# The benefits of the workspace in attracting and retaining employees

## MSc Thesis

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# Contents

**ABSTRACT.** Using the workspace as a tool for employee attraction and retention is a strategy, which IT and consultancy employers should implement, in order to become more competitive in the labour market. This, however, was found to be a challenging task, due to the workspace being constituted by a wide variety of facility design elements, each of which having a different effect on employee attraction and retention. To gather insights about employee and employer perceptions towards the attraction and retention qualities of individual FDEs, two surveys were used – one for employees and one for employers. By analysing the gathered data, attraction and retention perception gaps between employees and employers were identified. Based on the results, the research was able to propose three guidelines, which IT and consultancy employers can follow to design workspaces, capable of attracting and retaining employees. Instead of focusing on the implementation of services in the workspace, employers should prioritise the optimisation of the spatial layout and functionality, and ambient conditions. Furthermore, to avoid any disagreements with employees, employers should involve them as co-creators of the workspace.

**Keywords:** IT; consultancy; employees; employers; workspace; facility design elements; FDEs; office conditions; attraction; retention;

## Executive Summary

This research was conducted to identify the extent, to which IT and consultancy employers and employees perceive facility design elements (FDEs) as useful for the attraction and retention of employees and the extent to which these perceptions differ. Insights in this area could help IT and consultancy employers excel in attracting and retaining employees, which nowadays is a difficult task, due to the war for employees and scarcity of skilful workers in the IT and consultancy sectors.

Two surveys were used in the research – one was sent to employees and one to employers. The surveys examined the perceptions, which employees and employers hold towards the attraction and retention qualities of individual FDEs in the workspace. The gathered data was quantitatively analysed and used to identify whether perception gaps between employees and employers exist.

The results showed that while employees were attracted and retained mostly by the spatial layout and functionality of the workspace (e.g. open office, individual office, ergonomic furniture, etc.), and its ambient conditions (e.g. daylight exposure, indoor climate, etc.), employers perceived the use of services (e.g. car parking, on-site gym, catering facilities, etc.) as more beneficial. Significant perception gaps were also found between employees and employers regarding spatial layout and functionality FDEs in the workspace. Furthermore, while employers perceived each FDE to generate similar levels of attraction and retention, employees perceived only several FDEs to have such quality.

Considering the results of the study, three guidelines were suggested for employers to follow, in order to design workspaces, capable of generating high levels of attraction and retention of IT and consultancy employees:

1. Instead of focusing on applying and advertising services (e.g. car parking, on-site gym) in the workspace, IT and consultancy employers should focus on the application and advertising of the workspace furniture (e.g. ergonomic furniture and electronic devices), layout (e.g. open office, multi-space office), and ambient conditions (e.g. daylight exposure and indoor climate).
2. Employers who desire to improve their workspaces, should prioritise the implementation of FDEs, which can generate similar levels of attraction and retention, as they provide the best value for money. However, employers should also stay aware of alternative FDE combinations, which can yield better attraction and retention levels for the same amount of money. For example, an open office layout, combined with the option to work from home might be a cheaper and more effective in attracting and retaining employees option, compared to solely providing individual offices.
3. Employers should involve their employees as co-creators of the workspace. Applying this approach guarantees employees' needs are addressed and could increase the attraction and retention qualities of the workspace.

# 1. Introduction

The war for employees is a long-lasting issue in the IT and consultancy sectors (Scheer, 2012; Hill, 2016; Isaac, 2015). This war is driven by the scarcity of skilful workers, which makes it hard for companies to find and retain the right employees for their businesses. To be employed, job candidates are expected to have a wide variety of soft and hard skills (Brown and Tannock, 2009), from which digital skills are of particular importance for both industries (Buvat, 2016; Turchin, 2016). Digital skills are any skills related to being digitally literate, where digital literacy is "the ability to find, evaluate, utilise, share, and create content using information technologies and the Internet" (Burton, 2016). However, approximately 90% of companies lack such skills (Buvat, 2016; Turchin, 2016). To close this gap, companies use different strategies. While some organisations invest in educating workers and developing their skill sets (Turchin, 2016), many others prefer to reach towards the already trained employees of other companies and try to attract them with generous offers (Isaac, 2015). For example, even Google, which invests in employee training, encounters difficulties to retain their staff members and attract new employees (Isaac, 2015). This hiring environment is problematic, because it threatens the ability of companies "to expand, develop new technologies, and keep growing" (Dodge, 2016). In order to survive, companies need to excel in both attraction and retention of employees.

