

Labor shortage solutions: which, when and why?

A contextual based approach to deal with labor shortage

Author: Y.A.T. (Yvonne) van den Broek

ANR: s841041

Supervisor: Dr. C. (Charissa) Freese

Department of Human Resource Studies

Second Assessor: Drs. S. (Susanne) Beijer

Department of Human Resource Studies

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Faculty of Social and Behavioral Sciences

Master of Human Resource Studies

ABSTRACT

Different solutions are mentioned in literature to handle labor shortage problems; however there is a notable lack of information on when and why these solutions are successful. Based on the results of 18 interviews with Dutch organizations, this study demonstrates the importance of contextual factors that influence the possibilities organizations have in implementing solutions and shows which solutions can best be used in which situation. Furthermore, strategic workforce planning appears to be very important in increasing the awareness of organizations on where and when investments and resources are necessary and is therefore indicated as an important factor to approach labor shortages successful. Finally, the authors developed a five-phase model that shows the process which helps organizations to approach labor shortages successfully.

Keywords: labor shortage, solutions, successfulness, strategic workforce planning, context

1. INTRODUCTION

Many literature studies emphasize that individuals are the new source of competitive advantage and have a large impact on organizational performance (e.g. Boxall & Purcell, 2011). According to Boxall and Purcell (2011) all organizations need certain kinds of individual talents relevant to executing the organization's mission. If organizations wish to survive over the long run, they need talents who are capable of helping the organization to adapt to change or even lead it. Organizations which recruit and retain outstanding individuals have the opportunity to generate 'human capital advantage' (Boxall, 1996; 1998).

Changing environmental factors can influence the demand of labor, which may result in a labor shortage. Labor shortages occur in a market economy when the request for workers for a particular occupation is greater than the supply of workers who are qualified, available and willing to do a job (Veneri, 1999). To illustrate, many organizations in the Western world are confronted with an ageing population. As a consequence of this, an increase of labor scarcity is expected in the next few decades (Cappelli, 2005; Zimmerman, 2005; Henkens, Remery & Schippers, 2008; ROA, 2011). In addition, there is substantial evidence that organizations have problems with keeping up the demands for new information technology workers, as well as shortages for construction- and craft workers due to economic growth and the rising knowledge-based economies (Cukier, 2007; MacKenzie, Kilpatrick & Akintoya, 2010). When organizations experience these labor shortages, they will have problems in finding their individuals for generating human capital advantage. Proactive organizations will try to find solutions on how to deal with this decrease in labor supply. A desk research on labor shortages shows that there is much evidence on the causes of labor shortages and possible solutions to solve this problem; however, there is a notable lack of information on when and why these solutions are successful.

The aim of this study is to 1) examine which solutions organizations implement to approach labor shortage and 2) investigate when and why the solutions for labor shortages used by organizations are successful. The central research question of this study is: *Which solutions do companies suffering from labor shortages turn to and when are these solutions successful?*

The outcomes of this research will contribute to the scientific labor shortage debate and add value to the innovative human resource (HR) perspective. From a societal point of view, this research gives companies the opportunity to learn from the organizations under study regarding the solutions for dealing with labor shortages.

2. THEORETICAL FRAMEWORK

One of the first authors on the topic of *labor shortages*, Blank and Stigler (1957) mention that “there is a shortage of members of specific profession if the number of available workers is less than the number needed, as established by some social criterion or goal.” Building on this definition by Blank and Stigler (1957), Franke and Sobel (1970) defined a labor shortage in the seventies as “a situation existing over an extended period of time in which employers were unable to hire at going wages or salaries sufficient numbers of qualified persons to fill positions for which there were budgeted funds and for which personnel were required to meet existing demands for services.” However, in recent literature a distinction is made resulting in different types of shortages (Boswell, Stiller & Straubhaar, 2004), which will be discussed later. These different types are a consequence of environmental disruptions which affects the demand or supply of labor.

In the following part of the theoretical framework scientific background information on labor shortages is presented. First, we outline when labor shortages occur. Subsequently, we describe which types of labor shortage result from environmental disruptions. Finally, we pronounce which solutions are mentioned in the available literature on labor shortages. We have chosen for this sequence, because causes of labor shortages determine to a great extent which kind of labor shortage(s) organizations will experience. We expect that these types of labor shortage influence the solutions organizations will implement. Furthermore, to know how labor shortages occur and which kind of labor shortages are deriving from the causes helps to understand why solutions for labor shortages are successful. We expect that a fit between the type and solution is an important factor in order to have a successful solution for labor shortages.

2.1 When do labor shortages occur?

Labor shortages are a multi-faceted challenge and are often caused by disruptions in the environment (Maly & Maier, 2009). These disruptions clarify why organizations might experience labor shortages. In summary, emigration, mobility, low labor market participation and changes in education and qualifications are some of these disruptions, however the need for replacement, economic growth and knowledge-based economies are the most mentioned. These causes also have the largest impact on the demand or supply of labor (Boswell et al., 2004; Cappelli, 2005; Henkens, et al., 2008; Maly & Maier, 2009). In the following subsections we will concentrate on these causes.

Replacement need

Dutch labor market research shows that the demand for replacement of employees in the next five years is driven mostly due to the retirement of employees (ROA, 2011). It is estimated that more than two million workers will be replaced. However, the growth of the working population will not be big enough to replace all these workers (ROA, 2011). Employers searching for employees with a technical, care, pedagogical, economic/administrative or agricultural background will face the biggest problems in finding substitutes (ROA, 2011).

Economic growth

Besides the growing need for replacement, economic growth will also affect organizations' experience of labor shortage (Boswell et al., 2004; Cappelli, 2005). Industries might be confronted with high pressures on organization's productivity because of large requests for services or a rising demand for products due to new product developments. This environmental change puts pressure on the demand for labor, as it results in many unfilled job positions in the organization. Moreover, the impact of economic growth on labor market outcomes will be heavily influenced by whether growth is temporary or stable. A stable economic growth can be considered as one of the key factors influencing labor demand (Boswell et al., 2004; Cappelli, 2005). For example, the rising economic growth in the health-care sector, where the demand for care and nurses is extremely augmented because of the aged population (Bloom, Canning & Vink, 2010). To meet the rising demand in this sector, many substitutes as well as new employees are required. It is expected that in the near future the influx of human capital will not meet the demand for growth and replacement in this sector, resulting in labor shortage (Nevidjon & Erickson, 2001).

Knowledge-based economies

The move from product-based to knowledge-based economies is an important business transformation which has various consequences for finding talent (Beechler & Woodward, 2009). Globally, 42.7% of all jobs are offered by the service sector, which is large compared to agriculture (34.9%) and industry (22.4%). In developed economies the service sector is even larger; namely 71.5% of all EU jobs (ILO, 2008). Service sector organizations are much more dependent on their human capital, particularly on their top talent, since these service economies shift their investment towards intangible and human assets (Pink, 2001). To illustrate, the importance of the knowledge-based economies can be explained by the growing

importance of information and communications technology (ICT). Many organizations in a variety of sectors (services, manufacturing, etc.) are using ICT for complex and fast production management and transactions, which makes ICT increasingly important for efficiency and competitiveness (Boswell et al., 2004). In order to do so, organizations need high qualified talent who can deal with continuous technological developments and who are willing and able to obtain new information and skills in order to guarantee high levels of innovation (ILO, 1995).

In relation to the causes of labor shortages, the following sub questions will be examined:

Sub question 1a: Which causes of labor shortages do organizations mention?

Sub question 1b: Which causes are most prominent?

2.2 Which types of labor shortages will result from environmental disruptions?

Because many studies acknowledge the existence of different kinds of shortages - deriving from environmental disruptions, which results in different types of reactions from employees and employers (Veneri, 1999), - this study uses the description of labor shortages offered by Boswell, et al., (2004), which distinguished the following types of shortages: *aggregate labor shortage* and *shortages due to mismatch in the labor market* (Boswell, et al., 2004).

Aggregate labor shortage

According to Boswell et al. (2004) aggregate labor shortage occurs when there is (near) full employment and a general difficulty in finding workers to fill vacancies. Many literature studies define this aggregate labor shortage as 'hard-to-fill vacancies' or quantitative shortage (Veneri, 1999; McMullan, Cooke & Downie, 2004; Marchante, Ortega & Pagán, 2005). An example of an aggregate labor shortage is the aging population. In a short period of time, many workers will retire and are no longer available for work anymore. Due to this fact, organizations are searching for substitutes, resulting in an increase in the need for replacement. Nevertheless, the population of available workers is not growing as fast as required to meet this need for replacement (ROA, 2011). At that moment, organizations are facing the problem of aggregate labor shortage.

Shortages due to mismatch in the labor market

Shortages due to mismatch in the labor market are differentiated into four categories, namely 1) qualitative mismatch, 2) regional mismatch, 3) preference mismatch and 4)

mismatch due to information deficits (Boswell et al., 2004).

Qualitative mismatch occurs when the qualifications of workers and the qualifications of vacancies are not matched. This category may also be denoted as a skills shortage; a labor market situation in which there is a lack of individuals with the qualification, skills or experience required to fulfill the jobs in question.

The second category occurs when the unemployed individuals are seeking for work and the organizations offering suitable jobs are located in different areas and the jobs and/or workers are immobile. Regional differences can lead to permanent reductions in effective labor supply, thereby increasing the social security burden on a (shrinking) active working population and reducing the responsiveness of remunerations to growing unemployment (Boeri & Scarpetta, 1996).

The third type of labor shortage, a mismatch of preference, happens when types of jobs that unemployed individuals are willing to take on do not match with the present vacancies in the relevant area. Those out of work are unwilling to take up certain types of work because of insufficient remuneration, working circumstances or status, despite the fact that such jobs fit their qualifications and skills profile or are located in the relevant area.

