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## Changes in values: Evaluating opportunities for women's chances of female empowerment in software development

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## Changes in values: Evaluating opportunities for women's chances of female empowerment in software development

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## Changes in values: Evaluating opportunities for women's chances of female empowerment in software development<sup>1</sup>

Stefan Sauer<sup>2</sup>

### Abstract

The discrimination of women within the labor market has a vertical as well as a horizontal dimension. These dimensions culminate in the problem of highly skilled jobs within the technical sector. The proportion of women amongst employees and students in this area is very limited, the reasons for this often being old-fashioned bureaucratic structures and a hierarchical corporate culture. Despite these forms of organization, agile frameworks, which are becoming increasingly popular and important, especially within software development, are setting the benchmark for team-based structures as well as a corporate culture based on communication and cooperation. The research questions posed are therefore whether agile frameworks could be used to increase the attractiveness of jobs within the software development sector for women as well as to increase opportunities for women's empowerment within this sector. To answer these questions briefly, this paper focuses on new agile management roles as well as on women software developers in several European countries. Therefore, we will see that there are opportunities for empowering women but there is also – once again – a risk of gender stereotyping.

*Keywords:* female empowerment, digitization, gender roles, labor, software development, agile management

### Introduction

Despite discourses and political actions that favor women's empowerment and gender equality, gender inequality and gender segregation is relatively consistent when it comes to both labor market participation and reproductive work (Betrand, Kamenica, & Pan, 2015). Gender inequality within the labor market can be determined in a vertical as well as in a horizontal dimension. The vertical dimension is often described as the glass ceiling effect (e.g. Betrand, 2017). This means that despite the fact that women are very successful within education and start promising careers, the proportion of women in leadership positions is relatively low. Davidson and Burke (2016) show that this phenomenon could be detected nearly worldwide (in different shapes) by comparing the share of women in managerial and leadership positions in several countries within all continents. On the horizontal dimension, it is possible to determine gender-specific career choices (Wiswall & Zafar, 2016). These choices are surprisingly consistent within the last decades. One reason for that is the construction of gender-specific qualities, abilities and preferences, which

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<sup>1</sup> I would like to thank my colleagues A. Tihlarik and M. Nicklich for fruitful discussions and suggestions.

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affect people – even as early as in childhood – through their socialization processes (Bian, Leslie, & Cimpian, 2017; Spencer, Steele, & Quinn, 1999). In addition, the horizontal dimension reveals a gender pay gap: wages in sectors with a high proportion of female employees are lower than in those with a high proportion of male employees, and even within the same positions, women earn, on average, less than their male colleagues (Auspurg, Hinz, & Sauer, 2017). These discriminations hinder women, non-binary persons, and gender equality.<sup>3</sup> This is also the case within software development, which is connoted both structurally and culturally as masculine and androcentric (Acker, 1990; Mucha, 2014), but seems to offer lot of opportunities for women, too (Cummings & Tam O' Neil, 2015; Malhotra, 2015). In the following, I will explore the reasons for that as well as the possibilities for rectifying this problem. I will therefore introduce agile frameworks, which like to establish and strengthen team-based self-organization and push back bureaucratic and hierarchical corporate culture and structures, as a possible way of increasing the attractiveness of software development for women and empowering them in their development as well as in terms of accessing management positions (next section), and I will introduce an analytical concept for evaluating empowerment of women through agile frameworks. After introducing the methodology used in the following section, I will provide an insight into the empirical results, and then I will set out my conclusions at the end of the paper.

