IMPLEMENTING USER STORIES BY APPLYING SPRINTS IN A MICROENTERPRISE[1]

Christian Kern
RIF Institute of Research and Transfer; Department of Process Optimization;
Dortmund, Germany
christian.kern@rif-ev.de
Corresponding Author

Sandra Klute-Wenig
RIF Institute of Research and Transfer; Department of Process Optimization;
Dortmund, Germany
sandra.klute-wenig@rif-ev.de

Robert Refflinghaus
RIF Institute of Research and Transfer; Department of Process Optimization;
Dortmund, Germany
robert.refflinghaus@rif-ev.de

Abstract

A quality management system according to DIN EN ISO 9001 is an established concept. However, due to often not clearly defined responsibilities, structures and processes for microenterprises and startups existing implementation approaches are not suitable, even though the evidence of ensuring quality-oriented action is essential for them to be viable. In fact, a step by step introduction of a quality management system, taking into account the individual needs of a company, is more effective.

For this reason, an agile approach based on user stories and their iterative implementation is considered to be appropriate for introducing a quality management system in microenterprises and startups. Within a framework of an applied research project a concept for implementing a quality management system in microenterprises and startups by using agile methods and techniques is developed.

This paper presents a practice-oriented procedure model for implementing user stories step by step with sprints in a microenterprise. Therefore, results from studies in cooperation with industry partners are presented and discussed with regard for setting up a concept for a general procedure model.

Keywords Microenterprise, Quality Management System, Agile Techniques, User Stories, Sprints

[1] The CORNET promotion plan (No. 21652) of the Research Community for Quality (FQS), August-Schanz-Straße 21A, 60433 Frankfurt am Main, Germany, has been funded by the AiF within the programme for sponsorship by Industrial Joint Research (IGF) of the German Federal Ministry of Economic Affairs and Energy based on an enactment of the German Parliament.

1. Introduction

Quality management systems according to DIN EN ISO 9001 are established concepts and exist in nearly all large and medium-sized enterprises. Also, there is a great variety of guidelines helping companies to set up und improve such systems. However, for small enterprises and especially microenterprises and startups, these guidelines are not suitable. This is due to the fact that in most cases processes are hardly defined and implemented and requirements change quickly regarding relevance, specification and content (Antilla, 2019). Nevertheless, those companies too, representing approximately 80.7 % of all companies in Germany, have to prove quality-oriented action to be competitive. For them, the content or at least specific parts of a quality management system without doubt are useful to improve and establish their processes and hence, to enable the enterprise to act successfully in the long term (Anholon et al., 2017), even if the way to build up a quality management system and the applied methods and techniques should be different. An established, classic quality management system according to DIN EN ISO 9001 is inadequate for an agile organisation, even though the revision of the DIN EN ISO 9001 in 2015 has opened up a little bit for agile and flexible working methods (Brückner 2019, Sommerhoff 2021). In fact, for microenterprises and startups intuitive methods and practices that can later can be expanded and formally installed are appropriate (Komus 2017). In this context, the use of agile methods is expedient, because they allow quick, flexible and iterative reactions to changing requirements and framework conditions. Therefore, within the context of the applied research project (CORNET project No. 21652) "Using agile methods for setting up a quality management system for startups and microenterprises" a practice-oriented model for implementing a quality management system is developed. This model is based on an iterative approach that uses the established agile methods "user stories" and "sprints". It combines and adapts them, since these - according to the company's needs - can be used flexibly and quickly deliver visible and usable results for the company. Furthermore the model has the advantage that not all requirements must be known and specified when starting the project (Kern, 2022). By this, microenterprises and startups are enabled to implement quality management projects in an agile way without in-depth knowledge.

