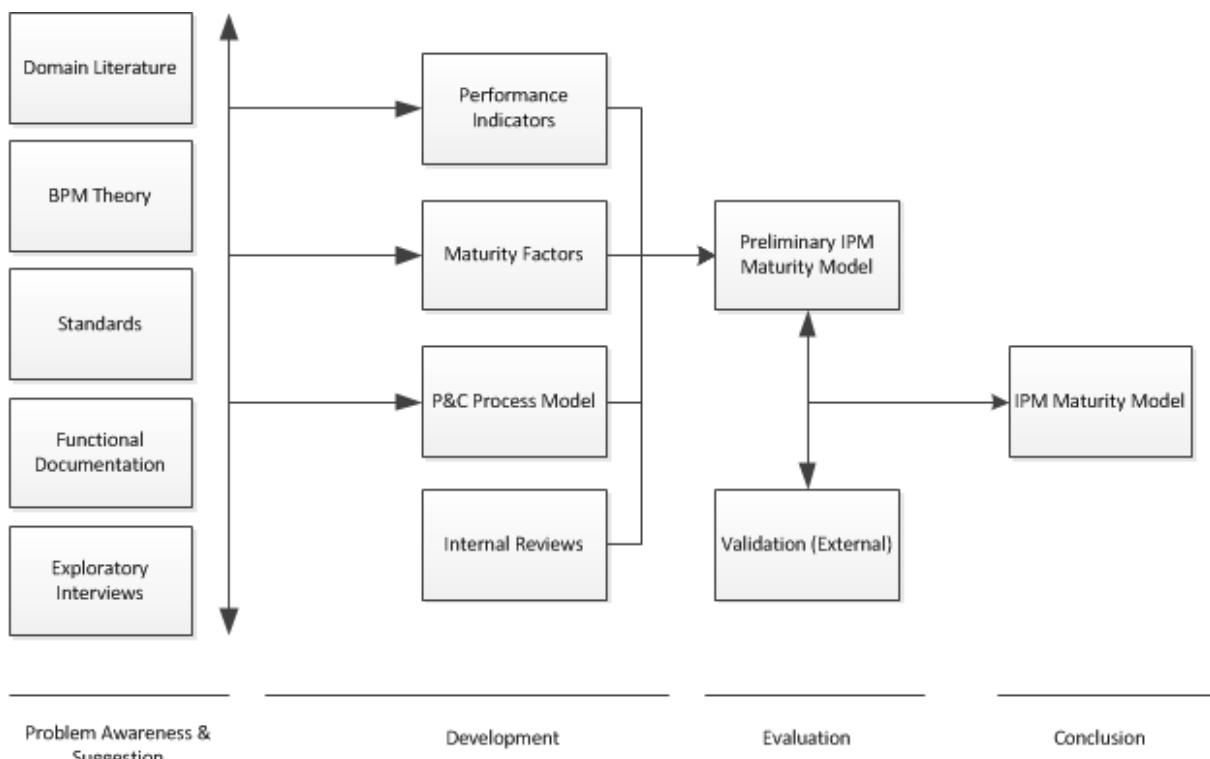


Figure 6: Research Model

Besides the design science research approach (which is the overall research approach), several research methods were employed during the thesis project. Table 3 summarizes the research methods used:

Research Phase	Research Method
Problem Awareness	Literature Study
Suggestion	Literature study Exploratory interviews: Semi-structured expert interviews for data gathering
Development	Literature study

Evaluation	Validation interviews: Semi-structured expert interviews for evaluation
Conclusion	-

Table 3: Research methods per phase

2.3 Literature study

The literature study is not conducted by applying a highly structured research method for literature review. Instead, we use a more flexible approach. Main reason for this choice is that the literature study is a supporting method for the main research approach. Furthermore, we are combining research fields (BPM Maturity and process increments), that have not been researched in great detail, so the number of studies on that particular subject is expected to be low.

Some structure was imposed by following the guidelines for semi-structured literature review for discovering relevant literature (Webster & Watson, 2002):

1. Major contributions are likely to be in leading journals;
2. Work backward by reviewing citations in the articles found in (1);
3. Work forward by reviewing articles that cite the article found in (1).

In addition to using the principles described above, specialized search engines were used for obtaining relevant scientific literature.

- Google Scholar: <http://scholar.google.com/>
- ISI Web of Knowledge: <http://apps.isiknowledge.com/>
- Omega (search engine of the University Library of the Utrecht University: <http://omega.library.uu.nl/>)

For each subject, several related search queries were used:

Business Process Management	BPM Maturity
Business Process Management	(BPM) Maturity Model
Insurance Process Management	BPM Maturity
Process Management	CMM/Capability Maturity Model
Business Process Management Insurance	CMM-based Maturity Models
BPM Lifecycle [life cycle]	Process Maturity Model
BPM Insurance	Maturity Factors
	BPM Maturity Insurance

Table 4: Search queries in the literature research

Process Increments	P&C Insurance
Process Increments	Insurance process models
Method Increments	Insurance standards
Application process increments	ACORD
Application method increments	ACORD process model(s)

IBM IAA
(IBM) IAA process model(s)
eEg7
ISO 20022
Insurance standard models
Insurance process
Insurance standardization

Table 5: Search queries in the literature research (2)

The amount of relevant literature differs for each subject. For the subjects BPM and BPM Maturity, a lot of literature is available. Using the guidelines of Webster and Watson, we have been able to identify the most important works for the related literature study. These guidelines helped in filtering the large amount of literature available. References in papers described in leading journals were followed and work related to those papers was identified.

On the subjects of process increments and P&C insurance, the amount of relevant literature was a lot smaller. On the subject of P&C insurance, most findings were published in research reports by industry analysts, such as Gartner. Although these sources are not considered scientific research, they do address the market, trends and struggles. Therefore, we consider these market reports valuable sources of information regarding the P&C insurance industry.

Literature on the subject of process increments is very limited. Due to the fact that the use of process increments is not yet a widespread concept, very little research has been performed on this subject. We chose to include research broader than process increments only. This means that we have taken literature on method increments into account as well. We think that this is a reasonable assumption, since process increments are instantiations of method increments, as will be described in the section *Related Literature*.

2.4 Exploratory interviews

Interviews with several domain experts are a crucial part of the thesis project and are a vital source of information. The interviews are performed in two rounds. The first round is exploratory in nature and the main goal is to gather information for the construction of the process models and other aspects of the IPM Maturity Model. The information gathered in the first round of interviews (along with information gathered from literature and documentation review) will serve to develop a concept version of the model. The second round of interviews will serve to validate the constructed model and to make some final tweaks to the model. This section will describe the first round of interviews: the exploratory interviews.

The method we have selected for performing the interviews is semi-structured interviewing. The use of semi-structured interviews allows new questions to be brought up during the interview as a result of what the interviewee answers, allowing greater flexibility than structured interviews (Lindhof & Taylor, 2002). A predefined questionnaire is used during the interview to cover the items that are important for

construction of the model, but the semi-structured approach allows for expanding on topics that are important, but are not in the questionnaire.

2.4.1 Selection of the interview candidates

The interview candidates were selected from Quinity, based on their expertise on several sub-domains within the insurance domain. Although we initially aimed for additional interview candidates, this was not possible due to unavailability of other candidates outside of the organization. Interviewees were selected based on their expertise on damage and claims, policy management or a more generic expertise on processes in the insurance market. Quinity has over one hundred employees (predominantly in software development and consultancy) and over ten years experience in implementing insurance software solutions. They have implemented their software solution in medium-sized and large insurance providers and large banking organizations.

The selected interviewees each had a number of years experience in their domain and have a senior-level (or higher) function. The highly objective nature of the information resulted in a relatively low number of interview candidates. This is related to information saturation: the interviews did not provide us with new information. Table 5 lists the interviewees and their roles:

Interviewee	Area of expertise	Role
1	General Insurance	Executive Manager
2	General Insurance	Executive Manager
3	General Insurance	Senior Consultant

Table 6: Interviewees and expertise and role

Although this might seem as a small number of interviews, the objective nature of the data resulted in the need for only a small number of interviews. This was seen in the fact that all interviews resulted in similar answers and interviewees mostly identified the same points of improvement. More interviews would presumably not have presented new data or new problems.

2.4.2 Interview structure

The objective of the interviews was to get insight in the problem domain and gather requirements of the proposed model. Furthermore, the interview served as validation of findings from the literature review, proposed ideas for the model and as validation for the process models.

The interviews were conducted using a semi-structured interview approach, where a number of predefined questions were posed to inform the interviewees and to gain insight in several sections. Before the interview, the interviewees were provided with a concept version of the model.

The interviews followed the following interview structure:

- The first part of the interviews focused on introducing the research. The topic and several definitions were provided to the interviewees to get a clear view

of the topic. Furthermore, the research and the research goals were described. The interviewees were asked if they would object to the interview being recorded on audio and they were asked to view problems from a non-specific point-of-view (so a point of view from the market's generic perspective, not necessarily the POV of a software provider). Finally, the structure of the interview was discussed shortly.

- The second part of the interviews focused on the interviewee: their background and position in the organization (their function and role and how long they have been active in the domain) and their area of expertise within the P&C insurance domain.
- The third part of the interviews was concerned with getting information on the context of the organizations (the organizations that implemented the software solution) and the context of the P&C insurance market. This part contained questions regarding the focus areas for an IPM implementation, what are the primary processes for automation and other factors that have a role in IPM implementation.
- The fourth part focused on the model being developed. The interviewees were provided with a process overview and process models and were asked if the models were correct, complete and understandable. Furthermore, they were asked if processes should be combined or deleted and if the flows were modeled correctly.
- The final part of the interviews consisted of some closing questions (whether the interviewees have missed something or needed additional information) and some questions regarding the follow up of the interview.

The interview protocol for the data-gathering interviews can be found in appendix 1A.

The semi-structured nature of the interviews allowed for additional questions as they come up during the interview. This has shown to be of great value, as interviewees often come up with personal experiences or identify problems that were not anticipated. The interviews were around one to one-and-a-half hours in length.

2.5 Validation interviews

After development of the model, several validation interviews were performed both at Quinity and at three insurance providers. The validation of the model was twofold. First, we performed validation interviews at Quinity (the "internal" validation interviews) to make sure that the model that we developed was sufficient in quality to present to several insurance providers. These interviews focused mainly on correctness and completeness of the model and process models.

Second, the model was validated at three insurance organizations (the "external" validation interviews). Although correctness and completeness were an important aspect of these interviews, the main focus was practical application of the model.

The insurance providers were both medium-sized and large insurance providers. During the validation interviews, the correctness, completeness and usability/practical application of the model was tested. The interviews at the insurance providers were performed with an interviewee in a management role and an interviewee in a process architecture role in the organization.

A predefined questionnaire is used during the interview to cover the items that are important for validation of the model, but the semi-structured approach allows for expanding on topics that are important, but are not in the questionnaire. The structure of the validation interviews was more strict than the earlier interviews though.

The internal and external interviews were structures largely the same, as they focused on similar aspects of the model. The external interviews, however, were longer and contained more questions, since practical application was discussed only in the external interviews.

2.5.1 Selection of the interview candidates

The candidates for the validation interviews were selected from a number of insurance organizations in The Netherlands. The organizations we have selected were in the process of implementing a new software solution for their primary process (-es), or have completed such an implementation in the last years. After polling a number of insurance organizations, three insurance providers indicated that they wanted to participate in expert validation.

The insurance providers provided us with experts for the interviews. This consisted of a small team of experts, usually a manager in a project management role (with a high-level overview of the implementation project) and an employee that had detailed expertise in process management and/or process architecture. This provided us with both knowledge on high-level processes (for the process overview model) and knowledge on the processes itself (the process models). This allowed for validation of the different parts of the model in the same session.

Table 7 lists the interviewees and their roles:

Organization	Area of expertise	Role
1 (Quinity)	General Insurance	Executive Manager
	General Insurance	Executive Manager
	Damage and claims	Managing Consultant
	Policy Management	Software Architect
	Generic Insurance	Senior Consultant
2 (Large insurer)	General Insurance	Operational Manager
	Process Management	Process Architect
3 (Medium insurer)	General Insurance	Change Manager
	Process Management	Business Analyst
4 (Large insurer)	Process Management	Finance & Control Process Expert

Table 7: Interviewees expertise and role

2.5.2 Interview Structure

The interview structure followed roughly the same structure as the data-gathering interviews. The interviewees were provided with the complete model (that is, all components of the model) in preparation of the interview.

The interviews started off with an introduction to the research, explaining the research, its goals and deliverables. Several important definitions were given and the background of the master programme was provided. The intended model was described, explaining the different parts of the model and their function. This was accompanied by a visual description. Finally, the goal of the interview session was described and what the needed input was. Also, some room for questions was provided.

After the introduction, the interviewees were asked to describe their background in terms of their role in the organization, their role in the implementation project and how they were involved in process management in the organization. Some questions regarding the context of the organization were posed, such as the use of BPM in the organization, the use of (situational) maturity models and the triggers and goals of the software implementation project. Additionally, some questions on the expected shift towards a more customer-centric approach were posed.

After the previous parts, the focus shifted towards validating the developed model. We used a “top-down” approach, where the process overview was discussed first, then the process models and finally the maturity model.

The process overview was discussed first. The interviewees were asked if the focus area that we identified were recognizable. Then, per focus area, we asked if the processes per focus area were recognizable, correct in terms of placement and naming and if there were any superfluous and/or missing processes. After discussing the process overview model, the process models were discussed. For each process, we asked whether the processes were modeled in an understandable way, if the processes correctly depicted the primary process and if the activities and flows were modeled complete and correct.

Finally, we focused on the maturity model. A brief explanation of how to use the model was provided and the model was evaluated in terms of practical application and whether it would have been a useful tool before a software implementation and whether it would serve as a periodical assessment tool. Furthermore, we asked if points of improvement could be identified by the interviewees.

At the end of the interview, there was room for additional questions by the interviewees, some time was dedicated to the follow-up of the interview and the interviewees were thanked for their time. The validation interviews were two hours in length.

3 Literature Study

In this section, the results of the literature study will be discussed. The section will be divided into several sections, all covering a specific topic of the literature study. In the first section, an overview of the P&C insurance market will be provided, including the state of IT in the P&C insurance market, standards and the current state of IPM maturity models. The following section (3.2) will describe the BPM-related literature relating to general BPM and situational BPM (IPM). Section 3.3 will describe the findings of maturity-related literature and finally, section 3.4 will discuss the current state of process increments and their application.

The literature study will serve to satisfy a number of knowledge goals:

- What does the P&C insurance market look like? How are standards being used and are maturity models being applied? What are other trends?
- What is BPM and how can it be used in the P&C insurance context?
- What maturity models are available, and what are their advantages and disadvantages?

Since the P&C insurance market is a market that is not very visible for people outside the market, we will first describe what exactly entails P&C insurance.

3.1 P&C Insurance

Insurance can be seen as a form of risk management. Risk management means to take (preemptive) measures to adequately counter a loss in the case of a risk leading to actual damage, in any form (Claes, van Dijk, & Winters, 2008). It is the equitable transfer of the risk of a loss, from one entity (the insured) to another (the insurer), in exchange for a payment (usually a premium). The insured receives a contract, called the insurance policy, which details the conditions and circumstances under which the insured will be financially compensated (coverage).

Insurance can be found in many forms, all covering certain events. For instance, life insurance insures the relatives of an insured person of a certain amount of money following the death of the insured person. Other insurance types are (for instance): insurance against fire damage, disability, health insurance and liability insurance. In this thesis, however, we specifically focus on property and casualty insurance (P&C Insurance).

Property and casualty insurance implies insurance for:

- Property: Insurance against damage to property. Insured objects and coverage are specified in the insurance policy;
- Casualty: Insurance against accidents (not necessarily tied to any specific property).

3.1.1 IT in the P&C Insurance Market

The insurance industry is no exception to increasing IT efforts. Gartner describes that BPM is strong in the insurance industry, helping insurance providers at multiple levels,

delivering both short-term return-on-investment and long-term value. BPM is imbedded in nearly every modern, horizontal solution today (Sinur & Thompson, 2003). Although BPM solutions are proven to be a successful aid for insurance organizations, many European insurers are still struggling with inflexible, monolithic and technically outdated policy administration systems, which are often home-grown and heavily modified (Weiss & Forte, 2010). According to (Stagg-Macey, 2011), insurance companies are aware of the limitations of legacy systems. They describe the main impacts for insurance organizations of using legacy systems:

- High time-to-market of new products;
- Inflexibility of applications;
- Inflexibility of data models;
- Difficulties with integrating (new) systems;
- Difficulties with adopting to new channels;
- Declining availability of legacy skill sets (e.g. COBOL programmers);

However, cost reduction seems not to be the main driver for legacy modernization. The biggest driver for modernization seems to be to improve business agility. Still, only about half of the insurance organizations are actually modernizing their systems (Stagg-Macey, 2011). Celent, one of the leading research and consulting firms for the insurance market, states that it is imperative that insurance organization address their legacy problem. The maturity of SOA and modern PAS makes it more possible than ever to tackle the challenge of legacy, without creating a next generation of legacy (Stagg-Macey, 2011).

3.1.2 Insurance Standards

According to Gartner, the application of industry standards in the insurance industry is an exception rather than a rule. Only 11% of European vendors built their applications based on IBM's IAA (Insurance Application Architecture) standard, and less than 20% reported that they support ACORD XML messaging standards (Weiss & Forte, 2010). ACORD is a nonprofit organization providing global standards for life insurance, P&C insurance and reinsurance. In Europe, ACORD is collaborating with the e-Business Expert Group for Insurance (eEG7), who aims for standardized communication within the European insurance industry. In The Netherlands, the '*Standaardisatie Instituut voor Verzekeringen in de Intermediairbranche*', or SIVI, aims for standardization through data- and transactional standards.

The standardization institutes described above do provide standardized process models. The ACORD Capability model, for instance, describes the abilities and activities of the insurance industry. As such, it represents the business of insurance from the business user's point of view (Jones, Schmitz, Feance, & Orlandi, 2010). The dominant standards (ACORD and IBM IAA), however, are proprietary standards. A license to make use of the IBM IAA standard or the ACORD standard can cost several thousands of dollars, making a detailed examination of the process models near-impossible.

ACORD concludes that the lack of use of market standards is not necessarily a disadvantage from a product point of view, but that the absence of standards will make it more difficult to integrate packaged applications. Making use of standards would improve flexibility and integration for insurance providers (Weiss & Forte, 2010).

The Dutch insurance standards organization, SIVI, is better accessible. Although their process descriptions are not as detailed as, for instance, ACORD, they do provide a standardized process 'atlas' for primary processes in the insurance industry, which can be used as input for the P&C Process Model.

We conclude that although standards are present, their use is an exception rather than a rule. Although this is not a direct disadvantage for insurance providers from an operational (product) point of view, it does make it more difficult to integrate application from different vendors. The existence of standards could, however, provide us with a basis for the process model. The reality is that standardized process models do exist, but a license for using the standards comes at high financial costs.

3.1.3 IPM Maturity Models

The use of maturity models does not exclude the insurance industry. Generic BPM maturity models can be applied within basically any industry. Gartner, for instance, developed a six-stage BPM maturity model that describes, on a high level, the phases of BPM maturity and what characterizes each phase. The model helps businesses in understanding the six phases of BPM maturity and where your organization stands on addressing critical success factors defined in a BPM maturity framework (Melenovsky & Sinur, 2006). These models, however, are very generic maturity models for determining BPM maturity. In this thesis project, we are looking at industry-specific maturity (IPM maturity), requiring a situational maturity model, tuned for the industry at hand. We encourage the use of a situational model, since the model contains industry-specific process models, making practical application a lot easier and less abstract. Making use of process models instead of a matrix, we increase recognizability, making adoption of the model less difficult.

Very specific maturity models are being constructed, focusing on one specific component in a specific industry. For instance, the operational procurement maturity model for the construction industry developed by Xing and Versendaal (Xing & Versendaal, 2011). A specific BPM Maturity Model for the insurance industry (an IPM maturity model), however, seems absent. The absence of such a model, and the need expressed for it from the industry justify our research trigger.

3.1.4 Customer-centric approach in insurance

In the insurance market, a shift from product-oriented approaches (where business processes are aimed at designing and retailing products) to customer-oriented approaches (where satisfying the needs of the customer is central) can be identified. Insurance providers tend to move to an approach where the focus is on keeping current customers, improving the relationship and extend the number of products they procure from the insurance provider (cross- and upselling). This approach can be seen as a relationship marketing approach.

(Day, Dean, & Reynolds, 1998) describe the focus of transaction marketing (a product-oriented approach) in contrast to relationship marketing:

Transaction focus	Relationship focus
• Single sale	• Customer retention
• Discontinuous customer contact	• Continuous customer contact
• Focus on product features	• Focus on product benefits
• Short-term scale	• Long-term scale
• Little emphasis on customer service	• High emphasis on customer service
• Limited commitment to meeting customer expectations	• High commitment to meeting customer expectations
• Quality is the concern of production staff	• Quality is the concern of all staff

Table 8: transaction focus vs. relationship focus (cf. Day, Dean and Reynolds, 1998)

Adopting a relationship approach, in contrast to a transaction marketing approach, can have several beneficial effects for organizations in the financial market:

- A 5% increase in customer loyalty can lead to a 25% to 85% increase in profit (e.g. by cross-selling);
- By creating a better and stronger relationship between the organization and its customers, the retention of customers can greatly increase;
- Customer satisfaction increases, because the organization has more knowledge about the wants and needs of its customers and can better respond to customer need with custom services and products;
- Long-term relations are better in terms of costs for an organization than short-term relationships;
- Satisfied customers will increase the number of new customers because of personal recommendations;
- A higher customer retention has shown to increase employee retention as well.

There are a number of ways an insurance provider can use to improve the relationship with their customers. Grönroos identifies three key processes in relationship marketing (Grönroos, 2004):

- **Communication:** Central in relationship marketing is two-way communication with a customer or a prospect. Insurance providers adapt to the customer's (or prospect's) communication wants or needs (Grönroos, 2004). Practically, this means that mass marketing (although it still is present) is less important and insurance providers move to an approach where the initiative is partly moved from the insurance provider to the customer and where the communication wants or needs (e.g. phone, email, letter) are documented.
- **Interaction:** The relationship approach puts customer processes, or rather internal value-generating processes of customers (not products) at the center of marketing. Interactions may be prompted by planned communication, but the initiative can be the insurance provider's, or, more importantly, the

customer's (Grönroos, 2004). A practical example of generating interactivity for the customer is adopting the use of personalized environments and direct-selling via internet for prospects.

- **Value:** A very important aspect of relationship marketing is the customer perception of value created in the ongoing relationship. In the interaction process a value base is transferred to and also partly created together with the customer. This leads to a higher perceived value from the customer's point of view (Grönroos, 2004).

Note that we do not imply that relationship marketing is something of the last few years. The approach was adopted in the late nineties by a large amount of insurance providers. It is, however, a fairly new development to actively use IT to improve customer relationships. Good examples are the introduction of personalized customer portals and adding a sales channel for internet sales. The use of IPM software can greatly reduce the time needed to make a sale or to claim damages, thus improving the customer's perceived value and improving the relationship.

NEXJ (2011) describes how the shift to a customer-centric approach can be seen in the new generation of CRM systems for insurance providers. The new generation of CRM systems combines customer profile, interaction, policy, billing and claims information with relevant third-party information such as demographics, credit scores, fraud scores and other predictive scores to present an insurer with a comprehensive view of the customer in a unified, integrated application (NEXJ, 2011). This comprehensive view of the customer enables the insurance provider to engage in intelligent, timely client interactions, boosting the customer satisfaction. This adds towards the goal of creating a long-term, profitable relationship. Forrester Research states that "mature organizations understand that optimizing end-to-end customer-facing business processes mean integrating solutions beyond traditional CRM" (Trends, 2011).

In this way, we can see that moving from a policy-centric approach to a customer-centric approach entails a number of initiatives. It means reorganizing processes so that they "face the customer" (for instance by adding new sales channels), but also to change the way an organization interacts with a customer and the way organization about a customer is organized and used prior to, and during, interaction with the customer.

In practice, we can see that insurance providers move to customer-oriented processes (besides the obvious customer-marketing) through the implementation of, for instance, new sales channels, such as direct-writing via an internet channel, providing personalized environments for customers and providing customers with the ability to interact with their insurance provider via mobile devices (e.g. reporting a claim via an app for smartphones and/or tablets).

3.2 Business Process Management

In this section, we aim to describe the basics of BPM and get a deeper insight in what BPM is and what it is used for. Besides discussing the basics of BPM, we will provide an insight into what models already exist and how they are applied, and what their advantages and disadvantages are. This way we can identify if there are models that can be applied for this research, or that elements of existing models can be reused.

3.2.1 Basics of BPM

Business Process Management is a holistic management approach focused on aligning all aspects of an organization with the wants and needs of a client (vom Brocke & Rosemann, 2010). Reports in the IT sector indicate that business process management, based on a service-oriented-architecture (SOA), is becoming more popular and is replacing large ERP solutions that were very popular in the 1990's (Computable, 2010). BPM is a field where theoretical and technological developments are directly motivated by industrial application (Reijers, Wijk, Mutschler, & Leurs, 2010).

Although BPM is a three-part definition (Business, Process, Management), definitions of, and approaches to, BPM range from IT-oriented definitions and approaches such as the perspective of business process automation (Harmon, 2003) or from the perspective of process analysis and process improvement (Zairi & Sinclair, 1995) to holistic approaches (Rosemann & de Bruin, 2004). The holistic approaches are not focused on one specific aspect of BPM (Business, Process or Management), but see BPM as a holistic organizational management practice, which requires top management understanding and involvement, process-aware information systems, well-defined accountability and a culture receptive to business processes, including all three parts of BPM. It is based on a process architecture, which captures the interrelationships between the key business processes and the enabling support processes and their alignment with the strategies, goals and policies of an organization (Rosemann & de Bruin, 2004).

3.2.2 BPM Life Cycle

Basic in BPM is the notion of a lifecycle containing several (iterative) phases (Reijers, 2002; van der Aalst, ter Hofstede, & Weske, 2003; zur Muehlen, 2004): analysis, design, implementation, enactment, monitoring and evaluation (Figure 8).

- Analysis phase: a set of requirements is developed for the business process in question, such as performance goals or intentions.
- Design phase: the process activities, their order, the assignment of resources

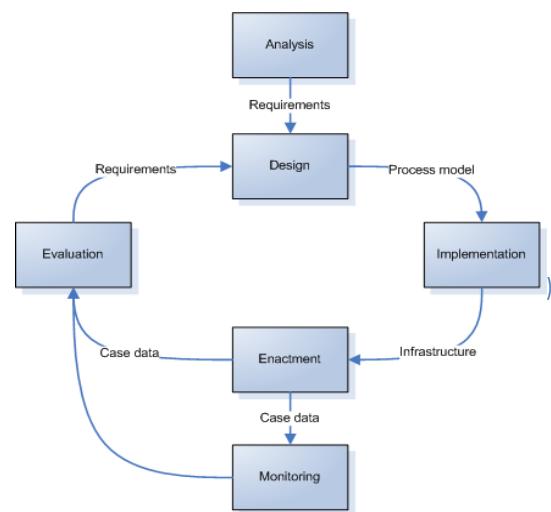


Figure 7: BPM Life cycle (cf. Weske, 2003)

to activities and the organizational structure are defined.

- Implementation phase: the infrastructure for the business process is set up, which includes training, provision of a dedicated work infrastructure or the technical implementation and configuration of software.
- Enactment phase: the dedicated infrastructure is used to handle individual cases handled by the business process.
- Monitoring phase: Depending on process metrics, counteractions are taken to deal with problematic situations.
- Evaluation phase: leads to new requirements that are taken as new input in the next turn of the business process management lifecycle.

Van der Aalst et al. (2003) describe several important aspects of an organization that influences BPM in an organization:

- 1 “An organization’s size relates with the phases of the BPM life cycle that a BPM project goes through within such an organization” (van der Aalst et al., 2003).
- 2 “The profit motive of an organization does not relate to the characteristics of the BPM project carried out within such an organization” (van der Aalst et al., 2003).
- 3 “Whether an organization is of a manufacturing type or not does not matter for the characteristics of the BPM projects carried out in such an organization” (van der Aalst et al., 2003).
- 4 “An organization’s strategic orientation shows a relation with the characteristics of the BPM projects carried out in such an organization” (van der Aalst et al., 2003).

Findings 1 and 4 seem relevant for the intended IPM maturity model. The size (small vs. large) and strategic orientation (e.g. customer intimacy – operational excellence – product leadership) seem to influence BPM implementations in a significant way and are applicable to the insurance domain. Findings 2 and 3 seem less applicable, since insurance providers are all profit-oriented, service-providing organizations. Based on these findings, we conclude that the factors organization size and strategic orientation are relevant maturity factors (among, yet to be identified, others).

Similar to the BPM life cycle is the DMAIC (Define, Measure, Analyse, Improve, Control) methodology used in Six Sigma (Six Sigma, 2008). Based on the BPM life cycle and the DMAIC methodology, Rosemann and De Bruin (2005) derived five perspectives (a high-level repeatable phase that applies to BPM in general as well as to individual business processes) from the Six Sigma methodology, in measuring BPM Maturity: Align, Design, Execute, Control and Improve.

3.2.3 BPM as a holistic approach

Rosemann and Vom Brocke (Rosemann & Vom Brocke, 2010) describe BPM as a holistic management approach. IT can be used in several ways, both as an enabler and facilitator of BPM (Trkman, 2010). The effects of BPM on business performance have been the subject of earlier research (Brynjolfsson, 1993; Carr, 2003; Scheepers &

Scheepers, 2008), concluding that IT can have a positive effect on organizational performance, but in order to achieve a positive effect, the IT needs to be aligned with the business processes (Karim, Somers, & Bhattacherjee, 2007). However, to increase organizational performance beyond the IT-capabilities, a holistic approach to BPM is needed. BPM should overcome isolated improvement in specific areas, but rather aim to address the interdependence of strategy, IT and people (Hung, 2006).

In addition to IT, strategy and people, Rosemann and De Bruin (2007) identify three additional factors that need to be taken into account when implementing a successful BPM solution. Besides IT, strategy (which they identify as strategic alignment) and people, they identify governance, methods and culture as key BPM-factors (Table 6). These findings are well documented, as can be seen in table 6.

Factor	Source
Strategic alignment	Elzinga et al., 1995; Zairi and Sinclair, 1995; Zairi, 1997; Pritchard and Armistead, 1999; Jarrar et al., 2000; Puah and Tang, 2000; Hammar, 2001; Hung, 2006
IT	Hammer and Champy, 1993; McDaniel, 2001; Gullidge and Summer, 2002
People	Elzinga et al., 1995; Zairi and Sinclair, 1995; Zairi, 1997; Pritchard and Armistead, 1999; Llewellyn and Armistead, 2000; Hung, 2006
Governance	Pritchard and Armistead, 1999; Braganza and Lambert, 2000; Jarrar et al., 2000; Gullidge and Summer, 2002; Harmon, 2005
Methods	Harrington, 1991; Kettinger et al., 1997; Pritchard and Armistead, 1999; Adesola and Baines, 2005
Culture	Elzinga et al., 1995; Zairi and Sinclair, 1995; Zairi, 1997; Pritchard and Armistead, 1999; Llewellyn and Armistead, 2000; Spanyi, 2003;

Table 9: BPM Key factors, sources (cf. Rosemann and De Bruin, 2007)

These factors seem to appear not only in the study by Rosemann and De Bruin (2007). Several years earlier, in 2004, Fischer defined the “Five levers of change” which can be mapped to the work of Rosemann and De Bruin, missing only the Culture factor. The BPM/SOA, as defined by Hiemstra, Ravesteyn, & Versendaal (2009), does include all six factors as defined by Rosemann and De Bruin. Finally, the Gartner approach to successful BPM adoption includes the same six factors.

We will use the maturity factors as described by Rosemann and De Bruin as the main maturity factors for the IPM Maturity model. We must, however, look which of these factors can be measured using process models.

3.2.4 Insurance Process Management

The concept of BPM in insurance (IPM) is not a new concept. Gartner describes how insurance BPM wins the “triple crown” of saving money, saving time and adding value (Sinur & Thompson, 2003). They describe how a P&C insurance company decreased the costs of claim processing by 20%, while decreasing the claim processing time by two-thirds. Insurance Networking News, a widely renown

insurance news website, named BPM as one of the seven technologies with the highest adoption rates in the industry (Insurance Networking News, 2011). In this thesis project, we will be using the term insurance process management as a specific form of BPM.

IPMS implementations can be seen throughout the entire industry. Whereas legacy systems tend to be inflexible, standalone and in-house-developed (Weiss & Forte, 2010), insurers are now moving toward more integrated solutions, combining support for multiple processes. Insurance software providers are combining Policy Administration Systems with software for (e.g.) claims management, product definition and other insurance process support into integrated, IPM solutions (although the term BPM is not widely used in the Dutch insurance market). Not only independent software developers address the BPM need of insurance providers, also the large IT consulting firms provide insurance providers with a solution to their IPM needs. In 2008, Sogeti published a white paper describing the Sogeti vision on BPM and the combining of existing knowledge into the Sogeti BPM approach: Pronto. Sogeti concluded that BPM is very useful for process optimization, but that the actual return is (mostly) not yet utilized as a strategic tool. The Pronto BPM approach can be used to not only optimize processes, but also to make the translation of BPM to a strategic level (Noorman, 2008).

Gartner released a case study on how SaaS-based IPM implementations are growing in popularity. The study shows how a Dutch insurance provider with about 1,1 million active policies implemented a SaaS-based BPM solution. The combination of BPM and SaaS realized the following benefits (Weiss, 2008):

- Aggregation and harmonization of the product portfolio lead from 112 to four products, reducing the complexity and ambiguity of the sales process;
- Reduced number (-80%) of employees at the insurer's back office, due to automation and the implementation of straight-through-processing;
- Various improved business processes (e.g. deciding to no longer print policies, but to send policies out as a PDF-document);
- A higher level of compliance was established, preventing regulatory intervention;
- Revenue growth due to the enhanced channel strategy (a rise in premium income by 13%, which is a tremendous result in a saturated market such as The Netherlands).

Although IPM may not be as visible as general BPM, due to the smaller market, it is very much alive in the insurance market. Insurance providers that are modernizing are more and more choosing for BPM solutions, using SOA and SaaS. We must note, however, that the terms BPM and IPM are not frequently used as such.

3.3 Maturity Models

Curtis & Alden (2007) estimate that there are over two hundred maturity models. Existing models are applied within a variety of industries, mainly for IT application

development, - maintenance and organizational performance assessment. In this section, we provide an overview of the most 'famous' maturity models.

3.3.1 CMM-based models and BPM Maturity Models

The term "Maturity" in the context of information systems was first used in the *Capability Maturity Model (CMM)*, developed by Carnegie-Mellon University (Paultk, Curtis, Chrissis, & Weber, 1993; Trammell, 1997). The CMM, in turn, was based on the *Process Maturity Framework* (Humphrey, 1989). The CMM was originally developed to assess the capability of government contractors to perform a contracted software project. Although the CMM comes from the field of software development, it is also frequently used to aid in improving business processes in various areas. Since its inception in the mid '90's, the CMM has been used extensively worldwide, in a great number of industries. In 2002, the CMM was superseded by the *Capability Maturity Model Integration (CMMI)*, which is a process improvement approach to aid organizations improving their performance.

The CMM introduces the concept of (five) maturity levels defined by special requirements that are cumulative. The CMM and CMM-based models provide a framework for the detailed evaluation of (BPM) capabilities and achievements within an organization (Rosemann & de Bruin, 2004). The notion of maturity refers to the state of being "complete" and the "fullness or perfection of growth or development" of an organization.

Since the introduction of the CMM (and later the CMMI), many CMM-based maturity models have been developed, specifically aimed at certain business functions, organizations, markets or technologies, with maturity models for Business Process Management not being absent from this development. A short overview of BPM maturity models:

3.3.1.1 Capability Maturity Model (Paultk et al., 1993):

The CMM was one of the first maturity models and is widely regarded as the most important and the most used maturity model in the software business. Due the wide adoption and successful use of this model, it has served as a basis for other maturity models. Furthermore, it stimulated the development of alternative maturity models.

The CMM was developed to help organization in grasping control and understanding of their processes. The main use of the CMM was to assess the maturity of an organization and by identifying process improvement actions to achieve a higher level of maturity.

The CMM uses the notion of a set number of maturity levels (initial, repeatable, defined, managed and optimized), that define the maturity level of an organization (Figure 7).

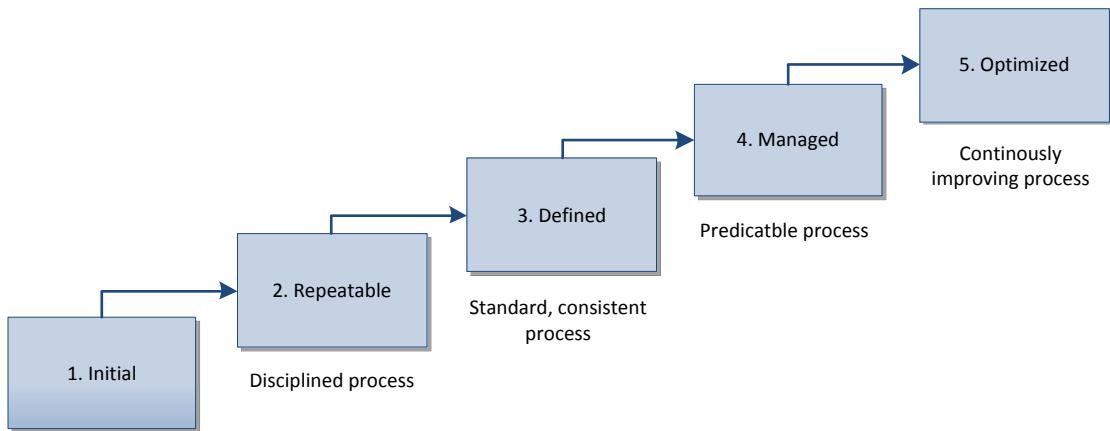


Figure 7: Capability Maturity Model (Paulk et al., 1993)

The CMM was edited by the Software Engineering Group to form the CMMI (CMM Integration Model), based on the experiences of industrial and governmental applications of the CMM. The CMMI is still used today for generic process management assessments. It consists of the same five levels, based on process areas (goals that lead to a higher, common end goal) with specific and generic goals, accompanied by specific and generic best practices.

3.3.1.2 BPM Maturity Model (Harmon, 2003)

Harmon (2003) has developed a maturity model for BPM maturity assessments, which is based on the CMM model. The Harmon model used the same five stages for maturity assessment, but the focus lies with Business Process Management, whereas the CMM can be used in a broader scope (e.g. development or services). Harmon states that a small group assesses one sub-process. If multiple processes are to be assessed on their maturity, each process should be assessed individually rather than assessing the whole.

3.3.1.3 Business Process Maturity Model (Fisher, 2004)

Fisher (2004) developed a model that differed more from the traditional CMM model by providing a two-dimensional model. The model incorporated the so-called 'five levers of change' (strategy, controls, people, technology) that represent the core of most organizations. The three 'common levers' (people, technology and process) need to be viewed in the context of enterprise wide Controls and Strategy to achieve organizational cohesiveness. The five levers of change provide the components about which one can assess the capabilities of an organization. As the capabilities advance, an organization can progress through the second dimension of the model: the 'states of process maturity':

1. Siloed
2. Tactically Integrated
3. Process Driven
4. Optimized Enterprise
5. Intelligent Operating Network

The main difference of the Fisher model versus more traditional models such as the CMM is that the Fisher model does not provide a benchmark, but rather identifies gaps in the alignment between the levers of change. Furthermore, Fisher not provide a tool for actually assessing the level of maturity.

3.3.1.4 Business Process Maturity Model (OMG, 2008)

The Object Management Group's (OMG) Business Process Maturity Model (BPMM) (Figure 8) states that because of the increasing importance of end-to-end business processes, the dividing line between business and technology is fading. The OMG model is based on a set of best practices that will aid an organization in evolving into a higher level of maturity.

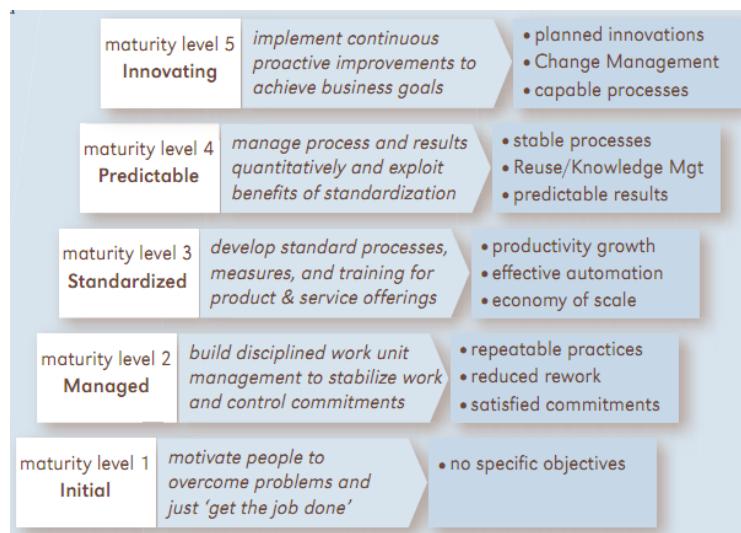


Figure 8: Business Process Maturity Model (OMG, 2008)

Like CMM, the OMG BPMM consists of five levels of maturity (Initial, Managed, Standardized, Predictable, Innovating), but rather than describing specific levels for the process capacity (the extent to which the consequences of achieving a higher maturity level can be predicted), the OMG BPMM will assess the process capacity directly from the process maturity (Figure 9).

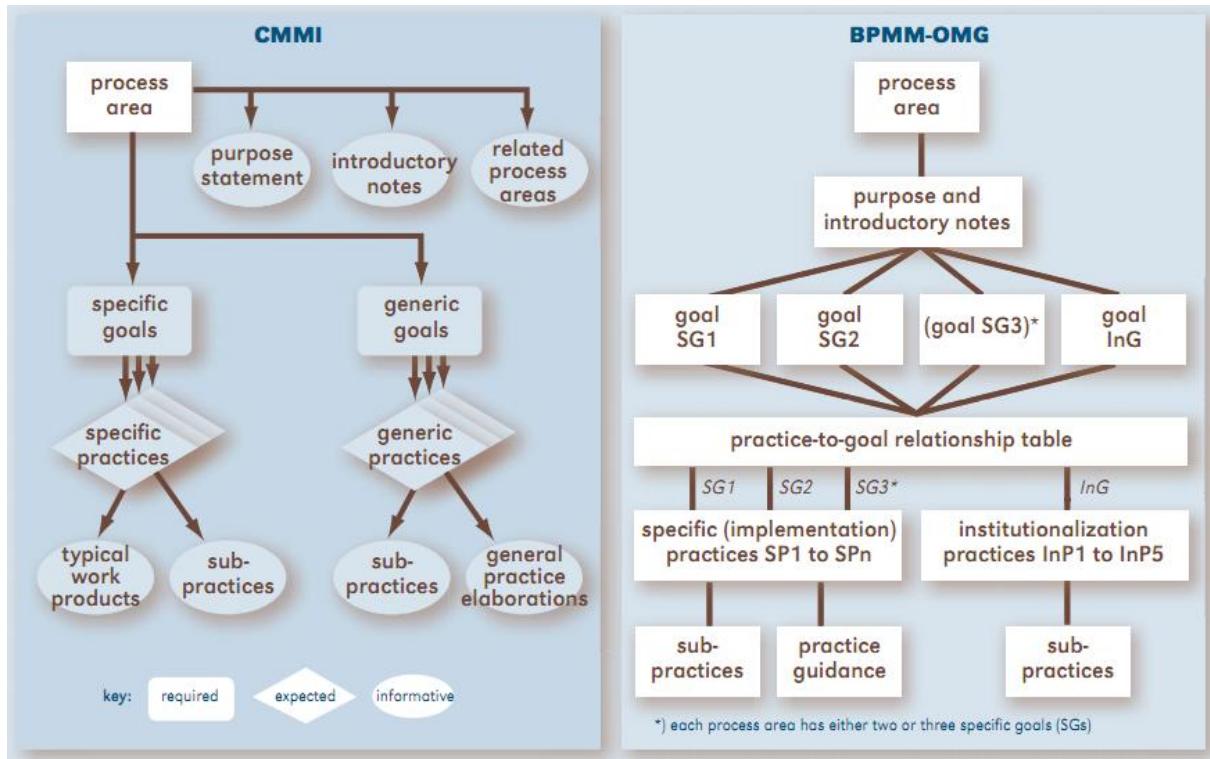


Figure 9: CMMI vs. BPMM-OMG (OMG, 2008)

OMG can be used as an addition to CMMI (and PCMM). Where CMMI and PCMM are domain-oriented (software, services and HR), the OMG BPMM is meant to be more global and support the entire organization with end-to-end-processes.