### **Do agile frameworks work in favor of women's empowerment?**

As we have seen above, the discrimination of women when it comes to labor market participation has vertical and horizontal dimensions. Software development, and especially management as well as leadership positions within software development may therefore be seen as the culmination point of these dimensions, as these positions are in the technical sector, highly skilled and well paid. While higher education for women is not currently a problem in many countries, the question arises as to why the proportion of women in the technical sector, and especially within engineering and software development, is relatively low. For example, in the U.S. in 2019, women comprised 25.8% of the workforce in the information and communication technology sector (ICT), 18.7% in the field of software development and only 9.2% in network architecture (U.S. Bureau of Labor, 2020). In Germany too, information technology (IT) is a relatively male-dominated sector; women constituted only 18.4% of the workforce in 2019 (Institute for employment research [IAB], 2019). Interestingly, the proportion of women has decreased since 1999 by about 2.5% in core IT professions (IAB, 2019), which is quite alarming because of its not in favor of female empowerment and gender equality. In India, the proportion of women in ICT is also low, but universities are becoming increasingly diverse especially within ICT and similar studies: for example, 48.77% of all graduates (B.A.) in computer engineering are female, but only 5.47% in mechanical engineering (All Indian Survey on Higher Education [AISHE], 2019, 167). The proportion of women among Ph.D. students in their final year is 35.53% (AISHE, 2019, 169f). In sum, looking at the data, the proportion of women within the IT/ICT sector is relatively low; the numbers are increasing in some countries like India, but not worldwide.

According to the literature, there are two main reasons for this, which takes us to the two core questions of the study. The first one, as mentioned above, is the construction of allegedly gender-based interests and competencies within the socialization process (Bian et al., 2017; Spelke

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<sup>3</sup> For a holistic perspective on empowerment it is important to focus all aspects of gender diversity including transgender and non-binary persons. Unfortunately, I have a lack of empirical data at that point, therefore I will exclusively focus women's empowerment in this article.

& Grace, 2007; Spencer et al., 1999), which leads to consistent gender-based career choices: women often work in jobs with caring, educating and coaching duties, and men often work in technical and managerial jobs as well as leadership positions (Correll, 2016; Steffens, Jelenec, & Noack, 2010; Wiswall & Zafar, 2016). Besides the construction of gender-based interests and competencies, there is also a fear of discrimination if the own career-choice is different than in common. The discrimination of women in these processes might be examined in two different ways: stigma consciousness and stereotype vulnerability (Cadaret, Hartung, Subich, & Weigold, 2017). Due to Cadaret et al. (2017, 42) especially stigma consciousness plays a crucial role. It is defined as “expectation of judgment based on one’s group membership.” In other words: women fear that they are stigmatized within technical jobs as well as in leadership positions just because they are female. In addition, styles of hierarchical leadership are often connoted as ‘male’, while cooperative styles of leadership focusing on coaching and networking are connoted as ‘female’ (Book, 2000). We may therefore ask whether new agile approaches, which conceptualize management not as based on principles of hierarchical leadership and bureaucracy but on principles of supporting and coaching, increase the attractiveness of these jobs for female employees. And if they do, the next question would be whether this works in favor of female empowerment or leads to gender stereotyping and a gender-based division and hierarchization of work once again. The first would be the case if new agile management positions were to make it possible for female employees to access demanding and fulfilling, well paid and secure jobs within ICT corporations which are managed by agile principles and frameworks. The latter would be the case if there were so many coaching and supporting aspects within these jobs that this gave rise to a kind of ‘care work 2.0’ or – in terms of the 4.0-analogy – ‘care work 4.0’. For example, the latter would be the case within a corporation with mostly men as software developers and mostly women as managers, who only take care of aspects like well-being. As we might see in that example, there seems to be a small but very important difference between caring and coaching leadership on the one hand and a kind of serving ‘wellness-management’ on the other hand.