The fourth and last category, mismatch due to information scarcities, there is no aggregate shortage of labor or skills, but supply does not meet the demands because of lack of information. Unemployed individuals do not obtain information on relevant existing vacancies, because of inadequacies on the labor market. Hence, organizations do not have the information required for finding candidates with adequate qualifications or simply because they are not aware of the level of skills required from their workers to optimize the outcomes of their organization (Marchante, et al., 2006).

According to the different types of labor shortages the following sub questions are formulated:

Sub question 2a: Which types of labor shortages are organizations facing?

Sub question 2b: Which solutions are organizations implementing for which type of shortage and why?

2.3 Which solutions are mentioned in literature?

The environmental disruptions concerning labor shortage have consequences for organizations. When no action is taken, the organization will face serious problems, like productivity loss, hinder in the realization of organizational goals, high work pressure and

drop off in understaffed departments and negative effects on the work-life balance of employees (Henkens et al., 2008). For that reason, the organization must find solutions on how to act on these disruptions. Many literature studies explain what organizations can do to handle these labor shortages. The first strategy is to expand the dependency of labor by for instance increasing the recruitment activities using recruitment agencies, selecting workers from new target groups and offering competitive employment conditions. The second strategy is to reduce the dependence on labor. This can be done by for example structural changes, relocating the production process by outsourcing and offshoring and increasing workers' productivity.

Strategies in expanding the dependency of labor

Many literature studies mention that organizations suffering from labor scarcity can start to search for the necessary labor forces in order to solve their shortage problem (Veneri, 1999; Capelli, 2005; Henkens et al., 2008; MacKenzie, et al., 2010). This is one of the first strategies organizations try, before searching for other opportunities to handle labor shortages. This is evidenced by the article of Henkens et al. (2008) which concluded that 79% of the organizations are frequently using employment and recruitment agencies to try to resolve their labor shortages. Recruitment strategies as selecting workers from new target groups and changing employment conditions are also common used.

As Capelli (2005) shows, organizations do a good job to invest in recruitment to reduce the effect of labor shortages. To make the recruitment effective, organizations must finance programs that help them to target appropriate workers and identify where their recruitment investments are most valuable (Cappelli, 2005). When this information is available, organizations can start searching for the needed workers. This can be done by selecting workers from new target groups. Groups to think of are (reintegration of) women, older workers, (long-term) unemployed people, disabled individuals, immigrants or workers from other occupations. These individuals are often identified as alternatives to the domestic male labor force, which in many organizations traditionally constitutes to the core of the workforce (Henkens et al., 2008). According to Lievens, Van Hove and Zacher (2010) the success of targeted recruitment depends on the extent to which organizations develop recruitment and communication strategies, which match with the needs/demands/benefits – complementary fit – and the personality, values and preferences – supplementary fit – of the targeted groups. To illustrate, as the baby boom ages, the group of retirement-age individuals who are looking for

alternative working arrangements will grow every year. This is a great opportunity for organizations to adopt policies and practices to accommodate the older workers' interests. It requires more flexibility from organizations, because older workers want not to work the long schedules of their younger parts, however, they can be the role of mentor/ coach, offer skills, competence and experience and are often willing to work for much less wages than their younger, career-minded equivalents (Cappelli, 2005).

As mentioned above, migration is one of the possibilities to decrease labor shortages. To find the required employees by means of migration, organizations and governments use selective immigration policies to evade unskilled migrants and attract international skilled labor to fill the gaps (Zimmerman, 2005; Freeman, 2006). When the skills of migrants are in demand, when they bring diversity into the working population and when they increase the adaptability of the host economy towards required labor, they are of important help. Moreover, Zimmerman (2005) argues that migrants may decrease the experience of labor shortages in regions in which natives do not want to work, that they help to adapt the labor markets to regional changes or shocks and that they are more responsive to labor market circumstances than native workers. However, migration is not the ultimate solution for labor shortages in Dutch context, since Europe has no standing on the international labor markets for high-skilled people like traditional immigration countries as the United States, Canada or Australia have and hence, a strongly increasing share of migrants can cause integration difficulties and social strains (Zimmerman, 2005).

When some of the new target groups are not in the possession of the skill profile needed on the labor market, it is suggested that organizations and government could train and retrain the workforce. Whereas these efforts are viable, to some extent, they are also long-run possibilities with uncertain effects (Zimmerman, 2005).

By offering competitive employment conditions, organizations may be able to recruit the outstanding individuals necessary to survive. Organizations can choose to offer higher wages in order to attract additional labor. However, wage drift theory forecasts that high wages will spread to other companies and sectors after some period of time, which will decline the advantage of offering higher wages (Holden, 1989). Besides, organizations with high priorities on avoiding costs will be reluctant to raise the wages. On top of that, if wages are raised to attract new employees, the organization may also have to increase the wages of the workers already employed to avoid conflict (Veneri, 1999).

In addition to wages, organizations can have other employment conditions attractive to

applicants that may lead them to accept the job (Marchante, et al., 2006). Organizations may offer pay premiums, retention incentives or benefits like relaxed working environment, flexible work hours, child and elder care and onsite services ranging from fitness centers to car washes (Veneri, 1999). In order to expand the recruitment area, organizations can reward existing employees who bring in new workers or offering bonuses to new hires for joining the firm.

Strategies in reducing dependence on labor

Besides expanding the supply of labor as one of the opportunities to advance labor shortages, reducing the dependence on labor is also an opportunity. According to literature, organizations might think of structural adjustment, relocation of production and increasing the effort/distribution of existing workers.

Organizations who cannot recruit the needed labor quantity or quality might think of structural changes to moderate their scarcity-problem. Organizations can decide to restructure the configuration of the production systems (Henkens et al., 2008). This implies searching for alternatives to replace the human capital, for example investments in innovative technological developments; innovative industrial machines can replace the hands of workers beyond the assembly line. Nevertheless, the development and production of these machines is very expensive, so organizations need to calculate if this is a profitable way to solve the labor shortages problem at long- and short-term perspective. In addition, organizations have the opportunity to restructure the use of human capital. The so-called ‘flexible shell’ is an approach to moderate the demand for labor during production fluctuations. This ‘flexible shell’ can be described as a group of workers (flex workers) who are arranged by a flexible employment contract (no fixed hours, on appealing) and are deployable when production fluctuations occur (Cörvers, Euwals, & de Grip, 2011).

Another possibility for organizations to deal with labor shortages is to relocate the production process towards areas where many workers have the required skills and are available for work. To illustrate, organizations can choose for *outsourcing*; the transfer of activities and processes to an external party, which was previously conducted by the organization herself (Ellram & Billington, 2001). At that moment, the organization uses services from other firms to accomplish the activities where the organization lacks human capital. In addition, organizations can transfer their activities across national borders, which is called *offshoring*. Over the past decades, a great deal of production has been relocated from

Europe to Asia (Henkens et al., 2008). Offshoring may be done through outsourcing (using the external parties) or through foreign direct investment (using internal resources) (Hagel & Brown, 2005). It is important to notice that the process of offshoring is an opportunity for the long-term, which requires substantial investment and results in destruction of sometimes important levels of capital. If the labor shortage is expected to be temporary instead of structural, outsourcing might be a better solution (Henkens et al., 2008).

Organizations can decide to increase the productivity of workers to let them work longer hours, by extending the full-time working week and having part-timers work full-time (Henkens et al., 2008). In that case fewer workers are required to reach the demand. However, when the working hours are in balance with the corresponding income, workers are not willing to work more hours. In that case, organizations need to offer higher wages to make sure that this balance will be restored and workers will have an incentive to increase their effort (Hartog, 1992). Additionally, organizations can try to advance the employability of their workers. When overcapacity among some workers occurs, it might be worth to invest in the variety of work they can carry out. As the employability of workers rises, the risk of understaffing those workers declines (Henkens et al., 2008). Finally, organizations can be more flexible by offering better opportunities to combine work and care by different kind of employment arrangements like flexible working hours and the possibility to work from the home-office (Henkens et al., 2008).

Sub questions that will be examined after describing which solutions are mentioned in literature are:

Sub question 3a: Which factors are taken into account when implementing the solution and why these factors?

Sub question 3b: Did the solution solve the labor shortage in the short- and/or long-term?

2.4 Successfulness of labor shortage solutions

The scientific literature background on labor shortages lacks important information on the successfulness of labor shortage solutions. This study contributes to this information gap and attempts to give answers on the why and how questions that are still be unanswered in the literature. In order to give answers on these questions, we expect that several criteria will determine why and how solutions are successful. However, because of the notable lack of information, finding these criteria in literature is very hard. Yet, some criteria can be formulated, which can be found in table 1. These criteria arise from articles that emphasize

solutions for labor shortages (Boswell, et al., 2004; Henkens, et al., 2008) and are assumed to have an important role in the successfulness. We expect that organization size has some influence, since we assume that it determines the financial possibilities organizations have. We suppose that the sector an organization operates in will influence the possible solutions organizations can implement. We expect differences in responses among sectors in dealing with labor shortages. Because organizations in dynamic markets will be confronted with labor shortage(s) due to rapid changes, we add the criteria market situation. We assume that organizations in dynamic markets will have limited opportunities for dealing with labor shortage, instead of organizations operating in stable markets. Organizations operating in stable markets have longer planning horizons and will probably be able to implement more long-term approaches. Therefore we obtained the criteria long-term/short-term approach. All the individual solutions will have their own implementation period that needs to be taken into account when dealing with labor shortages. If organizations have to solve the labor shortage on a short-term period, they need to implement short-term solutions. Finally, we assume that each solution will solve a particular type of labor shortage. Taking that into account, organizations need to know their type of labor shortage and must choose a solution that is actually solving that labor shortage type.

Table 1 shows furthermore a matrix on how we will evaluate the solutions after data collection. Several solutions will be mentioned by participants, which will be obtained below each other in the first column of the table. We expect that more and/or other criteria will result from the investigation, therefore showing the X,Y,Z.

