

# The (Go)SMART way to agility: managing a Scrum subproject in a waterfall environment

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Published online: 6 February 2018  
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**Abstract** At Gothaer Insurance Group, a long-term program to introduce a new policy system was terminated without the desired outcomes. A new program, GoSMART, was introduced to buy a policy system instead of developing it in-house. A team responsible for modelling insurance products decided that the waterfall approach was no longer suitable for this specific task. Intrigued by the possibilities that agile software development appeared to hold, the team adopted Scrum, hoping to improve efficiency. With no other project changing the development approach, the team was left as an agile island in a waterfall environment.

**Keywords** Agile software development · Scrum · Insurance group · Software development projects · Hybrid project management · Teaching case

## Introduction

In July 2017, Joe Freya, product architect and a subproject manager at Gothaer, prepared his project status presentation for Thomas Smith, the overall functional manager of the GoSMART program. The project Joe is responsible for a part of the long-term GoSMART program fostering the digital transformation within Gothaer's commercial division. The main goal of the project is to enable the procurement of insurance policies without an agent.

While reviewing and reflecting on his slides, Joe remembered the day when he entered a team meeting and enthusiastically announced that the team would be more agile. He had read about the so-called Scrum methodology and was very confident about its characteristics and benefits. However, his teammates were surprised about this plan since everything had been working fine thus far. Joe countered that the change was a necessity to cope with the ongoing digital transformation within the insurance market. For a successful subproject, his goals were (1) to intensify the interaction of all developers and stakeholders, (2) to increase transparency regarding development goals, and (3) to strengthen the self-responsibility and self-control within the team.

After participating in several workshops, Joe was assigned as Scrum Master, and he began to form his team by integrating people from the internal IT service provider, Gothaer Systems, and the external service provider, Alpha

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The teaching notes can be obtained from the authors.

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Systems,<sup>1</sup> which had been maintaining a very strong relationship with Gothaer for years.

## The IT world in the German insurance market

In 2015, German insurers again increased their IT system expenses. The firms spent 4.4 billion on their digital infrastructure, which is equivalent to a 3.8% increase over the prior year. It is remarkable that the IT expenses were largely increased compared to the gross premium income that only represents + 0.3%. This information is provided by a survey of the ‘Gesamtverband der Deutschen Versicherungsgesellschaft (GDV)’ (see Fig. 1), a federation of private insurers in Germany, of which Gothaer is also a member. “The increase of the investments underpins the significance, which the digitalization has for the companies”, said the Chairman of the Executive Board of the GDV leadership Jörg von Fürstenwerth (Gesamtverband der Deutschen Versicherungswirtschaft e.V. 2016b).

From a strategic perspective, the support of an Enterprise/IT strategy continues to receive the highest priority within insurance companies. Investments are mainly made in digital transformation processes and in the modernization of application landscapes corresponding to the rising IT cost ratio. The goals are productivity and efficiency enhancements through agile software development approaches, improving workflows, and the support of IT. In accordance with this goal, cost optimization activities regain significance. Additionally, the business processes’ degree of automatization measurably increases. Regarding the types of costs, particularly in the area of system development, the expenses for external consulting represented 24.4% in 2014, 26.3% in 2015, and 26.9% in 2016. Correspondingly, the investments in external providers and outsourcing engagement were 8.0% in 2014, 8.8% in 2015, and 9.7% in 2016 (Gesamtverband der Deutschen Versicherungswirtschaft e.V. 2016a).

The relevance and the degree of maturity of the ongoing digitalization measures in the insurance environment can be summed into four segments (see Fig. 2): (1) Growth, (2) efficiency, (3) perspective and (4) impulses.

The development of access channels as well as data security and data protection in the segment ‘growth’ are most advanced. The segment ‘efficiency’, which includes measures for increasing productivity, such as faster insurance policy take outs and product deliveries, as well as the modernisation of the IT organization, is part of the implementation stage (see Fig. 2). Surprisingly, the well-known perspective topics, Big Data and Cloudification remain, according to the survey of the GDV, in the early

development phase. InsureTechs continue to not be viewed as a driving force for more efficiency in the value chain or as a lever for growth. There is probably more room for innovative and resilient business ideas contributing to the insurers’ success (Gesamtverband der Deutschen Versicherungswirtschaft e.V. 2016a).

Figure 3 represents the age structure of the IT employees; this mirrors the current demographic development. Hence, the challenge for the insurance companies concerning the age structure is the unaltered yet increasing qualification as well as knowledge transfer of their IT personnel (Gesamtverband der Deutschen Versicherungswirtschaft e.V. 2016a).