3.3.1.5 The Process and Enterprise Maturity Model (Hammer, 2007)

The Process and Enterprise Maturity Model (PEMM) by Hammer (2007) is a model that distinguishes between the maturity of a process and the overall maturity of an enterprise. The performance of a process is based on five 'enablers of maturity':

- Design – Purpose, context and documentation
- Performers – Knowledge, skills and behavior of people doing the work of the process
- Owner – Identity, activities and authority
- Infrastructure – Information systems and human resources
- Metrics – Definition and uses

Each process enabler (broken down into thirteen elements) has four levels of maturity (besides the initial level zero) with practices identified for each level.

At the company or unit level, the model looks at four 'capabilities':

- Leadership – Awareness, alignment, behavior and style
- Culture – Teamwork, customer focus, responsibility and attitude towards change
- Expertise – People and methodology
- Governance – Process model, accountability and integration

Like the process enablers, each capability has thirteen elements and four levels of maturity with practices identified for each level.

According to Power (2007) the tool that Hammer provides for assessing process and organizational maturity is less important than the conversation it generates. Making senior executives aware of the ever-increasing need to closely monitor process performance is important enough, whether or not they actually adopt the PEMM or another model.

Although the model seems very promising by taking process maturity as well as organizational maturity into account, there are some drawbacks to the Hammer model. For instance, the model does not make a connection between maturity levels and business outcomes. Furthermore, the model does not incorporate strategic alignment (the extent to which process activities are tied to the organization's strategy). Assessing strategic alignment ensures that process improvement activities are consistent with organizational priorities are. Finally, the Hammer model does not include IT as an enterprise capability. An enterprise assessment should examine whether IT tools and systems are in place (Power, 2007).

3.3.1.6 Process-Performance-Index (Rummel-Brache Group, 2004)

The Rummel-Brache group commissioned a study (2004), using ten factors gauging how well an organization manages its key business processes, conducted among thirty-two companies in the US, representing a cross-section of firms with industries ranging from manufacturing to professional services. The result was the Process-Performance-Index (PPI). The PPI is not considered a 'real' maturity model, but rather as a data-gathering approach.

The first step is to use ten key success factors to identify how well an organization manages their key processes (Rummel-Brache-Group, 2004):

Key Success Factor	Definition
1. Alignment with strategy	Business processes are directly linked to the organization's strategy and critical success factors.
2. Holistic approach	Enterprise business processes are defined before launching improvement initiatives (e.g. Six Sigma, CRM, etc.).
3. Process awareness by management and employees	Key players understand the role of process management in improving performance.
4. Portfolio of process management initiatives	Improvement efforts are prioritized according to process "health" and linkage to current issues.
5. Process Improvement Methodology	Process management teams use a standard approach to navigate process analysis and design.
6. Process Metrics	Process performance is measured at the individual, process and enterprise levels.
7. Customer Focus	Process analysis and design efforts focus on delivering value to the customer.
8. Process Management	Process owners monitor process metrics and continuous improvement efforts on a regular basis.

Key Success Factor	Definition
9. Information Systems	Process is the "master" and information systems are the "servants".
10. Change Management	People and cultural issues are effectively addressed when process changes are introduced.

Table 10: Key Success Factors in BPM (cf. Rummler-Brache Group, 2004)

The second part of the research is a questionnaire where the participants are asked to answer questions regarding performance improvement opportunities and to assess their organization's process management awareness. The result is a performance index between 10 and 50 points.

The results can be placed in one of three maturity stages:

1. Process Management Initiation: The initial stage of overall process management. It is characterized by organizations that are new to process management and have a desire to increase their knowledge.
2. Process Management Evolution: The second stage concerns organizations that are process-aware and have implemented some form of formal process improvement programs. In some cases, process and performance metrics are used. However, companies in this stage have not yet achieved their full potential process-management-wise.
3. Process Management Mastery: Process Management has become "a way of life" within the organization. It is fully incorporated in the organization. Metrics are implemented in the entire organization on all three levels of performance: organizational, process and individual performer.

As mentioned before the Rummler-Brache research is not a maturity model. The results of the framework, however, can be relevant in measuring process performance and identifying critical issues.

3.3.1.7 BPM Implementation Maturity Model (Rohloff, 2009)

(Rohloff, 2010) proposes a framework for BPM implementation in large organizations. The case study used in the research is a BPM implementation at Siemens AG. The result of the research by Rohloff is twofold: he introduces a process framework and the process management maturity assessment.

The process framework (The Siemens Process Framework), contains a binding set of methods for the overarching management of processes, providing the basis for a uniform implementation of process management. The core of this process framework is the reference process house, containing definitions of all processes (divided in Management, CRM, SCM, PLM and Support). It is accompanied by process management methods, representing a comprehensive set of tools, concepts, conventions, procedures and guidelines which are needed for any implementation and operation of process management (in the Siemens organization).

The process management maturity assessment (PMMA) is the maturity-assessment model used in the Rohloff model. It is a maturity model that contains five maturity

levels (but can be extended from level 4 – n). It can be used to identify measures that need to be taken to achieve a higher level of maturity and is derived from the CMMI framework. A major difference compared to the CMMI framework is that Rohloff's model identifies nine factors that are relevant for the development of an organization. These aspects have to be addressed when implementing process management and are covered by the BPM Implementation Guidelines, provided in the model. These aspects, as described by Rohloff (2010):

- *Process Management Organization:* Establish process management roles and bodies according to the Process Framework and assign the responsible persons.
- *Process Documentation and Standardization:* Consistent and organization-wide, valid process definitions need to be developed (at least for portfolio processes). A process house needs to be developed. Initiate process improvement initiatives for relevant processes.
- *Process Portfolio and Optimization:* Select, assess and prioritize the processes which have to be standardized and optimized.
- *Target Setting and Incentives:* Check and amend target setting and incentive systems. Define process harmonization (standardization) and process performance goals. Implement process target agreements and define related incentives.
- *Methods and Tools:* Provide standard methods and tools required for process management.
- *Qualification and Training:* Define competency development measures for the people involved in process management. Define and conduct target group specific qualification programs and verify the success.
- *Communication:* Provide specific information about objectives, content, roles, responsibilities and progress of the process management to create awareness and support for the implementation.
- *Process Performance Controlling:* Define key performance indicators and metrics for the portfolio processes derived from business goals and strategies. Introduce a continuous KPI-based performance measurement and assessment for processes.
- *Process Management Maturity Assessment:* Conduct process management maturity assessments of the organization and derive and implement improvement measure, where necessary. Repeat assessments periodically.

3.3.1.8 Gartner Six-Phase BPM Maturity Model (Melenovsky & Sinur, 2006)

Gartner, a leading IT research organization, states that many businesses have a limited understanding of end-to-end business processes. However, this is changing in a positive way due to BPM. Gartner has developed a Six-Phase model for understanding BPM maturity (Figure 10) and where an organization stands on addressing critical success factors defined in the BPM maturity framework (Melenovsky & Sinur, 2006). The six phases that Gartner identified are shown in the picture below.

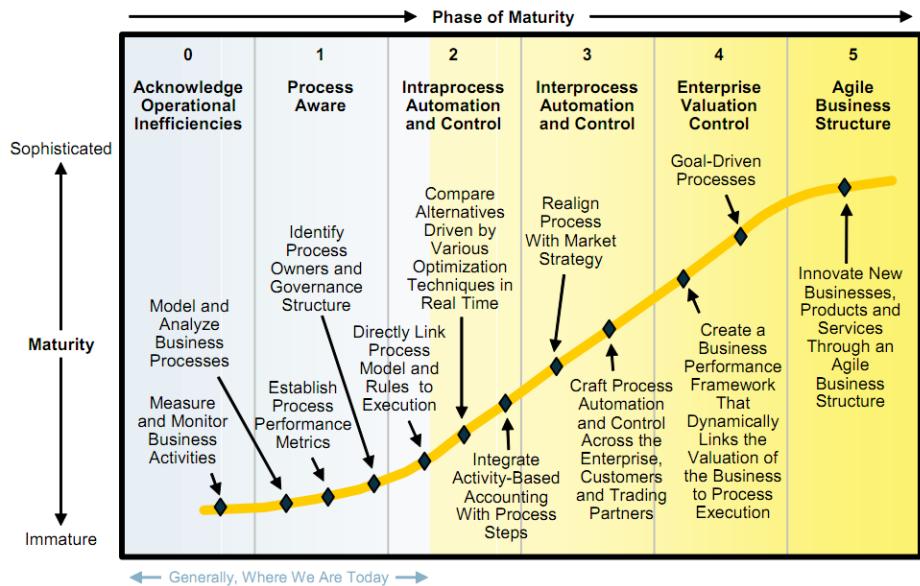


Figure 10: Gartner Six-Phase BPM Maturity Model (Melenovsky & Sinur, 2006)

As an organization moves from one phase to a higher phase, achieving critical success factors must also evolve. Managing the evolution through the several maturity stages and achieving the critical success factors together represent the Gartner framework. Besides the six phases (above), the critical success factors are:

1. Strategic Alignment: The continuous linking of organizational priorities and enterprise processes, enabling the achievement of business goals.
2. Culture and Leadership: The collective values and beliefs that shape process-related attitudes and behaviors.
3. People: The individuals who continually enhance and apply their process-related expertise and knowledge.
4. Governance: Relevant and transparent accountability, decision making and reward processes to guide actions.
5. Methods: The approaches and techniques that support and enable consistent process actions and outcomes.
6. Information Technology: The software, hardware and information management systems that enable and support process activities.

A great benefit of the Gartner model is that it contains descriptions of “triggers” that enable an organization to move from a maturity phase to a higher phase and the needed competencies for reaching an organization’s goals. Finally, the model contains a number of potential challenges in achieving higher maturity levels.

3.3.1.9 Holistic Model for BPM Maturity (Rosemann & de Bruin, 2004)

The final model that will be discussed in the Holistic Model for BPM Maturity (Rosemann & de Bruin, 2004). Rosemann and De Bruin state that BPM implementations to reach higher levels of maturity are found to be very difficult by organizations. The potential benefits are not (fully) realized and BPM is classified as an “unsustainable fad”. The proposed model by Roseman and De Bruin aims to enable

organizations to assess their current strengths and weaknesses in BPM (the as-is BPM situation), to enable organizations to determine their desired maturity stage with respect to key factors within BPM (the to-be BPM situation) and to assist organizations in developing a BPM progress roadmap to move from their as-is to their desired to-be positions. Their proposed model aims to be a holistic BPM maturity model that is more comprehensive than existing models.

Rosemann and De Bruin describe a number of prerequisites that an organization with a high level of BPM maturity needs to fulfill. In our model, we use a number of maturity factors that define the context of an organization and the current state of BPM. In this section we aim to seek out the maturity factors that define the context. These maturity factors implicitly describe the IPM Maturity of an organization. For instance, automation is an important part of measuring maturity. However, the degree of automation in itself is not enough to measure IPM Maturity. We want to define exactly which parts are automated, and how, to measure IPM Maturity.

Rosemann and De Bruin (2005) list a number of prerequisites that define an organization with a high maturity (or "Optimised") (Figure 11). Investing in these prerequisites will move an organization from low to a higher maturity level:

- Coordinated BPM Activities
- High BPM Expertise
- Organization-wide coverage
- Proactive
- Meaningful Automation
- Extended organization
- Efficient resourcing
- Comprehensive understanding
- Innovative

Low Maturity		High Maturity
Un-coordinated, isolated projects Low BPM Skills Key Personnel Reactive Manual Internally Focused Low Resourcing Naive Static	5. Optimised 4. Managed 3. Repeatable 2. Defined 1. Initial State	Co-ordinated BPM Activities High BPM Expertise Organisational Wide Coverage Proactive (Meaningful) Automation Extended Organisation Efficient Resourcing Comprehensive Understanding Innovative

Figure 11: BPM Maturity Prerequisites (Rosemann & de Bruin, 2004)

Furthermore, Rosemann and De Bruin (2005) describe that BPM Maturity is defined as a combination of coverage (percentage of processes included in BPM practices,

staff involvement and links to other management tools) and proficiency (responsiveness to BPM issues and initiatives, frequency of conducting BPM activities and initiatives and the suitability of BPM tools, resources and practices).

The Rosemann and De Bruin model consists of six factors (specific, measurable and independent elements, which reflect a fundamental and distinct characteristic of BPM). The factors as described by Rosemann and De Bruin (2005) are:

Factor	Description
Strategic alignment	BPM needs to be aligned with the overall strategy of an organization. Strategic alignment is defined as the tight linkage of organizational priorities and enterprise processes enabling continual and effective action to improve business performance (Rosemann & Brocke vom, 2010).
IT	IT-based solutions are of significance for BPM initiatives. With a traditional focus on process analysis and process modeling support, BPM-related IT solutions increasingly manifest themselves in the form of process-aware information systems.
People	People as a core element of BPM is defined as individuals and groups who continually enhance and apply their process and process management skills and knowledge in order to improve business performance. Consequently, this factor captures the BPM capabilities that are reflected in the human capital of an organization and its ecosystem.
Governance	The appropriate and transparent accountability in terms of roles and responsibilities for different levels of BPM. A further focus is on the design or decision-making and reward processes to guide process-related actions.
Methods	Methods are defined as the set of tools and techniques that support and enable activities along the process lifecycle and within enterprise-wide BPM initiatives. Examples are methods that facilitate process modeling or process analysis and process improvement techniques. Six Sigma is an example for a BPM approach that has at its core a set of integrated BPM methods (Gartner, 2006).
Culture	Culture incorporates the collective values and beliefs in regards to process-centered organization. Culture is about creating a facilitating environment that complements the various BPM initiatives. However, it needs to be recognized that the impact of culture-related activities tends to have much longer time to horizon than activities related to any of the other five factors.

Table 11: BPM Key Factors (cf. Rosemann and De Bruin, 2005)

3.3.1.10 Conclusion

These maturity models all are generic maturity models (even though some are specific BPM maturity models). This is due to the fact that, even though they are limited (or can be limited) to BPM maturity, the market for BPM is immensely large, as BPM can be applied to virtually any industry. When we are looking at the level of industry-specific models (for the insurance market), the offer is rather limited.

As with traditional application of the CMM assessment, most models propose a stage-gate approach, i.e. all factors have to be on the same level. While the practices for a maturity level make sense in one organization, they won't make sense in another.

The Rosemann and De Bruin model does provide a number of "maturity prerequisites" that they have identified that make an organization "mature". These prerequisites can be used as a basis for the IPM Maturity model. Furthermore, they provide us with a number of process dimensions or factors, which reflect the fundamental characteristics of BPM: Strategic Alignment, IT, People, Governance, Methods and Culture. Although we will focus on IT, these other factors would have to be taken into account.

3.4 Process increments

A process increment is the collection of process fragments that have been changed (inserted, modified and/or deleted). It is the difference between a process at time (n) and the process at time ($n+1$). Process increments are based on the concept of *method increments*, as described in earlier research on software development (van de Weerd et al., 2010). Although method increments are defined in the field of software development, the transition to business process management in the form of process increments is a small step, seeing as the more abstract of *increment* is nothing more than "an increase of some amount, either fixed or variable". Applying this to business process management gives us process increments: the difference in process between $T=n$ and $T=n+1$. To illustrate the use of a process increment, see Figure 7. On the left hand we have an activity in the requirements process. On the left hand side is the "as-is" situation ($T=0$), it contains only one activity and one deliverable. On the right hand side is the "to-be" situation ($T=1$). The process of requirements is incremented by two activities (Gathering the requirements and validating the document), while the deliverable (the requirements document) is now missing three properties, but now it has one or more sub-concepts: specific requirements (with their own properties). The difference between $T=0$ and $T=1$ is the process increment.

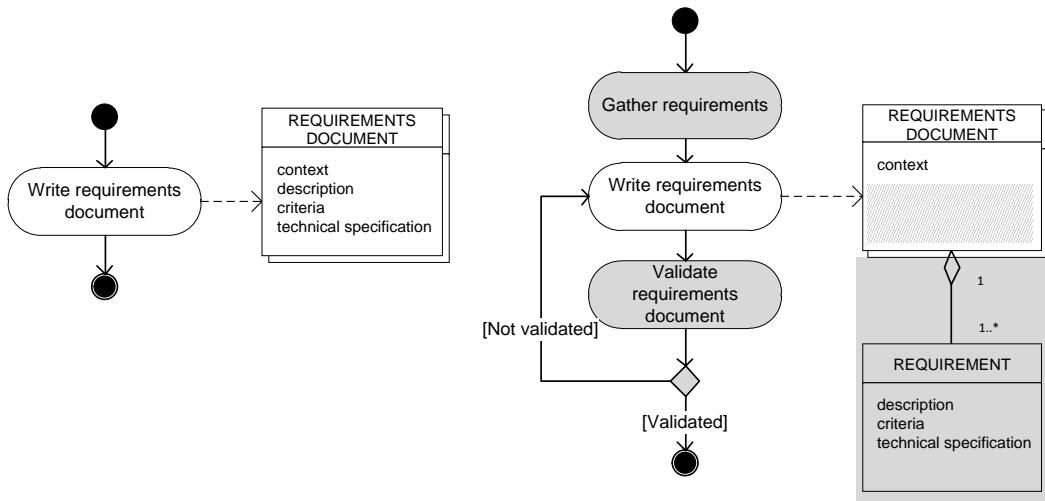


Figure 12: Process Increments

Method increments, which are closely related to process increments (by viewing a process as an instantiation of a method), can be used for identifying the incremental evolution of a software development process. Van de Weerd, Brinkkemper and Versendaal (2010) have illustrated the use of method increments by carrying out a retrospective case study at a large ERP vendor to investigate the method increments that took place over a period of twelve years, in eleven countries. The study investigated incremental method evolution in software product management activities. An important result of their research is the identification of eighteen elementary increment types:

- *Insertion of a concept, property, relationship, activity node, transition or role.*
- *Modification of a concept, property, relationship, activity node, transition or role.*
- *Deletion of a concept, property, relationship, activity node, transition or role.*

Although the research of Van de Weerd et al. was focused on method increments rather than process increments, the transition from method increments (software development) to process increments (business process management) is not a illogical one. A process, after all, can be viewed as the instantiation of a method, making specific application possible. Example is the application of CMM (which was originally designed for software development assessment) in BPM, creating BPM-specific CMM models. The fact that BPM is usually heavily supported by BPM makes the application of method increments in the form of process increments possible.

The use of process increments is rather new in BPM maturity. Although BPM maturity models (and more specific: CMM-based models), assess maturity using a predefined amount of maturity levels (and they provide descriptions of how to reach those levels), those models are not process-based. The concept is not entirely new though. For instance, Xing (2009), already successfully apply process increments to identify

procurement maturity, using process increments to achieve a higher level of (procurement) maturity.

We conclude that the use of process increments in maturity models is limited. However, we do see that they can provide a practical advantage. For instance, process diagrams (and process increments as iterations) provide us with a practical view of how the process can and should be improved.

4 Model Construction

In this section, we will describe the construction of the proposed (IPMM) model. Construction of the model is based on the literature described in the previous section, as well as interviews with insurance experts and software engineers closely involved with insurance software. An initial model has been constructed, based on existing (international) insurance standards, such as the international ACORD standard and the national SIVI standard, to provide a basis. This initial model serves to provide the basis, from which the IPMM model will be extended and adapted. Furthermore, it makes sure that the interviewees can comment on an existing model instead of describing one from personal experiences.

With the construction of the IPMM model, we will answer the second¹ and the fifth² research question. Using the created model, we will answer the primary research question in the next section.

The created model will be validated in the next section, by both insurance and software experts.

4.1 Process Overview Model

Construction of the process model is done through studying functional documentation, literature and interview sessions with domain experts. To avoid a biased view, we looked at documentation with the view of an insurance organization, not the software provider's view. The documentation and literature serve as a basis to build the process model. Expert input, however, is crucial. Therefore, we have used expert interviews to build upon the documentation and literature:

- Generic Insurance Processes: Senior Consultant (3x)
- Domain Expert Policy Administration: Senior Consultant
- Domain Expert Claims Management: Senior Consultant

4.1.1 Setting up the model

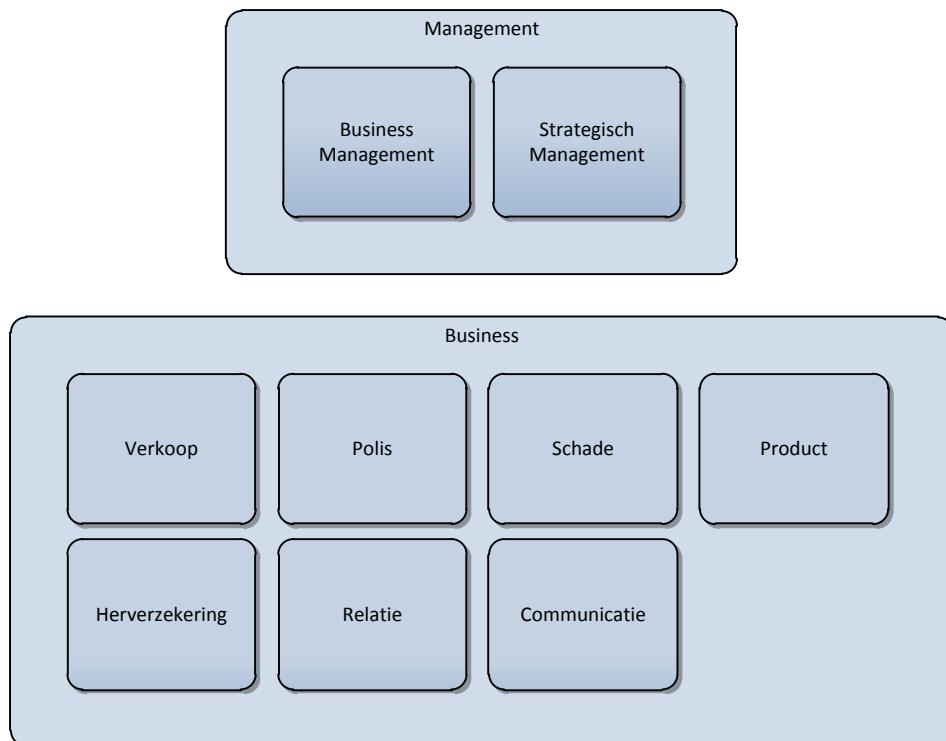
The first step is to identify what processes are present, when looking at an organizational level. The top level processes, or focus areas, are identified using the ACORD standard. It is, however, tuned to the specifics of the Dutch P&C market (e.g. since ACORD is a US standard, concept naming tends to be different). With the aid of a generic insurance process expert, twelve focus areas are identified (see list below, and see Figure 13). Note: for application and recognizability reasons, the model is in Dutch.

1. Business Management (*Business Management*): The general top management of the organization.

¹ Can a generalized process for P&C insurance be identified that is detailed enough to describe the processes in sufficient detail, but generic enough to apply to multiple organizations and is maintainable?

² Can an IPM software product, like QIS, easily be mapped to a standardized process model in such a way that it is maintainable when new functionality is added to the software product or the process itself is changed?

2. Strategic Management (*Strategisch Management*): The strategic management of an organization, concerned with formulating strategies for claims, products, channels, marketing and customer relation interaction.
3. Sales (*Verkoop*) The sale of insurance products.
4. Policy (*Polis*): Managing policies and mutations.
5. Claims (*Schade*): Taking and handling damage claims from customers.
6. Product (*Product*): The development and maintenance of insurance products.
7. Reinsurance (*Herverzekering*): The administration and management of reinsurance contracts.
8. Relation (*Relatie*): Managing the customer interactions.
9. Communication (*Communicatie*): Processes that are concerned with the communication from the organization to partners and customers.
10. Enterprise Services (*Enterprise Services*): The collection of non-insurance-specific (but rather generic) processes.
11. Marketing (*Marketing*): The marketing of existing and new insurance products, leading to sales.
12. Finance (*Finance*): The financial administration of the organization (placed apart from enterprise services, since there are insurance-specific financial processes).



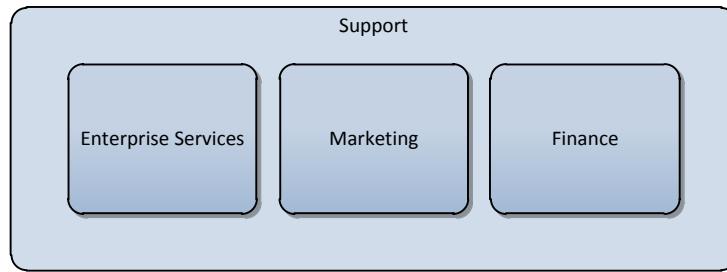


Figure 13: Twelve Focus Areas

As can be seen in the list above, this is a very high-level description of the organization. The actual day-to-day processes are described at a lower level. Each focus area has a number of lower-level processes, or capabilities (each focus area has a graphical representation). A capability describes a specific process in a focus area:

1. Business Management
 - a. *Planning*: De planning van een organisatie is het verdelen van middelen om processen in de organisatie goed en efficiënt te laten verlopen.
 - b. *Stakeholder Relaties*: Het informeren van, en contact onderhouden met, de verschillende stakeholders van de organisatie.
 - c. *Controle*: Het monitoren van o.a. de effectiviteit en efficiëntie van de organisatie, en het geven van bijsturing waar nodig.
 - d. *Management Informatie Voorziening*: Het leveren van managementinformatierapportages over afdelingen en processen. Verder kan er informatie gegeven worden over het rendement van verkoop en financiële cijfers.

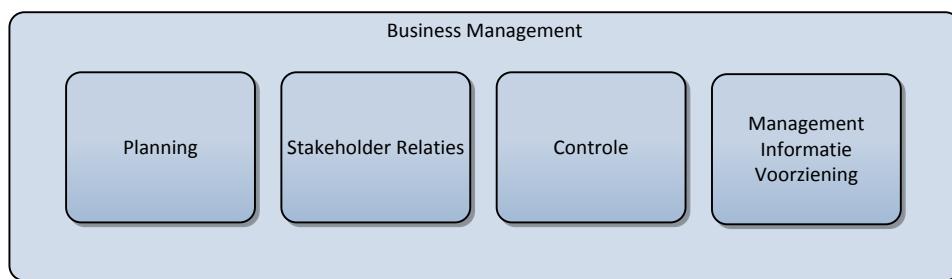


Figure 14: Processes In Business Management

2. Strategisch Management
 - a. *Product Strategie*: De Product Strategie is het opstellen van een strategie ten opzichte van de ontwikkeling van de verzekeringsproductportfolio.
 - b. *Kanaal Strategie*: De Kanaal Strategie is het opstellen van een strategie ten opzichte van de ontwikkeling van de verschillende distributiekanalen (intermediair/volmacht/direct writing).

- c. *Marketing Strategie*: De Marketing Strategie is het opstellen van een strategie ten opzichte van de beoogde marketing van de organisatie en haar producten.
- d. *Klantrelatie Strategie*: De Klantrelatie Strategie is het opstellen van een strategie ten opzichte van de beoogde omgang en interactie met klanten.
- e. *Claims Strategie*: De Claims Strategie is het opstellen van een strategie ten opzichte van de verwerking en afhandeling van schadeclaims.
- f. *Polis Strategie*: De Polis Strategie is het opstellen van een strategie ten opzichte van verwerking en afhandeling van polissen, bijvoorbeeld door het opstellen van acceptatieregels.
- g. *IT Strategie*: De IT Strategie is het opstellen van een strategie ten opzichte van de implementatie en het gebruik van IT.

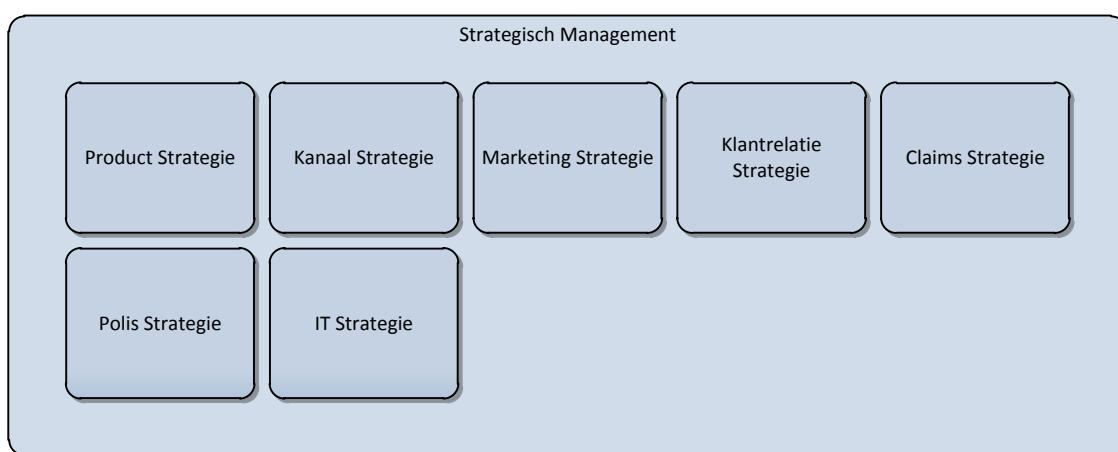


Figure 15: Processes in Strategic Management

3. Verkoop

- a. *Advisering*: Advisering voorziet een klant of prospect van advies over het afsluiten van een nieuwe verzekering (het bepalen van dekkingswensen) of over zijn bestaande verzekeringen.
- b. *Premieberekening*: Premieberekening is het bepalen van de premie voor een verzekeringsproduct. Als gevolg van een premieberekening kan een premievergelijking volgen: het vergelijken van premies van gelijksoortige verzekeringsproducten van een of verschillende verzekeraars of het vergelijken van verschillende premies voor hetzelfde verzekeringsproduct. Ook kunnen voorwaarden van verschillende verzekeraars (producten) vergeleken worden.
- c. *Polisofferte*: Tijdens het offerteproces wordt een voorstel voor een verzekeringspolis opgesteld, die de voorwaarden en premie van een verzekering bevat. Het ondersteunt het opzetten en versturen van een offerte.
- d. *Polisaanvraag*: Een polisaanvraag is een formeel verzoek tot het afsluiten van een verzekeringspolis. Het aanvraagproces ondersteunt het opzetten en versturen van een polisaanvraag.
- e. *Doelgroepbeheer en doelgroepsproposities*: Het definiëren en beheren van doelgroepen en doelgroepsproposities.

- f. **Doelgroepportalen:** Onderhoud van doelgroepportalen (portalen waar doelgroepen een verzekering kunnen afsluiten).

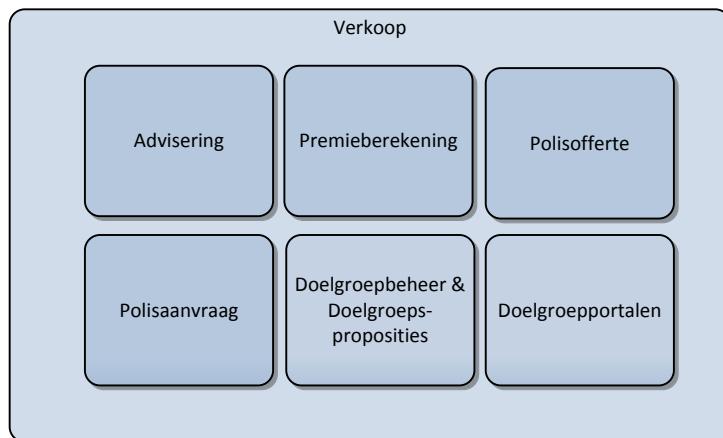


Figure 16: Processes in Sales

4. Polis

- Polisbeheer:** Polisadministratie omvat alle processen die te maken hebben met het onderhouden en updaten (waaronder ook beëindigen) van bestaande polissen.
- Premieberekening:** Premieberekening is het bepalen van de premie voor een polis, bijvoorbeeld bij het updaten van een polis naar de nieuwste polisversie.
- Acceptatie:** Het beoordelen van polisaanvragen.
- Fraudemanagement:** Controleren van polissen aan de hand van bijvoorbeeld fraudelijsten.
- Volmacht:** Portefeuillebeheer en overname van volmachten.
- Collectieve contracten:** Opstellen en onderhoud van collectieve contracten.

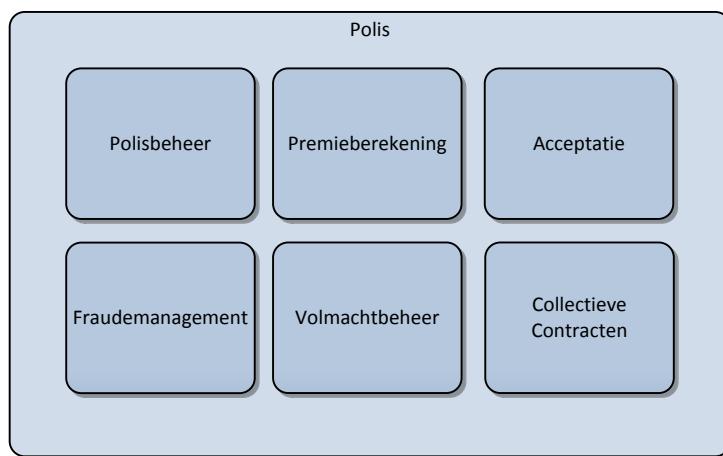


Figure 17: Processes in Policy

5. Schade

- Claims Melding:** Het aannemen en vastleggen van schadeclaims.

- b. *Claims Behandeling*: De Claims Administratie administratie is het beheren van schadeclaims (meldingen), het toewijzen aan behandelaars en het beoordelen en afhandelen van schadeclaims. Ook het opstellen en beheren van regresreserveringen valt hieronder. In totaal gaat het hier om het volgende:
- c. *Regres*: Regres is het claimen van schade bij een tegenverzekeraar, via bijvoorbeeld Clearinghuis of via een schadeclaim.
- d. *Schadeherstel*: Het uitzetten van een opdracht tot het herstel van een object bij een hersteller.
- e. *Fraudemanagement*: Fraudemanagement is het herkennen van, en omgaan met frauduleuze schadeclaims.
- f. *Expertise*: Het uitzetten van bijvoorbeeld expertiseopdrachten: opdrachten naar specialisten om schadeclaims te beoordelen vanuit hun domeinkennis.

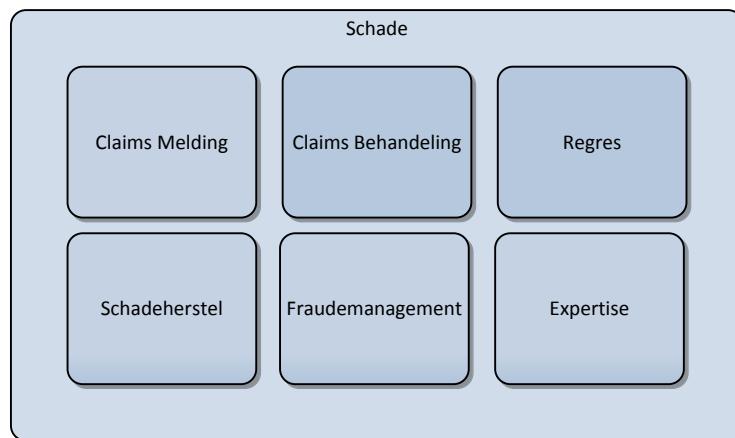


Figure 18: Processes in Claims

6. Product

- a. *Productplanning*: De Productplanning is het opzetten van een plan voor de ontwikkeling van de verzekeringsproducten
- b. *Productontwikkeling*: De Productontwikkeling houdt zich bezig met het ontwikkelen van nieuwe verzekeringsproducten.
- c. *Productdefinitie en -onderhoud*: Het definiëren en up-to-date houden van producten. Bevat ook actuariële processen om de premie aan te passen.
- d. *Co-assurantie*: Het ondersteunen van co-assurantie: het verdelen van een risico over meerdere maatschappijen.
- e. *Dynamic Pricing (of Commerciële Premie-optimalisatie)*: Een analytisch proces dat de ideale hoogte van de premie bepaalt, waarbij het risico gedekt wordt en de premie voor klanten maximaal aantrekkelijk wordt gehouden.
- f. *Product Portfolio Management*: Product Portfolio Management is belast met het evalueren van de productportfolio en het onderhoud hiervan.

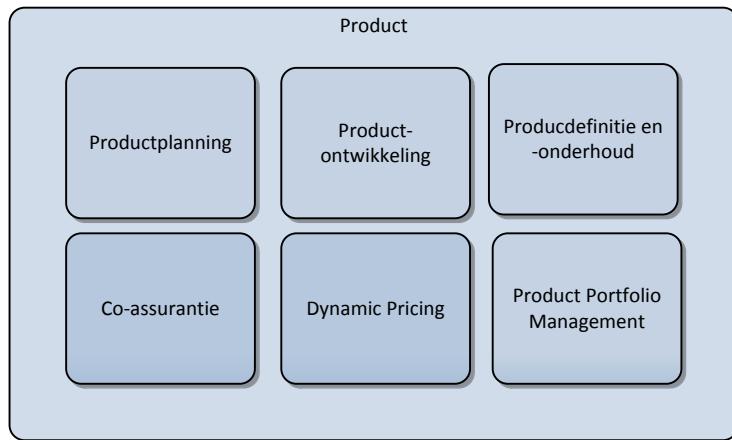


Figure 19: Processes in Product

7. Herverzekering

- a. *Herverzekeringsadministratie*: Het administreren en beheren herverzekeringscontracten.

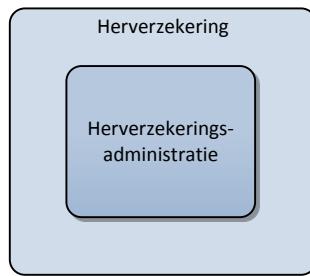


Figure 20: Processes in Reinsurance

8. Relatie

- a. *Marktbenadering*: De marktbenadering is het opzetten van een plan voor de ontwikkeling van nieuwe en bestaande klantrelaties.
- b. *Customer Relationship Management (CRM)*: Het registreren en managen van interacties van de organisatie met huidige en toekomstige klanten. Communicatiebeheer valt ook onder CRM.
- c. *Klachtenbeheer*: Het ontvangen, verwerken en behandelen van klachten van klanten.
- d. *Klantcontact*: Het aannemen van inkomend klantcontact en zorgen dat dit op de juiste manier afgehandeld wordt.

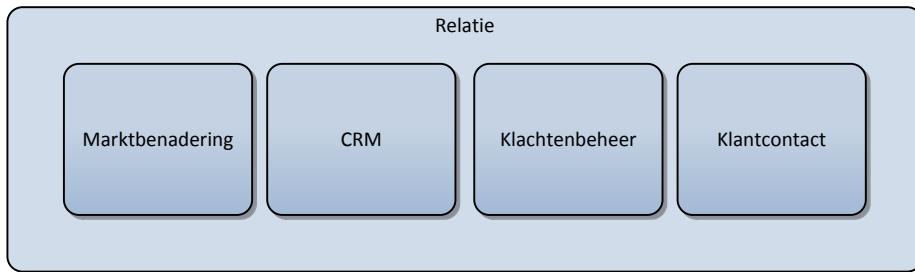


Figure 21: Processes in Relation

9. Communicatie

- a. **Documentbeheer:** Het opslaan en beheren van documenten binnen de organisatie.
- b. **Documentgeneratie:** Het opstellen van alle documenten, zoals aanvragen, offertes en andere klantdocumenten.
- c. **Afhandeling:** Het proces dat afhandeling van andere processen kan verzorgen, zoals het koppelen naar de financiële verwerking en het opstellen en versturen van de juiste documenten.
- d. **Communicatievoordeuren Relaties:** Het beheren van afspraken over communicatie met en output naar distributiepartners (intermediairs, volmachten, retailers, etc) en klanten.
- e. **Output Management:** Het beheren van de outputkanalen (waaronder technische printopdrachten) en het versturen van documenten.

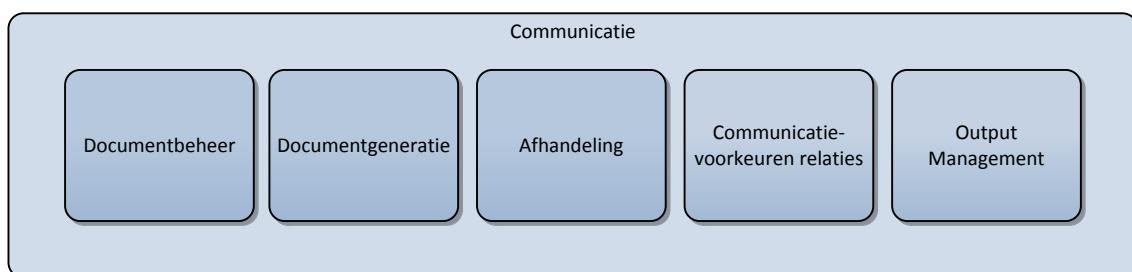


Figure 22: Processes in Communication

10. Enterprise Services

- a. **Facilitair:** Het beheren en uitvoeren van alle facilitair-gerelateerde zaken zoals bijvoorbeeld huisvesting, officemanagement en schoonmaak en onderhoud van de inboedel.
- b. **IT:** Het beheren en uitvoeren van alle IT-gerelateerde zaken zoals infrastructuur, hard- en software voorzieningen en training en ondersteuning van gebruikers.
- c. **Inkoop:** Het beheren van alle inkoop-gerelateerde zaken, waaronde acquisitie van goederen en services tegen gunstige prijzen. Met name van belang is het inkopen van rechtsbijstand.
- d. **Beleggen:** Het beheren van beleggingen van de maatschappij.
- e. **Human Resource Management:** Het beheren van het menselijk kapitaal van de organisatie, waaronder niet alleen werving en selectie, training, assessment en beloning van medewerkers, maar ook de organisationele cultuur.
- f. **Projectmanagement:** Het plannen, organiseren en uitvoeren van projecten binnen de organisatie. Ook verandermanagement valt hieronder.
- g. **Risicomanagement:** Het identificeren van, en inspelen op eventuele risico's voor de organisatie.
- h. **Technische kanalen:** Onderhoud van de technische verkoopkanalen (intranet, extranet, internet).

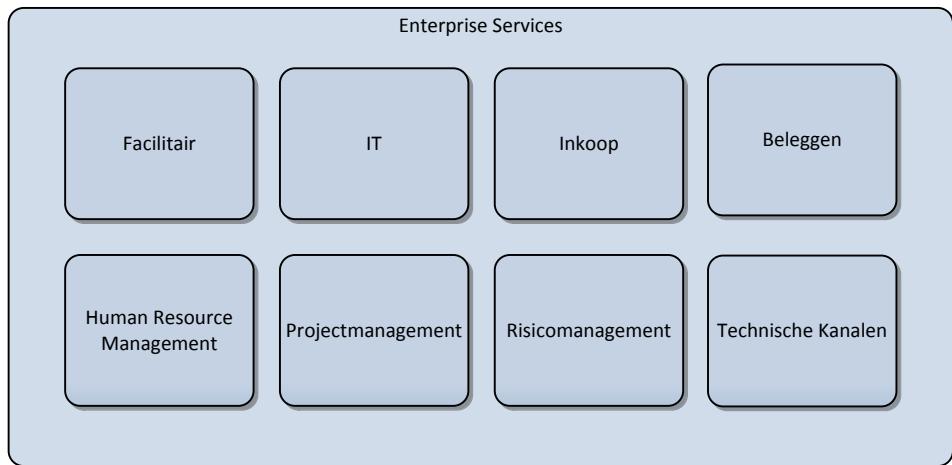


Figure 23: Processes in Enterprise Services

11. Marketing

- Marketing Planning:* Het bedenken en plannen van marketing-gerelateerde acties en campagnes.
- Campagnes:* Het managen en uitvoeren van marketing-gerelateerde acties en campagnes.
- Marktonderzoek:* Indien er een nieuw product op de markt gezet wordt, wordt marktonderzoek uitgevoerd om in te schatten wat de verwachte afzet is. Verder kan een marktonderzoek voor een campagne uitgevoerd worden.
- Effectiviteit Marketing:* Het meten en terugkoppelen van de effectiviteit van marketingacties.