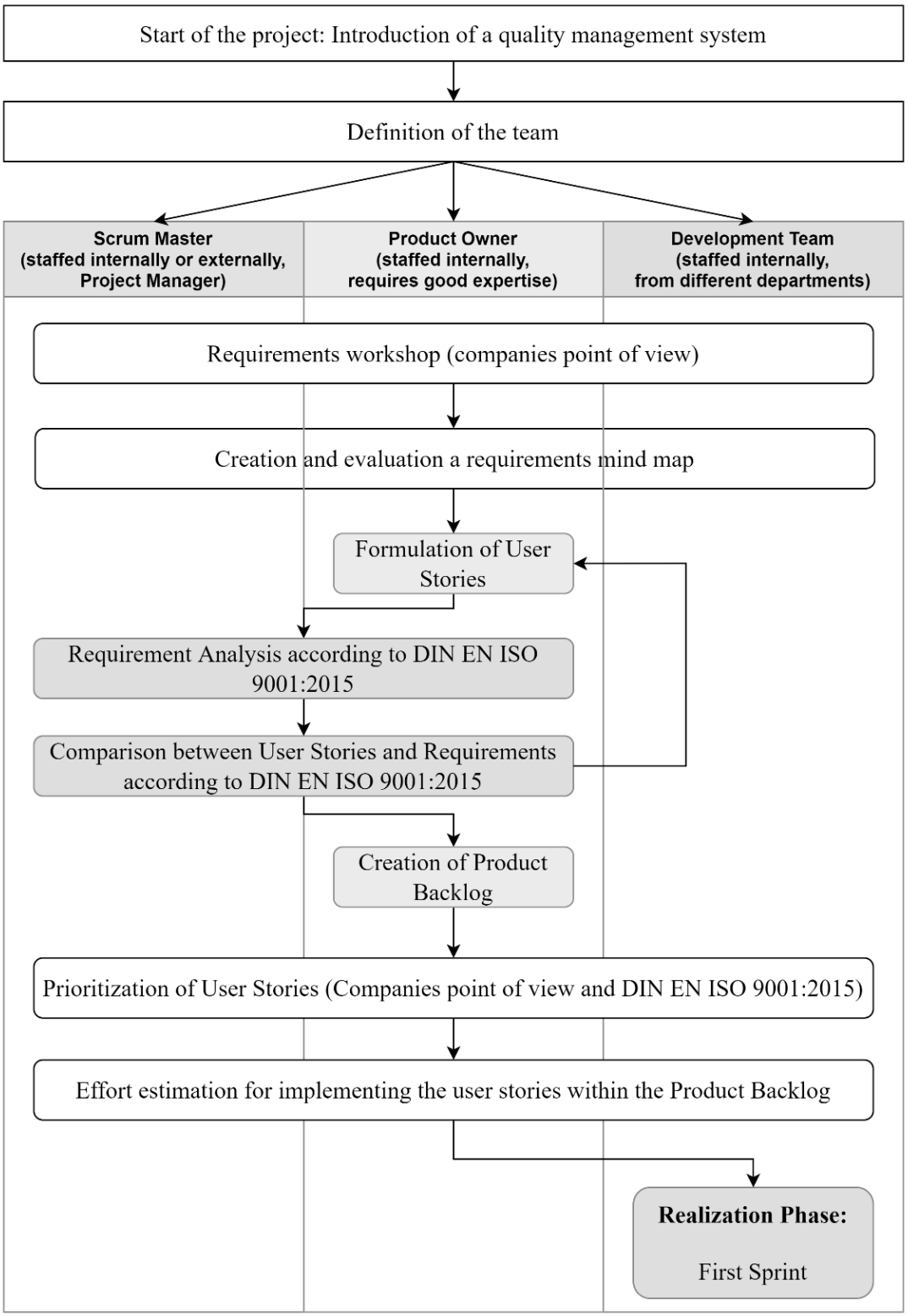
This paper presents the developed practice-oriented procedure model for implementing user stories step by step with sprints in a microenterprise which was worked out within the mentioned project. This procedure model is part of the greater process model for the agile development of a quality management system. Therefore, the process model and results from studies in cooperation with industry partners implementing user stories by applying sprints are presented and discussed with regard for setting up a concept for a general model.

2. Process model for the agile development of a quality management system

The process model for the agile development of a quality management system for startups and micro-enterprises is based on the idea of Scrum, which has its focus on agility and is used in the vast majority of agile projects (around 84 %). Further information on the agile framework Scrum, for example, can be found in (Simschek, 2019), (Preußig, 2020), (Schwaber, 2023). The process model is developed in cooperation with industrial partners and is intended to enable technology-oriented startups and micro-enterprises to use an agile approach to systematically identify the first steps towards establishing a needs-based quality management system and then to implement it with little effort. A special feature of this approach is, in contrast to the classic project management, that it is not designed only for external customers but for the implementing company itself. Hence, the companies are responsible for raising their (own) user stories and their subsequent implementation. The process model thus represents an implementation concept for the development of a company-specific (expandable and adaptable) quality management

system, in the sense of a Minimum Viable Product. The development of the Minimum Viable Product is divided into an analysis phase (cf. figure 1) and a realization phase.

Figure 1: Analysis phase of the process model developed in CORNET project No. 21652



Source: (Kern, 2022)

Within the analysis phase the requirements relevant from the company's point of view are identified in the form of so-called user stories. In the next step, the determined requirements are structured in the form of so-called user story maps. In addition to the company's perspective, requirements analyses will be carried out from the point of view of the standard ISO 9001:2015 and awareness for the requirements of other potential stakeholders will be raised. If necessary, this step will be accompanied by a context-specific expansion and completion of the previously determined user stories. After the comparison between user stories and requirements according to ISO 9001:2015 is finished, a first product backlog is finally created.

2.1 Procedure of the analysis phase

Since it is a major challenge for micro-enterprises and startups to meet the requirements of DIN EN ISO 9001:2015 or to set up a quality management system based on the minimum requirements listed there, the starting point of the analysis phase are state-of-the-art analysis of the main processes and structures of the company applying the process model. For this purpose, based on the agile method Scrum, the three roles of Scrum Master (method expert, consultant), Product Owner (specialist for business processes) and Development Team (specific specialist knowledge of different departments) were defined. This role distribution applies to the application of the process model in companies with a minimum of 15 employees. In microenterprises, due to the small number of employees (max. 10 employees), a different role definition applies, which is explained in Section 2.2.1.