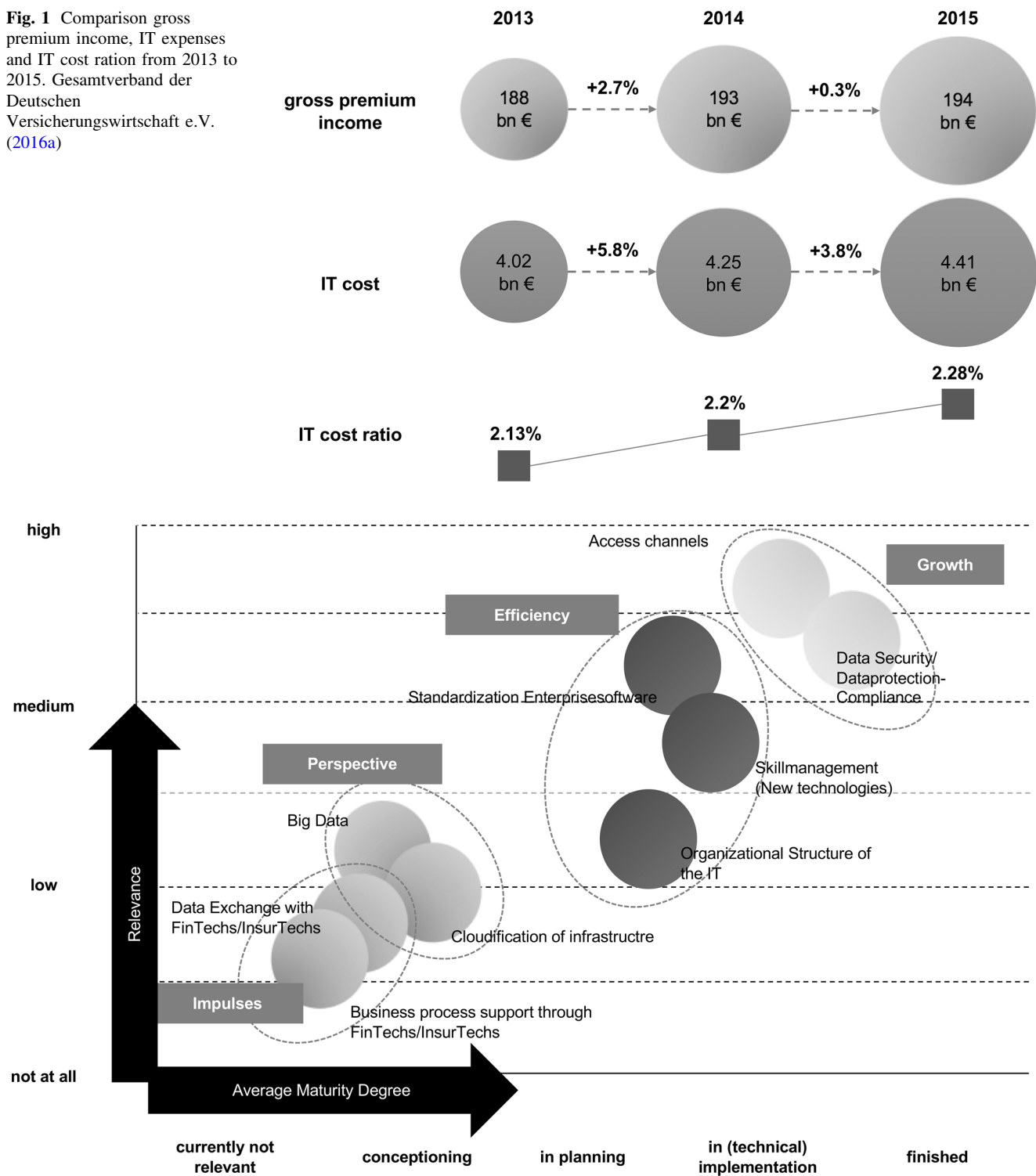
## The Gothaer insurance group

The Gothaer insurance group (short: Gothaer) has a long company history. The company was founded in 1820 by Ernst Wilhelm Arnoldi in Gotha, Germany; he named it ‘Gothaer Feuerversicherungsbank’, a fire insurance bank and a mutual insurance company. Thus, the foundation of Gothaer’s mutual concept was laid. During the following decades, the enterprise grew fast. Several insurance policies were created and provided to the market. In 1827, Gothaer founded a mutual life insurance company and, in 1923, a transport insurance company. Finally, in 1924, a new corporate name was determined for the enterprise: ‘Gothaer’. In 1970, the ‘Lebensversicherung AG’ was established for life insurance purposes; these include insurance coverage, prevention strategies and investment advice. ‘Gothaer Krankenversicherung AG’ was founded in 1980. This company provides clients with everything related to health insurance. In 1990, ‘Gothaer Finanzholding AG’ was created to provide mutual investment policies; this company manages all the financials of Gothaer and its subsidiaries. In 2001, the abovementioned four insurance companies merged together and currently operate under the corporate name, ‘Gothaer Versicherungsbank VVaG’. After World War II, Gothaer relocated its headquarters to Cologne. In 2005, Gothaer acquired ‘Janitos Versicherung AG’. Within the same year, ‘Gothaer Allgemeine Versicherung AG’ was established. This company serves a risk carrier for all property and accident insurance. In 2010 and 2013, Gothaer bought shares of ‘Towarzystwo Ubezpieczen S.A.’ in Poland and ‘Asigurari Reasigurari S.A.’ in Romania, respectively. These purchases were part of Gothaer’s strategy to expand its scope to Eastern Europe. With Gothaer Systems, Gothaer has its own IT-/Telecommunication service provider. Combined, all these companies form the corporate structure of Gothaer (see Fig. 4).

<sup>1</sup> Pseudonyms are used to ensure the anonymity of the companies.