Table 1. *Matrix for analyzing successfulness of labor shortage solutions*

Criteria \ Solutions	Organization size	Sector	Market situation	Long-term/short-term approach	Match labor shortage type	X	Y	Z
Solution ...								
Solution ...								
Solution ...								
Solution ...								
Solution ...								
Solution ...								

As a result, the following sub question will be examined:

Sub question 4: Under which conditions do certain labor shortage solutions successfully solve long-term and/or short-term shortages?

3. RESEARCH METHOD

3.1 Research design

A qualitative method was used to address the research questions that required in-depth and interpreted explanation or understanding of social phenomena and their contexts and was particularly suited to explore the issues that held some complexity (Ritchie & Lewis, 2003). Since this study was explorative in nature, it made sense to interview the actors involved more in-depth to develop an image of the current situation and tried to find explanations for what has been found (Schutt, 1996). Interviewing, as opposed to sending questionnaires, also provided the advantage to learn more about *why* and *how* organizations or individuals take certain decisions. These ‘*why*’ and ‘*how*’ questions are exactly what this exploratory research is attempting to address.

This research entails semi-structured interviews with a flexible interview procedure (Bryman, 2008). The interviewers had a topic list containing the detailed topics of discussion. The topic list was an oriented structure for the analysis; every interviewee was questioned on the same topics (although in a sequence not beforehand determined), this made a comparison possible. At the same time it offered the interviewers the flexibility to reinstate topics, if a topic had not been fully dealt with or to put certain emphasis on things that are said by the interviewee(s). The topic list was organized around different main themes, including an amount of questions per theme. Since the interviews were conducted in Dutch, the operationalized research questions were translated into English.

3.2 Sample composition

To compose a sample for the study, organizations and interviewees needed to meet a number of criteria. First of all, organizations needed to be established in the Netherlands, since this study is aimed to investigate the Dutch perspective. Second, in order to collect relevant information for this study, organizations should have dealt with labor shortages in the past. These experiences are crucial to conclude if implemented interventions were successful in solving labor shortage problems.

Because this research is part of a larger investigation on labor shortage solutions, the sampling was started at the accompanying committee. This committee is devoted to this research because of past experiences with labor shortages and special interest in this subject. It consists of 14 organizations who are leading on several topics including labor shortages, which made them important participants for the study. In total five organizations from the

accompanying committee were interviewed. In order to search for more participants, the snowball sampling method was used. The aim of this method is to use contributing parties by asking them for new interesting and relevant participants. So, each interviewee was asked for other interesting organizations which should be obtained in this study. This has resulted in five more organizations. Finally, we used the professional network of researchers of the Tilburg University, which has resulted in eight more participants.

Ultimately, we interviewed 25 individuals of 18 organizations (n=18) spread throughout the Netherlands. Of those participants, 14 individuals were HR representatives and 11 individuals were positioned in a high hierarchical managerial role. The reason for choosing these specific roles has to do with the fact that these people are responsible for the human resources in their company and are in strategic position to create and implement the interventions for dealing with labor shortages. Table 2 shows the division of the organizations across sectors and branches, accompanied with information about the size of the organization. Important to note is that the participating organizations were established in different regions in the Netherlands, this was necessary to investigate the effects of regional mismatch.

Table 2. *Description of organizations included in sample*

Organization ID	Sector	Branch	Organization Size (No. of employees)	Location headquarter in Netherlands
01	Technical	ICT consultancy	3500	Vianen
02	Legal services	Legal & notarial	200	Enschede
03	Health-care	Hospitals	3400	Eindhoven
04	Technical	Electromechanical	250	Rotterdam
05	Technical	Energy & petrochemical	90.000	The Hague
06	Technical	Energy	8500	Rotterdam
07	Banking & insurance	Banking	24.225	Amsterdam
08	Logistics	Mail and packaging	75.000	The Hague
09	HR services	Recruitment & selection	28.700	Diemen
10	HR services	Consultancy	165	The Hague
11	Government	Water boards	400	Boxtel
12	Health-care	Hospitals	3000	The Hague
13	Technical	Automotive	156.000	Amsterdam
14	Health-care	Hospitals	3500	Apeldoorn
15	HR services	Recruitment & selection	10	Eindhoven
16	HR services	Consultancy	150	Hardenberg
17	Technical	Semiconductor	7986	Veldhoven
18	Technical	Electronics & electrical engineering	360.000	The Hague

3.3 Procedure

All participants were contacted by telephone and an email was send containing information about the themes that would be questioned. Face-to-face interviews of approximately 1.5

hours were conducted from March to May 2012. The interviews were digital recorded and directed by two researchers to increase the reliability of the research. One researcher was asking the prepared questions, while the other researcher took notes and checked the process of the interview. This way it was secured all subjects were covered. All interviews were conducted by the same interviewers to make sure that all interviews were directed in the same way. In qualitative research internal validity is a common issue. Therefore, most interviews were held with a HR representative and line manager, to make sure that different perspectives according to the research subject were taken into account. With the aim of reducing potential bias from socially desirable answers anonymity was guaranteed.

3.4 Data processing

All interviews were digitally recorded with a voice recorder and transcribed verbatim. In order to organize and analyze the data, the theoretical framework helped to categorize the data in five main categories; 1) causes of labor shortages, 2) types of labor shortages, 3) solutions for labor shortages focused on expanding the dependency of labor, 4) solutions for labor shortages focused on reducing the dependence on labor and 5) other (see code tree appendix I). The category 'other' was very useful to assign very important data that did not belong to any other category. To categorize more specific, sub categories were distinguished. By using these categories, the written data was read carefully, reading each phrase, sentence and section in detail in order to decide which category or sub category the piece of data could be applied to. In qualitative research this process of categorization is called indexing (Ritchie & Lewis, 2003). After indexing all the raw data, familiarization was used to combine similar passages of different respondents. By doing this, it became clear which data was more significant. The context of the data was assigned also to capture the cores of the information as referred by the interviewee. When pieces of data contained references to more than one category, these pieces of data were multi-indexed.

4. RESULTS

In this section, we discuss the outcomes from the interviews we held with the 18 participating organizations. It is structured around the two strategies derived from the theoretical framework, namely strategies in expanding the dependency of labor and strategies in reducing the dependence on labor. After the data analysis, several categories were assigned to these strategies. The categories assigned to the first strategy are 1) expanding the inflow of employment and 2) reducing the outflow of employment. Categories assigned to the second strategy are 3) outsourcing & collaboration and 4) technological innovation (see code tree, appendix I). However, before starting to describe the solutions for labor shortages, we first draw a picture on the causes of labor shortages and the labor shortages types. This chapter ends with an overview showing contextual factors influencing the successfulness of labor shortage solutions and the importance of strategic workforce planning. To assess the evidence, only direct quotes from participants have been used during the analysis. The quotes are chosen based on how well they express the overall meaning or on their representation of contrasts, while quoting as many diverse participants as possible. The quotes have an identifier that indicates the number of the interview and the page of the quote within the transcript. For instance, p7(04) indicates the seventh page in the transcript of the fourth organization we have interviewed. The complete transcripts are available on request.

4.1 Labor shortage causes and types

In this first paragraph, we will go into the causes and types of labor shortages. We will address which causes of labor shortages organizations mention, which causes are most prominent and which types of labor shortages the organizations under study are facing.

The experience of labor shortages by the participating organizations is caused by different aspects. The only two mentioned and therefore the most prominent are *economic growth* and *replacement need*. Organizations want to expand their production capacity to meet the demands and to increase their sales revenue; however because of labor shortage on critical jobs this is not possible or does not happen as fast as planned. *“At the time we cannot meet our planned growth we experience labor shortages”p3(01)*. *“When we do not have the number of people, it means that we must shut down one of our operation rooms, which results in less revenues”p11(12)*. *“We definitely face replacement need because of ageing and besides, our management made a business plan which mentions a growth scenario, so it is also because of expansion”p2(4)*. Because of ageing and turnover the organizations see their

scarce employees leave, which gives problems to fill up these positions. They face problems to retain their talents for their organization or to prepare their workforce to bridge the gaps. *“We have some professional groups where ageing occurs and where probably too many people leave and we will not be able to fill in all these positions”p11(05). “Replacement vacancies arise on a regular basis, because of employees who leave or are bought out by other parties”p3(02).*

After analyzing the data around the labor shortage types, we conclude that the most important problem of finding good talents/employees at our participants is the quality of candidates. Almost all the participating organizations mentioned the *qualitative mismatch* as their type of labor shortage. There are different reasons to explain why. First, several participating organizations in various sectors mentioned that the level of quality of graduates and professionals in their sector is substandard, which gives problems for organizations after hiring those individuals. They observe gaps between organization’s quality criteria and level of quality of candidates. This is more specific for low-educated technical positions and sectors like legal services. *“This is what we can find at the labor market; this is what they ask in terms of employment conditions, in the end there was a large gap between how the candidates judged themselves and how we judged them in terms of salary and knowledge. The professionals we were able to hire did not satisfy our requirements”p7(06).* Additionally, someone in legal services claimed that feminization of occupations can be a reason for the existence of qualitative problems. As a consequence of this phenomenon intellectual people would not choose for those directions because of bad image and women-kind of jobs, it would not be ‘sexy’ anymore. Eventually this will lead to a qualitative problem in those specific professions. This can be substantiated with the following quote: *“the feminizations of an occupation means that really intelligent people do not choose those directions, the real talents are more difficult to find; when many women follow specific education, a lot of men conclude that it is a ‘women’s craft’, which they would not choose”p3(02).* In addition, due to a negative image of a sector in total, parents would no longer stimulate their children enroll for educations in these fields, which in the end has consequences for the quality and the quantity of these kinds of employees. This *quantitative problem* is also an important type of labor shortage we observed at our participants in all sectors and has some overlap with the qualitative problem. When individuals do not choose for particular educations, the influx of new students will decline, which makes the pool to choose from smaller and smaller and provides both the qualitative and quantitative problem. Cherry-picking is not possible;

organizations should deal with those who are available, even if they do not match with organization's quality requirements. In the worst cases, for example in the technical sectors, educations disappear, which enlarges the problems. *"The influx in educations declines, educations disappear literally. We have a job position in a specific product group we want to expand on, however this education is cancelled. So, how will you train, how will you find quality?"*p1(4). Also in the health-care sector quantitative problems occurred because of bad image, however also because of little investments in education by directors of hospitals. Over a period of time, fewer students were educated in professions like nurses and nurse specialists (OR assistants, emergency assistants, etc.). As a result, a shortage in nurses occurred. *"The healthcare sector needs to educate their own people, so when we have a shortage in nurses or nurse specialists, it is because we, the hospitals, did not train enough students and furthermore we made it less attractive"*p1(12). *"It is a problem we created ourselves, because we did not train enough nurses and nurse specialists over a period of time due to cost savings"*p1(14).