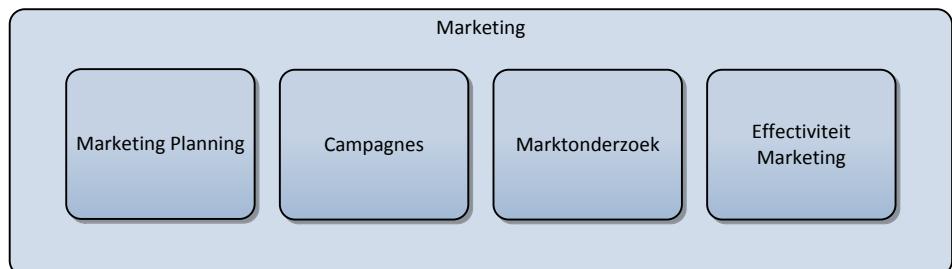


Figure 24: Processes in Marketing

12. Finance

- Financieel Management:* Het managen van de beslissingen die de organisatie maakt betreffende geld-gebaseerde beslissingen.
- Reserveringen:* Het opstellen en beheren van reserveringen, zoals premiereserveringen en regresserveringen.
- Accounting:* Het verantwoorden van financiële gegevens.
- Debiteuren Crediteuren:* Het verwerken van inkomende en uitgaande transacties.

- e. Afrekening: Afrekenen met verschillende partijen, zoals bijvoorbeeld volmachten en herverzekeraars.
- f. Rekening Courant: Lopende rekening tussen verzekeraar en een tweede partij (bijv. Intermediair) waarop onderlinge vorderingen en schulden zijn vermeld.
- g. Grootboek: De administratie waarin alle journaalposten verwerkt worden om balansen en resultatenrekeningen op te stellen.
- h. Incasso: Het vorderen van geldbedragen van verschillende partijen.
- i. Excasso: Het uitbetalen van geldbedragen aan verschillende partijen.
- j. Actuariaat: Beheer en uitvoeren van actuariële processen.

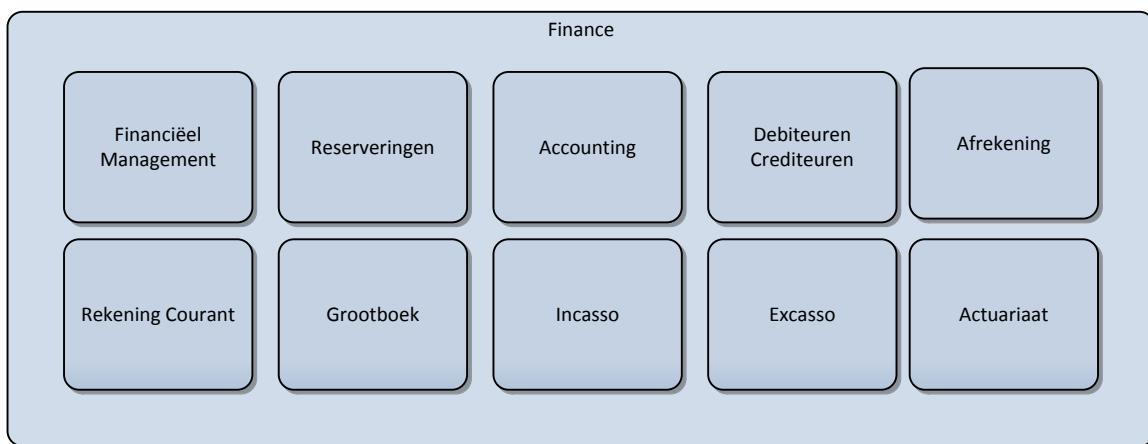


Figure 25: Processes in Finance

4.2 Process Models

The processes as described in the section above cover the activities of a typical Dutch P&C Insurance organization. The next step is to work out the processes in process descriptions in the BPMN2.0 notation. It should be noted that the process levels describe the process without the assumption of automation. Therefore the process models should be treated as the process models of the lowest maturity level. The higher maturity processes are described in the same models as process increments.

Due to time and scope limitations, however, we cannot aim to cover all the processes above. Furthermore, it would deliver a very large model (in number of pages used to describe), thus decreasing readability and practical application value. Therefore, we have made a selection of the most important processes to be described in process models. We have set up a number of prerequisites to make a selection of which processes to model:

- Processes must be operational processes.
- Processes must be part of the day-to-day operations of the organization.
- Processes must be important processes when looking at automation (processes that would be high-priority in an IPM implementation process).

- Processes must increase performance when being automated.

When taking these prerequisites into account, the number of eligible processes is decreased dramatically. From the original 64 processes, about ten processes meet all the requirements. This number is increased to about twenty processes due to the fact that some processes actually consist of a number of sub-processes (e.g. policy administration actually is a collection of mutation processes). With about twenty processes, we cover the most important, operational processes with the most room for a performance increase when automating. The selection of the processes has been discussed and selected in cooperation with the domain experts (see appendix 1B).

The selected processes are mainly processes in the primary process, along with some supporting processes. The primary process of a P&C insurance provider is to sell insurance policies, policy management and handling damage claims. This results in the following processes being modeled:

1. Sales
 - a. Advisement
 - b. Premium Calculation and Comparison
 - c. Policy Quotation
 - d. Policy Request and Underwriting
2. Policy
 - a. Prolongation
 - b. Change intermediary
 - c. Create payment for premium
 - d. Expulsion
 - e. Restore expulsion
 - f. Suspension
 - g. Restore suspension
3. Claims
 - a. Claims Report
 - b. Claims Handling
 - c. Recourse
 - d. Create expert assessment
 - e. Create assignment for recovery
 - f. Create reserve for recourse

The process models are provided as a visual representation of the process in BPMN 2.0 notation with an accompanying tablet with a textual description. Due to the fact that the complete process descriptions would take up a rather large number of pages (+/- 35 pages), we will provide only a few examples here. The complete model can be found in Appendix 2. The examples provided will consist of some of the most important processes (policy quotation, policy request, mutation and claims handling). These are exactly the same models as provided in the Appendix and the

process numbering maps to the numbering in the appendix (therefore numbering can appear inconsistent).

Per process, we provide two visualizations:

- The “low maturity” situation, which describes the process in its most basic form. In this situation, automation is absent and the process is executed manually. The low maturity situation is a organization-independent representation of the process and is the basis for further automation and optimization.
- The “high maturity” situation, which describes the process as supported by modern insurance IPMS solutions. Activities are mostly automated or partly automated and optimization can be seen in, for instance, the introduction of new sales channels. Note that this situation is a situation that represents a possible high-maturity situation. In practice, this can differ due to the demands and requirements of the insurance provider.

Below, several process models will be given to illustrate the contents of the process model component of the IPMM. The first model is shortly exemplified. This will not be done for each model, since it will largely be the same for each model.

4.2.1 Process Model: Policy Quotation

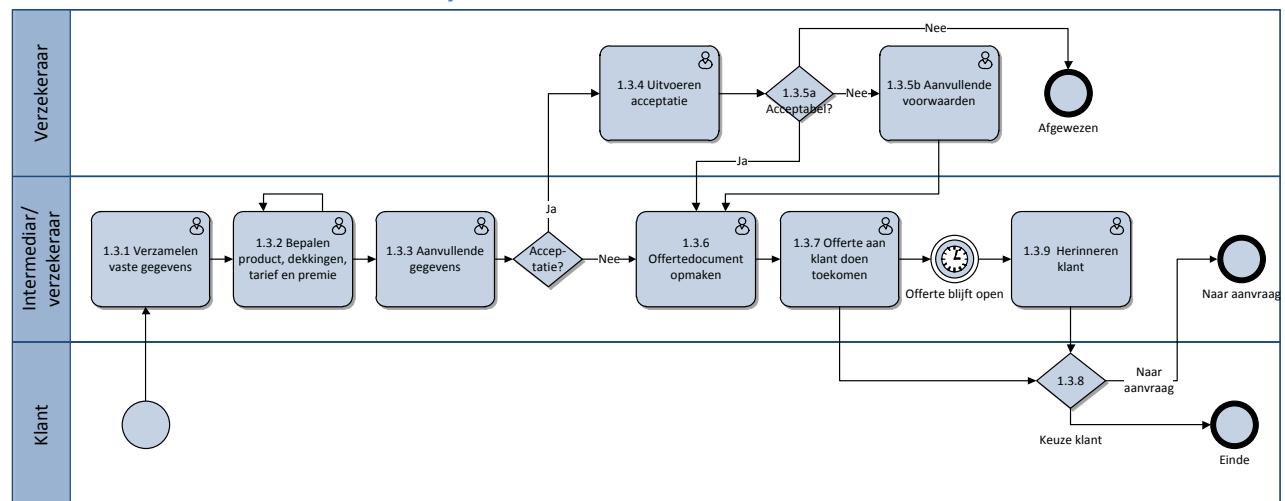


Figure 26: Policy Quotation - Low Maturity

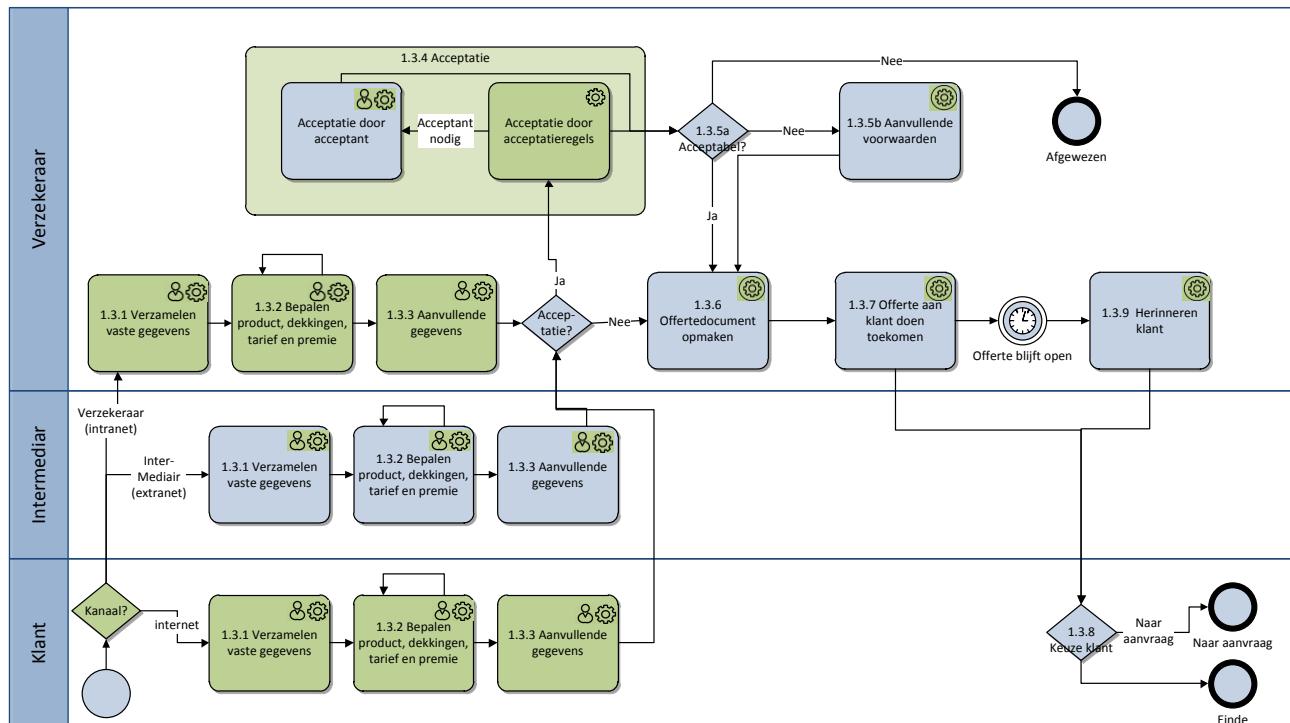


Figure 27: Policy Quotation - High Maturity

As can be seen above, the top model describes the low maturity of the policy quotation process. The model below it is the high maturity process, also known as the increment. In the increment, we can clearly see that the overall process does not change, but that the customer can choose from a variety of channels to get a quotation. The icons in the upper right corner of the activities change from manual (person) to automated (cog-wheel) or partly automated (person+cog-wheel). Furthermore, we can see that the activity "Acceptatie" (Underwriting) has changed from a single activity to multiple activities. This indicates that during the process, business rules are checked to see if automatic underwriting is possible. If possible, straight-through-processing can be achieved.

Each activity in the process is described in further detail in the table below:

Proces	Activiteit	Beschrijving
Offerte		Tijdens het offerteproces wordt een voorstel voor een verzekeringspolis opgesteld, die de voorwaarden en premie van een verzekering bevat. Het opstellen van een offerte kan op verschillende manieren gebeuren: door de intermediair (extranet), verzekeraar (intranet) of door de klant zelf (internet).
	1.3.1 Gegevens verzamelen	Om tot een offerte te komen, moeten er een aantal gegevens verzameld worden: <ul style="list-style-type: none"> • Vaste gegevens die nodig zijn voor een offerte (bijvoorbeeld geboortedatum en postcode)

	<ul style="list-style-type: none"> • Gewenst product • Gewenste dekkingen • Objectgegevens • Looptijd • Eventueel doelgroepafspraak <p>Deze kunnen zowel handmatig ingevoerd worden, uit een klantdossier gehaald worden (indien aanwezig) of uit externe bronnen gehaald worden (bijvoorbeeld RDW-gegevens).</p>
1.3.2 Bepalen product, dekkingen, tarief en premie.	Het in 1.3.1 geselecteerde product en de dekkingen worden gekoppeld aan een tarief. Deze bepalen de premie en uiteindelijke dekkingen van het gekozen product. De pijl van 1.3.2 naar 1.3.2 geeft aan dat de actor zelf dekkingen toe kan voegen en kan verwijderen om met de premie te spelen.
1.3.3 Verzamelen aanvullende gegevens	Aanvullende gegevens zijn nodig, zoals de naam van de klant.
1.3.4 Acceptatie offerte	Alleen indien de verzekeraar werkt met acceptatie op offerte. Een acceptant beoordeelt de offerte. Dit kan ook automatisch gebeuren door middel van belissingsregels (automatische goed- of afkeuring, of automatisch doorzetten naar acceptant).
1.3.5a Beoordelingsresultaat	Acceptabele offertes gaan door naar 1.3.6. Niet (direct) acceptabele offertes worden afgekeurd of aangepast (1.3.5b).
1.3.5b Aanvullende voorwaarden	Indien de offerte niet acceptabel is, kunnen er aanvullende voorwaarden worden toegepast.
1.3.6 Offertedocument opmaken	Het offertedocument wordt opgesteld op basis van de eerder verzamelde (of in 1.3.5b aangepaste) gegevens, premie en voorwaarden.
1.3.7 Offerte aan klant doen toekomen	De offerte wordt naar de klant verzonden. Dit kan zowel via intermediair of verzekeraar (papier, post, email).
1.3.8 Keuze klant	De klant kan ervoor kiezen om de offerte te accepteren en om te zetten in een aanvraag.
1.3.9 Herinneren klant	Indien de offerte open blijft staan, kan de verzekeraar ervoor kiezen om te informeren bij de klant of hij de offerte wil omzetten in een aanvraag.

Table 12: Process description – Policy Quotation

4.2.2 Process Model: Policy Request

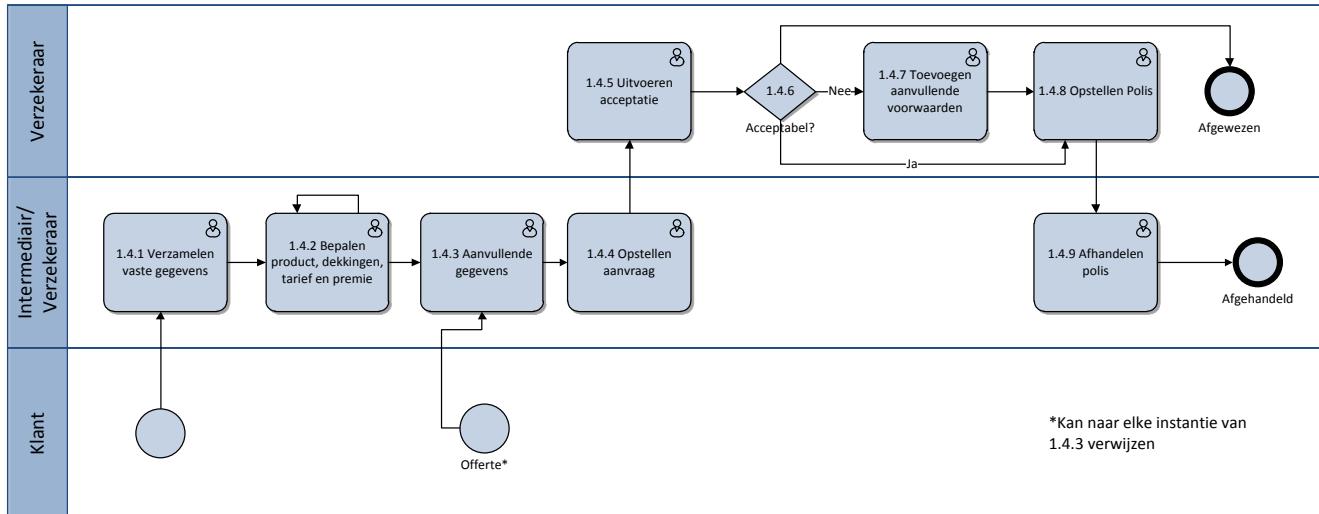


Figure 28: Policy Request - Low Maturity

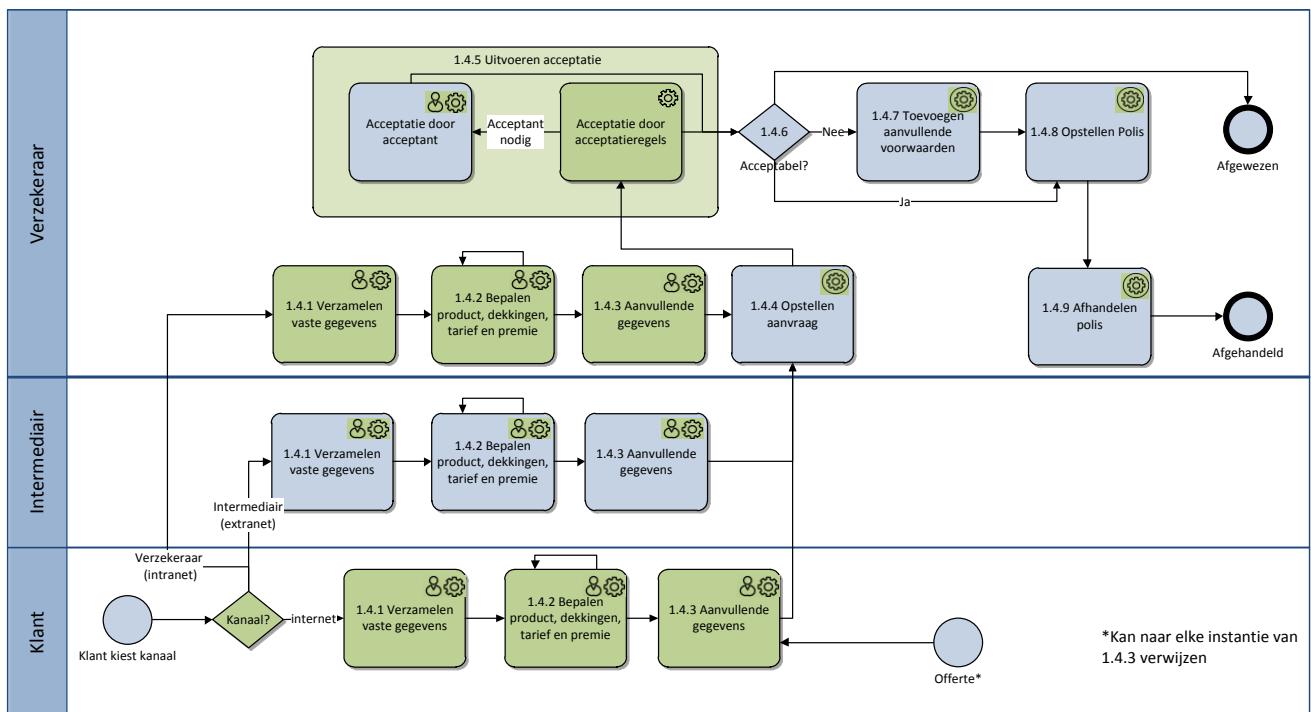


Figure 29: Policy Request - High Maturity

Each activity in the process is described in further detail in the table below:

Proces	Activiteit	Beschrijving
Aanvraag (Polisaanvraag)		Een polisaanvraag is een formeel verzoek tot het afsluiten van een verzekeringspolis. Het aanvragen van een polis kan op verschillende manieren gebeuren: door de intermediair (extranet), verzekeraar (intranet) of door de klant zelf (internet).
	1.4.1 Gegevens verzamelen	<p>Om tot een aanvraag te komen, moeten er een aantal gegevens verzameld worden:</p> <ul style="list-style-type: none"> • vaste gegevens die nodig zijn voor een offerte (bijvoorbeeld geboortedatum en postcode) • gewenst product • gewenste dekkingen • objectgegevens • looptijd • eventueel doelgroepafspraak <p>Deze kunnen zowel handmatig ingevoerd worden, uit een klantdossier of offerte gehaald worden (indien aanwezig) of uit externe bronnen gehaald worden (bijvoorbeeld RDW gegevens).</p>
	1.4.2 Bepalen product, dekkingen en tarief.	Het in 1.4.1 geselecteerde product en de dekkingen worden gekoppeld aan een tarief. Deze bepalen de premie en uiteindelijke dekkingen van het gekozen product. De pijl van 1.4.2 naar 1.4.3 geeft aan dat de klant zelf dekkingen toe kan voegen en kan verwijderen om met de premie te spelen.
	1.4.3 Verzamelen aanvullende gegevens	Voor de aanvraag zijn naast de al gevraagde gegevens, nog aanvullende gegevens nodig, zoals: <ul style="list-style-type: none"> • NAW-gegevens • betalingsgegevens • fraudevragen (slotvraag)
	1.4.4 Opstellen aanvraag	Op basis van de verzamelde gegevens, het product, de voorwaarden en de premie wordt een aanvraag opgesteld.
	1.4.5 Uitvoeren acceptatie	Een acceptant (verzekeraar) beoordeelt de aanvraag. Dit kan ook automatisch gebeuren door middel van belissingsregels (automatische goed- of afkeuring, of automatisch doorzetten naar acceptant). Hier worden ook fraude-checks uitgevoerd.
	1.4.6 Beoordelingsresultaat	Acceptabele aanvragen gaan door naar 1.4.8. Niet (direct) acceptabele aanvragen worden afgekeurd of aangepast (1.4.7).

	1.4.7 Toevoegen aanvullende voorwaarden	Indien de aanvraag niet acceptabel is, kunnen er aanvullende voorwaarden worden toegepast.
	1.4.8 Opstellen polis	De polis wordt aangemaakt op basis van de eerder verzamelde (of in 1.4.7 aangepaste) gegevens, premie en voorwaarden. Hier wordt, indien van toepassing, ook de voorlopige dekking opgesteld.
	1.4.9 Afhandelen polis	Dit betreft de complete afhandeling van de polis: <ul style="list-style-type: none"> • De klant krijgt bericht over zijn aanvraag en ontvangt ook de benodigde documenten. • De financiële afhandeling wordt in gang gezet om de premie te incasseren. • Eventueel melden van de polis bij derde partijen (zoals intermediair). • In het geval van een motorrijtuig-verzekering zijn er nog aanvullende acties, zoals het aanmelden van de verzekering bij RDW.

Table 13: Process description – Policy Request

4.2.3 Process Model: Mutation

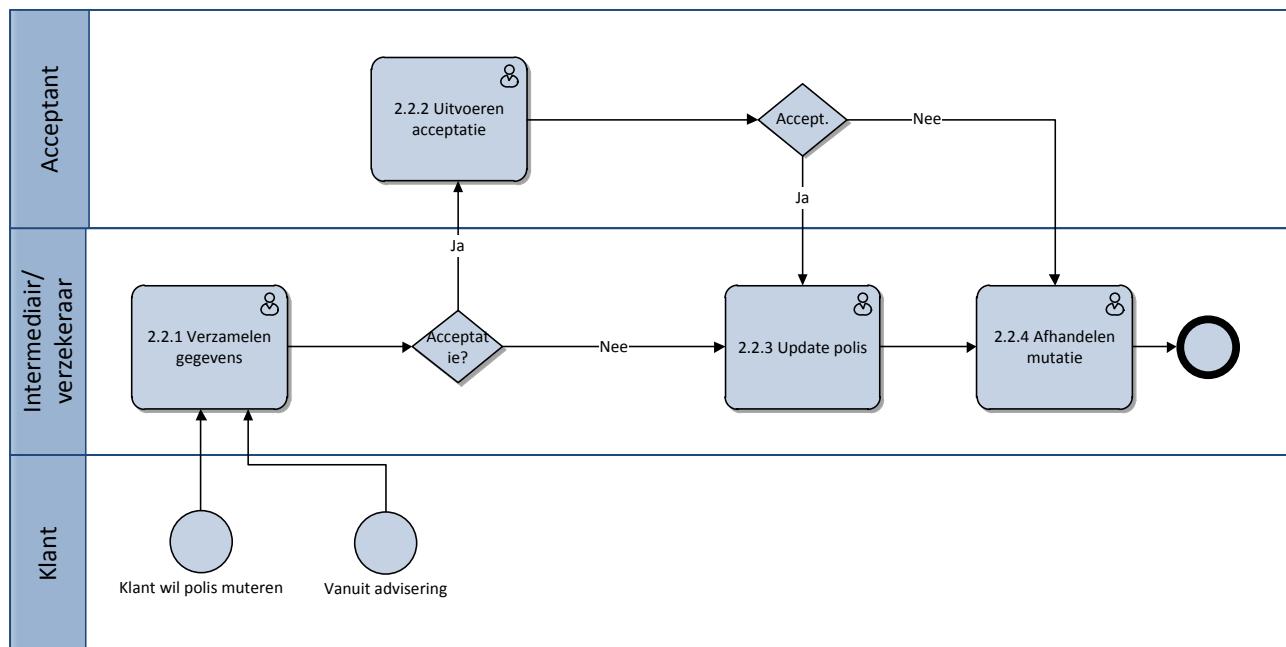


Figure 30: Mutation - Low Maturity

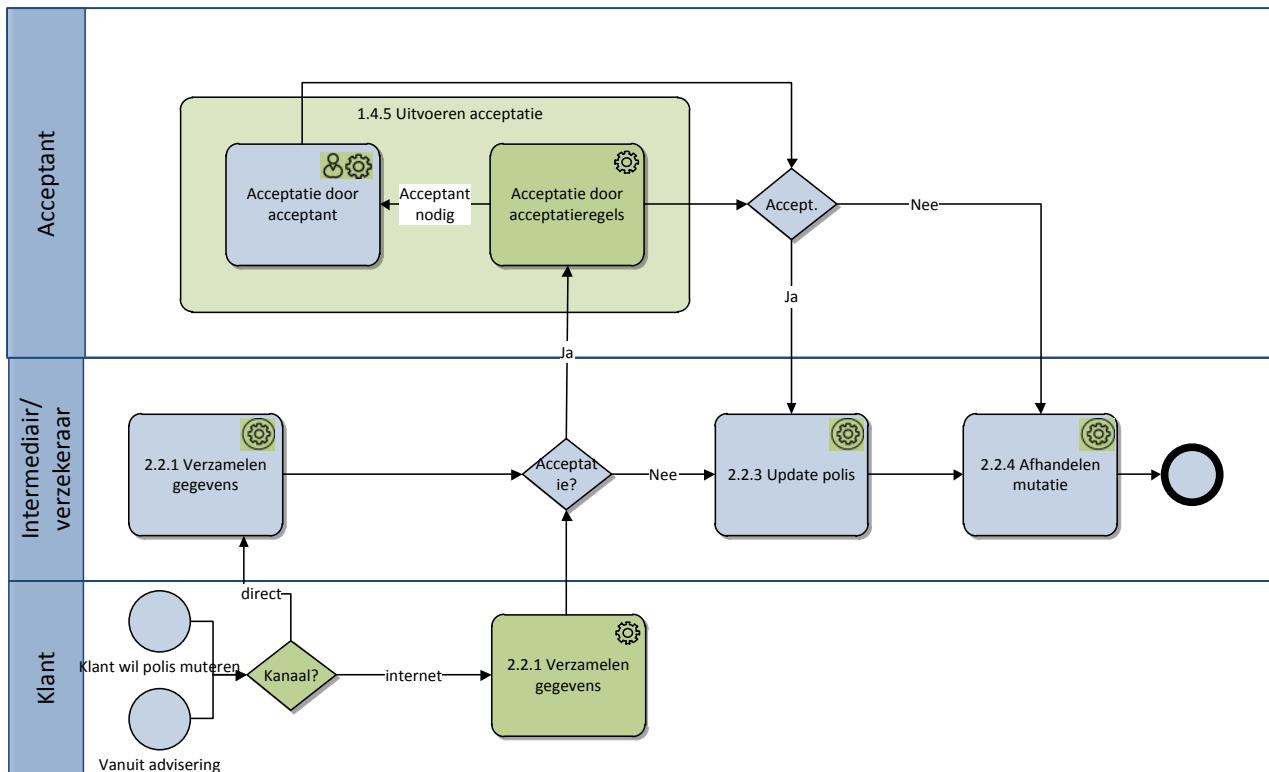


Figure 31: Mutation - High Maturity

Each activity in the process is described in further detail in the table below:

Proces	Activiteit	Beschrijving
Polisbeheer – Aanpassen polis		Het aanpassen van de polis is het aanpassen van één of meerdere gegevens van de verzekerde of van polisgegevens vanuit de klant.
	2.2.1 Verzamelen gegevens	Het verzamelen van gegevens die benodigd zijn voor de mutatie, waaronder reden voor mutatie, welke gegevens gewijzigd moeten worden en per welke datum.
	2.2.2 Uitvoeren acceptatie	Indien van toepassing
	2.2.3 Update polis	Het bijwerken van de polis met de nieuwe gegevens.
	2.2.4 Afhandelen mutatie	Als de polis is bijgewerkt vindt de afhandeling plaats. Dit bevat communicatie met de polishouder, eventuele melding aan derde partijen en de financiële afhandeling van de polis (indien van toepassing).

Table 14: Process description – Mutation

4.2.4 Process Model: Report Claim

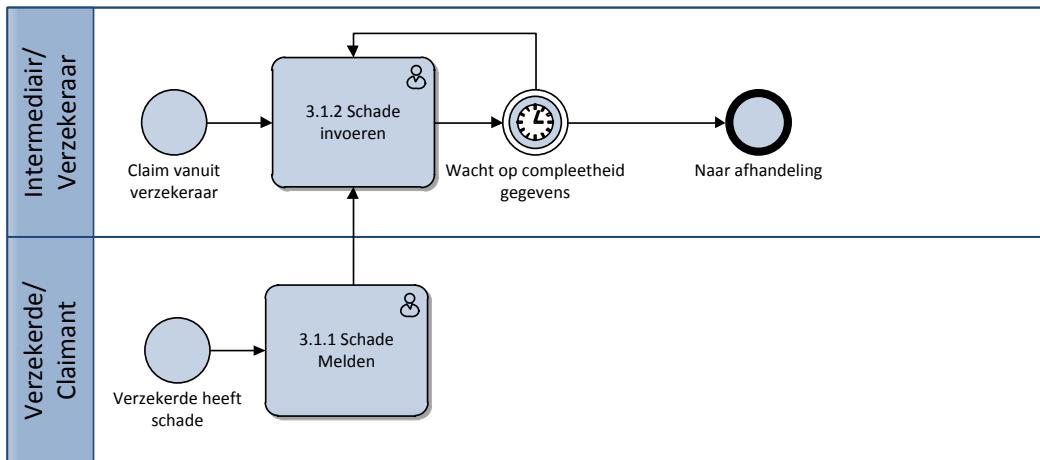


Figure 32: Report Claim - Low Maturity

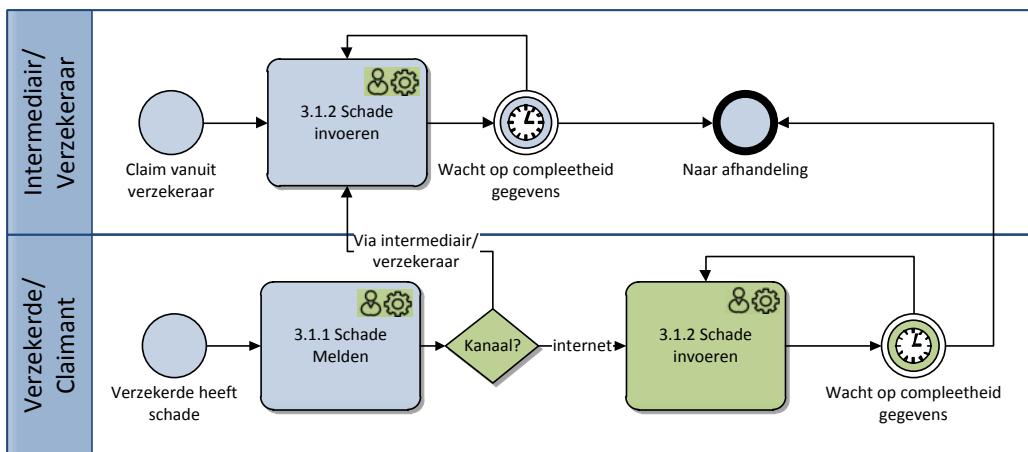


Figure 33: Report Claim - High Maturity

Each activity in the process is described in further detail in the table below:

Proces	Activiteit	Beschrijving
Schade – Schademelding		Dit proces beschrijft de afhandeling van een schadeclaim. Dit kan een directe claim van een verzekerde betreffen, maar ook een claim van een tegenverzekeraar die schade wil verhalen.
	3.1.1 Schade melden	De schade wordt doorgaans gemeld door de verzekerde bij de intermediair of bij de verzekeraar. Dit kan persoonlijk, via de post, telefonisch of via internet.
	3.1.2 Schade invoeren	De gegevens van de klant en de polis worden opgehaald, en aangevuld met schade-specifieke gegevens. De verzekeraar controleert of de klant verzekerd is voor de geclaimde schade. Hier worden ook regresreserveringen aangemaakt.

Table 15: Process description – Report Claim

4.2.5 Process Model: Handle Claim

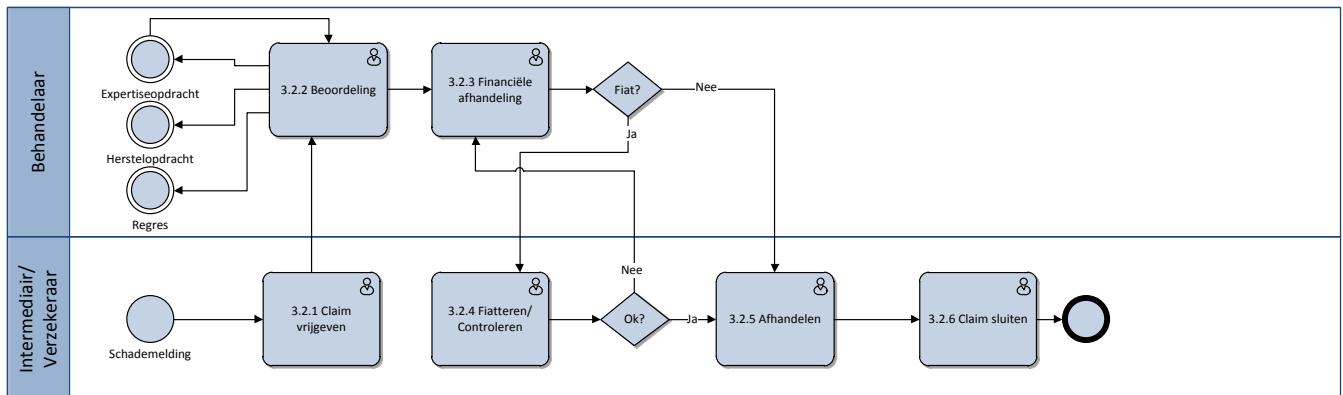


Figure 34: Handle Claim - Low Maturity

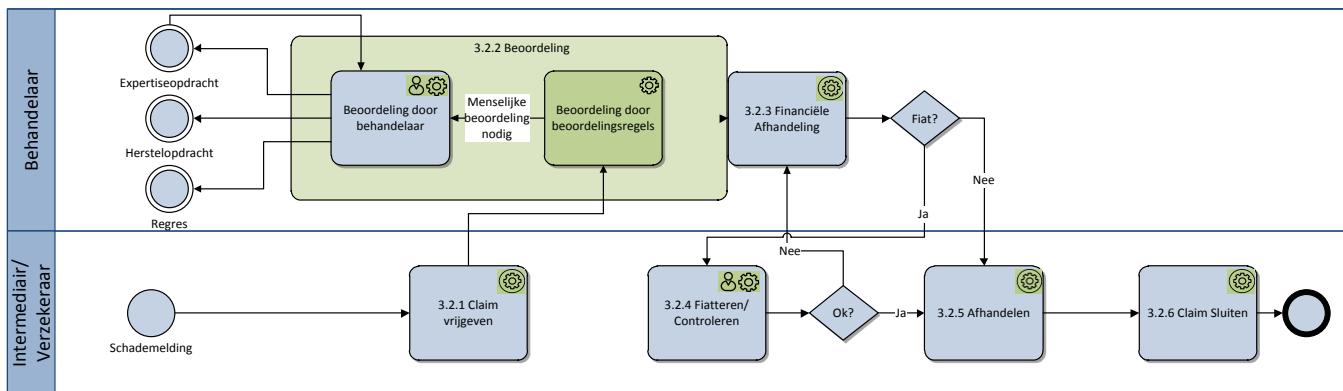


Figure 35: Handle Claim - High Maturity

Proces	Activiteit	Beschrijving
Schade – Schade-afhandeling		Dit proces beschrijft de afhandeling van een schadeclaim. Dit kan een directe claim van een verzekerde betreffen, maar ook een claim van een tegenverzekeraar die schade wil verhalen.
	3.2.1 Claim vrijgeven	Er wordt gewacht tot alle benodigde gegevens om de schade te behandelen binnen zijn. Als alle benodigde gegevens verzameld zijn, wordt de claim toegewezen aan een behandelaar. Hier worden ook fraudechecks uitgevoerd.
	3.2.2 Beoordeling	De behandelaar behandelt de claim en zal uiteindelijk tot een beoordeling komen. Hier kunnen één of meerdere expertiseopdrachten aan te pas komen. Hier wordt ook gekeken of de schade verhaald kan worden. Zo ja, dan wordt dit in een apart proces gedaan. Indien van toepassing, en als

		er dekking voor is, kan er een herstelopdracht uitgezet worden.
3.2.3 Financiële afhandeling		De claim wordt financieel afgehandeld. Dit kan zowel de betaling aan de klant betreffen, maar ook betaling aan de tegenpartij of aan een herstelpartij.
3.2.4 Flatteren/Controleren		De beoordeling en uitkering worden gefiatteerd of gecontroleerd. Indien van toepassing wordt de uitkering aangepast.
3.2.5 Afhandelen		Overige zaken worden afgehandeld, zoals communicatie aan de betrokken partijen. Bij prolongatie kan de polis aangepast worden.
3.2.6 Claim Sluiten		Als de claim compleet afgehandeld is, wordt de claim gesloten.

Table 16: Process description – Handle Claim

4.2.6 Other Process Models

The rest of the process models are modeled and described in the same way. They can be found in Appendix 2. Appendix 2 contains models and descriptions for each of the activity identified in section 4.2:

1. Sales
 - a. Advisement
 - b. Premium Calculation and Comparison
 - c. Policy Quotation
 - d. Policy Request and Underwriting
2. Policy
 - a. Prolongation
 - b. Change intermediary
 - c. Create payment for premium
 - d. Expulsion
 - e. Restore expulsion
 - f. Suspension
 - g. Restore suspension
3. Claims
 - a. Claims Report
 - b. Claims Handling
 - c. Recourse
 - d. Create expert assessment
 - e. Create assignment for recovery
 - f. Create reserve for recourse

4.3 Maturity factors

As stated in section 3, Rosemann and De Bruin (2005) list a number of prerequisites that define an organization with a high maturity (or “Optimised”):

- Coordinated BPM Activities: Coordination of process management initiatives will make sure that BPM is integrated in the entire organization, making for a coherent entirety. This is a context factor of an organization and can be measured, for instance, by looking at how BPM is used in the organization: Are there dedicated FTE for BPM/process management or is it done per department? A higher coordination will ensure proper integration in the organization.
- High BPM Expertise: To make efficient use of BPM, knowledge on the subject needs to be present in the organization, preferably centrally stored and employee-independent. In large organizations, we see that dedicated BPM departments take care of the process management of an organization. This factor is a factor that needs to be assessed in the context of an organization, since it cannot be measured using the process models.
- Organization-wide coverage: The coverage of BPM can be seen as using BPM for all activities, as an integrated set of BPM initiative, but in the case of insurance it can also be seen as the coverage of BPM for the product portfolio. Maturity is expected to be higher when an insurance provider integrates BPM initiative for the entire product portfolio. A way of measuring this is by taking the premium volume into account.
- Proactive: When an organization takes a proactive attitude, it can react faster to changes in the market. This can be from outside of the market (for instance, changing legislation) or from the market itself (for instance, changing customer expectations. When an organization takes a proactive attitude, it can remain (or achieve) a market leader position. It is difficult to measure this though process models and should be assessed on an organizational level.
- Meaningful Automation: This factor is most visible in the constructed model. Automation of activities within the process is the “easiest” way to increase maturity, since (by making use of process descriptions) it is very easy to see what activities can be automated. The notion of “meaningful” indicates that just due to the fact that something can be automated, does not mean it should be automated. For instance, automating the handling of requests for complex products with a very low volume would cost more than doing so manually. When looking at such a process, however, reaching 100% digital input and output would be more desirable.
- Extended organization: The extended organization is very ‘visible’ when new channels are added. For instance, when implementing an internet sales channel, or a mobile application for claims reporting, the organization ‘extends’ to include the customer for data input. Furthermore, when implementing services (for instance) for recourse among insurance organization, fraud checks and expert assignments, the organization extends its organizational limits (process-wise).
- Efficient resourcing: The resourcing of an organization regarding, for instance, sales- and claims handling can reduce the number of FTE needed at a given moment. A way that BPM can help on this aspect is, for instance, by looking at

the workload of employees before assigning work, or by redirecting work if an employee fails to reach a deadline.

- Comprehensive understanding: A comprehensive understanding (in contrast to a more naïve view) of processes and their dependencies is crucial for successful BPM. This is closely related to coordination and expertise, but more focused on the processes itself. Only when an organization has a comprehensive understanding of the processes, can BPM initiatives (such as the implementation of IPM software) really make a difference and raise the maturity.
- Innovation: Innovation can be identified mainly in the introduction of new channels for customers. For instance, when we look at the policy request process (section 4.2.2), we can see that internet channels are being introduced, to aid the customer in their needs by making the time to come to a policy as short as possible. Furthermore, reporting a claim (section 4.2.4) can be done by using a mobile device instead of the traditional damage claim form. The introduction of new channels (and new products, in which IPMS can aid in getting them to the market by shortening the time-to-market of a product) is a good example of innovation through BPM.

In other words, improving a process (through automation or other means) must achieve or improve one of the factors above. The fact that the study focuses on the IT-aspect of BPM Maturity, most of the process increments (which are the elements of improvement) will fall under the category of "meaningful automation". At the same time, introducing new distribution channels, which is a frequent seen increment, will increase both "Extended organization" and "Innovation". Furthermore, automating certain parts of the insurance process (e.g. the policy request and underwriting process, one of the key processes) can reduce human intervention in the process, thus reducing costs, providing "Efficient resourcing". A more detailed elaboration will be provided further in the document.

These factors are mostly measured on the top level of the organization (as context factors), but some factors can be measured through the use of process models. Meaningful Automation, Extended Organization and Innovation can be measured using the process models, by looking at the levels of automation and the introduction of new channels, respectively.