In the next step, as mentioned before, the agile method "user stories" (cf. (Lucassen, 2016), (Dalpiaz, 2018), (Kern, 2022)) is used to capture relevant requirements for a needs-based quality management system from a company perspective within a requirements workshop. This technique allows to clearly and precisely define who wants to achieve something, what he/she/it wants to achieve and why he/she/it wants to achieve it. In this context, user stories ensure a clear focus on aspects that provide added value for the company involved. Due to the abstract nature of user stories, formulating concrete acceptance criteria is also very important (Kusay-Merkle, 2021). Normally, the acceptance criteria are created as a kind of checklist that can be ticked off in the course of implementation (Hoffmann, 2020). Here, the so called “Definition of Done” (DoD) indicates when a user story is complete. Only if these criteria are met the user story is fulfilled and can be completed. Therefore, the acceptance criteria help the development team to understand what the initiator of the user story wants to achieve (Wirdemann, 2022).

As already addressed for the development of a quality management system, not only the requirements of the company are relevant but also the requirements of DIN EN ISO 9001:2015 should be considered. Even if a certification is not planned in the company at the moment, the company then at least is aware of the requirements of the standard. The requirements of the standard then also must be recorded in the form of user stories. Since both, the requirements from the requirements workshop and the requirements from the standard then have the same form this procedure simplifies the subsequent realization phase.

In the next step, all user stories collected before are evaluated and prioritized using suitable criteria (e.g. business value, degree of uncertainty) (cf. (Hoffmann, 2020). In this context, it must be considered whether the goal is a needs-based quality management system or a certifiable quality management system. Depending on this, different user stories generate the minimum viable product. The prioritization criteria mentioned above can be presented in a value-risk-matrix that visualizes the relationship between the value of a user story and the uncertainty associated with the realization of the user story. If there is a high risk of implementing the requirement and a low value for stakeholders and the company, the requirement should be avoided and not implemented at all. The higher the risk for the same

value of the requirement, the sooner the requirement should be implemented. After prioritizing, all user stories collected before will be bundled into “user story maps” which, as a kind of landscape, enables a holistic view of a development process. These user story maps then serve as the basis for the creation of the initial “product backlogs” in the sense of company-specific specifications for the development of needs-based quality management systems. As a result, the most important user stories are in the upper part of the product backlog and are described in the most detail so that the development team can quickly access them (Kern, 2022).

After the product backlog has been created and prioritized, the next step deals with estimating the effort of implementing the user stories, for example by using the agile method "planning poker”. Planning Poker is a type of card game in which each member of the development team gets a deck of cards with the numbers of the nonlinear Fibonnacci sequence where the sum of two consecutive numbers represents the following number (1; 2; 3; 5; 8; 13, ...). Here, the numbers on the cards correspond to the effort that is required to implement the respective requirement (Bartonitz, 2018). If all user stories are prioritized and estimated in terms of effort, the project can be concretely realized within the realization phase.

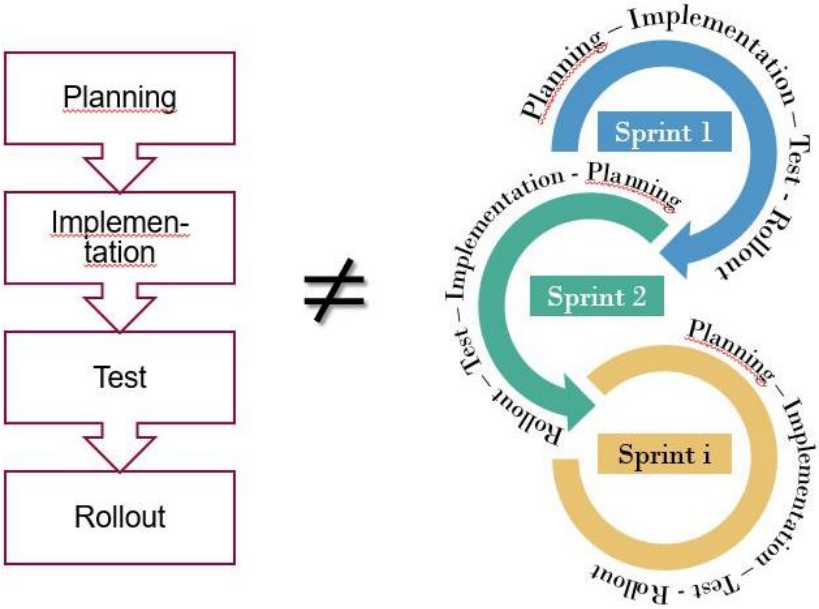
2.2 Procedure of the realization phase

The implementation of the user stories determined within the analysis phase happens iteratively within the realization phase by using so-called sprints, in which pragmatic implementation options (e.g. methods/ techniques/processes/documents) are developed to meet the identified requirements. For this purpose, a specific sprint-based procedure model is developed which is set up as a step-by-step guidelines for microenterprises and startups. In contrast to the classic project management, which is structured according to the waterfall principle, the procedure model is based on the Scrum theory and places a clear focus on the topic of agility.