According to Haworth (2013), a main reason for the lack of workforce is the demographic fact that employees from the Baby Boomer generation, who were born between 1946 and 1964 (GEN HQ, 2016), are slowly retiring and a new generation of workers starts to populate the labour market. These workers come from different generations: Generation X, who were born between 1965 and 1976, Millennial generation, born between 1977 and 1995, and Generation Z (aka iGen), born after 1996 (GEN HQ, 2016). According to Fry (2015), Millennials constitute the vast majority of the labour force in the US (followed by Generation X employees) and are expected to form half of the global workforce by 2020 (Catalyst, 2015). Millennials have different traits than older generations. They are perceived to be: more global and oriented towards meaningful jobs (Asghar, 2014); more tech-savvy (Miller, 2012); and more creative (Wren, 2014). However, a recent study, conducted by Randstad (2016) shows that these characteristics also apply to iGen employees. As such, Millennials and iGen workers may have different needs and requirements, and consequently require different workplace conditions in terms of flexibility, collaboration and new technologies from their earlier (in case they want to join previous employers again), current and future employers than generation X and Baby Boomer employees. This means that in order to attract and retain new employees effectively, companies might need to adjust their workspace conditions to the needs of younger generations (Randstad, 2016; Haworth, 2013). This will be demonstrated in the following paragraphs.

<u>Incentives to attract and retain employees</u>

According to the recent study of Randstad (2016), which demonstrates that iGen workers and Millennial workers have identical requirements, the best technique to engage with and retain

Millennial and iGen employees is by providing them with financial benefits (i.e. cash rewards and bonuses). However, according to the same study and the study of Wren (2014), money is not the only tool, with which companies can attract Millennial and iGen employees. There are other factors that can effectively attract job seekers. Lindsey Pollak (Millennial workplace expert) found out that Millennial employees strive for a better work-life balance (The Hartford, 2016). According to her study, Millennials require a 'flexible work schedule' in order to stay with a company. This observation is also supported by both Haworth (2013) and Randstad (2016). Another way to attract employees from Millennial and iGen generations is by focusing on collaboration and face-to-face communication (Randstad, 2016; Haworth, 2013). According to Borrelli (2014), communication and collaboration are important, because they boost creativity and productivity. Lastly, Millennials and iGen employees feel attracted to new technologies (Randstad, 2016; Coster and Govan, 2014; Lowe et al, 2008). In the Randstad report, 41% of the respondents require access to social media, 27% require wearables and 26% require virtual reality. According to Randstad (2016), Borrelli (2014) and Haworth (2013) younger workers require technology, because it improves collaboration and communication in the workspace. Even though older employees could also benefit from the above workspace characteristics, Millennial and iGen employees value them most, because they have different ways in approaching work, communicating and integrating technology into their daily lives (Haworth, 2013).

The workspace as incentive

According to Randstad (2016), Coster and Govan (2014) and Haworth (2013), workspaces can be used to increase attraction and retention of employees, for they can be used to support the aforementioned needs of Millennials and iGen employees. Supporting collaboration by mobile furniture and variety of workspaces; supporting work-life balance by offering dedicated third spaces away from the main campus; and supporting the need for new technologies by supplying employees with emerging technologies, such as wearables, virtual reality and robotics, all increase attraction and retention rates of companies (Haworth, 2013; Randstad, 2016).

In the study of Coster and Govan (2014), workspaces are even mentioned as a factor of job attraction on their own by almost 16% of the respondents. From these respondents, workspaces are most influential on "the decisions of candidates in the technology … and resources/engineering sectors" (Coster and Govan, 2014:11). Furthermore, workspaces are "MORE important for junior and senior candidates than mid-level candidates" (Coster and Govan, 2014:11), meaning that they could influence the job choices of workers from all generations (Earle, 2003). Even though some evidence that workspaces can improve attraction and retention rates exists, there is no clear agreement between authors about what design elements (e.g. layout, colour) constitute the workspace. Authors were found to provide different explanations about what specific design elements constitute the workspace. Furthermore, no articles, summarizing the findings of previous studies about this topic were found to exist.