The table in appendix 3 maps the factors above onto the IPM Maturity model. Besides "Meaningful automation", which applies to all activities that can be automated, the maturity factors can be mapped to the process factors. Each process factor is followed by one or several numbers, relating to a maturity factor:

1. Coordinated BPM Activities
2. High BPM Expertise
3. Organization-wide coverage
4. Proactive
5. Meaningful Automation

6. Extended organization
7. Efficient resourcing
8. Comprehensive understanding
9. Innovation

Besides the maturity factors of Rosemann and De Bruin, we have found several factors that should contribute to a higher level of maturity. These were found outside of the literature and based on the experiences of domain experts. These are specific to the insurance market and are all IT-related:

- Quality IPMS solution: This does not indicate the software quality, but the quality of the results of the software. Insurance providers indicated that the percentage of STP-failures (cases in which STP is not possible, but human intervention is needed) is very important in measuring the quality. Closely related to the percentage of STP failures is the percentage of STF successes: the number of requests that succeed in STP.
- Percentage digital input: Insurance providers aim to move to a situation where 100% of the input is digitally received. Although this is not yet achievable (since a large part is still being done via paper requests), getting closer to 100% is something to strive for.
- Processing time: When dealing with 'STP-failures' (when human intervention is required), an insurance provider should aim to keep the processing time as low as possible. Closely related to this is the overflow of requests: whether requests are handled per day or if large stacks of work remain after closing hours, to be processed later.
- Availability of processing: In an ideal situation, requests are handled as they come in (realtime). It is not unthinkable, however, that requests are handled periodically (once per day at a given time) or that processing is in real-time, except for a given period (for instance, not between 12.00 and 14.00).

4.4 Performance indicators

The performance indicators indicate how a process increment will benefit the performance of the organization. To keep measuring of increase performance simple, we have based the performance indicators on the value disciplines of Treacy and Wiersema (1994). The reason that we have chosen to base the performance indicators on the value disciplines is that the selected insurance organizations and the IPM software provider are already familiar with the value disciplines, so the performance indicators should be well recognized by the organizations.

The value disciplines of Treacy and Wiersema are well-known in marketing and are widely used to identify the main focus of an organization. The value disciplines, as defined by Treacy and Wiersema:

- *Operational Excellence*: a specific strategic approach to the production and delivery of products and services, by seeking ways to minimize overhead costs, eliminate intermediate production steps, reduce transaction and other

friction costs and optimize business processes across functional and organizational boundaries. The focus lies on delivering products and services to customers at competitive prices and with minimal inconvenience. The objective is to be a market leader in price and convenience (Treacy and Wiersema, 1994).

- *Customer intimacy*: a specific strategic approach by continually tailoring and shaping products and services to fit and increasingly fine definition of the customer. While this can be expensive, organizations following a customer intimacy approach are willing to invest to build customer loyalty for the long term. The customer's lifetime value is more important than the value of any single transaction. Employees in these organizations will go to great lengths (with little regards to initial costs) to make sure that each customer gets exactly what he or she really wants (Treacy and Wiersema, 1994).
- *Product leadership*: a specific strategic approach of striving to produce a continuous stream of state-of-the-art products and services, by challenging themselves in three ways. First, they must be creative. Being creative means recognizing and embracing ideas that usually originate from outside the organization. Second, innovative ideas must be commercialized very quickly. To be able to do so, business and management processes must be engineered for speed. Third, product leader must pursue new solutions to problems that their latest product and services have just solved (Treacy and Wiersema, 1994).

We have defined three performance indicators in the model, based on the three value disciplines: Operational Excellence, Customer Intimacy and Business Innovation (Product Leadership). They are tuned to the model at hand and the insurance industry:

- *Operational Excellence*: Focus on effectively managing business processes and reducing the need for human intervention in business processes, mainly by process automation and implementing business rules.
- *Customer Intimacy*: Focusing on customer satisfaction and customer retention, by eliminating waiting times and offering customers fast and personalized channels for insurance products and services.
- *Business Innovation*: Focus on innovative insurance products and services, and by offering new and innovative channels for customers and business partners.

An activity will generally increase performance in one of three areas, but it is possible that a process increment will contribute to two performance indicators. For instance, introducing an internet channel will contribute to customer intimacy and business innovation. The process increments will be discussed in the next section.

The maturity model incorporates the performance indicates per process factor and per activity. When we look at figure 36, we can see that the process is divided in a number of activities. Each activity is assessed on its level of automation. Three levels are defined to provide a value for each activity: Manual, partly automated or fully

automated. Each of these three values corresponds to a numerical value, at current 0 (manual), 0,5 (partly automated) or 1 (fully automated). The value that is given to an activity corresponds to the contribution to the maturity score of that activity (and indirectly to the total maturity score).

Besides the level of automation that is assessed on the activity level of a process, there are a number of factors that influence the maturity level of a process on the process-level of the process (as opposed to the activity-level of the process). These factors can not be seen in activities, but at a higher level. For instance, the availability of an extranet for external sales increases the maturity of an organization, but cannot be seen on the activity level. Therefore, a number of factors are defined for each activity. These factors are assessed on their availability: whether they are present in the organization or not (available equals 1 point, not available equals 0 points). For instance, if an organization provides their sales partners with access to an extranet for sales, they would increase the maturity of that activity with 1 point.

1.4 Polisaanvraag		OE	CI	BI	OE	CI	BI
Intranet omgeving (interne medewerker)	Niet aanwezig	0	0	Aanwezig	1	1	1
Extranet omgeving (tussenpersoon)	Niet aanwezig	0	0	Aanwezig	1	1	1
Internet omgeving - Web (prospects)	Niet aanwezig	0	0	Aanwezig	1	1	1
Internet omgeving - Mobiel (prospects)	Niet aanwezig	0	0	Aanwezig	1	1	1
Persoonlijke omgeving - Web (klanten)	Niet aanwezig	0	0	Aanwezig	1	1	1
Persoonlijk omgeving - Mobiel (klanten)	Niet aanwezig	0	0	Aanwezig	1	1	1
Digitale aanvraag/polis	Niet aanwezig	0	0	Aanwezig	1	1	1
Gedeeltelijke acceptatie bij gegevensinvoer	Niet aanwezig	0	0	Aanwezig	1	1	1
Procesactiviteiten	1.4.1 Gegevens verzamelen	Handmatig	0	Geautomatiseerd	1		
	1.4.2 Bepalen product, dekkingen en tarief.	Handmatig	0	Geautomatiseerd	1		
	1.4.3 Verzamelen aanvullende gegevens	Handmatig	0	Geautomatiseerd	1		
	1.4.4 Opstellen aanvraag	Handmatig	0	Geautomatiseerd	1		
	1.4.5 Uitvoeren acceptatie	Handmatig	0	Geautomatiseerd	1	1	
	1.4.6 Beoordelings-resultaat	Handmatig		Geautomatiseerd			
	1.4.7 Toevoegen aanvullende voorwaarden	Handmatig	0	Geautomatiseerd	1		
	1.4.8 Opstellen polis	Handmatig	0	Geautomatiseerd	1		
	1.4.9 Afhandelen polis	Handmatig	0	Geautomatiseerd	1		
	Fraudecontrole	Handmatig	0	Geautomatiseerd	1		
	Afhandeling fraudecontrole	Handmatig	0	Geautomatiseerd	1		
Percentage particulier premievolume gedekt door proces?		100			100		
Percentage zakelijk premievolume gedekt door proces?		100			100		
Processscore		0,0			28,0		

Figure 36: Performance Indicators

The figure above shows how performance indicators are measured in the model, by showing two situations side-by-side. When an activity is not automated, it gets zero points on a performance indicator. For instance, the activity "Uitvoeren Acceptatie" (Underwrite Policy Request) can increase both Operational Excellence (by reducing human intervention) and Customer Intimacy (by STP, making the time from request to actual policy less than a few minutes). However, these are only increased if that activity has been (partly) automated, as on the right side of the picture.

A process factor (which is not assessed on the level of automation, but on whether it is present or not) does not take a value between zero and one, but rather zero or one. For instance, if an insurance provider has an internet sales channel, this will increase operational excellence, customer intimacy and business innovation (all

three). However, when an internet sales channel is not present, this will not increase the performance.

When all relevant processes are assessed, the number of performance indicators is totaled, and a score is given (see figure below). This can be used as a comparison between two situations or as a total score.

	Situatie A	Situatie B	Verschil
Operational Excellence	0	135	135
Customer Intimacy	0	35	35
Business Innovation	0	37	37
Totaalscore	0	207	207

Figure 37: Performance Indicators

4.5 Process Increments

The process increments are basically the maturity levels applied to the process models. The process descriptions as depicted in the process models are based on the process without taking an IT system in perspective. These models can be treated as completely manual processes and thus the lowest-maturity-models. By using the process increments described in section 3.4 we can construct the higher-maturity-process-descriptions.

- *Insertion* of a concept, property, relationship, activity node, transition or role.
- *Modification* of a concept, property, relationship, activity node, transition or role.
- *Deletion* of a concept, property, relationship, activity node, transition or role.

Each activity in the process descriptions (activity node) has a property that we describe as level-of-automation. It describes whether an activity is manual, partly automated or automated and is depicted by an icon in the upper right corner. Most process increments will concern a higher level-of-automation, when an activity moves from manual or partly automated to a higher level (from manual to partly automated or automated, or from partly automated to automated). This can be seen as a modification of a property.

Furthermore, it is possible that new activities are introduced, for instance policy underwriting that consisted only of an insurance employee checking a policy request moving to automated underwriting with the possibility of automated underwriting (see picture below). Policy underwriting has moved from only one activity to two activities. The same can be said for the deletion of activities.

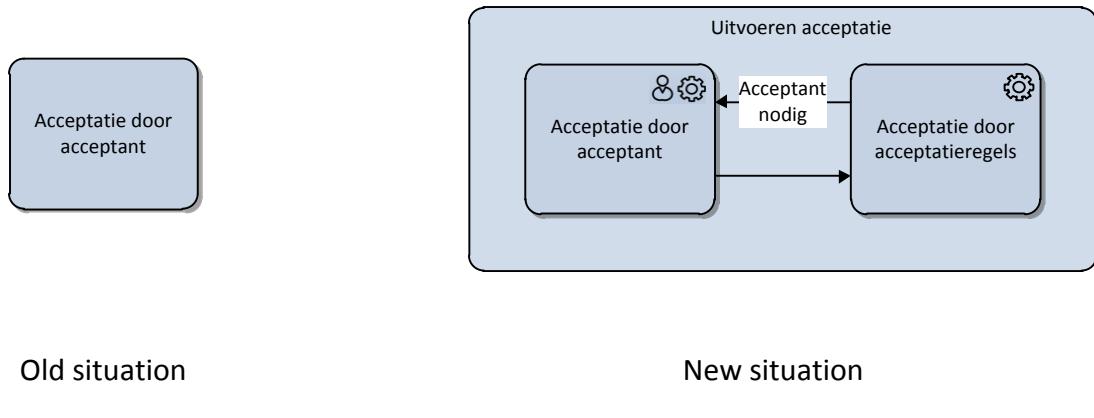


Figure 38: Process Increment: Example

Besides changing or adding activities, it is possible that new roles are added to the process. For instance, a trend in insurance process solutions is the possibility for customers to obtain an insurance policy via new channels, such as the internet, personalized environments (also via the internet) or by making use of mobile devices. In that case, a new role is introduced as a new swimming lane in the process model with new or duplicated activities. This would mean that maintenance of the model would increase due to duplicate activities that need to be updated. However, due to the rather small amount of activities, the extra effort would not greatly increase.

The two pictures below describe these increments mentioned above in one single description.

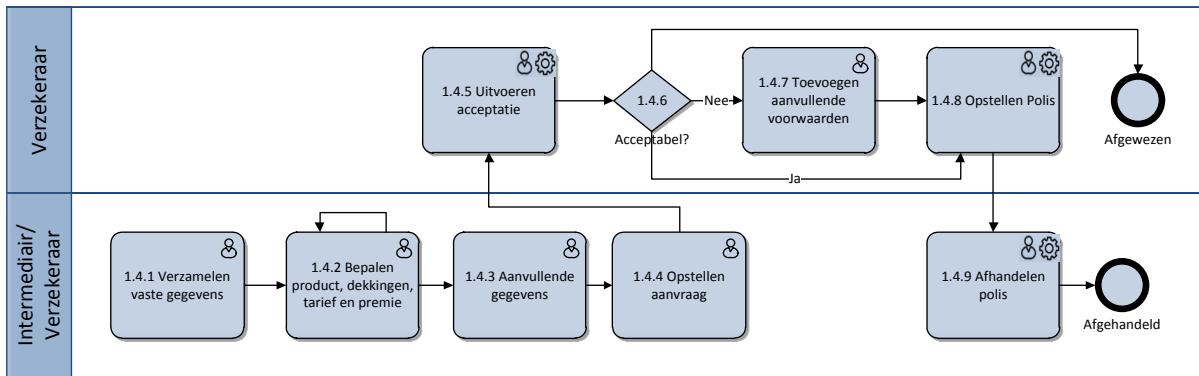


Figure 39: Process Increment: Low Maturity Example

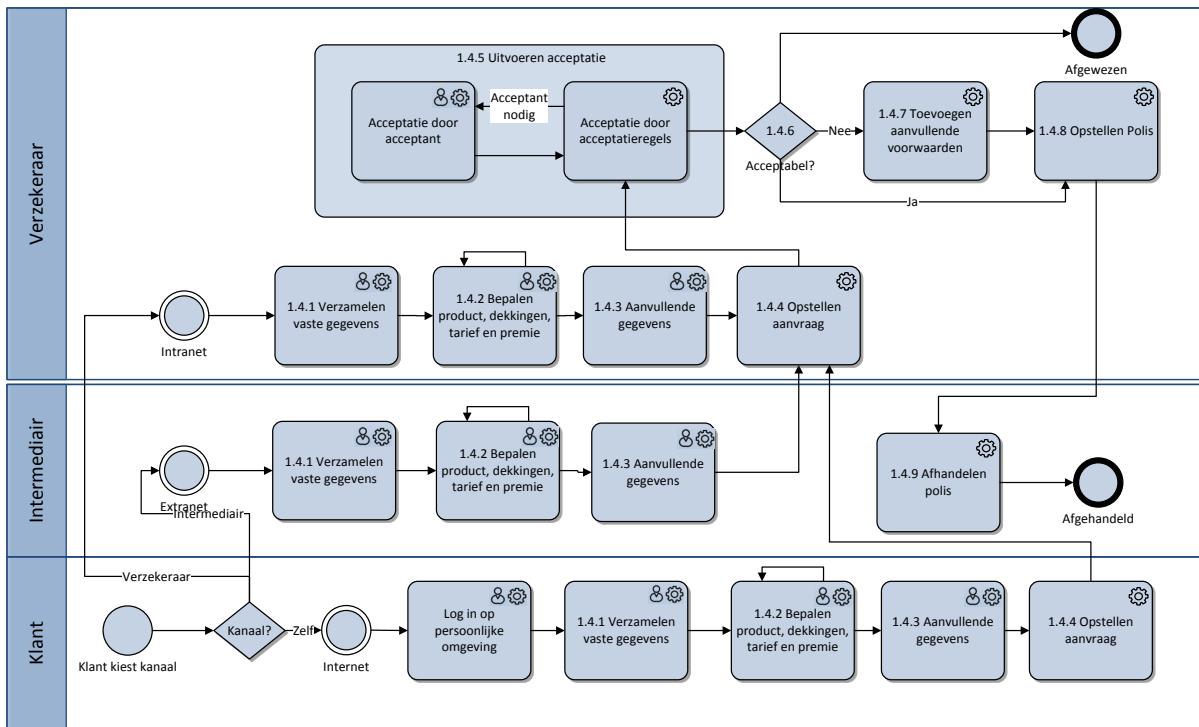


Figure 40: Process Increment: High Maturity Example

On the top, we see the basic process description from the process model (low maturity) and below that we see the process description incorporating process increments for a higher maturity:

- Properties are modified
- Activities are added
- Role is added

4.6 Determining Maturity

The hypothesis of the study is: “An increased level of BPM Maturity will also increase the performance of an organization”. Important notions are “increasing BPM maturity” and “increase performance.” We will first discuss the “increasing BPM maturity” implication for the model.

For each process, the model contains maturity improvements for each activity within the process. Generally, this will be a completely manual activity on the left hand, maturing to an automated activity on the right hand. When we have a series of fully automated activities (and thus, a completely automated process), we can speak of *straight-through processing (STP)*: an electronically conducted process without the need for manual intervention, subject to regulatory restrictions (business rules). Achieving STP on processes is seen as a high (though not necessarily the highest) maturity level.

When using the notion of maturity levels, the link to CMM-based models is easily made. When performing interviews with domain experts, however, it seems that a CMM-based *n*-level model (that is, a model with a set number of maturity levels with

a number of prescribed prerequisites to achieve a higher level) is not ideal for such the proposed model. Main reason is that there is no set route for achieving STP in insurance processes. Practice shows that insurance providers have different wants and needs, and that there are many ways to achieve a higher maturity.

For instance:

- Some insurance providers choose to automate different parts of the same process (Example Company A can choose to automate a part of the request and underwriting process, for instance only the underwriting process. Insurance company B can choose to do the underwriting manually, but with automated document generation).
- Some insurance providers choose to only automate complex processes or just the easy processes.
- Some insurance providers choose to fully automate processes for a single product, but not for the entire portfolio.

In short: it is very difficult when using process descriptions and process increments to use a set-stage (CMM-based) maturity level, since it is more of a recipe with different ingredients that determines the maturity level. A more suitable model would be some kind of a scorecard, where automating different parts will increase the overall total score. Several implications for the model:

1. A manual process will contribute a low number to the total maturity score (0).
2. A fully automated (STP) process will contribute a high number to the total maturity score (1). However:
 - o The between-manual-and-STP processes will contribute a number in between (0,5).
3. Complex processes will greater influence the total score, whereas simple processes will have a smaller impact on the total score, for instance through the use of a correction factor. E.g.: automating the policy request and underwriting process will contribute more to achieving higher maturity than automating a simple mutation process,
4. Processes with a greater organizational reach will greater influence the total score, whereas processes with a smaller organizational reach will have a smaller impact. For instance, if a product-related process is automated for the entire product portfolio, it will have a greater impact than when that product-related process is automated for only one or two products. Again, this can be achieved with the use of a correction factor.

The second part of the hypothesis is "increasing performance". Measuring performance increase will happen in three possible areas of performance increase:

- Operational Excellence
- Customer Intimacy
- Business Innovation

4.6.1 Calculating the Maturity level

Determining the actual maturity level is based on the maturity scores of the individual processes. The process scores, in turn, are based on the level of automation of the activities within a process. The maturity level is calculated bottom-up, starting with the level of automation of the activities.

Each activity is assessed on the level of automation

1. Manual activity
2. Partly automated activity
3. Automated activity (needed to achieve STP)

This divides activities in three categories, but it is hard (and very subjective) to properly assign a value to a partly automated activity. The process score is calculated as follows:

$$\text{Process score } P = A + (B * 0,5)$$

Where A is the number of (fully) automated activities and B is the number of partly automated activities. This will give us a process score. When the process score of all activities has been computed, the sum of the process scores can be used to calculate the overall maturity level.

The overall maturity level is calculated using the following formula:

$$\text{Maturity } M = \sum P$$

Where $\sum P$ is the summation of the individual process scores. This provides us with the overall maturity score. It should be noted, however, that this calculation assumes that all processes contribute equally to the overall maturity, which we do not assume is the case.

We extend the maturity calculation with several possible correction factors, to adjust for the factors above. Additional correction factors can be applied if deemed necessary.

- A correction on the maturity level should correct the maturity score M for factors that are above process levels, such as factors that influence the entire organization.

$$M_{\text{cor}} = M * C$$

Where M is the original process score and C is the correction factor. The use of maturity corrections has not further been investigated due to time restraints.

After applying the correction factors on the maturity level, the final maturity level (M_{fin}) can be calculated.

4.6.3 Determining the Maturity level: Example

In this section, we will give a short example of how to calculate a maturity level. Only one process will be used in the example, but using the method described in the section above, the maturity of a set of processes can be calculated by repeating the calculation for each process and applying the overall maturity calculation.

In this example, we will calculate the process score of a process with a low maturity, and the process score of that same process with a high maturity.

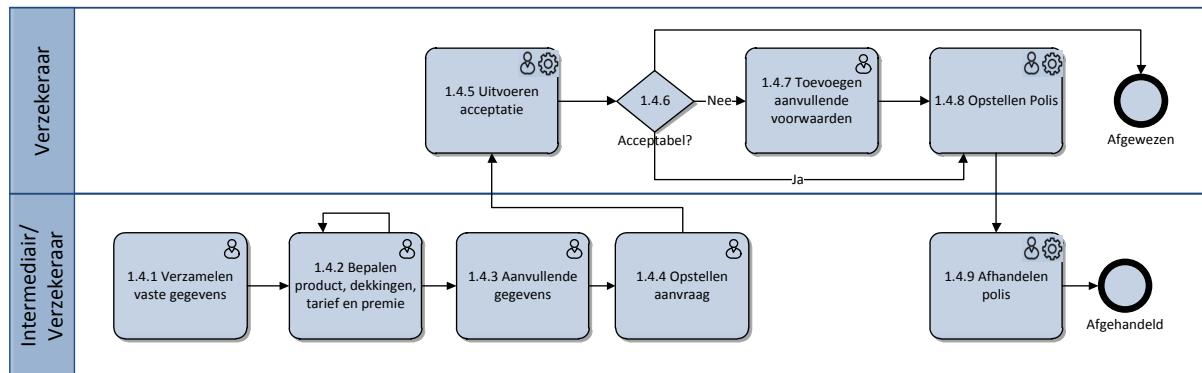


Figure 41: Calculation: Low Maturity of Policy Request

In this example, using the Process score $P_1 = A + (B * 0,5)$ formula, we can state that the process score is $0 + (3 * 0,5) = 1.5$ (where $A = 0$, $B = 3$).

When we look at that same process on a higher maturity level, we see a number of differences. First of all, the number of activities is higher due to adding channels. Second, a number of activities are automated and a number is partly automated. There are no manual activities anymore.

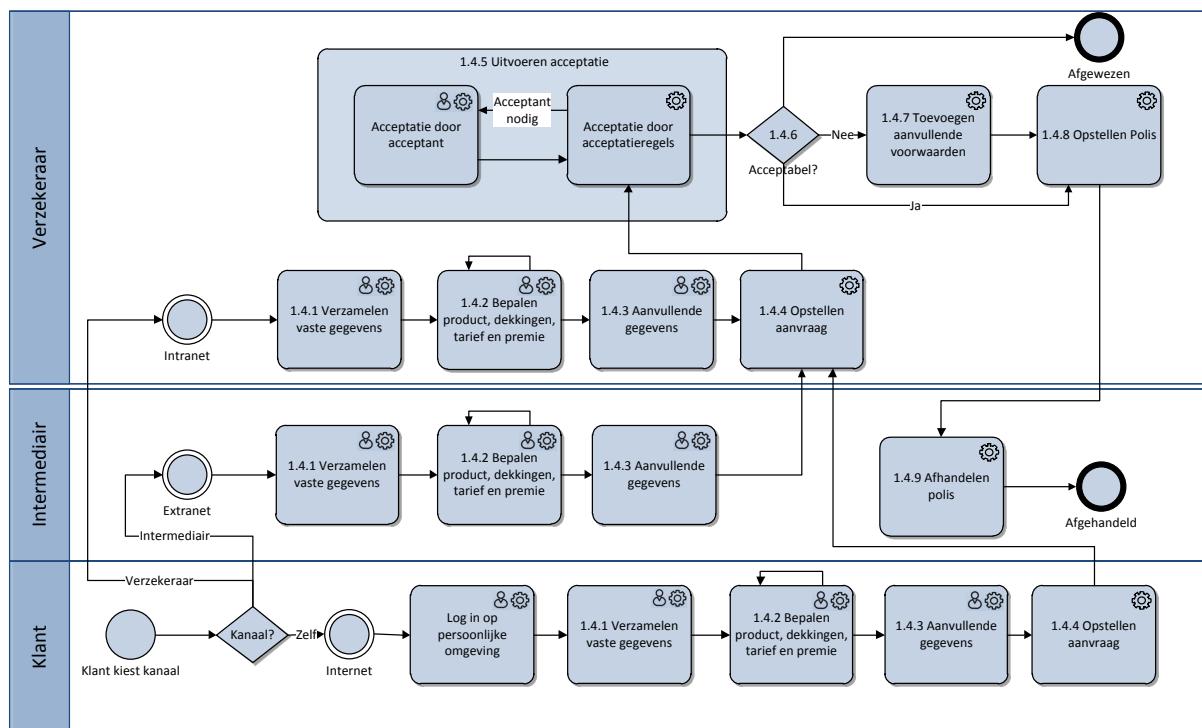


Figure 42: Calculation: High Maturity of Policy Request

Using the same formula, we can calculate the process score of the adjusted process as $P_2 = 6 + 11 * 0,5 = 11,5$ (where A = 6, B = 11). The difference in maturity by automating this process is: P_2

$$\Delta P = P_2 - P_1 = 11,5 - 1,5 = \underline{10}$$

In this example, we have compared situation A with situation B and determined the maturity level of both. By calculating the difference in maturity levels, we can determine the increase in maturity.

Besides an increase in maturity, an increase in maturity is linked to the increase in performance.

4.7 Extension of the model

During development of the model, several choices have been made regarding future extension of the model. We think that it is important to leave room for extension for the following reasons:

- Although the model incorporates a number of important processes, the processes in the process model do not cover all processes in an insurance organization. To get a broader picture of the maturity of the organization, more processes would have to be taken into account. In an ideal situation, all the processes from the business area of the process overview model would be incorporated.
- New techniques need to be incorporated as they are introduced to the insurance market. The disadvantage of a situational (process-based) maturity model is that it is highly sensitive to new techniques. If a new technique (or channel) is introduced, it needs to be incorporated in the model to give a reliable picture of the situation.

Extension of the model is possible due to the following considerations.

- The IPM Maturity model is constructed in such a way that it is easy to add new processes. Furthermore, it is relatively easy to add new activities and process factors to existing processes. For instance, it is relatively easy to add a new channel, only the calculation will need to be updated.
- Besides adding new processes and activities, it is also relatively easy to add new factors on the level of organizational context. This way, the model can be tuned to take factors into account that the organization deems important.
- The fact that the maturity score is a cumulative score, this means that adding new processes will increase the maximum maturity score. For instance, when adding a new process to the model, when the maximum is 250 points, the maximum rises equally with the maximum process score of the new process. If the maximum process score of the new process is, for instance, 10, the new maximum maturity will be 260.

5 Results and validation

In this section, the results of the research project will be described. First, we will describe the results of the validation interviews and the implications for the model. The validation interviews served to validate the constructed model on correctness, completeness and practical application. Furthermore, the validation interviews served to validate the findings from the literature reviews. This section will focus on answering those questions. For a description of the set-up of the validation interviews, see section 2.

The validation interviews also served to gather data to construct practical examples using the IPM Maturity model. Based on the gathered data, examples of using process increments will be provided.

As described in section 2, three insurance providers were interviewed:

- Insurance provider 1: A large insurance organization.
- Insurance provider 2: A medium-sized insurance organization.
- Insurance provider 3: A large insurance organization.

5.1 Results of the validation interviews

In this section, we will discuss the several results that we extracted from the validation interviews. The most important results regard validating the literature findings and validating the several components of the IPM Maturity model.

5.1.1 Validation of literature findings: BPM, Maturity and process models

The first part of the validation interviews focused on the use of BPM, maturity models and process models in the organizations. The organizations were asked questions on how they use BPM in the organization, if and how they make use of maturity models and if and how they make use of process models.

Only the first organization explicitly used BPM. They indicated that they have a separate department (of about 10 FTE) for BPM and process-related issues. This department provided the process descriptions and was tasked with monitoring and improvement of processes. They had explicit process models of the entire organization. The use of process models was only retrospective, they did not use process models for future situations. The use of maturity models, however, was limited. They did not use maturity models for self-assessment, but they indicated that they wanted to move to a situation where all suppliers and partners were at a pre-defined CMM level.

The second organization had extensive process descriptions and a process overview of the organization that resembled our own process overview model, but did not refer to it as BPM. Instead, they referred to their process management as "process house". The use of maturity models was non-existent; they indicated that "If

something works, it works. If it doesn't work, we fix it." They indicated that they did not use specific models, but that they did use usable elements of models that were applicable. This seems to point to a use of best practices.

The third organization also had a process overview of the organization (though very different from our own process overview in terms of placement of activities) and very extensive process models. Also, they did not refer to it as BPM and did not make use of maturity models. The process descriptions that they use are very extensive and are used mainly as a tool for risk assessment.

Conclusion: In the introduction and literature review we indicated that BPM as such is not widely used in the Dutch insurance market. This seems to be correct, although process management is clearly present, but named differently. The limited use of maturity models in the market is also a correct assumption and was confirmed by all three insurance providers. Finally, the move to a more customer-oriented approach is visible, though not as much as we initially thought, but can be seen beyond initiative such as BPM.

5.1.2 Validation of literature findings: Drivers for BPM

The first part of the interviews also focused on the context of the organizations. The literature study resulted in a number of drivers that influenced the implementation of new IPM systems. The most important drivers in the literature are:

- High time-to-market of new products;
- Inflexibility of applications;
- Inflexibility of data models;
- Difficulties with integrating (new) systems;
- Difficulties with adopting to new channels;
- Declining availability of legacy skill sets (e.g. COBOL programmers);

These literature findings were confirmed in the interviews. Reducing the time-to-market of new insurance products was a main issue that all three insurance providers wanted to solve by adopting a new IPM system. Besides reducing the time-to-market for new products, an issue that was closely related was a shorter time-to-market for updated products. The insurance providers indicated that in the modern insurance market, providing customers with new products is not enough. Existing products need to be continually monitored and changed to remain competitive.

Inflexibility of applications and data models were mainly identified by insurance provider 2 and 3.

- Insurance provider 2 indicated that their old systems were old and inflexible, and data and business rules were stored redundantly. Using a modern system, flexibility was greatly increased and data and business rules were stored centrally.

- Insurance provider 3 indicated that due to a large number of mergers and takeovers, they had to maintain a number of legacy systems. This closely relates to integration problems.

Integration problems were present in all three organizations. All organizations were running multiple systems, and often had to integrate their own systems when taking over smaller organizations and during mergers. By adopting the new system, they were able to manage their entire policy and claims administration using a single system, for all partners.

The adoption of new sales channels was a driver for the first and second organization. Using their new system, they were able to make use of an internet sales channel for direct sales, and offer an extranet environment for their business partners. Old intranet environments were replaced with a new intranet environment for internal use. The possibility of mobile channels (e.g. using a mobile phone), was in development and highly anticipated, but not yet in use. The third organization did not explicitly implement new sales channels, since the third insurance providers was an intermediary-only insurer. They did, however, implement a new extranet and intranet environment.

Finally, declining availability of legacy skills was present in all three organizations, since they were working with old legacy systems. Organization 2 was most explicit in this driver. They indicated that the experts on their old systems were nearing their pension-age and knowledge would be lost. Using new technologies, they ensured that the organization was future-proof and ensured of continuity.

Besides the drivers mentioned above, several other drivers were identified. Cost and FTE reduction was an explicit goal for organization 1. Organization 2 indicated that this was not a goal for their implementation. Reducing costs was a pleasant side issue, but FTE reduction needed to be avoided. More efficient processes were a goal for all three insurance providers. For instance, the first insurer wanted to achieve 100% digital input on the long-term.

Finally, we found that the shift to more customer-oriented insurance organizations was not clearly a driver as the literature lead us to believe.

- Organization 1 indicated that customer-orientation was something that could be noticed, but not as an explicit driver for BPM. They indicated that they introduced a standard for insurance products (including their own) for consumer insurance products and for insurance providers.
- Organization 2 indicated that becoming more customer-oriented was a side issue that occurred when adopting new technologies. Furthermore, customer-orientation was more in the development of insurance products than in BPM solutions, for instance by offering products with a low premium volume.
- Organization 3 indicated that customer-orientation was indeed something that was a driver and could be achieved using BPM. In their situation, they

decided to provide customers with a client contact center to handle all of their issues, regardless of their nature (sales, claims, information, etc.), where in the past that was seen as a task of the intermediaries that sold their products. The third organization introduced new processes to achieve a higher customer-orientation.

Conclusion: The drivers for software implementations that we have found in the literature were explicitly stated by the three insurance providers as drivers for their own BPM software implementations, besides the shift to a more customer-oriented approach. This validated the findings from the literature review, except for some minor details.

5.1.3 Validation of the IPM maturity model

The second part of the validation interviews focused on the IPM maturity model itself. The three insurance providers were provided with the entire process model. First, we discussed the process overview model. Second, the process models (including process increments) were discussed. Finally, the maturity assessment tool was discussed. The process overview model and the process models were judged on their recognizability, correctness and completeness. The assessment tool was judged on the practical value and applicability.

The feedback on the process overview model was unambiguous. There were some minor comments on placement and naming of processes. In a few cases, a process needed to be split into two single processes. For instance, Policy Request and Underwriting, which was a single process in Sales, needed to be split into Policy Request in Sales, and Underwriting in Policy. Some activities needed to be renamed or placed into a different focus area. Fortunately, most of these modifications were indicated by all three insurance providers. The most radical change that was identified was the deletion of the "Channel" focus area. This was a focus area that was not recognized by all three insurance providers. The processes in that focus area, however, were recognized but needed to be placed in different focus areas. Besides the deletion of the "Channel" focus area, two out of three insurance providers indicated that communication processes, such as document management and document generation should be placed in a new focus area. For this reason, the focus area "Communication" was introduced. When taking the feedback into account, the model was seen as a valid representation of processes in insurance organizations.

The feedback on the process models was limited. All three insurance providers unanimously indicated that the processes were modeled correctly and recognizable. Although they did indicate that a vertical flow instead of a horizontal flow would be something to think about in a future version of the model (it was described as "a matter of taste"). The use of process increments (two process models to indicate as-is and to-be) was something they had not yet seen before. They did indicate that it was an interesting way to look at process improvement and could

provide a valuable tool not only when implementing a new piece of software for process improvement, but also as a tool for periodical process review.

Finally, the assessment tool was discussed on practical applicability. This was the part of the model that received the most criticism. Although the initiative was seen as very valuable, the assessment tool in its current form did not provide a tool that was practically applicable. Main reason was that the tool currently only gives an indication that maturity and performance increase, but that the results of the maturity and performance calculation are not weighed calculations. At this moment all activities can increase maturity and performance by the same number, whereas in practice, automating one activity can influence maturity and performance more than automating another activity. At this point all activities and process factors add the same amount to the maturity level. However, when practical research would be conducted to fine-tuning this calculation, the assessment tool would provide a valuable tool for maturity assessment. The calculation would then be based on observations from multiple organizations and would be much more reliable.

Considering the scope of this thesis research, such research would have to be conducted in following research, since such a study would be very time-consuming. In the current state, however, we do provide a model that gives an indication where maturity can be increased. The tool in its current state can be seen as a base for further research in providing a maturity assessment tool.

The validation interviews ended with a discussion on application of the IPM Maturity model. All three insurance providers indicated that the model could be a valuable model for both insurance software developers, since a generic overview of processes can aid them in describing the functionality of their software in terms of processes it covers, and for insurance providers, since it can give them a clear view of how the implementation of a software solution can improve their processes and how higher maturity can be achieved. The use of process increments was something they had not yet encountered, but was something that could be integrated with the use of process models.

Conclusion: The validation interviews served to validate the several parts of the IPM Maturity model. Taking some minor adjustments into account, the process overview was seen as a valid depiction of processes in the insurance market. The individual processes were complete, correct and modeled in a recognizable way and were similar to their own process descriptions. Finally, the assessment tool was seen as a potentially valuable tool, but in its current form it can merely be used to provide an indication of maturity growth and performance increase, not to provide a reliable number.

5.2 Practical Example

In this section, a maturity assessment will be provided, based on the validation interviews. Two situations will be illustrated using a process increment. Furthermore, we will discuss how a maturity score relates to a level of maturity.

After the validation interviews, the interviewees were asked to fill in the assessment tool to provide us with practical data, besides (theoretical) examples. The assessment data were used to illustrate real-life representations of IPM implementations. Furthermore, they were used to illustrate the use of a maturity score and the performance indicators.

The examples given below are based on the data of the second insurance organization. The insurance organization is a medium-sized insurance provider with 2.1 million active policies and a premium volume of about 300 million euros. The organization defines itself as a proactive organization with a high level of innovation and external coupling.

5.2.1 Process Increments

The assessment tool contains all seventeen processes. In this section, we will provide examples of a few processes pre- and post-implementation. Besides changes in the automation level of activities, we will discuss other changes that have been implemented, along with some notions of the insurance organizations that they provided.

The first interesting thing that the organization mentioned is that they no longer provide policy quotations. Policy quotation is a process of high importance that is given high priority in many implementation projects. The organization mentioned:

"We no longer use policy quotations since implementation QIS. We do not think that it is necessary in the digital world we live in. Digital premium calculations suffice the need and can quickly be transformed in policy requests. Without a formal policy quotation, we offer faster service to the customer. The old premium calculation can now be seen as a sort of quotation."

Therefore, we provide an overview of the pre-implementation process (the actual quotation process) and the post-implementation process (the premium calculation):

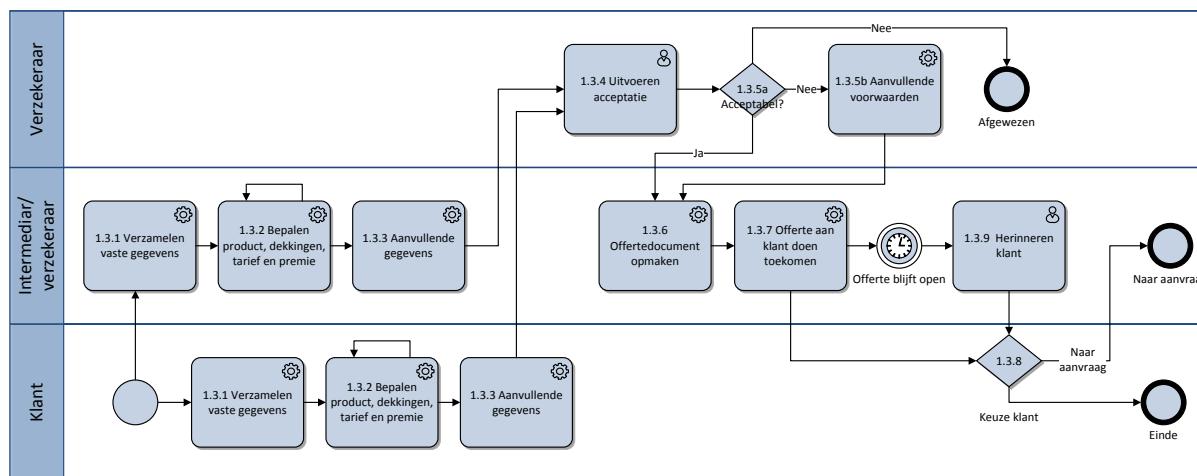


Figure 43: Example - Policy Quotation Pre-implementation

When we look at the pre-implementation example, we can see that there already was a fair amount of automation in place. Only the underwriting of the quotation and sending out reminders were done manually. An intranet and an extranet were available and customer could also get quotations via internet.

After the implementation, the quotation process was actually removed and its functionality was covered by the premium calculation process. After a premium calculation, customer can directly transform it into a policy request.

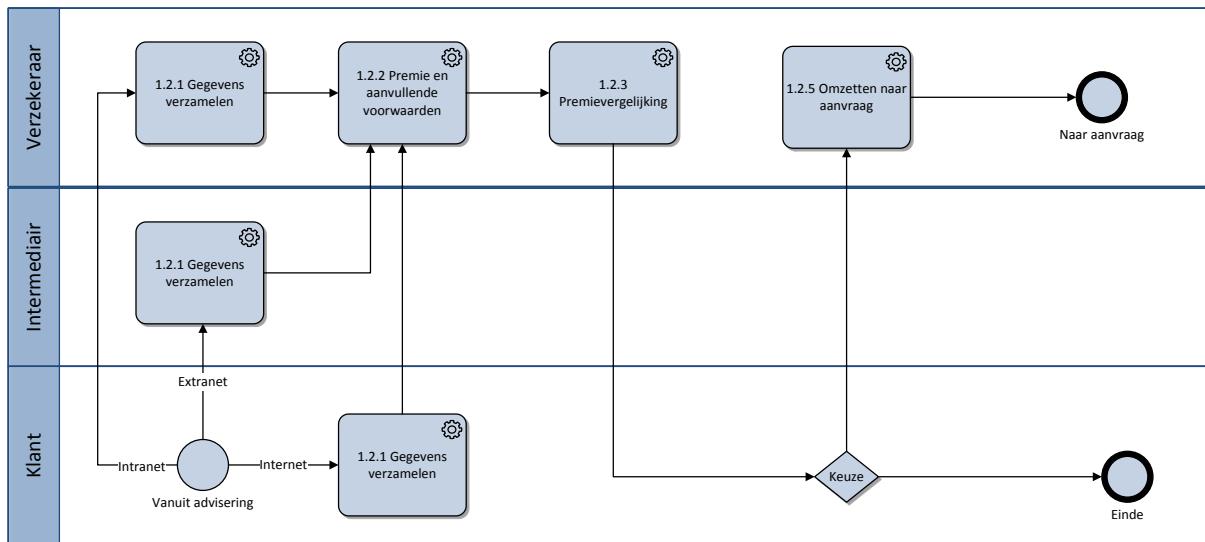


Figure 44: Example - "Policy Quotation" Post-implementation

Although they are not the same process, we can compare the two processes the latter process “replaces” the former. The complexity of the quotation process is removed, since premium calculation do not need to be underwrited. Furthermore, reminders that were need with quotations that were not followed up also are removed. By removing the entire quotation process, the complexity of the organizational processes was reduced.

Something that cannot be seen in the process increment, but is something that was implemented is the fact that the organization implemented a mobile environment/application for their customers and that data (such as address) are automatically checked on correctness (for instance, matching the postal code to the street address).

When looking at other processes, we can see that the organization was fairly mature to begin with. A lot of automation was already in place (although not integrated in a single solution). When we look at the policy request, for example, we can see that the pre-implementation situation was already automated for the largest part:

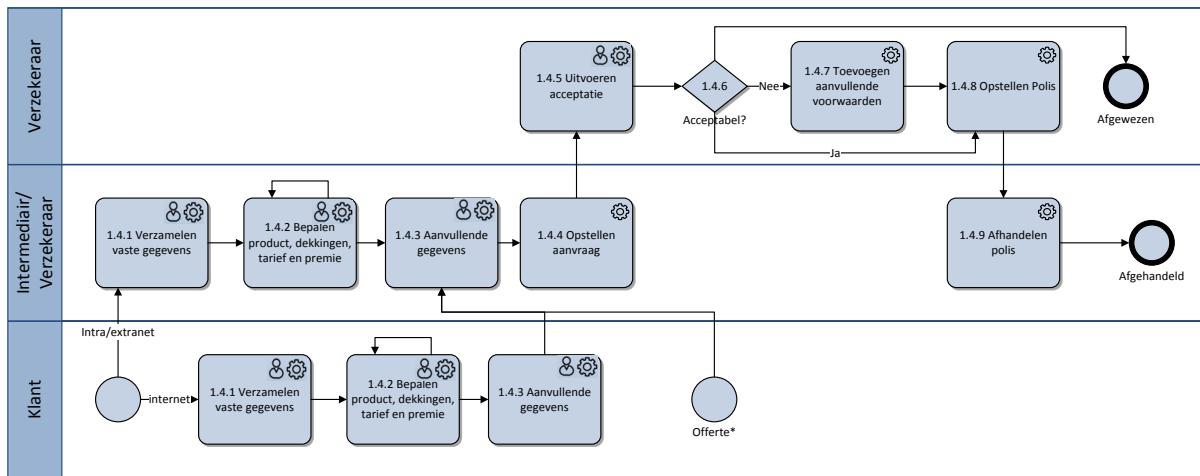


Figure 45: Example - Policy Request Pre-implementation

However, after implementation several activities that are not visible in the process diagram were activated, such as fraud-checks and the handling of fraud checks. Something that is visible is that the underwriting of requests was automated in such a way that nearly 90% of all requests could be underwritten automatically, drastically decreasing the workload. Furthermore, the triggering of the process from the policy quotation process was no longer possible.