**Fig. 1** Comparison gross premium income, IT expenses and IT cost ration from 2013 to 2015. Gesamtverband der Deutschen Versicherungswirtschaft e.V. (2016a)



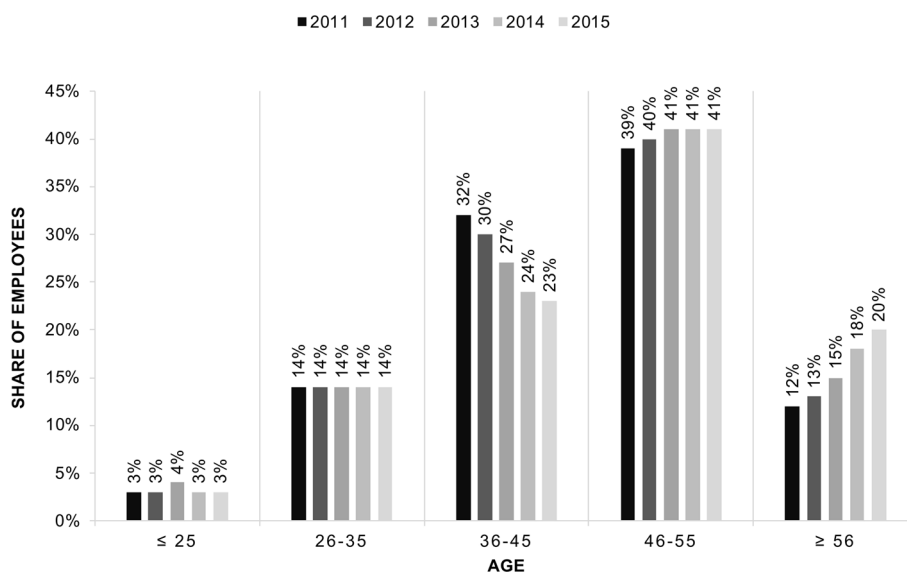
**Fig. 2** Segments for measuring the ongoing digitalization in the insurance market. Gesamtverband der Deutschen Versicherungswirtschaft e.V. (2016a)

Today, Gothaer is one of the largest insurance companies in Germany, having 29 branches in total. The headquarters is located in Cologne, Germany. With its nearly 6000 employees and over €4 million insured customers, the

company generated more than €133 million revenue, €4.5 billion premium income, €1.8 billion group equity, and €1.2 billion investment results in 2015 (see Table 1). Thus,



**Fig. 3** Age of structure of the IT employees. Gesamtverband der Deutschen Versicherungswirtschaft e.V. (2016a)



**Fig. 4** Simplified corporate structure of Gothaer. Gothaer Corporate Group (2016)



**Table 1** Gothaer's corporate figures (Gothaer Corporate Group, 2016)

(in m EUR)	2016
Premium income	4410.9
Benefits paid to customers (net)	4198.1
Operating expenses (net)	759.4
Net income	162.0
Group equity	2003.7
Investment results	1612.3
Employees	5704

Gothaer reached 12th place within the German insurance market.

The company's subsidiaries 'Gothaer Lebensversicherungs AG', 'Gothaer Allgemeine Versicherung AG', and 'Gothaer Krankenversicherungs AG' reached 21st place, 11th place, and 12th place, respectively. Together, the firms serve the three common insurance sectors: life insurance, private health insurance, and property and accident insurance. The firms offer a wide and varied range of insurance products in areas such as health, property, liability, and renewable energy to both private and business



customers. However, Gothaer's strength lies in its ability and expertise to provide customized insurance products. Within a stagnating German insurance market, Gothaer was one of the first insurers to discover a novel and promising business line: renewable energy. Gothaer covers nearly every renewable energy area, including wind, solar, bioenergy, geothermal power, and hydropower. Gothaer takes over the entire process from development to implementation and operation of the solution. With over €60 million in premium income and 8,400 insured wind turbines, Gothaer represents the market leader within this area.

## The GoSMART program

In 2015, the Gothaer group decided to reorient itself to be prepared for the future of digitalization. An important part of this is the strategic GoSMART program that is designed to align the commercial customer business with the requirements of digitalization. The program, with planned costs of more than €10 million, aims to develop a new policy system; at first only for the commercial customer division, afterwards also for the other Gothaer divisions. The new system that is introduced within GoSMART is a standard software for insurance products and contains product design, policy management and, in the future, claims processing. The system allows the management of insurance products and policies throughout their life cycle and the provider claims that it will digitally transform the business along the entire value chain.

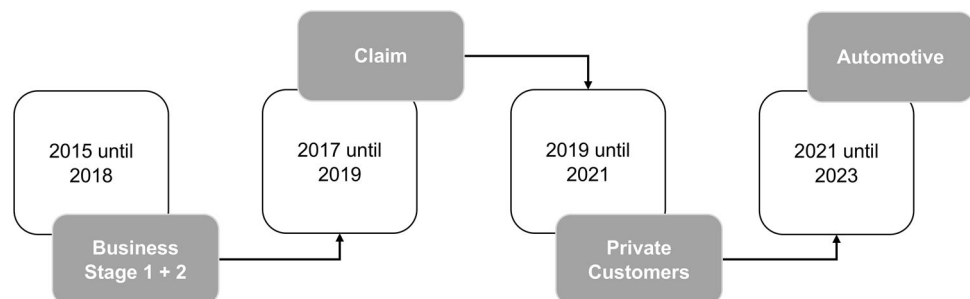
The reasons for the project are manifold. Most importantly, the project shall provide benefits to Gothaer in the competitive market, where high price competition places pressure on all insurance groups. On top of that, the commercial customer business will be repositioned. The goal of the new system is to standardize and automate to distribute insurance policies while remaining flexible and individual in product design. With the introduction of the policy system, new hardware is deployed. This development should lead to possible growth of the company.

