
WANTED

FEMALE DEVELOPERS!

The attractiveness of an employer under the microscope



 shopware®

WANTED: Female developers!

The attractiveness of an employer under the microscope

BACHELOR THESIS

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Preface

Dear reader,

With this thesis, I am graduating from my bachelor's degree in the study Human Resource & Business Management at the University of Applied Sciences in Enschede.

This is the result of a four-month investigation about the job and organizational attractiveness of shopware AG regarding the position of female developers. Therefore, gender is discussed in the whole research. It is important to me to emphasize that I do not want to exclude the gender 'diverse' but scientific references confirm differences between women and men which are interesting to shopware AG regarding this topic. This research is commissioned by shopware AG and took place in collaboration with the research group 'Attractive employment & Managing the new.'

First, I would like to thank Anne Göpel and shopware AG for the possibility to execute this interesting research. Thank you for your support and availability during the whole period. Moreover, I am thankful for the trust you gave me and that I had the chance to get to know this inspiring organization better in which I was always interested in.

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Moreover, I would like to thank my respondents who participated in my research. I am thankful for your time, commitment, enthusiasm and honest opinion. Additionally, I would like to thank the Scrum Expert and the Talent Manager of shopware AG who were available for me to gather additional information.

Finally, I would like to say thank the School of Human Resource Management & Applied Psychology. The recent four years, I enjoyed studying there because of the close contact between teachers and students and the warm atmosphere. I learned a lot about Human Resource Management but also about myself. I am very grateful for that! I am proud of who I became through my studies.

I hope you enjoy reading!

Kind regards
Lina Maring

Abstract

The organization shopware AG is with its software 'Shopware' one of the biggest innovation drivers in German e-commerce. The company has the ambition to grow and to realize its mission to revolutionize the digital trade and to create trendsetting e-commerce solutions (shopware AG, n.d.b.). To develop state-of-art software for e-commerce shopware AG needs creative and innovative thinkers. The organization experiences a lack of female developers in their core department, 'Research & Development.' Regarding van Knippenberg and Schippers (2007) diversity increases the productivity, the innovation and creativity capacity of an organization due to a broader range of skills, task-relevant knowledge, perspectives and abilities. Hence, the organization aims to attract more young female developers by increasing the attractiveness of the job and organization. Thereby, the central question of this research is: *"How can shopware AG increase its attractiveness of the development job for (young) female ICT students to attract more female developers?"*

Chapman (2005) found that the content of work, the work environment and the image of an organization influence the attractiveness of a job and organization. Corporaal (2014) investigated which aspects young job seekers find attractive regarding these characteristics. Based on these outcomes, interviews were held with potential female developers. Six German, female ICT students were questioned about the characteristics to get an insight into how female developers define job and organizational attractiveness. Since this target group is hard to find, just a small number of interviews took place which has influenced the representation of the results. Thereafter, the two female developers of shopware AG who were following an educational program, were interviewed about their experiences relating the aspects. Since shopware AG experiences a lack of female developers, these two women were the only source of information about how female developers experience shopware AG as an employer.

The expectations of the female ICT students and the experiences of the female developers were compared, and one concluded that shopware AG is overall an attractive employer for female ICT students. One found that the female developers experience 'challenges', 'variety', 'autonomy', 'the relationship with colleagues & manager', 'training & development opportunities', 'physical environment' and 'image' more or less as the female ICT students expect. The female ICT students expect clarity, but this research has shown that there is more research needed in respective this aspect since one female developer experiences unclarity. Moreover, this research has shown that shopware AG offers flexibility as the female ICT students desire. However, the female developers experience the worktime less flexible than it is.

One concluded that the small research population has influenced the reliability and representation of the results. However, in the frame of this research one can state that the job of a developer within shopware AG and the organization as an employer seem not to be the reason for the lack of female developers. To give an answer to the central question how the organization can attract more female developers, one gives the recommendations to increase the visibility of the organization and so create an environment for female developers in which they feel comfortable and can develop a great extent of self-efficacy. To increase the visibility, the recommendation is given to build a relationship with Universities of Applied Sciences through internships. Further one recommends offering a developer workshop for ICT students to promote shopware AG as an employer, to discover talented developers, support self-efficacy of female developers and increase the innovation of the organization.

This research found that people have unconscious gender bias and women tend to deny problems within a male-dominated environment as a survival mechanism (de Vries et al., 2018). That is why, one recommends shopware AG to implement value affirmation meetings in which employees, and especially women, can discover their personal value with the goal to support a fit with the environment and to increase self-efficacy. When the organization realized to employ more women, the suggestion is given organizing an unconscious bias training to increase the awareness of stereotypes and to avoid them. How to implement these inventions and the costs and advantages of these suggestions can be found in the implementation plan (appendix 10).

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1. Introduction

The company shopware AG was founded in 2000 and is now considered one of the leading drivers of innovation in German e-commerce. In recent years, the company has experienced growth, however due to the tight labor ICT market, overwhelming lack of female applications, and its geographic location, shopware AG faces difficulties diversifying their team and filling open positions for developers. Therefore, shopware AG wants to increase the perceived appeal of this job, in particular for female ICT students, in a measure to attract more female developers. What shopware AG does, why the organization wants to attract more female developers and the theoretical relevance is discussed in the following sub-paragraphs. Moreover, the goal of this research and the thesis outline will be clarified.

1.1 About shopware AG

The company is based in Schöppingen, a small town situated in ‘Münsterland’ (North Rhine-Westphalia, Germany). Since 2000, more than 80,000 online shops have used their software as the technological basis for their e-commerce business (shopware AG, n.d.b.). The independent, equity-financed company has more than 1,200 partners in Europe who sell and customize their core product, also called ‘Shopware’. Aside from Germany, shopware AG is also one of the market leaders in Austria and Switzerland (A. Göpel, personal communication, November 22, 2018). In 2010, shopware AG released their code as open source and free to download. As a result, downloads increased exponentially and shopware AG came to prominence in the e-commerce sector. Next to the free version, there are also commercial versions, on which the business model of the organization is based (shopware AG, n.d.c.). The company has reported an annual sales growth of 40% and since 2016, shopware AG has also been active in the UK market. From their satellite office in London, the company is establishing the UK as another core market (shopware AG, n.d.a.).

With the help of passion, innovation and attention to detail, shopware AG strives to realize its mission “*to revolutionize digital trade and to create trendsetting e-commerce solutions*” (shopware AG, n.d.b., section “inspiration”). For that, the company lives its corporate values which are ‘open’, ‘authentic’ and ‘visionary.’ They execute and encourage openness and transparency in all products and processes. Moreover, the employees are idealists, engineers and creative thinkers who continue to change the status quo with state-of-the art products. To shopware AG, e-commerce means People Business, the reason why the software is developed for the people who use it (shopware AG, n.d.c.). The core department of the company, ‘Research & Development’ (hereinafter ‘development department’), is the largest department, accounting for 35% of the 200 employees. Those who work within this department are responsible for the development of the software product line. Next to this department, there are five departments, including ‘Sales’ (24%) and ‘Technical Engineering’ (13%). Moreover, the company has five directors and seventeen team leaders who guide and support the employees. The organization has three board members who are also the founders of the company (A. Göpel, personal communication, December 13, 2018).

1.2 Wanted: Female developers

The average employee age within shopware AG is 29 years, and the majority of its employees are male. In terms of female representation, a total of 45 women work within the company which makes up nearly 27% its total employment. Within the development department just two of the 55 employees are female; one of which is doing her internship at the company, while the other is following an apprenticeship and studying at a University of Applied Sciences at the same time (shopware AG, 2018). In the course of 1.5 years, shopware AG filled 12 (FTE) developer vacancies – and not a single new hire was female. In 2018, shopware AG received eighty applications for positions in tech, among which were only five women (A. Göpel, personal communication, February 13, 2019). To achieve the same number of



applications for development positions as the remaining departments, the human resource department (hereinafter ‘HR’) needs to put a lot of effort in the recruitment process for developers. One employee, for example, actively sources for developers via Xing and Stack Overflow once per week. Moreover, HR actively cooperates with headhunters and HR makes use of special recruitment activities for JavaScript and Frontend Developers.

The geographic location of shopware AG makes hiring developers even more challenging. The company is based in a rural area. Even outside the area of Schöppingen, it is difficult to find possible employees who are also willing to travel longer, or even relocate, to work at shopware AG. That is why the organization aims to offer a great place to work. The rural environment offers to build a campus, on which the employees have enough scope to find inspiration, can move and breath fresh air (A. Göpel, personal communication, November 22, 2018).

Further, shopware AG annually participates in an anonymous employee survey which is conducted by the institute ‘Great Place to Work.’ The survey investigates the employee’s opinion about reliability, respect, fairness of the organization, how proud the employees are and to what extent they experience team spirit. Based on the outcomes HR implements or changes policies in favor of the employees. The recent survey shows that 98% of the employees agreed with the statement that Shopware offers a great workplace (Great Place to Work Deutschland, 2019). This survey showed that shopware AG stands out from the market with the possibility of a work-life-balance and the offered special social benefits. To make a work-life balance possible, the employees have flexible working hours and can work at home once per week. To support building a family, shopware AG pays the bills of daycare facilities for children, offers ten child-care days (100% salary) additional to 28 holiday days (unnoted the contract hours). Furthermore, mothers can work 50% from home and can determine their contract hours themselves after childbirth. The goal is to be more attractive to women. However, shopware AG did not realize to attract more female developers yet.

The organization is convinced that the cliché of development is the reason for the lack of female developers. Hence, shopware AG wants to change the image of a developer and participates in ‘Girls Day’ so that girls can get to know the job of a developer and can get an insight into programming. Moreover, HR offers ‘Code Camps’ for girls and boys in the age of 10-14 years in which they can experience programming. Furthermore, shopware AG invites schools to present itself as an employer, to introduce different positions of the organization and programming to pupils. To shopware AG it is important to contribute to the pupils’ education. However, these interventions are not successful yet.

1.3 More diversity is needed

Females continue to be significantly underrepresented in the tech industry and constitute only a very small percentage of the labor market (Statistik der Bundesagentur für Arbeit, 2018). The tech industry is growing rapidly due to digitalization. The number of online shops is steadily increasing; partly effected by the modernization of countries, the utilization of smartphones, and the greater accessibility and convenience of the internet (Statista, 2019). The company recognizes a growing demand for small and large retailers and has therefore the ambition to grow (A. Göpel, personal communication, November 22, 2018). The organization is eager to address the gender imbalance and recruit and hire more female tech talent; an initiative that is closely related to their mission of developing state-of-art products that are representative of their users.

The fact that only 3.5% of the workforce in the development department is female, illustrates an alarming lack of gender diversity. In 2019, shopware AG aims to hire 14.5 FTE, whereof 6 FTE are developers (A. Göpel, personal communication, February 13, 2019). This is a challenge due to the tight labor market (CBS, 2017). Moreover, hiring more female developers poses an even greater challenge due to the lack of female developers (Statistik der Bundesagentur für Arbeit, 2018).



A larger inflow of women could help shopware AG to realize the mission. Research shows that more diversity in the workforce has a positive effect on productivity and innovation and creativity capacity in the ICT sector (van Knippenberg & Schippers, 2007). For shopware AG, creativity and innovation are highly important for developing trendsetting e-commerce solutions for the future.

In social psychology, ingroup members are more inclined to favor one another than outgroup members. Homogeneous groups work more smoothly, are more satisfied and more attracted to group members than those of diverse groups. But diverse groups have a larger pool of resources. Due to the differences (e.g. gender, cultural, educational) the group has a broader range of skills, task-relevant knowledge, perspectives and abilities. Although the chance for conflicts increases, diversity can be used for dealing with non-routine problems and being more creative and innovative (van Knippenberg & Schippers, 2007). Additional effects of diversity include a greater attraction of top talents, more customer focus and satisfaction, and therefore better results (Hunt, Layton, & Prince, 2015). Hence, one could argue that gender diverse teams positively influence the development team. Moreover, female representation is essential to the ICT company to truly develop products that are a reflection of society. The company states: “*Our software is developed for the people who use it*” (shopware AG, n.d.b section “Inspiration”). Besides cultural values, this is a key source for inspiration of the company and largely determines the product development. To live up to their mission, it is necessary to increase the female workforce within the development department. Therefore, it is a great need to attract more female employees.

1.4 Theoretical relevance

The organization, shopware AG, aims to attract more female developers to increase the diversity which has positive effect on realizing the mission. However, the economic situation and their award “Great Place to Work” seems like a good starting point to reach this goal while the tight labor market and the location make it challenging. Moreover, there are no insights in how female developers’ experience shopware AG as an employer and what this target group values about an employer. The scientific references also show a lack of insight regarding this topic. Therefore, this is currently an important scientific research aspect. Regarding to de Vries et al. (2018) women, who have chosen to work in the ICT-sector, leave because they are dealing with obstacles. There is a misfit between women and the technical environment. Firstly, the content of work and requirements of work do not match with the expectations of women. Moreover, there is a misfit between the organization and the norms and values of women. Further, the collaboration between women and their manager and colleagues do not match. The result is a low sense of belonging which has next to low self-efficacy the result of outflow (de Vries et al., 2018). That is why the organization should investigate in methods to increase the attractiveness of the job of a developer within shopware AG and the attractiveness of the organization specifically for female developers. Job and organizational attractiveness can be defined as the degree to which the job seeker thinks that their preferences for certain outcomes can be realized in a specific job and organization (Vroom, 1964). Regarding to Chapman, Uggerslev, Carroll, Piasentin & Jones (2005) the attractiveness of a job and organization is a predictor for the actual job choice and the intention of a job seeker to apply.

1.4.1 Job and organizational attractiveness

The research of Chapman et al. (2005) shows that organizations should focus on the content of work, the work environment and image of the job to increase the attractiveness for job seekers who have not been in contact with the organization yet. The content of work can be described with the help of three different job characteristics: ‘challenge’, ‘variety’ and ‘autonomy’ (Van Hove & Saks, 2010). Next to the content of work, the work environment also influences the intention to accept the offer directly (Chapman et al., 2005). Regarding to Van Hove and Saks (2010) the working environment consists of five job and organizational characteristics: ‘manager’, ‘colleagues’, ‘training and development



opportunities', 'flexibility' and 'physical workplace.' The third predictor of the attractiveness of an organization is the image (Barber, 1998). The whole of subjective, abstract and non-tangible organizational characteristics that an organization evokes and the extent to which it is associated with 'intelligent', 'technical' and 'successful' describes the image of an organization (Van Hoye & Saks, 2010). If the job seeker thinks that their preferences can be realized within the company an employment arises. An employment is "*the results of a series of decisions made by both the organization and the individual*" (Schwab, 1982, p. 104). In recruitment, the individual determines the match with the organization and the job characteristics (Barber, 1998). Thus, it is necessary to consider the individual's perspective in recruitment. This research focuses on the young, female applicant population of shopware AG which makes it interesting to investigate the perspective of young, female developers.

1.5 Objectives

The company is growing and aims to attract more female developers to combat the skill shortage and increase the diversity of the department. With the help of qualitative research, one investigates what female ICT students desire regarding aspects which relate to the job and organizational attractiveness of their future employment. Furthermore, one investigates how female developers of shopware AG experience these aspects. In this way, recommendations can be given how shopware AG can realize the goal to attract more female developers.

With the help of this research, an answer will be given on the following central question:

How can shopware AG increase its attractiveness of the development job for (young) female ICT students to attract more female developers?

To give an answer to this question, sub-questions are developed:

1. How do female developers of shopware AG experience the content of work, the work environment of their job and the image of the organization?
2. How do female ICT students describe an attractive organization regarding the content of work, the work environment and the image of an organization?
3. To what extent is the job of a developer at shopware AG attractive to young female ICT students regarding the content of work, the work environment of the job and the image of the organization?

1.6 Thesis outline

In the next paragraph, the theoretical framework is presented. For this, scientific references were used along with the doctoral dissertation of Corporaal (2014) who already performed an investigation about the job and organizational attractiveness. To give an answer to the central research question, female ICT students and female developers of shopware AG are interviewed. The questions of the interviews are based on the survey Corporaal (2014) developed in his doctoral dissertation. How the research was executed is explained afterwards. The results are presented which explain how the questioned female ICT students describe an attractive employer and how the interviewed female developers experience shopware AG as an employer. Subsequently, these outcomes are compared to investigate discrepancies. A conclusion is drawn and room for improvement is discovered. Finally, recommendations are given how shopware AG could attract more female developers.



2. Theoretical framework

To increase the job and organizational attractiveness, insight is needed about the preferences of young job seekers which are influenced by the generation, age- and lifecycles, and gender. Further, it is necessary to understand how young job seekers come to the decision to accept an offer of an organization. Moreover, the aspects of the job and organizational attractiveness are explained in detail.

2.1 The applicant population of shopware AG

The organization, shopware AG, is a young and innovative organization. The average age of the employees is 29 which means that the average employee is born in 1990 which belongs to Generation Y. The persons of this generation are born between 1985 – 2000. Hence, the applicant population of shopware AG is formed by job seekers of Generation Y. Research shows that there are differences in generations regarding the preferences of the job and organization characteristics (Bontekoning, 2007). According to Demo (1992), the generation has different expectations of their jobs and motivators at work than older job seekers due to the differences in their social environment. Investigating the preferences of this group is interesting to the organization to increase the job and organizational attractiveness to this group of job seekers. However, research shows that the new generation of technicians is less different in comparison to older generations (Corporaal et al., 2015). As research shows young job seekers just look in their own way to job and organizational characteristics (Corporaal et al., 2015; Manpower, 2006). In this sub-paragraph, the young job seeker is defined by their wishes and ambitions. Moreover, the position of female developers in the work field is explained.

2.1.1 The young job seeker

Challenges are essential for young seekers and the need for challenges increases the higher the education of the job seeker is. 38% of the students of a University of Applied Sciences and 43% of students of a University stated that challenges are the most important aspect of their desired job (Manpower, 2006). The new generation defines challenges with short-term projects which have a clear goal and that they can recognize their own contribution at the result (van Steensel, 2007). Hence, challenges do not mean constantly performing above their capacities (Manpower, 2006). The young generation has the ambition to learn new things at work and to develop (Boschma & Groen, 2006).

The generation just worries about self-development. That is why the generation searches for jobs that give them freedom to develop according to their own conditions (van Steensel, 2000). 89% of respondents of the research of Manpower (2006) stated that they want to develop themselves. For young people, self-development means to become a good person. To climb the corporate ladder is not important to them (Manpower, 2006). The generation pursues higher goals such as carrying out work that makes sense and adds value to the society (van Steensel, 2000).

Personal freedom and an own opinion are important to young people. They are individualistic and do not want to be influenced by others than by themselves (van Steensel, 2000). Subsequently, Generation Y values freedom and needs freedom within their work (Cennamo & Gardner, 2008). Flexible career opportunities (Glass 2007) and regularly changing position or department is attractive to Generation Y (Martin, 2005). Moreover, a work-life balance is important to Generation Y so that they can combine work activities with private activities with their family and friends (Myers & Sadaghiani, 2010; Cogin, 2012; van Steensel, 2007). The value research of Oppenhuis (2000) shows the importance of 'social life' increases until the age of thirty.

Manpower (2006) found that pleasure in work is an important aspect to every age group. To older employees, the content of work makes work enjoyable. But for younger people, contact with colleagues is the reason why they enjoy their work. Just as they value family and friends, Generation Y also values colleagues. Furthermore, 85% of young people are convinced that they can learn from their colleagues (Manpower, 2006). Hence, this generation perceives work as a means of entertainment and stability in



regard to a social network. Work is an element of their social network and not of their identity (van Steensel, 2000). That is why young people want to make friends at work and feel that they fit within the team (Manpower, 2006). Because of this fact, teamwork and the possibility to build a network at work are important to people who are born between 1985 – 2000 (van Steensel, 2000).

The new generation advocates transparency, openness and controlled power since they grew up with the values of openness and communication (van Steensel, 2000; Eisner, 2005). The generation deals with managers and colleagues in a different way than older generations. They have less understanding for hierarchical relationships, and they need continuous feedback and frequent evaluations of work performance with a reward from the management (Eisner, 2005; Crumpacker & Crumpacker, 2007; Cugin, 2012). Generation Y expects a two-way communication, respect everyone who is authentic, sincere, and has a true individual identity (Boschma & Groen, 2006). Authenticity is a central value for Generation Y, and they strive for an authentic identity (van Steensel, 2000).

Moreover, the generation grew up in a digital age (van Steensel, 2000). The result of this experience is that the Generation Y uses technology throughout the day and is used to have continuous availability (Eisner, 2005). This influences the social skills of the generation. The people are stronger in digital communication than in oral communication (Glass, 2007). Besides, they are more interested in staying up to date with new technology and the needed skills (Cugin, 2012).

2.1.2 Female ICT students

There are strong gender stereotypes that prevail in ICT according to Endedijk, van Hattum and van Veelen (2017). However, the same research shows that women and men have the same natural competencies needed for this job. But because of these gender stereotypes, women are underrepresented within these jobs (Endedijk, van Hattum & van Veelen, 2017). In 2017, just 20% of the German students, who graduated from an ICT degree program, were female (Statistik der Bundesagentur für Arbeit, 2018). This results in a small group of potential female developers in comparison to the group of potential male developers.

Nevertheless, there are some women who decide to work in these jobs. But unfortunately, the chance that women leave the technical environment is about four times as large as with men. This is because women work in a male-dominated environment which impacts them in a negative way (Endedijk, van Hattum & van Veelen, 2017). Joshi (2014) found that women receive less appreciation in male-dominated departments, and the research of Oppenhuis (2000) found that women expect even more appreciation of their colleagues than men. Moreover, women expect more teamwork with their colleagues than men (Oppenhuis, 2000). But at the same time women indicated that it is difficult to build a network in a culture of only men (de Vries et al., 2016).

Further, women are dealing with obstacles out of their control. For example, women like to work part-time and experience difficulties to return to work after childbirth as de Vries et al. (2019) state. Hence, there are differences in what organizations offer women and what women find important in work (de Vries et al., 2018). Oppenhuis (2000) found in his value research that there are differences between the needs of women and men. Women value social life, relaxation and family life more than men. Moreover, an own identity and safety are more important to women than men (Oppenhuis, 2000). Wiersma (1990) states in the role theory that women prefer a position which is not in conflict with other life roles such as being a parent. When considering a new employer, the location and benefits of a company are more heavily weighted for women than for men.

On that basis of their gender, women feel judged in their professionalism. For this reason, it is difficult for female employees to build a professional identity within this kind of culture. The result is that women have a lower self-efficacy within their career (Endedijk, van Hattum & van Veelen, 2017). Self-efficacy is professional self-confidence and an important predictor of outflow (de Vries et al., 2018). Regarding to de Vries et al. (2018), lower self-efficacy causes a misfit between the technical environment and



women. Even if there is a fit regarding the task, organization, colleagues and manager, when woman's self-efficacy is low, they tend to leave work field.

2.2 Effects on preferences of young job seekers

The preferences of a young job seeker are influenced by three aspects: the generation-effect, the age and life-circle effect (Cennamo & Gardner, 2008; Wong, Gardiner, Lang & Coulon, 2008, as cited in Corporaal, 2015).