The second reason is that software development is often connoted as masculine and androcentric (Acker, 1990; Mucha, 2014): despite all the discourse about start-ups, most jobs in this sector are within large companies, which means bureaucratic organization and hierarchical structures. Hence, not only technology itself but also the way it is developed may be seen as androcentric (Faulkner, 2001): rigorous planning in advance combined with extensive controlling practices, leading to isolated and technocentric work with no place for cooperation, communication, mutual learning and understanding, and so on. Incidentally, it is probably not a coincidence that vocabulary such as androcentric and capitalistic both come to mind. Bureaucratic demands and, in particular, a large amount of controlling duties are not conducive to the innovative and flexible labor of software developers. This gives rise to contradictory labor demands, which are detrimental to many employees and lead to stress and sometimes even burnout (Pfeiffer, Sauer, & Ritter, 2019). For several years, people have joked that developers and engineers are not developing and engineering but only fixing the presentation for the next management meeting; they are so-called ‘PowerPoint engineers’ and ‘Power Point developers’. The non-conducive environment and the counterproductive demands are challenging and, ultimately, even dangerous for male as well as for female employees (Bourgault, 2016; Kaufmann, Borry, & DeHart-Davis, 2018; Kaufmann, & Tummers, 2016). However, it seems that due to the on-average more extrinsic motivation of male employees, these are especially problematic for female employees, who are on-average motivated more intrinsically (Bourgault, 2016). Very bureaucratic and hierarchical structures therefore seem to be a major problem for all employees within software development and engineering, and especially for

women, even though a kind of balanced bureaucracy is seen as a potential source of female empowerment in some cases (Baron, Hannan, Hsu, & Koçak, 2016) and the concept of the patriarchal connotation of bureaucracy is sometimes challenged (Wickham, Collins, Greco, & Browne, 2008). At this point, agile frameworks could come into play, providing stability in flexibility, which is positioned between top-down bureaucracy and a kind of start-up anarchy. Interestingly the aspects focused on above are also identifiable within universities: the proportion of female students in so-called MINT-areas (mathematics, informatics, natural science, technology, engineering and similar) who drop out of university seems to be quite high in most of the countries examined, and the main reasons for leaving MINT-area courses or university as a whole are that self-efficacy is seen as quite low (Fellenberg & Hannover 2006) and the courses are seen as too theoretical, too bureaucratic and based on outdated knowledge (Hofer et al., 2011). We may therefore ask whether agile approaches could pave the way for more cooperative, team-centered and modern software development, and whether this could work in favor of female empowerment.

Before I try to answer these two main questions, based on my ongoing studies, I will give a short explanation of agile methodology and especially the agile framework Scrum. For decades, project management, which was increasing in importance, was seen as a more contemporary solution to how to reconcile bureaucratic organizations with the flexibility to face challenges due to complexity and uncertainty. Hence, thinking in terms of projects and projectization was becoming more prevalent. Boltanski and Chiapello (2007) in particular discuss, in their groundbreaking work on the “New Spirit of Capitalism”, the formation of the “projective city”, which is seen as the reaction to the unsatisfied needs of the previous epoch, such as autonomy, creativity, spontaneity and mobility. Within these societal as well as organizational settings, the tensions within common project management and the differences between claims and reality were becoming increasingly obvious. With regard on organizations Clegg, da Cunha, and Cunha (2002, 483) stated that “All organization is founded on paradox: on the one hand it contains free, creative, independent human subjects; on the other hand the relation between these subjects aspires to be one of organization, order and control.” Hence, common project management approaches focus too little on creativity and cooperation while there are in favor of order and control practices. Because of that, these approaches were developed further in the form of agile management, for agile methodologies represent a ‘people’-centered approach, including flat hierarchies and low levels of documentation. Moreover, as ‘agile’ is generally linked to speed and responsiveness, the terminology seems to appeal to organizations as well (Cram & Newell, 2018, 74). According to the Status Quo Agile, 84% of agile working employees use Scrum – in its pure form or in combination with other agile frameworks (Komus, 2020). Scrum is therefore the agile framework most in use. The starting point for a broader reception of Scrum as well as other approaches was the so-called Agile Manifesto, which was released in 2001 and has been translated into more than 60 languages over the past few years ([agilemanifesto.org](http://agilemanifesto.org)). It contains four core values and twelve principles. The aim of the authors is to strengthen both development processes and cooperation with customers, avoiding documentation overload and what they call the ‘Taylorization of software development’. According to the principles of the agile manifesto, there is a strong focus on team-based work and especially self-organization, supported by the Scrum Master in a kind of supporting management role (although there is nobody titled as a ‘manager’ or ‘leader’ in agile approaches). In addition, within agile approaches, there is a so-called Product Owner. This is the role which is responsible for the use value of the product being developed and therefore represents the customer during the planning meetings. Supported by the Scrum Master, the development team organizes itself in iterative cycles, so-called sprints (usually two to four weeks), which start with a planning meeting (sprint