Hence, this research will aim to resolve this ambiguity, by combining different studies and perspectives, in order to define what constitutes the workspace.

Workspaces and facility design elements

According to Bitner (1992), the physical environment consists of various stimuli separated into three dimensions. The first dimension is called 'spatial layout and functionality' and includes the arrangement, size, shape and spatial relationship between "machinery, equipment, and furnishings", and the extent to which they can "facilitate performance and the accomplishment of goals" (Bitner, 1992:66). The second dimension, called 'ambient conditions', includes stimuli that can affect the five senses, such as "temperature, lighting, noise, music, and scent" (Bitner, 1992:66). The third dimension is called 'signs symbols and artefacts' and constitutes of stimuli that can be used "as explicit or implicit signals that communicate about the place to its users" (Bitner, 1992:66). Such stimuli could be signs for direction and regulations, and other symbols, such as artwork and photographs, which define the norms and expectations for behaviour. All these stimuli are perceived holistically, meaning it is "the total configuration of stimuli that determines (occupants) responses to the environment" (Bitner 1992:65). Since workspaces are also physical environments, they too include stimuli of these dimensions. Thus, the workspace can be examined as a combination of individual stimuli.

Kok et al (2015), a study about employees' quality perceptions of university workspaces, terms these stimuli 'facility design elements' and expands the list presented by Bitner (1992) by including services, such as cleaning, maintenance, catering and printing. Kok et al (2015) states that different employee groups (top managers, supervisors and frontline employees) perceive facility design elements according to their specific function in the organization and thus, exert different needs. Such differences put pressure on the employer to "design an appropriate mix of service processes and physical elements in a way that it fits the support needs…" for all employees (Kok et al 2015:153). This emphasises the holistic nature of the workspace and supports the notion that it constitutes of a mixture of facility design elements.

Based on the knowledge gathered from the studies of Kok et al (2015) and Bitner (1992), the following definition, which is to be used only in the context of the current research was formulated: 'facility design elements' constitute the workspace, in terms of a mixture of separate, but yet closely related designed features of physical facilities and services.

Mechanisms of employee attraction

The following discussion is based on different authors, which use different terms to address the workspace. Examples of such terms are: workplace facilities, physical environment, facility design, work environment, office, etc. For consistency purposes, all such terms will be substituted by the term 'workspace/s'. Furthermore, following the above definition, the terms workspace properties/conditions will hence forth be referred to as 'facility design elements', or FDEs in short. Finally, the term 'employer' in the study refers to the company, represented by managers.

Attraction and retention of employees are stimulated by different mechanisms. Attraction of employees can be explained by the employer branding and person-organization fit concepts, as will be seen in the following elaboration. Through employer branding, the employer forms a value proposition, which encompasses all organizational characteristics that make it the best place to work (Backhaus and Tikoo, 2004), including information about the FDEs (Wallace et al, 2014). This information is then marketed to potential employees and based on this, the latter creates an image of the company (Backhaus and Tikoo, 2004). Potential employees then compare this image to their personal needs, personalities, and values. If the organizational image, derived from the value proposition satisfies these needs, personalities, and values, a person-organization fit is established and the employee is attracted to the employer (Backhaus and Tikoo, 2004; Coldwell et al, 2008).

Retention of staff stems from job satisfaction, which is increased by environmental satisfaction, (Newsham et al, 2009; Earle,2003) and better job performance (Locke, 1970; Judge et al, 2001). Environmental satisfaction is achieved, when employees are satisfied with FDEs, such as: "lighting, ventilation, and privacy and acoustics" (Newsham et al, 2009:130). Job performance is improved, when FDEs stimulate performance in a way that allows employees to achieve higher output quality/quantity, and lower time for completion of different tasks (Locke, 1970). For example, good illumination is found to improve employees' performance (Cabe, 2011). These attraction and retention mechanisms are explained in greater depth in the literature review.

Following this elaboration, it seems that IT and consultancy employers should be able to utilise their workspaces in a way to better support employees' needs. This could improve employee attraction and retention rates and consequently help employers survive in the IT and consultancy sectors, which are characterised by a constant war for employees and scarcity of skilful workforce. However, no information about the relevance of individual FDEs in the process of attraction and retention of employees is provided in the literature so far. Different employees might have different responses towards the workspace, which could potentially affect the individual level of attraction or retention. Hence, this study will examine how employees/potential employees respond towards FDEs and whether that as consequence makes them attracted or retained towards IT and consultancy companies.