Within the classic project management, there is an elaborate planning phase at the beginning of the project, which attempts to predict and take into account all future events. After this detailed planning, the implementation phase, the test phase and the rollout phase are worked through one after the other, always ensuring that the plan drawn up at the beginning is fulfilled. Therefore, changing framework conditions can only be taken into account with great difficulty and effort. If obstacles and mistakes occur, they are usually only detected at a late stage and then have to be corrected very laboriously and expensively.

Agile project management, on the other hand, has several short development cycles that build on each other iteratively. By this, companies receive fast and functional results and can detect changes and mistakes quickly and act appropriately (Simschek und Kaiser 2019).

Figure 2: Comparison of classic (left) and agile (right) project management



Source: Own Elaboration, in accordance with (Simscheck, 2019)

In the following subchapters, the roles of the project participants and the process flow of the procedure model are explained.

2.2.1 Features and roles within the procedure model

Basically, the Scrum theory will be used as a starting point for the sprint-based agile procedure model due to its high degree of familiarity and widespread use. However, in order to meet the requirements of the target group of, some adaptations of the classic Scrum theory are necessary.

In contrast to the classic Scrum theory, English terminology should be avoided as far as possible in the procedure model. The reason for this is that it is easier for older employees in particular, who are strongly represented in microenterprises in Germany and represent a significant employee group, to familiarize themselves with the agile way of working that is new to them. If familiar terms are used, this creates both a better understanding and better acceptance of the propagated agile way of working. For example, one could talk about “Arbeitspakete” (English: work packages) instead of sprint backlog items.

In the classic Scrum theory, a Scrum team consists of about 10 people and is subdivided into the three Scrum roles Scrum Master, Product Owner and Development Team. However, according to the definition of the European Union, the considered target group of micro-enterprises has a maximum number of employees of ten persons in total (IfM, 2023). For this reason, the maximum size of a sprint team for the application of the procedure model in microenterprises is limited to five people. It is likely that the teams will tend to be smaller in practice. However, there is also a risk that sprint teams will be too small. Therefore, the minimum size should be three people, so that at least a basic exchange of ideas can take place and possible tunnel vision can be prevented.

The first role of the procedure model should be comparable with the scrum master of the classic scrum theory. The method expert should usually be appointed by a leader in the company. Most likely, the owner or CEO will approach a suitable person in the company and entrust him or her with the task of carrying out a project using sprints. Since the role is to be understood as a coach, just as described in the Scrum Guide, the role is called

“Methodenexperte” (English: method expert). The method expert should have already dealt with the procedure model in the run-up to a sprint by reading the guideline and should have understood the basic features of the methods to be used during the sprint as well as the sprint process, so that he/she/it can both guide the sprint appropriately and resolve any questions that arise from the team. However, it should be noted, that the method expert should not prepare or train the team in advance for the sprints through workshops, since no comprehensive planning should take place. He/she/it should only give a brief introduction to the procedure model and agility in general. In the further course, the method expert should initiate the execution of the sprints on the basis of the procedure model. This means, for example, that he or she invites the team to a kick-off meeting or takes the lead in discussing questions of orientation and understanding of the procedure model within the team.

The second role within the procedure model is the so-called “Produktexperte” (English: product expert). The product expert should be available to the team as a contact person for the subproducts to be developed. Accordingly, the product expert helps the team to understand the user stories to be implemented and to identify the resulting work. In contrast to the product owner according to classic scrum theory, however, the product expert does not fade into the background during the work process. Instead, he or she is also responsible for completing the work packages during the sprints. In addition, in contrast to classic scrum theory, the role of the product expert is not explicitly limited to internal employees. Consequently, the company's customers, suppliers or service providers can also be involved in the sprint.

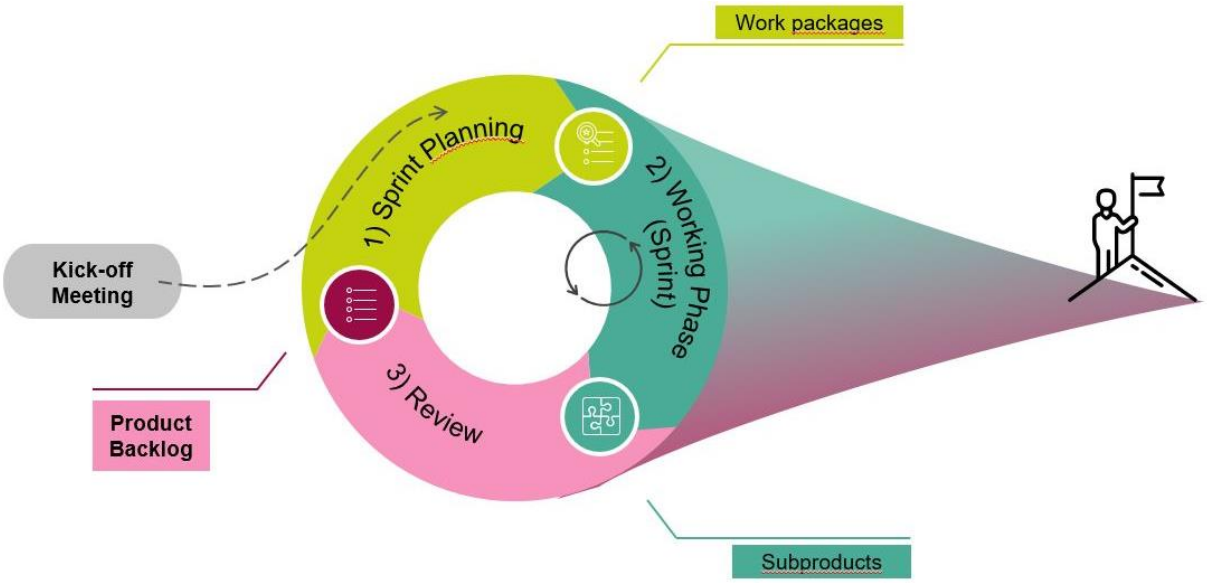
The third role within the procedure model is the sprint team, which is responsible for realizing the actual added value in the project. The sprint team is therefore responsible for the concrete implementation of the user stories respectively the product backlog elements. Based on the scrum guide, no formal hierarchy should arise within the sprint team. The scrum guide requires the development team to be accountable for the implementation of the product backlog items. However, the procedure model follows a different approach. The entire team is not responsible for all partial results, but only those members who are involved in the corresponding work packages. This is intended to prevent the problem that nobody feels responsible for a work package. Therefore, the responsibility of each product expert for the fulfilment of individual work packages should be documented in the project management tool. Depending on the needs of the company (e.g. illustrate product backlog in the form of task boards, Gantt charts and tables, intuitive usability, assignment of different statuses to individual tasks) different software solutions for agile working may be suitable as project management tools (e.g. Clickup, Trello, Monday.com).