planning) and include short daily meetings, usually lasting up to 15 minutes (daily scrums). At the end of a sprint, there is a so-called sprint review, in which the technical result of the sprint is shown and discussed, and a so-called retrospective, in which the development team reflects on its processes. During the sprint review, the customer itself might be present. The aim of these processes is to put the development team at the heart of the project, as well as ongoing and intensive cooperation within the team, with the two other agile roles (Scrum Master and Product Owner) and with the customers. Within the empirical findings, we will have a closer look especially at (female) team members and (female) Scrum Master.

### **Analytical concept: Empowerment**

As we have seen above, agile frameworks such as Scrum could be seen as potentially working in favor of female empowerment with regard to team-based software development as well as new management roles such as Scrum Master. Therefore, we will have a closer look at (female) software developer within agile teams and (female) Scrum Master with these two interlinked research questions which we have developed above:

- Do new agile approaches, which conceptualize management not as based on principles of hierarchical leadership and bureaucracy but on principles of supporting and coaching, increase the attractiveness of these jobs for women?
- Could agile approaches pave the way for more cooperative, team-centered and modern software development, and could this work in favor of women's empowerment?

Before we go further, we have to take a closer look at the definition of empowerment. The term plays a crucial role in debates according to claims of so-called new work (Bartunek & Spreitzer, 2006; Edwards & Collinson, 2002) and has its origin within community psychology (Rapaport, 1981). Generally speaking, the term "means the expansion of feasible opportunities and the belief that one's actions can change or transform the field of possibilities" (Dykstra-DeVette & Canary 2019, 326). Therefore, the definition of empowerment fits perfectly for our two research questions because they focus on the attractiveness and the opportunities for female employees due to agile frameworks like Scrum, especially within Scrum developing teams and Scrum Masters. To decide if there is a kind of empowerment, I suggest an analytical concept based on the following themes:

- Gender roles within (the management of) software development projects: To answer this question, we need to establish how large the proportion of female employees in the different agile roles is – and we also have to make a comparison with non-agile roles. For example, is the proportion of women amongst Scrum Masters higher than the proportion of female project leaders?<sup>4</sup>
- Description of roles and positions: How are the roles described? Do they have empowering job descriptions and narratives? And are these titles and narratives the same for male and female employees? For example, a Scrum Master could be seen as a coaching-focused, modern concept of management or as a kind of internal service provider for the development team.

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<sup>4</sup> At this point, also transgender and non-binary persons play a crucial role. Due to the lack of the empirical data, I am not able to focus on these gender roles in this article.

- Organizational status and connection to technology: What organizational status do the agile roles have? What kind of education and degrees do the Scrum Masters have? Are they also software developers, engineers or, for example, MBAs? Are there differences between women and men?
- Activities: Which tasks do the employees have and how do they handle them within their daily work? How do they perform their new agile cooperation duties?
- Stress management: fewer hierarchies and less documentation, as well as more cooperation and team-based self-organization, seem to be a good thing for employees – but these are also duties, so they could add to the workload. We therefore have to ask about the opportunities and challenges connected with producing work of a good standard.

These five topics should help to assess whether new agile approaches work in favor of women's empowerment, especially for software developers and so-called Scrum Masters: They focus the questions, if jobs within agile teams and their management are attractive for women, if these new or modified jobs are acknowledged, which tasks they focus and if they offer sustainable 'decent work'. Before looking briefly at the empirical results, we will focus on our empirical setting and our methodology.