2.2.1 Generation-effect

Mannheim (1922) defines generations as a group that is born in a span of birth years and that shares the same worldview based on the social or historical events that took place during the crucial development years. This phase until the age of fifteen is called the 'formative phase' (Becker, 1992). The foundation of the generation is laid at the beginning of life (Bontekoning, 2008). Generation Y is born between 1985 and 2000. The generation has experienced relatively high prosperity during their formative phase (Bontekoning, 2007). Hence, Generation Y grew up without fear, experienced economic growth and many chances on the labor market. Besides that, the generation is influenced by the postmodern ideas whereby the values openness and communication became more central within families. Moreover, the generation grew up in a digital age and a free form of upbringing (van Steensel, 2000).

2.2.2 Age and life-circle effect

Besides the generation influencing the preferences of an applicant, the age and life phase also plays a determining role (Cennamo & Gardner, 2008). The life cycle of a human is distinguished in a certain number of development stages (Bontekoning, 2007). According to Craeynest (2005), one goes through the following life stages: baby time, pre-school, school, puberty and adolescence periods, young adult, middle adult, late adult, and old age. The order of the stages is the same for everyone but the age when a transition from one phase to another takes place is individual (Craeynest, 2005). During a phase, specific issues arise with which one must deal (Mannheim, 1928). Decisions can have positive and negative consequences. Unresolved issues cause a crisis which needs to be dealt with for further development (Erikson, 1977). When crises continue to exist, they ensure negative mental, emotional and physical effects. Positive emotional, physical and mental effects are the results of dealing with these issues (Frijda, 1988; Goleman, 1995). While going through life phases, one changes its social roles (Bontekoning, 2007). Because of the different roles, the orientation and the behavior of people change (Van der Broek, 2001). Erikson (1997) notes that aging is accompanied by becoming more community oriented, spiritually intelligent, and conservative, while becoming less individualistic and self-centered.

2.3 Assessment of the job and organizational attractiveness

One clarified what the preferences of Generation Y are and how these are influenced. Furthermore, the position of female developers in the ICT industry is clear. Now it is interesting to discuss how young job seekers come to their decision to apply for an organization and accept an offer. Behling, Labovitz & Gainer (1968) developed three theories which are presented in this sub-paragraph: the objective factor theory, the subjective factor theory and the critical contract.

2.3.1 Objective factor theory

The objective factor theory explains that a decision is based on a checklist with objective measurable factors which hardly differs from individual to individual. The advantages and disadvantages of a position are defined through the candidate by evaluating these measurable factors. Salary, location and training are examples of factors which are considered. When a candidate is convinced that he or she can satisfy their preferences with the opportunities within the company, the candidate selects the organization and accepts the offer (Behling et al., 1968). The research of Cable and Judge (1996) shows that because of that, the objective factors relate with the attractiveness of a job and organization.



2.3.2 Subjective factor theory

Regarding the subjective factor theory, the main reason on which the decision is based is the personally assessed match between the characteristics of the organizations and the needs and characteristics of the job seeker. The personality patterns, the basic requirements of the position and the image of the organization must agree with each other. It is not based on objective characteristics but rather on perception of subjective characteristics such as social involvement and culture. That means that the decision is based on highly personal and emotional basis. And these are even more important than the objective factors (Behling et al., 1968). The research of Behling et al. (1968) shows that a job seeker would not accept an offer if the objective factors satisfy the preferences, but the subjective characteristics do not.

2.3.3 Critical contact theory

The critical contract theory differs from the objective and subjective factors theory. According to this theory, one is not able to decide based on objective factors neither on the subjective factors due to the lack of experience with an organization. The critical contact theory expounds that the selection of a position is based on the perceived experiences during the recruitment process and how the recruiter treated the candidate. Since the potential candidate does not have any experience with the organization, he or she trusts the feeling the recruiter gave him or her. The recruiter can namely present the organization in a positive and negative way which influences the job seeker (Behling et al., 1968).

2.3.4 How a job seeker decides

Concerning the research of Chapman et al. (2005), a young job seeker listens to the feeling he or she has about the extent to which his or her needs match the possibilities within the organization. In comparison to the objective factor theory and the critical contract theory, the subjective factor theory significantly stronger predicts the attitudinal applicant attraction outcomes. However, the job and organizational characteristics (objective factors) and the recruiter have also an important influence on the recruitment outcome (Chapman et al., 2005). Barber (1998) notes that especially in the initial phase of a job search the objective job and organizational characteristics are important to the job seeker to orientate themselves on many different employers and jobs. Moreover, the distinction between the objective factor theory and the subjective factor theory is less strong than assumed. Objective characteristics are understood as a signal for subjective characteristics (Barber, 1998). The recruiter and the recruitment process influence the attractiveness of a job. The attitude and behavior of the recruiter and the shared information give the applicant a first impression of the job and organizational characteristics (Turban, Forret & Hendrickson, 1998). That means that the three theories influence each other. Therefore, the job and organizational characteristics and the recruiter cannot be viewed separately (Chapman et al., 2005). That means that the subjective and objective factors and the recruiter must attract a potential candidate. The next paragraph explains how an organization can realize this.

2.4 Prediction of job and organizational attractiveness

Chapman et al. (2005) conclude that organization should focus on the content of work, the work environment and image of the organization to increase the attractiveness for job seekers who have not been in contact with the organization yet. Also, other recruitment and selection studies have come to this conclusion (Powell & Goulet, 1996; Harris & Fink, 1987 as cited in Corporaal, 2014).

2.4.1 Content of work

The content of work is an objective characteristic used by job seekers to make a decision (Behling, Labovitz & Gainer, 1968). According to Chapman et al. (2005), it is the most important predictor of the attractiveness of a job and organization. If employees are satisfied with their content of work, they are more motivated and loyal (Preenen, van Vianen, De Pater, Geerling, 2011). The content of work can be described with the help of three different job characteristics: 'challenge', 'variety' and 'autonomy' (Van Hoye & Saks, 2010).



Challenges

Challenges are objective work-related activities which positively stimulate and test the competences of the employee. One must prove oneself and experience a certain degree of difficulty, risk and uncertainty (Preenen, van Vianen, De Pater & Geerling, 2011). Challenges are essential for young job seekers and the need for challenges increase in respect with the job seeker's level of higher education (van Steensel, 2007). The young generation has the ambition to learn at work (Boschma & Groen, 2006). That is why 48% of the young job seekers would leave a job or not accept a job in which he or she is not facing challenges (Manpower, 2006). Therefore, young people need complex tasks in which they experience uncertainty and can learn new competences (Preenen, van Vianen, De Pater & Geerling, 2011). Regarding van Steensel (2007), the new generation defines challenges with short-term projects which have a clear goal and that they can recognize their own contribution in the final result. Preenen, van Vianen, De Pater, Geerling (2011) define the contribution as a positive stimulation which gives them satisfaction. Corporaal (2014) also found in his research that young people need challenges. He divides challenges in three aspects: 'impact', 'complexity' and 'innovation.' Impact means 'to have a visible impact on the customer and organization', 'tasks that have a result on the organization' and 'to perform tasks that improve the organization'. Complexity means 'the work is connected to already existing knowledge' and 'security that I can do the work'. Innovation is defined with 'learn new things', 'to perform new tasks', and 'solve problems.'

Variety

The extent of variety is defined as the extent to which the work involves different activities for which one needs different skills and talents (Hackman & Oldham, 1976). Regarding Mok (2009), job enrichment and job enlargement create variety in jobs. Young people with higher education look for variety in every aspect of their life. Variety is enjoyable to the younger generation and that is why it is worth pursuing (van Steensel, 2007). Hackman and Oldham (1976) state that variety provides meaningful work. Corporaal (2014) found in his research that Generation Y seeks for variety in social contacts, types of tasks, and places. In a social context, the young job seeker values an alternation between working with different kinds of peer-to-peer contact, computer work and individual work. Moreover, a variety of colleagues within and outside the organization is also what young job seeker desire. This variety is important to the young people to stay motivated. Alternation in types of tasks and complexity is also crucial to them. Further, they do not want to work nonstop at the same workplace. Young people want to get in touch with as many people as possible, want to get to know the company and do not want their daily life to become too routine (Corporaal, 2014).

Autonomy

According to Hackman and Oldham (1976), the extent of autonomy can be described as the extent the job offers independence, freedom and influence. Autonomy is a factor of the job characteristic model of Hackman and Oldham (1976) which means that autonomy positively impacts the work satisfaction. Regarding the self-determination theory, autonomy gives employees a sense of responsibility for the result (Robbins & Judge, 2015). Ryan and Deci (as cited in Robbins & Judge, 2015) found that support and the right degree of freedom offers employees determining goals and the way to achieve them. That means that there should be a healthy mix between freedom and support. Jobs with complexity and autonomy enrich the job since they influence the self-efficacy of the employee and the perception of control over the work environment. They also lead to proactive motivation as Parker, Bindl & Strauss (2010) state. Corporaal (2014) divided autonomy in his dissertation into 'clarity' and 'independence.' Corporaal (2014) found that Generation Y need clarity about the content of work and the expectations of work. Furthermore, they need trust from their colleagues and managers to work independently and want to manage their work independently (Corporaal, 2014).

2.4.2 Work environment

Next to the content of work, the work environment, as a subjective factor, also directly influences the intention to accept the offer (Chapman et al., 2005; Behling, Labovitz & Gainer, 1968). It enhances the



attractiveness of a job when positive characteristics regarding the work environment are emphasized during the recruitment process (Chapman et al., 2005). According to Van Hoyer and Saks (2010), the working environment consists of five job and organizational characteristics. These are the 'manager', 'colleagues', 'training and development opportunities', 'flexibility', and 'physical workplace' (Van Hoyer & Saks, 2010).

Colleagues

As Herzberg, Mausner and Snyderman (1959) state, the lack of relationships with colleagues and managers lead to extremely dissatisfaction. According to Bakker (2003), social support, feedback, and coaching belong to energy sources which have a positive impact on motivation and involvement of employees. Thus, the relationship with colleagues is an important predictor of the job attractiveness. Building a network and teamwork is very important to young job seekers (van Steensel, 2000; Crumpacker & Crumpacker, 2007). The new generation needs continuous feedback from their colleagues and managers (Eisner, 2005; Crumpacker & Crumpacker, 2007; Cugin, 2012). Therefore, a close and open relationship with their colleagues and a trustful atmosphere is necessary (Crumpacker & Crumpacker, 2007). Moreover, young people regard work as pleasure and an important part of their social life. That means that Generation Y seeks to build a network at work and to make friends (van Steensel, 2000). Manpower (2012) found that young people with higher education find the work atmosphere and colleagues more important than salary. This is because work represents a large part of someone's life and personality. Corporaal (2014) developed the following aspects regarding this characteristic: 'not gossiping', 'respect', 'honesty', 'discussing private problems or situations', 'undertaking private activities outside working hours', 'openness regarding what happens outside working hours.'

Working with men

Since there is a lack of female developers in the labor market according to Statistik der Bundesagentur für Arbeit (2018) women who decide to work in the ICT industry typically work in a male-dominated department. Research found that this fact impacts women in a negative way. As stated before, women receive less appreciation (Joshi, 2014) and it is difficult for them to build friendships with men (de Vries et al., 2016). Furthermore, they feel judged in their professionalism on the basis of their gender (Endedijk, van Hattum & van Veelen, 2017). Therefore, the following topics can be created to investigate how working with men impacts women: 'experience with stereotype', 'differences in appreciation', and 'possibility to build friendships.'

Manager

Young people have less understanding for hierarchical relationships as they value respect and appreciation (Cugin, 2012; van Steensel, 2007; Boschma & Groen, 2006). According to Manpower (2016), young people search for a trusting relationship with their manager. Next to respect, appreciation for effort, they search for clarity regarding expectation, personal development, and the availability of the manager (Manpower, 2012). The new generation needs a visionary manager who inspires people to commit to visions and goals (Robbins & Judge, 2015). According to Robbins & Judge (2015), charismatic and transformational leaderships see their subordinates as individuals who are inspired with words, ideas and behavior. Corporaal (2014) sums the preferences of the job seeker up with the terms 'respect', 'openness', 'personal interest', 'involvement', and 'choosing tasks.'

Training and development

To gain new knowledge and skills means participating in training and educational opportunities (Corporaal, 2014). For those with a higher education, acquiring knowledge and building a career means becoming a good person for people in their social circle (van Steensel, 2007). Moreover, young people have the ambition to learn and develop (Eisner, 2005). Manpower (2006) found that 89% of young people want to develop themselves continuously. But climbing the corporate ladder is less important to them. They value challenges and broaden their knowledge more. Young people want a personal development plan which also takes life outside of work into consideration (van Steensel, 2007;



Manpower, 2006). Corporaal (2014) found that young people understand training by the following aspects: 'following courses', 'following training', 'training program', 'personal training course.' Regarding training, young job seekers emphasize the desire to follow courses and training during work time. According to Corporaal (2014) development is defined by young people with: 'advancing to managerial positions', 'advancing to positions with more responsibility', 'advancing to other types of positions.' Hence, vertical and horizontal growth opportunities are attractive to the young generation (Corporaal, 2014).

Physical workplace

The research of van der Ende (2009) shows that people are more satisfied at work when they feel at home in the organization. Also, the workplace satisfaction increases when employees can identify with the architectural identity and feel comfortable. Therefore, the workplace is a predictor of job satisfaction (van der Ende, 2009). According to Morgeson and Humphrey (2006), the physical environment is defined by work conditions, physical demands on the work, ergonomic aspects of the workplace, and the presence of the type of materials which are needed. According to Corporaal (2014), young people value the working conditions: 'hygiene', 'calmness', 'a natural temperature' and 'smell.' Moreover, research shows that the new generation values free access to internet within the organization so that the use of social media is possible during working hours (Corporaal, 2014).

Flexibility in time and place

Flexibility in location and working hours also influences the attractiveness of an organization (Brez & Judge, 1994; Manpower, 2012). A work-life balance is important for young job seekers to combine work activities with leisure activities. Therefore, flexibility in time and place is important to young job seekers (Cennamo & Gardner, 2008; Myers & Sadaghiani, 2010; Cogan, 2012; van Steensel, 2007). Flexibility is largely determined by the variables 'the number of hours', 'the working hours' and 'the possibilities to work from home'. This means that young people want the flexibility to define when to work and when to hold breaks (Corporaal, 2014). Especially for women, since they value social life and family even more than men. Furthermore, women search for a job that does not conflict with other life roles (Oppenhuis, 2000). Therefore, women expect even more that they can work part-time (De Vries et al., 2016). Next to freedom regarding working hours and breaks, Corporaal (2014) also found that young job seekers value timely scheduling and clarity regarding working hours and working days.

2.4.1 Image

The third predictor of the attractiveness of an organization is the image (Barber, 1998). The whole of subjective, abstract and non-tangible characteristics that an organization evokes and the extent to which it is associated with 'intelligent', 'technical' and 'successful' describes the image of an organization (Van Hoyer & Saks, 2010). According to Barber (1998), the image of an organization is the way one experiences the norms and values of an organization. The image is decisive in the beginning since a potential employee does not have sufficient information about the organization (Barber, 1998).

How the organization deals with employees, customers, and the society shapes the image of the organization that job seekers have (Belt & Paolillo, 1982). A positive image is important in relates to the attractiveness of the job since job seeker wants to identify with the characteristics of the organization and the job (Corporaal, 2014). The image of an organization can be operationalized with the 'size of the organization', 'good quality of products and services', 'corporate social responsibility (CSR)', 'familiarity with the organization' (Corporaal, 2014).

Size of the organization

Since the size of the organization is obvious, a job seeker takes this into consideration for defining the attractiveness of an organization (Turban & Koen, 1993).



Good quality of products and services

The products and services of an organization influence the image one has about an organization according to Cable and Graham (2000). As Corporaal (2014) found, young people do not find low budget organizations attractive since quality is more important to them.

Corporate social responsibility

Corporate social responsibility is important to Generation Y (van Steensel, 2000) which also influences the attractiveness of an employer according to Turban and Greening (2000).

Familiarity with the organization

Cable & Graham (2000) found that a job is more attractive to a job seeker if he or she already has experiences with the organization.

2.5 Conceptual model

The following conceptual model sums up the characteristics that influence the extent of attractiveness of a development job within shopware AG and of the organization for a young job seeker who is born between 1985 – 2000. Chapman et al. (2005) found that the content of work, the work environment and the image determine the attractiveness of a job and organization. On the basis of these findings, Corporaal (2014) investigated the job and organizational attractiveness and created a conceptual model. This is used as the starting point of this conceptual model. Here ‘working with men’ has been added since research found that a male-dominated environment has an impact on the work environment for women.

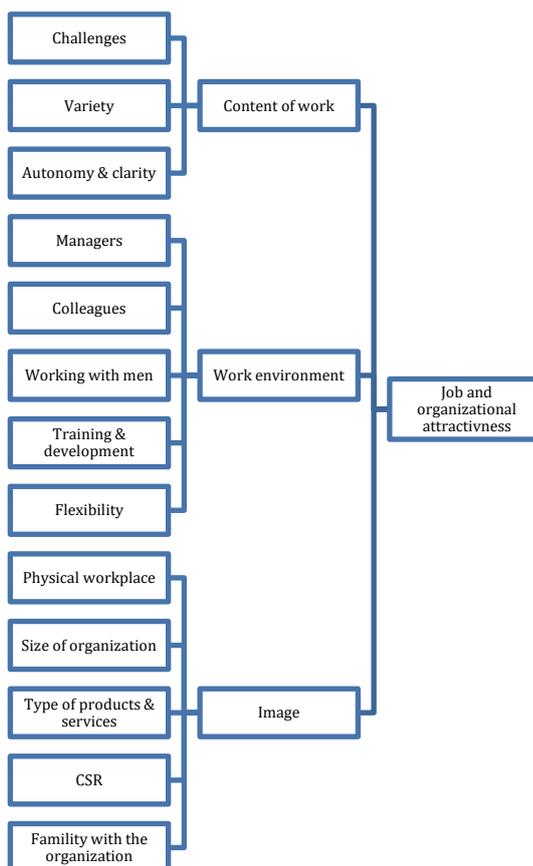


Figure 1. Conceptual model



3. Methodology

To answer the central research question, the aspects of job and organizational attractiveness, ‘content of work’, ‘work environment’ and ‘image’, are investigated within two groups: the female developers of shopware AG and potential future developers of shopware AG (Chapman et al., 2005). With the help of interviews, the female developers of shopware AG are asked how they experience these job and organizational characteristics. Moreover, they are questioned about suggestions for improvement. Next to this, female ICT students are asked what they expect about the content of their future work, their desired work environment and the image of their future organization. The doctoral dissertation of Corporaal (2014) is used to operationalize these aspects and to develop interview questions. Based on a comparison of the outcomes of these interviews, recommendations can be given which improve the job and organizational attractiveness of shopware AG for the questioned female developer with the goal to attract more female developers.

3.1 Research method

Sub-questions help to determine the answer to the central question: *How can shopware AG increase its attractiveness of the development job for (young) female ICT students?*

The first sub-question is: *How do female developers of shopware AG experience the content of work, the work environment of their job and the image of the organization?* Interviews within the first group, examined how the female developers of shopware AG experience the job and organizational attractiveness of the company. This qualitative research investigated how employees experience aspects at work and their employer, that would theoretically attract young job seekers as described before.

The second sub-question is: *How do female ICT students describe an attractive organization regarding the content of work, the work environment and the image of an organization?* With the help of qualitative research within the second group, an examination took place how female ICT students describe an attractive job and employer. The interviews investigated what students desire at work and about an employer which relate to the job and organizational attractiveness according to Chapman et al. (2005).

The third sub-question is: *To what extent is the job of a developer at shopware AG attractive to young female ICT students regarding the content of work, the work environment of the job and the image of the organization?* The comparison of the results of the first and second interviews helped to answer this sub-question. In this way, one concluded to what extent shopware AG offers female developers an attractive job and to what extent the organization is an attractive employer for future female developers. Afterwards, insights are gained about how shopware AG can increase the job and organizational attractiveness to attract more female ICT students.

3.1.1 Qualitative research

Interviews are a qualitative research method which are used to answer practical questions and to develop a theory through acquiring knowledge (Verhoeven, 2014). With the help of interviews, the aspects of job and organizational attractiveness were explored (Chapman et al., 2005). The questions of the semi structured interviews are based on results of the doctoral dissertation of Corporaal (2014). He investigated the preferences of young job seekers and developed a valid and reliable survey (Corporaal, 2014).

Asking questions is beneficial tool for uncovering different experiences, opinions and beliefs. Using this method, insights are gained into what female ICT students value in respective job and organizational characteristics and how current female developers within shopware AG experience these. Considering the lack of female ICT students, one was interested to go in-depth with the respondents and ask further questions which was made possible through interviews. This was interesting to shopware AG, since there is no information available about the preferences of this target group. The goal of the research was



therefore, present a picture of the reality of the female ICT students (Verhoeven, 2014). Furthermore, the answers of the target group could not be pre-determined. With this flexible research method, it was possible to gain depth by asking further questions concerning experiences and examples regarding the job and organizational aspects. It was also feasible to adjust to circumstances during the interviews (Verhoeven, 2014) and that the respondents could provide additional information since the interviews offered direct contact between the respondent and researcher (Saunders, Lewis & Thornhill, 2007). That is why qualitative data, as a result of this research method, was more valuable than statistic numbers (Boeije, 2014). Based on the opinions of these target groups more highly qualitative recommendations could be given.

3.2 Population

As previously mentioned, interviews were held with two groups: (1) the female developers of shopware AG and (2) a small sample of female ICT students. This was necessary to give an answer to the central question on how the organization can increase the job and organizational attractiveness for female developers.