In contrast to previous Gothaer projects, in which the company developed systems internally, Gothaer has changed its strategy into buying and integrating standard software instead of performing in-house development. In GoSMART, Gothaer acts as an integrator working with the software development company Alpha Systems that is focused on the insurance sector.

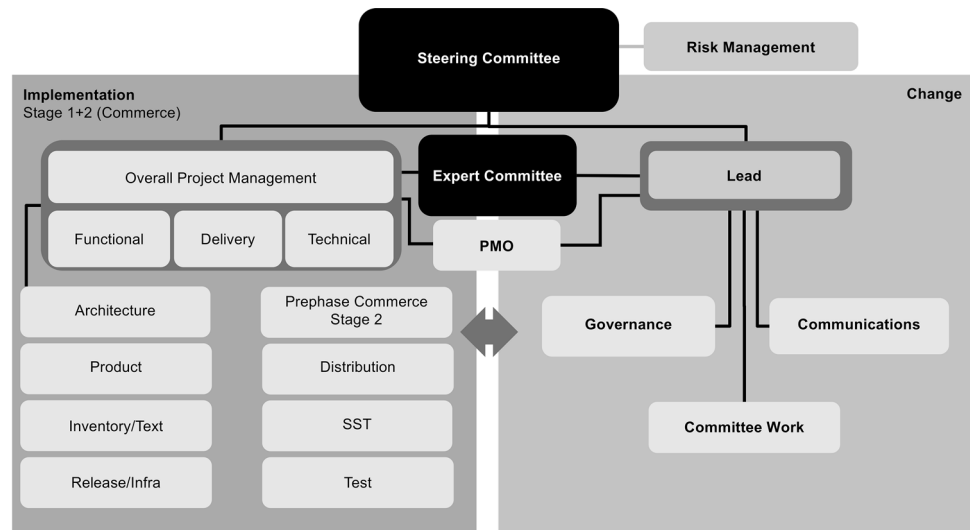
The program itself is organized in a classic, sequential waterfall model consisting of various stages. The first stage 'Commercial Customers' started in 2015 and was completed in Summer 2017. The goal of the first stage was the go-live of the new policy system for the commercial customer business. However, it initially focused on smaller commercial customers with a maximum insurance sum of €1 million for building insurance. The currently running devolvment of the second stage extends the system to commercial customers with insurance sums of up to €15 million for building insurance. The development phase of the second stage is to be completed in March 2018, and after testing and bug fixing, it will finally go live. After the system roll-out is completed, including the subsequent development of claim processing for the entire commercial customer segment, it will be implemented in other divisions, such as private insurances, automobile insurances and potentially the insurances in the industry sector. Each of these segments represents one stage of the program, which is a project with several subprojects. As it was also the case with stage 1 and the subsequent stage 2, a next stage is only started when the previous one has been successfully completed, meaning only if stage 2 is completed, the next stage, which will be stage 3 'Claim' will begin. Exceptions include the business departments, which are responsible for preparing the underwriting rules and the tariff for an upcoming stage, such that, for these departments, the phases have a small overlap. A roadmap containing the stages of the GoSMART program is shown in Fig. 5.

Each project of the GoSMART program is staffed individually with suitable people from Gothaer, including the Gothaer's IT subsidiary Gothaer Systems or Alpha Systems. The previously completed first and the current

**Fig. 5** Roadmap of the GoSMART program



**Fig. 6** Organizational structure of stage 1 + 2 (commercial customers)



second stage of the program can be regarded as an implementation project and a related change project with multiple subprojects. The implementation project is managed by an overall project lead and three additional project leads for functional aspects, technical aspects and product delivery. The implementation project consists of several subprojects such as ‘Architecture’, ‘Product’, ‘Distribution’, and ‘Release’. Joe’s team is responsible for the subproject ‘Product’. The related change project is led by two project managers and contains the three subprojects ‘Governance’, ‘Communications’, and ‘Committee work’. Each of the subprojects in the implementation or change project is also managed by a subproject lead. Additionally, the project is supervised by a steering committee also including members of Gothaer’s Management Board, an expert committee with representatives from business and technical areas of the company and a Project Management Office. The complete structure of the project organization is illustrated in Fig. 6.

## The subproject stage 2

### The product machine

The role that Joe’s team plays in the program is to model insurance products including tariffs and underwriting rules within the product machine. This product machine is the repository for validly build and correctly priced insurance contracts: Instead of having to perform cumbersome and tedious contract negotiation, this product machine together with a policy system and a distribution system enables users to individually ‘build’ their own insurance contract, thus releasing human resources at Gothaer. After a user has created a contract customized for his needs, it only needs to