### **Empirical setting and methodological insights**

The empirical data contains two case studies based on cross-case selection (Seawright & Gerring, 2008, 300) within the research project diGAP (Decent Agile Project Work in a Digitized World, financed by the German Federal Ministry of Education and Research and the European Social Fund). One case is a large, globally active corporation with around 42,000 employees; it has a long history and a very bureaucratic and hierarchical structure, and this also affects software development. The second one is a relatively small enterprise with 450 employees, which is organized on a relatively agile basis, with low hierarchies and a minimum of bureaucracy from the beginning. In both companies, my colleagues Amelie Tihlarik, Manuel Nicklich (both FAU Erlangen-Nuremberg), Judith Neumer (ISF Munich) and myself conducted 17 interviews lasting about 90 minutes each with employees working in Germany, Spain, Romania, Hungary and Russia: about a quarter of them were female employees, which was double their percentage in the software development sector within the companies. Within the small and middle enterprise (SME), I had already conducted 20 interviews prior to this project, which were part of the research project Balance.arbeit (Balanced Work, financed by the German Federal Ministry of Education and Research and the European Social Fund). The interviewees were selected due to their gender, age, experience and their membership within the company. The possible interviewees were asked if they are interested in participating within our project, also with focus on organizational change. In addition, we (colleagues from Input Consult and myself)<sup>5</sup> conducted an online survey with n=1,512, with a response rate of about 70% within the corporation. Within the corporation, we (myself with colleagues from FAU university) conducted four videographies from agile meetings such as sprint planning, daily scrum and retrospective. In both case studies, we try to act for organizational change using elements of participatory research and action research (Kriti, 2019).

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<sup>5</sup> I would like to thank I. Roth and C. Zanker for their support.

## Empirical setting

Table content	Corporation	SME
Qualitative interviews	17	17 + 20
Online survey	1 (n=1,512)	-
Videography	-	4

The resulting material was analyzed using qualitative content analyses based on Mayring (2000). In the empirical findings, I will use data for a cross-case conclusion (Yin, 2009). The data offers us insights into a broad variety of different settings for scrum teams, because within these settings, the Scrum agile approach is used either for teams only (corporation) or as a common component in the company and its culture (SME); it has either been used for a few years (corporation) or for more than ten years (SME), and it is seen either as a kind of exotic admixture (corporation) or the single best approach often described as “the one best way” (SME). Therefore, a broad variety of working and organizing with the Scrum agile approach could be focused with the study. An important limitation is that the empirical data was conducted in Europe only so thus far. Therefore, we cannot focus on cross-cultural differences even though they seem to be very important for variations in gender stereotyping in management positions (see f. e. Malach-Pines & Kaspi-Baruch, 2008).

## Empirical findings

To answer the question of whether new agile frameworks such as Scrum increase the attractiveness of jobs within software development and new management positions such as Scrum Master for female employees, I will try to address the components of the analytical concept as shown above.

### *Gender roles within (the management of) software development projects*

In terms of gender roles, there is no significant deviation based on the online survey we conducted within the corporation. According to the data, the proportion of females working with agile approaches is less than the proportion of males, but this is very likely to be a triple down effect. Based on our interviews in both companies, there are no significant differences detectable between the proportion of female employees within agile and non-agile projects, whereas many female interview partners claim that, in their opinion, working in agile environments is especially attractive for female employees. Therefore, there seem to be a lot of expectations especially regarding cooperation and teamwork within the agile approaches.

### *Description of agile roles and positions*

Another important question is whether all of these roles are seen from the perspective of the specific profession or whether they are interwoven with gender specific stereotypes. In both companies, and especially within the SME, software developers have a high status and software development teams are seen as the heart of the company (SME) or the unit (corporation). As a software developer told us: “We are the heart of the project, because we do the development and we manage our work ourselves. Therefore, in my opinion this is not just a saying, but we really live this.” This applies both to development processes themselves and to duties dependent on team-based self-organization. However, the status of decisions based on these processes is often