Another special feature of the role definition used here is that the functions "Methodenexperte" and "Produktexperte" are only secondary functions. Thus, by definition, all "Methodenexperten" and "Produktexperten" are also to be regarded as members of the sprint team.

2.2.2 Course of action within the procedure model

At the beginning of the first sprint, the sprint team should hold a kick-off meeting in which organizational issues are dealt with and a general overview of the procedure model is given. This is followed by an iterative planning phase, in which concrete activities of the sprint under consideration are prepared. In the next step, the sprint team should implement individual sub-products as part of the working phase (sprint). Finally, in a review phase, the previous content-related work and the formal procedure should be examined in order to identify potential for improvement. Figure 3 illustrates that the procedure described above is a control loop that ultimately leads to the achievement of goals and thus to functional products.

Figure 3: Course of action for the sprints



Source: Own Elaboration

During the initial kick-off meeting, the method expert has a special role, since he/she/it is supposed to both prepare and lead the kick-off meeting. In terms of content, the kickoff meeting is about presenting the project goal, the time horizon and the available resources. In addition, questions about the communication medium, the reporting cycles and the place and time of the follow-up meetings should be clarified. As already mentioned, for this reason the method expert must have dealt with the topic in advance of the sprint in order to pass on all relevant information to the sprint team.

Based on the results of the kick-off meeting, a planning phase should be part of each sprint. The duration of the sprint planning phase should be based on the sprint duration, whereby one hour of planning time is usually required for one week of sprint, which normally have a duration of two to four weeks. At the beginning of the sprint planning phase, the sprint team should jointly define and document a sprint goal. Based on the sprint goal and the product backlog previously developed in the analysis phase (cf. chapter 2.1), the sprint team should evaluate which product backlog items can be processed in the current sprint. At this point, concrete ideas, partial products or functionalities can already be collected in the form of a brainstorming session. In the next step, the sprint team should ask itself what should be done about the selected product backlog items respectively user stories. Once the team has finally decided that there are no longer any ambiguities regarding the task, the identified workload should be transferred to the task board. In a further element of the planning phase, the sprint team should resolve the question of how to process the task. In order to support the team members, it should be determined into which subtasks the selected work packages can be further divided and which concrete work steps have to be done. Also, the team members should evaluate the target state, the properties and the functions of the resulting partial products.

Within the classic scrum concept, defining so-called “definitions of done” should be determined. In contrast, the developed procedure model waives defining them. Rather, the content of the definitions of done should be part of formulating the subtasks so that a concrete target status is visible. Another important aspect is, that the sprint team should not work with too much documents and overviews at the same time. Instead, the task board should be used as main source of information. Additionally, the product backlog and a Burn-Down-Chart (cf.

(Simschek, 2019)) should be exploited. After completing the planning phase all preparations for carrying out a sprint are finalised and the sprint team can start with the working phase (sprint), i.e. with valuable tasks. Thereby, the procedure model should not give explicit guideline on carrying out work within the team. In fact, each company has its own empirical experience regarding operating and doing business. Furthermore, it is assumed that the sprint team is able to organize itself so that there is no need for further control in this respect. For example, it should not be specified if the team works on a task together or individually. Moreover, there should not be rules regarding the time spend for the project respectively for the target achievement. The only specification made by the procedure model is the performance of so-called “Kurzbriefings” (English: short briefings). A short briefing is meant to be a frequently meeting of the sprint team that has a maximum time of 15 minutes. The aim of these briefings is updating the status of the tasks to be carried out within the sprint. Hence, it is comparable, even though not congruent, to the daily scrum, and is based exclusively on the task board. In order to evaluate the status of all tasks within the actual sprint the following questions should be dealt with in the briefings:

1. Which work package(s) is/are completed?
2. Which work package(s) is/are interrupted?
3. Which work package(s) is/are currently in progress?