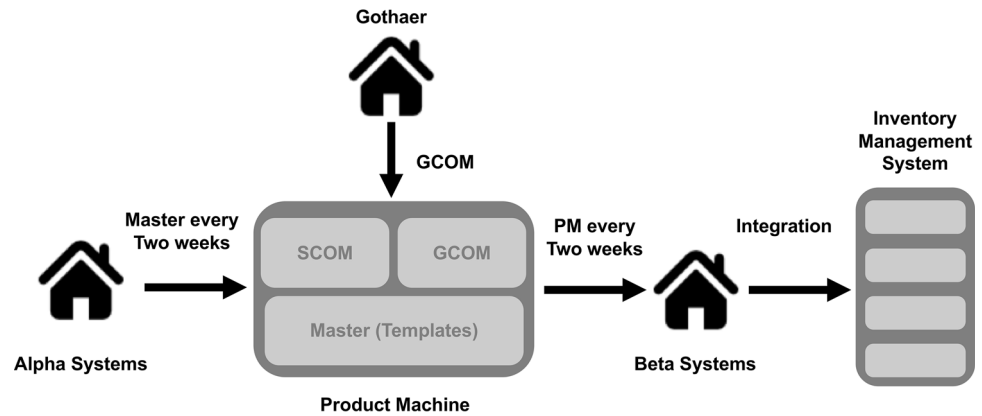
be reviewed and approved by the staff in case of exceptions (e.g. numerous previous claims). The process from a user deciding to enter into an insurance contract until he signs the contract can thus be made more efficient. The product machine is integrated into the system environment by having the policy system and other systems accessing it. While the product machine is used to design an insurance product while considering all rules and standards determined by the insurance company, the finalized contracts are not stored within the machine but in the policy system. The development task of Joe’s team also does not include building the user interface, but only the backend, meaning the underwriting rules of contract building and the tariff. Since Gothaer decided not to develop the system in-house, they purchased a product machine developed by Alpha Systems. However, they did not purchase the product from Alpha Systems directly but from Beta Systems. Beta Systems uses the product machine developed by Alpha Systems, but instead of providing only an empty product machine, they also include a master, that is, templates for products. Because Gothaer was the pilot customer for Beta Systems, they also had an influence on the development of this master.

The structure of the product machine is shown in Fig. 7. The structure consists of the Master, the Gothaer Commercial (GCOM) component and the Sample Commercials (SCOM) component. The master obtains the basic functionalities of the product machine and templates for insurance products and is developed by Alpha Systems and delivered to Gothaer every 2 weeks. The development team at Gothaer then designs the GCOM part, which includes specific product building blocks based on the templates for modelling of insurance products and extensions of the basic functionalities. In addition, every 2 weeks, the operable GCOM part is sent to Beta Systems,





**Fig. 7** The product machine as process



where the product machine is integrated with the policy system. The SCOM specifies sample products designed and implemented by Alpha Systems, which also included design patterns applicable for GCOM development.

### Finding a suitable process model

Back in 1996, a project called GoBEST (Roßmehl et al. 2017) had been started at Gothaer, to replace an old system with a new policy system for the property and casualty insurance sector. Gothaer individually developed the system and needed 10 years for the development of the first increment that, unfortunately, did not meet the requirements for property insurance. Rework was needed and GoBEST suffered under the effect of scope creep. After 18 years, the system had many functions but was not applicable to operations in property insurance. The system was overly complex, had a low usability and, during the test phase, new problems were found, which were often hard to solve due to the high complexity. Finally, the project had to be cancelled and was succeeded by a completely new project.

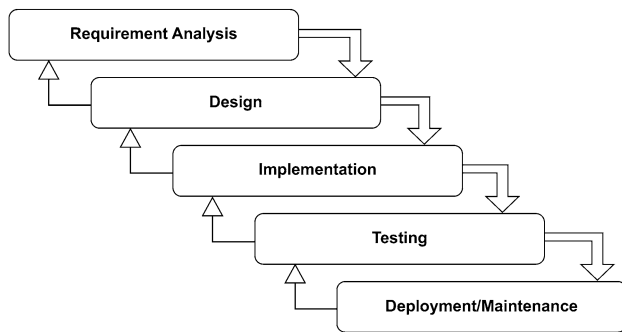
The new project 'GoSMART' was established with the Gothaer in the new role of an integrator. Gothaer decided to buy a system from the software development company Alpha Systems that is specialized in the insurance market and that previously gained Gothaer's trust in other projects. The new role of Gothaer led to new interfaces with the new partner. Alpha Systems, who was responsible for developing the new standard software package for Gothaer, which also contained the new product machine, delivered increments much faster and much more frequent than was the case in other Gothaer projects. Every 2 weeks, the new Master, providing basic functions and templates for the product machine, was provided and Gothaer needed to develop the GCOM and return it, such that it could be integrated with the policy system.

For Joe's team, this was a special challenge because his employees were not used to delivering new increments that fast. His team was used to working with the sequential waterfall model, which had been used in all other projects executed at Gothaer, and all of Joe's team members currently knew the process and the sequence of activities in the process very well:

The waterfall model is a process model consisting of several project phases that sequentially follow one of the other. That means a phase is only started when the previous phase was finished completely. Typical phases of the waterfall model are a requirement analysis phase, in which the customer's requirements specification is analysed, a design phase, in which the functional specification on how the product will look is created, an implementation phase and a testing phase. After the software testing, the system is deployed and if applicable a maintenance phase begins. In the traditional model, the waterfall process was strictly followed until the end of the project leading to a cascading progress. A typical adaption of the waterfall model is done when one of the phases fails, the project returns to the previous phase and revises it. If, for example, the implementation phase discovers a major mistake in the software design, the design phase is executed again, to create a new design specification. The name of the waterfall model was derived from the graphical representation of the phases as shown in Fig. 8.