challenged: within the corporation by higher management, and within the SME by the customers. As regards this high but challenged status of the software developers, the role of Scrum Masters is especially important, because their role is to protect the team, ensure processes are adhered to, and remove impediments detected by the team. Here, we can see a significant difference between the SME and the corporation. Whereas in the SME the role of Scrum Master is fully known and accepted, within the corporation it is often challenged. As one Scrum Master told us: "I have to explain again and again, what competencies I have, which things I can do and which I can't do." Conflicts arise with higher management, because many in leadership positions treat Scrum Masters like team leaders and are very disappointed if they do not act as such. By contrast, Scrum Masters have a relatively low status within the team. They are not team leaders, but they gain trust and respect through their work for the team, and this seems to function well. So, interestingly, the 'lower' status of the Scrum Master in relationship to an agile team is not a problem between team and Scrum Master or Scrum Master and other positions within an agile environment, but it is a problem between Scrum Master and higher management and leadership positions. For female Scrum Masters, there seems to be a danger of the suspicion arising that they are not acting as team leaders because they are female. As one Scrum Master told us: "So, I have to explain it again: I am acting as I am acting because I am a Scrum Master, not because I am a woman." It seems, therefore, that explaining non-hierarchical behavior when the person in question is perceived as being in a hierarchical position is more difficult for women than it is for men.

#### *Organizational status and connection to technology*

All the interviewees, survey participants, software developers and Scrum Masters have the same organizational status and connection to technology. All of them are employees at the company – which also means there are no freelancers, or workers similar to freelancers, within the Scrum Management either – and all of them have a technical background: all the Scrum Masters and most of the software developers have a bachelor's or a master's degree. This means there seem to be no opportunities for MBAs, or people with similar qualifications, to work as Scrum Masters as part of their career path. Although the Scrum Master has some managerial duties, all of our interviewees think that it is important for Scrum Masters to have a broad technical knowledge and understanding. This is very important for Scrum Masters in comparison with other new managerial roles which do not have this recognition and status, even though their tasks may be similar, e.g. Feel-Good Managers (Sauer & Tihlarik, 2020). Within the corporation, there are ongoing negotiations about wages and job descriptions between leadership positions and the works council. The concern of the works council is that less hierarchy and therefore fewer management positions lead to a lack of promotion opportunities for employees. According to our survey, only 18.0% of male and in fact only 12.4% of female employees think that they have good or very good career opportunities within the corporation. Within the SME, employees told us that although there is a positive and relatively familiar corporate culture, wages are lower in comparison to larger companies. There are therefore experienced colleagues who leave the company in order to earn higher wages in other firms. This is not a single case, and of course agile frameworks cannot be seen as the reason for it, but it seems there is a risk of playing off an agile and familiar corporate culture against high wages and promotion opportunities. This risk is not a gendered one, but due to motivational issues (extrinsic vs. intrinsic, see above), it might be dangerous, especially for female employees.

*Activities, tasks and daily work*

When it comes to activities and daily labor processes, technical aspects and those of team-based self-organization are very important for agile software developers. The team itself is mostly seen as a very important support, as are the agile meetings, which offer collegial mutual help and support. The team culture is described as very positive and worthy of trust by all interviewees. "I can trust my colleagues. I can ask them for help if I have a specific problem; this is very important for me", as one interviewee told us. Another mentioned: "We have a good team culture, so we can discuss technical problems without this resulting in personal conflicts." There are two main reasons why mutual support within the team and a positive team-based culture do not automatically lead to a good standard of work. Firstly, team-based self-organization is often overruled, within the SME by customers and within the corporation by higher management. Within the corporation, only 53.2% of the male and in fact only 35.2% of the female software developers told us that they have significant or very significant influence over their workload. In addition, 42.7% of the male and in fact 54.1% of the female software developers told us that they have little or very little power at their disposal with regard to their own working time. For agile project work this is much too low, and female team members in particular do not seem to have a lot of opportunities for (promised) self-organization, or – even worse – they seem to have duties without rights. A special problem for women among the employees seems to be their status within the team due to their gender as a software developer told us: "Sometimes in our agile meetings I hold myself back a little. There are so many important things to discuss and we have not enough time. So, I ask myself: Is my issue really important for everybody? For me, this is ok, but honestly I don't think that my male colleagues all think and act in the same way." Also, this is only a single statement, it is very noticeable, that half of the interviewed women mention a similar question ("Is my issue really important for everybody?"), but no interviewed men does.