3.2.1 Group (1): The female developers of shopware AG

Table 1 shows the respondents of group (1). On April 2018, there were only two female developers within shopware AG. When the research took place, both were following an educational program. One of the respondents was doing an internship at shopware AG while the other was studying dual; so, following an apprenticeship within shopware AG and studying at a University of Applied Sciences (UAS) at the same time. As a result, two respondents are a very small sample. Nevertheless, they represent the only women who were working in the development department of the ICT company. These women therefore made up the entire female population within the department and the only source that could give insight into how women experience working in the development department of shopware AG. But one should consider that the opinions of these two respondents are not representative for the whole group of female developers. That means that results would differ with different respondents. On the other side, they are the only source to get a first impression how female developers experience shopware AG as an employer and to give an answer to the third sub-question. This group can be summarized in the following table:

Table 1

Respondents of group (1)

Respondent	Function	Age	Employed since	Educational program
<i>Employee 1</i>	IT Intern	25	March 2019	Media Computer Science – UAS Osnabrück
<i>Employee 2</i>	IT trainee	21	August 2017	Apprenticeship at shopware AG & Computer Science – UAS Münster

3.2.2 Group (2): Female ICT students

Interviews in the second group were held with female ICT students. The goal was to investigate how young, female job seekers define the job- and employer attractiveness of a developer. The population of this research were female ICT students who were studying in ‘Münsterland’ (North Rhine Westphalia, Germany) since this is the area where shopware AG is located. This area forms the application population of the organization. The requirement next to the gender and that they belong to Generation Y was to follow an educational program in the field of ICT so that they have the possibility to work as a developer after. This group can be summarized as follows:

Table 2

Respondents of group (2)

Respondent	Age	Educational program
<i>Student 1</i>	29	Media Computer Science – UAS Osnabrück
<i>Student 2</i>	23	Media Computer Science – UAS Osnabrück

Student 3	19	Computer Science – UAS Münster
Student 4	20	Computer Science – UAS Münster
Student 5	19	IT specialist – Apprenticeship at Tobit Software
Student 6	21	IT specialist – Apprenticeship at Tobit Software

As the Statistik Bundesagentur für Arbeit (2018) states, there are just 20%- 41% women in ICT and ICT related study programs which makes the target group very specific. That is why this sample is found with the help of group (1)'s network and the researcher's network:

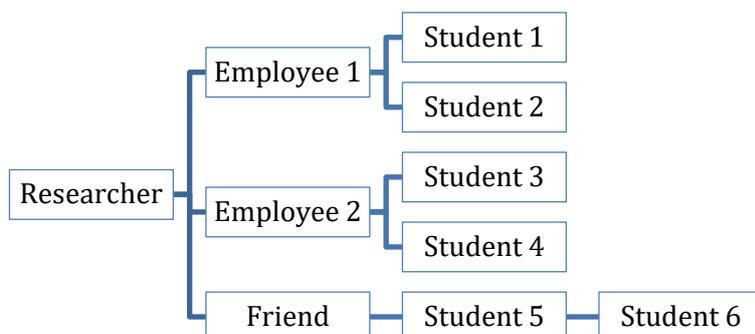


Figure 2. How the respondents of group (2) are found.

Figure 2 shows that the respondents are found with the help of snowball sampling (Verhoeven, 2014). Since the respondents are found via existing social relationships, the sample is non-random. This could lead to bias since people are more favored by similar people (van Knippenberg & Schippers 2007). The first contact persons (employee 1, 2 & the researcher's friend) have a strong impact on the sample since they have selected the respondents. Hence, there is a risk that results of this group does not represent the reality as it was not possible to determine the actual pattern of the population (Verhoeven, 2014). To minimize this disadvantage of this method, it was important to inform the first contact persons in detail about the goal of the research and what they should consider when selecting an appropriate sample. In a meeting, the researcher briefed them about the expectations and respondents and the risks regarding snowball sampling. The goal of this meeting was to improve the representation of the results and to decrease bias.

In this case the snowball method was valuable as the sample is scarce and consist of a small population. This sample is based on the students' availability and the willingness of being interviewed. To increase the representation and to avoid bias, all students had different educational backgrounds because in Germany, there are namely various ways to become a developer. That is why there are respondents who are studying, following an apprenticeship within a company or studying dual. The two interviewed computer science students were following the dual program which means that they were doing an apprenticeship next to their studies. This means five of the respondents were already working within a company. On the other hand, because these students were already working, they were aware of the positive and negative facts of their job and the employer. Therefore, one could assume that they have a good perspective and representation on what they value at work. One may argue that it also means that are not objective.

3.3 Research instrument

Qualitative research was conducted since the target group of this research is specific, hard to find and the focus was oriented towards the experiences, opinions and beliefs of the respondents relating the aspects which influences the job and organizational attractiveness. Therefore, semi structured interviews were held.



3.3.1 Semi structured interviews

The questions of the semi structured interview were based on the meta-analyses of Chapman et al. (2005) and the results of the research of Corporaal (2014). Based on these outcomes, the aspects of job and organizational attractiveness were determined. Corporaal (2014) developed a valid survey which investigates the preferences of young job seeker regarding these aspects. This survey is based on a pre-research, in which Corporaal (2014) discovered the preferences of young people through discussions about the job and organizational characteristics which are given in the conceptual model. Based on the outcomes of his research, the interview questions were developed which included the following characteristics: ‘challenges’, ‘variety’, ‘autonomy and clarity’, ‘flexibility’, ‘relationship with colleagues’, ‘relationships with manager’, ‘physical workplace’, ‘training and development’ and ‘image’. Next to the validated characteristics, one added the aspect ‘working with men’ because research found that women experience obstacles in a male-dominated environment (de Vries et al., 2018). The operationalization of the characteristics can be found in the appendix 2. In this way, one came to valid research questions. An example can be seen in table 3:

Table 3

Example operationalization

Characteristic	Operationalization	Group (1)	Group (2)
Challenges		How do you experience challenges in your future job?	How do you expect challenges in your future job?
Learn new things	Accomplish tasks which are new and request new skills that the person does not fully master	To what extent do you experience to learn new things?	To what extent do you expect to learn new things?

Questions respective mentioned characteristics were predetermined, but during the interview it was possible to deviate from the questions or to request (Verhoeven, 2014). This had the advantage that it was possible to respond flexibly to the respondent and ask further in-questions while the predetermined criteria were followed. This was necessary since the semi structured interviews aim to retrieve underlying opinions and thoughts regarding the aspects which influence job and organizational attractiveness. Moreover, this increases the validity since what to be observed is observed (Verhoeven, 2014). Furthermore, the predetermined questions helped to get similar results for a subsequent measurement. But because of the flexibility and the fact that the situation and the opinion of the respondents can change, the reliability decreases (Boeije, 2014).

The employees (group 1) are asked how they experience certain aspects at work. An example is: *“How do you experience freedom in your position?”* The students (group 2) are asked how they expect these characteristics at their work: *“How do you expect freedom in your future position?”* One used open question to invite the respondents to open up. In this way one could investigate what the women value and then ask further. One question was for example: *“To what extent are you allowed/ do you expect to make own decisions?”* During the interview, one also investigated what the most important aspects for the respondents are with questions such as: *“Would aspect x be a decision criterion?”*

In the beginning of the interview, the students (group 2) were asked if they already knew shopware AG. If they were already familiar with shopware AG, they were asked to what extent they find shopware AG attractive.

At the end of the interview, students (group 2) and the employees (group 1) were asked why they decided to study or work in the ICT work field, why they think that there are just a small amount of female developers and how they think shopware AG can attract more female developers.



3.4 Research execution

The way the interviews were conducted and analyzed to come to conclusions and recommendations is presented in this sub-paragraph.

3.4.1 Procedure

Once the female developers of shopware AG and the researcher made use of their social relationships, one received the contact details of the female ICT students who were willing to be interviewed. The researcher contacted the students via WhatsApp (appendix 1). Six interviews were planned which took place in the period from 11.04.2019 until 19.04.2019. Within this period also the interviews with the female developers of shopware AG were held. The interviews took place on different locations. Most of the interviews took place in the homes of the respondents, two interviews took place in the home of the researcher, two interviews were conducted within a UAS and two took place within shopware AG. Each of the interview took place in a closed room so that a distraction was excluded.

The script of the interviews can be found in the appendix 3 and 4. In the beginning the researcher made use of small talk to put the respondents at ease. Then the researcher introduced herself again and explained the goal of the research. The respondents were thanked for the participation and for their support. Further, the structure of the interview was explained, and the expected duration was specified. Then the respondents were asked if one could record the interview. After approval, the research questions were asked with the help of the predetermined questions (appendix 2). At the end, the researcher asked the respondents if they had further questions and how they experienced the interview. They were asked for comments to improve the quality of the interview constantly. Moreover, they were asked if they want to receive the results of this research. The researcher thanked the respondents again and gifted the female ICT students and employees of shopware AG.

2.4.2 Analysis

The analysis of qualitative research is intensive process which goes into depth through following several phases. This is done to be sure that one comes to reliable results (Verhoeven, 2014). To be sure that no information got lost the interviews were recorded. In addition, it helped the researcher to focus on the conversation, to take time to listen and ask in-questions. Moreover, the record made it possible to listen to the conversation as often as needed. Because of that, one was able to transcribe the interview literally. Regarding to Verhoeven (2014) this increases the reliability of a research. Further, one made use of technical support which also increases the reliability. With the help of the recordings the interviews were transcribed with Amberscript. Third, the transcripts were coded with the help of the analysis program Atalsti and the codes Corporaal (2014) were used for his research. Two projects were used to analyze the interviews of the two groups separately. But the same codes were used to make sure that a comparison of the two groups was possible.

The coding of the interviews took place in three different phases: open coding, axial coding and selective coding. The first step was to label the interviews. That means codes were assigned to a piece of text to sum up what it is about (Verhoeven, 2014). For that, the codes of Corporaal (2014) were as a guideline. In between axial coding was applied. That means that the used codes were evaluated, summarized or divided. With this process, more uniform and valid codes were created. In the last phase, selective coding, the findings were analyzed and presented (Verhoeven, 2014). These three steps made sure that an answer can be given to the research questions. The applied codes can be found in the appendix 5 and 6.

4. Results

Interviews took place with female developers of shopware AG and female ICT students. Their experiences and expectations regarding job and organizational characteristics are presented here. First an answer is given to the second sub-question: *How do female ICT students describe an attractive organization regarding the content of work, the work environment and the image of an organization?* After the expectations of the students are clear an answer is given to the first sub question: *How do the female developers of shopware AG experience the content of work and the work environment of their job and the image of shopware AG?* At the same time the outcomes are combined to give an answer to the third sub question: *To what extent is the job of a developer at shopware AG attractive to young female ICT students regarding the content of work, the work environment of the job and the image of the organization?* The interviews took place in Germany and the interviews are held in German; therefore, the quotes are translated as literally as possible.

4.1 What do female ICT students want?

During the interviews the female ICT students are asked how they expect and desire the following aspects: ‘challenges’, ‘variety’, ‘autonomy and clarity’, ‘flexibility’, ‘training and development’, ‘relationship with colleagues’, ‘working with men’, ‘relationship with manager’, ‘physical environment’ and ‘company’s image.’ An answer is given to the sub-question: *How do female ICT students describe an attractive organization regarding the content of work, the work environment and the image of an organization?* The respondents of this group are six women who are still following educational programs.

In this sub-paragraph the most important expectations are presented per aspect. Additionally, the findings are summed up visually to compare them afterwards with the experiences of the female developers of shopware AG. The darkness of the field is based on the number of quotes and defines the importance of the aspects. The darker the field the more important it is. The coding list can be found in appendix 5.

4.1.1 Expectations: Challenges

Every one of the interviewees expect to learn new things at work. This is very important to them since the quote ‘learn new things and develop’ is the most used code (18). What they learn in school is just the requirement to understand programming according to them. There are several programming languages they can learn and in school they just learn the base as one of the students explained. They have the attitude that they never stop learning since ICT is a work field which develops continually. There will always be new technologies, new programming languages and new ways of working. Therefore, they expect to learn every day and they have the ambition to develop. However, this does not mean that they want to climb the corporate ladder. Four of the women stated that they do not have the ambition to become a leader or manager; for them pleasure is more important. Subsequently, they want to keep busy with topics that are interesting to them.

CHALLENGES		
Learn & develop	See involvement	Complex tasks

Figure 3. Summary expectations 'challenges'

“Well, in any case, that I can work on topics that interest me and that I can develop myself constantly. This is an industry in which you never complete learning and I do not want to do the same thing [...] I did yesterday. I want to develop myself and want to learn something.”

A project, during which the students are involved with all stages of the project, is motivating and challenging to three respondents. Four of the students indicated that they want to see the result of their work and that they do important work. One student described it as “her baby” which shows that involvement in one project is important to them.



Almost all women expect complex tasks to develop. In addition, five of them also indicated that easy tasks between the complex tasks are appropriate to relax. Complex tasks can be really exhausting and that is why they also appreciate tasks in which they can switch off their brain.

“I think it's nice to be able to drive down to something lighter after you did a really complex task [...]. But then the change to something more complex must come back, in any case, because otherwise I do not develop further. I cannot imagine that someday there will be a routine and I always do the same.”

4.1.2 Expectations: Variety

The most quotes (12) are about the contact and collaboration with different colleagues which shows that a variety in ‘social contacts’ is very important to them. The female ICT students want to get to know as many people as possible and want to work together with different colleagues and departments.

VARIETY		
Social contacts	Tasks	Complexity

Figure 4. Summary expectations 'variety'

“I find it cool to get in touch with different people at work. And yes, that you then get to know as many people and teams as possible. Working with them means also variety to me.”

The respondents expect variety in tasks. As stated before, the female ICT students do not want to do the same tasks every day. They want to learn and therefore, they do “not want to write the same code” again and again.

Moreover, the variety in complexity is important to the student. As named before, the students need complex tasks to develop and easy tasks to relax after a challenging task. The quote which was used to underscore the importance of complexity in regard to challenges, also emphasized the need of variety in complexity.

4.1.3 Expectations: Autonomy & Clarity

The six students expect ‘trust’ from the manager and expect to organize and do their work independently. This is important to them as the high number of quotes (17) shows.

AUTONOMY & CLARITY		
Trust	Clarity	Voice regarding tasks

Figure 5. Summary expectations 'autonomy & clarity'

The six female ICT students expect ‘clarity’ about their tasks, so their responsibilities and expectations are clear. Moreover, the deadline should be set so that they can

organize their tasks. For the students it matter to know what to do before they start with tasks. Further, it is important to them to know what result is expected. One student for example described it with a goal that motivates her to do a good job.

“If I would work, as I said, in the 3D industry, for example, we would probably have a meeting with the team and distribute ‘He takes care of the figure, he of this figure.’ How the figure should look like is determined beforehand by the designer, so that it can be realized until a certain date.”

Four of the students stated that they do not expect to make decisions on their own. To them it is more important ‘to have a voice’ respective these decisions. Every one of the six respondents emphasized that they find it important to be heard. Four of the female ICT students would like to have a say in choosing tasks. They would prefer a tasks-pool from which they can choose tasks.

4.1.4 Expectations: Flexibility

To the female ICT students, the most important aspect regarding flexibility is the flexibility in ‘worktime.’ Hence, the female ICT students expect to determine their working hours themselves, so when to start and when to end a workday. The six students indicated that this aspect is one of the most important aspects relating their job choice.

FLEXIBILITY		
Work time	Home office	Part-time

Figure 6. Summary expectations 'flexibility'

The possibility ‘to work from home’ is also important to most of the students. They are convinced that the job of a developer is perfectly suitable for home office. This allows them to combine their private life with their work life. When they think about the future this aspect becomes even more important, because they want to build a family. That is why, almost every one of the women value the possibility to work ‘part-time’ to build a family someday.

“That's cool, if you can do home office...Especially for me, because someday I want to have children. That I can say then: maybe half-day work or I just have to come to the company two days a week. The rest I can be at home. Yes, when you are at home and have children you are just closer to them. And I would expect that.”

4.1.5 Expectations: Colleagues

Colleagues are the most important aspect at work, as the six female ICT students indicated. One noted twelve quotes which say that the students value the colleagues at work the most. Hence, a positive work environment is important to them. All women expect ‘friendships with their colleagues’ within and outside their work. There are eighteen quotes which emphasize that. They want to get along with their colleagues and want to have good conversations. Colleagues make work more enjoyable according to them.

COLLEAGUES		
Friendships	Support	Feedback

Figure 7. Summary expectations 'colleagues'

An often-used quote (8) of most of the women is that they expect ‘support’ from their colleagues when they need help. To them, the colleagues are the first contact person when they need help with their work.

Moreover, ‘feedback’ is also of importance. Regarding to most of the female ICT students, feedback is necessary to develop. Next to that, it is important to them that the colleagues appreciate and respect the students. Hence, an equal and trusting relationship is what the female ICT students value.

“So, for me it's just very important that I like to go to work and that I enjoy it and I think it depends a lot on how the colleagues are and whether you like the collaboration with them. [...] what I would also like, if I can do something with colleagues after work”

4.1.6 Expectations: Working with men

The first reaction of most of the students was that they do not expect a difference between women and men. They expect ‘equality’ within the whole organization and to be handled with respect. Within their department, they expect to get the same tasks as men and the same appreciation since they do the same job.

WORKING WITH MEN		
Equality	Stereotypes	Friendships & Fun

Figure 8. Summary expectations 'working with men'

Nevertheless, all students expressed that they fear prejudices and differences in appreciation between women and men. In total, one noted nine quotes about this aspect. For example, they fear stereotypes such as ‘women do not have the competence for this job’ and they believe there will always be prejudgements. One student stated: *“I also get it [...] Women are different from men. In some ways.”*



However, a male-dominated department does not scare women off. Four of the students noted that they like to work with men, and even said it is more relaxed. Furthermore, more than half of them stated that they expect to become friends with men. Programming is an interest of both parties and that connects. Just two of the students would find an organization more attractive with more women. To them it is not a problem to work with just men, but they stated, that they have a different relationship with women.

“Personally, it is not a problem for me to work with men. They are also often more relaxed than women. On the other hand, it might be that, [...] woman, at least in the beginning, are not tolerated [...] ‘yes let’s see what the woman is capable of’ or that one has to struggle with the prejudice [...]. I can imagine that this is still in many heads.”

4.1.7 Expectations: Manager

A balance between a hierarchical and an equal relationship with the manager is what the female ICT students desire. They expect a more factual relationship with the manager than with their colleagues. They want to feel more hierarchy because according to four students hierarchy is needed within an organization. However, on the other side, it should not be too hierarchical. To most of the students, it is important that the manager listens to their voice. That the female ICT students desire a ‘democratic relationship’ with their manager is the most noted quote (15) which shows that it is highly important to them.

MANAGER		
Democratic relationship	Appreciation & Personal development	Trust

Figure 9. Summary expectations 'manager'

“During working hours should realize that he/she is my supervisor [...] But it should still be a flat hierarchy that you can talk to each other on an equal level that he can also listen to my opinion.”

It is important to the female ICT students that they are seen as an individual and that the manager values them. In addition, it is important to them that the manager takes the ‘personal development’ of the student in consideration. This means that the manager has an overview of the skills, strengths and weaknesses of the employees. They want to follow courses and training which are interesting and useful to them.

Moreover, a trusting relationship is important to most of the students (5). Thus, they expect to talk about personal issues with the manager and that he respects the students.

“‘Ahh, who are you? I’ve never seen you’ or something like that. So, that he knows you by name. Yes, I wish for that.”

4.1.8 Expectations: Training & Development

To each of the female ICT students training and development possibilities are important to learn new things and to develop. With the help of ‘training and courses’, the student expects to stay up to date. The students also noted that it is important to develop constantly since it is a fast-changing industry. Next to training and development opportunities the students expect that the organization inspires to learn.

TRAINING & DEVELOPMENT		
Training & courses	Personal development	Vertical & horizontal change

Figure 10. Summary expectations 'training & development'

The second most quote (7) is ‘personal development’. More than half of the students do find it important to follow a training which is interesting and useful to them. It should be their own decision which training they follow. Moreover, they want to decide in which team they gain experiences and how their career looks like.

“If you say: ‘You can be trained at least once a year. We have five topics to choose from. You can choose one.’ So that you can decide for yourself what to train.”

The third aspect which can be found in figure 10 is ‘horizontal and vertical change’. The quotes ‘horizontal & vertical growth opportunities’ (5) and ‘horizontal & vertical experience opportunities’ (6) are summarized with that aspect. That means that they find the option attractive to change positions internally. Since they do not have much working experience, they like to have the option to change functions. If they would lose pleasure in their job, they would rather change the position internally than applying somewhere else. To gain experience within other departments is also interesting to six of the students. To them it helps to improve the quality of their work, because they can understand the perspectives of different departments.

4.1.9 Expectations: Physical environment

An ‘environment to feel good’ is what everyone expects. This aspect is the most quoted aspect respecting the physical environment (12). That means a light and cosy environment where they can sit comfortably. They expect to have their own desk which they want to decorate with their personal things. In addition, two students named that they value the possibility to take a break somewhere comfortably, move during their break and to have a breath of fresh air.

PHYSICAL ENVIRONMENT		
Environment to feel good	Silence	Good quality of technology

Figure 11. Summary expectations 'physical environment'

To concentrate for programming, the interviewed female ICT students need ‘silence.’ Especially if they are expected to work on complex tasks. That is why half of the students indicated that they prefer working with a small amount of people (around five people) in one room. They do not like many people around them. The other half said that they would like to work in an open-plan office. The students indicated that an office with more people supports the collaboration with colleagues. As stated before, it is important to the students to stay in contact with their colleagues.

Almost everyone noted that they value a ‘good quality of technology and internet.’ Since the computer is the most important tool for a developer, the students indicated that they desire good quality and more than one screen.

“In an open-plan office I think you get in touch with more people. But I also somehow need quietness to be productive. So, I can work when it's louder, just not as productive as when it's quiet.”

4.1.10 Expectations: Image

With five statements the students indicated that the image of an organization influences the job choice. To most of the students an important aspect in respect to the image is that the students can ‘identify with the product and services.’ Seven quotes are noted in regard to this aspect. Half of the students indicated that they consider the experiences within the recruitment procedures and the internet appearance when determining the image. The internet presentation is also important to determine the fit

IMAGE		
Identification Product	Positive appearance	Medium size

Figure 12. Summary expectations 'image'

with the organization. Eventually, the gut feeling about the organization is decisive when making a job choice. Therefore, the appearance of an organization is important to the students.

“If I had to choose between two companies now and one has the better image and other factors, then I would definitely take that.”

Four students stated that the size of an organization is important to them. Two students prefer a bigger company since they associate more possibilities with it and the chance to get to know more people. Two students, who prefer a smaller company, associate a close relationship with colleagues, a personal approach and to be heard.

Three of the female ICT students do not involve the Corporate Social Responsibility for their job choice. To two of them, it is a bonus if an organization takes the environment into account.

4.2 What do female ICT get at shopware AG?

During the interviews the female developers of shopware AG are asked how they experience the following aspects: ‘challenges’, ‘variety’, ‘autonomy and clarity’, ‘flexibility’, ‘training and development’, ‘colleagues’, ‘working with men’, ‘manager’, ‘physical environment’ and ‘company’s image.’ Hence, an answer is given to the sub-question: *How do the female developers of shopware AG experience the content of work, the work environment of their job and the image of the organization?* In this sub-paragraph the most important experiences are presented per aspects. The respondents of this group are the two female developers of shopware AG. The coding list can be found in the appendix 6.

At the same time, the third research question is answered: *To what extent is the job of a developer at shopware AG attractive to young female ICT students regarding the content of work, the work environment of a developer and the image of the organization?* Thereby, the answers of the female ICT students are compared with the answers of the female developers of shopware AG. The figures (figures 3-12) which sum up the most important aspects per characteristics are used to determine a match between the expectations and experiences. A green field represents a match and an orange field small discrepancy. One field is dark green which illustrates large, positive discrepancy between the expectations of the female ICT students and the experiences of the female developers of shopware AG. It also happened, that the developers of shopware AG could not give an answer about some aspects. Then the field is blue.

4.2.1 Experiences: Challenges

The two developers of shopware AG learn new things within their work. What the respondents learned in school or in university is just a starting point to do their job. Within shopware AG they learn for example new programming languages and learn how to apply the techniques and knowledge they gained within their educational program.

CHALLENGES		
Learn & develop	See involvement	Complex tasks

Figure 13. Attractiveness-Assessment 'challenges'

Therefore, there is a match between the expectations of the female ICT students and the experiences of the female developers of shopware AG relating the first aspect ‘learn & develop.’