What is also observable from the illustration of the phases is an important characteristic of the waterfall model: At first requirements are analysed and the product is planned and after the complete planning was finished the implementation phase begins. That means that after the planning phase is completed, new requirements can only be included in the project with much additional work. First, working results are then created in the implementation phase and appear at the





**Fig. 8** The waterfall process model

end of a project. Advantages of the waterfall model are its simplicity. The process model is simple, easy to learn, easy to use and makes it easy to document the project and its results. The main disadvantage of the model is the rigidity of the model. As first results appear near the end of the process, the customer can only verify the fit of the product at the end of development. If requirements have changed during the project, the developed system might not fit the customer's needs anymore, leading to much rework or an unsatisfied customer. On the other hand, the model works very efficiently in the case of non-changing requirements.

The waterfall process model ensures that the project is planned in advance before the software is finally developed. Many documents and specifications are created and many quality assurance activities are being made before any development starts or an increment is delivered. Therefore, the team often worked in long meetings on detailed plans, and when these plans were completed, they were frozen and changes were no longer desired. This occurrence also led to the behaviour that, after such a specification had been approved, all team members worked on their own and there was only little communication between the team members during the execution of the defined plan until a result could be shown. Therefore, business departments occasionally later realized that the requirements they formulated had a different intention and that the software developed in the waterfall model needed rework.

Since the waterfall method of software development was common at Gothaer, it was also applied in the projects and subprojects of GoSMART. For most of the teams this worked fine, but due to the new kind of collaboration with Alpha Systems and the two-week rhythms of new increments that needed to be processed and forwarded, Joe's subproject team faced many difficulties when developing the GCOM increments. As Joe realized that his team had problems with the new environment, he considered how to adapt to the new situation. He had several questions in his

mind that had to be solved to improve the situation of his subproject: How can the team become more flexible regarding working with Alpha Systems? How can his team develop new increments of GCOM faster? Does the team have the right skills to address the new situation? Is the waterfall structure the right approach to lead the subproject 'Product' to success?

## We go Agile

### The discovery of Scrum

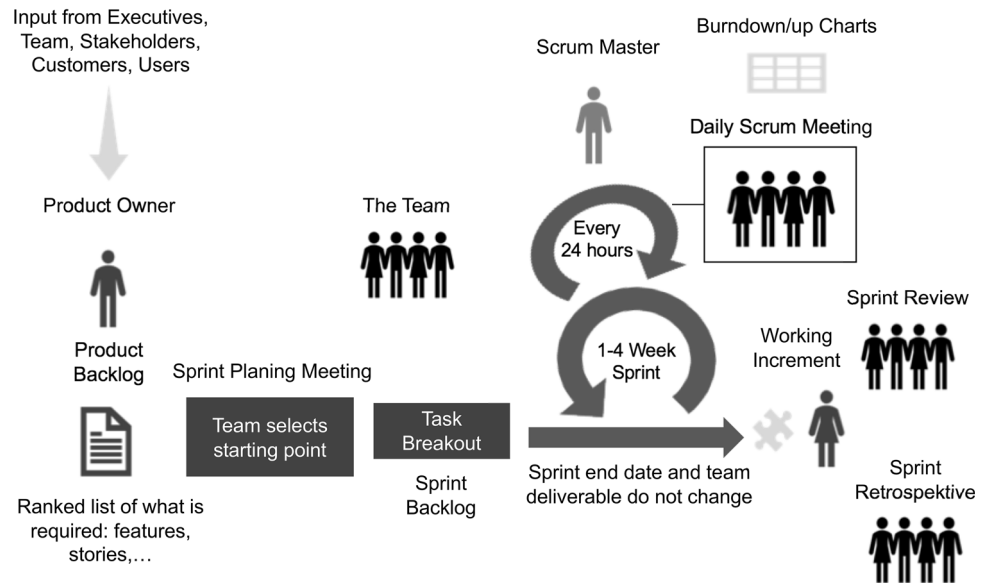
After time had passed in which Joe and his team worked as part of the waterfall structure while at the same time having to comply with the two-week rhythms of receiving and delivering software for the product machine, Joe became unsatisfied with the situation. He had always taken the waterfall methodology as a given, but now he remembered having heard of agile project management approaches and decided to look further into this methodology to see if this could be something to improve the current situation. He quickly found the agile manifesto, which was written in 2001 by 17 independent software practitioners. On the page, he read about the main values of the agile methodology:

We have come to value (1) individuals and interactions over processes and tools, (2) working software over comprehensive documentation, (3) customer collaboration over contract negotiations [and] (4) responding to change over following a plan. That is, while there is value in the items on the right, we value the items on the left more. (Beedle et al. 2001)

This he found to be very interesting and he decided to read more about it. During his research, he discovered the top benefits of working agile to be able to manage changing priorities, increased team productivity and improved project visibility (Version One 2016). These benefits are meant to be achieved by relying on frequent communication and interaction between the members of the team that are being guided by experienced leadership (Cram and Brohman 2013). Considering himself of being able to provide this leadership and judging his team to be able to improve their group dynamics into becoming a frequently communicating team, he started to look for more concrete methodologies that were applying the agile principles. After having spent hours doing research, he found Scrum, the most popular agile methodology, to offer certain promising advantages regarding the aspects he wanted to improve. His objective was to enhance the overall performance of his team by achieving four goals. First, more intense interaction between his team and the customers and





**Fig. 9** The Scrum process model

stakeholders. Second, more transparency regarding the development goals during a limited timeframe. Third, increasing the self-responsibility of his team and finally, being able to interact in a complex environment, namely, the overall GoSMART project. Joe began research on agile software development and discovered Scrum:

Scrum is “a framework within which people can address complex adaptive problems, while productively delivering products of the highest possible value” (Schwaber and Sutherland 2016, p. 3). The centre of Scrum is the Scrum team, which consists of different roles participating in several events working with different artefacts. Roles encompass the cross-functional development team responsible for implementing the product, the Product Owner representing the needs of the customer by clearly defining requirements and documenting them as user stories in the product backlog and the Scrum Master responsible for ensuring that the team follows all the rules defined by Scrum. It is important to note that there is no project manager, but that the development team is self-organizing. To ensure a successful implementation of Scrum, several events are defined: Every development process is divided into Sprints of one to four weeks at which end working software needs to be delivered. At the beginning of each sprint, the scope is determined in the sprint planning and documented in the sprint backlog. At the end of the sprint review, the results are presented to the Product Owner. Each day during the daily Scrum, each team member presents his progress as well as potential impediments to his work. The sprint retrospective is an opportunity for the team to reflect on how well

they work together as a Scrum team and what could be improved during the next sprint. The process of a typical Scrum implementation is displayed in Fig. 9.

After reading about Scrum, he found this methodology to offer solutions for all these goals. Joe smiled as he considered how excited he was after finding out about this new opportunity. He still remembered how he gathered his team together to discuss the new development approach he discovered. Most of his team members had never heard about Scrum before, and if they did, they had never practised it before. However, everyone was open to the idea of attempting it. To provide his team with a first impression of Scrum, Joe provided them a 3-h video to watch. Thereafter, when everyone was still willing to attempt it, they underwent a one-day training to learn how to use Scrum. Since he himself was to be the Scrum Master, and two employees from the business department were chosen to divide the Product Owner role between them, special training was performed for these two roles. Finally, on 17th January 2017, a first phase was started to test Scrum. This test Scrum phase resembled Scrum but did not incorporate all elements that a Scrum project would include.

### The test-Scrum

The most important difference between Scrum and Joe’s Test-Scrum was that no Product Owner was included. Although Carla and Arnold, the two functional employees, performed the Product Owner training and were certified as Product Owners, they were not part of the trial run. Instead, they attempted to prepare the product backlog for development at the start of stage 2 together with the team,



without being part of the Scrum team. The work packages that the team used during the Test-Scrum were written by the development team themselves and focused on bug fixing during the stage 1 system test phase of GoSMART.

In addition to the missing role of the Product Owner, all roles, events and artefacts of Scrum were implemented. Although there were problems in the beginning regarding the time-boxed meetings and the length of the Sprints, those were eventually resolved, resulting in fixed deadlines and meeting lengths. The retrospective was considered one of the most important meeting during the Test-Scrum since it enabled the Scrum team to continuously reflect on their approach towards Scrum and identify problems that needed to be resolved. Despite the concerns of certain team members that the meetings would take an excessive amount of time, the team quickly adapted to the meetings and the complaints died down. The conversion from waterfall to Scrum itself occurred without requiring much change; the members of the development team knew each other before Scrum; therefore, no team building was necessary. Furthermore, before Scrum they had worked with certain Scrum-like elements such as delivering software every 2 weeks and performing daily stand-up meetings. However, to ensure that the transformation was performed appropriately, a Scrum coach was hired to help the development team and especially the Scrum Master, Joe, in adopting Scrum. Since the Product Owners were not part of the Test-Scrum, they did not receive professional support.

Joe got ripped out of his thoughts as one of his team members knocked on his door. There were ambiguities regarding one of the user stories and none of the two Product Owners could be reached. Since Joe worked together with them on the product backlog, he could quickly answer the question and go back to his thoughts. He preferred to think that the Test-Scrum was a promising idea to familiarize his development team with the Scrum approach; however, he is no longer sure if the manner in which he conducted the test could have been better. However, at the time he was satisfied with his approach. After having completed stage 1 of the GoSMART program in April 2017, Joe reviewed with his development team how well the Test-Scrum worked. The team was very content with the approach since it allowed them to test the agile approach and get a feeling for the process. In addition, the Scrum coach spoke very highly of how the team managed the conversion. After hearing how happy his development team was with the testing phase and that the product backlog for stage 2 was in a satisfying state, Joe decided to end the Test-Scrum and actually establish Scrum. Therefore, the first real sprint started together with stage 2 of the GoSMART program on the 14th April 2017. In addition to Joe's team, all other teams that are a part of GoSMART continued to use the waterfall approach, in his

thoughts, he likes to consider his team to be a Scrum isle in the whole waterfall project.

### The real Scrum is implemented

Since the team had previously established how to use Scrum, not much had to change between the testing phase and the 'real' Scrum. The development team stayed the same, consisting of 10 members, partly from Gothaer and partly from Alpha Systems. In addition, Joe continued to be Scrum Master. The only addition to the team was the role of the Product Owner. However, in contrast to that required by the traditional Scrum approach, this role was divided between two employees who did not work full time as Product Owner; instead, he could only use approximately 20–30 per cent of their time for the team. The decision to use two Product Owners was the result of them having many other responsibilities. Because they would not be able to be available for the team at all times, the two Product Owners could function as substitutes for each other.

However, Joe quickly noticed that this arrangement resulted in unclear task allocations between the two of them and that occasionally, neither of the Product Owners were available; occasionally this occurred for one or two consecutive weeks. Furthermore, because the Product Owners were not part of the testing phase, their roles were not clearly defined and Joe often had to support them in their tasks, for example prioritizing backlog items.