As a result of answering the questions above, the individual tasks of the actual sprint are assigned by either the status "completed" or the status "interrupted" or the status "in progress".

Each sprint concludes with a “Rückschau” (English: review) which serves as counterpart to the introducing sprint planning. Regarding its content the review picks up the contents of the sprint review and the sprint retrospective of scrum and combines and condenses them.

The developed procedure model has been applied and tested with industrial partners. Results from these tests and consequences for the model and its design or rather required adjustments resulting from it are presented in the next section.

3. Results from a practical example and resulting adjustments of the procedure model

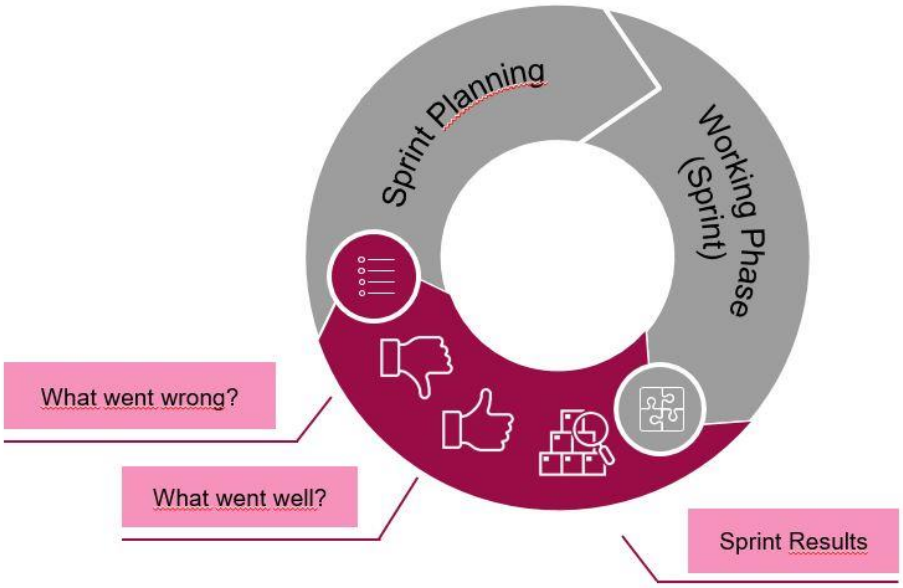
Within the realization phase, the procedure model has been applied among others in a microenterprise with 7 employees from the commercial sector whose customers are research, innovation and service organizations. The first step of the practical test was according to the plan a kick-off-Meeting. During this meeting first steps for further action and the company’s objectives for the sprint have been discussed. Thereby, it came clear that implementing a comprehensive process documention were of paramount importance for the company. Hence, regarding the previously collected user stories the focus was on implementing three user stories respectively product backlog elements dealing with this topic. By this, a knowledge management should be build up, so that it is possible to transfer the implicit knowledge of the employees in explicit knowledge. The aim was to facilitate substitutions due to illness and vacations but also the induction of new employees as processes differ depending on the mandate.

The aim of the sprint was formulated as follows and integrated in the prepared Burn-Down Chart: “At the end of the first sprint is [our company] prepared for a process documentation so that in the following a documentation can be carried out in a standardized manner. Starting from the product backlog five relevant work packages could be identified. These work packages should be implemented within the framework of the first sprint. These packages were:

1. Process identification
2. Process map
3. File structure
4. Type of presentation
5. Software for documentation

According to the procedure model, responsibilities and story points for each work package were determined. The duration of the sprint was set at three working weeks. This was due to the fact that the employees had to carry out their operational activities too and could not spend their whole working time for the sprint. During the sprint short briefings with the aim of a close and frequent exchange between all project members were carried out. These briefings took place three times a week. At the beginning, the briefings were agreed on the same days and times. However, it came clear very quickly that team members were prevented on the agreed meetings on several days. As a consequence, the short briefings were agreed on flexibly and short-term. When a work package was completely fullfilled the story points were registered in the Burn-Down-Chart and the status of the work package was updated in the software used for project management. Within this case study the software "Clickup" was considered as suitable software for the company´s needs. In this regard, all available status, i.e. "completed", "in progress" and "interrupted" were applied according to the model. The status "interrupted" was used two times in the first sprint and the status "in progress" was temporary used for three of five work packages at the same time. Concluding the working phase (sprint), the review was held following step three of the procedure model (review phase) (cf. figure 4).

Figure 4: Review phase of the procedure model for applying sprints



Source: Own Elaboration

Hereby, at first the method expert repeated the previously defined aim of the working phase (sprint) and linked the sub-aims to the individual work packages. On this basis, the team members briefly presented their sub-products, summarized how they were implemented and discussed possible improvements. In this regard, for example, the need for little adjustments in the visualization of the developed process map was identified. This aspect was documented and will be taken into account when planning the second sprint. As part of the first working phase

the work package "process map" could therefore not be formally completed. All other work packages mentioned above (process identification, file structure, type of presentation, software for documentation) were fully completed within the scope of the first sprint.