The second reason is documentation duties. Whereas in the SME the documentation is relatively agile, and the interviewees see that as a big plus for their work, within the corporation, agile documentation is often not instead of, but on top of, former documentation and controlling duties. Again, female employees seem to be affected most: 77.5% of male and 83.3% of female employees think that controlling duties are not combined carefully enough with agile organization and documentation. 71.5% of the Scrum Masters are of the same opinion. Not surprisingly, they think that the handling of documentation duties is a core issue within their work. Besides this, cooperation with the team as well as with management positions and sometimes even with customers is seen as their main duty. As one Scrum Master told us: "I see myself as a kind of a lightning rod for the team."

*Stress management*

As we have seen above, working in agile teams seems to have many advantages, but also disadvantages and risks for employees, especially for female employees. The workload is a little lower than average, as also confirmed by the Status Quo Agile (Komus, 2020). However, whereas the employees within the SME who have no excessive documentation duties and fewer problems with regard to hierarchies think that their workload is sometimes quite high, but acceptable overall, many employees within the corporation are of another opinion: 84.0% of male and 89.7% of female employees say that their workload is too high or even far too high. 51% of male and 57.2% of female employees say that they are often, or very often, at their personal limits, and 41.9% of male and 48.6% of female employees frequently, or very frequently, cannot relax during their time off work. In fact, 50% of Scrum Masters say the same. Besides the average stress level, the main

source of stress is different within the two case companies. Within the corporation working agile in a non-agile environment is a big challenge for software developers as well as for Scrum Masters as we have seen above. As a software developer told us: “Sometimes I feel like there are two hearts in my breast: I want to act in an agile way with my colleagues, with my team, but instead of that I have to do documentation again and again. That is really annoying for me, this is stress.” Within the SME team culture is a big plus but can create stress, too. A software developer told us: “When my colleagues are waiting, I know that I have to finish my task because they need my results to continue, this is very stressful for me and I think that this is exactly the same for them: we don’t want to let anybody down and that is great and stressful at the same time.” In addition to that there sometimes is a big need for overtime in both companies with is especially stressful for most of the interviewed women because of the gender roles concerning carework and the fact that both companies don not offer childcare. As a Scrum Master told us: “I have to be at the office, and I have to be at home at the same time quite often – and that’s not easy.”

## Conclusion

As I have shown above, agile frameworks such as Scrum seem to offer many opportunities for software developers and an abundance of managerial positions such as Scrum Masters, but there are also many risks, especially with regard to unresolved contradictions between agile and old-fashioned approaches when it comes to documentation duties, self-organization duties, opportunities and career options. Whereas there is evidence that agile approaches seem to be very popular for women and that they could work in favor of women’s empowerment and overcome old-fashioned androcentric corporate culture and structures, the risks also seem relatively high, especially for female employees. This is especially the case when there are unresolved contradictions and contradictory working demands, for example when women Scrum Masters have to justify their role again and again and there is no understanding depending their role and tasks. Another risk, which comes along with self-organization and which is especially high for women is stress because of working demands without necessary resources offered by the organization or the team. Furthermore, agile working must not be seen as compensation (offered to women) for a well-paid job, recognition and career opportunities but as a possibility to gain all of it. To avoid those obstacles, I recommend agile teams, which take self-organization seriously and therefore have enough resources and build team-processes as a kind of a protective space in order to avoid stress. Furthermore, a clear communication process is needed, which explains the tasks of agile teams and Scrum Masters also to other management and leadership positions. Within the team, it is important that women are not silenced, therefore a reflection of gender stereotypes is useful.

Unfortunately, this study has not been able to address the cross-cultural aspects within this topic in an appropriate way because of the limited empirical setting. Hence, additional research seems to be necessary especially at that point.

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