By interviewing organizations in different regions in the Netherlands it became clear that some organizations have problems finding talent in their region. As we have mentioned earlier, we call this a shortage due to *regional mismatch*. There are two causes for these problems observed. First, the organization is located in a thinly populated area and second, the educations for scarce job functions are located in a total different region than where the employment is. For example, one participant in the technical sector mentioned that students are educated in the upper North of the Netherlands; however their organization is searching these people and is located in the South-West. *"When you watch the educational institutions in the North, students graduate after four years and are not able to find a job, which is very strange. We can say that the government made some mistakes here, because in my opinion you should establish schools where there are needs for these students"*p6(06).

As is rendered in the theoretical framework two more types of labor shortages are left, specifically mismatch of preferences and mismatch due to information scarcities. We did not find much evidence to substantiate these labor shortage types. Hence, we can conclude that people have preferences for jobs in directions that are more popular or secure, instead of sectors or jobs which have a negative image. It is plausible that these preferences affect the supply of employees in sectors and thus the amount of workers available. Shortages due to information scarcities may be real; however we were not able to investigate this since we did not inquire job candidates in our research. These candidates are necessary in order to examine

if both parties are able to find each other. From participants' opinion, possible candidates will always be reached when the right resources are used.

4.2 Solutions from practice to handle the labor shortage problem

In this paragraph, which is structured around the two main strategies described earlier, we discuss the solutions mentioned by the participants. As derived from the analysis four subheadings are obtained at which the solutions are categorized. When describing the individual solutions, answers will be given on all relevant sub questions of this paragraph.

Strategies in expanding the dependency of labor: expanding the influx of employment

As derived from the analysis, we will present the following solutions as is mentioned by the organizations under study: own recruitment, recruitment and headhunt agencies, via-via channel, company training of (new) employees, enhancing the attractiveness of sector/functions, tapping from new target groups, interventions for attracting graduates and offering competitive salaries.

We observed that large organizations can afford to have their own recruitment department and are in most cases able to attract the required employees. To do this, they have taken crucial factors into account to make the recruitment successful. First, active searching and approaching is vital; recruiters actively searched for appropriate candidates on the internet (LinkedIn, social media, etc.) and in their network. Job sites like Monsterboard turned out to be less successful since these websites declined in popularity and were therefore not always up-to-date. *"I have the feeling that an amount of people always place their CV online, even if they are not searching for jobs. Furthermore, we experienced a decline in high qualitative CVs on job sites like Monsterboard. The serious talents are waiting for a response of organizations, they rely on the fact that organizations are searching for them"*p2(01). Second, speed is crucial during the staffing of scarce labor. As stated by the participants, the recruitment process needs to be performed in a quick manner. When their recruitment process took too long, the candidate was hired by another organization. *"Speed is very important. When candidates need to wait too long, we lose them. We try to finish our recruitment process within one month, however there are parties who are able to finish it in a single day"*p14(06). Finally, scintillate trust during the recruitment process. The participants made sure that the recruitment process was well organized and suited the target group in order to leave a good first impression. This has enlarged the chance that a candidate chooses the organization as new employer. *"Every month we investigate which triggers are decisive in choosing for our*

organization and mostly this is due to how our recruitment process elapsed, namely the humanness of the organization, the comfortable feeling we convey and the way interviews are held"p10(01). Since having a recruitment department is very expensive, this solution is only possible to implement in large organizations. It is not restricted to particular sectors; it applies to all kinds of large organizations. However, the way the recruitment process should be conducted is the same for all organizations. As mentioned by the participants, this solution is useful in case of short-term as well as long-term labor shortages, because it is a process that can be performed continuously, however it is not always guaranteed that the right candidate can be found within a short-term period. When conducted in the right manner, this solution can solve qualitative labor shortages.

A second intervention that is mentioned by all the organizations is the deployment of recruitment- and headhunt (specialized) agencies. When unable in recruiting necessary talent, they involve agencies to find adequate candidates. *"We are too small to recruit on our own; still we have a website showing our vacancies, to which we have had some responses. We do not have the adequate resources to actively search ourselves, instead we use agencies"*p8(04). According to the participants, searching for hard-to-fill vacancies is commonly done by headhunters, in other cases it is entrusted to recruitment agencies. *"We make use of recruitment agencies, though we deployed a headhunter to hunt someone for a hard-to-fill vacancy (open for more than 3 years). This headhunter succeeded to fill in the vacancy"*p8(04). *"We use specialized agencies for our hard-to-fill vacancies, which is successful, however not as much as we would like to since there are just not many of these professionals"*p3(07). Besides, this intervention is intended for attracting high- and low educated people and used for short-term qualitative labor shortages or problems due to information scarcities. *"During the labor shortage period, which we solved at short-term, we hired employees via specialist recruitment agencies"*p2(12). This however is very expensive. *"We have a huge budget which we can spend on recruitment- and headhunt agencies, because it is really expensive"*p9(17).

Another possibility is using the network of own employees, the so called via-via channel. With this intervention the contributing organizations stimulate their employees to look for appropriate candidates in their own network. In some cases, this was stimulated by granting bonuses or popular gadgets for each hired candidate. In other cases organizations emphasized a shared responsibility for all employees in building a strong and capable workforce. The participants accentuated that this intervention was often very successful and relatively

inexpensive. We observed no notable differences in sectors. *“We recruit also via our own employees, via-via channel. That is always a very successful story. Making sure that own employees look around in the environment, at their friends, their old educational institute, etc. Almost a third of our population is recruited by this method”p4(01).* This solution helped to solve qualitative problems or problems due to information scarcities.

Recruitment activities were also used to solve regional mismatch problems. To attract professionals (experienced employees); one organization in legal services and established in Enschede developed a recruitment campaign, which was not focused on the content of work, however on the positive elements of working in that region. So, stimulating and positive branding of their region helped them to attract these kinds of workers and solved their labor shortage. *“We changed the message of our vacancies completely. We stopped focusing on the content of work, but more on all the other aspects around work, like work-life balance, etc. We stimulated this region by showing the positive aspects, like no traffic jam, affordable livings, green environment, etc. By promoting it this way, we have no problems with attracting professionals anymore”p1(02).* This organization developed another method for recruiting graduates. To attract these individuals, they emphasized the particularly negative aspects of the popular regions and advertised with a more positive alternative, which increases the attractiveness of their own region. They invited those graduates to their organization and showed them their location to subsequently showing them the city they are established. This approach helped them to attract the graduates needed, however, most of the time it were individuals having their roots in their region and left it for an education. *“In order to attract graduates, we developed another approach. We focused on the negative aspects of the popular offices in the West and offered them a better alternative in our region. We showed them our location and the city we are established, which reduced their concerns. However, mostly it appeals to individuals with their roots in our region and left for education”p2(02).*

Besides recruitment, we observed that organizations saw possibilities in training people to overcome the labor shortage. This was mainly the case in the health-care sector, however also conducted in the manufacturing and technical sectors. By training people structurally in shortage positions, the deficit eventually declined. *“In my opinion we should permanently educate people to guarantee that we are self-sufficient, however it is very fluctuating, so it takes a long period of time”p2(12).* Some organizations trained internally, while others collaborated with educational institutions. It solves qualitative and quantitative shortages over a long-term period. *“We critically evaluate our educations by assessing what we need on*

which spot with which competencies and how we can deliver people at this required competency level. So, yes, our solution is educating people and eventually, at long-term, achieving an enduring competitive advantage”p4(03). Because the participants in the health-care sector want to prevent upcoming labor shortages in the future, they have chosen to restructure their education policies to train enough employees. One lesson learned from the past is to act more proactive instead of reactive.

The participants who experienced labor shortages in technical functions concluded that their sector or study direction was not attractive and affected by a negative image. Because of that, they started to develop programs to make the sector/functions more interesting for young people. These programs were deployed at primary and secondary schools in order to stimulate children to choose for technique or health-care. It is demonstrated that after many investments and a long period of time the amount of subscriptions at educational institutions enlarged significantly, which increased the available workers for the sector(s) and thus declined the quantitative problem. *“There are enough people, however not enough who have chosen for the more technical directions. Since ten years we invested a lot to change that situation by developing programs and presenting them at primary and secondary schools. Lately, it is confirmed that the subscriptions at among technical universities are increased significantly”p2(05).* Furthermore, organizations improved their value proposition by offering a nice career, a competitive salary, development possibilities and variety, however also due to good employer branding which matches the target group. They promoted their organization at professionals and appropriate students by emphasizing their unique organizational elements and offering interesting jobs. By being known as a good employer, employees would apply for a job at those organizations. *“Make sure that you offer better employment conditions and have a better value proposition than your competitors. We achieve that by providing nice careers, development possibilities, etc”p3(05).* *“As a company you need to make sure that you are and stay attractive in order to adopt a high potential when he/she passes by”p2(04).*

When employees were not available at domestic target groups anymore, participants in for example technical and health-care sectors pushed their boundaries and tapped from new groups, like drop-outs, long-term unemployed and migrants. Someone mentioned that they hired unemployed (young) people without any qualification and offered them training and education in order to reach the required level. Success was mostly based on strong intrinsic motivation and good supervision. *“We have hired young people, who are physically in good shape for work, however made some mistakes in the past and therefore needed more*

supervision. In cases where people were not highly motivated, it was not working, however two out of three were successful, so that is a pleasant result"p13(04). One of the participating hospitals had, due to several factors, problems finding a specific group of physicians. To solve this problem, they looked into hiring migrants from among other South Africa. This worked very well. *"We had problems with finding a specific group of physicians who were hard to get here in the Netherlands, so we decided to hire someone from South-Africa, Germany, etc. in order to solve the problem in a short-term period"*p2(14). Another contributing organization hired drop-outs and offered them a second chance in their organization. *"We have many drop-outs from MBO and HBO, who have not finished any education, who ended up here and moved on in our company"*p2(13). These employees were very pleased with this opportunity, which resulted in reliable and dedicated workers. By giving these workers decent supervision and several training, this organization was capable in solving their labor shortage for a long-term period.