## 1.1. Objective

To find out the extent, to which IT and consultancy employers and employees perceive facility design elements applied in the workspace as being useful for attraction and retention of employees.

## 1.2. Research question

To what extent do IT and consultancy employers and employees perceive facility design elements as being attractive and retaining for employees and are there any differences in these perceptions?

## 1.3. Sub-questions

### 1.3.1. <u>Literature sub-questions</u>

1. What facility design elements constitute the workspace and how can employees' internal responses towards these elements be measured?
2. How can "attraction" and "retention" of employees be defined and measured?

### 1.3.2. <u>Empirical sub-questions</u>

3. Do, and if so, what facility design elements IT and consultancy employers and employees perceive as effective in attracting and retaining employees?
4. To what extent is there a gap between the perceptions of employees and employers towards the attraction and retention qualities of facility design elements?

To answer these research questions, the study begins by reviewing existing literature, which aims to define the IT and consultancy sectors, and mechanisms of employee attraction and retention, and identify the individual FDEs, constituting the workspace. Following the literature review, the research proceeds by distributing surveys to IT and consultancy employees and employers. The collected data is analysed quantitatively and based on the results, discussions, conclusions and practical implications for employers are presented. While the discussion section examines the results in relation to existing literature, the practical implications section suggests guidelines which employers can follow, in order to improve the attraction and retention qualities of their workspaces.

# 2. Literature review

The following literature review consists of three parts. Firstly, it begins by defining the IT sector, company and consultancy practice. Secondly, the literature study continues with a sub-section, dedicated to the mechanisms that make attraction and retention of employees with FDEs possible. Lastly, the review finishes by exploring the different types of FDEs and their individual contributions towards the attraction and retention of employees. The sub-section provides the foundations for the operationalization of the primary research method.

## 2.1. Defining the IT sector, IT company and consultancy practice

To correctly set the scope of the study, the terms "IT sector", "IT company" and "consultancy" have to be defined. To begin with, this research will adopt the IT sector definition used by Johannessen et al (2001). According to the authors, the IT sector includes both "hardware and software producers, as well as sales and services connected to IT" (Johannessen et al, 2001:25). This definition is also supported by Investopedia (a professional website specialised in financial and business education and news), according to which, the IT sector (aka. Technology sector) consists of businesses that develop and distribute technology based goods and services to "both customers and other businesses" and that are related to "manufacturing of electronics, creation of software, computers or products and services relating to information technology" (Investopedia, 2007).

There is a tendency for many non-technology companies to define themselves as technology ones (Guzzetta, 2016). Tech companies are firms that sell technology or technology services, or in other words, businesses in which technology or tech services are the main focus (Guzzetta 2016). A firm can only call itself a technology company if its product "consists of applied scientific knowledge that solves concrete problems and enables other endeavours" (Payne, 2012) or in other words, if the firm is in the business of selling technology. Hence, based on the definitions above, an IT company is an organization that: 1) sells technology or technology services; and 2) owns products that consist of scientific knowledge that solve concrete problems. For example, Microsoft can be considered as a technology company, because it creates and sells hardware and software products. However, TransferWise cannot, because, even though it is based on technology, it makes money from banking services.

Finally, the study will adopt the consulting practice definitions, provided by the UK Management Consultancies Association (MCA). MCA states that management consulting is "the practice of creating value for organisations, through improved performance, achieved by providing objective advice and implementing business solutions" (MCA, 2017). On the other hand, management consultants are defined as parties that "help take organisations further than they would go on their own… by solving problems, providing outside perspective, and enhancing business capability" (MCA, 2017).

## 2.2. Mechanisms of attraction and retention of employees

2.2.1.  Defining Attraction and Retention

Before exploring the mechanisms behind attraction and retention of employees, the two terms need to be defined.