This aspect is the most important aspect about challenges, as figure 13 shows.

“Shopware is based on PHP. That means it would be good if you can do it really well. And I have more worked with Java or C ++, these are also other programming languages, in my studies I did not do much with PHP. That's why it was so cool, to refresh the programming language and query a database. What I also found totally cool here was just to get to know that these scrum meetings really take place in practice.”

As this quote shows, shopware AG works with the scrum method. A project is divided in sprints as a developer explained. The time of a sprint is set and then the tasks are determined within this sprint. These tasks are assigned to an employee. At the end, it is clear which tasks the developer accomplished



and in which project she was involved. One of the developers described it as inspiring and motivating to work this way. **The developers can see their involvement and since this is important to the female ICT students one can say that there is a match.**

The two starters need to accomplish complex tasks. The developers have for examples easy tasks to improve the user-experience. On the other side, they are thrown in at the deep end. Then they need to accomplish tasks which they assume they cannot master, they struggle and need support of their colleagues. Hence, with the help of the complexity in tasks the young developers learn. One of the developers stated that to her complex tasks are a form of appreciation and a sign of trust. **The great extent of complexity is a match with the expectations of the female ICT students.**

“So, I just got tasks where I first thought ‘I do not know if I can do that’. Of course, you can always come up with a task that cannot be mastered [...]”

Moreover, the developer with more experience within shopware AG noted that the changing of teams is also challenging. Within an apprenticeship but also within an employment, the developer change teams. There are several teams within shopware AG: a team for the internal software, a team for maintaining and supports ‘Shopware’, a team that develops ‘Shopware’, a team for plug-ins and a team that deals with new technologies. And within the team they work with different frameworks whereby the way of working differs. According to her, it helps to understand the different perspectives, supports the collaboration of the teams and increases the quality of ‘Shopware.’ Further, it also increases the variety in tasks and work circumstances. **This is attractive to the interviewed female developers since challenges and variety are important to them to learn and develop further.**

“[...] That means that programming is a bit different. You might use the same programming language, but you have another framework, so how you write it is completely different and I learn, of course, on what I must pay attention, if I test it.”

4.2.2 Experiences: Variety

The support of colleagues and the contact with various colleagues is a the most quoted aspect related to variety (6). As the female developers stated, there is no workday they do not collaborate with their team, and the team works together with different departments. One of developers stated that one team in which she worked temporarily works close together with the department ‘Support’. Further, pair programming also belongs to the developer’s everyday life within shopware AG. That means they work in teams; one is programming and the other one checks it afterwards. Both groups agree that the variation in social contact is the most important variety. This can be seen with the highest number of quotes within the characteristic ‘variety.’ **Therefore, there is a match in regarding the aspect ‘social contacts.’**

VARIETY		
Social contacts	Tasks	Complexity

Figure 14. Attractiveness-Assessment 'variety'

“Basically, there is always a lively exchange, you usually do not get far alone. So, you have to agree if you have different solutions, because there is never always only one solution and then of course you have to look what is the most appropriate in this case. And there's always a lot of communication within the team and with other teams.”

Both developers talked about the variety within complexity. The developers have for examples easy tasks such as improving the user-experience. But on the other side there are complex tasks which involve the whole business logistics. This is what one female developer stated. Therefore, the developers experience a great extent of variety in tasks and complexity. **Since, varying tasks and varying complexity is important to the female ICT students in their future job one can say that there is a match regarding both aspects.**

4.2.3 Experiences: Autonomy & Clarity

After determining the responsibilities, the female developers can organize their tasks themselves. That they receive freedom and trust to do their work independently is noted as a positive fact by the women. As stated before, complex tasks are a sign for trust according to the developers. They described that they feel appreciated by their manager and honoured that the manager entrusts them with responsibilities. The developer with more experience explained that she can make decisions within her responsibilities and knowledge about the tasks. Moreover, the other female developer stated that in her opinion the developers of shopware AG have great extent of responsibility to organize their work independently and to decide. The female developers experience a great extent of trust in their work. As one can see in figure 15 trust is important to the female ICT students concerning the organization of their tasks and that they can do their work independently. **Therefore, there is a match in regard to ‘trust.’**

AUTONOMY & CLARITY		
Trust	Clarity	Have a voice

Figure 15. Attractiveness-Assessment ‘autonomy & clarity’

As stated before, the developers of shopware AG described that the time of a sprint is defined, and it is clear when the tasks need to be done. In addition, the tasks (or in other words tickets) contain information about the output. Hence, expectations of the output are clear as the developers explained. One employee emphasized that implementation of this system is not flawless. Within her short employment at shopware AG, she experienced that her work was senseless because the description of the task was unclear, and information was lacking. She expressed that it is disappointing to realize that the work she did was useless. According to the female ICT students it is attractive to do important work. **But since just one of the female developers emphasized that problem, there is more research needed if there is improvement needed respecting ‘clarity.’**

“Of course, it always depends on how the one who has set the ticket describes the task. If someone is lazy, then you probably must ask again and of course it can also come to misunderstandings. I've heard that a couple of times that the communication does not work so well here.”

Moreover, the developers can choose their own tasks or have a voice concerning the tasks. One female developer of shopware AG stated: *So, there is always this scrum master and [...] he does not do it alone, with the whole team is discussed who takes over the tasks within a sprint.* Within the team the developers divide the tasks. Based in their strengths the team assigns the tasks to the team members. A decision is always based on democracy. This emphasizes that the developers of shopware AG experience a great extent of the right to say a matter. This is important to the female ICT students as concluded in the sub-chapter before. **Hence, there is a match relating to the aspect ‘have a voice.’**

4.2.4 Experiences: Flexibility

The employees of shopware AG experience the flexibility in work time. However, there is still a core time from 9am until 4pm. Further, it is possible to determine the break and the duration of the break themselves which is valuable to one of the female developers. The developers emphasized that this makes it perfectly possible to find a work-life balance. To the female ICT students, a flexible work time is one of the most important aspects when deciding for work. They want to determine when they want to start and stop working. The core-time would be a limitation for the students. That is why one can state that shopware AG could **improve regarding the flexibility in work time.**

FLEXIBILITY		
Work time	Home office	Part-time

Figure 16. Attractiveness-Assessment ‘flexibility’

“As I said so this core working time is there, from 9 to 16 o'clock you have to be present [...] There is the flexibility that you can take up to two hours break.”

The two respondents of shopware AG stated that they can work from home once per week. The female developers indicated that it makes it possible to combine their private life with their work life. For one of the developers it is important to have this possibility. The other one does not make use of it since she

lives alone and likes to work close to her colleagues to ask for help and support. The possibility to work from home is also important to the interviewed female ICT students. And the importance of home office increases when the female ICT students get children. Then they desire to work from home more than one time per week. When the expectations and experiences are compared, there is a divergence. **Thus, one can conclude that there is a match regarding the possibility to work from home. But there is more research necessary to investigate if it is possible to increase the possibility to work from home after childbirth.**

Relating the possibility to work part-time the developers could not get information, since they do not have experience with that. But one student does not expect that working part-time should be a problem, since she experiences shopware AG as family-friendly. There are several women and men in parental leave according to one woman. According to her shopware AG celebrates the birth of employees' children with presents such as a bobby car.

4.2.5 Experiences: Colleagues

One employee emphasized that the colleagues make the start within shopware AG easy since everyone is welcoming and open. Within the organization a personal relationship between colleagues is important and supported. An example is the platform 'Bamboo' which supports the socialisation of a newbie as one developer explained. It is possible to be friends within and outside work according to both developers. There are plenty of activities outside work which is valuable to them. It makes it possible to connect with everyone. The most quoted aspects in regard to the colleagues is that the employees experience appreciation and respect from the colleagues (6). The two female developers feel valued by their colleagues. They can be who they are and wear whatever they want. That is also what the female ICT students expect from their colleagues. Further, they desire to be friends with their colleagues, since they are the ones, they spend the most time with. **Therefore, there is a match regarding the aspect 'friends.'**

COLLEAGUES		
Friends	Support	Feedback

Figure 17. Attractiveness-Assessment 'colleagues'

"That means they were not like: 'Wow, that's the new one.' You have already felt in the beginning that you can quickly build friendships. [...] You just have to take these opportunities. That you just stop by at the team event or at the weekends. Today, I think it's also a game night."

The two developers noted that the employees respect each other and support each other. That the employees support each other is the second most quoted aspect (5). The starters know and value that they can always ask their colleagues. The colleagues also asked the two developers for help. This trusting and equal relationship makes it possible to give honest feedback and to develop although it is a male-dominated department. One employee gave an example that the developers give honest feedback and speak openly about things that did and did not go well. The female ICT students also value respect and an equal relationship as stated in the sub-paragraph before. They find support from their colleagues important since they are their first contact person and expect feedback to develop. **Therefore, there is a match regarding the aspect's 'support' and 'feedback'.**

4.2.6 Experiences: Working with men

The two women do not have experiences with stereotypes. The women explained that men do "not pull themselves together and are who they are." Sometimes they make jokes with them as they make with their male colleagues. Prejudices are touched upon sometimes. However, both women know that these are jokes and know how to handle them. One female developer indicated that she knows men since she grew up with a brother and a man who also makes jokes like that. Hence, for both these jokes are no problem. In addition, one of the women explained that her male colleagues sometimes use swear words such as 'shut up' or insults such as 'I am better than

WORKING WITH MEN		
Equality	Stereotypes	Friendships & Fun

Figure 18. Attractiveness-Assessment 'working with men'



you'. She experiences a power struggle between men. However, the two female developers of shopware AG do not experience a difference in appreciation between them and their male colleagues. Both experienced that they can help and support their colleagues. They feel that the male colleagues accept them and also value them, as the quote shows:

During the interview both talked on a positive way and one of them had a smile on her face. Therefore, one can assume that they like to work in the male-dominated department. The two female developers

“So, they take me just as seriously as anybody else and sometimes [...] others want to persuade one into a team [...].”

experience working with men in a positive way without differences in the appreciation and they also do not experience stereotypes. One of the female developers stated: *Unlike I feared, I do not have the problem that I think I'm not taken for full because I'm a woman.* **Therefore, the experiences do agree with the aspect ‘equality’ but do not agree with the expectations of the students relating ‘stereotypes.’** The students namely fear, that there are prejudgements regarding women in the development department. But the female developers do not experience prejudgements although they experience jokes which are based on stereotypes and power struggles. **Hence, this is a discrepancy in a positive way.**

Both female developers indicated that they like to work with men. One of them explained that it is more relaxed than to work just with men. Both also stated that it is possible to build friendships with men. It is the same as with the other colleagues, as one interviewee said:

“Of course, if you understand each other well or have the same hobbies, then of course he will have a friendly relationship [...].”

One female developer indicated that the difference in age sometimes make it difficult to build friendships with everyone. Moreover, the other female developer said that she has different interests than men such as gambling. But she also emphasized that they can find other common interest. Further, it is still possible to have a chat with women since there are more women in the other departments. However, one can say that both build friendships with men and like to work with them. It agrees with the expectation of the women about working with men. **Thus, the female developers of shopware AG experience what the female ICT students desire so there is a match regarding ‘friendships.’**

4.2.7 Experiences: Manager

The two female developers describe the relationship with their manager as an equal relationship. The words one interviewee used relative to the relationship were *‘totally laid back and open minded.’* Both like this kind of relationship. The female developer who started more than two years ago to work at shopware AG explained happily that she attended the private birthday parties of her manager and team leader. This also shows that the relationship is at an eye level. Moreover, he listens to their voices. Both gave the example that the tasks are divided within the team. The manager has a bit more decision-making power he makes use of when nobody volunteers for a task. Then he would steer in a direction whereby the women experience more hierarchy. This description of this relationship is the same as of the desired relationship of the female ICT students. **Therefore, there is a match relating to ‘democratic relationship.’**

MANAGER		
Democratic relationship	Appreciation & personal development	Trust

Figure 19. Attractiveness-Assessment ‘manager’

“So, we have [...] an internal planning for us. Where we discuss topics that affect our team [...]. So, then we decide what we might want to improve technically, where we want to rework and then decide the priorities together as a team. And not somebody somehow decides that individually.”

The female developers do not fear the manager and feel valued by their supervisors. As stated before, the female developers feel appreciated and trusted by their manager. Hence, the relationship is trusting. Furthermore, they emphasized that the manager takes time for them and support their educational program. He shows interest in the thesis, the apprenticeship, the degree program and inspires them. Therefore, the manager pays attention to their development. Further, within shopware AG they have an annual feedback conversation with their manager. They discuss the satisfaction regarding the job and trustfully speak about personal issues. Thus, there is attention for their personal situation and development of the manager as the female developers described. The female ICT students desire to feel appreciated by their manager and that he is aware of their personal development and needs of them. Further it is important to them to be able to talk about their personal situation with their manager. **The experiences of the female developers agree with the expectations of the students regarding ‘appreciation’, ‘trust’ and ‘personal development.’**

4.2.8 Experiences: Training & Development

Both respondents of shopware AG are satisfied with the offered training and development opportunities. They explained that they have the option to follow two trainings within one year. The organization determines the course or training the employees have to attend. One employee indicated that she appreciates that shopware AG requires people to develop. The second training or course can be chosen by the employee him- or herself. They have a catalogue with possible development possibilities. But shopware AG is also open to other options as one interviewee explained:



Figure 20. Attractiveness-Assessment ‘training & development’

“One should attend two trainings a year. A compulsory education and one that can be gathered from the training catalog. And if sometimes training that may be considered as useful which do not appear in the training catalog one can also talk to HR, whether it would be possible to attend the training and if it might not makes sense in add the training to the training catalog if you think it makes sense after having visited them, for example.”

To follow training and courses within their future organization is important to every one of the students. **Thus, there is a match regarding the first aspect of figure 20.**

It is important to the female ICT students to decide themselves which course of training they are going to follow. To them it is important that what they have learned is useful for her work and interesting to them. Since shopware AG determines one training for the female developers, shopware AG could improve the individuality of training and course offer. **That means that there is improvement possible regarding the personal development of the developers.**

The occupational trainee of the organization had the suggestion to outline the career path within shopware AG. To her it was not clear in which team she will work before she started. Within the framework of an apprenticeship it is planned to change teams. She would have liked it to know what she will experience. This agrees with the opinion of the female ICT students. To them it is important to decide themselves what they are going to learn. Furthermore, they value clarity regarding what to expect. **There is room for improvement respective the apprenticeship plan.**

Just one of the two employees could give information about the growth opportunities. According to her the developers can change teams easily when they express the request. It also happens that teams need more developers for a period. Then developers are asked to change teams. According to the young developer it helps to understand the different perspectives. Hence, short-time growth opportunities are possible and happens regularly. This is also what the female ICT students desire. Besides that, also long-time changes within the company are possible. Before a vacancy goes online HR recruits internally. Hence, the employees can change their position easily when desired. The female ICT students expect to have the option to change positions and get to know different positions when they do not like their job

anymore. **To sum up, one can say that the female ICT students can meet their expectations regarding ‘vertical and horizontal growth and experience’ possibilities.**

“And in general, one is always asked in feedback conversations whether one is feeling comfortable in the position in which one currently is or whether one would like to get a taste of other teams. We also have a lot of internal job postings [...] if someone would like to apply for this job before it is then actually advertised publicly. So, you have really good opportunities within the teams and also to learn whole areas or just to move into another position [...].”

Next to these opportunities, the two developers stated that shopware AG inspires to develop. For example, on Friday there is a ‘Hack-time.’ These are four hours in which the developers can do whatever they want. For example, the developers created a platform with which they can order ground-pork-buns as one female developer explained. During this time, they can also try new technologies such as a 3D-printer for example. Both talked about this very enthusiast and inspired. The female ICT students find it important that the organization inspires to learn. Second, they want to stay up to date with the new technologies and third, they value innovative work methods. **Therefore, the hack time and the freedom to be creative is also attractive to them.**

4.2.9 Experiences: Physical environment

The two female employees of the development department are satisfied with the physical environment. They work in an environment they feel good and in which they have everything they need. There are big windows and it is open. They get free drinks, fruit all day and can work wherever they want. They have their own desk and it is possible to bring their personal items to make them feel comfortable. The two interviewees stated that there is a variety regarding the work circumstances within shopware AG. Next to the isolated one (wo)man room, the developer indicated that it is possible to work in the lobby where high tables are. She stated that one works there differently but then one has the option to work while standing. Moreover, it is possible to work outside since there is Wi-Fi everywhere. One of the female developers also noted that she likes ‘the beach’ of shopware AG. There are outside meeting rooms which are surrounded by a sand field. The two women like the surrounding in which they work. The only suggestion is to improve the air-conditioning system since it gets warm during the summer. This was also important to one of the female ICT students. But since, just one ICT student indicated it and one of female developers just casually mentioned it, it does not have a huge impact on the attractiveness of the physical environment. **One can say that there is a match respecting the ‘environment to feel good.’**

PHYSICAL ENVIRONMENT		
Environment to feel good	Silence	Good quality of technology

Figure 21. Attractiveness-Assessment ‘physical environment’

As both developers described, they work in an open-planned office. There is an amount of people in one room and the two developers explained that there are dividing walls which are build out of shelves. Because of that and the kitchen in the middle of the room the open planned office is not too big and open according to one of them. There are noises but it is not too loud. They have the option to put on noise cancelling headphones. The two respondents do not experience the noises as extremely annoying. The open-planned office also supports the collaboration with the team. Furthermore, one interviewee quoted that it is possible to discuss the loudness with the team. Next to that, it is possible to sit in an isolated single-room which is good to work concentrated. To the female ICT student silence is important, but the collaboration with the team is also important to them. **Hence, one can conclude that the way of working of shopware AG suits the needs and expectations of the female ICT students.**

“Noise Canceling Headphones [...] I do not wear them most of the time. I think it's not that disturbing [...] But we also discuss within our team, if something with the volume does not fit [...] There are also colleagues who would rather have that we do not speak which I totally do not understand. Especially if you somehow want to clarify something, that's just verbally much easier.”

One of the women described it as luxury to have two screens and a laptop which makes the flexibility possible. Furthermore, the developers have the freedom to choose the operation system of their laptop what the two women like. They can choose between Mac, Windows or Linux. There is Wi-Fi everywhere, so they can work within the whole company. Moreover, the laptop can be used privately. They experience a **good quality of the technology**, what also the female ICT students desire. Hence, there is a **match**.

4.2.10 Experiences: Image

The two developers were convinced by the product and the different possibilities which the product offers. They stated that they could identify with these possibilities. One female developer wanted to get to know web development and the other one found important that there is also a design department. According to the female developers the product ‘Shopware’ offers a great amount of possibilities. That means that many different people can find their interest and can meet their preferences within shopware AG. In the framework of this research one can state that a **great amount of people can identifies with the product of shopware AG**.

IMAGE		
Identification Product	Positive appearance	Medium Size

Figure 22. Attractiveness-Assessment ‘image’

Both students indicated that shopware AG gave them a good feeling. One of the female developers came in contact with employees of shopware AG on a job fair and when they informed her about shopware AG she was interested in working at the company. The other developer was on an open day of shopware AG because an old colleague told her about his positive work experience. The public appearance convinced them to decide to work for shopware AG. The two agree that the young and positive image of the organization is formed by its openness, the good treatment of the employees, innovative work methods, environmental-friendliness, authenticity. One of the interviewees has the impression that the employees of shopware AG are proud to work here. The employees often wear shirts with the logo of the organization. Both interviewed employees find the work environment and the work atmosphere attractive. **In the framework of this research there is a match regarding this aspect. The organization has a good public appearance and the female ICT students find that important, when they decide where to work.**

“I have got to know shopware AG from my old team leader because he has also worked here for a short time and was totally excited and, like me, that shared it. When we talked it always was like “Blah, blah, blah - that's really great” and that's why I'm just came to the open house. Since you have this relaxed atmosphere and the openness, and this terrain is somehow totally cool with the sand here for example. That was the confirmation and I was sure, that is my first choice.”

About the size of shopware AG one female developer said that it is attractive to her. There are plenty of opportunities to develop, to get to know a lot of people but it is still a personal and individual approach. That is also what this quote shows:

“That means you have opportunities for development here. You also have opportunities to get into other teams and meet lots of people. But it is not that big that you are just a number. Of course, many have a bit of difficulty learning names and from 170/180 employees this is not always so easy, but they still have a friendship alike relationship here [...]”

Most of the female ICT students stated that they do not like to have too much people around them. A department with 100 people for example would be too much as one student explained. To the students a personal approach, to get to know people and to have growth possibilities is important to them. **Therefore, one can say that the size of shopware AG is also attractive to most of the female ICT students.**

The two female developers also indicated that they experience corporate social responsibility within the company. As one employee explained, shopware AG plants eucalyptus trees to compensate its emissions



and changed from plastic bottles to refillable glass bottles. According to the female ICT students, eco-friendliness is not that important to them, more of a bonus. **Hence, shopware AG would have a bonus to the female ICT students because of the environmental friendliness.**

4.3 Other questions

The female ICT students were asked about the extent they are already familiar with shopware AG and how attractive the organization is to them. Besides that, they were asked about their background. Furthermore, the female developers of shopware AG and the female ICT students were questioned why they decided to become a developer.

4.3.1 Female ICT- Students

Four of six respondents knew shopware AG already. Two of them were familiar with the company since they live near Schöppingen. The other respondents visited shopware AG with school since one of the female developers of shopware AG invited them. One of the respondents did even apply for an apprenticeship within shopware AG and was also invited for an interview. However, she decided to stop the application procedure since she found a company to follow an apprenticeship which was closer to her home.

How attractive is shopware AG to you?

Every one of the four female ICT students rate shopware AG as an attractive organization. Three of the interviewees indicated that they find the secondary employment benefits of shopware AG attractive. The work environment was an argument of two respondents and one also stated that the company has a sympathetic image. To one respondent the location was a demerit of the company. To her the location of a company is also important. This research has shown that the other female ICT students rate this aspect less important.

“It is an attractive company, the design, the offers for the employees and work environment are really great. Only I could not imagine working there, because it is in Schöppingen”

Why did you decide to become a developer?

Four of the six students had computer science lessons in school. Most of them had computer science in a specialized course. Two of the students were also influenced by others; for one woman the parents were an inspiration and one student got support from a career officer in terms of her job choice. He inspired her to do an internship. Next to her, also another student did an internship as a developer. An internship convinced them to follow an educational program to become a developer. None of the women gained experience in programming in their free time. Every one of the students was influenced by the stereotypes around women as a developer. They worried and had second thoughts but at the end their interest predominated.

“I do not know; I also had this cliché in my mind: IT industry is just for nerds. I never would have one thought about that job. And because he said: ‘You have to do an internship at least a week.’ So, I told him, ‘Yeah okay, I’ll do an internship for a week.’ And then that totally appealed to me and then I really wanted to do it. So, the career counselor influenced me.”

Why do you think there is just a small amount of female developers?

Four of the students are convinced that the cliché is the reason for the lack of female developers. Two female ICT students also state, that women are less interested in technology. Moreover, two student’s things that the communication in schools is unclear regarding computer science lessons. And another reason two woman noted is the lack of information about the job. They indicated that it is hard to find information about the tasks of a developer.