To attract graduates, some other approaches are mentioned. First, organizations in almost all sectors started to hire interns in order to build a connection, which hopefully lead to an employment relationship after the education. Some participants provided a totally paid education to high potentials in exchange for a guaranteed five year employment relationship with those graduates. *"I know organizations that stimulate students to study a specific education by paying their total schooling in return for a five year employment relationship"*p10(11). Finally, one technical organization offers every young professional a trip to Canada; a very attractive and successful aspect in recruiting those groups.

Giving more salary to candidates to guarantee that they choose for the organization can be effective; however it is a very short-term incentive. All the organizations experienced this as a very costly approach and not successful to retain an individual over a long period of time. *"A financial incentive works very well for a short-term period, it helps to get someone on board; however, often he/she is mainly interested in money and leaves when more money is offered in the future elsewhere. We are familiar with labor market allowance in order to attract people above our salary-scale due to labor shortage, however we use it scarcely"*p15(11).

Strategies in expanding the dependency of labor: reducing the outflow of employment

In addition to expanding the workforce, the organizations under study also implemented solutions which extended the productivity of workers or retained their employees to minimize the labor shortage. Subsequently, the observed interventions are: deployment of

resources for retaining employees, expanding productivity of workforce and deploying of older workers.

All the participants in this study emphasized the importance of retaining employees, since nobody wanted to see their hard-to-find employees or talents leave. During periods of labor shortage, they made prolonged investments in their employees in order to educate, equipped, fascinate their workers and to guarantee that they can use their professionalism and enrich their knowledge. By doing this, one organization in the health-care sector declined their turnover drastically with 6.5% (12% to 5.5%). *“We operate much more from the perspective of the employee. By long-term investments in our employees, we educate, equip, fascinate and guarantee that they can use their professionalism optimally. We had a turnover rate of 12%, which we declined to 5.5% due to these investments”*p8(03). Especially for the technical sector, organizations invest a lot in providing technological challenges; since they experienced that this is what technicians retains. Participants from other sectors developed human resource policies to satisfy individual needs. This contains arrangements for child-care, retirement, sabbaticals, fitness, working hours, etc. By providing a degree of flexibility, employees could balance their work and private life optimally, which reduced their turnover intentions. *“We look very much to what an individual needs, like work-life balance, education, remuneration, fitness, etc. Every employee has his/her individual needs and we can provide those needs with several policies, which we call mass customization. So, in terms of retaining, this is the best thing a company can do”*p10(07). As we observed, the results on retention are very broad and globally described. We did not get a complete and in-depth view on how successful retention mechanisms have worked in order to reduce labor shortages.

Another perspective is expanding the productivity of the current workforce. Several organizations from different sectors mentioned that they have organized work in a different way or extended the working week in order to capture the labor shortage. For example, one organization has decided to give part-time employees the opportunity to work more hours by a maximum of a full-time working week. However, expanding the working week for full-times was not a solution, since overtime is stimulating high work pressure and stress. Besides, other organizations mentioned the importance of the internal labor market. By encouraging circulation of employees inside the organization, people find new chances and challenges and pick up tasks that are not performed due to labor shortages. This can be explained by an example of a governmental organization, which is well-advanced in this task-driven structure, instead of a function-driven structure. Due to qualitative labor shortages, they started to be

more flexible and analyzed their workforce in terms of qualities, talents, experience, etc. They matched the tasks with these qualities, talents and experiences and made optimal use of their workforce. By doing this, they were able to reduce their qualitative labor shortage for a long-term period. Hence, it resulted in more chances for employees; it made them more active, motivated and more bounded to the organization. *“Mobility among employees is very important here. High dynamics provides people many chances and results in more active people and people who stay at the organization. We are very busy with talent management, in which we do not look at functions, but more in tasks. We are looking at the qualities, experiences, talents, etc., of our employees and match those with the tasks available. By doing this, we reduced the experience of labor scarcity”*p8(11). Enhancing the productivity of workers in organizations delivering hourly-rate services is not desirable, since this declines the sales volume of the business.

As is demonstrated in research, the most important reason for people to leave is their (bad) relationship with their boss. By knowing that, different organizations measured and still measure the performance of their supervisors. When the performance is substandard, supervisors are seriously asked to follow some training to develop their leadership qualities. By doing this, employees are more willing to stay at the organization and be more satisfied with their job, which reduces possible qualitative labor shortages. *“The relationship with their boss is for many people a reason to stay at an organization. So, we measure this relationship every year with an employee engagement survey. When the supervisor is assessed negatively, we make sure that this supervisor gets some training in order to be a better boss in the future”*p9(11).

Finally, due to qualitative and quantitative shortage problems, we observed that organizations in for instance technical sectors worked with older employees or retirees to coach and train their successors and used them for more complex tasks. This worked very well, however is not always possible to implement. It is probable in high-educated functions or situations where older employees are not part of the process. *“We hired a few older employees (60+) who were not able to find a new job at other organizations. They worked part-time and were coaching younger people technical and maintenance stuff, structural aspects of a job and shared their experiences. We really liked this way of supervision and working”*p3(13). *“The older employees will be more focused on being a coach, mentor or supervisor. They really like it to share their knowledge with younger people. It is best possible in high-educated functions, because in our plants with more low-educated employees we need*

the older persons very much for the daily processes, which means that they have no time left to coach or supervise younger ones”p11(05).

Strategies in reducing the dependence on labor: outsourcing and collaboration

During the interviews we observed many forms of collaboration between two or more organizations and collaborations between organizations, educations and/or government. Furthermore, we saw solutions focused on outsourcing and offshoring.

During the interviews it became clear that a new perspective on labor and human resources is developing among organizations. Almost all organizations see added value in collaborating with other organizations to retain talents for the sector, to invest in educations, etc. For instance, one organization in the health-care sector is working together with other health-care organizations to build a management talent bank in order to exchange their talents and to connect the internal labor markets optimally. By doing this, they were able to use the experiences and qualities of the employees of all organizations involved, retained the employees for the health-care sector and reduced their experience of qualitative labor shortage. By building a professional network involving all kinds of professionals, they expect to be prepared for large labor shortages in the future. In order to reduce the experience of quantitative problems, this organization works also together with other organizations to educate new employees. They made agreements to stop with poaching employees from each other and to invest a specific amount of money in educating new nurses, nurse specialists in order to share this responsibility. *“We have a covenant in which we have made agreements on education. We arranged how much people we need to educate in our region maximally, how much we need to invest in order to guarantee that this amount of people is available and we agreed to stop poaching capacity and quality of each other”p8(03).* We also observed this none poaching agreement of employees at a participating medium sized organization in the technical sector. Due to their size they were not able to compete with large actors in the same market and decided to group together with organizations in the same situation (small or medium sized, same market, regionally) and stopped with poaching each other’s employees. *“We collaborate with colleague-installers in order to survive the large actors in our market. We keep an eye on the labor market and will not withdraw employees from each other, unless an employee has this willingness and we, as employers, give our consent”p2(04).*

Another organization, specifically in HR services, mentioned an example of organizations working together to find new places for their redundant or not functioning employees. HR

managers of several organizations came together to discuss the personnel files of these employees and to search for new opportunities underneath these organizations. By doing this, they were able to exchange individuals and help each other with their supply and demand problems. *“The idea of this approach is to help people who are not functioning or redundant to find a new job elsewhere. It was on a small scale. So, HR managers came together and showed each other the available cases and asked which organization could help which employee. It was successful, because it was a human way of working in which the HR managers thought about the destiny of the employees and provided them new perspective. Furthermore, the organizations were helped with their problems”*p9(10).

In general, the organizations participating in this study searched for opportunities to collaborate with others in order to exchange and/or seconding their talents or to invest in the attractiveness of the sector together. By doing this organized, they bundled their forces and achieved greater things. *“On our own it is very hard, our workforce exist of 400 employees. We try to collaborate with three other organizations in this region, which are 1.200 people together. Then, we have more possibilities to achieve things, like exchange, seconding, etc. and most important to retain them for our sector”*p4(11). *“You can search for opportunities to establish joint-ventures; are there possibilities to collaborate with other companies, which enable us to have access to more people. We established a joint-venture for a specific function-group together with a company in China”*p12(05).