With regard to the advantages of the working phase (first sprint), the company emphasized the short development cycles supported by the project management tool “Clickup” when processing the individual work packages as a significant added value of the proposed agile workflow. In addition, the three statuses (“completed”, “in progress” and “interrupted”), chosen for the ongoing evaluation of the current work progress, were considered sufficient and practicable. In the company's opinion, further statuses would not create any additional benefit but rather create confusion.

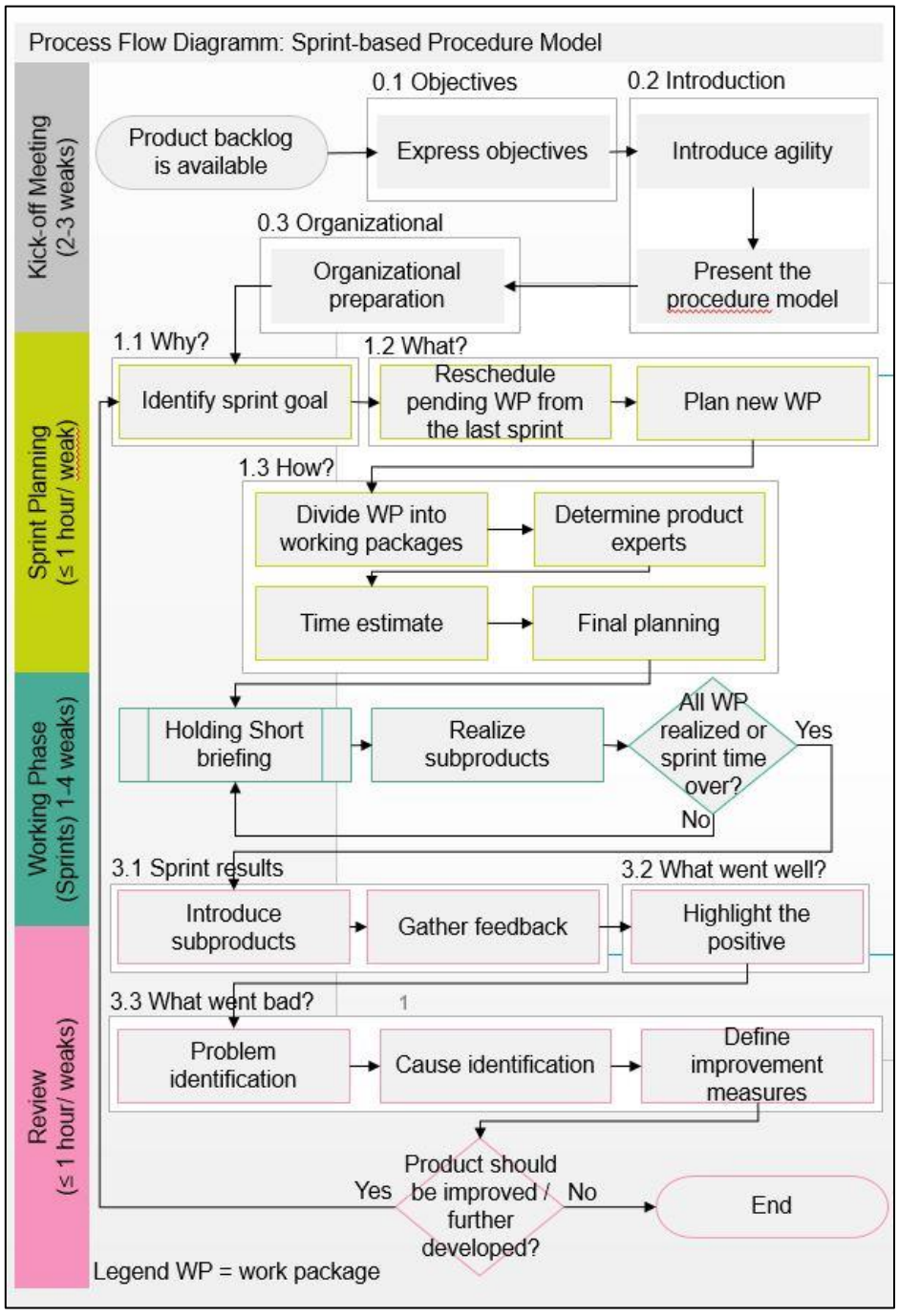
With regard to the disadvantages of the working phase (first sprint) the company criticized the lack of an agenda at the beginning of the sprint and thus an insufficient overview of the schedule. It was also noticeable that the sprint team was working on too many work packages at the same time and was therefore only able to complete all work packages in the last third of the sprint. The method expert also noted that he did not orientate himself sufficiently towards the procedure model when actually carrying out the sprint.

The results of the review of the first working phase (sprint) and the resulting improvement potential for the sprint-based procedure model have iteratively been implemented in several other sprints (with several industrial partners).