Do you have suggestions for shopware AG?

Three suggestions were stated in regard to how shopware AG attract more female developers. First, to offer short internships so that women can gain experiences within the job. Second, to participate in ‘Girls and Boy’s Day’ and third, to create a coding experience online with a tutorial.

“If you learn programming languages, there are usually so small tutorials [...]. And I might find it funny, if you are on a page and want to read about the job such a little tutorial occurs and you can just try it out and then have a great sense of an achievement that you have written the first 5 lines of a code. Maybe I would find that cool.”

4.3.2 Female developers of shopware AG

Why did you decide to become a developer?

One of the female developers of shopware AG had computer science lessons in school, as a specialized course. The other developer encountered programming during her employment in an advertising agency. She got interesting in the topic and wanted to learn more about it. But both did not gain experience with programming in their free time.

Why do you think there is just a small amount of female developers?

One of the employees is convinced that the gender separation is the reason for the lack of female developers. Here is what she said:

“Girls get pink or red and boys blue. The separation starts early. [...] I believe that this habit has carried through the generation so that has really anchored. Thus, you have been quickly curtailed as a child or just do not get so wide view of the technology.”

Another reason the employee gave is the lack of computer science lessons. To her the lessons are necessary to make women aware of ICT.

Do you have suggestions for shopware AG?

Every suggestion which is presented here is stated once. Regarding the work environment two suggestions are: to implement high adjustable tables and to improve the air conditioning. Another suggestion is to improve the presence of the secondary benefits of shopware AG. One of the developers is convinced that shopware AG is already doing a great job. According to her the organization just should communicate more women-friendly. To her, shopware AG should emphasize that shopware AG pays the bills of a day care centre for example. Another suggestion is outlining the career during the apprenticeship. With that, she means to outline in which team one will work when one started to follow an apprenticeship within shopware AG.

4.4 Visualization of the outcome

The extent to what the position of a developer within shopware AG is attractive to female ICT students is summarized in figure 23. This ‘House of Attractiveness for the female ICT students’ presents the examined characteristics regarding the content of work, the work environment and the image of shopware AG which stand in relation with the job and organizational attractiveness (Corporaal, 2014). The objective characteristics are presented as the base of the house, the subjective characteristics as the main part and the image on the top. First, it was investigated what the female ICT students find important regarding the characteristics: ‘challenges’, ‘variety’, ‘autonomy and clarity’, ‘flexibility’, ‘relationship with colleagues,’ ‘working with men’, ‘relationship with manager’, ‘training and development’, ‘physical environment’ and ‘image.’ These aspects were summed up with figures (3-12) which can be found in the sub-paragraph 4.1. In sub-paragraph 4.2 the attractiveness-assessment took place though a comparison of the expectations of the female ICT students with the experiences of the female developers of shopware AG (figures 13-22). Based on these outcomes a visualization is created.

The green fields represent matches, orange fields small discrepancies, the dark green field a large and positive discrepancy and a blue field shows that the female developers of shopware AG could not give information about that aspect.

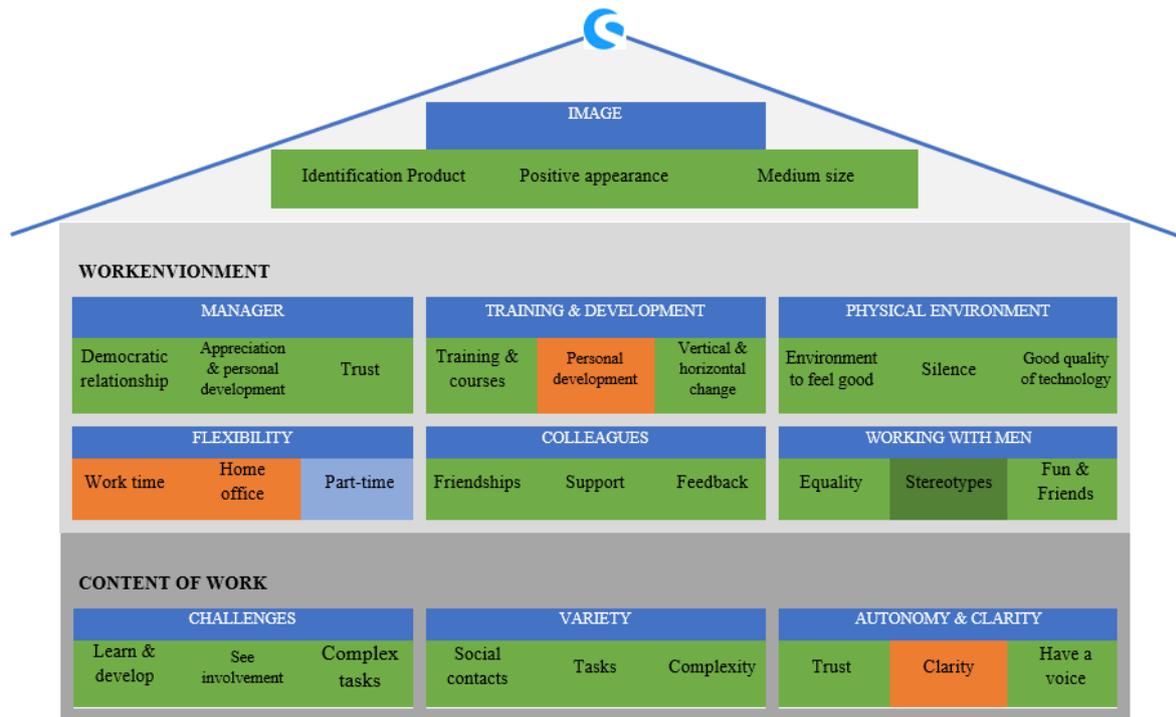


Figure 23. House of Attractiveness for the interviewed female ICT students



5. Conclusion

The expectations of the female ICT students considered the content of work, the work environment and the image of their future employer are compared with the experiences of the female developers who are employed at shopware AG. In this way, the extent of attractiveness of shopware AG for the interviewed female students can be concluded with the goal to outline the need for improvement. Based on that, the central question can be answered in the chapter 7: *How can shopware AG increase its attractiveness of the development job for (young) female ICT students to attract more female developers?* This central question is stated since shopware AG experiences a lack of female developers within the core department of the company and wants to attract more female developers to realize the company's mission.

5.1 The extent of the attractiveness of shopware AG

As figure 23 (sub-paragraph 4.4) shows, the 'House of Attractiveness for female developers' of shopware AG is almost green. That signifies an overall match between the expectations of the female ICT students regarding their future job and employer and the experiences of the two female developers of shopware AG relating their employment at shopware AG. The experienced 'challenges', 'varieties', 'autonomy', 'relationship with colleagues', 'relationship with manager', 'training and development possibilities', 'physical environment' and 'image' agrees with the expectations of the female ICT students. Based on that the conclusion can be drawn: **shopware AG is, on the whole, an attractive employer for the interviewees!**

In the following sub-paragraphs this conclusion regarding (1) the content of work, (2) the work environment and (3) the image is explained in detail. Moreover, additional information is used which is gained through an expert-interview. The log of this interview can be found in appendix 8. With the help of the information about the internal work method and policies, the outcomes can be confirmed or refuted which is helpful for recommendations.

5.1.1 The scrum method – the key for attractiveness?

First, the attractiveness regarding the content of work is concluded. The development department of shopware AG works with the scrum method. That means within sprints of usually two weeks a scrum team accomplishes tasks with the highest priority to constantly improve the product. One found with the help of the mind map (appendix 9) that this way of working has an impact on how the developers of shopware AG work and experience 'challenges', 'variety', 'autonomy' and 'clarity.'

No way to stop learning

Referring to challenges, the interviewed students expect to learn new things and develop within their future job. This is an agreement to what Corporaal (2014) found in his research. Further, this is in line with the outcome of Cugin (2012) that Generation Y is interested in learning and staying up to date with new technology and the needed skills. What they learn in school is just the starting point for programming. This is in line with the outcome of Corporaal (2014) that young people want to require the skills for the basic understanding to be sure that they can do the tasks. An interesting finding is that the two female ICT experience this in their work at shopware AG which makes the organization attractive to the interviewed female ICT students.

You are thrown in at the deep end, with floating wings

One important outcome is that the two starters explained that they experience a great extent of alternation between easy and complex tasks and in the type of tasks at shopware AG. As the Scrum Expert explained, the complexity of a task is shown with Fibonacci numbers (A. Wolf, personal communication, May 9, 2019). As the female developers stated within shopware AG the female ICT students can expect to be confronted with the unknown. Preenen, van Vianen, De Pater and Geerling (2011) also found that young people need complex tasks in which they experience uncertainty, difficulties and risks to learn new competencies. A way of doing this is through performing new tasks



and solve problems as Corporaal (2014) found and the female developers of shopware AG experience. That makes shopware AG attractive to the interviewed female ICT students since they desire challenges and varieties within their future work.

You cannot get far alone

The biggest variety the female developers of shopware AG experience is the alternation in social contacts. This is also the most important variation to the interviewed female ICT students. This important result agrees with the finding of Corporaal (2014) that young people value a variation between computer work, individual work and social contacts. Within the development team of shopware AG teamwork has a crucial role. There are several meetings due to working with the scrum method. Therefore, the developers work closely together with their team, work on their tasks individually or with the help of a partner if the task is too complex. And besides that, they come in contact with different teams and departments. Since shopware AG aims to be visionary the collaboration offers different perspectives which results in more creativity and innovation (van Knippenberg & Schippers, 2007). That is why you cannot get far alone as a developer at shopware AG which is a positive result since the female ICT students do not want to get far alone. They value to collaborate with different colleagues which makes shopware AG attractive to them.

Get your ownership

Together with a scrum master the developers divide the tasks and assign them to the employees. An important finding is that the female developers of shopware AG experience that they have a voice regarding dividing the tasks because that is what the potential developers desire in their future organization. Respective the theory of Hackman and Oldman (1976) 'influence' is among other things a factor that impacts the work satisfaction positively. After determining the tasks, the developers are responsible for the tasks. That is why the female developer emphasized that she sees her contribution. Further, they experience the freedom to organize and accomplish the tasks themselves. To the female developers freedom is a sign for trust and appreciation. This is an important outcome since trust to work independently is crucial to the questioned female ICT students. Corporaal (2014) also found that this makes a job more attractive to young people. Thus, the experienced autonomy makes shopware AG attractive to the interviewed female ICT students.

What about clarity?

Next to independence, there should be clarity about the content of work and expectation according to the research of Corporaal (2014) and the opinion of the female ICT students. They need to know how the output should like and what the expectations are to do a good job. A positive result is that the task within the development department has a description of the output. However, one of the female developers experiences that sometimes she does useless work due to unclear descriptions of tasks. Within a conversation, the Scrum Expert stated (personal communication, May 9, 2019) that the descriptions are made within a meeting in which the output is explained in detail. The output should be clear and otherwise one could ask the colleagues (A. Wolf, personal communication, May 9, 2019). One can conclude that there is an investigation necessary to examine the extent to what unclarity within the development department is experienced as a problem.

Not a clear apprenticeship plan

One of the female developers noted that to her the career path was not clear before she started her apprenticeship at shopware AG. Clarity is crucial as this research and the research of Corporaal (2014) shows which makes an outlined apprenticeship plan more attractive to this group of young people. The Talent Manager (personal communication, May 15, 2019) of shopware AG indicated that there is a career path for apprenticeships. One can conclude that shopware AG could improve the external communication regarding the career path of an apprenticeship at shopware AG.



5.1.2 Inspirational scope of development

Secondly, the attractiveness regarding the work environment is concluded. Under the work environment, one understands ‘flexibility’, ‘colleagues’, ‘working with men’, ‘manager’, ‘training and development’, ‘physical environment.’

Flexible but not flexible enough – or is it?

The most important finding is that young, female ICT students find it important to have flexible working hours to combine their private life with their work life. Generation Y desire a work-life balance as van Steensel (2007) found. The two female developers of shopware AG experience flexible working hours but they also stated that there is a core time from 9 am until 4 pm. The Scrum Expert and the HR & Culture Manager explained that this core time is for departments with customer contact and not for the development department (A. Göpel & A. Wolf, personal communication, May 9, 2019). This is a positive finding since this agrees with the expectation of the ICT students. But then it is an interesting finding since the female developers experience it as less flexible than it is. This means that shopware AG does not communicate that correctly whereby it is practiced differently.

More family-friendly than experienced

The possibility to work from home is important to female ICT students and the importance increases when women think about the future. This can be explained with changing age- and life phases and social roles (Cennamo & Gardner, 2008; Van den Broek, 2001). Becoming a mother is more important to the women than a career. The female developers stated that they have the option to work from home once per week. Furthermore, working part-time to care for their children is also a possibility they desire in their future job. De Vries, Strijker, van’t Hoog and Bruijnink (2016) also found that working part-time is important to women. The HR & Culture Manager stated that it is possible to work part-time after childbirth. Then it is also possible to work 50% from home since shopware AG finds it important to be family-friendly (A. Göpel, personal communication, May 9, 2019). The developers of shopware AG could not give information about that. Now, they have the ambition to finish their educational program and not to build a family. But on the other side, this is an interesting finding for shopware AG. This research found that female ICT students find a family-friendly organization more attractive where it is possible to work from home and part-time. And since the female developers are not aware of these rules, this means it is not clearly communicated.

Supportive colleague, friend and a buddy to drink a beer with

At shopware AG the female ICT students could build friendships with their colleagues within and outside their work as they desire. Colleagues are one of the most important aspects of the questioned female ICT students. That is in line with the research of van Steensel (2000), Manpower (2010) and Crumpacker & Crumpacker (2007). The female developers experience appreciation and respect from their colleagues which can be explained with the cultural values of shopware AG: open and authentic (shopware AG, n.d.c.). Regarding the two female developers, they experience support from their colleagues. Moreover, they experience honest feedback from colleagues. According to Bakker (2003) social support, feedback and coaching belong to energy sources at work which have a positive effect on motivation and involvement of employees. Next to the close collaboration at work, there are also several activities in which the employees of shopware AG can build friendships outside work. They can go to gym courses together or go to the game nights shopware AG offers. This agrees with the finding of Corporaal (2014) and the expectations of the female ICT students of this research which makes shopware AG attractive to the female ICT students.

Working with men

The female developers like to work with men and that is also what the female ICT students expect. It is possible to become friends with them and they experience a relaxed atmosphere. As stated before, the female developers experience respect and appreciation from their colleagues and managers. Hence, there is equality within the development department of shopware AG. That is exactly what the female ICT students desire but on the other side, they fear stereotypes at work. An important finding is that the



female developers of shopware AG do not experience prejudgments. They joke with them and do not pull themselves together, but this does not affect the pleasure and appreciation the female developers experience at working with them. These findings do not agree with the outcomes of Endedijk, van Hattum and van Veelen (2017) and Joshi (2014) that women are judged by their gender and receive less appreciation. This is an important outcome for shopware AG. De Vries et al. (2018) found that women note that they are not affected by gender bias problems. The same research found that this is a survival mechanism since women do not want to have a special position and try 'to be one of the guys' (de Vries et al., 2018). This could mean that the female developers of shopware AG deny problems. Further, the two women do not represent all female developers. Hence, it could mean that women with a different background could experience problems within the development department of shopware AG since they do not pull themselves together and joke which touch stereotypes. This research also found that the female ICT students do not want to have a special position within an organization. Since de Vries et al. (2018) also found that, one should keep this finding in consideration for recommendations.

A democratic manager

The female developers of shopware AG experience respect and appreciation from their manager. They experience a democratic and trusting relationship in which they communicate on an eye-level. This is a positive finding since the situation suits the expectations of the questioned female ICT students. Young people value respect and appreciation is also what previous research found (Cogin, 2012; van Steensel, 2007; Boschma & Groen, 2006). Further, the female ICT students search for a relationship with their manager to discuss personal issues and development. The female developers experience interest for their education program and with an annual feedback conversation their manager shows interest in their development and satisfaction. In the frame of this research, the relationship with the manager is attractive to the female ICT students.

Life-long learning

The organization gives developers plenty of opportunities to learn and develop. Among other things there is training and development catalogues from which the female developers can choose training or courses to follow. This is attractive to interviewed female ICT students. Besides that, there is a required training, they should follow. The HR & Cultural Manager state that the required course is just for trainees to support them to start working. According to her the developers can choose two or even more trainings or courses per year (A. Göpel, personal communication, May 9, 2019). And this is important to shopware AG to realize the mission to develop a state of art product. This is a positive finding since staying up to date and determining one's career is important to the interviewed students. Additionally, the organization offers internal internships which means that the employees can gain experiences in different departments. The female developers also receive emails from HR for internal recruitment. That means that it is possible to change positions since shopware AG finds it important to bind employees and that the employees work satisfied. This agrees with the expectations of the female ICT students. This also agrees with the finding of Corporaal (2014) which makes the organization attractive to the questioned female ICT students.

Environment to feel good

An environment to feel good is to female ICT students a cosy and light environment where they can collaborate with colleagues but in which it is still quiet. They need silence to work concentrated and productive. And this is exactly what shopware AG offers. Further, the female developers described a great variation where they can work since there is Wi-Fi everywhere. They are satisfied with their workplace and feel at home there. Just an air conditioning would make it even more comfortable as one developer stated. The organization tries to break down the walls between private and work life, so it is important to build a workplace where one feels at home (A. Göpel, personal communication, November 22, 2018). According to van der Ende (2009) employees are more satisfied with their workplace if they feel comfortable. Moreover, they experience it as a luxury to choose their operating system of their laptop and to have two screens next to it. This is also attractive to the female ICT students since they



expect a good quality of their technology. One can say that the workplace shopware AG offers is attractive to the questioned female ICT students.

5.1.3 Great place to work

Finally, a conclusion can be drawn regarding the image of shopware AG.

Identification with the product

The female ICT students find an organization attractive when they identify with the product. That means they should like the product and the product should be customer friendly and has good quality. The organization is a market leader in Germany, Austria and Switzerland and more 80.000 online shops already make use of the software of shopware AG (shopware AG, n.d.b.). Therefore, shopware AG has satisfied customers and a high quality. Furthermore, 'Shopware' offers according to the female developers various possibilities to gain experience which are attractive to a great amount of people.

Public appearance

The female ICT students indicated that they find the (public) appearance important since their gut feeling has an important role regarding their job choice. That means the internet appearance and the experiences with the organization are crucial to the female students. According to the female ICT students shopware AG has a positive image and gave them a good gut feeling when they came in contact with the organization. Furthermore, an interesting result is that the interviewed female ICT students who knew shopware AG already found the organization also attractive. Hence, one can conclude that the appearance of shopware AG is positive which should be attractive to the interviewed female ICT students.

Not too large organizations

An interesting finding is that the female ICT students find a medium size organization the most attractive. They value a close relationship, a personal approach and training and development opportunities. According to the female developers, the size of shopware AG is attractive since they still know everyone and have a lot of opportunities within the company. Therefore, the size of shopware AG should be attractive to the questioned female ICT students. This is an interesting finding for shopware AG, since the organization has the ambition to grow and investigates how to keep the cultural values (A. Göpel, personal communication, December 13, 2018). The finding that the size is of importance is not in line with the research of Corporaal (2014). He found that the size of an organization is not important to young people (Corporaal, 2014).

Corporate Social Responsibility as a bonus

The questioned female ICT students find CST important, but it does not have an influence on their job choice. If an organization is already attractive to them, CSR would make the organization even more attractive. This agrees with the research of Corporaal (2014). He also found that young people do not prefer organizations with or without CSR. Within shopware AG, the female developers experience CSR which would be a bonus for the questioned female ICT students.

5.1.4 Stereotypes are to blame

The most respondents blame the cliché for the lack of female developers in the ICT industry, as shopware AG. They are convinced that the gender separation and the stereotypes are the reason why women do not choose to work in the ICT industry. Furthermore, most of the interviewees attended computer science lessons in school or were inspired by other persons. The organization wants to change this cliché with offering 'Code Camps', participates in 'Girls day' and invites school to give young people an insight in programming to attract more female developers on long-term. Research of Wang and Degol (2016) found that high school forms an important period for choosing a career path. The research of Maltese and Tai (2010) found that the preference of science careers arise in middle school. Therefore, with the activities shopware AG offers, the organization can partly influence the interest with offering an impressive experience and showing an optional career path.



6. Discussion

Some new insights for shopware AG regarding its job and organizational attractiveness for female developers have been provided by this research. But before recommendations can be given to answer the central question, the strength and limitations of this research are discussed.

Firstly, one can say that this research gives shopware AG the first insights concerning this topic making it valuable for the organization. Secondly, one can say that this qualitative research is conducted based on the grounded theory approach to come to these results and conclusions (Verhoeven, 2014). That means that the theoretical framework, the conceptual model and the method are based on scientific literature. The questions of the interview are based on a valid and reliable survey Corporaal (2014) developed. Further, the questions were created in an objective perspective to not influence the answer of the respondents. After conducting the interviews which were recorded with the help of a technical device, the interviews were literally transcribed to be sure not to lose information. To avoid further mistakes, the answers of the respondents were coded based on the research of Corporaal (2014). Finally, one came to the previous presented results and conclusions. To sum up, one can state that several ways were used to increase the reliability and validity of the outcomes.

The interviews within the first group were held with two female developers of shopware AG. There are currently 55 employees in the development department of the organization, whereof two are women. One can conclude the research represents 3.5% of total developers but on the other side 100% of the female developers. Since shopware AG wants to attract more female developers it was interesting to find out how female developers experience their job within shopware AG and the organization as an employer. The experience of male developers would not have added value for the attraction of female developers since research shows that women and men value aspect different in work (Oppenhuis, 2000; de Vries et al., 2018) and that women experience a misfit with the technical environment (de Vries et al., 2018). The two female developers ,who were following an educational program, were the only source of information regarding the aspects which correlate with the job and organizational attractiveness. This small sample and the position of the two developers has probably influence on the results which make the results less reliable. Further, also the short time of their employment influences the outcomes. One can state that a larger group of female developers with different positions and more work experience would lead to different results. The less representative sample has an influence on the reliability of the outcomes of this research which need to consider while giving recommendations. It is recommended to repeat the internal interview when shopware AG attracted more female developers.

The second group, in which interviews were held, were six female ICT students with three different educational backgrounds. Female potential developers are hard to find since there is also a small number of female ICT students in Germany (Statistik der Bundesagentur für Arbeit, 2018). The researcher attempted to contact universities in the Netherlands and Germany to gather a larger pool of female ICT students, however, the universities did not want to collaborate. That is why, the snowball method was used to find respondents. Since one made use of already existing contacts of the female developers of shopware AG, one can assume that this could have led to bias. As van Knippenberg & Schippers (2007) state, people favor ingroup members more than outgroup members making the results less reliable since one can assume that the women value similar aspects in work. Further, the position and educational background have influenced the results. Some of the respondents already have working experiences. Presumably, the outcome would differ when one would have investigated the expectations of a larger group of students and different educational backgrounds. Hence, the outcomes are less reliable which need to consider while giving recommendations. For future research, it would be interesting to gather quantitative data of the female ICT students using the survey of Corporaal (2014). On this way, one can investigate a larger group of potential female developers.