The organizations collaborated not only with other companies, however also with the government and educational institutions. Organizations in the health-care sector collaborate closely with educational institutions for educations like nurse or nurse specialist. In recent years many students were not able to finish the education and dropped-out. The hospital and educational institutions analyzed what happened and solved the problem by a better and stricter selection in order to reduce the drop-outs and to raise the quality of graduates. Besides, they searched for solutions to make the education and occupation more attractive in order to reduce the shortage of nurses and nurse specialists. They started to develop educational programs where students are able to choose their specialty earlier in the education. In the previous situation, the students needed to first finish nursing school before they were able to start with specialization. Educations and hospitals are now searching for opportunities where students can choose their specialization in the second year of their education, which shortens the training program and reduces drop-out. *“Recently, we experienced that around 40% of the nurse students dropped-out in the first year of their*

education. We analyzed this situation and concluded that the people we have accepted did not pass the capacity-test, which in the end resulted in drop-outs. If we were stricter during the selection, probably 8 out of 10 drop-outs would not be dropped-out”p7(14). “In collaboration with an higher educational institution, we start with an pilot in which we make students more competent in short period of time to make sure that they can start with a nurse specialty much sooner. By doing this we make the training program much shorter and more attractive”p3(03).

Other organizations build a strong relationship with educational institutions by providing decent internships or traineeships which lead to strong practical experiences. By doing this, the organizations got access to the talents and connected them already to their organization, which reduces the qualitative labor shortage. *“What we do when limited people graduating from college, we provide internships and at the moment we are enthusiastic about someone, we offer a contract and commit him/her to our organization. So, you need to catch them when they are at college which is very early, at that moment you need to make the first contacts”p4(01).*

When organizations in private sectors are not able to find employees anymore, they see possibilities in outsourcing work or abandoning work processes/activities. They mentioned it as one of the possibilities to overcome the shortage, but none had opted for the solution. *“Another option, which is very rigorous, is quitting activities. So, due to shortages you need to change your company product or company portfolio constrainedly, however I have no example for you right now”p7(07). “If we cannot find employees in the Netherlands anymore and the business climate becomes unpleasant, we would leave this place and go to somewhere else, because we are not related to the Netherlands. However, this is not the decision we made now, do not get me wrong”p14(05). Eventually I think, however I have no concrete examples right now, the make-or-buy discussion releases. When it is very hard to do things internally, we should probably outsource these processes”p5(08).*

Strategies in reducing the dependence on labor: technological innovation

The technological revolution has influenced the way work is organized and work is processed. Furthermore, it helped reducing the dependence on labor. The same amount of work can be done by less and less people nowadays. This is confirmed by our participants, which invested a lot in automation and robotics. Due to these large investments in automation, organizations in the technical sectors have doubts about the possibilities for using this

solution in the future to reduce an amount of people. It is a development which passed already in these sectors and they expect that it will not help them to solve labor shortages in the future as it did in the past. However, in the health-care sector this development is still going on. *“Over a long period of time, we see the amount of people in our plants declining due to developments, technology, efficiencies and how we can do things smarter and better. I started 32 years ago at one of our plants and at that time we had 6000 people employed; now it is only 2500. So, that is a dramatic improvement of efficiencies and technologies. However, at one moment in time this declining of people stops. You need to take into account the security of workers. When something might go wrong, enough people need to be present to solve the problems. You need minimum amount of people due to security reasons”*p4(05). *“In my opinion, the health-care sector is able to deal with innovations or to develop efficiency actions, which results in more production with the same amount of people and time. For instance, after a specific operation, patients needed six days of care, which we, due to developments in the operation process, declined to 2 days of care”*p4(14).

Another technological innovation is mentioned by an organization in the health-care sector, which is called “help each other through the summer”. It is an application for mobile phones, which can be downloaded and installed. This application is available for all nurses, nurse specialists, etc. and showed the planning of the summer. Because the organization experiences problems with planning a full summer schedule due to holidays of many employees every year, they involved the employees in this process. Each nurse was able to login in the application and saw which shifts were not filled in. When the nurse wanted to work more shifts (to earn extra money for example), he/she registered for those shifts. In the end both employees and employer benefitted this way of organizing. It helped to reduce their labor shortages during the summer. In the future, they have the ambition to implement this among other health-care organizations which they are collaborating with in order to reduce their overall labor shortages. *“We have this mobile application, which is called help each other through the summer. Every year we have problems with the planning during the summer, so we searched for opportunities to solve this problem. We found a solution in this application, which gives employees who are not on vacation, the opportunity to work more shifts to earn more money. Most employees are working part-time and want to earn something more when that is possible”*p8(12).

4.3 Successfulness of labor shortage solutions

Now that we have described the solutions mentioned by the participants, we observed that the successfulness of labor shortage solutions is determined by contextual factors. In table 3 we outline these criteria, which were derived directly from the analysis of the data collected. The first one, organization size, influences the successfulness since it determines the possibilities organizations had to affect the labor market. We also observed that it limits the budgets organizations have available. The extent of these budgets is important, because it determines the potential solutions organizations can implement. Some solutions are very expensive while others are cheaper. This is what we saw at large organizations operating in the technical sectors and confirmed by organizations smaller in size. Another criterion is the period of implementation. When organizations are surprised by labor shortage, short-term solutions are essential, while other situations are less acute and can be solved on a long-term period. We observed these differences particularly after we had spoken to organizations with a long- respectively short planning horizon. The data also show that in some cases attracting high-educated employees needed a different approach than low-educated employees, which explains the obtaining of the criteria level of education. For example, communication towards low-educated employees needs to be done differently than towards high-educated employees. Several organizations in technical sectors mentioned the differences in recruiting these separate groups. The extent to which an organization has public tasks, determined the scope of for instance collaborations between organizations. Therefore we obtained the criteria organization type (public, sovereign or private) as a factor to take into account. When organizations due to market dynamics have a narrow planning horizon, this has consequences for approaching labor shortage. We observed less long-term solutions at organizations which market changes every few months. To implement successful solutions, it is of importance to take into account the conditions of the market organizations operate in. Additionally, we obtained the criteria sector, since we observed differences in the possibilities sectors have in implementing solutions. Here, it is important to note that we only observed the sectors included in this study. The last criterion acquired is the type of labor shortage. The participants mentioned they implemented different solutions for different labor shortage problems, which explains why this criterion is of importance.

Table 3. *Criteria for the successfulness of labor shortage solutions*

Criteria	Categories						
Organization size	Small (0-99)	Medium (100-500)	Large (500+)				
Investment needed	Small budget	Large budget					
Implementation period	Short-term (one week)	Mid-term (until six months)	Long-term (more than six months)				
Sector	Technical	Health-care	HR services	Banking & insurance	Legal services	Government	Logistics
Level of education	Low educated (MBO or lower)	High educated (HBO or higher)					
Type of labor shortage	Quantitative	Qualitative	Regional mismatch	Mismatch due to preferences	Mismatch due to information deficits		
Organization type	Public	Sovereign	Private				
Market situation	Dynamic	Stable					

Strategic workforce planning

To make a decision on which solutions to implement another important aspect needs to be taken into account. Several organizations under study mentioned the importance of strategic workforce planning before implementing interventions for approaching labor shortage. The organizations were not able to implement a successful solution, before knowing which, when or where the problems were located. Significant numbers used were turnover rate, age distribution, absenteeism, etc. *“We introduced strategic workforce planning, to analyze which employees we have and what the critical positions are. We identified that in 2015 more people leave, than what we can recruit. So, when no actions are taken, the problems will be more worse”*p2(03). By using the right instruments, they were able to forecast labor shortages and new exactly which employees they needed over a period of time, however this was only the case for organizations with a planning horizon longer than one year. This is evidenced by a crucial factor in strategic workforce planning, namely the stability of the market the organization operate in. There are differences in how far organizations can look forward due to fluctuations in the market, which influences the estimates on employees needed. One of our

participants is operating in a rapidly changing high-tech market and has a planning horizon of six months. Due to this short-term planning horizon, strategically planning their workforce added no value, simply because they did and do not know which, when and where employees are needed. *“People are a very important aspect, certainly when you want to make technological progression. However, technological progression has no multi-year scope. In this sense, our organization is not a company which knows their needs for the upcoming three years. It is impossible to plan. We have a planning horizon of six months. It may even happen that we need five people for a specific job today and a week later is totally changed due to new technological insights”*p6(17). Their only possibility to solve their labor shortage was and is by using recruitment- and headhunt agencies and flexible work arrangements. By using these methods, the organization was and is able to welcome or say goodbye to employees when the market demands. *“An organization that has rapidly changing needs, recruitment- and headhunt agencies are a very successful mechanism. Of the 65 people in my team, 42 were secondments. I had personally contact with twelve agencies. So, when it comes to expertise, we turn to many recruitment- and headhunt agencies”*p8(17).

5. CONCLUSION & DISCUSSION

Analyzing the work practices of a range of organizations allows us to evaluate labor shortage solutions across several contextual situations. As is stated in the introduction this study contributes to literature in two ways. Its first contribution is an overview of how organizations deal with labor shortages. The second contribution is a matrix that indicates when and why the solutions for labor shortages used by organizations are successful. The central question that fits these contributions is the following: *which solutions do companies suffering from labor shortages turn to and when are these solutions successful?*

5.1 Which solutions for labor shortages do organizations use?

Recruitment

Several solutions are likely to overcome labor shortages. The most mentioned methods we observed during the interviews were focused on expanding the workforce, like investing in own recruitment, recruitment agencies, tapping from new target groups, etc. This is similar to what we have found in literature about labor shortage approaches. Offering more salary in order to attract employees turned out to be less successful, since this is a short-term incentive. The people who were triggered by money leave when more money is offered elsewhere. Compromising in the quality of employees turned out to be unsuccessful over a period of time. Reduced quality directly influenced the performance of workers, which affects or even damages organizational outcomes, image, etc.

Retention

Retention of employees proves to be an important element in combatting labor shortages. In times of labor scarcity, retaining talent is crucial to survive. During the desk research on labor shortages, we did not find much information that directly linked labor shortages on retention interventions and was therefore not obtained in the theoretical framework as an approach to implement. However, the interview data indicates that it is at least as important as expanding the workforce. As long as people are exiting through the back door, as fast as they are coming in through the front, recruitment has no added value. So, retention needs to be done properly in order to take advantage of recruitment and to decrease the effect of labor shortages. During the interviews, no more information regarding the used retention mechanisms was obtained, other than the global information we described.