4. Conclusion and outlook

This contribution illustrated, that it is difficult for micro-enterprises and startups to introduce a quality management system. It turned out that an agile approach based on user stories and their iterative implementation is appropriate for introducing a quality management system in microenterprises and startups. For this reason, elements for a practice-oriented procedure model for implementing user stories step by step with sprints in a microenterprise was developed and discussed within this paper. Within some practical tests in several companies the developed procedure model was iteratively optimized. Figure 5 shows the resulting procedure model for carrying out the realization phase of the higher-level process model for the agile development of a quality management system for startups and micro-enterprises at a glance.

Figure 5: Realization phase of the process model developed in CORNET project No. 21652



Source: Own Elaboration

It turns out that in the next step, the procedure model for carrying out the analysis phase (cf. figure 1) has to be revised again in order to generate a higher-level process model that is conceptually and content-wise consistent. After this is done, the results of the analysis phase and the results of the implementation phase will be condensed into a higher-level process model, which can be used universally in micro-enterprises and startups to set up a quality management system. Based on the results achieved, IT-supported roadmaps, recommendations for action and implementation aids for the development, introduction and continuous further development of a flexible, needs-based and indirectly certifiable quality management system with agile methods are then compiled.

Acknowledgement

The CORNET promotion plan (No. 21652) of the Research Community for Quality (FQS), August-Schanz-Straße 21A, 60433 Frankfurt am Main, Germany, has been funded by the AiF within the programme for sponsorship by Industrial Joint Research (IGF) of the German Federal Ministry of Economic Affairs and Energy based on an enactment of the German Parliament.

References

Anholon, R., Zoqui, E., Quelhas, O., Novaski, O. (2017). "Quality management system for micro and small enterprises", *Systems & Management*, 12 (2017), 362-376.

Antilla, J., Jussila, K. (2019). "Implementing quality management in startups", *Proceedings of the 22th QMOD conference on Quality and Service Sciences ICQSS 2019, Krakow/Poland.*

Bartonitz, M., Lévesque, V., Michl, T., Steinbrecher, W,, Von-hof, C., Wagner, L. (2018). *Agile Verwaltung - Wie der Öffentliche Dienst aus der Gegenwart die Zukunft entwickeln kann.* Springer Verlag:Berlin.

Brückner, C. (2019): *Qualitätsmanagement. Das Praxishandbuch für die Automobilindustrie.* Carl Hander Verlag: München.

Dalpiaz,F., Brinkkemper, S. (2018). *Agile Requirements Engineering with User Stories - 26th International Requirements Engineering Conference (RE) 2018*, https://www.researchgate.net/publication/328310864_Agile_Requirements_Engineering_with_User_Stories, last access on 12.06.2023.

Hoffmann, S. (2020). *Digitales Produktmanagement – Methoden, Instrumente, Praxisbeispiele.* Springer Fachmedien: Wiesbaden.

IfM (2023). *KMU-Definition der Europäischen Kommission*. https://www.ifm-bonn.org/definitionen/kmu-definition-der-eu-kommission, Institut für Mittelstandsforschung Bonn, last access on 13.06.2023.

ISO 9001 (2015). *DIN EN ISO 9001:2015: Qualitätsmanagementsysteme - Anforderungen*. Beuth-Verlag: Berlin.

Kern, C., Klute-Wenig, S., Refflinghaus, R (2022). "Using agile techniques for setting up a quality management system for startups", *Proceedings of the 25th Excellence in Services International Conference 2022, Visby/Sweden.*

Komus, A., Kuberg, M. (2017). *Status Quo Agile: Studie zu Verbreitung und Nutzen agiler Methoden. Eine empirische Untersuchung*, https://www.gpm-ipma.de/fileadmin/user_upload/GPM/Know-How/Studie_Status_Quo_Agile_2017.pdf, last access on 17.06.2022.

Kusay-Merkle, U. (2021). *Agiles Projektmanagement im Berufsalltag - Für mittlere und kleine Projekte*, Springer Verlag: Berlin, Heidelberg.

Lucassen, G., Dalpiaz, F., van der Werf, M., Brinkkemper, S. (2016). *The Use and Effectiveness of User Stories in Practice*, https://www.researchgate.net/publication/312702795_The_Use_and_Effectiveness_of_User_Sto-ries_in_Practice, last access on 12.06.2023.

Preußig, J. (2020): *Agiles Projektmanagement - Agilität und Scrum im klassischen Projektumfeld.* Haufe-Lexware: Stuttgart.

Schwaber, K. (2023): A Little History About Us. Online verfügbar unter https://www.scrum.org/about, zuletzt geprüft am 11.01.2023

Simschek, R., Kaiser, F. (2019): *SCRUM. Das Erfolgsphänomen einfach erklärt.* München, Tübingen: UVK; Narr Francke Attempto.

Sommerhoff, B., Wolter, O. (2019): *Agiles Qualitätsmanagement - Schnell und flexibel zum Erfolg*. Carl Hanser Verlag: München.
Sommerhoff, B. (2021): *QM im Wandel. Personenzentriertes Innovations- und Qualitätsmanagement*. Carl Hanser Verlag: München.
Wirdemann, R., Ritscher, A., Mainusch, J. (2022): *Srum mit User Stories*. Carl Hanser Verlag: München.