7. Recommendations

Finally, the central question can be answered in this chapter: *How can shopware AG increase its attractiveness of the development job for young female ICT students to attract more female developers?* To do so, recommendations on strategic, tactical and operational level are given. Since the goal to attract more female developers has a high priority for the organization, there is not a budget which needed to be considered by giving these recommendations (A. Göpel, personal communication, November 22, 2018). The implementation plan can be found in the appendix 10. A critical reflection of the researcher can be found in the appendix 14.

7.1 Employer Branding

This research has shown that shopware AG is overall attractive to young female developers. The challenges, variety, autonomy, flexibility the job offers agree with the expectations of the female ICT students. Further, the relationship with managers and colleagues, working in a male-dominated department, the physical environment and the training and development possibilities are attractive to the interviewed future, female developers. But how can shopware AG attract more female developers? My advice is: to attract more attention and shout the right information louder with the help of employer branding! This research has shown that the appearance of an organization is important to the questioned female ICT students.

The definition of employer branding is according to Backhaus and Tikoo (2004): *“the process of building an identifiable and unique employer identity, and the employer brand as a concept of the firm that differentiates it from the competitors”* (p. 502). Nilson, Olafsen and Sivertzen (2013) state, it improves the corporate reputation and the attractiveness of an employer. Within shopware AG, HR is responsible for employer branding. Participating in interventions such as ‘Great place to Work’ to get certificates, inviting schools, participate at ‘Girls Day/ Boys Day’ and offering ‘Code Camps’ for kids to gather experience with programming are examples of tactical employer branding activities of shopware AG (A. Göpel, personal communication, November 22, 2018). The strategic goal is to increase its visibility to attract talented professionals into this rural area to work for shopware AG. Furthermore, the organization finds it important to consider the environment in which shopware AG operates in. That is why corporate social responsibility is important to the organization as research proved. Moreover, on long-term, shopware AG aims to have an educational mission for fellow human beings. The organization sees it as its task to change the stereotypes about (female) developers in the industry as the HR & Culture Manager stated (personal communication, November 22, 2018). With these activities and strategic goals, the organization aims to realize its mission *“to revolutionize digital trade and create trendsetting e-commerce solutions for our global community”* (shopware AG, n.d.b. section “inspiration”).

7.1.1 Check the given information

My first advice to increase the women-friendliness of the given information. Employer branding has six phases: visibility of the employer, interest in a job, application, getting to know and decide, onboarding, and work with an employer. In the first phase, the job seeker has the chance to assess the attractiveness. This is followed by the fourth phase of ‘getting to know and decide’ where it has been researched that 96% of the interviewed organizations view this as the most important moment to transmit the attractiveness of the organization (Laumer, Oehlhorn, Weinert, Weitzel & Wirth, 2018). This moment has an important impact on how a job seeker experiences the organization. I suggest that HR should investigate the candidate experience. Which information is given on the website and during the recruitment experience? Is the information attractive to female developers?

This research has shown how female developers define an attractive employer and Corporaal (2014) found what young job seekers expect regarding their future job and employer. My advice is to create common policies regarding topics such as working at home, working at home after childbirth, extra childcare days, the training & development and growth opportunities. Further, I suggest outlining what the content of work and responsibilities contains whilst avoiding words such as ‘challenges’ and



‘variety’ since research of Corporaal (2012) indicates that young people do not know what that means for them. For example, through an explanation of how the team works with the scrum method. In addition, I advise to let female developers speak on the website. This would be attractive to external female developers since ‘colleagues’ is an important factor to the female developers according to this research and other references (Eisner, 2005; Crumpacker & Crumpacker, 2007; Cogin, 2012; van Steensel, 2000; Manpower1, 2012). Further, it would give female developers a sign of equality. Besides this, I suggest allowing the applicant to get a taste of the cultural values which are open, authentic and visionary. According to the research of Laumer, Oehlhorn, Weinert, Weitzel & Wirth (2018), almost 80% of the interviewed IT-organizations are convinced that presenting fewer positive aspects of an organization increases the attractiveness resulting in authenticity being connected to the attractiveness of an organization (Laumer, Oehlhorn, Weinert, Weitzel & Wirth, 2018). Furthermore, authenticity is a central value of young people (van Steensel, 2000). I suggest shopware AG presenting as they really are, ‘open’, ‘authentic’ and ‘visionary’, and daring to show weaknesses.

In appendix 11, a checklist can be found which is based on the outcomes of this research and the research of Corporaal (2014). This check delivers an insight in how attractive shopware AG presents itself during the candidate experience. Adjustments relating of the given information will be clear, and changes can be implemented quickly. The costs of this recommendations depend on the adjustments.

Communicate apprenticeship program

In the frame of this recommendation, I suggest sharing the apprenticeship program on the website and with schools shopware AG collaborates with. As one female developer indicated, the apprenticeship program was not known before the start. As this research and the research of Corporaal (2014) found, clarity is important to young job seeker. The Talent Manager noted that the program of apprenticeships is clarified (personal communication, May 15, 2019). Within an apprenticeship the developers work within the development department as a full employee, can gain experience in a different department, can learning and developing through training making this program is attractive to the respondents. Corporaal (2014) also concluded that young job seekers find these aspects attractive. With the help of this quickly implemented suggestion, the organization can use this program to profile as an employer and to increase its visibility.

7.1.2 Be visible for future developers

The long-term goal of the organization is to attract creative and innovative thinkers into the rural environment. Participating in ‘Great Place to Work’ and inviting schools are activities to increase the visibility of shopware AG as an employer (A. Göpel, personal communication, May 14, 2019). I suggest adding activities in which ICT students are the target group to increase the awareness of the organization as an employer within a group of people who already decided for this work field. These tactical points focus on the first phase of employer branding, namely visibility of the employer.

Relationships with UAS

A strategic suggestion is building a relationship with Universities of Applied Sciences in Germany and in the Netherlands. Since the organization aims to “*create trendsetting e-commerce solutions for our global community*” (shopware AG, n.d.b. section “*inspiration*”) the collaboration with Dutch or international students would also help shopware AG to get to know the ICT market better. Moreover, Schöppingen (North Rhine-Westphalia, Germany) is close to the Dutch border which makes shopware AG an attractive employer for Dutch (female) developers which increases the applicant population of the organization.

HR should promote sharing of internship programs with the universities in Germany and the Netherlands in the area of shopware AG to reach this long-term goal. The organization already offers internships due to the education mission of the organization. On one hand, internships costs time for guidance but on the other hand an internship often creates a sustainable connection with the organization as a potential employer which supports the attraction of (female) developers (Bundesministerium für Arbeit und Soziales, 2011).

Overall, HR should create an attractive internship program which is based on the outcomes of this research. The checklist can be used for the execution (appendix 11). Appendix 12 shows an image for a visualization of an internship career path within shopware AG which can be used for an inspiration. Secondly, I recommend gathering contact details of surrounded universities, sharing the program with the schools and asking the University of Applied Sciences to add them into their database. On the website of University of Applied Sciences Münster for example, one can read that there is a set of contact details of organizations and their contact persons (FH Münster, n.d.a). In this way, the organization can increase its visibility, the chance for (female) applicants for internships within the development department and potential future employees. The main costs of this recommendation depend on creating an internship program and gathering the contact details. One assumes that costs amounting to 1,280€.

Developer workshop

To strengthen the relationship with universities and to make use of this relationship, I suggest shopware AG offering a development workshop once per year with the strategic goal to make a name for oneself as an attractive employer. Additionally, this tactical activity would support shopware AG to fulfill the education mission and to help to reach its strategic goal to increase the visibility of the organization. With the help of an annual workshop, shopware AG would have the chance to inform a group of potential employees about the organization. Further, it would help to attract creative and innovative thinkers because while working on a case, talented and creative developers could be discovered. Additionally, the organization could build a relationship with a group of potential developers. Besides that, shopware AG could gather suggestions for innovation and could get inspired by how students solve problems and present cases. Hence, next to advertising shopware AG as an employer, it would help to progress innovation which is in line with the mission. This recommendation is inspired by the masterclass of Nedap (2019). The Dutch technology organization offers successfully a three-day masterclass for master students yearly. The goal is to challenge and educate them but also to introduce Nedap to them and also to recruit talented master students (Nedap, 2019).

I suggest shopware AG offering a two-day program for 12 – 15 female and male students from different ICT backgrounds. Within these two days the students could get to know shopware AG and would have the chance to work on a case of the organization. Within a team, with different perspective on ICT, the students could discover an innovative solution, a new working method and could get to know different people with individual perspectives. Therefore, they would get support of an experienced developer and could make use of the technologies shopware AG offers. These suggestions are based on the facts that the interviewees of this research and the respondents of the research of Corporaal (2014) find it important to be challenged, to stay up to date, to work in a team, to be supported and to work independently. I

DEVELOPER WORKSHOP		
Day 1 – Thursday		
10.00	Welcoming & introduction	
12.00	Lunchbreak & mingle	
13.00	Presentation case	
	Discussion problem	
	Brainstorm solutions	
15.00	Break	
15.30	Determining solution & way to solve the problem	
17.00	Closing	
Day 2 – Friday		
10.00	Welcoming	
	Repetition outcome of day 1	
	Determining solution, task dividing, start work on case	
12.00	Lunchbreak	
13.00	Work on case	
15.00	Break	
15.30	Work on case	
17.00	Presentation	
18.00	Barbecue and drinks at the beach	

Figure 24. Overview developer workshop.

suggest letting 50% of women and 50% of men participating. As research found, interactions between women in the technical environment improves their self-efficacy which is crucial for their performance and keeping women in technical industry (Botella, Rueda, Lopez-Iñesta & Marzal, 2019). One more



advantage of this workshop is that it would support to realize the goal to create an environment in which women can develop a great extent of self-efficacy which is suggested in the next paragraph (7.2).

An example of the program of the workshop is presented in figure 24. A detailed program can be found in the appendix 12.

To define the cases and to create a realistic program, I suggest for HR creating a project team with developers and marketing. The developers have know-how about cases and a marketing employee about how to brand this intervention. Further, I suggest working side by side with universities to arouse interest regarding this program and help promote. The ICT degree program at Saxion University of Applied Sciences for example works closely with organizations. On the website of Saxion (n.d.a) organizations can contact the contact person of the ICT-program to discuss the possibilities. On the website of University of Applied Sciences Münster one can also find a contact person (FH Münster, n.d.b). The main costs of this recommendation rise through the preparation of this workshop. It takes time to develop cases, to create a program, to promote it and to realize the workshop. That is why one assumes, that developing a workshop as suggested lasts three months in which a weekly meeting needs to take place. One assumes that around 1,920€ need to be invested for one involved employee.

I suggest that the workshop is given by an HR employee and one or two developers. The developer(s) could be responsible to support and guide the students with the goal that the students come to a satisfactory result. The amount of developers should depend on the complexity of the case. I suggest arranging enough support since this research and the research of Corporaal (2014) found that support is important to young people. HR could give an introduction about shopware AG as an employer and could take the responsibility for organizing this workshop. The main-costs of the execution of this workshop would rise due to the hourly wage of the employees. Two days would cost shopware AG 320€ per employee with an hourly wage of 20€.

As for the masterclass of Nedap (2019), I recommend letting the students apply for this workshop. In this way the organization has an overview about the participants and can influence the spreading of women and men. To receive enough applications, I suggest making use of the contact with universities and to share a motivational text which is attractive to female and male developers and the detailed program with the degree programs. Besides, I suggest HR sharing the workshop via the website and social media such as Facebook, LinkedIn, Instagram and Twitter.

7.2 Self-efficacy for women

This research has shown that the interviewed female ICT students fear stereotypes and that the female developers of shopware AG do not experience stereotypes. However, one concluded that the two women of shopware AG do not represent all female developers. Further, research of de Vries et al. (2018) found that women tend to deny problems within a male-dominated environment as a survival mechanism. The same research also found that despite a match with the content of work and the work environment, when women have a low self-efficacy, they tend to leave the work field. Self-efficacy is the professional self-confidence which is based on “*mastery experience, an individual’s task-specific experiences, and interpretation of those experiences*” (p. 2) according to Rittmayer and Beier (2009). The previous recommendations focus on increasing the visibility of the organization to attract more female developers. What if the organization realizes this goal and attract more female developers but then they tend to leave the work field due to a low self-efficacy? With this strategic recommendation I suggest shopware AG creating an environment for women in which they feel confident and can build a great extent of self-efficacy.

Research found that women and men develop their self-efficacy beliefs in different ways (Zeldin, Britner & Pajaras, 2008). The actual performance is the indicator for men while the beliefs of women are based on encouragement by others and seeing other successful women as de Vries et al. (2018) describes in their paper. Hence, the support from colleagues is important so women feel confident within their job. This research has shown that shopware AG already applies a family-friendly policy due to the possibility



to work part-time and from home. Furthermore, the organization offers developers a development environment in which they can learn according to their wishes and needs. These are among other things interventions de Vries et al. (2018) presents in the paper with proved effect. According to this paper these interventions let women feel comfortable and keep women in the tech industry. Research shows that combined interventions increase this positive effect (de Vries et al., 2018). I suggest implementing other tactical intervention when shopware AG realized to employ more women to realize the suggested long-term goal. The recommended interventions are value affirmation and gender bias training.

Value affirmation

I suggest reflecting the personal value of the team members to help the employees and especially female developers to become aware of their personal value. According to de Vries et al. (2018), when employees find a way to integrate their values within their work it results in a better match with the professional and personal values. Further, positive feedback supports the self-efficacy of women which is crucial for the performance of women (de Vries et al., 2018). Besides, it also helps to discover strength and weaknesses which supports choosing a training more wisely. Hence, it has also an positive effect on the individuality of the personal development.

At the end of a sprint, there is a retro perspective meeting planned (A. Wolf, personal communication, May 8, 2019). According to the scrum master (personal communication, May 8, 2019) the sprint is evaluated in this meeting. I suggest adding the agenda topic 'value affirmation' to the meeting and since women do not want to have a special position, I do not suggest implementing an extra meeting. With questions such as "*What went well this sprint? What are you proud of? What makes you unique?*" the team members can help each other to reflect on their personal value. The cost of this intervention consists of the extra time which is needed to discuss this agenda point. One can assume that an extra half an hour is needed which costs, with an hourly wage of 20€ for 12 employees, 120€ per meeting.

I suggest HR building a project team with the team leads how to implement this intervention. Since they have to execute this intervention, it is important to convince the team leads with the need of this value affirmation and to engage them. Further, it is necessary to investigate what the scrum teams need to help their colleagues to discover the personal value. That is why the costs for setting this up need to be determined within this project team.

Gender Bias training

When shopware AG realized as they would like to employ more female developers, I suggest offering a gender bias workshop for the male and female developers. As this research has shown, female ICT students expect bias and female developers notice the men joke with them and prejudices are touched upon sometimes. De Vries et al. (2018), Cheryan et al. (2009) found that there are gender-stereotypical bias which unconsciously occur. Jackson, Hillard and Schneider (2014) did research about the effect of gender bias training and found that this intervention makes people aware of (unconscious) bias towards women. The same research found that the workshop helps employees to reflect and change their behavior which results in a culture with less bias towards women in ICT (Jackson, Hillard & Schneider, 2014). This is desirable when one aims to let women feel comfortable in an environment.

On short-term, I advise shopware AG to focus on the awareness of the employees regarding bias. I suggest starting with it immediately on operational level through making team leads aware of unconscious bias. In a meeting, HR could brief men about the importance of avoiding bias and support them in recognizing them and making employees alert. In this way, shopware AG can achieve to minimize unconscious bias quickly. For preparation, I recommend HR making use of the free guide of Floria Moghimi (n.d.).

When around four women are employed, I suggest that HR creates a workshop. Floria Moghimi (n.d.) for example offers an unconscious bias training which teaches about the origin and function of stereotypes and gives methods to avoidance bias. Based on this workshop, I suggest HR developing together with the employees strategies. De Vries et al. (2018) notes that colleagues should find a way



on how to check each other behavior and how to work together to prevent falling back into existing patterns. I recommend determining an evaluation method together with the employees to check on regular basis how to avoid bias. According to Daft (2016), implementations are sooner accepted through participation and involvement of employees. I recommend integrating this evaluation together with 'value affirmation' at the end of a sprint.

Since unconscious bias concerns the whole development department, I recommend letting all development teams participate. The employees of shopware AG have the possibility to follow at least two trainings per year, I recommend using the budget of one in-house training to let the developers participate the workshop. The average cost of a training is 1,400€ (for 12 FTE) according to the Talent Manager of shopware AG (personal communication, May 15, 2019). Hence, HR would have a budget of around 6,400€ for developing an unconscious bias training for 55 FTE.

7.3 Further research

As concluded, I recommend shopware AG to investigate further to what extent the developers experience unclarity within their job. This research namely found that one of the female developers experience unclarity which resulted with useless work. First, that would mean that the organization could increase the productivity with improving the clarity. Further, clarity is important to female developers, as this research found. It is important to them to know what expectations are. Next, it is important to do useful work which impacts the organization in a positive way.



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8. Appendix

To give an overview about the appendix, the appendices are listed here:

Appendix 1	WhatsApp
Appendix 2	Operationalization of the interview questions
Appendix 3	Interview log – group 1
Appendix 4	Interview log – group 2
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Appendix 12	Inspiration internship program
Appendix 13	Workshop program



Appendix 1. WhatsApp

With this message the female ICT students were contacted. This message is translated from German to English.

Hey NAME

Thank you very much for your willingness to be interviewed and that NAME could pass me your contact details! You'll help me a lot with my bachelor thesis :)

Shortly to me: I am Lina and study Human Resource & Business Management at Saxion University of Applied Sciences in Enschede. Currently I am writing my bachelor thesis at shopware AG in Schöppingen. The organization aims attract more female developers. Therefore, I would like to investigate what attracts you, as a young, aspiring developer. What interests me here is what you expect regarding the content of work, the work environment, and the image of an organization. I hope you'll have about 30 minutes for the interview?!

Next to you, I will interview more girls. On Monday I have a meeting with my lecturer because I need a 'go' before I can hold the interviews. Would it suit you when we schedule the interview at the beginning of next week? And where does it suit you best?

I am looking forward to hearing from you

Lina

Appendix 2. Operationalization

The presented characteristics are determined by Corporaal (2014). The interviews are held in German. The operationalization is translated from the original language, Dutch, to German, for conducting the interviews, and English, for this presentation.

Table 4.

Operationalization characteristics according to Corporaal (2014).

Characteristic	Operationalization Corporaal (2014)	Interview question Group (1)	Interview question Group (2)
Challenges		How do you experience challenges in your future job?	How do you expect challenges in your future job?
Learn new things	Accomplish tasks which are new and request new skills that the person does not fully master	To what extent do you experience to learn new things?	To what extent do you expect to learn new things?
Complexity	Work that relates to existing knowledge and certainty about that I can do work	To what extent do you experience that your work relates to what you have learned?	To what extent do you expect that your work relates to what you have learned?
Impact	The contribution must be recognizable	To what extent do you experience that your impact of the product/organization is visible?	To what extent do you expect that your impact of the product/organization is visible?
Variety		How do you experience variety in your future job?	How do you expect variety in your future job?
Variety in type of tasks	The alternation between the types of tasks	To what extent do you experience variation in the type of tasks in your position?	To what extent do you expect variation in the type of tasks in your position?
Variety in skills	Alternation between simpler and more complex tasks	To what extent do you experience alternation between simpler and more complex tasks?	To what extent do you expect alternation between simpler and more complex tasks?
Variety in circumstances	Not the same tasks and variety in social contacts every day	To what extent do you experience variety in social contacts?	To what extent do you expect variety in social contacts?
Freedom		How do you experience freedom in your future job?	How do you expect freedom in your future job?
Freedom in planning work	Performing tasks spontaneously without the schedule being established	To what extent do you experience that you have freedom regarding planning work?	To what extent do you expect that you have freedom regarding planning work?
Freedom to make decisions	Clarity about end goals and rules of an organization	To what extent do you experience the freedom to decide yourself? To what extent do you experience clarity regarding the expectations and your responsibilities?	To what extent do you expect the freedom to decide yourself? To what extent do you expect clarity regarding the expectations and your responsibilities?



Freedom to determine work method	The freedom to decide yourself how your work will be carried out	To what extent do you experience that you can determine the work method yourself? To what extent do you experience trust that you can work independently?	To what extent do you expect that you can determine the work method yourself? To what extent do you expect trust that you can work independently?
Flexibility		How do you experience flexibility in your future job?	How do you expect flexibility in your future job?
Flexibility in number of workhours	The possibilities for part-time work, temporarily working fewer hours and the possibility to deviate from a standard working week	To what extent can you determine working hours yourself? To what extent is it possible to work at home? To what extent is it possible to work part-time/fewer hours?	To what extent do you want to determine working hours yourself? To what extent do you desire the possibility to work at home? To what extent is it possible to work part-time/fewer hours?
Colleagues		How do you experience the relationship with your colleagues?	How do you expect the relationship with your colleagues?
Opportunities for feedback, help and advice	Giving each other feedback about the results that someone achieves with their work	To what extent do you experience being helped by colleagues and receiving feedback from them?	To what extent do you expect being helped by colleagues and receiving feedback from them?
Treatment colleagues	The way in which colleagues are treated within daily work	In what way do you experience the collaboration with your colleagues?	In what way do you expect the collaboration with your colleagues?
Informal contacts with colleagues	The possibility to develop informal contacts or friendships with colleagues	To what extent do you experience informal contacts / friendships with colleagues?	To what extent do you expect informal contacts / friendships with colleagues?
Working with men		How do you experience working in a male-dominated department?	How do you expect working in a male-dominated department?
Stereotyping		To what extent do you experience stereotyping?	To what extent do you expect stereotyping?
Difference in appreciation	<i>No operationalization – this item is added</i>	To what extent do you experience a difference in the appreciation between you and your male colleagues?	To what extent do you expect a difference in the appreciation between you and your male colleagues?
Friendships with men are more difficult		To what extent are friendships and informal contacts possible with men?	To what extent do you expect that friendships and informal contacts are possible with men?