A pop-up window on his desktop screen informed Joe of a new e-mail he received. He opened it and quickly read through the text. Although his role in the Scrum team is 'only' to be the Scrum Master, he also continues to hold the role of a project manager for many people outside his team as well as for his team. Much communication that should occur directly between the members of his development as well as between the team and other teams or departments continues to occur with Joe as an intermediary. Of course, compared to before Scrum was implemented, this has improved, but Joe continues to feel that, within a well-functioning Scrum team, this should work differently. The email he received was from one of his team members asked to delay the next daily Scrum by 1 h since he had a doctor's appointment. Joe sighed, knowing that there would be complaints but quickly wrote an e-mail to the whole team informing them of the change in schedule.

The Scrum meetings did not change much from the Test-Scrum to the actual Scrum implementation. Every Sprint lasts 2 weeks, beginning with a 3-h Sprint planning and ending with a 1-h sprint review and 1-h sprint retrospective. Every day, a 15-min daily Scrum is performed and every week a refinement meeting additionally to the



traditional Scrum meetings. While the development team and the Scrum Master are present for all meetings, the Product Owners do not attend the daily Scrum and certain refinement meetings. While the general response to these meetings is positive because they are more fun and interactive than the waterfall meetings, certain team members consider the sprint planning meeting excessively long or the number of people attending the meetings overly large. Because stakeholders have not yet been involved, they attend no meetings.

Except for during the meetings, the team does not work in the same room but in different offices. This arrangement was deemed to be more practical since it would be difficult to fit the whole team in one room. While the development team and the Scrum Master have offices on the same floor, the Product Owners are located in another building.

To support their Scrum approach, the team uses the collaboration software Jira as well as the software versioning tool Subversion. This arrangement allows them to add backlog items and to track their status. Instead of having a Scrum board, the team uses a screen during the daily Scrum to show the progress of the project. This procedure was met with overall contentment. For quality assurance, a product management tool from Alpha Systems was introduced, which also satisfied the team except for the large amount of computing power it needs.

Requirements for the product backlog are determined by the Product Owners in workshops together with the business departments and then documented in a business concept paper. The user stories contained in the backlog then refer to this concept paper since requirements often change and the Product Owners want no redundancy. However, this behaviour results in many questions from the development team regarding the requirements. With the Product Owners not being full-time Scrum team members, the answering of these questions is occasionally difficult.

Joe's thoughts were interrupted by his ringing telephone. He answered it and heard the project manager of another team calling him. The project manager wanted to tell him about the progress his team has made but had been called away by his assistant before he could do so. Joe hung up the phone and frowned. The other teams do pose a problem occasionally. Because there are dependencies between the work his team does and the work other teams do, user stories often need to be delayed because the other teams did not yet deliver. This problem becomes intensified by Scrum because the other teams work with different deadlines and different priorities. However, until now, his team has always managed to avoid idle time by performing refactoring or pulling different user stories from the product backlog into the sprint backlog.

Joe examined the notes he took during the last retrospective; in sum, his development team appears to be very

happy with Scrum. The team members discuss how interesting and less frustrating the work is, particularly because user stories are smaller and simpler than the requirements before Scrum and details can simply be added in later increments. Thus, the team only needs to think from increment to increment and does not need to spend much time planning. The short sprints also enable the team to receive feedback really fast in face-to-face meetings instead of having to wait for e-mails. In addition, cooperation in his team significantly improved since the Scrum setup encourages his development team to help each other and exchange more information about their progress as well as their problems.

## Current situation

Putting away the notes in the folder, he intends to take to his meeting with Thomas Smith, Joe considered a conversation he had with Thomas approximately 2 weeks ago. His functional project lead was not as optimistic as he and his team. Particularly because there is only one Scrum team in contrast to all the waterfall teams, he was concerned with whether Scrum could work in the long term. Thomas has concerns about whether the synchronisation with the other teams is working well. This concern did not surprise Joe since the Scrum meetings do use additional time, which cannot be used for the development. Furthermore, Joe remembers the Scrum coach telling him about how many project managers decide to adopt Scrum only in parts and then fail with their projects because they are using an intermediate form of the Scrum methodology, which is usually not sufficiently mature to work. With the Product Owner role not being clearly defined in his Scrum team and with him doing much more work than that intended for a Scrum Master, Joe believes he could also run into those problems.

His phone rang again. This time, it was a reminder of his meeting with Thomas. Joe sighed and collected his documents. He was not sure what he should tell Thomas. Nonetheless, Joe believes it is possible to extrapolate an estimate of future performance from the last sprints. This extrapolation may be a new and currently unknown approach for Gothaer; this approach is also referred to as GoSMART. However, there were issues that needed to be resolved. The problems with the allocation of Scrum roles needed to be addressed soon. Joe had existing ideas on how to address these problems, but he would need Thomas to agree to his plans. He looked at his watch and rose, ready to go to the meeting room.



## Suggested questions for discussion

1. What are the pros and cons of Scrum in the current situation?
2. How do you assess the use of Scrum in the described environment? What could be improved? What qualifications are required to embody a Scrum role in the subproject?
3. What other possibilities are there besides Scrum to manage this subproject?
4. Would you recommend using the Scrum methodology in other sub-projects? If so, which prerequisites must be fulfilled? If not, what is wrong with it?

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