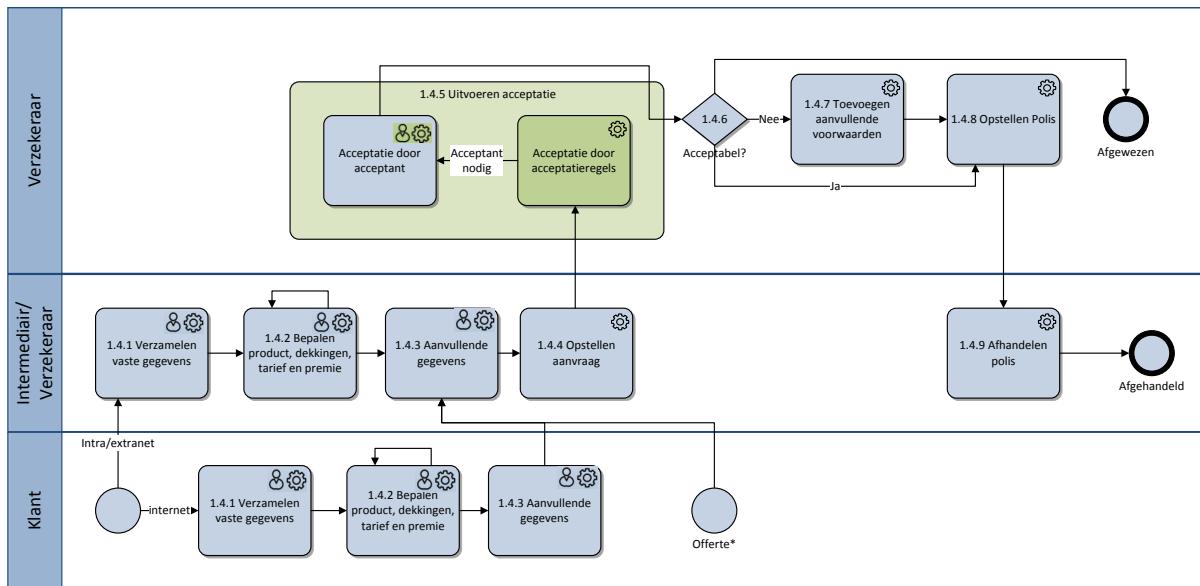


Figure 46: Example - Policy Request Post-implementation

The examples above show situations where the level of automation was increased rather limited. There are some processes, mainly in the claims focus area, where automation was better visible. For instance, we take the process "Report claim". Pre-implementation, the process was only partly automated:

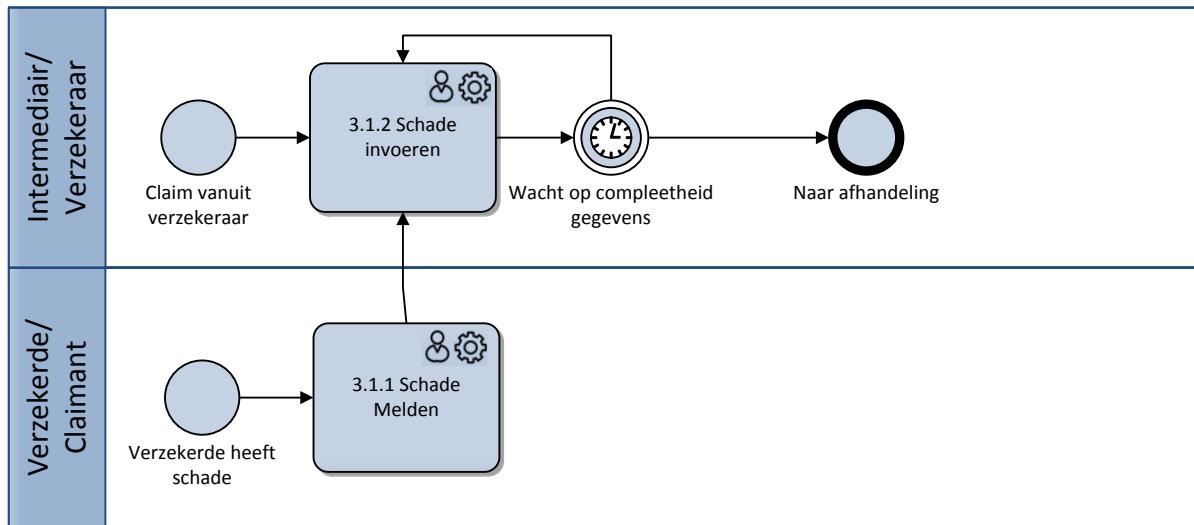


Figure 47: Example - Report Claim Pre-implementation

After the implementation, the organization was able to fully automate the process by making the customer able to report via internet and to automatically process claims from other insurance organizations:

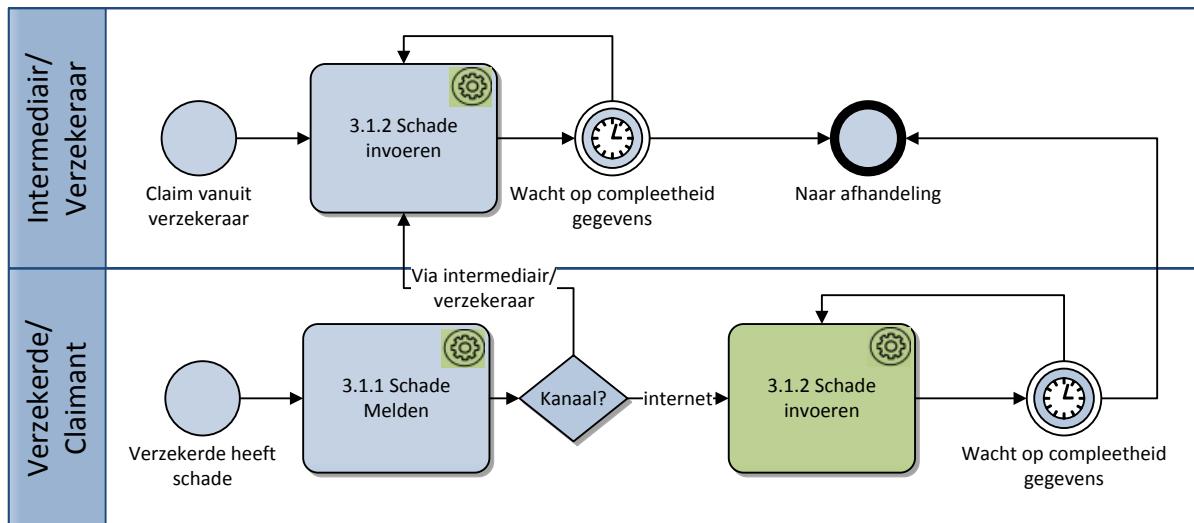


Figure 48: Example - Report Claim Post-implementation

The final example we provide is the process of using external experts for damage assessments. In the old situation, only the final part of this process was automated:

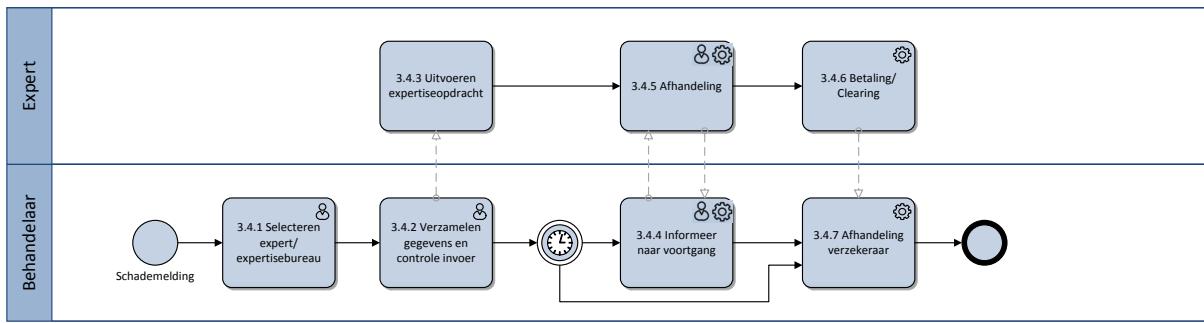
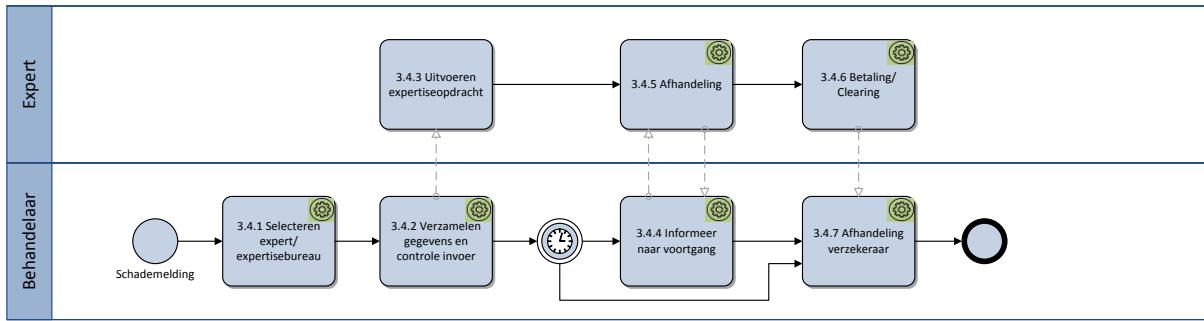


Figure 49: Example - Expert Assignment Pre-implementation

However, the post-implementation situation automated this entire process, making it possible to initiate and execute the process without human interaction. Extending the organization is a maturity factor mentioned earlier, and is visible in a process such as this one:



Overall, the organization did not increase much on the level of automation, but they did increase their maturity by implementing new sales channels, reducing complexity, avoid storing redundant data and introducing an integrated set of future proof solutions. However, the process increments are only part of the model. For a complete example, we also need to look at the maturity model, which we will do in the next section.

5.2.2 Maturity Model

Using the filled-in maturity model, we can provide an example of using the maturity model. However, due to limitations expressed in section 5.1, this is an illustrative example of the maturity model. Practical application and value are still rather limited.

Figure 50 lists the seventeen activities and their respective scores. The blue score (left) indicates the pre-implementation score, the red score (middle) indicates the post-implementation score and the green score (right) indicates the maximum (at this moment).

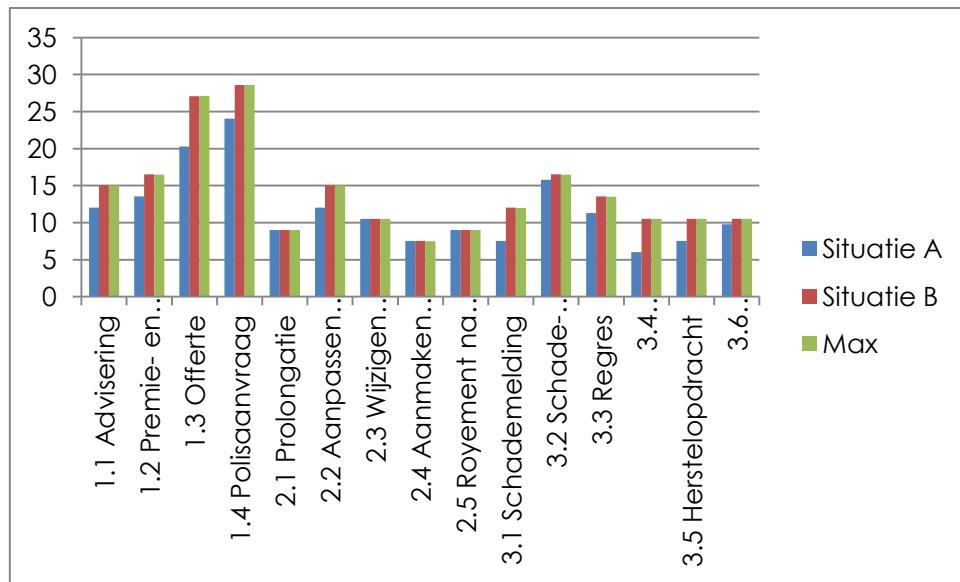


Figure 50: Example - Process Scores

What we see is that most activities (except for three activities in the policy management focus area) show an increase in their process score post-implementation, meaning that those processes have contributed to a higher maturity. The post-implementation scores are equal to the maximum scores. Although this seems strange, it is not that unusual, since the software solution is one of the leading solutions in the market.

The difference between the pre- and the post-implementation score is not that large, seeing as the organization already had a high level of automation to begin with. Increases in process score can be assigned to small automation steps, but more importantly to factors such as new sales channels.

When looking at the actual score, we see that the organization increased their maturity from 175 to 212, an increase of 37 points or +18% (Figure 51).

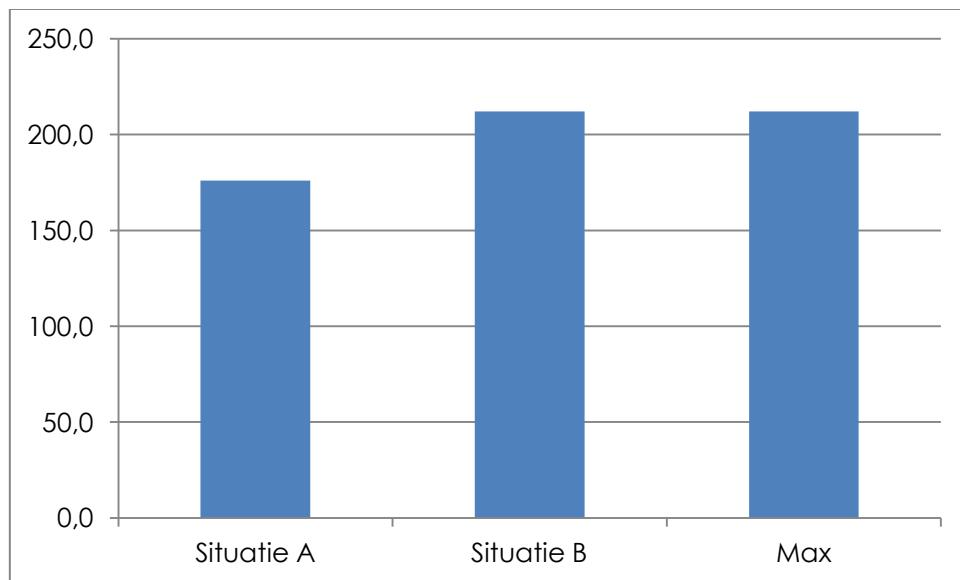


Figure 51: Example - Maturity Score

Besides the maturity score we can also look at the performance indicators. We can see (Figure 52) that the organization increased on all three levels due to automation, new sales channels and innovative ways of involve their customers.

	Pre	Post	Difference
Operational Excellence	111	135	24
Customer Intimacy	21,5	35	13,5
Business Innovation	30	37	7
Total	162,5	207	44,5

Table 17: Example – Performance Indicators

We can see that the most advantage is gained on the front of operational excellence (an increase of 18%), although that score was high to begin with. Customer intimacy and business innovation seem to increase only a little, but due to the fact they have much smaller maximums, this is visible when looking at the relative increase: 39 percent for customer intimacy and 19% for business innovation.

Based on the outcomes of the validation interviews and practical application of the assessment, we have devised the following scale. However, this scale is based only on a single application. Further research would be required to devise a reliable scale.

- 0 – 50 points: Very low maturity
- 51 – 100 points: Low Maturity
- 101 – 150: Medium Maturity
- 151 – 200: High Maturity
- 201+ : Very High Maturity

This leads to the following conclusion: Using the scale above, we can conclude that the organization in the example moved from a high maturity level to a very high maturity level.

5.3 Process Increments

The field of research on process increments is rather limited. When looking at the literature review concerning process increments, we see that there is a solid basis for further research, but that practical application still is limited (but not absent). This research has combined process increments with the field of maturity assessment. It can be seen as a combination of BPM (process descriptions), maturity models (maturity assessment) and method engineering (method increments, which are the base of process increments).

Applying process increments on process models has shown a number of advantages and limitations:

Advantages:

- Process increments are very useful in process models when new activities are added. A new activity can easily be identified when comparing two activities. For instance, when looking at the policy request process, we can see that the underwriting actually changes to incorporate automated underwriting for straight-through-processing.
- Process increments are also very useful when new roles are added. In the case of process models this can be seen by making use of new swimming lanes. Activities in a new swimming lane can be seen as a new role. Although the activities do not need to change, the actor is different. For instance, when an insurance provider implements an internet sales channel, the customer himself becomes responsible for gathering the information needed for a request instead of an intermediary or the insurer.

Limitations:

- Process increments are less useful when only properties change. When an activity or a role changes, this is very visible in the process model. When only an attribute changes, for instance automation of an activity (manual/partly automated/fully automated), this does not change the form of the process model. In that case it is harder to identify changes between situation A and situation B.
- Concepts and relationships, although they are defined as method increments, are not visible in process models. This means that this part of method increments cannot be mapped to process increments, when used in this form.
- Because process flows rarely change, transition also rarely change. In the process models provided in this research, there are no transitions that change. This means that transition increments are rarely used.

However, when presenting the insurance providers with examples of using process increments in process models, they unanimously reacted positive to that way of process representation. That indicated that process increments, although the concept still is young, does have a place in process management methodologies.

5.4 Research Questions

In the introduction we have provided the main research question and a number of sub-research questions. Although they already have been answered implicitly, in this section, we will explicitly answer the research questions, based on the findings of the thesis project.

The main research question was posed as: How can IPM Maturity be assessed and improved in the P&C insurance market in the Netherlands, using process models and process increments, such that performance increases?

This research provided an IPM Maturity model to aid in answering that question. The IPM Maturity model contains a process overview model, detailed process descriptions on which process increments can be based. The maturity can be measured by looking at the level of automation and a number of process factors, such as the introduction of new sales channels and integration with other processes. Finally, the model contains a number of performance indicators that indicate how a process increment will benefit an organization on operational excellence, business innovation and customer intimacy.

Based on the main research question, we posed an hypothesis: An increased level of BPM Maturity will also increase the performance of an organization; achieving a higher level of maturity will correspond to applying a number of process increments, but also aligning the non-process-related factors with the process increments.

Using the model as we have constructed it, we can see that performance increases when activities are automated or process factors are implemented (for instance, an internet sales channel for direct sales), combined in a process increment. Therefore we can state that increasing maturity will correspond to an increase in performance in operational excellence and/or business innovation and/or customer intimacy. We do see that an increase operational excellence is predominantly achieved through automation, whereas increases in business innovation and customer intimacy are mainly achieved by adding new channels and moving to digital flows.

This model is mainly focused on processes and IT. Increasing overall BPM maturity would incorporate aligning the other BPM factors (for instance people and organizational culture) with the process increments. For instance, when implementing a BPM software solution, it is not enough to automate and implement, one would also need to take the users into account and make sure that they can work with the new software (the “people-dimension”).

Besides the main research question, we posed a number of sub-research questions. Although the research questions have been answered implicitly in the thesis, we provide a short answer:

1. *What is the current state of IPM in the (P&C) insurance market? What are drivers for IPMS implementations? Are maturity models being applied?*

The literature states that insurance providers often use old legacy systems. They do acknowledge the need to update their systems using modern technologies. Drivers for implementation of new systems are:

- High time-to-market of new products;
- Inflexibility of applications;
- Inflexibility of data models;
- Difficulties with integrating (new) systems;
- Difficulties with adopting to new channels;
- Declining availability of legacy skill sets

These drivers were validated in the validation interviews as valid drivers for IPM implementations. The high time-to-market of new products (but also the time-to-market of product updates) was named to be one of the top drivers. Furthermore, there was a strong need to implement "future-proof" systems.

Additionally, we identified shifting towards a more customer-oriented approach as a driver for IPM implementation. Although this is suggested in the literature to be a major driver for IPM implementation, the validation interviews showed that although it does play a role, it is not seen as a major driver.

Although there are a large number of maturity models available for use, maturity models are not widely used in the Dutch insurance market. Although some insurance providers intend to use maturity models to 'certify' their partners (e.g. requiring a set CMM level of partners), they do not use maturity models for self-assessment. The use of situational maturity models for maturity assessment in the Dutch P&C insurance market is non-existent, since no situational models for maturity assessment in that market exist.

2. *How can a generalized process overview for P&C insurance be identified that is detailed enough to describe the processes in sufficient detail, but generic enough to apply to multiple organizations and is maintainable?*

This thesis project has provided a process overview model for the Dutch P&C insurance market. The process overview was loosely based on the international ACORD standard, tuned to the Dutch market. The process overview is validated as being generic enough to cover all P&C insurance providers, while still being detailed enough to identify the different processes that take place in an organization.

3. *What are the advantages and disadvantages of using process increments in situational maturity models?*

Interviews with several insurance providers indicate that process increments can be valuable in combination with process models to visualize an as-is and a to-be situation. The results show that when activities and/or roles are added, modified and deleted, process increments provide a quick and easy way to visualize this. However, when dealing with adding, deleting or modifying the results are less visible.

4. *What maturity factors and performance indicators for achieving a higher maturity level, can be identified?*

Part of the model is a number of maturity factors and performance indicators. The maturity factors were based on a number of maturity factors provided by Roseman and De Bruin (2005). Although some factors were more clearly mapped to the IPM Maturity model (for instance "Meaningful automation") some factors were more context factors of the organization (for instance "BPM Expertise"). However, the factors that Roseman and De Bruin identified proved to be useful for the IPM Maturity model.

Performance indicators based on the value disciplines of Treacy and Wiersema (1993) and for each activity and process factors these performance indicators were mapped.

At the beginning of the thesis, we posed two hypotheses:

- Achieving a higher level of maturity will correspond to applying a number of process increments.

At the beginning of this research project, we investigated a number of maturity models, including classic maturity models such as CMM. CMM makes use of a number of predefined levels and their prerequisites to reach them. The maturity model that we created does not rely on a number of predefined levels, but rather assesses maturity as a summation of factors. In our model, we have defined a number of factors that increase maturity (based on earlier research) and mapped them to factors such as automation steps and making use of new channels and technologies. Following that line of reasoning, we can state that the hypothesis is valid and that applying a number of process increments will lead to an increase in maturity.

- An increased level of BPM Maturity will also increase the performance of an organization;

Applying a number of process increments, or even doing the implementation of an IPM system always needs to be based on valid assumptions: the business case. Often an implementation needs to add something to the organization that was not present before implementation. This can be new functionality or better or more efficient handling than before. In a general sense: the performance needs to be increased. We devised three performance indicators that an organization can improve and focus on, and we mapped the process increments to one or more of these performance indicators. Since there are no process increments that have no performance indicators linked, we can state that applying a process increment (or applying several process increments) and therefore increasing maturity will always benefit an organization on organization performance.

6 Discussion

In this section, we will provide with a summary of the findings and the contributions of this research. Furthermore, we will discuss some limitations that we encountered. Finally, a few suggestions for further research will be provided.

6.1 Summary of key findings

In this section, we will summarize the findings that we have discussed in the previous sections. We will start off with describing the findings from the literature and follow with the model that we have developed. Finally, we will discuss the findings from the validation interviews.

6.1.1 Findings from the literature

One of the first questions that rose when starting this thesis project was what the current state of BPM in the insurance market is. The literature shows that BPM is strong in the insurance market, predominantly in the United States. BPM shows to deliver short-term return-on-investment, while providing long-term value for an organization. When looking at the European market, Gartner indicates that many European insurers are still struggling with inflexible, monolithic and technically outdated systems. Often, insurance organizations are aware of the limitations of their legacy systems, and acknowledge the need for modernization. For insurance companies, however, it is often unclear what their position is at the moment and how an implementation of a modern IPMS can improve their performance. Insurers that intend to replace their policy administration systems are looking for sustainable technology partnerships and solutions that will support their needs for both personal and commercial lines.

The use of maturity models in insurance is limited. Although insurance providers do make use of more generic maturity models, such as the CMM and the CMMI model, there are few or none situational maturity models available for the insurance market. Models that incorporate process models to get a clear picture of the current and desired situation are very limited.

The literature shows that a driving factor for BPM implementations (besides the traditional factors such as cost reduction, flexibility increase and shorter time-to-market of insurance products) is the fact that insurance organizations are moving to a more customer-centric approach, in contrast to the more traditional product-oriented approach, where insurance providers aim to establish long-term relationships with customers that are beneficial to both parties, instead of focusing on selling products only.

We have compared a number of well-known, frequently used maturity models and assessed whether they could provide a base for the construction of an IPM Maturity model. The model of Roseman and De Bruin (2007) proved to be a good basis for the construction of the IPM Maturity model. The Roseman and De Bruin model, however, still is a generic maturity model, so the base it provides has to be extended greatly before delivering an IPM Maturity model.

The solution that we had in mind is based on the use of process models. Since the problem we are trying to solve is that it is unclear what the present and desired situation are, we make use of implementing process increments on the process models. Process increments are based on the notion of method increments, which are introduced by the work of Van de Weerd et al. (2010). The literature study shows that there is a solid basis for the use of method increments, and that the use can easily be mapped to use in process models. This is something that has received little attention in the research community, although some work can be found on using process increments.

6.1.2 Suggested solution

Based on the findings from the literature and some exploratory interviews, we have devised a maturity model for assessing maturity in Dutch P&C insurance organizations. The assessment will be based on process models, maturity factors and performance indicators. Below, we will shortly describe the components that make up the IPM Maturity model:

- Process Overview Model: First off, we have identified the processes that are typically present in Dutch insurance providers. We have provided an overview of twelve focus areas that contain the processes. The process overview model consists of the following focus areas: Strategic Management, Business Management, Sales, Policy, Claims, Product, Reinsurance, Relation, Communication, Enterprise Services, Marketing and Finance. Each of the focus areas contains a number of associated processes. For instance, the Sales focus area contains the following processes: Operational Management, Advisement, Premium Calculation, Policy Quotation and Policy Request. The Process Overview Model is loosely based on the international ACORD standard, but has been modified to fit the Dutch market.
- Process Models (including process increments): From all processes identified in the Process Overview Model, the processes making up the primary process were expanded in process models (seventeen in total). A process model of a process contains a graphical representation of the activities in the process, modeled in the BPMN 2.0 notation and a textual description of the process and related activities. For each of the seventeen processes, a low-maturity and a high-maturity model were provided, where the high-maturity model can be seen as an increment of the low-maturity model.
- Maturity factors: Based on the Roseman and De Bruin model, maturity factors (factors that increase maturity when properly implemented) were identified. Some of these factors were on an organizational level (for instance: "BPM Expertise") and should be measured on an organizational level as the context of an organization. Other factors can be measured using the process models, for instance "Useful automation", "Extended organization" and "Innovation". Actual measuring is described at the end of this section.
- Performance Indicators: Using the value disciplines of Treacy and Wiersema, we have defined three performance indicators (how an organization will

benefit from a process increment in terms of operational excellence, customer intimacy and/or business innovation). Each activity or process factor can influence one or more performance indicators.

- Maturity Model: The final component of the IPM Maturity model is a small "tool" that can be used to generate a maturity score. For each activity in each process, the user indicates if an activity is manual, partly automated or completely automated and a score is given to that activity. Furthermore, each process factor (for instance, availability of an internet sales channel) is assessed on whether it is available or not. The sum of the activity scores and the factor scores is the process score: the maturity score per process. The sum of the process scores is the total maturity score. The maturity score can be corrected based on the maturity factors. Furthermore, a score on performance indicators is provided: how much is gained on the three performance levels.

6.1.3 Findings from the validation interviews

The validation interviews served to validate the model that we have developed in practice, and to validate the findings from the literature. The findings from the literature were mostly validated during the interviews, but the shift from a product-oriented approach to a customer-oriented approach was not as visible as the literature led us to believe. A more customer-centric approach is seen as something that will be taken into account, but it is more an effect of modernization than a trigger. This did differ per organization. One of the interviewed organizations did indicate that they were performing organizational changes to incorporate a more customer-centric approach.

The most important goal of the validation interviews was the validation of the different components of the IPM Maturity model. During the interviews, we focused on the Process Overview Model, the process models and the maturity tool. Although some minor modifications were needed to the Process Overview Model (predominantly naming and placement changes), both the Process Overview Model and the process models were assessed to be recognizable, correct and complete.

The most criticized component during the validation interviews was the maturity tool. Although it is based on the process models, maturity factors and performance indicators (which were validated), the calculation of the maturity score received some criticism. Although the basis is a good and innovative way to assess maturity, the calculation in its current state was based on assumptions and is not a weighed calculation. The performance increase calculation received the same criticism. To make the tool practically applicable, a detailed study should be dedicated to devising the maturity calculation. However, that did not fit in the scope of this current study.

The interviewees indicated that, although they do work with process models, they did not use anything like process increments. Process models are primarily being used for process monitoring and control, or risk assessment, instead of process

improvement initiatives. The notion of using process increments (and process models and performance indicators) was found to be a very interesting and innovative way of maturity assessment. All interviewees indicated that such a model could find its way to practical application (when taking the notion from the previous paragraph into account), especially if it could be integrated with the existing process models of the organizations.

The practical example provided in section 5.2 shows the practical application of the model. Although the calculation of determining the maturity level should be fine-tuned, the example shows the use of the IPM Maturity model using process increments. Even though increments can be small, performance can be increased even by these small increments. Large insurance providers often already have a proven system with a high level of automation. The fact that the IPM Maturity model takes other factors into account besides automation proves that the model can be applied in modern IPM implementations. The use of new channels and new technologies can increase the performance of an organization, even when this does not mean automating further.

6.2 Contributions

At the beginning of this thesis document, we described the contributions of this thesis project as twofold. On one hand, we discussed the practical contribution. The practical contribution is that the model can be used by both insurance organizations and software providers to make an assessment of the current and the desired situation. Using process increments, actions for improvement and automation can be identified. Combined with the performance indicators, it can illustrate the implications of a software implementation and can be used as an aid by both the insurance provider and the software provider. The Process Overview Model and the process model enable the software provider to indicate where their software product will improve the organization and which processes are covered.

On the other hand, we discussed the scientific contribution of this thesis project. The scientific contribution was mainly in the fields of situational BPM maturity and process increments. Although many (BPM) maturity models already exist, both generic and situational, a BPM maturity model for insurance was lacking. Furthermore, a solid base on process increments (or method increments, who are closely related) is provided, but research on application is rather limited. This thesis project aimed to combine the development of a situational BPM maturity model for the insurance market with expanding the knowledge on process increments.

6.3 Research limitations

During the thesis project, we did encounter a number of limitations of the research. These limitations are primarily concerned with the number of organizations used in the validation interviews and practical application of the assessment tool. In this section, we will discuss these limitations in detail.

The first limitation we encountered was a relative small number of organizations used for the validation interviews. Ideally, the model would be discussed at a large number of organizations. A larger number of organizations would not only provide us with a more reliable result, but also with a larger set of practical examples. We have provided to practical examples of process descriptions. When we would have had access to a larger number of organizations, we would have been able to deduct relationships between, for instance, context factors and process descriptions and/or performance.

Furthermore, the assessment tool we developed in this project did not meet requirements for practical application. The development of the assessment tool started relatively late in the project, leading to a calculation that is merely indicative. If the assessment tool were to be used as a reliable tool, the calculation on which it is based needs to be based on a reliable set of observations, conducted in cooperation with domain experts. In retrospect, we do not think that this would have fitted in the scope of this thesis project. Therefore, developing a reliable assessment tool based on the model we have provided would be a recommendation for further research. When looking at the practical example in section 5.2, we can see an increase in the maturity score and the performance indicators, but it is not actually clear what that means. When a more reliable scale for their calculations is devised, these numbers will have more meaning than they do now.

The practical example shows that the organization that implemented a new IPMS did little extra automation. This is due to the fact that large insurance organizations often have a legacy system for their processes with a high level of automation. However, other factors besides automation are taken into account, although they are not as visible as automation steps. Furthermore, smaller (local) insurance providers often deal with smaller and less complex systems and rely more on manual processing than large insurers. In those cases the process increments would be more visible in automation steps.

Finally, it could be argued that the research has been conducted from the point of view from a software provider instead of an insurance provider. Although the research has taken place at a software provider, we have tried to remain objective through the use of generic documentation and executing the validation interviews outside of that organization of three separate insurance organizations.

6.4 Future research

In the previous section we already mentioned a point for further research: namely the extension of the assessment tool with an accurate and reliable calculation for both maturity and performance increase. At this point, the tool can only be used as an indication, but not definitive. We think, however, that this would be a time-consuming study where the knowledge and experiences of several domain experts should be combined to provide a reliable result.

Furthermore, research to generalize the model constructed in this project could increase generalizability of this model. In this project, we have only validated the model at Dutch P&C insurance organizations. In following research, possible questions could be if the model could be generalized to other insurance domains besides the P&C insurance domain, such as life insurance or the generic insurance market. Furthermore, future research could also focus on internationalization of the model to other countries: for instance to the Belgian or German insurance market, the European or American market or maybe even the global market.

Besides generalization of the model to other domains, further research on the topic of process increments would be valuable. The current state of research on process increments (and related method increments) is rather limited and would benefit from further research. In this research we focused on process increments in maturity assessment, but one could think of using process increments in an organizational context besides traditional process management methods.

Further research could also provide us with a larger base of examples. In this thesis project, we provided a practical example of a fairly large insurance provider. It would be valuable, however, to include smaller insurance providers into the knowledge database to see how the model could be applied in smaller organizations and what data this would deliver.

7 Conclusion

This research started off by exploring the Dutch P&C insurance market in terms of IT and BPM. The literature study showed that BPM is very much alive in the insurance market. Currently, insurance organization often struggle with old, inflexible legacy systems. They acknowledge the needs to modernize, but due to the complexity and integration of old systems, this often proves to be a challenge. BPM initiatives are named to be top among technologies that are being implemented in insurance organizations. However, it seemed that the term BPM was not frequently used by insurance organizations in The Netherlands. Therefore, we adapted the Gartner definition of BPM to specifically include the term insurance, giving us the term IPM: Insurance Process Management.

This thesis project had the goal to develop a maturity model for IPM Maturity assessment. Due to the scope of the project, the model was developed to mainly look at the IT dimension of BPM in the Dutch P&C insurance market. The result of the thesis project was an IPM Maturity model that consists of several components. First, an overview of processes in insurance organizations is provided. A distinction was made between management processes, business processes and support processes. Several processes were selected to be modeled in process models, using the BPMN 2.0 notation. The selected processes were selected based on whether they were part of the primary process of an insurance organization, and the importance a process has during implementation of an IPM software solution. Assessment of the maturity of an organization is based on the level of automation of each activity within a process, and other factors that can make a process more mature. Examples of such factors are the addition of new channels, integration with external parties and coverage in the organization. Each process is assessed and assigned a score. The total maturity score is the sum of each individual process score.

As each process is assessed on the current situation of an organization, the organization can also indicate that a desired situation would look like. For instance what they hope to achieve after the implementation of new process management software. The current situation and the desired situation can be compared side-by-side, and areas of improvement can be identified. The difference between the current situation and the desired situation is known as the increment: the changes between the desired and the current situation. An increment can, and usually will, consist of a number of process increments: small changes per activity in a process.

By using process increments, an organization (whether it is the insurance organization or the software provider) can identify where automation or optimization steps need to be taken. This way, process models can proactively be used in process improvement, whereas currently process models often are used retrospectively and for monitoring and control purposes.

Besides assessing the maturity of an organization, we also incorporated performance indicators that indicate how a process increment will benefit the organization. The performance indicators (operational excellence, customer intimacy and business

innovation) are based on the well-known value disciplines, described by Treacy and Wiersema. Besides providing a maturity assessment, the IPM Maturity model also indicates how the performance on each of the three performance indicators will increase (for each activity and process individually and total for the organization). Although the performance indicator 'Operational Excellence' is the factor that has the most room for improvement (since automation almost always increases performance on that level), we have seen that there are plenty opportunities to increase 'Customer Intimacy' and 'Business Innovation' as well.

The results show that currently maturity models (both generic models and situational models) are not being used very often in the Dutch P&C insurance market. Process models are being used by organization, but mostly for monitoring and control practices. This research has provided with a model that enables Dutch P&C insurance organizations to apply process models in situations where a clear picture of their processes, and how the processes are supported by IT, is needed. The results show that the model in its current form is a big step towards more proactive use of process models. The use of process increments has not yet been applied in the industry, but shows great promise and was received with enthusiasm by several insurance organizations. Furthermore, the use of a maturity assessment before and during the implementation of an IPM software solution was something that was well received by the insurance providers. They indicated that it should be used by both the software provider and the insurance provider, preferably in a cooperative setting: the software provider can use such an assessment to indicate how their software solution will map on the processes of the insurance provider, whereas the insurance provider can visualize the envisioned situation.

Although the reactions from the insurance organizations were primarily enthusiastic and the model was largely validated, there were some points of criticism to the model. The current model assesses maturity based on a calculation that assumes that all activities and process factors are weighed equally. The validation interviews showed that this merely provides an indication of a maturity increase. Using the model to indicate that maturity increases is justified, but to give a reliable assessment, a scale should be included that weighs every activity and process factor individually. This way, a reliable, quantified result could be generated.

The same point of criticism was raised for the performance indicators. In the current model, like the maturity assessment, equal scores are provided for each performance increase. To provide a reliable measure of performance increase, the performance indicators would also have to be weighed individually. In the current model, only an indication of performance increase and maturity can be provided.

Although we acknowledge these points of criticism, it does not fit within the scope of the project to incorporate these calculations in the model. Therefore we appoint this as a point of improvement that could be included in future research. Due to the amount of work it would take to come up with reliable calculations, we think that a separate study could be devoted to solving this issue. To prepare the model for

actual application in a quantified maturity assessment, a study should incorporate data from multiple points of view (organizations) to provide a calculation that would be generically applicable.

However, in the current situation, the model can be used to identify areas of improvement using the process models and process increments. Furthermore, indications can be provided on maturity and performance increase in an organization.

Besides providing an IPM Maturity model, this research contributed to the field of process increments. As the literature study shows, the field of process increments (which is closely related to the field of method engineering and method increments) has a solid base, but the practical application is limited. This research added some knowledge on the practical application of process increments. The use of process increments was seen as a new and innovative approach by insurance providers, and was received with enthusiastic attitudes. Insurance providers indicated that it could prove to be a valuable way of extending the use of process models, if it could be integrated with the current way of working.

Besides expanding the knowledge on process increments, this research also adds knowledge to the field of BPM and Maturity models, although these fields are much more 'evolved' and even more mature than the fields of process increments and method engineering. Although there already exist hundreds of maturity models, both generic and situational, we did not find a BPM Maturity model specifically for the insurance market. Therefore, we think that this research also provided some contributions to those fields.

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Appendix 1: Interview structure

Interview series A: Exploratory interviews

- Introduction to the research
 - About the researcher
 - Topic of the research and research goals
 - Interview Explanation
 - Concepts
 - Point-of-view of the questions
 - Recording the interview and confidentiality
 - Goal of the interview
- Interviewee background
 - Background and position in the organization
 - Area of expertise
- Organizational context and market context
 - What are the main focus areas for insurance providers, when looking at an IPM implementation?
 - In your experience, which processes qualify the best for process automation or optimization?
 - Besides process automation and optimization, what other factors play a role in IPM implementations?
- Closing questions
 - Final questions
 - Follow up

Interview series B: Validation interviews

Internal Reviews

- Introduction to the research
 - About the researcher
 - Topic of the research and research goals
 - Interview Explanation
 - Concepts
 - Point-of-view of the questions
 - Recording the interview and confidentiality
 - Goal of the interview
- Interviewee background
 - Background and position in the organization
 - Area of expertise
- Model-specific questions: Process Overview Model
 - Are the modeled focus areas recognizable?
 - Per focus area:
 - Are the identified processes recognizable?
 - Are the identified processes placed correctly?
 - Are the identified processes named correctly?
 - Are there any superfluous processes?
 - Are there any processes missing?
- Model-specific questions: Process Models
 - Are the processes modeled in an understandable way?
 - Do the processes correctly depict the primary process of insurance providers?
 - Do the selected processes cover the most important processes, when looking at implementing an IPM solution?
 - Per process:
 - Are there any missing processes or activities?
 - Are there any superfluous processes or activities?
 - Is the depicted flow of processes correct?
- Closing questions
 - Final questions
 - Follow up

External Reviews

- Agenda
- Introduction to the research
 - About the researcher and master programme
 - Topic of the research and research goals
 - Interview structure
 - Concepts
 - Recording the interview and confidentiality
 - Model explanation
 - Goal of the interview
- Interviewee background
 - Background and position in the organization
 - Area of expertise
- Organizational context
 - Use of BPM in the organization
 - Use of Maturity Models
 - Triggers for IPM implementation
 - Expected goals of IPM implementation
 - Shift to customer-focused approach
- Model-specific questions: Process Overview Model
 - Are the modeled focus areas recognizable?
 - Per focus area:
 - Are the identified processes recognizable?
 - Are the identified processes placed correctly?
 - Are the identified processes named correctly?
 - Are there any superfluous processes?
 - Are there any processes missing?
- Model-specific questions: Process Models
 - Are the processes modeled in an understandable way?
 - Do the processes correctly depict the primary process of insurance providers?
 - Per process:
 - Are there any missing processes or activities?
 - Are there any superfluous processes or activities?
 - Is the depicted flow of processes correct?
- Model-specific questions: Maturity Model (tool)
 - Is this a practical way of assessing maturity?
 - Would this be practically applicable?
 - Would the model have been useful before the software implementation?
 - Would the model be useful as a periodical assessment tool?
 - What could be improved?
- Closing questions
 - Final questions
 - Follow up

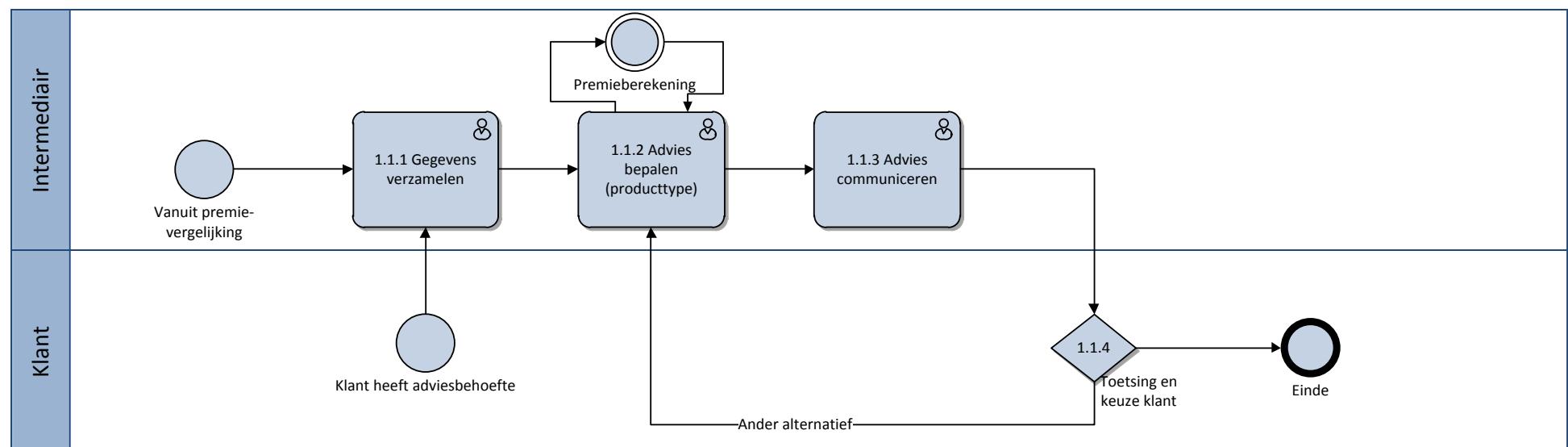
Appendix 2: P&C Process Models

Sales

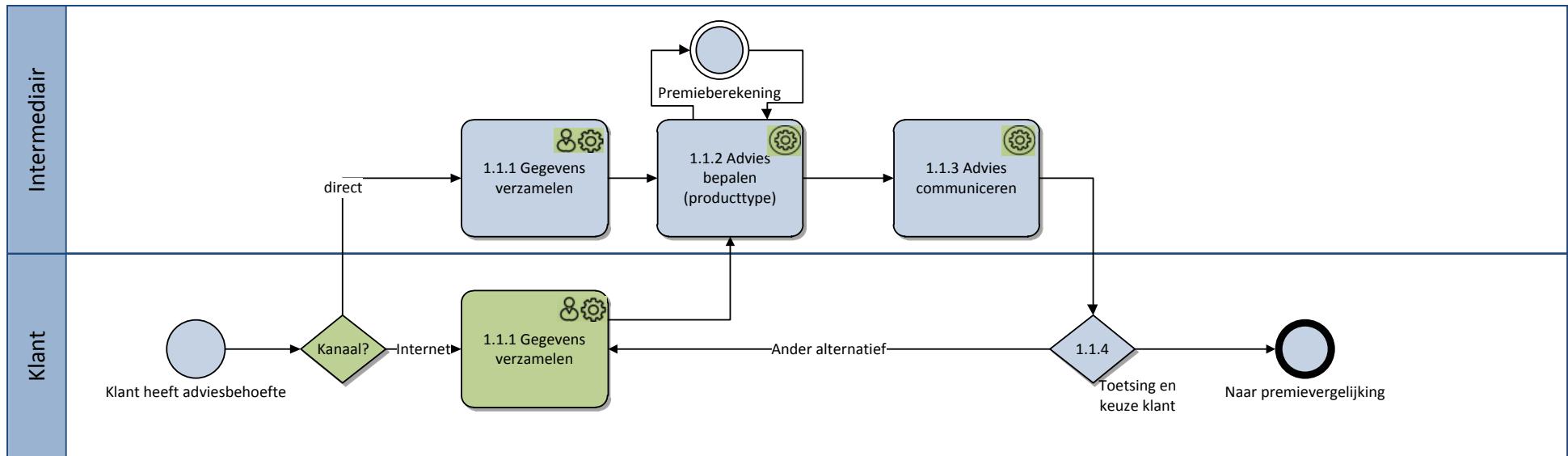
Sales omvat het primaire proces dat tot doel heeft het afsluiten van een verzekeringspolis tussen een prospect en de verzekeraar. De processen die hier uitgewerkt worden zijn advisering, premievergelijking, polisofferte en polisaanvraag. Het verhogen van de maturity is hier zeer goed zichtbaar, omdat het niet alleen automatisering van processen betreft, maar ook de introductie van nieuwe verzekeringskanalen (zoals internet en mobiel) en self-service om verzekeringen af te sluiten.