Manager		How do you experience the relationship with your manager?	How do you expect the relationship with your manager?
The manager encourages and inspires	Explicit attention for authentic development of professionals	To what extent do you experience paying attention to personal development by your manager?	To what extent do you expect paying attention to personal development by the manager?
The supervisor recognizes and involves employees	Respect for them as a person and as equivalent	To what extent do you experience that your manager sees you as equal and involves you in the process?	To what extent do you expect that your manager sees you as equal and involves you in the process?
The supervisor is accessible	Manager is physically easily accessible and clearly visible and open to various conversations	To what extent do you experience that your supervisor is accessible?	To what extent do you expect that your supervisor is accessible?
The manager gives room and confidence	Manager gives trust to work independently	To what extent to experience trust from your manager?	To what extent to expect trust from your manager?
Training and development opportunities		How do you experience the training and development opportunities within shopware AG?	How do you expect training and development opportunities in your future organization?
Training and education	A development process with attention to life outside of it	To what extent do you experience training and education opportunities?	To what extent do you expect training and education opportunities?
Growth opportunities	Being able to gain experiences in various functions	To what extent is it possible to gain experiences in various functions? To what extent do you experience that you can grow into other positions?	To what extent do you desire to gain experiences in various functions? To what extent do you expect that you can grow into other positions?
Physical workplace		How do you experience your workplace?	How do you expect your workplace?
Work conditions	Characteristics of a physical environment such as noise, hygiene, temperature and odor	How do you experience the working conditions in your function?	How do you expect the working conditions in your function?
Access internet	To have a free access to the internet	To what extent do you experience to have a free access to internet?	To what extent do you expect to have a free access to internet?
Availability of materials	Availability, variety in materials	To what extent do you experience the right availability of materials?	To what extent do you expect the right availability of materials?
Image		How would you describe the image of shopware AG?	How important is the image of an organization to you?
Size	Number of employees, number of branches, size building	To what extent is the size of shopware AG attractive to you?	To what extent does organization size contribute to attractiveness for you?



Type of products	The way products and services have quality and innovation	To what extent is the product that shopware AG develops attractive to you?	To what extent do the products and services contribute to attractiveness for you??
CSR	A signal that an organization shows moral and responsibly	To what extent do you experience CSR?	To what extent is CSR important to you?
Familiarity	The knowledge or experience that someone has of an organization before they come in contact	To what extent were you familiar with the organization before you started working there?	To what extent were you familiar with the organization before you started working there?



Appendix 3. Interview script – group (1): Female developers of shopware AG

The interviews were held in German. Therefore, the script is translated to English.

Date:

Naam interviewee:

Age:

Educational program:

Introduction

- **Introduce yourself not necessary, we know each other already**
- **Goal of the research:**
 - o As I already told you I am investigating what you, as a potential developer, value regarding your future job and employee.
- **Thank:**
 - o Thank you for your participating and your support in my research
- **Guarantee anonymity**
- **Request permission to record**
- **Start interview:**
 - o The questions are about how you experience working at shopware AG. First, there are some questions about what you experience regarding your content of work. Second, I am going to ask you how you experience your work environment and finally, there are also some question about the image of shopware AG

Core

Interview question group (1)

How do you experience challenges in your future job?

To what extent do you experience to learn new things?

To what extent do you experience that your work relates to what you have learned?

To what extent do you experience that your impact of the product/organization is visible?

How do you experience variety in your future job?

To what extent do you experience variation in the type of tasks in your position?

To what extent do you experience alternation between simpler and more complex tasks?

To what extent do you experience variety in social contacts?

How do you experience freedom in your future job?

To what extent do you experience freedom regarding planning work?

To what extent do you experience freedom to decides yourself?

To what extent do you experience clarity regarding the expectations and your responsibilities?

To what extent do you experience that you can determine the work method yourself?

To what extent do you experience trust that you can do your work independently?

How do you experience flexibility in your future job?

To what extent can you determine working hours yourself?

To what extent is it possible to work at home?

To what extent is it possible to work part-time/fewer hours?



How do you experience the relationship with your colleagues?

To what extent do you experience being helped by colleagues and receiving feedback from them?

In what way do you experience the collaboration with your colleagues?

To what extent do you experience informal contacts/ friendships with colleagues?

How do you experience working in a male-dominated department?

To what extent do you experience stereotyping?

To what extent do you experience a difference in the appreciation between you and your male colleagues?

To what extent are friendships and informal contacts possible within your department?

How do you experience the relationship with your manager?

To what extent do you experience paying attention to personal development by the manager?

To what extent do you experience that your manager sees you as equal and involves you in the process?

To what extent do you experience that your supervisor is accessible?

To what extent do you experience trust from your manager?

How do you experience the training and development opportunities within shopware AG?

To what extent do you experience training and education opportunities?

To what extent is it possible to gain experiences in various positions?

To what extent do you experience that you can grow into other positions?

How do you experience your workplace?

How do you experience the working conditions in your function?

To what extent do you experience to have a free access to internet?

To what extent do you experience the right availability of materials?

How would you describe the image of shopware AG?

To what extent is the size of shopware AG attractive to you?

To what extent is the product that shopware AG develops attractive to you?

To what extent do you experience CSR in your position?

To what extent were you familiar with the organization before you started working there?

End

- Other questions:
 - Why did you decide to work at shopware AG?
 - Why did you decide to become a developer?
 - To what extent did the stereotypes and men culture influence you?
 - Why do you think there are so few women in the ICT industry?
 - How do you think can shopware AG attract more women?
- Thanks for participation and guarantee anonymity
- Ask if she wants to receive the results of this research
- Hand over the Merci say thank you again



Appendix 4. Interview script– group (2): Female ICT students

The interviews were held in German. Therefore, the script is translated to English.

Date:

Naam interviewee:

Age:

Educational program:

Introduction

- **Introduce yourself:**
 - o My name is Lina Maring and I study Human Resource & Business Manager at Saxion University of Applied Sciences. I am in my last year now and writing my Bachelor thesis for shopware AG.
- **Goal of the research:**
 - o As I already told you in my WhatsApp, I am investigating what you, as a potential developer, value regarding your future job and employee.
- **Thank:**
 - o Thank you for your participating and your support in my research
- **Guarantee anonymity**
- **Request permission to record**

- **Do you already know shopware AG?**
 - o **Yes:** To what extent do you find shopware AG an attractive organization? And why?
 - o **No:** shopware AG develops innovative e-commerce solutions. They are in Schöppingen (Do you know Schöppingen?) There work about 200 employees and thereof the most work in the development department. Within the department work two women and that is why the organizations wants to attract more female developers.
- **Start interview:**
 - o The questions are about what you expect in your future work. First, there are some questions about what you value regarding your content of work. Second, I am going to ask you how you expect your work environment and finally, there are also some question about the image of your future organization.
 - o Already experience?
 - You already have working experiences. So, you can use that as a starting point what you value/ do not value about your job and employer. Maybe it helps you to describe how to decide for a job in the future.

Core

Interview question group (2)

How do you expect challenges in your future job?

To what extent do you expect to learn new things?

To what extent do you expect that your work relates to what you have learned?

To what extent do you expect that your impact of the product/organization is visible?

How do you expect variety in your future job?



To what extent do you expect a variation in the type of tasks in your position?

To what extent do you expect alternation between simpler and more complex tasks?

To what extent do you expect variety in social contacts?

How do you expect variety in your future job?

To what extent do you expect that you have freedom regarding planning work?

To what extent do you expect the freedom to decide yourself?

To what extent do you expect clarity regarding the expectations and your responsibilities?

To what extent do you expect that you can determine the work method yourself?

To what extent do you expect trust that you can do your work independently?

How do you expect flexibility in your future job?

To what extent do you want to determine working hours yourself?

To what extent do you desire the possibility to work at home?

To what extent is it possible to work part-time/fewer hours?

How do you expect the relationship with your colleagues?

To what extent do you expect being helped by colleagues and receiving feedback from them?

In what way do you expect dealing with your colleagues?

To what extent do you expect informal contacts / friendships with colleagues?

How do you expect working in a male-dominated department?

To what extent do you expect stereotyping?

To what extent do you expect a difference in the appreciation between you and your male colleagues?

To what extent do you expect that friendships and informal contacts are possible within your department?

How do you expect the relationship with your manager?

To what extent do you expect paying attention to personal development by the manager?

To what extent do you expect that your manager sees you as equal and involves you in the process?

To what extent do you expect that your supervisor is accessible?

To what extent do you expect trust from your manager?

How do you expect training and development opportunities in your future organization?

To what extent do you expect training and education opportunities?

To what extent do you desire to gain experiences in various functions?

To what extent do you expect that you can grow into to other functions?

How do you expect your workplace?

How do you expect the working conditions in your function?

To what extent do you expect to have a free access to internet?

To what extent do you expect the right availability of materials?

How important is the image of an organization to you?

To what extent does organization size contribute to attractiveness for you?



To what extent do the products and services contribute to attractiveness for you??

To what extent do you experience CSR in your position?

To what extent were you familiar with the organization before you started working there?

End

- Other questions:
 - Why did you decide to become a developer?
 - To what extent did the stereotypes and men culture influence you?
 - Why do you think there are so few women in the ICT industry?
 - How do you think can shopware AG attract more women?
- Thanks for participating
- Guarantee anonymity
- Ask is she wants to receive the results of this research
 - Yes: ask for email address
- Hand over the bag to say thank you again



Appendix 5. Coding group (2)

Here the code can be found which are used to analyze the interviews with the female ICT students. The most quoted codes are highlighted through blue letters. These are also used for figures which are presented in '4. Results' to sum up the most important aspects.

Table 5.

Codes of the interviews (female ICT students).

Topic	Coding of the interviews	Quotes	Respondents
Shopware AG	<ul style="list-style-type: none"> • Already knew shopware AG • Shopware AG is attractive <ul style="list-style-type: none"> ○ secondary employment conditions ○ Attractive work environment ○ Sympathetic Image • Not attractive: location 	<ul style="list-style-type: none"> • 4 • 4 • 3 • 2 • 1 • 1 	<ul style="list-style-type: none"> • 4/6 • 4/6 • 3/4 • 2/4 • 1/4 • 1/4
Challenges	<ul style="list-style-type: none"> • Learn new things and develop • Complex tasks are necessary to learn • Important work • Does not want to climb the corporate ladder – Fun is more important • Topics that are interesting to me • Easy tasks is desired as a break 	<ul style="list-style-type: none"> • 18 • 6 • 8 • 4 • 3 • 4 	<ul style="list-style-type: none"> • 6/6 • 5/6 • 4/6 • 5/6 • 3/6 • 4/6
Variety	<ul style="list-style-type: none"> • Variety in social contacts is important • Variety in tasks is important • Variety in complexity is important • Variety work methods is important 	<ul style="list-style-type: none"> • 12 • 6 • 8 • 2 	<ul style="list-style-type: none"> • 6/6 • 6/6 • 6/6 • 2/6
Autonomy & clarity	<ul style="list-style-type: none"> • Trust to do work independently is important • Clarity is important (expectations & deadline) • To have a voice is important • To choose tasks is great – task-pool desired • To make own decisions is important 	<ul style="list-style-type: none"> • 17 • 13 • 7 • 4 • 3 	<ul style="list-style-type: none"> • 6/6 • 6/6 • 6/6 • 4/6 • 2/6
Flexibility	<ul style="list-style-type: none"> • Home office is important <ul style="list-style-type: none"> ○ Once per week is enough ○ More often: family • Flexibilities in worktime is important • Possibility to work part-time to build a family • Home office is not that important 	<ul style="list-style-type: none"> • 8 • 2 • 4 • 7 • 5 • 2 	<ul style="list-style-type: none"> • 5/6 • 2/5 • 4/5 • 6/6 • 5/6 • 2/6
Colleagues	<ul style="list-style-type: none"> • Friendships are desired • Feedback are necessary to develop • Support when help is needed • Appreciation/respect from colleagues is important • Colleagues: most important aspect 	<ul style="list-style-type: none"> • 18 • 7 • 8 • 6 • 12 	<ul style="list-style-type: none"> • 6/6 • 5/6 • 5/6 • 4/6 • 6/6
Working with men	<ul style="list-style-type: none"> • Expect equality, no difference in collaboration • Fear differences in gender • I like to work with men – relaxed atmosphere • Friendships are possible with men • More attractive if more women work there • Advice: Equality of women and men 	<ul style="list-style-type: none"> • 14 • 9 • 5 • 5 • 2 • 6 	<ul style="list-style-type: none"> • 5/6 • 6/6 • 4/6 • 4/6 • 2/6 • 5/6
Manager	<ul style="list-style-type: none"> • Democratic relationship is important • Trusting relationship is important • Appreciation & Personal development is important 	<ul style="list-style-type: none"> • 15 • 5 • 9 	<ul style="list-style-type: none"> • 6/6 • 4/6 • 4/6



	<ul style="list-style-type: none"> • Manager should inspire to learn • Availability is important 	<ul style="list-style-type: none"> • 3 • 3 	<ul style="list-style-type: none"> • 3/6 • 3/6
Training and development	<ul style="list-style-type: none"> • Training etc important to learn new things • Horizontal/Vertical growth opportunities (change) is important • Horizontal experience opportunities (short-term) is important • Personal development (own decision) is important • T&D should be regularly but not too often 	<ul style="list-style-type: none"> • 9 • 5 • 6 • 7 • 3 	<ul style="list-style-type: none"> • 6/6 • 4/6 • 4/6 • 4/6 • 3/6
Physical environment	<ul style="list-style-type: none"> • Environment to feel good is important • Silence is important • Good quality of technology is important • Small office is desired • Open-plan-office is desired • Own desk with personal stuff is desired • Privacy is important 	<ul style="list-style-type: none"> • 12 • 6 • 5 • 3 • 3 • 4 • 2 	<ul style="list-style-type: none"> • 6/6 • 4/6 • 4/6 • 3/6 • 3/6 • 4/6 • 2/6
Image	<ul style="list-style-type: none"> • Product and services • Public appearance • Medium-sized organization • Image of an organization is important for job choice • CSR is a bonus (not that important) • good treatment of employees is important • Good gut feeling through experiences with the organization • High quality, customer satisfaction 	<ul style="list-style-type: none"> • 4 • 6 • 4 • 5 • 4 • 2 • 4 • 1 	<ul style="list-style-type: none"> • 4/6 • 5/6 • 4/5 • 5/6 • 4/6 • 2/6 • 3/6 • 1/6
Reason for choice	<ul style="list-style-type: none"> • Computer Science lessons • Influenced by stereotypes • Internship • Influenced by others (career officer, parents) 	<ul style="list-style-type: none"> • 4 • 8 • 2 • 2 	<ul style="list-style-type: none"> • 4/6 • 6/6 • 2/6 • 2/6
Reasons why small number of women	<ul style="list-style-type: none"> • Cliché • Lack of interest in technic • Unclear communication in schools about computer science lesson • lack of information about the job 	<ul style="list-style-type: none"> • 5 • 2 • 2 • 2 	<ul style="list-style-type: none"> • 4/6 • 2/6 • 2/6 • 2/6
Suggestions for shopware AG	<ul style="list-style-type: none"> • Suggestion: short time internship • Suggestion: Code experience with tutorial on website • Suggestion: contact school/ girls/boys day 	<ul style="list-style-type: none"> • 1 • 1 • 1 	<ul style="list-style-type: none"> • 1/6 • 1/6 • 1/6



Appendix 6. Coding group (1)

Here the code can be found which are used to analyze the interviews with the female developers of shopware AG.

Table 6

Codes of the interviews (female developers of shopware AG)

Topic	Coding of the interviews	Quotes	Respondents
Challenges	<ul style="list-style-type: none"> • Changing teams is helpful • See the result of work is possible • School is just the base • learn new things • Impact on organization 	<ul style="list-style-type: none"> • 1 • 1 • 2 • 3 • 1 	<ul style="list-style-type: none"> • 1/2 • 1/2 • 2/2 • 2/2 • 1/2
Variety	<ul style="list-style-type: none"> • Variety in work place is possible • Variety in complexity is possible • Variety in social contacts is possible • Variation work methods are possible • Variation in tasks is possible 	<ul style="list-style-type: none"> • 2 • 2 • 6 • 2 • 2 	<ul style="list-style-type: none"> • 2/2 • 2/2 • 2/2 • 2/2 • 2/2
Autonomy & clarity	<ul style="list-style-type: none"> • freedom taking holidays • freedom Operation system • freedom organization of tasks • Trust to work independently • Clarity • To have a voice • To choose tasks is possible 	<ul style="list-style-type: none"> • 1 • 2 • 2 • 6 • 4 • 3 • 3 	<ul style="list-style-type: none"> • 1/2 • 2/2 • 2/2 • 2/2 • 2/2 • 2/2 • 2/2
Flexibility	<ul style="list-style-type: none"> • part-time: no experience • Home office possible • Flexibilities in worktime 	<ul style="list-style-type: none"> • 2 • 4 • 3 	<ul style="list-style-type: none"> • 2/2 • 2/2 • 2/2
Colleagues	<ul style="list-style-type: none"> • learn from each other • Support when help is needed • Feedback is necessary to develop • Appreciation/respect from colleagues • To be friends within and outside work 	<ul style="list-style-type: none"> • 1 • 5 • 3 • 6 • 2 	<ul style="list-style-type: none"> • 1/2 • 2/2 • 2/2 • 2/2 • 2/2
Working with men	<ul style="list-style-type: none"> • friendships are possible with men • No experience with stereotypes within shopware AG • Positive discrimination • No differences appreciation between women and men • I like to work with men – relaxed atmosphere 	<ul style="list-style-type: none"> • 2 • 2 • 1 • 3 • 3 	<ul style="list-style-type: none"> • 2/2 • 2/2 • 1/2 • 2/2 • 2/2
Manager	<ul style="list-style-type: none"> • Appreciation & personal development • Manager inspires • Availability • Democratic relationship 	<ul style="list-style-type: none"> • 5 • 2 • 3 • 5 	<ul style="list-style-type: none"> • 2/2 • 2/2 • 2/2 • 2/2
Training and development	<ul style="list-style-type: none"> • Satisfied about T&D options • Changing positions: no experience • Personal development • Organization inspires to develop • T&D improves contact with colleagues • Information about other positions/team is helpful for work • vertical & horizontal experience possibilities (short-term) perfectly possible 	<ul style="list-style-type: none"> • 2 • 1 • 7 • 5 • 2 • 1 • 1 	<ul style="list-style-type: none"> • 2/2 • 1/2 • 2/2 • 2/2 • 1/2 • 1/2 • 1/1



	<ul style="list-style-type: none"> • Required to follow a training • Vertical & horizontal growth opportunities (long-term) perfectly possible 	<ul style="list-style-type: none"> • 2 • 2 	<ul style="list-style-type: none"> • 2/2 • 1/1
Physical environment	<ul style="list-style-type: none"> • open-plan-office • Noises are ok • own desk with personal stuff • Break, movement, fresh air • Noise canceling headphones • environment to feel good • good quality of technology • Variation circumstances 	<ul style="list-style-type: none"> • 2 • 2 • 2 • 2 • 2 • 4 • 1 • 2 	<ul style="list-style-type: none"> • 2/2 • 2/2 • 2/2 • 2/2 • 2/2 • 2/2 • 1/2 • 2/2
Image	<ul style="list-style-type: none"> • shopware AG gave a good gut feeling • shopware AG is family-friendly • size is attractive • attractive work environment • Openness • good treatment of employees • innovative work method • Experience CSR • shopware AG is authentic • Identification with the organization • Employees are proud to work at shopware AG • young • shopware AG is attractive 	<ul style="list-style-type: none"> • 2 • 1 • 1 • 2 • 2 • 2 • 6 • 2 • 2 • 2 • 1 • 2 • 2 	<ul style="list-style-type: none"> • 2/2 • 1/2 • 1/2 • 2/2 • 1/2 • 2/2 • 2/2
Reason for choice	<ul style="list-style-type: none"> • Computer Science lessons • influenced by stereotypes 	<ul style="list-style-type: none"> • 1 • 2 	<ul style="list-style-type: none"> • 1/2 • 1/2 •
Reasons why small number of women	<ul style="list-style-type: none"> • Cliché • Quality computer science lessons 	<ul style="list-style-type: none"> • 1 • 1 	<ul style="list-style-type: none"> • 1/2 • 1/2
Suggestions for shopware AG	<ul style="list-style-type: none"> • high-adjustable tables • offer apprenticeship • Improvement presence of secondary benefits • apprenticeship = more clearness about teams where to work • Air-conditioning 	<ul style="list-style-type: none"> • 1 • 1 • 1 • 1 • 1 	<ul style="list-style-type: none"> • 1/2 • 1/2 • 1/2 • 1/2 • 1/2



Appendix 7. Personal communication: HR & Culture Manager A. Göpel

This interview took place on 22.11.2018

Characterization of the client / organization

- Service = Create software, area e-commerce = online shops
- Structure, functions/jobs, size, strategy, culture = she will send me information
- Average 27

Orientation on the context

- key social developments
 - emergence of the dual study - more applicants
 - Difficulties regarding location: to convince people to come from the big city to the countryside. After telling people on job fairs, they have less interest
- key sector developments
 - digitization
 - increasing numbers of e-commerce = more and more online shops (small and big companies)
 - Generation w / y = needs currently separate private and work share
 - In job interviews = more requests for holidays, more mothers in part time
- Position of the organization in the sector
 - Industry: market leader Germany Austria Switzerland
 - Innovation carrier (especially in Münsterland)
 - Is known for new kind of work
 - E-commerce Germany far
 - Through history based in Germany (3 founders grew up in Schöppingen, family father). They want to stay in Schöppingen = calm and down to earth = authentic
 - As a company shopware AG is very fast and agile, flexible = but they are surrounded by calm area = has an impact on the culture
- Recent internal developments (in response to external development)
 - growth = organizational changes which results changes and renewal of structures
 - more interdisciplinary exchange, more cooperation
 - through team structures they work agility = scrum method (2 weeks), transparent goals and tasks through a ticket board (which everyone can see)
 - scrum = flexibility (targets can be reset within 2 weeks)
 - work with story point = complexity and time are considered
 - (HR works with trello = columns (to do, wait for feedback ..))

Orientation on the management issue

- Vision on the context: What is the problem? What are the symptoms?
 - Challenge: getting women to the technical department / production (all working groups, trainees, permanent employees ...)
 - fewer applications from women
 - Quality is not so good when people apply
- For whom is it a problem?
 - For teams: convinced that diverse teams work better (age structure) variation in age. Benefits of experience and young too
 - Gender mix desired
 - Now there is a apprentice, 1 product designer = teams also admit the advantages
 - What is the urgency to solve the problem?
 - High priority = want to grow and find they need more women
 - Positive for team and work = Creative work, logical thinking, accurate working



- Women = child = flexibility, home office
- What causes the problem?
 - Through the cliché of the job of the developer: nerd, alone
 - Today's image is different than the cliché: a communitarian profession, agility, cooperation with many departments and a lot to talk about
 - In school = computer science lessons not yet adapted to today's profession
- What has already been done internally?
 - flexibility, home office (prive balans)
 - Fraud costs (100%)
 - First year after childbirth = 50% home office mothers, all others 1 day per week
 - Flexible working hours (beginning and end)
 - officially full time (40 hours) but will change
 - Mothers can choose for themselves after child hours
 - Childcare days: 28 days of vacation (you always get the same number of hours regardless working hours) & parents: 10 days extra if the child is ill and care cannot be provided because the parent is ill (100% wage). (law: submit and get reward again)
 - Girls Day (10 places for girls - once a year)
 - more applicants than places
 - Always goes down well
 - Codecamps (10 - 14 years old) will find 2-4 per year city. 50% for girls: website programming is explained. Build your own website with shopware- (images, color = HTML web site language, 2 calliope is a small single-platinum computer (small pc with LED's, can be connected to PC and can be programmed)
 - Cooperation with schools: general and technical focus.
- Why did not succeed enough?
 - just introduced
 - need something to achieve direct response
 - Image
 - Lessons in school
- Which possible solutions are being considered?
 - no direct solutions
 - How do you get the girls into the computer science courses? And from the courses into work
- What conditions do you propose to solve the problem?
 - High priority - = may cost money
 - strategic goal

Role of HR:

- Employer branding is the main objective
- employer marketing (external, diversity, corporate social resp)
- personnel planning (organizational development = growing) (170 already, 150 employees within the next 4 years)
- Recruitment
- personal care



Appendix 8. Personal communication: Expert-team of shopware AG

This interview took place on 8.5.2019 with the HR & Culture Manager, A. Göpel, and a Scrum Expert, A. Wolf.