Collaboration

In regard to the strategies focusing on reducing dependence on labor, we were surprised by the advanced collaborations between organizations in the government and health-care sector. We saw notable differences in those sectors compared to other sectors in how well these collaborations were developed. This is an interesting outcome and raised the question: what made these sectors successful in doing this? We come up with a few explanations: the extent to which organizations need to compete with others determines how successful this strategy can be. In high competitive markets, conflicting interests will probably play a huge role in the decision-making process on collaborations with other organizations. In governmental and semi-governmental sectors this competitive driven strategy is not the case. These organizations have a common goal in serving society, in which collaborating will help them to achieve those goals optimally. However, this does not imply that organizations in more competitive markets cannot collaborate with competitors. For them, collaboration can contribute in retaining talents for the sector or increasing the attractiveness of the sector, which we for instance saw at a few organizations in the technical sector. Collaboration with other organizations to reduce labor shortages is not a solution we found during the desk research. It is relatively new for organizations to see the advantages of cooperating with other parties in the same sector. Until recently (one or two years ago), most of our participants were not using collaboration for dealing with labor shortage.

Outsourcing and offshoring

The desk research on labor scarcity resulted among others in solutions in terms of outsourcing and offshoring, as described in the theoretical framework. Our results conclude that none of the participants actually used these approaches to reduce the experience of labor shortage, which seems to imply that this solution is not an option. However, that is not exactly the case; it is the last option organizations have left. When all the other approaches do not work to overcome the labor shortage, organizations will decide to move their business towards places with an abundant supply of labor. Our participants were able to use the other interventions to satisfy their own needs, so outsourcing or offshoring was not necessary.

Technology

Looking at the possibilities for automation and robotics to reduce the amount of people, we see that it is well documented in literature (Faunce, 1965; Kochman & Osterman, 1994; Henkens et al., 2008). By making processes more efficient, the amount of FTE will decline

(Faunce, 1965; Kochman & Osterman, 1994). As the results show, automation and robotics is a successful solution to reduce the dependence of labor has its limits. Organizations in technical sectors used this automation already optimally and further reduction is impossible; on the other hand organizations in for instance health-care still see possibilities. The development of automation and robotics in that sector is less advanced when compared to organizations in the technical sector. Still, we can conclude that this is a solution to reduce the dependence on labor; however it is a development which is already fully implemented in most organizations.

5.2 Combinations of solutions

As is mentioned by the participants of this study, there is no holy grail in handling labor shortages. According to the participants, it is best to implement several interventions that together provide a solid approach. This can be underpinned using literature on deadly combinations and powerful connections of Becker, Huselid, Pickus and Pratt (1997). They claim that some HR practices will make sense as an individual HR practice, however when evaluated within the context of other HR practices are a recipe for disaster (deadly combinations). Contrary, in other cases, a combination of HR practices will lead to complementarities or synergies that will strengthen the effect of the HR practices (powerful connections). Projecting this literature on this study, which deadly combinations and powerful connections of the solutions can we distinguish? We assume that it is of importance to combine solutions of the four sub categories as mentioned in the results section (expanding influx of employment, reducing the outflow of employment, outsourcing & collaboration and technological innovation). These four categories cover different aspects of human resource management, which have their own influence on the size of the workforce. However, we do not know how many or which solutions from each category need to be combined with solutions from other categories, due to the fact that this was not part of our study. From a HR perspective, we claim that it might be interesting to investigate this in future research.

5.3 When and why are solutions for labor shortages used by organizations successful?

Not all the solutions or combinations of solutions organizations develop work in each situation and for each organization. Overall, we can conclude that one of the most important outcomes of this study is that contextual factors influence the extent to which a solution or a combination of solutions are experienced successful (see table 3). Reflecting this on available literature, we conclude that our outcome has a significant overlap with the contextually based

human resource theory of Paauwe (2004). This contextually based human resource theory claims that HR outcomes and their performance are influenced by contextual factors like competitive mechanisms (PMT-dimension), institutional mechanisms (SCL-dimension) and configuration. In other words, the performance of the labor shortage interventions (HR outcomes) will be experienced successful when the contextual factors are taken into account. The criteria for successfulness we formulated in table 3 are consistent with the contextual factors of Paauwe's model. Explaining this in more detail, we observe that our criteria *market situation* and *sector* fit into Paauwe's product/market/technology dimension. According to Paauwe, this influences the efficiency, effectiveness, flexibility, quality, innovativeness and speed of the HRM policies and practices. In addition, we conclude that the configuration-dimension of Paauwe's model containing organizational/administrative/cultural heritage elements fits with our *organization size* and *organization type* criteria. As mentioned by Paauwe, these elements have a bearing on shaping and structuring HRM policies and practices. The criteria left, *investment needed*, *implementation period*, *education level* and *type of labor shortage* correspond to the third dimension of Paauwe's model, social/cultural/legal dimension. As appointed by Paauwe, these elements influence the fairness and legitimacy with regard to work, time, money, know-how and participation. Eventually as Paauwe's model shows, all the contextual factors together determine the room to manoeuvre and the strategic choices organizations can make, which is exactly what we conclude from the criteria we appointed.

Besides these contextual factors, also strategic workforce planning appears to be crucial to overcome labor shortage successfully. Analyzing the workforce and knowing or forecasting which groups might give problems in a period of time gives understanding of the importance and urgency of possible shortages. By knowing this, organizations can prepare their workforce in advance, in order to decrease the impact of labor shortages. After analyzing the workforce, organizations can search for interventions that fit their problems, which increases the successfulness of the intervention. Therefore, we claim that successfully approaching labor scarcity is all about long-term vision and preparation. The short-terms views of reducing costs and no sense of urgency will eventually result in a situation wherein labor scarcity surprises organizations. At that moment in time, it will not be possible to implement a well-developed intervention that captures the labor shortage for a long period of time. This is exactly what we observed at ASML, which operates in a highly dynamic market in which six months is their planning horizon. They cannot strategically plan their workforce, because they

do not know what the needs are after this planning horizon due to their high-tech products. As a result, they experience labor shortage on a daily basis. They invest a lot in recruitment- and headhunt agencies, which solves their labor shortages, however costs them an incredible amount of money. Many other participants in this study mentioned ASML as the example of an organization that handles labor shortage superbly. After observing ASML, we conclude that their solutions work well for ASML; however it is not a solution we would advise other organizations to implement. ASML has this unique high-tech product which makes them an interesting place to work for technicians; not all organizations have this advantage automatically due to their product. Second, ASML's recruitment costs are huge because they attract the people on freelance basis or by recruitment- and headhunt agencies; this budget is not available in many other firms. Third, the in- and out flux of workers is enormous, which suits their high dynamic market, however is not desirable in more stable markets. Besides, is it fair to claim that ASML is optimally using their human resources by organizing it this way? If they organize their human capital more structural and have insight into the capacity of the workers available, they might be able to reduce on their recruitment costs and efforts. Even ASML has opportunities to develop their ways of working towards a more efficient approach. Given their unique features, which allow them to operate in this way, it is not a solution that other organizations can simply copy to their own situation.

Deriving from the fact that contextual factors as well as strategic workforce planning turned out to be very important in dealing with labor shortage, we see some linkages with the best-fit/best-practice debate which is well discussed by Boxall and Purcell (2011). According to the best-fit literature, HR strategies can and should vary based on contextual factors and should fit or adapt to the organization's broader business goals and its environmental context (Boxall & Purcell, 2011). In contrast, the best-practice literature advocates a form of universalism. It argues that all organizations will be better off if they identify and adopt those HR practices which are shown to be 'best' for organizing work and managing people (Boxall & Purcell, 2011). By knowing this, we conclude that this study has many overlap with the best-fit approach and confirms the importance of taken contextual factors into account. Meanwhile we observe that strategic workforce planning, which we see as a best-practice, turns out to be a crucial instrument in successfully approaching labor shortages. In the light of this, where do things stand in the debate between best-fit and best-practice? In contrast with Boxall and Purcell (2011), we could not indicate a winner. From our point of view, we see the best-fit as an overarching approach, which uses the contextual factors to adjust the best-

practices from the best-practice approach. Even though we see the differences among those two, we do not prefer to see them as total different approaches. Taken those best-fit and best-practice together shows the bigger picture we want to demonstrate.

Evaluation of the solutions

Since we have the knowledge of which solutions to implement and which factors that needs to be taken into account during the implementation, it allows us to evaluate the solutions in order to know when we need to implement which solution. The criteria of table 3, the solutions mentioned in the results section and the design of table 1, results in table 4. Table 4 is a schematic overview that enables organizations to look at their own situation and to choose for solutions that fit their profile. For example, an organization which is large, with large budgets, regional problems in finding professionals and needs to solve those problems at mid- or long-term, it may be best to choose for solution four. The table helps organizations to implement solutions that actually are aligned with their problems and situations and makes them more aware of the actions to take in approaching labor shortages. This awareness is of importance; because it assures that the organization is critical and uses their resources in the right manner to prevent capital loss. To clarify, this table is not a summary of the organizations of this study; however a scheme for organizations that need to implement solutions for their (future) labor shortages.

As we can see in table 4, the criteria *sector*, *education level*, *market situation* and *organization type* have a reduced impact on solutions than *implementation period*, *size* and *investment needed*. Besides, most solutions that were mentioned can be used to solve qualitative and quantitative labor shortages. This is not a problem, since we observed these types of labor shortage the most at the organizations under study. The other types, regional mismatch, mismatch in preferences and mismatch due to information deficits are very specific and therefore less experienced. We are aware of the fact that the table misses some important details to clarify the underlying differences, which probably gives the impression that context is not that important. However, context turned out to be very complex, hence evaluating solutions among contextual factors is not done in literature before, and so the table can be improved much more when more research is conducted.