Advisering (Activiteit 1.1)

Advisering voorziet een klant of prospect van advies over het afsluiten van een nieuwe verzekering (het bepalen van dekkingswensen) of over zijn bestaande verzekeringen. Het verhogen van de maturity betreft hier vooral automatisering van het zoeken naar geschikte verzekeringsproducten en het beschikbaar maken van een internetkanaal voor advisering.



Low Maturity



High Maturity

Procesbeschrijving

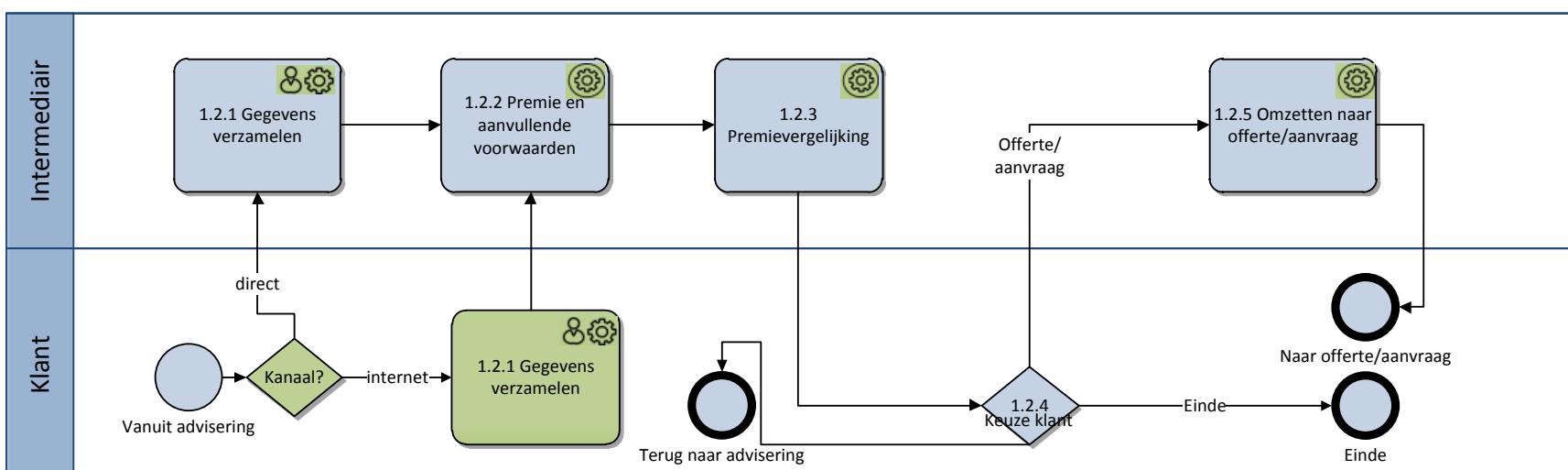
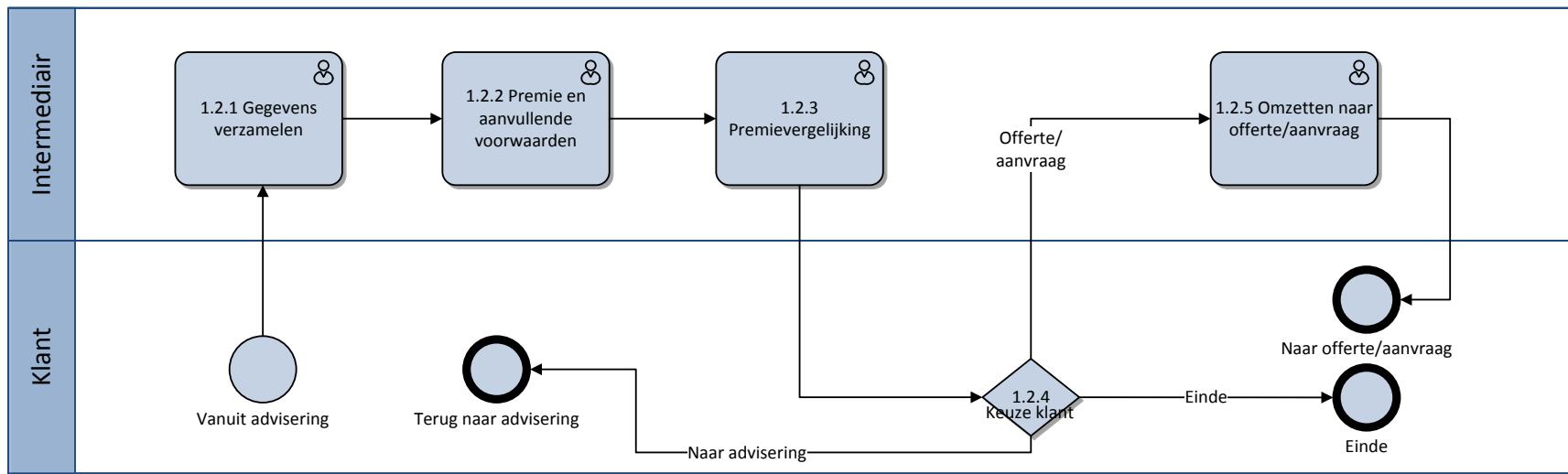
Proces	Activiteit	Beschrijving
Advisering		Tijdens de advisering worden de dekkingswensen van een klant bepaald en vertaald naar een producttype.
	1.1.1 Gegevens verzamelen	De klantgegevens worden verzameld (of opgehaald uit het klantdossier), met als doel het opbouwen van een integraal klantbeeld. Ook externe databronnen en verzekeraars geraadpleegd kunnen worden. De gegevens worden vastgelegd door de intermediair.

Proces	Activiteit	Beschrijving
	1.1.2 Advies opstellen	Aan de hand van de verzamelde gegevens wordt een advies opgesteld in de vorm van een geadviseerd verzekeringsproduct.
	1.1.3 Advies communiceren	Het uitgewerkte advies wordt gecommuniceerd naar de klant, eventueel in een adviesronde met de intermediair. Dit kan zowel mondelijk als schriftelijk gebeuren.
	1.1.4 Toetsing en keuze klant	Getoetst wordt of het advies voldoet aan de wensen van de klant. Zo nee, dan kan een nieuw advies opgesteld worden. Zo ja, dan kijkt de klant wat zijn wensen zijn ten aanzien van een vervolg. Hij kan overgaan tot een offerte of aanvraag.

Premieberekening (Activiteit 1.2)

Premieberekening is het bepalen van de premie voor een verzekeringsproduct. Als gevolg van een premieberekening kan een premievergelijking volgen: het vergelijken van premies van gelijksoortige verzekeringsproducten van een of verschillende verzekeraars of het vergelijken van verschillende premies voor hetzelfde verzekeringsproduct. Ook kunnen voorwaarden van verschillende verzekeraars (producten) vergeleken worden of van verschillende producten van een enkele verzekeraar.

Het verhogen van de maturity is te zien in een ondersteuning in het verzamelen van gegevens, en een automatische premieberekening en/of vergelijking. Verder kan een premiespecificatie omgezet worden naar een offerte en een aanvraag en kan er een internetkanaal beschikbaar gemaakt worden, zodat (potentiële) klanten zelf een berekening en/of vergelijking kunnen doen.

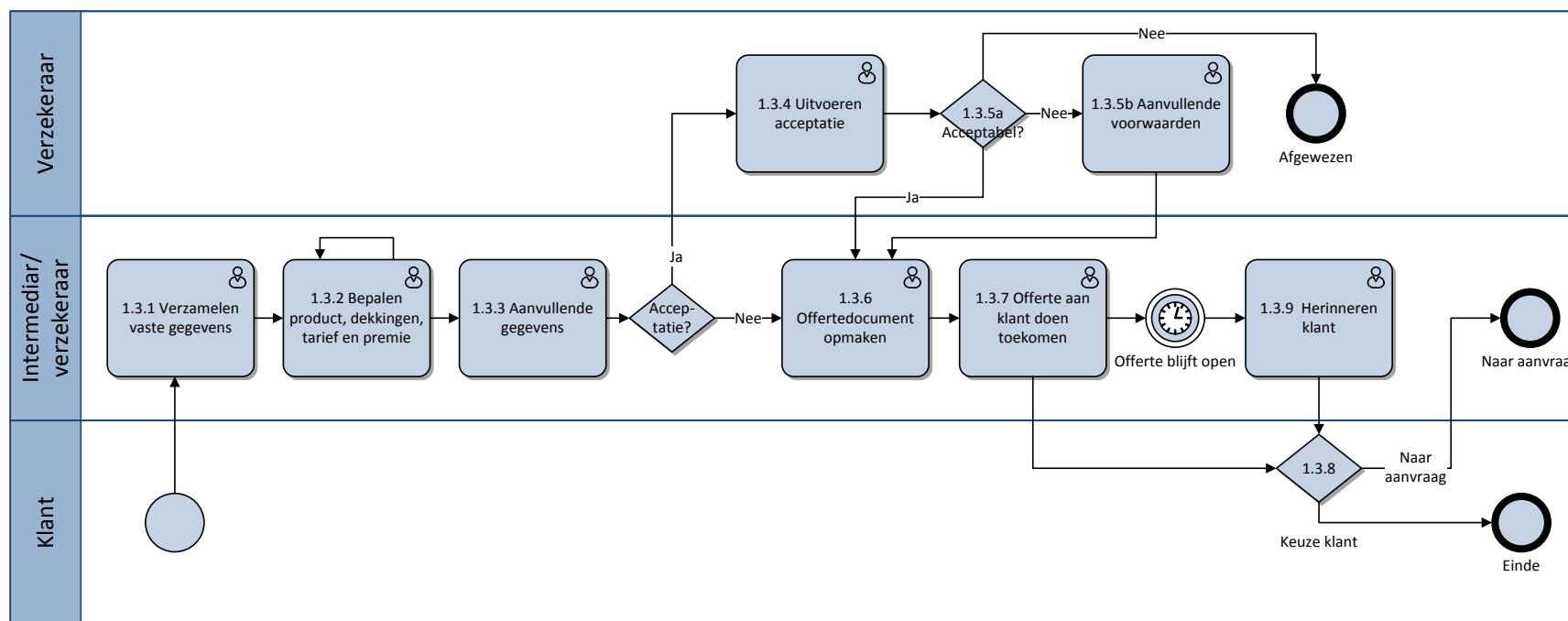


Procesbeschrijving

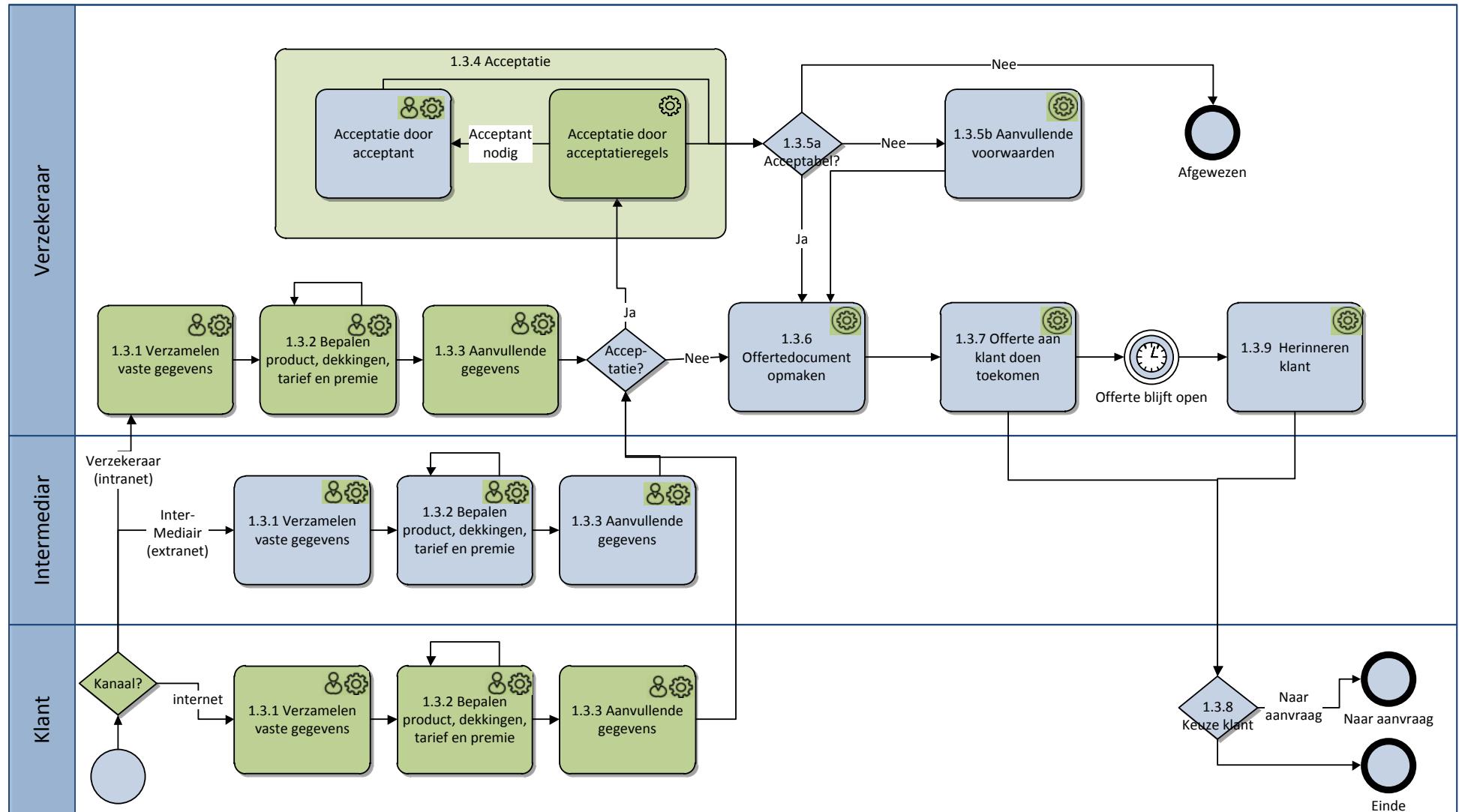
Proces	Activiteit	Beschrijving
Premie berekening		<p>Premie- en voorwaardenvergelijking is het vergelijken van premies van gelijksoortige verzekeringsproducten van een of verschillende verzekeraars of het vergelijken van verschillende premies voor hetzelfde verzekeringsproduct.</p> <p>Ook kunnen voorwaarden van verschillende verzekeraars vergeleken worden.</p>
	1.2.1 Gegevens verzamelen	De klantgegevens worden verzameld of opgehaald uit het klantdossier (zie ook 1.1.1). Het is mogelijk dat een productadvies uit (1.1) advisering als input dient voor de premievergelijking. In dat geval zijn de meeste gegevens die benodigd zijn al bekend.
	1.2.2 Bepalen premie en voorwaarden.	Op basis van de in 1.1.1 geselecteerde dekkingen en het product worden de premie en voorwaarden bepaald.
	1.2.3 Premievergelijking	De klant of intermediair selecteert een product en vergelijkt (al dan niet automatisch) de premies voor het geselecteerde product bij verschillende verzekeraars. Het resultaat kan formeel opgenomen worden in een premiespecificatie.
	1.2.4 Keuze klant	De klant bestudeert de premievergelijking. Op basis hiervan kan hij de keuze maken om verder te gaan met een offerte of aanvraag voor het gekozen verzekeringsproduct bij een verzekeraar.
	1.2.5 Omzetten premie-specificatie naar offerte of aanvraag	Indien gewenst kan de klant ervoor kiezen om door te gaan met een offerte of polisaanvraag voor het gekozen product bij de verzekeraar.

Polisofferte (Activiteit 1.3)

Tijdens het offerteproces wordt een voorstel voor een verzekeringspolis opgesteld, die de voorwaarden en premie van een verzekering bevat. Het ondersteunt het opzetten en versturen van een offerte. Hoewel dit niet bij alle verzekeraars het geval zal zijn, kan er acceptatie op een offerte van toepassing zijn. Dit proces is een voorbeeld waar het verhogen van de maturity goed te zien kan zijn: het proces kan grotendeels naar de klant verplaatst worden door een internetkanaal. Verder kan straight-through-processing ingevoerd worden, waardoor het proces sneller zal verlopen.



Low Maturity



High Maturity

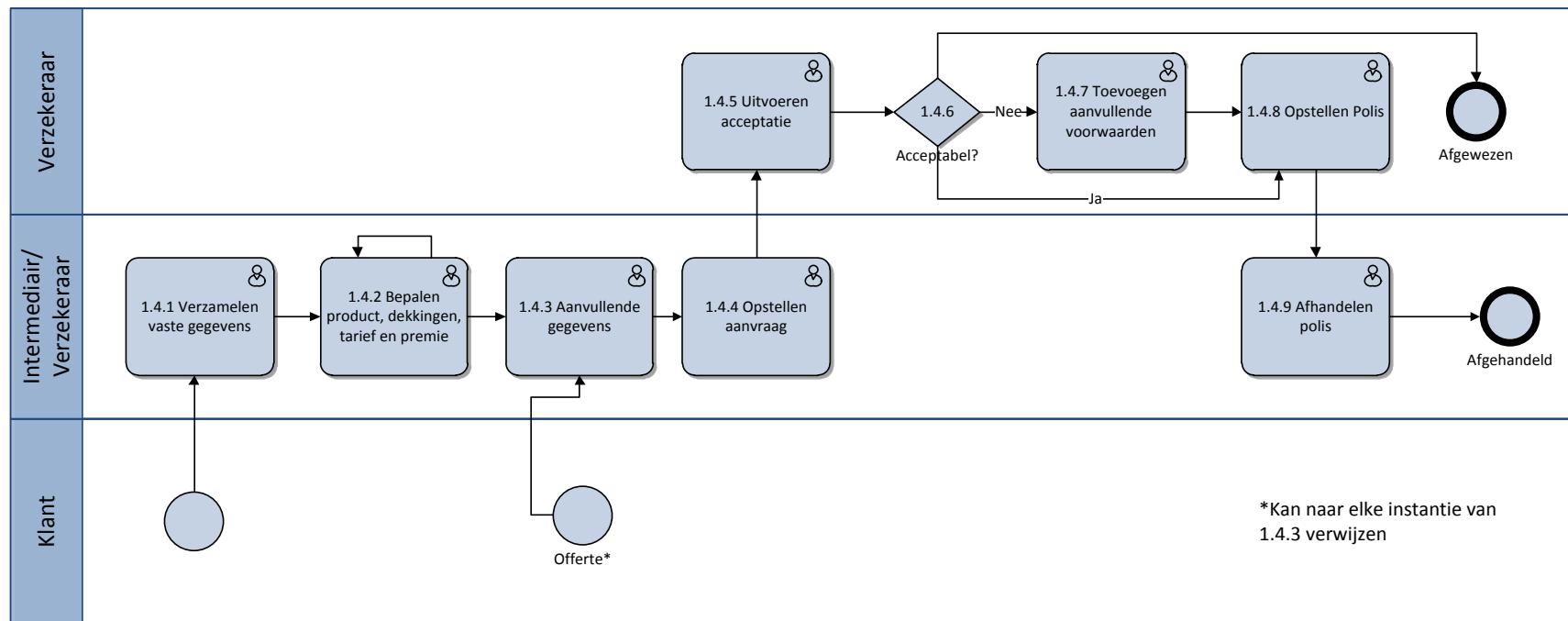
Procesbeschrijving

Proces	Activiteit	Beschrijving
Offerte		<p>Tijdens het offerteproces wordt een voorstel voor een verzekeringspolis opgesteld, die de voorwaarden en premie van een verzekering bevat. Het opstellen van een offerte kan op verschillende manieren gebeuren: door de intermediair (extranet), verzekeraar (intranet) of door de klant zelf (internet).</p>
	1.3.1 Gegevens verzamelen	<p>Om tot een offerte te komen, moeten er een aantal gegevens verzameld worden:</p> <ul style="list-style-type: none"> - Vaste gegevens die nodig zijn voor een offerte (bijvoorbeeld geboortedatum en postcode) - Gewenst product - Gewenste dekkingen - Objectgegevens - Looptijd - Eventueel doelgroepafspraak <p>Deze kunnen zowel handmatig ingevoerd worden, uit een klantdossier gehaald worden (indien aanwezig) of uit externe bronnen gehaald worden (bijvoorbeeld RDW-gegevens).</p>
	1.3.2 Bepalen product, dekkingen, tarief en premie.	<p>Het in 1.3.1 geselecteerde product en de dekkingen worden gekoppeld aan een tarief. Deze bepalen de premie en uiteindelijke dekkingen van het gekozen product. De pijl van 1.3.2 naar 1.3.2 geeft aan dat de klant zelf dekkingen toe kan voegen en kan verwijderen om met de premie te spelen.</p>
	1.3.3 Verzamelen aanvullende gegevens	<p>Aanvullende gegevens zijn nodig, zoals de naam van de klant.</p>
	1.3.4 Acceptatie offerte	<p>Alleen indien de verzekeraar werkt met acceptatie op offerte. Een acceptant beoordeelt de offerte. Dit kan ook automatisch gebeuren door middel van belissingsregels (automatische goed- of afkeuring, of automatisch doorzetten naar acceptant). Deze stap is optioneel, niet alle verzekeraars voeren acceptatie uit op offertes.</p>

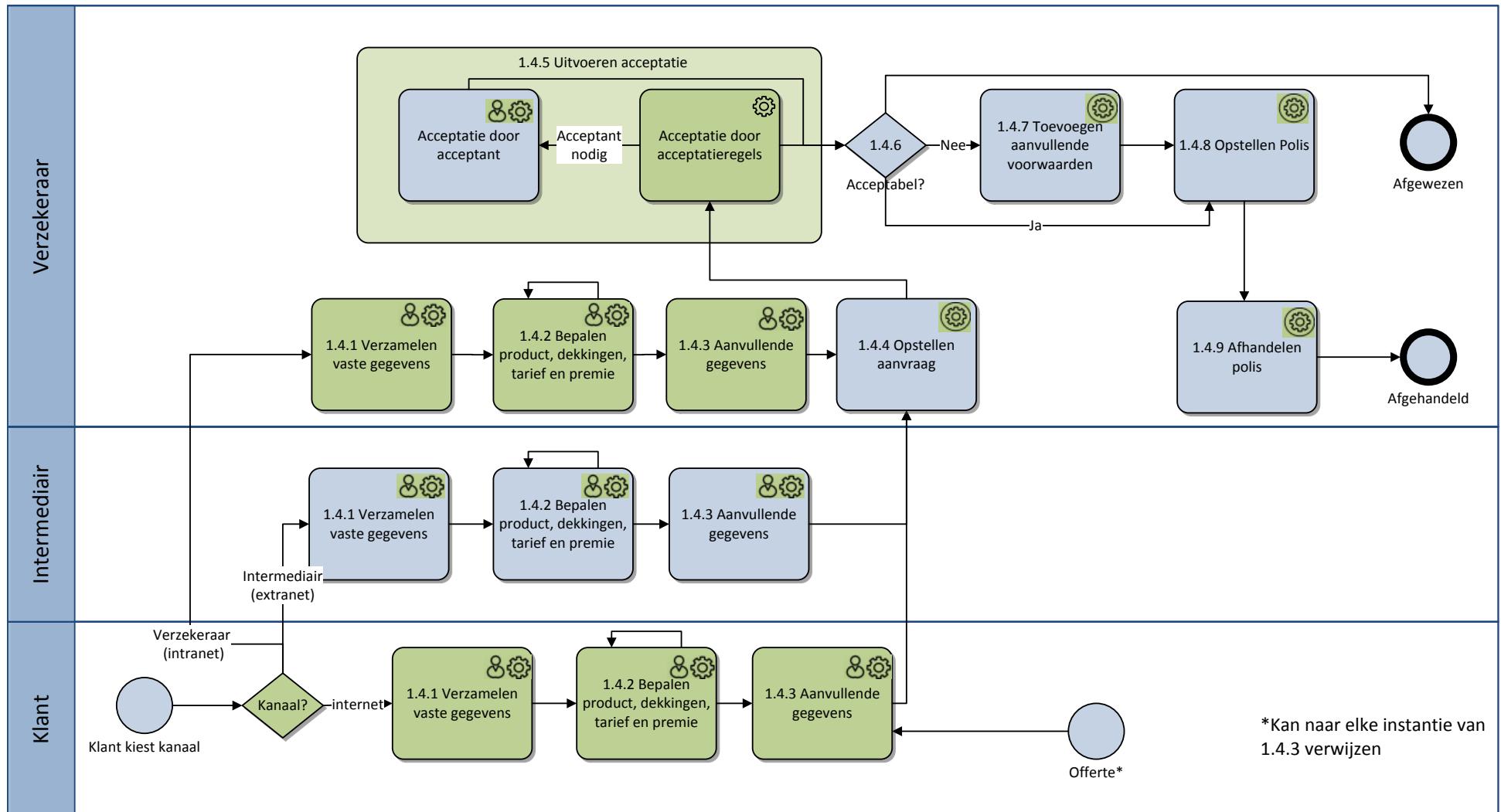
Proces	Activiteit	Beschrijving
	1.3.5a Beoordelingsresultaat	Acceptabele offertes gaan door naar 1.3.6. Niet (direct) acceptabele offertes worden afgekeurd of aangepast (1.3.5b).
	1.3.5b Aanvullende voorwaarden	Indien de offerte niet acceptabel is, kunnen er aanvullende voorwaarden worden toegepast.
	1.3.6 Offertedocument opmaken	Het offertedocument wordt opgesteld op basis van de eerder verzamelde (of in 1.3.5b aangepaste) gegevens, premie en voorwaarden.
	1.3.7 Offerte aan klant doen toekomen	De offerte wordt naar de klante verzonden. Dit kan zowel via intermediair of verzekeraar (papier, post, email).
	1.3.8 Keuze klant	De klant kan ervoor kiezen om de offerte te accepteren en om te zetten in een aanvraag.
	1.3.9 Herinneren klant	Indien de offerte open blijft staan, kan de verzekeraar ervoor kiezen om te informeren bij de klant of hij de offerte wil omzetten in een aanvraag.

Polisaanvraag en Acceptatie (Activiteit 1.4)

Een polisaanvraag is een formeel verzoek tot het afsluiten van een verzekeringspolis. Het aanvraagproces ondersteunt het opzetten, versturen en beoordelen van een polisaanvraag. Door het invoeren van een internetkanaal kan het proces voor een deel naar de klant verplaatst worden. Door straight-through-processing kan een aanvraag in zeer korte tijd geaccepteerd worden (indien mogelijk) en wordt de tijd van aanvraag tot polis verkort.



Low Maturity



High Maturity

Procesbeschrijving

Proces	Activiteit	Beschrijving
Aanvraag (Polisaanvraag)		Een polisaanvraag is een formeel verzoek tot het afsluiten van een verzekeringspolis. Het aanvragen van een polis kan op verschillende manieren gebeuren: door de intermediair (extranet), verzekeraar (intranet) of door de klant zelf (internet).
	1.4.1 Gegevens verzamelen	<p>Om tot een aanvraag te komen, moeten er een aantal gegevens verzameld worden:</p> <ul style="list-style-type: none"> • vaste gegevens die nodig zijn voor een offerte (bijvoorbeeld geboortedatum en postcode) • gewenst product • gewenste dekkingen • objectgegevens • looptijd • eventueel doelgroepafspraak <p>Deze kunnen zowel handmatig ingevoerd worden, uit een klantdossier of offerte gehaald worden (indien aanwezig) of uit externe bronnen gehaald worden (bijvoorbeeld RDW gegevens).</p>
	1.4.2 Bepalen product, dekkingen en tarief.	Het in 1.4.1 geselecteerde product en de dekkingen worden gekoppeld aan een tarief. Deze bepalen de premie en uiteindelijke dekkingen van het gekozen product. De pijl van 1.4.2 naar 1.4.2 geeft aan dat de klant zelf dekkingen toe kan voegen en kan verrijderen om met de premie te spelen.
	1.4.3 Verzamelen aanvullende gegevens	Voor de aanvraag zijn naast de al gevraagde gegevens, nog aanvullende gegevens nodig, zoals: <ul style="list-style-type: none"> • naw gegevens • betalingsgegevens • fraudevragen (slotvraag)
	1.4.4 Opstellen aanvraag	Op basis van de verzamelde gegevens, het product, de voorwaarden en de premie wordt een aanvraag opgesteld.

Proces	Activiteit	Beschrijving
	1.4.5 Uitvoeren acceptatie	Een acceptant (verzekeraar) beoordeelt de aanvraag. Dit kan ook automatisch gebeuren door middel van belissingsregels (automatische goed- of afkeuring, of automatisch doorzetten naar acceptant). Hier worden ook fraude-checks uitgevoerd.
	1.4.6 Beoordelingsresultaat	Acceptabele aanvragen gaan door naar 1.4.8. Niet (direct) acceptabele aanvragen worden afgekeurd of aangepast (1.4.7).
	1.4.7 Toevoegen aanvullende voorwaarden	Indien de aanvraag niet acceptabel is, kunnen er aanvullende voorwaarden worden toegepast.
	1.4.8 Opstellen polis	De polis wordt aangemaakt op basis van de eerder verzamelde (of in 1.4.7 aangepaste) gegevens, premie en voorwaarden. Hier wordt, indien van toepassing, ook de voorlopige dekking opgesteld.
	1.4.9 Afhandelen polis	Dit betreft de complete afhandeling van de polis: <ul style="list-style-type: none"> • De klant krijgt bericht over zijn aanvraag en ontvangt ook de benodigde documenten. • De financiële afhandeling wordt in gang gezet om de premie te incasseren. • Eventueel melden van de polis bij derde partijen (zoals intermediair). • In het geval van een motorrijtuig-verzekering zijn er nog aanvullende acties, zoals het aanmelden van de verzekering bij RDW.

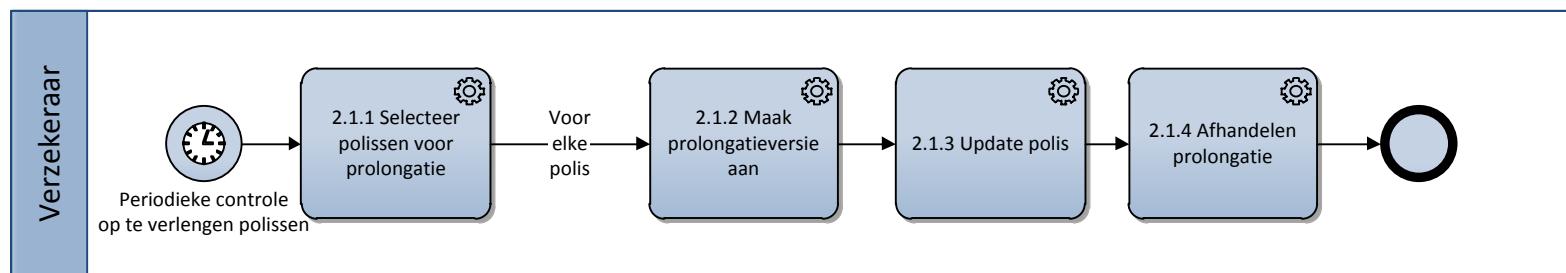
Polisadministratie

Polisadministratie omvat alle processen die te maken hebben met het onderhouden en updaten (waaronder ook beëindigen) van bestaande polissen. Hoewel hier de maturity vooral zit in het automatiseren van de processen en minder zichtbaar is aan de voorkant, zal het automatiseren van deze processen de polisadministratie sneller laten verlopen, met name als het gaat om mutaties.

Hieronder worden een aantal processen (mutaties) in de polisadministratie beschreven. Door het grote aantal mogelijke mutaties zijn de meest belangrijke processen hier opgenomen.

Prolongatie (automatisch) (Activiteit 2.1)

Prolongatie is het periodiek verlengen en het updaten naar de nieuwste polisversie van polissen. Prolongatie is een proces dat altijd automatisch zal verlopen. Integratie met andere processen is hier de belangrijkste factor.



Procesbeschrijving

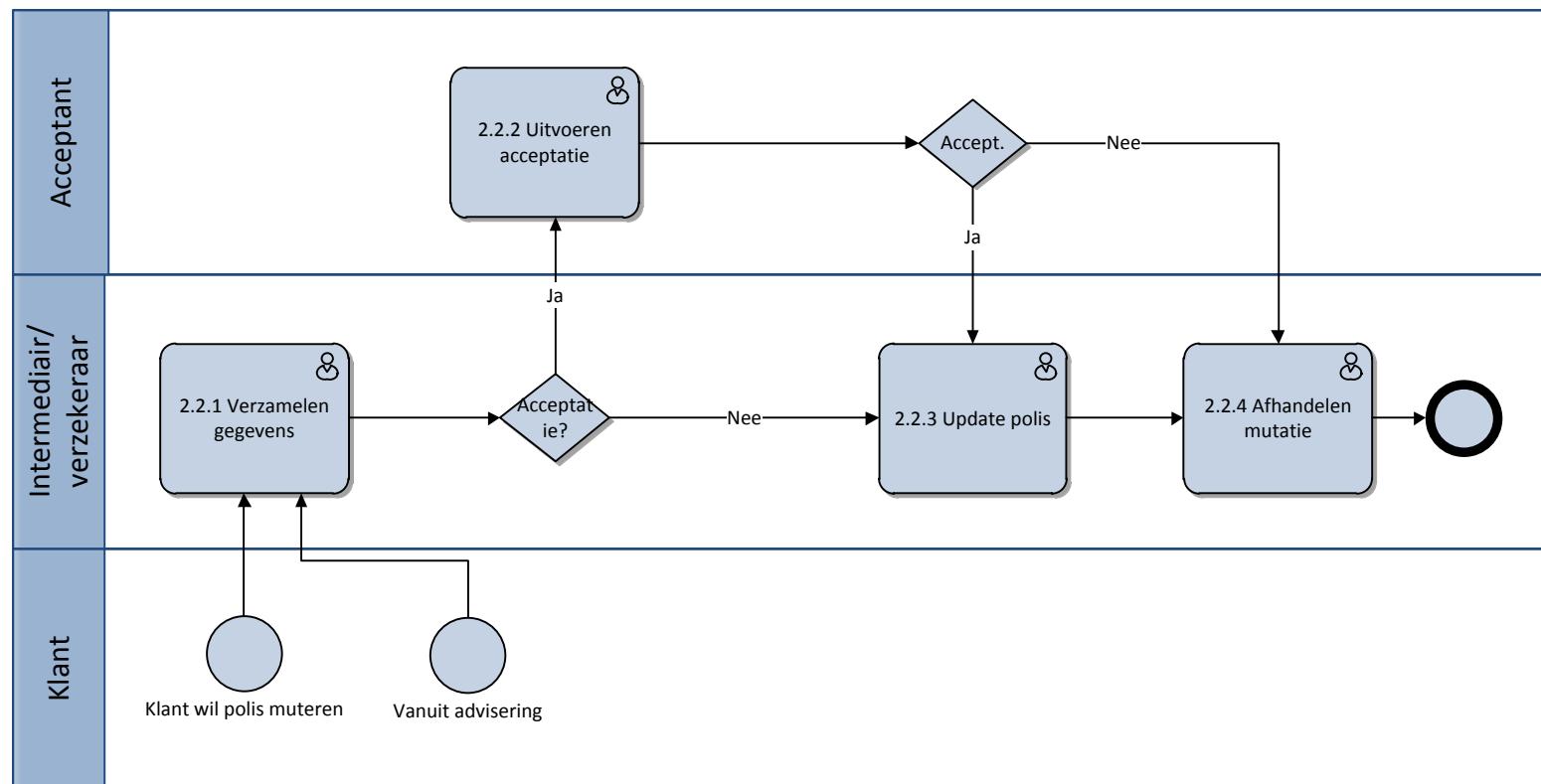
Proces	Activiteit	Beschrijving
Polisbeheer - Prolongatie		Prolongatie is het verlengen van de contractduur van een polis. Dit gebeurt doorgaans per periodiek interval voor een bulk polissen. Dit gebeurt niet handmatig. Voor prolongatie is integratie van groot belang.
	Periodieke controle op te verlengen polissen.	Per periodiek interval wordt gekeken welke polissen in aanmerking komen voor prolongatie.
	2.1.1 Selecteer polissen voor prolongatie	De polissen die in aanmerking komen voor prolongatie worden geselecteerd. De volgende stappen worden voor elke polis uitgevoerd.

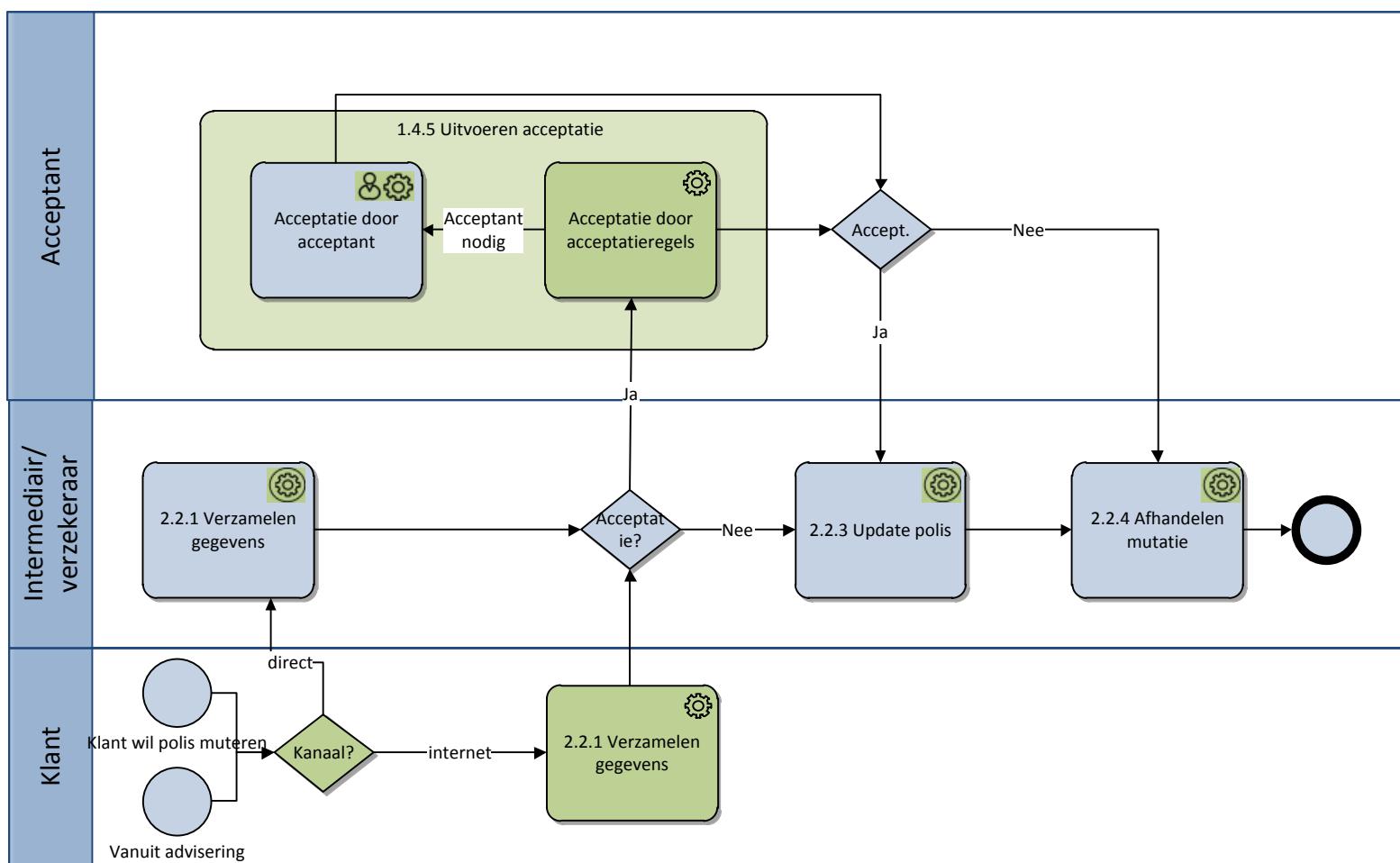
Proces	Activiteit	Beschrijving
	2.1.2 Maak prolongatie-versie aan	Er wordt een nieuwe polisversie aangemaakt met een nieuwe geldigheidsdatum.
	2.1.3 Update polis	De polis wordt bijgewerkt aan het hand van de productdefinitie. Dit kan een premieupdate tot gevolg hebben. De voorwaarden en premie worden in de polis geupdate.
	2.1.4 Afhandelen polis	Als de polis is bijgewerkt vindt de afhandeling plaats. Dit bevat communicatie met de polishouder, eventuele melding aan derde partijen en de financiële afhandeling van de polis.

Aanpassen polis-/verzekerdegegevens (Activiteit 2.2)

Het wijzigen van polis- of verzekerdegegevens gebeurt meestal op verzoek van de klant. Het is mogelijk dat hier acceptatie op plaatsvindt. Het toevoegen van een internetkanaal geeft de klant de mogelijkheid om snel mutaties door te voeren (indien mogelijk). In dit proces zal STP het mogelijk maken om mutaties direct door te voeren.

N.b.: via dit proces kan een polis ook geschorst worden, of hersteld uit rooyement (niet vanuit klant) of schorsing.