Within shopware AG you work with the scrum method. Could you explain what that exactly mean?
<ul style="list-style-type: none">○ Sprint (2 weeks), before release (1 week)○ Within sprint = different tasks for team and team members, with the highest priority and just that much that the team knows that they can accomplish the amount of tasks○ Product improves constantly in this way
To what extent can be the employee has a voice regarding the dividing of the task?
<ul style="list-style-type: none">○ Completely○ scrum team = developers and a scrum master○ They get a task from a product owner = he is responsible for long term goals, makes priorities and shares them with the team○ Team decides how these goals/priorities can be realized within two weeks○ Team determine tasks and who is responsible for tasks○ Employees have a huge impact on the tasks
What are scrum meetings?
<ul style="list-style-type: none">○ There are four meetings○ First planning in the beginning of sprint: Explained above (10, sometimes 6 people) Monday○ Second meeting: Daily = 15 min = update from tasks, difficulties/ problems can be discussed. With the whole team and scrum master. To question unclarities, when they are missing something (10 people)○ Third meeting: Review = every one of the stakeholders are involved. Update about the result. (20-25 people – one person of each department), Friday○ Fourth meeting: Retro perspective with scrum team – evaluation of a sprint (12 people)
Scrum team (there are more scrum teams within the development department)
<ul style="list-style-type: none">○ Developer○ Designer○ Quality security○ Scrum master = could be every one of the team○ Product owner○ As a developer you are in one team, but you could also change the team.
To what extent is the description of a task clear?
<ul style="list-style-type: none">○ There are always mistakes○ For tasks there is knowledge needed which can be interpreted differently○ Try to descript the tasks clearly○ Mostly is consultation important = helps that the employees take responsibility and to understand what the employees have to do○ There are meetings in which product owner, quality security, developer and the specialist department which decides what the development department have to explain everyone what they expect○ Development does not make sense when you do not understand what the output should be or should look like○ Descriptions are sometimes detailed; when there is a lot to do, they are less detailed○ The description is a reminder since the developer are involved in the development of the task and output, was involved in process, knows background of the task○ Otherwise employee need to ask colleagues
To what extent can an employee see his or her impact on the organization?
<ul style="list-style-type: none">○ In the ticket system organizes the tasks○ A ticket = requirement on a product; an employee can create a ticket○ The product owner and the manager determine to what extent it is important for the organization and how necessary the ticket is○ The ticket is broken down in tasks○ Tasks are assigned to employees○ There are columns: open, in work, code review (someone checks them) quality security, ready.



<ul style="list-style-type: none">○ There you can see what the you already did in the whole shopware AG career○ At the end you can also see it in the software
Size of a task
<ul style="list-style-type: none">○ A number is shows which is determined based on the time and complexity of the task○ Story points = in Fibonacci numbers (1,1,2,5,8,13,21) to make the difference clear
Deadline clear?
<ul style="list-style-type: none">○ Yes, it is in the description○ Time of a sprint○ In the meeting the highest priorities are explained, these should be done but you can decide when you are going to do them within the two weeks. Should be done at the end of the sprint○ You can decide when you are going to do them whenever you want
Pair-Programming
<ul style="list-style-type: none">○ To solve a task together○ Complex tasks○ To learn from each other – assistance
Code Review
<ul style="list-style-type: none">○ To check code○ More experience: checks if everything is right○ Someone with less experience: to learn○ Assigned
Work time
To what extent is it possible to work part-time? To work less hours temporally?
<ul style="list-style-type: none">○ It is not desired to start part-time○ Parent-part-time is possible: 2 months, extra rule for women: more home office after childbirth○ Not happened before but would be the same as in other departments
Core time: 9 – 16 h
<ul style="list-style-type: none">○ The core time is for sales and other departments○ Within the development there is not a core time, it is more flexible, freedom○ If the employee is not there in the core time, he/she just have to check if there is not a meeting or have to inform the colleagues, otherwise it is not a problem○ On Friday the review is important. Should be there.○ Core time is more a guideline; shopware AG does not want that the employees start at 5pm because the collaboration is important.○ Teamwork is very important
Training & development
Just checking: two times per year the employees should follow a training. One of the training is required/determined through shopware AG and the other one is their own choice. Right?
<ul style="list-style-type: none">○ That is the case in an apprenticeship<ul style="list-style-type: none">○ Required: determined through HR, the same for everyone (does not depend on program) – help for orientation○ Employees can choose everything○ Two are minimum, can visit more○ Employees can also add training to the catalogues, should inspire○ Additionally: subjects conferences to update○ Hack time: 4h to try new technologies
To what extent is the personal development of the employees important?
<ul style="list-style-type: none">○ In feedback conversation: development and the direction of training. Personal development or content development (leadership, career)○ Personal goal, how do you want to reach that? Discuss that in feedback conversations○ Feedback: one time per year, maybe more often
Master?
<ul style="list-style-type: none">○ Possible if it is advantageable for shopware AG and employee while working at shopware AG
Teams
I learned that the developers change teams. How often does that happen?
<ul style="list-style-type: none">○ Not that often○ You stay there years



<ul style="list-style-type: none">○ Sometimes they break teams up and build new teams, does not happen often
Is it mandatory to change or is it their own choice?
<ul style="list-style-type: none">○ To agree on that○ Deal: deadline○ Important that the employee is happy about work○ Also happens that team member changes and want to stay – also possible
To what extent is it possible to change positions on long term? Different department? Higher positions?
<ul style="list-style-type: none">○ Part of apprenticeship: to make experiences in the other departments, can also decide where they want to make experiences○ Intern internship possible within shopware AG○ Intern recruitment – change positions within the department team but also in other departments○ shopware AG always want to keep the employee, the knowledge about shopware AG is more important than losing an employee
Workplace
<ul style="list-style-type: none">○ Dividing places is democratic within a space○ Monitors○ Operation system: Mac, Windows, Linux○ Silent rooms○ Wi-Fi everywhere○ Outside, garden○ Own workplace
Gym
<ul style="list-style-type: none">○ Gym within Schöppingen○ Mcfit membership pay shopware AG○ Nutrition guidance during work time○ Gym classes at shopware AG (Thursday, Tuesday, 17.00) no showers
Family-friendly: public appearance
<ul style="list-style-type: none">○ No women on banner for fairs○ Inform about special offers during interview○ Onboarding○ Not sure what is important○ Invite schools/ universities○ Corporations with schools



Appendix 9. Mind map

The connections between the findings are presented in this mind map. Based on these correlations and the outcomes of the research the conclusion is written.

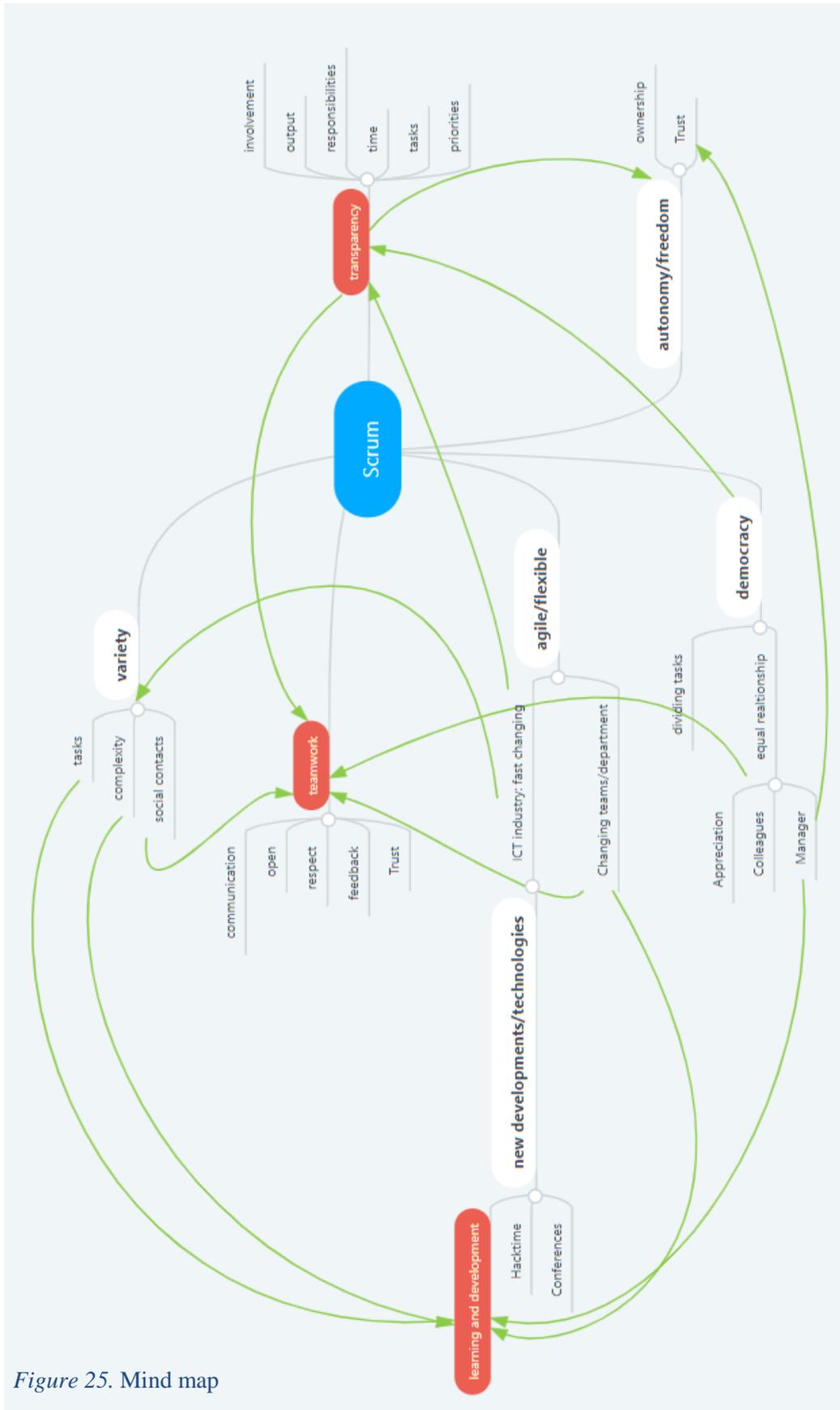


Figure 25. Mind map



Appendix 10. Implementation plan

Here the implementation plan of the recommendations which are presented in chapter 7, are given. The costs are determined with an hourly wage of 20 €.

Table 7.
Implementation plan.

Project	How	When	Who	Costs	Advantages	
Employer Branding	Check the given information	<ol style="list-style-type: none"> Investigate where information about shopware AG as an employer is given: <ul style="list-style-type: none"> - website - recruitment process (mails, offer, welcome mail) - Fairs - Onboarding - Intranet - ... Investigate the attractiveness of the given information with the help of the checklist (appendix 11) Determine improvement Ask management team for budget Determine an action plan to adjust the given information (how, who, when, costs) Ask management team for approval Adjust the information and undertake determined actions Check the adjustments 	Immediately	HR as change agent and employee champion & Optional: support by others, when determined in step 4	One assumes that step 1 – 3 costs three working days which is 480€. The costs of the implementation of this advice depend on the determined adjustments, kind of adjustments and available budget. The determination of the costs can be done after step 3. These are costs which need to be invested once.	<ul style="list-style-type: none"> Attractive information to interviewed female ICT students and young job seeker as Corporaal (2014) concluded. Information that convinces to work at shopware AG
	Relationship with universities	<ol style="list-style-type: none"> Determine the possibilities within an internship at shopware AG <ul style="list-style-type: none"> - what are attractive aspects of an internship within shopware AG? The checklist can help (appendix 11) Create an attractive internship plan with an interesting internship description (example: appendix 12) in German and English Select contact details of universities in Germany and the Netherlands: <ul style="list-style-type: none"> - website Saxion (n.d.a) - website FH Münster (n.d.a) Share information with universities Keep in contact with the universities and share update Evaluate the success with the help of the number and quality of applicants for internships 	Immediately	HR as change agent, employee champion, administrative expert & Marketing (step 2)	Step 1 & 2: One assume that one HR employee and marketing employee need around 32 hours which is 1,280€. This need to be invested once. Step 3 & 4: One assume that one HR employee need around 2 hours once: 40€ Step 5 & 6 need to be repeated regularly. One assumes that it costs per month 1 hour which is 20€	<ul style="list-style-type: none"> Visibility of shopware AG increases, in Germany and the Netherlands Sustainable connection with developers Enlargement of the applicant pool



Project	How	When	Who	Costs	Advantages
Employer Branding	Workshop				
	<p><u>Preparation</u></p> <ol style="list-style-type: none"> Evaluate presented program (appendix 13) Ask management team for approval and budget Create a definitive program which is attractive to young students (checklist; appendix 11) <ol style="list-style-type: none"> Build a project team with developer and marketing Brainstorm and develop cases together with developer and with the help of universities Discussion branding of workshop with marketing Discussion execution of the workshop (role allocations, needed materials, drinks & food) Organization of execution Creation of presentation and communication such as mails, inviting, program etc. Test and evaluate workshop, evaluate attractiveness (checklist; appendix 11) Approval management team 	Immediately after approval	<p><u>Preparation</u></p> <p>HR as strategic partner with approval management team</p> <p>&</p> <p>Project team with developers to develop cases, Marketing to brand the workshop</p>	<p><u>Preparation</u></p> <p>To create a workshop which is challenging and interesting to young developers the collaboration with different employees is needed. And it takes time.</p> <p>One assumes that a weekly meeting (2h) takes place. In total, one assumes that an employee weekly keeps busy with this project (8h) for three months: 1,920 € per employee.</p>	<ul style="list-style-type: none"> Relationship with universities Increases visibility as employer Educate students and building a relationship with them Recruitment of talented developers Gather suggestions for innovation which is advantageable regarding the mission Support self-efficacy of women which has a positive effect on women in the industry
	<p><u>Execution</u></p> <ol style="list-style-type: none"> Determine date Share workshop with universities and via social media Selection of participants Inform participants Invitation via mail & share timetable Execute workshop Thank students via mail and ask for feedback Evaluate workshop based on feedback of students Inform development team about innovation suggestions of the students Keep in contact with talented developers, inform and/or offer internship/employment. 	After preparation	<p><u>Execution</u></p> <p>HR as administrative expert and employee champion</p> <p>&</p> <p>Developer(s) for explanation, teaching and support</p> <p>&</p> <p>Project team for evaluation</p>	<p><u>Execution</u></p> <p>Administration before and after (10h): 200€</p> <p>Workshop:</p> <ul style="list-style-type: none"> Hourly wage employees (2 days, 2 employees): 640€ Drinks & food: 30€ per person which is 240€ (15 persons) Costs of materials (depends on case) 	



Project	How	When	Who	Costs	Advantages	
Self-efficacy	Value affirmation	<ol style="list-style-type: none"> Schedule a meeting with team leads of development: emphasize the need of value affirmation and convince them Explain expectations Brainstorm together with them ways to implement, suggest the retro perspective meeting Investigate what team leads need for helping to reflect on personal value Add agenda topic Evaluate together with team leads within a meeting 	Immediately	HR as strategic partner, change agent and employee champion Approval of management team needed & Team leads	2 Meeting (step 1 and step 4) (1h, 6 employees): 140€ Additional costs could arise when team leads need more guidance Extension of retro perspective meeting (30 min, 12 employees): 120€ per meeting Costs can differ if one finds a different way	<ul style="list-style-type: none"> Self-efficacy which is important for performance for women Match between personal and professional value Awareness of personal value Awareness of individual development
	Gender bias training	<u>Quick win:</u> <ol style="list-style-type: none"> Preparation meeting: information about unconscious bias und ways to avoid them. Floria Moghimi (n.d.) offers for example a free guide to download, in which the formation of unconscious bias is explained. Further, methods to avoid them are given. Schedule a meeting with team leads of development Inform about unconscious bias Inform about ways to avoid them Develop together with them ways to make employees aware Schedule a meeting to evaluate Repeat meeting regularly 	Immediately	HR as strategic partner, change agent and employee champion & Team leads of development department	Preparation: One assumes that the preparation costs 8h: 160€ 2 Meetings for set up (1h, 6 employees): 140€ Extra meeting (step 7): 120€	<ul style="list-style-type: none"> Increasing awareness unconscious bias Awareness is the first step of avoiding them Avoiding is important to let women feel comfortable in a male-dominated department Appreciation women increases self-efficacy of women. Self-efficacy which is important for performance for women
	Workshop	<ol style="list-style-type: none"> Ask approval management team Select an unconscious bias workshop. Floria Moghimi (n.d) offers for example a workshop. Organize workshop Let female and male developers participate & develop methods to avoid bias and to prevent falling back (together with employees) Plan meeting to evaluate avoiding bias (team lead and employees) Repeat this meeting every 6 months Plan actions based on the evaluations 	When around four women are employed	HR as strategic partner, change agent and employee champion & Trainer who gives the workshop & Developers	Costs of workshop depend on the chosen workshop. I suggest using the budget of one training for this workshop. In this way shopware AG would not incur a loss. This would deliver a budget of 6,400€ (55 FTE x 1,400€ (for 12 FTE) (average costs of in-house training)). Step 5: Meeting (1h, 55 employees) = 1,100€	<ul style="list-style-type: none"> Professional support in increasing awareness of bias and avoiding bias with a result of an environment in which women feel comfortable and appreciated Self-efficacy which is important for performance of women and engagement of women



Appendix 11. Checklist

One recommends checking the given information with the help of this checklist (paragraph 7.1.1).

Are the following aspects specifically described? Is clear what young job seekers can expect when they decide working/following an internship/apprenticeship at shopware AG?

Table 8.

Checklist to assess the attractiveness

	Aspect	Expectations of young (female) job seekers based on this research and research of Corporaal (2014)	Check	Improvement
Content of work	Challenges	Learn and develop Complex tasks		
	Variety	Social contacts Tasks (computer, individual, team) Complexity in tasks		
	Autonomy	Choosing tasks Accomplishing tasks		
	Clarity	Expectations Output Time		

	Aspect	Expectations of young (female) job seekers (“).	Check	Improvement
Work environment	Flexibility	Work time Home Office Family friendliness		
	Colleagues	Support Feedback Friendships		
	Working with men	Equality No stereotypes Friendships		
	Manager	Democratic relationship Personal interest Trust		
	Training & development	Training and courses Personal development Vertical & horizontal internships Vertical & horizontal growth		
	Physical environment	Open, light officecs Silence Good quality of technology		

	Aspect	Expectations of young (female) job seekers (“).	Check	Improvement
Image	Identification	Product <ul style="list-style-type: none"> • Possibilities for development • Good Quality • Customer Satisfaction Cultural values Less positive aspects		
	Public appearance	Positive Corporate social responsibility		

Appendix 12. Inspiration internship plan

Among other things, the internship plan could include a visualization of an individual internship route within shopware AG. I suggest showing the attractive aspects of shopware AG in a visualized way. With figure 26, one wants to give shopware AG an inspiration. With the arrow, one wants to emphasize the internship path of an individual: during the internship one can participate trainings, can attend social activities such as movie nights and game nights and has the possibility to collaborate with different colleagues and gain experience in different departments.



Figure 26. Internship route



Appendix 13. Developer workshop

One recommends creating a developer workshop (paragraph 7.1.2). Here the suggested program is presented. On cases such as 'online shopping of the future' could be topics for a workshop like this.

DEVELOPER WORKSHOP		
<u>Day 1 – Thursday</u>		
10.00	Welcoming	
	<ul style="list-style-type: none"> • Introduction shopware AG HR • Experience shopware AG as an employer Employee • Introduction Shopware and working in 'Research & development' Dev • Office tour 	
12.00	Lunchbreak & mingle	
	<ul style="list-style-type: none"> • Lunch buffet • Playing games such as table soccer, volleyball 	
13.30	Presentation case Dev	
	<ul style="list-style-type: none"> • Discussing case • Brainstorm solutions 	
15.00	Break	
15.30	Working on case Dev	
	<ul style="list-style-type: none"> • Discussing output • Determining requirements, groups, tasks etc. 	
17.00	Closing	
<u>Day 2 – Friday</u>		
10.00	Welcoming	
	<ul style="list-style-type: none"> • Repetition Day 1 Dev • Agenda • Preparation working on case: is everything clear? • Task dividing • Start working on case 	
12.00	Lunchbreak	
	<ul style="list-style-type: none"> • Lunch buffet • Playing games such as table soccer, volleyball 	
13.00	Working on case Dev	
15.00	Break	
15.30	Working on case Dev	
17.00	Presentation	
18.00	Barbecue & drinks @ beach	

Figure 27. Developer workshop.



Appendix 14. Critical reflection of the researcher

The last four months (from February – June), I worked on this thesis. What I have learned during this time and which recommendations I give myself, is presented here.

Due to the bankruptcy of my internship organization, my internship semester was extended. Although I started my thesis later, I was motivated and self-confident that I will hand in my thesis on time. The fact that I managed to do so leaves me very proud.

I have learned that the execution of research is time-consuming and expects effort which challenged me the last couple of months. Firstly, next to writing my thesis, I completed a training for being a fitness instructor. This was time-consuming which challenged my time management even more. My time management is good, but I also knew that I run the risk to forget to take time for myself. That is what I have learned during the last four years and especially during my internship(s). For the period of writing my thesis I have set the goal to plan more me-time which was difficult to realize the last months. For the future I recommend myself to put less on myself and to enjoy my life more. Secondly, I wrote this thesis in English even though I was used to writing reports in Dutch, my second mother tongue. Since German is my first mother tongue, I live in Germany and wrote this thesis for a German organization, I was speaking/writing/reading in three languages the last months. This was confusing and challenging but also showed me that I can communicate flexible in three languages. I am sure that it will help me in my future career.

That I managed to hand in my thesis today is because I have worked hard the last couple of weeks. This showed me again, that I am determined and that I have staying power. Besides, I am perfectionistic which also helped me to come to this result. However, according to me, it is never 'good enough.' During the last four years, I tried to teach myself to be less perfectionistic and for the future I recommend myself to keep working on that.

In addition, I have learned that I can trust myself. Writing a thesis is a dynamic process. During the last months, I was forced to determine my way again and again. This experience showed me that I have the right instinct which gives me self-confidence for my future career.



9. Declaration of originality

The undersigned:

Lina Maring 421616

Declares unequivocally that:

- 1) this work is their own work and does not infringe on the copyright of anyone's copyright
- 2) all sources used (including internet pages) have been referred to using APA rules.
- 3) this thesis has also been submitted digitally via Blackboard (Safe Assign).

Place: Enschede

Date: 3 June 2019

Signature:

Lina Maring

N.B. Violation of the Declaration of originality above will be considered fraud as outlined in the EER.