Table 4. *Evaluation of the solutions using the criteria of table 3*

Solutions	Criteria	Period of implementation	Organization size	Sector	Level of education	Type of labor shortage	Market situation	Investment needed	Organization Type
01. Own recruitment		Short- & long-term	Large	All	High & low educated	Qualitative	Dynamic & stable	Large budget	Public, sovereign & private
02. Recruitment- and headhunt agencies		Short-term	Medium & large	All	High & low educated	Qualitative & information deficits	Crucial in dynamic. Also used in stable	Large budget	Public, sovereign & private
03. Via-via channel		Short-term & mid-term	Medium & large	All	High & low educated	Qualitative	Dynamic & stable	Small budget	Public, sovereign & private
04. Recruitment of professionals in low populated areas		Mid-term	Medium & large	All	High & low educated	Regional mismatch	Dynamic & stable	Small budget	Public, sovereign & private
05. Recruitment of graduates in low populated areas		Mid-term	Medium & large	All	High & low educated	Regional mismatch	Dynamic & stable	Small budget	Public, sovereign & private
06. Training of (new) employees		Long-term	All	All	High & low educated	Qualitative, quantitative & regional mismatch	Stable	Large budget	Public, sovereign & private
07. Enhancing the attractiveness of sector/branch/ functions		Long-term	Large, when small in collaboration with others	All	High & low educated	Qualitative & Quantitative	Dynamic & stable	Large budget	Public, sovereign & private
08. Improving value proposition		Long-term	All	All	High & low educated	Qualitative	Dynamic & stable	Large budget	Public, sovereign & private
09. Hiring drop-outs		Short-term & mid-term	All	All	High & low educated	Quantitative	Dynamic & stable	Small budget	Public, sovereign & private
10. Hiring migrants		Short-term	All	All	High & low educated	Qualitative & Quantitative	Dynamic & stable	Small budget	Public, sovereign & private
11 Attracting graduates → hiring interns		Mid-term	All	All	High & low educated	Qualitative & Quantitative	Dynamic & stable	Small budget	Public, sovereign & private
12. Attracting graduates → paid education		Mid-term	Medium & large	All	High & low educated	Qualitative & Quantitative	Dynamic & stable	Large budget	Public, sovereign & private
13. Retaining employees → investment in resources		Short-term, mid-term & long-term	All	All	High & low educated	Qualitative & Quantitative	Mostly stable, however also in dynamic	Large budget	Public, sovereign & private
14. Retaining employees --> providing technological		Long-term	All	Technical	High & low educated	Qualitative & Quantitative	Mostly stable, however also in dynamic	Large budget	Public, sovereign & private

<i>challenges</i>								
15. Expanding productivity	Short-term	All	All	High & low educated	Quantitative	Dynamic & stable	Small budget	Public, sovereign & private
16. Internal labor market → Circulation of employees	Short-term, mid-term & long-term	Medium & large	All	High & low educated	Qualitative & Quantitative	Dynamic & stable	Small budget	Public, sovereign & private
17. Deploying older workers as coach/mentor	Mid-term	Medium & large	All	High & low educated	Qualitative	Dynamic & stable	Small budget	Public, sovereign & private
18. Collaboration between organizations → educating employees	Long-term	Medium & large	Health-care, Government	High & low educated	Qualitative & Quantitative	Stable	Large budget	Public & sovereign
19. Collaboration between organizations → retaining talents for sector	Long-term	All	All	High & low educated	Qualitative & Quantitative	Dynamic & stable	Small budget	Public, sovereign & private
20. Collaboration between organizations → sharing talents	Long-term	All	All	High & low educated	Qualitative & Quantitative	Dynamic & stable	Small budget	Public, sovereign & private
21. Collaboration organization and education → increasing quality level	Long-term	All	All	High & low educated	Qualitative	Dynamic & stable	Small budget	Public, sovereign & private
22. Collaboration organization with education → providing internships	Short-term & mid-term	All	All	High & low educated	Qualitative & Quantitative	Dynamic & stable	Small budget	Public, sovereign & private
23. Outsourcing work	Long-term	All	Depends on product	High & low educated	All	Dynamic & stable	Large budget	Private
24. Automation	Long-term	All	Production organizations	High & low educated	All	Dynamic & stable	Large budget	Public, sovereign & private
25. Planning application	Mid-term	Medium & large	All	High & low educated	Quantitative	Dynamic & stable	Large budget	Public, sovereign & private

Process cycle

Now we have evaluated the solutions on the criteria, we have discussed all the outcomes of this study. During the course of this research, we developed a process for approaching labor shortage summarizing all the outcomes of this study. The process can be found in figure 1 and shows the five phases organizations need to follow to implement a successful solution. The first phase covers strategic workforce planning. It has been shown that long-term vision and planning will be the first step to awareness. Where and when will the organization be facing which problems is the crucial question to answer here. In phase two, the organization charts itself using the criteria set out in table 3. These criteria determine organization's possibilities for implementing solutions. On this basis, in phase three, the organization chooses the solution(s) to implement. The organization can make this decision with help of the information available in table 4. When the organization has decided which solutions to implement, the implementation of the solution(s) can be performed (phase four). Depending on the solution chosen, this may take a long period of time. To ensure that the labor shortage is solved, the organization needs to evaluate the process. In order to approach labor shortage on a long-term basis, the organization should start again at phase one after the evaluation of phase five. The outcomes of this last phase will be the starting point for workforce planning. Performing this process well, the organization will experience almost none or no labor shortage(s).

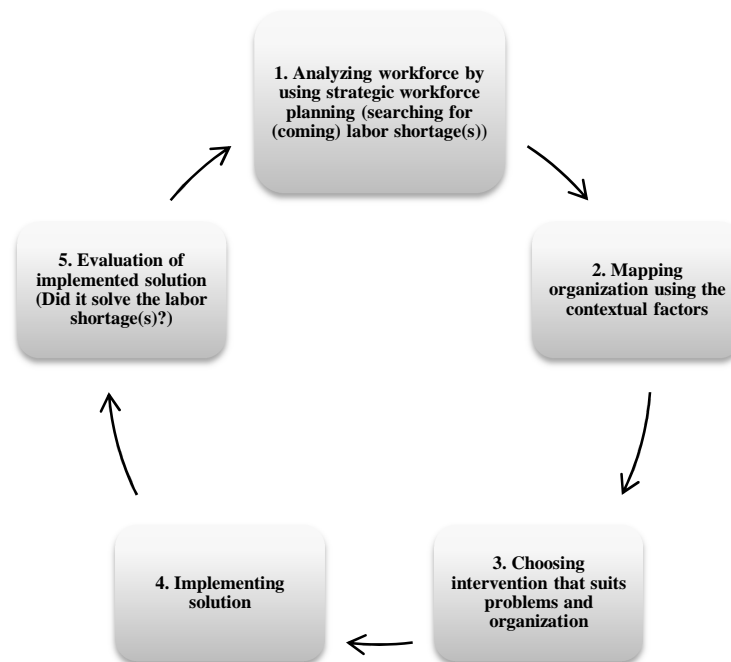


Figure 1. Process of approaching labor shortage(s)

5.4 Contributions in a nutshell

In this study we have aimed to investigate when and why organizations implement which solutions for labor shortage. A desk research concluded that information on these when and why questions were underexposed. In the literature and for example the studies of Henkens et al. (2008) and Veneri (1999) we did not find the contextual based approach to handle labor shortage. Henkens et al. (2008) just mentioned some labor-market constraints that may influence the amount of people organizations can recruit; however it is not a developed story. In this study we proved the importance of the contextual factors and demonstrated that without these contextual factors, a successful solution is not possible. Together with the evaluation of the solutions, shown in table 4, it is evident that at all times future research must take into account the context of the organization in handling labor shortage. Hence, we showed that strategic workforce planning contributes to approaching labor shortage in an important way. Knowing when and where the problems occur is the first step of awareness and guarantees that the resources are used at the right place. The contribution of strategic workforce planning in approaching labor shortage is as an aspect that has not been associated with approaching labor shortage in much literature before. We found some information of Cappelli (2005) which stated that employers must finance programs that help them target appropriate recruits and identify where their recruiting investments are most effective, however this is not extended and emphasized as a critical success factor of approaching labor shortage. Finally, we developed a process cycle in which we demonstrate how labor shortages should be approached. The advantage of this process cycle is that it helps to identify aspects which would otherwise not be considered as important. We did not find this well-developed method in literature before.

5.5 Limitations and implications for future research

Several factors have limited the scope of this study. During data collection, the economic crisis impacted the experiences of labor shortage by the organizations under study. The (expected) labor scarcity slowed down due to the consequences of this crisis. These consequences resulted in the fact that the organizations were focused on labor surpluses and cost reductions instead of labor shortage(s) and long-term investments, which may have influenced the total output we received from the participants. The distribution on size of the organizations in the sample limited the possibilities to investigate the differences among them. Future research should obtain more small- and mid-sized organizations to get even

more understandings on how these organizations are dealing with labor shortages and to improve the information in table 4. In addition, due to the limited information on retention interventions, we see possibilities to investigate this solution direction more extensively. Future research might focus on more retention interventions which successfully engage and retain valued workers. Since this research emphasized the importance of strategic workforce planning in approaching labor shortage, more research is necessary to investigate additional long-term effects of this instrument on solving these labor shortages.

5.6 Practical implications

Besides the scientific contribution of this study, it also involves some practical implications. As mentioned by the participants, there is no holy grail in approaching labor shortage. It is quite common to implement more than one intervention to handle the labor shortage problem accurately. The combination of several interventions increases the chances to overcome labor shortage successful, which is replenishment to the information we already have given about the successfulness of labor shortage solutions. The phases of the process cycle in figure 1, can help organizations to increase their consciousness in developing their approach. To conclude, when things are scarce, we handle it carefully; however is that what happens in organizations nowadays?

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APPENDIX I