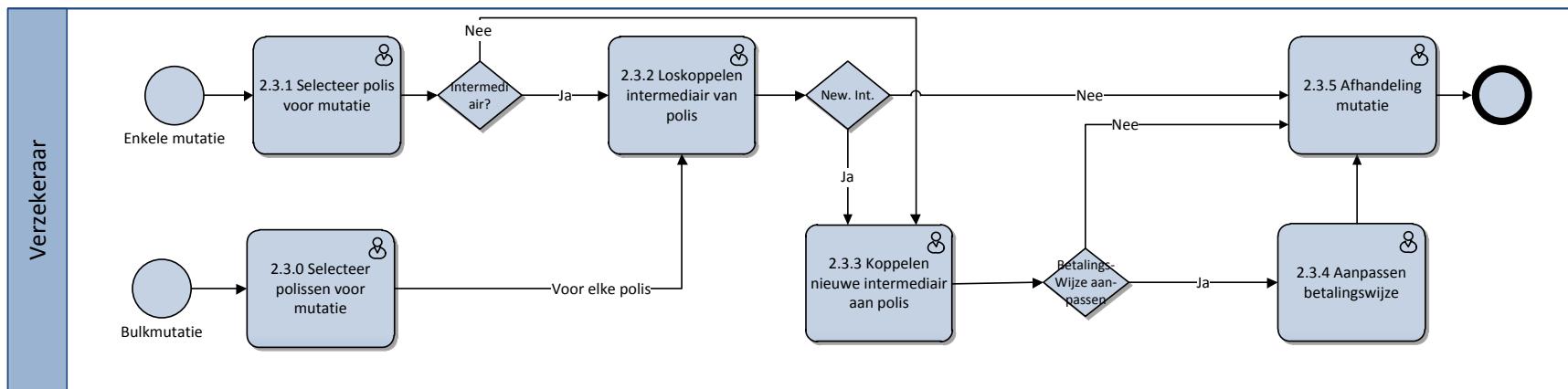
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Procesbeschrijving

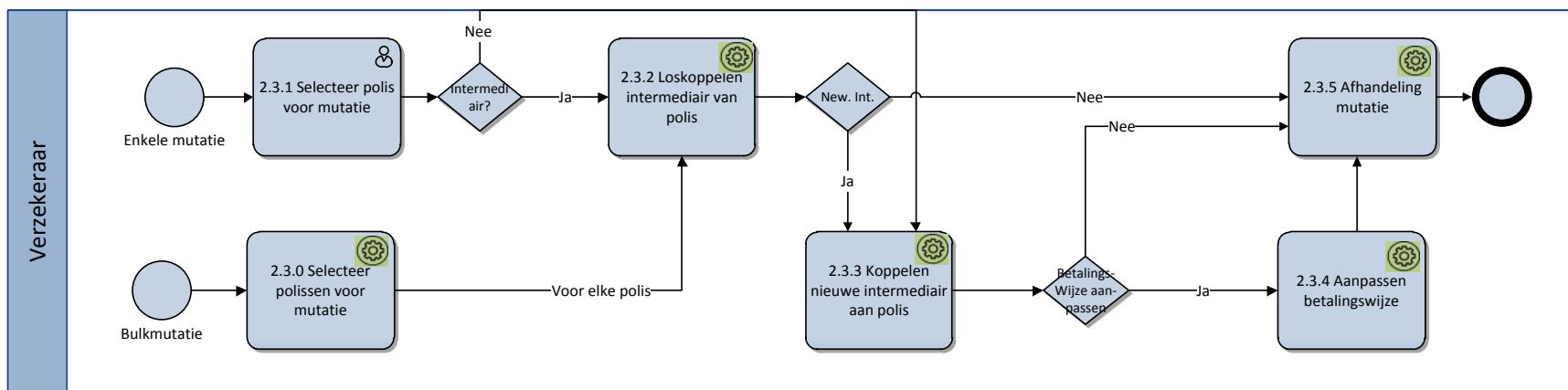
Proces	Activiteit	Beschrijving
Polisbeheer – Aanpassen polis		Het aanpassen van de polis is het aanpassen van één of meerdere gegevens van de verzekerde of van polisgegevens vanuit de klant.
	2.2.1 Verzamelen gegevens	Het verzamelen van gegevens die benodigd zijn voor de mutatie, waaronder reden voor mutatie, welke gegevens gewijzigd moeten worden en per welke datum.
	2.2.2 Uitvoeren acceptatie	Indien van toepassing
	2.2.3 Update polis	Het bijwerken van de polis met de nieuwe gegevens.
	2.2.4 Afhandelen mutatie	Als de polis is bijgewerkt vindt de afhandeling plaats. Dit bevat communicatie met de polishouder, eventuele melding aan derde partijen en de financiële afhandeling van de polis (indien van toepassing).

Wijzigen intermediair op polis (Activiteit 2.3)

Dit proces beschrijft het loskoppelen, of het koppelen, van een intermediair aan een polis. Het verhogen van de maturity zit hier voornamelijk in automatisering van het proces.



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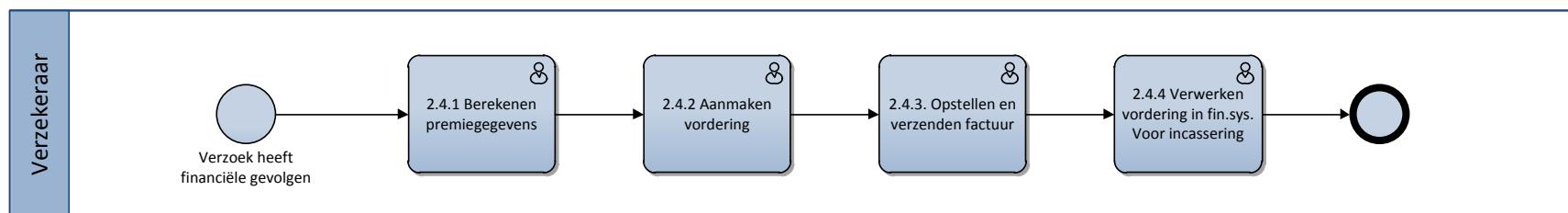
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Procesbeschrijving

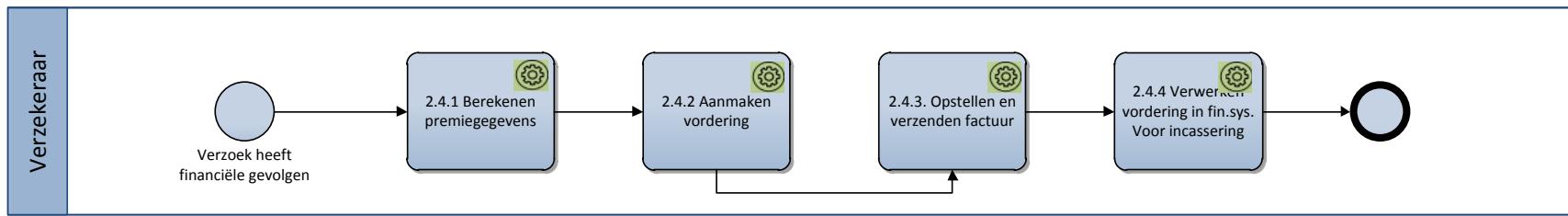
Proces	Activiteit	Beschrijving
Polisbeheer – Wijzigen Intermediair		Het wijzigen van een intermediair op een polis is het koppelen van een intermediair aan een polis, of het loskoppelen van een intermediair van een polis.
	2.3.0 Selecteer polissen voor bulkmutatie	De gebruiker selecteert de polissen die hij wil muteren. De volgende stappen worden dan voor elke polis uitgevoerd.
	2.3.1 Selecteer polis voor mutatie	De gebruiker selecteert de polis die hij wil muteren.
	2.3.2 Loskoppelen intermediair van polis	De huidige intermediair wordt losgekoppeld van de polis.
	2.3.3 Koppelen nieuwe intermediair aan polis	Indien gewenst, kan er een nieuwe intermediair aan de polis gekoppeld worden.
	2.3.4 Aanpassen betalingswijze	Het kan voorkomen dat de betaalwijze van de polis niet mogelijk is bij de nieuwe intermediair. In dat geval wordt er een andere betaalwijze geselecteerd.
	2.3.5 Afhandeling mutatie	De afhandeling omvat communicatie met de betrokken partijen.

Aanmaken vordering voor polis (Activiteit 2.4)

Het proces "Aanmaken vordering voor polis" is eigenlijk een proces dat zowel onder polis als finance zou kunnen vallen. Het kan gezien worden als de uitkomst van andere processen (bijvoorbeeld een polisaanvraag) die een vordering als resultaat hebben. Het automatiseren en koppelen met andere processen heeft een snellere verwerking tot gevolg.



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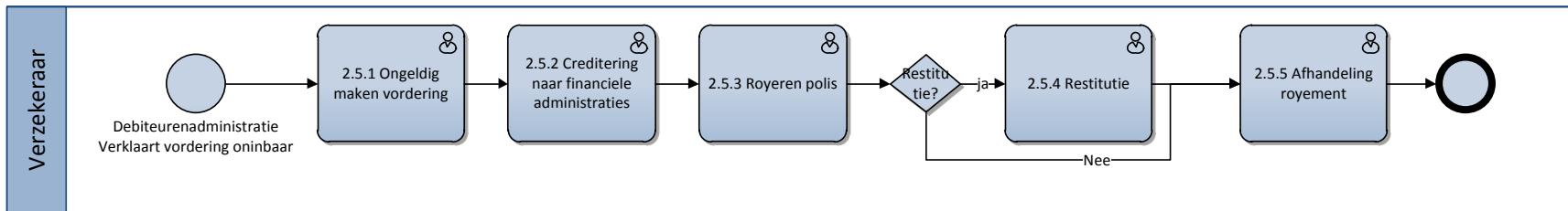


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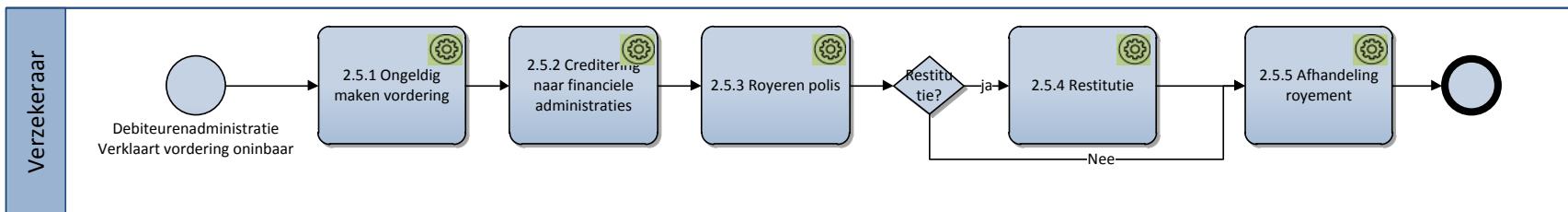
Proces	Activiteit	Beschrijving
Polisbeheer – Aanmaken vordering		Het aanmaken van een vordering voor een polis die financiële afhandeling vergt.
	2.4.1 Berekenen premiegegevens	Op basis van de premiegegevens worden de bedragen vastgesteld die verschuldigd zijn.
	2.4.2 Aanmaken vordering	Een vordering wordt aangemaakt bij de polis.
	2.4.3 Opstellen en verzenden factuur	Afhankelijk van de incassogegevens wordt een factuur opgesteld en naar de klant gestuurd.
	2.4.4 Verwerken vordering in financiële systemen voor incassering	De vordering wordt aan het financiële systeem doorgegeven zodat de vordering geïncasseerd kan worden.

Royerent na oninbare vordering (Activiteit 2.5)

Royerent als gevolg van een oninbare vordering is een gevolg van bijvoorbeeld onbetaalde premie. Voordat er royerent zal plaatsvinden, dient er echter gekeken te worden of royerent gewenst is. Er kan ook gekozen worden om de vordering als verlies te accepteren en de polis niet te royeren in verband met het behoud van klanten.



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Procesbeschrijving

Proces	Activiteit	Beschrijving
Polisbeheer – Royement na oninbare vordering		
	2.5.1 Ongeldig maken vordering	De vordering is als 'oninbaar' verklaard en wordt ongeldig gemaakt.
	2.5.2 Creditering naar financiële administratie	Doordat de vordering oninbaar is verklaard, wordt er een creditering naar het financiële systeem gestuurd.
	2.5.3 Royeren polis	De polis wordt geroyeerd.

Proces	Activiteit	Beschrijving
	2.5.4 Restitutie	Indien er sprake is van restitutie, wordt de debiteurspositie van de klant bijgewerkt.
	2.5.5 Afhandeling	Het royement wordt volgens de afhandelwijze van de maatschappij afgehandeld (zie ook activiteit 4.1).

Herstel uit royement (Activiteit 2.6)

Een polis kan hersteld worden vanuit royement via het proces 'Aanpassen polisgegevens', beschreven in sectie 5.3.

Schorsing (Activiteit 2.7)

Een polis kan geschorst worden via het proces 'Aanpassen polisgegevens', beschreven in sectie 5.3.

Herstel uit schorsing (Activiteit 2.8)

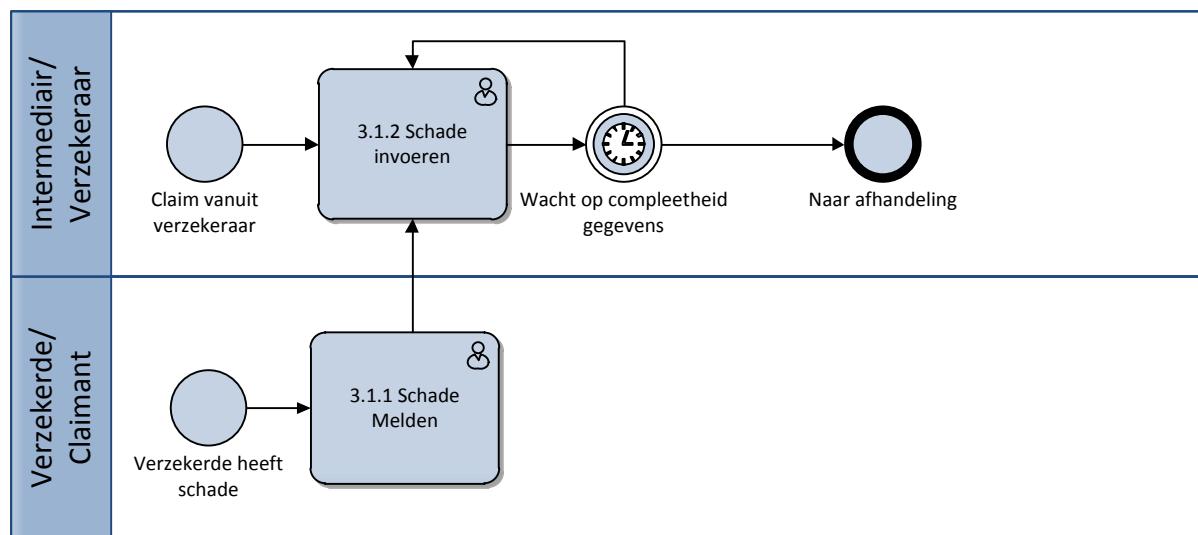
Een polis kan hersteld worden vanuit schorsing via het proces 'Aanpassen polisgegevens', beschreven in sectie 5.3.

Schade

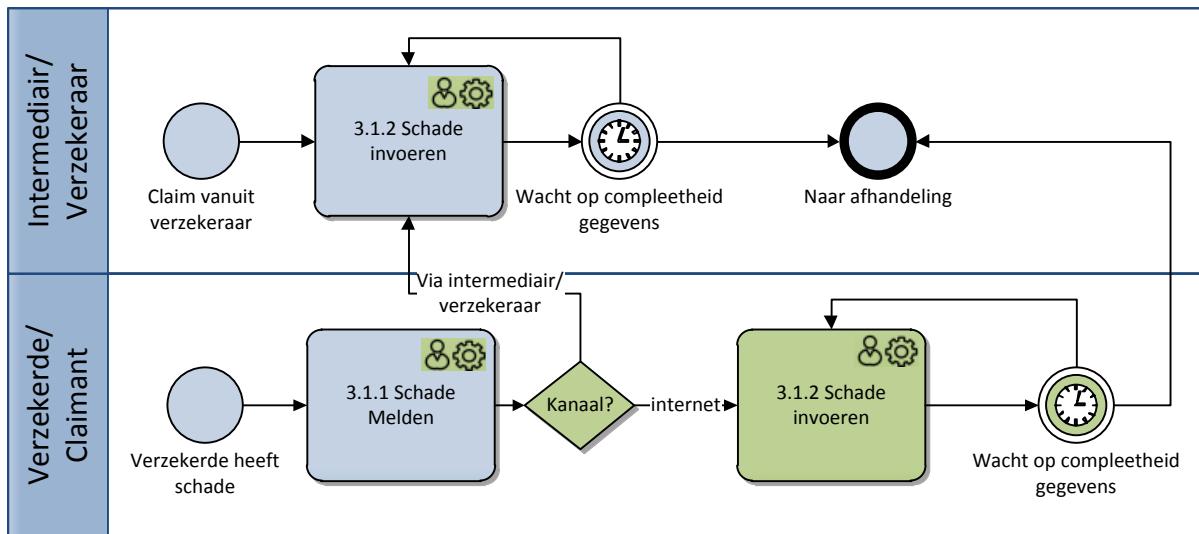
Schade is het primaire proces dat als taak het aanmaken en afhandelen van schademeldingen heeft. Vanuit deze processen kunnen ook processen als een herstelopdracht , expertiseopdracht of regres uitgevoerd worden. Deze worden geïnitieerd vanuit de schadebehandeling. Vooral bij de schademelding en schadebehandeling is de meeste ruimte voor aanpassingen die de klant zal zien: het invoeren van nieuwe kanalen voor schademelding (internet en zelfs mobiele meldingen) en STP zodat de tijd tussen melding en uitbetaling minimaal is.

Schademelding (Activiteit 3.1)

Hoewel het melden van schade een relatief kort proces is, is het wel een proces waar klanten direct mee te maken zullen krijgen. Het verhogen van de maturity zit hier met name in het invoeren van kanalen om het melden voor de klant makkelijker te maken, zoals internet of een mobiel kanaal.



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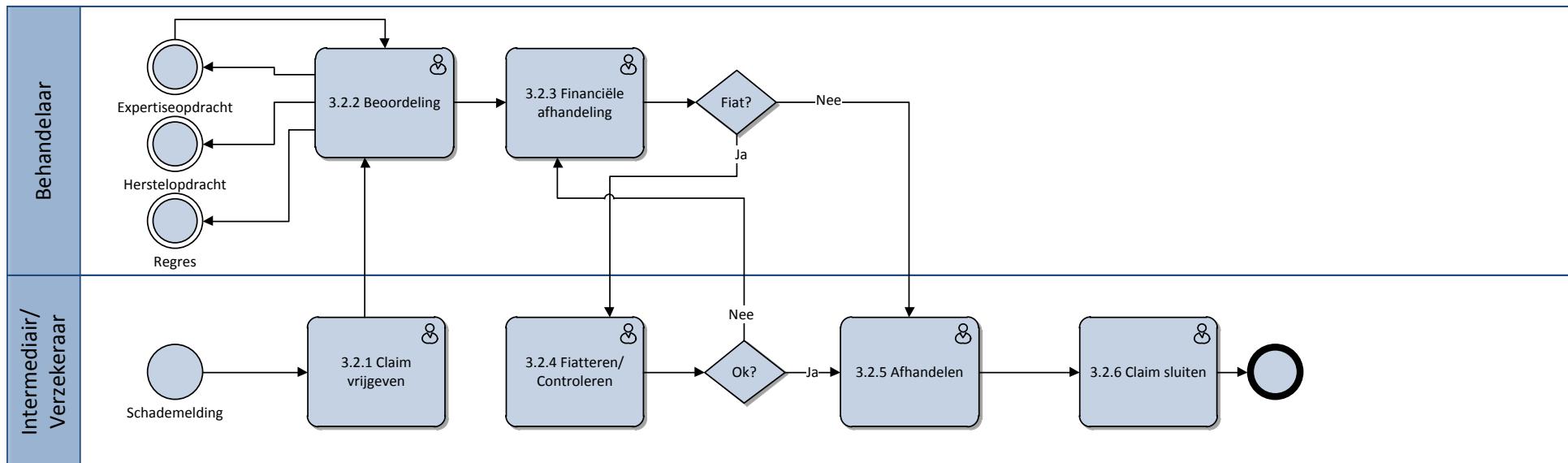
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Procesbeschrijving

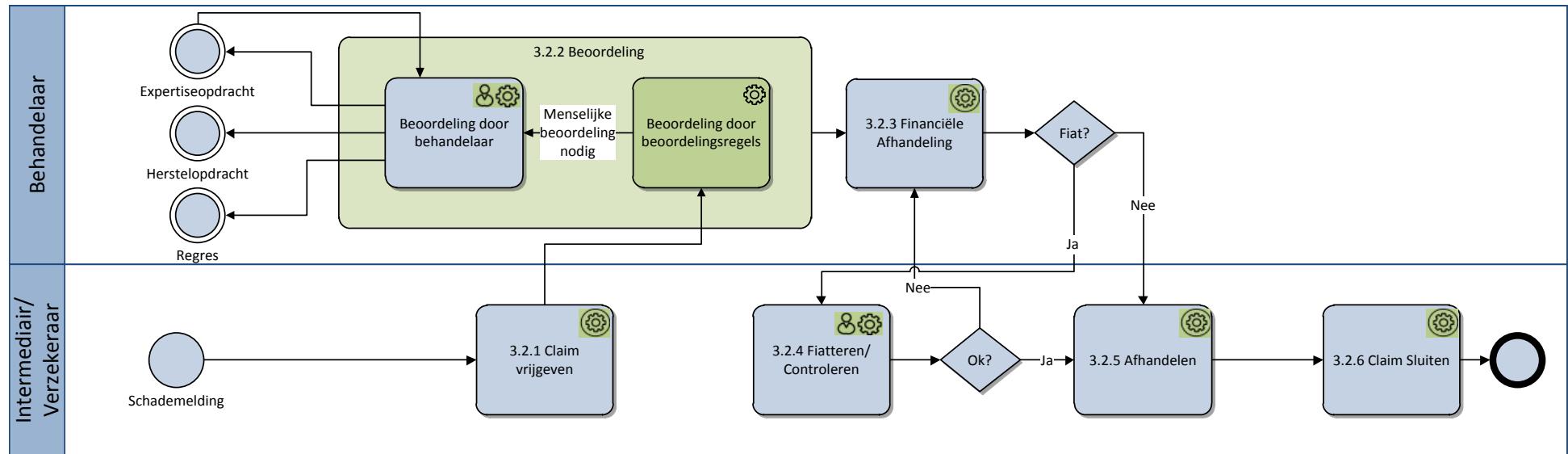
Proces	Activiteit	Beschrijving
Schade – Schademelding		Dit proces beschrijft de afhandeling van een schadeclaim. Dit kan een directe claim van een verzekerde betreffen, maar ook een claim van een tegenverzekeraar die schade wil verhalen.
	3.1.1 Schade melden	De schade wordt doorgaans gemeld door de verzekerde bij de intermediair of bij de verzekeraar. Dit kan persoonlijk, via de post, telefonisch of via internet.
	3.1.2 Schade invoeren	De gegevens van de klant en de polis worden opgehaald, en aangevuld met schade-specifieke gegevens. De verzekeraar controleert of de klant verzekerd is voor de geclaimde schade. Hier worden ook regresreserveringen aangemaakt.

Schadeafhandeling (Schadeadministratie) (Activiteit 3.2)

De schade-afhandeling is een proces dat volgt uit een schademelding en als trigger kan dienen voor een aantal processen (expertiseopdracht, herstelopdracht, regres). Door automatisering van activiteiten (en vooral beoordeling) kan STP bereikt worden, zodat claims bijna direct afgehandeld kunnen worden als ze aan bepaalde voorwaarden voldoen.



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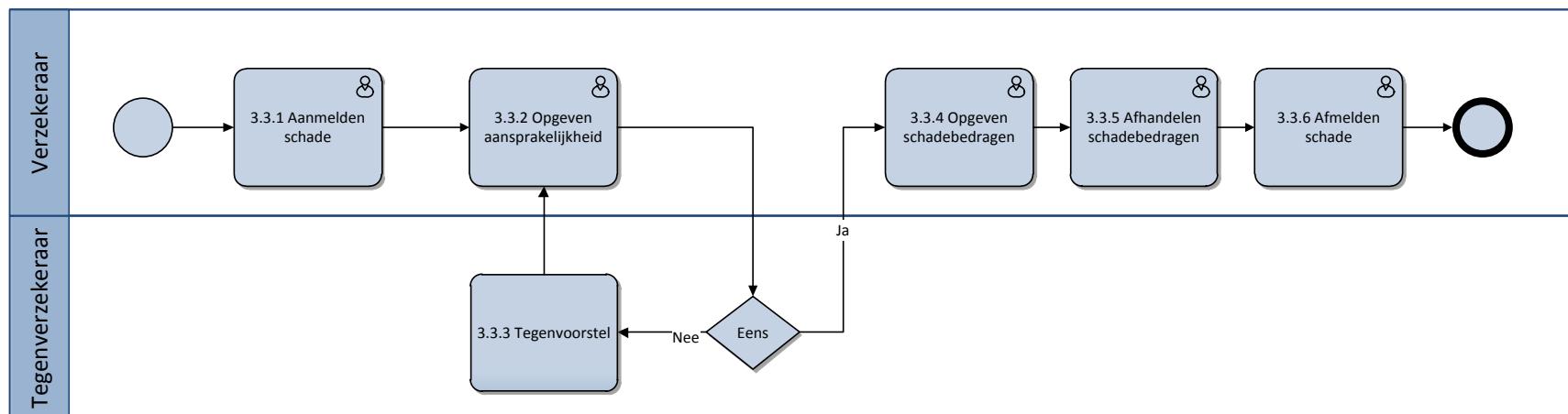
Procesbeschrijving

Proces	Activiteit	Beschrijving
Schade – Schade-afhandeling		Dit proces beschrijft de afhandeling van een schadeclaim. Dit kan een directe claim van een verzekerde betreffen, maar ook een claim van een tegenverzekerar die schade wil verhalen.
	3.2.1 Claim vrijgeven	Er wordt gewacht tot alle benodigde gegevens om de schade te behandelen binnen zijn. Als alle benodigde gegevens verzameld zijn, wordt de claim toegewezen aan een behandelaar. Hier worden ook fraudechecks uitgevoerd.
	3.2.2 Beoordeling	De behandelaar behandelt de claim en zal uiteindelijk tot een beoordeling komen. Hier kunnen één of meerdere expertiseopdrachten aan te pas komen. Hier wordt ook gekeken of de schade verhaald kan worden. Zo ja, dan wordt dit in een apart proces gedaan. Indien van toepassing, en als er dekking voor is, kan er een herstelopdracht uitgezet worden.

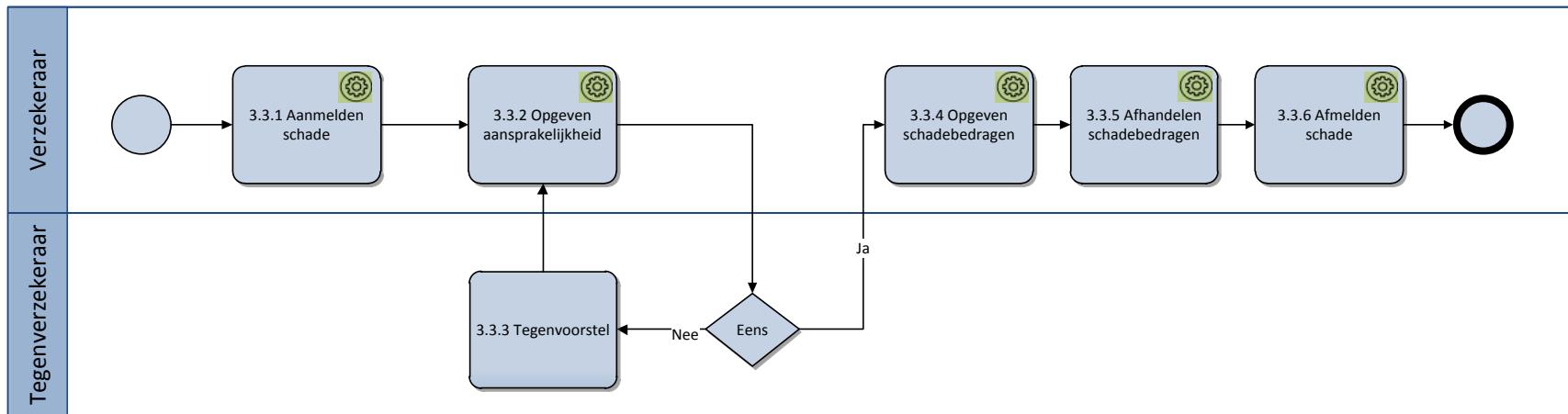
Proces	Activiteit	Beschrijving
	3.2.3 Financiële afhandeling	De claim wordt financieel afgehandeld. Dit kan zowel de betaling aan de klant betreffen, maar ook betaling aan de tegenpartij of aan een herstelpartij.
	3.2.4 Fiatteren/Controleren	De beoordeling en uitkering worden gefiatteerd of gecontroleerd. Indien van toepassing wordt de uitkering aangepast.
	3.2.5 Afhandelen	Overige zaken worden afgehandeld, zoals communicatie aan de betrokken partijen. Bij prolongatie kan de polis aangepast worden.
	3.2.6 Claim Sluiten	Als de claim compleet afgehandeld is, wordt de claim gesloten.

Regres (Activiteit 3.3)

Regres is het claimen van schade bij een tegenverzekeraar, via bijvoorbeeld Clearinghuis of via een schadeclaim. Hoewel er gebruik gemaakt kan worden van services om claims onderling af te handelen, is het moeilijk om het hele proces te automatiseren. Dit omdat de verzekeraar daarbij ook afhankelijk is van de tegenpartij. Integratie van zulke services in de schadeadministratie kan de maturity verhogen en maakt het afhandelen van schadeclaims makkelijker.



Low Maturity



High Maturity

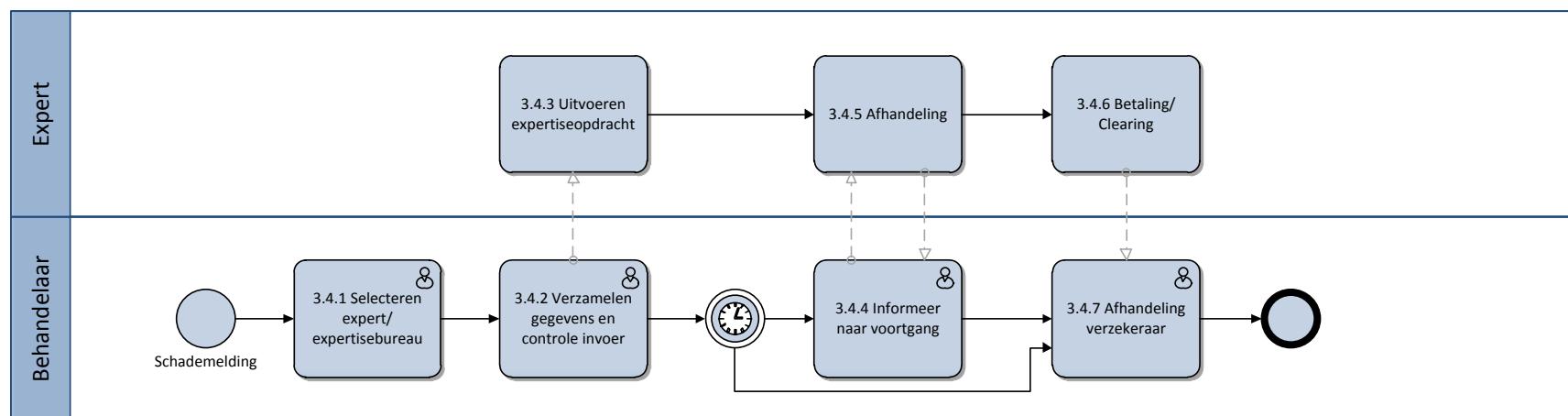
Procesbeschrijving

Proces	Activiteit	Beschrijving
Schade – Regres		Regres is het verhalen van schade bij een andere maatschappij. Dit kan via een tussensysteem (zoals Clearinghuis), of direct via een schadeclaim bij de tegenpartij
	3.3.1 Aanmelden schade	De verzekeraar meldt de schade aan, bijvoorbeeld via Clearinghuis, en stelt de tegenverzekeraar op de hoogte van de schade. De verzekeraar voert de benodigde gegevens in, die de tegenverzekeraar eventueel kan aan vullen met zijn eigen gegevens.
	3.3.2 Opgeven aansprakelijkheid	De verzekeraar doet een voorstel voor aansprakelijkheidsstelling. De tegenverzekeraar beoordeelt of dit voorstel acceptabel is.
	3.3.3 Tegenvoorstel	Indien de tegenverzekeraar het voorstel niet acceptabel vindt, zal hij een tegenvoorstel doen aan de verzekeraar.
	3.3.4 Opgeven schadebedragen	Indien beide verzekeraars het eens zijn met een aansprakelijkheidsvoorstel, worden de schadebedragen vastgesteld.

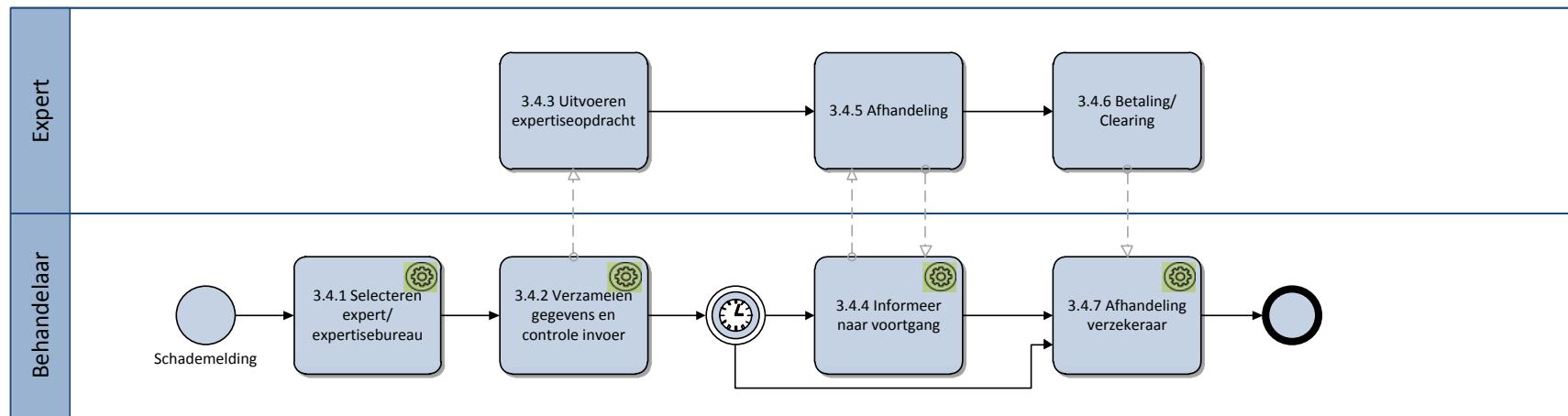
Proces	Activiteit	Beschrijving
	3.3.5 Afhandelen schadebedragen	De vorderende partij stuurt een vordering naar de andere partij om de schade financieel af te handelen. Er kan ook sprake zijn van een verdeling van de schadelast, waarbij beide partijen een vordering kunnen aanmaken.
	3.3.6 Afmelden schade	Wanneer de definitieve schadebedragen zijn opgevoerd is de schade afgehandeld.

Expertiseopdracht (Activiteit 3.4)

Expertiseopdrachten zijn opdrachten naar specialisten om schadeclaims te beoordelen vanuit hun domeinkennis. De maturity vanuit de verzekeraar kan verhoogd worden door bijvoorbeeld het aanmaken van een opdracht te automatiseren en/of door het resultaat van een opdracht automatisch te verwerken.



Low Maturity



High Maturity

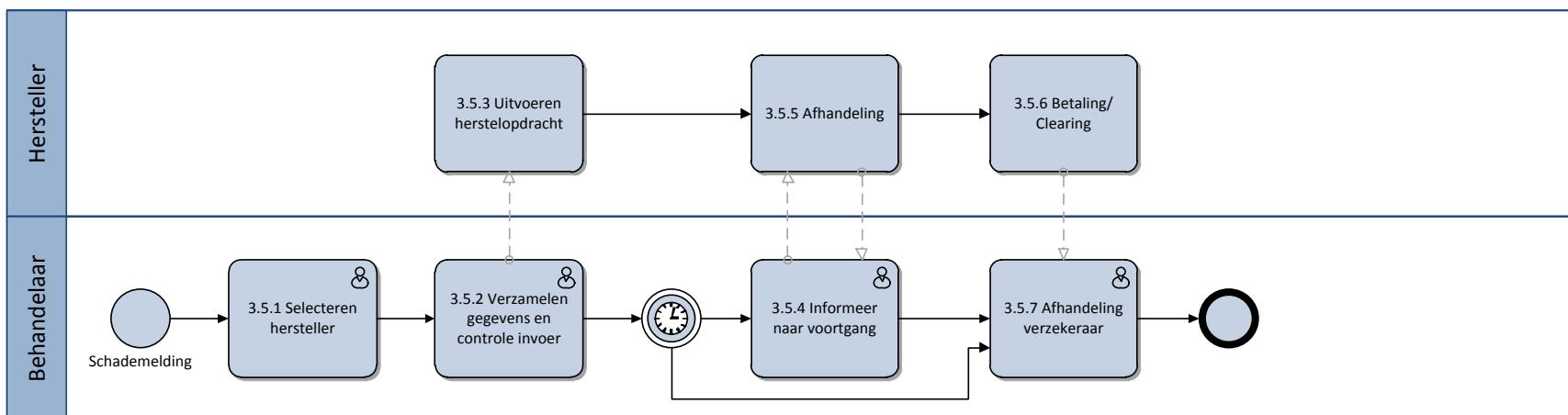
Procesbeschrijving

Proces	Activiteit	Beschrijving
Schade – Expertiseopdracht		
	3.4.1 Selecteren expert/ expertisebureau	De gebruiker selecteert de expert of het expertisebureau die de opdracht zal gaan uitvoeren.
	3.4.2 Verzamelen gegevens en controle invoer	De behandelaar voert de relevante gegevens in, zoals het herstelobjectsoort, specificatie en omschrijving, schadedatum, geschat schadebedrag en andere relevante gegevens. Ten slotte controleert de behandelaar de invoer en stuurt de opdracht naar de geselecteerde expert. <i>Opmerking: Het kan zijn dat (3.4.1) onderdeel is van deze stap.</i>
	3.4.3 Uitvoeren expertiseopdracht	De expert krijgt de opdracht en voert deze uit.
	3.4.4 Informeer naar voortgang	Eventueel kan de behandelaar informeren naar de status van een expertiseopdracht.

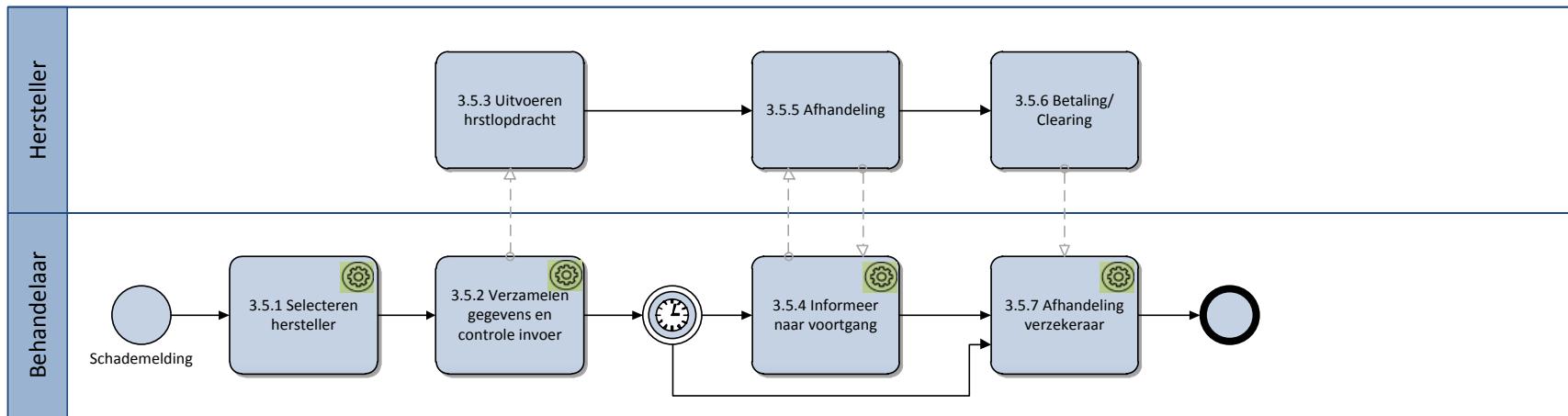
Proces	Activiteit	Beschrijving
	3.4.5 Afhandeling	De expert communiceert over de voortgang van de expertiseopdracht.
	3.4.6 Betaling/ clearing	Het expertisebureau of de expert stelt een factuur op, verstuurt deze aan de maatschappij.
	3.4.7 Afhandeling verzekeraar	De verzekeraar handelt de herstelopdracht af, waaronder betaling aan de hersteller.

Herstelopdracht (Activiteit 3.5)

Herstelopdrachten zijn opdrachten naar herstellers om schade aan een object te herstellen. De maturity vanuit de verzekeraar kan verhoogd worden door bijvoorbeeld het aanmaken van een opdracht te automatiseren en/of door het resultaat van een opdracht automatisch te verwerken. De herstelopdracht hoeft niet altijd door de verzekeraar aangemaakt te worden.



Low Maturity



High Maturity

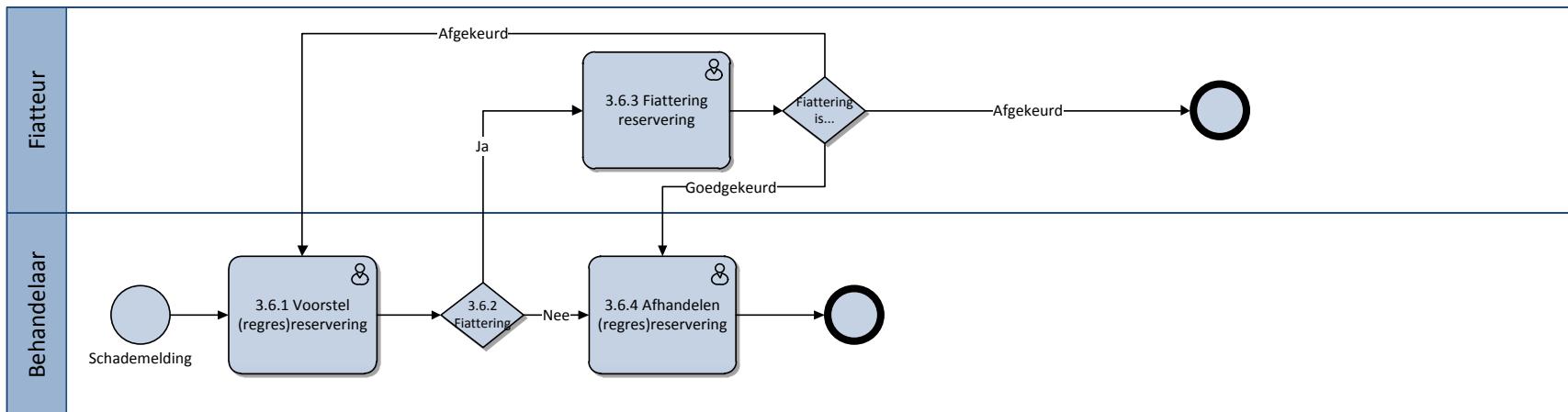
Procesbeschrijving

Proces	Activiteit	Beschrijving
Schade – Herstelopdracht		Een herstelopdracht is een opdracht tot herstel in opdracht van een verzekeringsmaatschappij aan een hersteller.
	3.5.1 Selecteren hersteller	De behandelaar van de schadeclaim selecteert de hersteller die de opdracht moet uitvoeren.
	3.5.2 Verzamelen gegevens en controle op invoer	De behandelaar voert de relevante gegevens in, zoals herstelobjectsoort, specificatie en omschrijving, schadedatum, geschat schadebedrag en andere relevante gegevens. Ten slotte controleert de behandelaar de invoer en verstuur de opdracht naar de geselecteerde hersteller. <i>Opmerking: Het kan zijn dat (3.5.1) onderdeel is van deze stap.</i>
	3.5.3 Uitvoeren herstelopdracht	De hersteller krijgt de opdracht tot herstel en voert deze uit.
	3.5.4 Informeer naar voortgang	Eventueel kan de behandelaar informeren naar de status van een herstelopdracht.
	3.5.5 Afhandeling	De hersteller communiceert over de voortgang van het herstelproces.
	3.5.6 Betaling/ Clearing	De hersteller stelt een factuur op en verstuur deze aan de maatschappij.

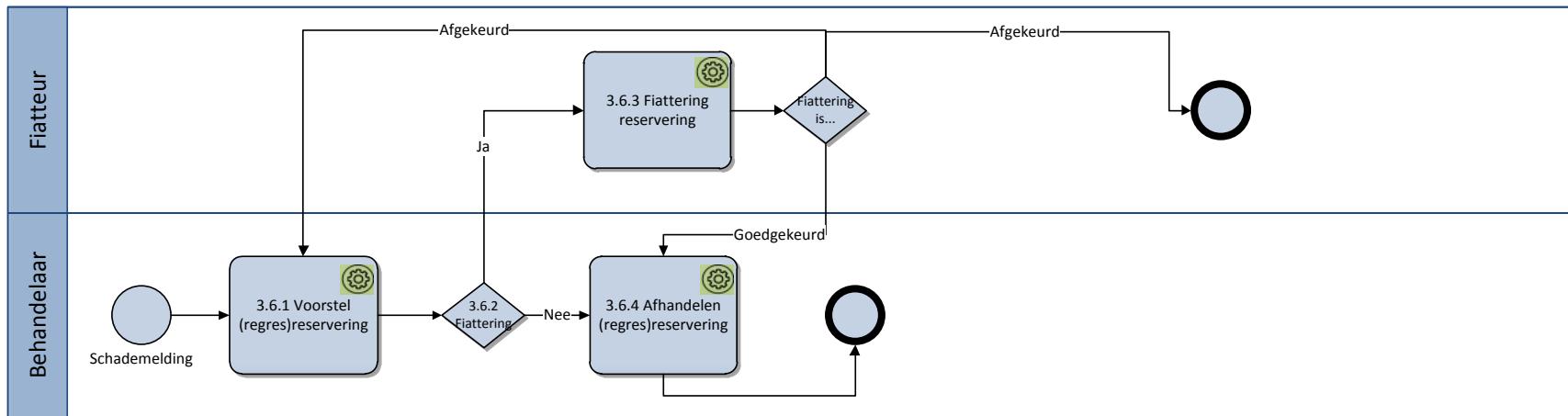
Proces	Activiteit	Beschrijving
	3.5.7 Afhandeling verzekeraar	De verzekeraar handelt de herstelopdracht af, waaronder betaling aan de hersteller en communicatie naar de betrokken partijen.

(Regres)reservering (Activiteit 3.6)

Door middel van (regres)reserveringen kan een verzekeraar bijhouden wat de verwachte inkomsten of uitgaven van schadeclaims zullen zijn. Het automatiseren van reserveringen kan geautomatiseerd worden, zodat reserveringen zonder menselijke tussenkomst opgesteld kunnen worden.



Low Maturity



High Maturity

Procesbeschrijving

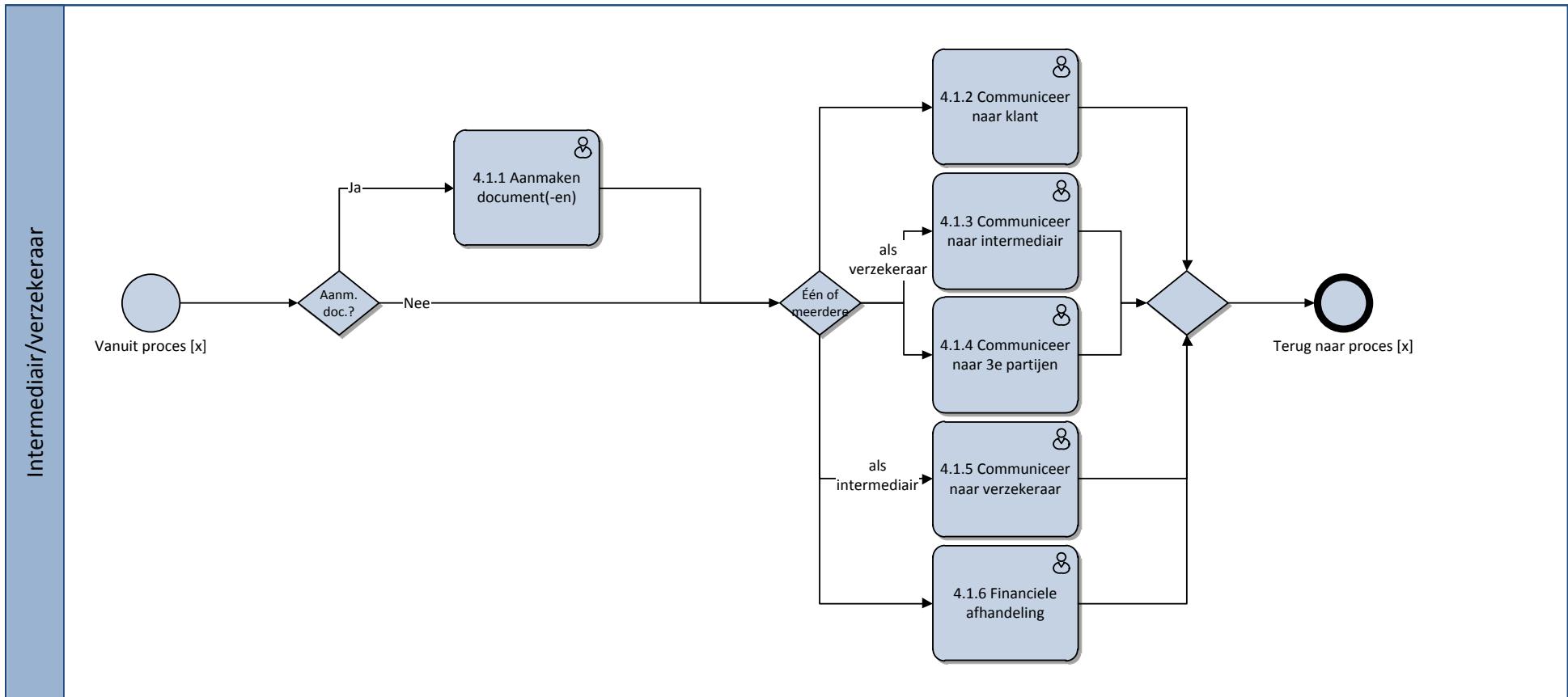
Proces	Activiteit	Beschrijving
Schade – (Regres) reservering		Bij het melden van een schade moet altijd een reservering (het bedrag dat de maatschappij verwacht te betalen) meegegeven worden. De combinatie van reserveringen is de reserveringsstand. Een reservering voor te verhalen schade is een regresreservering.
	3.6.1 Voorstel (regres)reservering	Bij het melden van een schade wordt een voorstel gedaan voor de stand van de (regres)reservering die ingesteld moet worden.
	3.6.2 Flattering	Er wordt gecontroleerd of de stand gefiatteerd moet worden.
	3.6.3 Flattering reservering	Indien de stand gefiatteerd moet worden, dan zal een fiatteur de stand goedkeuren of afkeuren. Als de stand wordt afgekeurd, kan een behandelaar de stand aanpassen.
	3.6.4 Afhandeling	De stand wordt verwerkt in de administratie en zal aan de reserveringen toegevoegd worden.

Proces	Activiteit	Beschrijving
		<p>*Indien een eerdere fiattering al goedgekeurd is, kan deze aangepast worden. Dan zal het proces opnieuw doorlopen worden.</p> <p>* Regresreserveringen hoeven in principe nooit in fiat te vallen.</p>

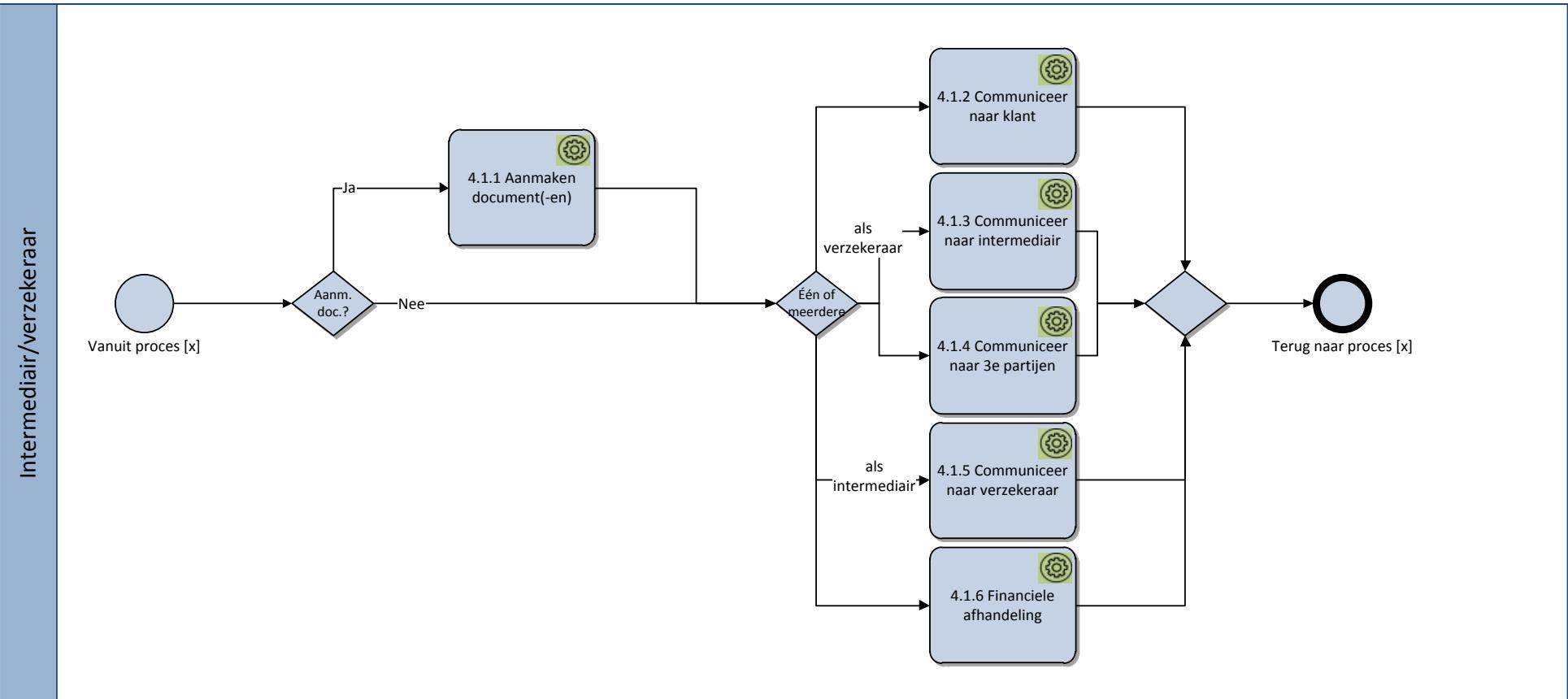
Ondersteunende processen

Sommige processen vallen niet onder een enkele top-level focus area, maar zijn terug te vinden in meerdere processen. In deze sectie voor algemene processen worden deze ondergebracht. Voorbeeld is het proces 'Afhandeling' dat communicatie naar de betrokken partijen en koppeling naar financiële verwerking bevat.

Afhandeling (Activiteit 4.1)



Low Maturity



High Maturity

Procesbeschrijving

Proces	Activiteit	Beschrijving
Algemeen - Afhandeling		Afhandeling omvat alle activiteiten die onderdeel zijn van de afhandeling van een proces. Dit zijn algemene activiteiten, zoals communicatie naar de betrokken partijen.
4.1.1 Aanmaken documenten		Indien van toepassing, worden de benodigde documenten aangemaakt. Dit kan bijvoorbeeld een polisblad zijn voor de klant of een overzicht voor de intermediair of derde partijen.
4.1.2 Communiceer naar klant		Omvat alle communicatie richting de klant. Communicatie naar de klant in de vorm van een bevestigingsbrief, -email of andere vorm van communicatie. Dit kan ook het versturen van klantdocumenten (bijvoorbeeld polisblad) omvatten.
4.1.3 Communiceer naar intermediair		Omvat alle communicatie richting de intermediair, bijvoorbeeld het informeren over mutaties, zodat de intermediair zijn administratie bij kan werken en op de hoogte is.
4.1.4 Communiceer naar 3 ^e partijen		Omvat alle communicatie richting derde partijen, zoals bijvoorbeeld het RDW voor motorrijtuigverzekeringen, Roy-data voor NCBM-gegevens of tegenverzekeraars in het geval van claims.
4.1.5 Communiceer naar verzekeraar		Omvat alle communicatie richting de verzekeraar, bijvoorbeeld het op de hoogte brengen van mutaties, zodat de verzekeraar zijn administratie bij kan werken en op de hoogte is.
4.1.6 Financiële afhandeling		Het in werking zetten van de financiële afhandeling, bijvoorbeeld het informeren over een vordering of het verwerken van een betaling.

**Appendix
3: IPMM
Model**

**Maturity
Berekening
Schadeverzekereren**

Situatie A OE CI BI **Situatie B** OE

Organisationele context

- Naam organisatie
- Grootte vd organisatie (FTE op schadeverzekereren)
- Aantal polissen op particuliere schadeproducten
- Aantal polissen op zakelijke schadeproducten
- Premievolume schadeproducten particulier
- Premievolume schadeproducten zakelijk
- Percentage uitgaven aan IT en IPM/BPM
- BPM/IPM Expertise in organisatie
- Inspelen op veranderingen
- Mate van innovatie
- Koppeling met externe organisaties

Gemiddeld	
Neutraal	
Gemiddeld	
Gemiddeld	

1. Sales

1.1 Advisering

Intranet omgeving (interne medewerker) (1,3)

Extranet omgeving (tussenpersoon) (1,3,6)

Internet omgeving - Web (prospects) (4,6,9)

Internet omgeving - Mobiel (prospects) (4,6,9)

Persoonlijke omgeving - Web (klanten) (4,6,9)

Persoonlijk omgeving - Mobiel (klanten) (4,6,9)

Procesactiviteiten 1.1.1 Gegevens verzamelen

	OE	CI	BI	OE	
Niet aanwezig	0		0	Aanwezig	1
Niet aanwezig	0		0	Aanwezig	1
Niet aanwezig	0	0		Aanwezig	1
Niet aanwezig	0	0		Aanwezig	1
Niet aanwezig	0	0	0	Aanwezig	1
Niet aanwezig	0	0	0	Aanwezig	1
Handmatig	0			Geautomatiseerd	1

1.1.2 Advies opstellen
 1.1.3 Advies communiceren
 1.1.4 Toetsing en keuze klant
 Percentage particulier premievolume gedekt door proces?
 Percentage zakelijk premievolume gedekt door proces?

Handmatig	0		Geautomatiseerd	1
Handmatig	0	0	Geautomatiseerd	1
Handmatig		0	Geautomatiseerd	
100			100	
100			100	
				15,0

Processcore

1.2 Premie- en voorwaardenvergelijking

Intranet omgeving (interne medewerker) (1,3)
 Extranet omgeving (tussenpersoon) (1,3,6)
 Internet omgeving - Web (prospects) (4,6,9)
 Internet omgeving - Mobiel (prospects) (4,6,9)
 Persoonlijke omgeving - Web (klanten) (4,6,9)
 Persoonlijk omgeving - Mobiel (klanten) (4,6,9)
Procesactiviteiten
 1.2.1 Gegevens verzamelen
 1.2.2 Bepalen premie en voorwaarden.
 1.2.3 Premievergelijking
 1.2.4 Keuze klant
 1.2.5 Omzetten premiespecificatie -> offerte/aanvraag

	OE	CI	BI	OE	
Niet aanwezig	0		0	Aanwezig	1
Niet aanwezig	0		0	Aanwezig	1
Niet aanwezig	0	0		Aanwezig	1
Niet aanwezig	0	0		Aanwezig	1
Niet aanwezig	0	0	0	Aanwezig	1
Niet aanwezig	0	0	0	Aanwezig	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0	0		Geautomatiseerd	1
Handmatig		0		Geautomatiseerd	
Handmatig	0			Geautomatiseerd	1
100			100		
100			100		
				16,5	

Processcore

1.3 Offerte

Intranet omgeving (interne medewerker) (1,3)
 Extranet omgeving (tussenpersoon) (1,3,6)
 Internet omgeving - Web (prospects) (4,6,9)
 Internet omgeving - Mobiel (prospects) (4,6,9)
 Persoonlijke omgeving - Web (klanten) (4,6,9)

	OE	CI	BI	OE	
Niet aanwezig	0		0	Aanwezig	1
Niet aanwezig	0		0	Aanwezig	1
Niet aanwezig	0	0		Aanwezig	1
Niet aanwezig	0	0		Aanwezig	1
Niet aanwezig	0	0	0	Aanwezig	1

Persoonlijk omgeving - Mobiel (klanten (4,6,9)	
Digitale offerte (7,9)	
Gedeeltelijke acceptatie bij gegevensinvoer (1,4,7,9)	
Procesactiviteiten	1.3.1 Gegevens verzamelen
	1.3.2 Bepalen product, dekkingen, tarief en premie.
	1.3.3 Verzamelen aanvullende gegevens
	1.3.4 Acceptatie offerte
	1.3.5a Beoordelingsresultaat
	1.3.5b Aanvullende voorwaarden
	1.3.6 Offertedocument opmaken
	1.3.7 Offerte aan klant doen toekomen
	1.3.8 Keuze klant
	1.3.9 Herinneren klant
Percentage particulier premievolume gedekt door proces?	
Percentage zakelijk premievolume gedekt door proces?	

Niet aanwezig	0	0	0	Aanwezig	1
Niet aanwezig		0		Aanwezig	
Niet aanwezig	0		0	Aanwezig	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
100				100	
100				100	
Processcore	0,0			27,1	

1.4 Polisaanvraag

Intranet omgeving (interne medewerker) (1,3)	
Extranet omgeving (tussenpersoon) (1,3,6)	
Internet omgeving - Web (prospects) (4,6,9)	
Internet omgeving - Mobiel (prospects) (4,6,9)	
Persoonlijke omgeving - Web (klanten) (4,6,9)	
Persoonlijk omgeving - Mobiel (klanten (4,6,9)	
Digitale aanvraag/polis (7,9)	
Gedeeltelijke acceptatie bij gegevensinvoer (1,4,7,9)	
Procesactiviteiten	1.4.1 Gegevens verzamelen
	1.4.2 Bepalen product, dekkingen en tarief.
	1.4.3 Verzamelen aanvullende gegevens

OE	CI	BI	OE	
			Aanwezig	1
Niet aanwezig	0	0	Aanwezig	1
Niet aanwezig	0	0	Aanwezig	1
Niet aanwezig	0	0	Aanwezig	1
Niet aanwezig	0	0	Aanwezig	1
Niet aanwezig	0	0	Aanwezig	1
Niet aanwezig	0	0	Aanwezig	1
Niet aanwezig	0	0	Aanwezig	1
Niet aanwezig	0	0	Aanwezig	1
Niet aanwezig	0	0	Aanwezig	1
Handmatig	0		Geautomatiseerd	1
Handmatig	0		Geautomatiseerd	1
Handmatig	0		Geautomatiseerd	1

- 1.4.4 Opstellen aanvraag
- 1.4.5 Uitvoeren acceptatie
- 1.4.6 Beoordelings-resultaat
- 1.4.7 Toevoegen aanvullende voorwaarden
- 1.4.8 Opstellen polis
- 1.4.9 Afhandelen polis
- Fraudecontrole
- Afhandeling fraudecontrole

Percentage particulier premievolume gedekt door proces?

Percentage zakelijk premievolume gedekt door proces?

	Handmatig	0		Geautomatiseerd	1
	Handmatig	0	0	Geautomatiseerd	1
	Handmatig			Geautomatiseerd	
	Handmatig	0		Geautomatiseerd	1
	Handmatig	0		Geautomatiseerd	1
	Handmatig	0		Geautomatiseerd	1
	Handmatig	0		Geautomatiseerd	1
	Handmatig	0		Geautomatiseerd	1
Processcore	100			100	
	100			100	
		0,0			28,6

2. Polisbeheer

2.1 Prolongatie

Intranet omgeving (interne medewerker) (1,3)

Procesactiviteiten Periodieke controle op te verlengen polissen.

2.1.1 Selecteer polissen voor prolongatie

2.1.2 Maak prolongatie-versie aan

2.1.3 Update polis

2.1.4 Afhandelen polis

Percentage particulier premievolume gedekt door proces?

Percentage zakelijk premievolume gedekt door proces?

	OE	CI	BI	OE	
Niet aanwezig	0		0	Aanwezig	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
100				100	
100				100	
Processcore	0,0			9,0	

2.2 Aanpassen polisgegevens

Intranet omgeving (interne medewerker) (1,3)

Extranet omgeving (tussenpersoon) (1,3,6)

Internet omgeving - Web (prospects) (4,6,9)

Internet omgeving - Mobiel (prospects) (4,6,9)

	OE	CI	BI	OE	
Niet aanwezig	0		0	Aanwezig	1
Niet aanwezig	0		0	Aanwezig	1
Niet aanwezig	0	0		Aanwezig	1
Niet aanwezig	0	0		Aanwezig	1

Persoonlijke omgeving - Web (klanten) (4,6,9)	
Persoonlijk omgeving - Mobiel (klanten (4,6,9)	
Procesactiviteiten	2.2.1 Verzamelen gegevens
	2.2.2 Uitvoeren acceptatie
	2.2.3 Update polis
	2.2.4 Afhandelen mutatie
Percentage particulier premievolume gedekt door proces?	
Percentage zakelijk premievolume gedekt door proces?	
	Processcore

Niet aanwezig	0	0	0	Aanwezig	1
Niet aanwezig	0	0	0	Aanwezig	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
100				100	
100				100	
				15,0	

2.3 Wijzigen Intermediair op polis

Intranet omgeving (interne medewerker) (1,3)	
Procesactiviteiten	2.4.0 Selecteer polissen voor bulkmutatie
	2.4.1 Selecteer polis voor mutatie
	2.4.2 Loskoppelen intermediair van polis
	2.4.3 Koppelen nieuwe intermediair aan polis
	2.4.4 Aanpassen betalingswijze
	2.4.5 Afhandeling mutatie
Percentage particulier premievolume gedekt door proces?	
Percentage zakelijk premievolume gedekt door proces?	
	Processcore

OE	CI	BI	OE	
Niet aanwezig	0	0	Aanwezig	1
Handmatig	0		Geautomatiseerd	1
Handmatig	0		Geautomatiseerd	1
Handmatig	0		Geautomatiseerd	1
Handmatig	0		Geautomatiseerd	1
Handmatig	0		Geautomatiseerd	1
Handmatig	0		Geautomatiseerd	1
100			100	
100			100	
			10,5	

2.4 Aanmaken vordering voor polis

Intranet omgeving (interne medewerker) (1,3)	
Procesactiviteiten	2.4.1 Berekenen premiegegevens
	2.4.2 Aanmaken vordering
	2.4.3 Opstellen en verzenden factuur
	2.4.4 Verwerken vordering in financiële systemen voor incassering
	Processcore

OE	CI	BI	OE	
Niet aanwezig	0	0	Aanwezig	1
Handmatig	0		Geautomatiseerd	1
Handmatig	0		Geautomatiseerd	1
Handmatig	0		Geautomatiseerd	1
Handmatig	0		Geautomatiseerd	1

Percentage particulier premievolume gedekt door proces?
 Percentage zakelijk premievolume gedekt door proces?

Processcore	100	100	100	100
	100	100	100	100
	0,0			7,5

2.5 Royement na oninbare vordering

- Intranet omgeving (interne medewerker) (1,3)
- Procesactiviteiten**
- 2.5.1 Ongeldig maken vordering
 - 2.5.2 Creditering naar financiële administratie
 - 2.5.3 Royeren polis
 - 2.5.4 Restitutie
 - 2.5.5 Afhandeling

Percentage particulier premievolume gedekt door proces?
 Percentage zakelijk premievolume gedekt door proces?

	OE	CI	BI		OE
Niet aanwezig	0		0	Aanwezig	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
100				100	
100				100	
					9,0
Processcore	0,0				

3. Schade

3.1 Schademelding

- Intranet omgeving (interne medewerker) (1,3)
- Extranet omgeving (tussenpersoon) (1,3,6)
- Internet omgeving - Web (prospects) (4,6,9)
- Internet omgeving - Mobiel (prospects) (4,6,9)
- Persoonlijke omgeving - Web (klanten) (4,6,9)
- Persoonlijk omgeving - Mobiel (klanten) (4,6,9)
- Procesactiviteiten**
- 3.1.1 Schade melden
 - 3.1.2 Schade invoeren

Percentage particulier premievolume gedekt door proces?
 Percentage zakelijk premievolume gedekt door proces?

	OE	CI	BI		OE
Niet aanwezig	0		0	Aanwezig	1
Niet aanwezig	0		0	Aanwezig	1
Niet aanwezig	0	0		Aanwezig	1
Niet aanwezig	0	0		Aanwezig	1
Niet aanwezig	0	0	0	Aanwezig	1
Niet aanwezig	0	0	0	Aanwezig	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
100				100	
100				100	
					12,0
Processcore	0,0				

3.2 Schade-afhandeling

- Intranet omgeving (interne medewerker) (1,3)
- Automatische workloadanalyse voor toewijzing claim (4,7)
- Automatisch aanmaken expertiseopdracht (1,5,6,7)
- Automatisch verwerken expertiseopdracht (1,5,6,7)
- Automatisch aanmaken herstelopdracht (1,5,6,7)
- Procesactiviteiten**
 - 3.2.1 Claim vrijgeven
 - 3.2.2 Beoordeling
 - 3.2.3 Financiële afhandeling
 - 3.2.4 Flatteren/Controleren
 - 3.2.5 Afhandelen
 - 3.2.6 Claim Sluiten

Percentage particulier premievolume gedekt door proces?
Percentage zakelijk premievolume gedekt door proces?

	OE	CI	BI	OE	
Niet aanwezig	0		0	Aanwezig	1
Niet aanwezig	0		0	Aanwezig	1
Niet aanwezig	0			Aanwezig	1
Niet aanwezig	0			Aanwezig	1
Niet aanwezig	0			Aanwezig	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
100				100	
100				100	
Processcore	0,0			16,5	

3.3 Regres

- Intranet omgeving (interne medewerker) (1,3)
- Automatisch koppelen claim naar extern regressysteem (1,5,6,7)
- Automatisch verwerken resultaat van extern regressysteem (1,5,6,7)
- Procesactiviteiten**
 - 3.3.1 Aanmelden schade
 - 3.3.2 Opgeven aansprakelijkheid
 - 3.3.3 Tegenvoorstel
 - 3.3.4 Opgeven schadebedragen
 - 3.3.5 Afhandelen schadebedragen
 - 3.3.6 Afmelden schade

Percentage particulier premievolume gedekt door proces?
Percentage zakelijk premievolume gedekt door proces?

	OE	CI	BI	OE	
Niet aanwezig	0		0	Aanwezig	1
Niet aanwezig	0			Aanwezig	1
Niet aanwezig	0			Aanwezig	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
100				100	
100				100	
Processcore	0,0			13,5	

3.4 Expertiseopdracht

Intranet omgeving (interne medewerker) (1,3)

- Procesactiviteiten**
- 3.4.1 Selecteren expert/ expertisebureau
 - 3.4.2 Verzamelen gegevens en controle invoer
 - 3.4.3 Uitvoeren expertiseopdracht
 - 3.4.4 Informeer naar voortgang
 - 3.4.5 Afhandeling
 - 3.4.6 Betaling/ clearing
 - 3.4.7 Afhandeling verzekeraar

Percentage particulier premievolume gedekt door proces?

Percentage zakelijk premievolume gedekt door proces?

	OE	CI	BI		OE
Niet aanwezig	0		0	Aanwezig	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
EXTERN				EXTERN	
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
100				100	
100				100	
Processcore	0,0			10,5	

3.5 Herstelopdracht

Intranet omgeving (interne medewerker) (1,3)

- Procesactiviteiten**
- 3.5.1 Selecteren hersteller
 - 3.5.2 Verzamelen gegevens en controle op invoer
 - 3.5.3 Uitvoeren herstelopdracht
 - 3.5.4 Informeer naar voortgang
 - 3.5.5 Afhandeling
 - 3.5.6 Betaling/ Clearing
 - 3.5.7 Afhandeling verzekeraar

Percentage particulier premievolume gedekt door proces?

Percentage zakelijk premievolume gedekt door proces?

	OE	CI	BI		OE
Niet aanwezig	0		0	Aanwezig	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
EXTERN				EXTERN	
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
Handmatig	0			Geautomatiseerd	1
100				100	
100				100	
Processcore	0,0			10,5	

3.6 Regresreservering

Intranet omgeving (interne medewerker) (1,3)

	OE	CI	BI		OE
Niet aanwezig	0		0	Aanwezig	1

- Automatisch vaststellen reserve
- Automatisch bijstellen totale reserves
- Procesactiviteiten**
 - 3.6.1 Voorstel (regres)reservering
 - 3.6.2 Flattering
 - 3.6.3 Flattering reservering
 - 3.6.4 Afhandeling
- Percentage particulier premievolume gedekt door proces?
- Percentage zakelijk premievolume gedekt door proces?

Niet aanwezig	0		Aanwezig	1
Niet aanwezig	0		Aanwezig	1
Handmatig	0		Geautomatiseerd	1
Handmatig	0		Geautomatiseerd	1
Handmatig	0		Geautomatiseerd	1
Handmatig	0		Geautomatiseerd	1
100			100	
100			100	
Processcore	0,0			10,5

Totaalscore 0,0 0 0 0 212,0 135

Appendix 4: Results of the validation interviews

Insurance organization 1

- Rollen: Operational Manager en Procesarchitect
- BPM is een aparte afdeling binnen Insurance organization 1, van 10FTE, en er wordt gewerkt met de Lean Six Sigma methodiek.
- Er werd aangegeven dat het nut van deze afdeling soms ondergesneeuwd wordt en als minder nuttig wordt gezien. Dit is een probleem van de organisatie.
- Geen gebruik van maturity modellen, al stelt Insurance organization 1 wel eisen aan de maturity van hun leveranciers. Dat is nu nog beperkt, maar in de toekomst wil Insurance organization 1 bijvoorbeeld dat hun leveranciers CMM niveau 4 hebben of hier naartoe gaan werken.
- Verschuiving naar klantgerichte organisatie was wel merkbaar, bijvoorbeeld door het invoeren van een keurmerk voor verzekeraars.
- Drivers QIS implementatie:
 - Oude omgeving was erg complex
 - Time-to-market van producten was erg lang
 - Kosten waren relatief hoog
 - Verouderde systemen, toe aan vervanging
 - Behoefte aan services-georienteerde organisatie
- Doelen QIS implementatie:
 - Reorganisatie
 - FTE-reductie
 - Kostenreductie
 - Richting 100% digitale verzekeraar
 - Lagere time-to-market voor producten
- Opmerkingen procesplaats:
 - "Relatie" valt onder core business, niet onder support. (**aanpassen**)
 - Een blokje "Communicatie" zou niet misstaan, met hierin bijvoorbeeld documentbeheer en communicatievoorkieuren. (**aanpassen**)
 - Business Management: Strategische Planning -> "**Strategische Planning**". Hieronder vallen dan alle andere "Planningen" van de andere blokjes (bijvoorbeeld "Claims Planning") die te maken hebben met het plannen van resources. (**aanpassen**)
 - Beschrijving bij Management Informatie Voorziening mist "Weergave van rendement verkoop en financiële cijfers". Bovendien zit MIV eigenlijk overal. (**aanpassen**)
 - Strategisch management: Geen polisstrategie? (**aanpassen**)
 - Strategisch management: Geen IT-strategie? (**aanpassen**)
 - "Operationeel management" toevoegen per blok. (**aanpassen**)
 - Verkoop: Polisaanvraag en acceptatie zijn twee aparte processen, waarbij acceptatie onder "Polis" valt. (**aanpassen**)

- Verkoop: Documentgeneratie is ondergeschikt aan polis. Eventueel zelfs onder "Communicatie" plaatsen. **(aanpassen)**
 - Verkoop: Co-assurantie is een afspraak binnen een product. **(aanpassen?)**
 - Verkoop: Dynamic pricing valt onder premieberekening of onder "Product". **(aanpassen)**
 - Polis: "Volmachtverkoop" hernoemen naar "Volmacht", hieronder valt voornamelijk portefeuillebeheer en overname van volmachten. Zou beter onder "Finance" passen. **(aanpassen?)**
 - Polis: "Documentgeneratie" is vrij algemeen. Bijvoorbeeld onder "Communicatie plaatsen". **(aanpassen)**
 - Polis: Hier vindt acceptatie plaats. **(aanpassen)**
 - Polis: Fraudechecks zou hier als apart proces geplaatst kunnen worden. **(aanpassen)**
 - Polis: Ontbrekend "Indexeringen" **(aanpassen)** en "Onderhoudsprocessen" **(niet aanpassen)**
 - Polis: Aansturen Finance -> "Afwikkeling Finance" **(niet aanpassen, helemaal naar finance)**
 - Schade: Claims Administratie -> "Claims Behandeling" **(aanpassen)**
 - Schade: Herstelopdracht -> "Schadeherstel" **(aanpassen)**
 - Schade: Expertise opdracht -> "Expertise" **(aanpassen)**
 - Schade: Aansturen Finance -> "Afwikkeling Finance" **(niet aanpassen, helemaal naar finance)**
 - Schade: Documentgeneratie -> Is vrij algemeen, verplaatsen naar "Communicatie" **(aanpassen)**
 - Kanaal: Vreemde benaming. Anders noemen (moeilijk om suggestie te doen). **(aanpassen)**
 - Kanaal: Collectieve contracten -> Onder "Polis" plaatsen **(aanpassen?)**
 - Enterprise services: Ontbrekende processen: **(gedeeltelijk aanpassen)**
 - Autorisatiebeheer
 - Functioneel beheer
 - Change Management
 - Beheerprocessen
 - Marketing: Ontbrekende processen: **(gedeeltelijk aanpassen)**
 - Data-analyse
 - Meten effectiviteit
 - Genereren leads
 - Relatie: Relatieplanning -> "Relatiebeheer" **(aanpassen)**
 - Relatie: Assistance verwijderen, valt onder CRM **(hernoemen)**
 - Finance: Financiële Planning is vrij generiek. **(aanpassen)**
- Opmerkingen procesmodellen:
 - Weinig tot geen inhoudelijke opmerkingen over de procesmodellen.
 - De processen waren op een makkelijke, herkenbare manier gemodelleerd.

- Processen verticaal modelleren ipv horizontaal, zo is het makkelijker om lange processen weer te geven. (**niet aanpassen**)
 - As-is situatie en to-be situatie (incrementen) in één enkel plaatje weergeven, zo hoef je niet de verschillen te zoeken en is het duidelijker wat er nou verandert is/moet worden. (**niet aanpassen, "2-tegen-1"**)
- Opmerkingen Excel-sheet:
 - Initiatief is erg mooi, maar momenteel is de uitkomst van de Excelsheet puur indicatief. Voor een bruikbare toepassing in de praktijk moet de berekening echter ontzettend goed doordacht zijn, en gebaseerd op de werkelijkheid.
 - Correcte weging voor activiteiten en factoren is erg belangrijk.
 - Kijken naar premievolume is op zich leuk, maar er zijn zaken die veel meer zeggen over maturity dan alleen het gedekte premievolume: (**aanpassen**)
 - Kwaliteit: Uitval en achterstanden
 - Percentage digitale instroom
 - Percentage STP
 - Bij iitval: handmatige verwerkingstijd
 - Beschikbaarheid verwerking (realtime 24/7 of in blokken)
- Bruikbaarheid model
 - Insurance organization 1 zag wel de waarde in van een dergelijk model en zou het wel toegepast hebben (mits de berekening goed is). Voor de BPM afdeling zou het een handig hulpmiddel zijn. Situatie schetsen via procesmodellen wordt wel gedaan, maar vooral achteraf. Niet zozeer in het kader van een nieuw project.
- Overige opmerkingen
 - -

Insurance organization 2

- Rollen: Business Analyst en "Vernieuwingsmanager"
- BPM wordt niet expliciet gebruikt binnen Insurance organization 2. Zij gebruiken hun "Proceshuis", dat een overzicht is van alle processen binnen de organisatie en vooral bedoeld is voor het waarborgen van een goede performance. Komt veel overeen met onze procesplaats.
- Geen gebruik van maturity modellen, wel wordt er gebruik gemaakt van best practices.
- Verschuiving naar klantgericht werken is niet zozeer merkbaar, het is vooral een bijkomstigheid.
- Drivers QIS implementatie:
 - Oude systemen hadden beperkte productmogelijkheden
 - Omgeving was erg complex door meerdere systemen en redundante opslag van bedrijfslogica, wat resulterde in complex en duur beheer en onderhoud
 - Lange time-to-market voor producten

- Doelen QIS implementatie:
 - Future-proof systemen (voor zowel gebruik, onderhoud en continuïteit)
 - Integratie van kanalen
 - Sneller werken
 - Kortere time-to-market van producten
 - Bedrijfslogica centraal opslaan
 - Lagere kosten (dit was geen vooraf opgesteld doel, maar was wel bereikt.)
- Opmerkingen procesplaats:
 - "Relatie" valt onder core business, niet onder support. (**aanpassen**)
 - Hoewel aanvraag en acceptatie nauw verbonden zijn, zijn dit twee aparte processen. Aanvraag is hierbij een duidelijk verkoopproces en acceptatie valt onder polis. (**aanpassen**)
 - Verkoop: Dynamic pricing valt typisch onder "Product" (**aanpassen**)
 - Polis: Afrekenen met volmacht valt onder "Finance" (**aanpassen**)
 - Polis: Premiereserveringen valt onder "Finance" (**aanpassen**)
 - Polis: Volmachtverkoop is eigenlijk overbodig. Afrekenen valt onder finance en registratie gebeurt bij de volmacht zelf. (**aanpassen?**)
 - Polis: Aansturen Finance is een trigger, geen proces (**aanpassen**)
 - Schade: Claims Planning is vreemd, is ondersteunend of besturend. Wel zou hier een operationele planning onder kunnen vallen. (**aanpassen**)
 - Schade: Melding en Administratie is één proces. (**aanpassen?**)
 - Schade: Aansturen Finance, is een trigger, geen proces. (**aanpassen**)
 - Product: Dynamic Pricing valt onder productplanning of productonderhoud. Is wel een continu proces. (**aanpassen**)
 - Kanaal is een vreemde benaming. Dit zou eerder zoets als "Distributie" oid moeten zijn. (**aanpassen**)
 - Herverzekering: Is uitgebreider voor een herverzekeraar. Mapt goed op een verzekeraar die niet specifiek een herverzekeraar is, zoals Insurance organization 2.
 - Documentgeneratie en documentbeheer zouden samen onder één noemer kunnen vallen, onder support.
 - Enterprise services: Veel "management"processen, maar dit is juist meer uitvoerend. (**aanpassen**)
 - Relatie: Assistance is een beetje rare benaming ("inkomend klantcontact") en valt onder verkoop/polis/schade. (**aanpassen**)
 - Relatie: Klachtenbeheer valt onder polis/schade. (**aanpassen?**)
 - Relatie: Relatieplanning is eerder zoets als "Marktbenadering" (**aanpassen**)
 - Relatie: Bij CRM kan er nog onderscheid gemaakt worden tussen intermediairs als relaties en klanten als relaties. (**niet aanpassen**)
- Opmerkingen procesmodellen:
 - Weinig tot geen inhoudelijke opmerkingen over de procesmodellen.
 - De processen waren op een makkelijke, herkenbare manier gemodelleerd.

- Er zou nog overwogen kunnen worden om de processen horizontaal ipv verticaal te modelleren, maar dat is een kwestie van smaak. (**niet aanpassen**)
- Twee verschillende plaatjes werkt goed, omdat zo de platen naast elkaar gelegd kunnen worden en vergeleken kunnen worden. Op de vraag of het makkelijker zou zijn als beide plaatjes in een enkel model werden weergegeven (zoals Insurance organization 1 aangaf), werd negatief geantwoord. Juist twee aparte plaatjes geeft een goed beeld van de beide situaties.
- Opmerkingen Excel-sheet:
 - Goed kijken hoe de procesoverstijgende factoren van invloed zijn op de maturity en hier relaties leggen. Bijvoorbeeld een hoger percentage uitgaven aan IT betekent niet automatisch dat je meer mature bent. Vaak is het namelijk het omgekeerde.
 - Is wel erg bruikbaar, zeker managers zien graag cijfertjes en grafiekjes ipv procesmodellen.
 - Invullen geen probleem, gebruik van de data in overleg.
- Bruikbaarheid model
 - Insurance organization 2 was erg positief over het model en gaf aan dat het zeker praktische waarde kan hebben, zowel vóór de start van een project als periodiek om te kijken hoe processen ervoor staan.
 - Het weergeven van processen op zowel een hoog niveau (procesplaats) als op een lager, gedetailleerder niveau (procesmodellen) is een goede aanvulling op elkaar.
 - Nut voor zowel Quinity als uitvoerder en de verzekeraar als klant werd bevestigd.
- Overige opmerkingen
 - Insurance organization 2 gaf aan dat sommige processen niet meer mature worden als ze geautomatiseerd worden. Bijvoorbeeld complexe uitval of producten met een erg laag premievolume werken efficiënter als ze handmatig gedaan worden. Het is dan niet de kosten en inspanning waard om dit te automatiseren.
 - Insurance organization 2 wordt graag op de hoogte gehouden van de ontwikkelingen.

Insurance organization 3

- Rol: Finance & Control Procesdeskundige
- BPM wordt als zodanig niet herkend in de organisatie, maar er zijn wel uitgebreide procesbeschrijvingen beschikbaar. Dit is echter vooral gericht op het identificeren van, en inspelen op, risico's. Tegenwoordig zijn er echter wel "Lean coaches" voor procesverbetering aanwezig (intern, 20 FTE).
- Er wordt niet specifiek gebruik gemaakt van maturity modellen.
- De verschuiving naar klantgerichte verzekeraars is wel merkbaar door de veranderende markt. Vroeger was het verkopen van verzekeringen echt iets

voor tussenpersonen. Tegenwoordig gaat het veel meer via internet. Insurance organization 3 is echt een TP-verzekeraar en merkt dat hun aandacht deels verschuift naar de klanten. Waar eerst de tussenpersonen als klant werden gezien, wordt er tegenwoordig meer aandacht besteed aan klanten. Bijvoorbeeld door het invoeren van een klantcontactcentrum, waar klanten terecht kunnen met al hun vragen. Vroeger werden klanten doorverwezen naar hun tussenpersoon. De organisatie moet hierin proactiever worden.

- Drivers QIS implementatie:
 - Complexe systeemomgeving door grote en kleine overnames.
 - Systemen waren verouderd
 - Organisatie was niet erg klantvriendelijk naar verzekerden
 - Lange time-to-market voor producten
- Doelen QIS implementatie:
 - Flexibel, klantgericht system
 - Verkorten time-to-market
 - Integratie met partners
- Opmerkingen procesplaats:
 - Verkoop: Vindt veel bij tussenpersonen plaats. Niet veel binnen de organisatie.
 - Polis: Geen onderscheid tussen particulier en zakelijk? (*niet aanpassen*)
 - Polis Premiereserveringen en Aansturen Finance -> Verplaatsen naar Finance (*aanpassen*)
 - Schade: Claims Melding en Administratie is één proces. (*aanpassen?*)
 - Schade: Aansturen Finance -> Verplaatsen naar Finance (*aanpassen*)
 - Kanaal: Onder Support (*aanpassen*)
 - Kanaal: Technische kanalen is goed geplaatst, maar hoe onderhoud je je papieren stroom?
 - Kanaal: Doelgroepbeheer en Doelgroepproposities: Aparte "Merken" van Insurance organization 3 doen dit zelfstandig.
 - Kanaal: Collectieve Contracten -> plaatsen onder "Polis/Schade" (*aanpassen?*)
 - Herverzekering: Valt uiteen in: (*aanpassen in tekst*)
 - Contracten: Risicomanagement
 - Administratie en afrekenen (onder Finance)
 - Marketing: Marktonderzoek ontbreekt (*aanpassen?*)
 - Marketing wordt wel vanuit Insurance organization 3 zelf gedaan.
 - Relatie: Assistance is bij Insurance organization 3 het klantcontactcentrum
 - Relatie: Niet onder business, maar onder support houden.
 - Finance: Actuariaat ontbreekt. (*aanpassen*)
 - Finance: Solvency (eisen toezichthouder en financiële gezondheid meenemen. (*aanpassen?*)
- Opmerkingen procesmodellen:

- Incrementen zouden bij Insurance organization 3 minder ‘zichtbaar’ zijn, omdat zij een TP-verzekeraar blijven. Ze doen dus niet direct aan internetverkoop. Kanalen zouden alleen voor tussenpersonen zijn.
 - Weinig tot geen inhoudelijke opmerkingen over de procesmodellen.
 - De processen waren op een makkelijke, herkenbare manier gemodelleerd.
 - Insurance organization 3 modelleert zelf de processen verticaal ipv horizontaal, en zijn hier meer gericht op de waardestromen.
 - Twee aparte plaatjes is handiger dan een enkel plaatje.
- Opmerkingen Excel-sheet:
 - Invullen geen probleem, gebruik van de data via de juiste persoon afhandelen.
- Bruikbaarheid model
 - Insurance organization 3 was erg positief over het model en zou het wel gebruikt hebben. Ook hier werd het nut van het combineren van een procesplaats en gedetailleerde modellen benadrukt.
 - Nut voor zowel Quinity als uitvoerder en de verzekeraar als klant werd bevestigd. Eigenlijk zouden er dan bijvoorbeeld 2 mensen van elke partij samen moeten gaan zitten om wat plaatjes te genereren.
 - Model zou geïntegreerd moeten worden met huidige methodieken om echt bruikbaar te zijn.
- Overige opmerkingen
 - Procesbeschrijvingen van Insurance organization 3 kwamen grotendeels overeen, al waren de procesbeschrijvingen van Insurance organization 3 een stuk uitgebreider.
 - Procesmanagement zou sowieso betrokken moeten worden bij implementatietrajecten.