Employee retention is the process "in which employees are encouraged to remain with the organization for the maximum period of time or until the completion of the project" (Giri, 2008:2-27). Retention is beneficial for both the employer and employee (Giri, 2008), but only when it refers to the employer "maximizing the number of good employees who stay with (it), because they want to" (Carsen, 2005:2). Employee retention is also examined through staff turnover, which is the number of employees that leave the company (Bucknall and Zheng, 2006). Bucknall and Zheng (2006), also support the views of the previous two authors, by explaining that there are two types of turnover: wanted, which includes employees that the employer does not mind losing; and unwanted, which are employees worth keeping. As it can be observed from these studies, retention is focused on employees that are skilful and dedicated to the employer. Hence, retention can be defined as the process of encouraging skilful employees to remain with the employer for the maximal period of time.

Attraction on the other hand is more difficult to define. In the paper of Coldwell et al (2008), employee attraction is viewed as a key activity in the acquisition of new employees. Coldwell et al (2008:614) cited Bratton and Gold (2003), where attraction is defined as the "favourable interaction between potential applicants and the images, values and information about an organization". During this interaction, potential employees tend to match their values and images with the employer's ones (Coldwell et al, 2008). Furthermore, Hor and Keats (2008), state that to effectively attract employees, companies have to ensure that their advertising and marketing strategies need to be customised for different employee pools and also address the right employees. Moreover, Hor and Keats (2008) state that companies should strive to attract only employees of high skill. Failing to attract skilful employees, "will inevitably impact the quality of an organization's workforce and, in turn, its business success" (Hor and Keats, 2008:14). Hence, attraction can be defined as a match-making interaction between potential skilful employees', and companies' values and images, as part of the organizational recruitment strategies.

2.2.2.  Mechanisms of employee retention by the use of FDEs

Retention using FDEs is possible, because of two intertwining mechanisms, related to job satisfaction. Firstly, as stated by Rust et al. (1996), three main meta analyses, conducted by Carsten and Spector (1987), Hom and Griffeth (1995) and Steel and Ovalle (1984) prove that a causal relationship between job satisfaction and retention exists. The higher the job satisfaction of employees is, the lower the turnover is expected to be. Secondly, job satisfaction can be improved by the use of FDEs (Fassoulis and Nikolaos, 2015). Pleasant workspaces increase environmental satisfaction, which subsequently increases

job satisfaction (Newsham et al. 2009). Satisfaction with "lighting, ventilation, and privacy and acoustics" (Newsham et al, 2009:130) are found to increase the overall environmental satisfaction. Once environmental satisfaction is achieved, it consequently increases job satisfaction (Newsham et al, 2009). Hence, the higher the environmental satisfaction, the lower the staff turnover should be expected to be (Rust et al, 1996; Sundstrom and Sundstorm, 1986).

FDEs can also improve employees' job performance (Fassoulis and Nikolaos, 2015), which in turn improves job satisfaction (Locke, 1970; Judge et al, 2001). According to Sundstrom and Sundstorm (1986), Wolfeld (2010) and other authors (mentioned in the following sub-sections) FDEs can and do improve job performance. To mention one example, high quality illumination is found to improve employees' performance (Cabe, 2011). As such, the workspace could stimulate performance, job satisfaction, and subsequently retention.

Four moderator variables that affect the relationship between FDEs and job satisfaction were found in literature: age, gender, office type and distance of workspace from a window (Kim et al, 2013; Frontczak et al, 2011). According to Kim et al (2013), female occupants are consistently less satisfied with the workspace quality than male occupants. The authors state that "female occupants can be more critical about the quality of their workspace environment than their male counterparts" (254) and have higher potential of making complaints. Frontczak et al (2011) provides evidence that age can potentially affect the way occupants perceive the quality of the workspace. Even though occupants from all age categories point out 'amount of space' to be most satisfying, their second and third choices are different. The second and third choices of younger employees are comfort of furniture and colours of the workspace, while older employees point out lower noise levels and better lighting. Frontczak et al (2011) also state that both office type and distance of workspace from a window have an effect on the occupants' perception of the workspace. They state that "occupants in private offices and close to a window … were more satisfied with the (workspace) than people in shared offices or cubicles and far from a window" (Frontczak et al, 2011:126).

To summarise, FDEs can improve job satisfaction. Fassoulis and Nikolaos (2015:333) state that both job satisfaction and productivity are affected by FDEs and they base this statement on the studies of "Leaman, 1995; Oseland and Barlett, 1999; Roelofsen, 2002; Leaman and Bordass, 2005; (and) Batenburg and Voordt van der, 2008". However, the relationship between FDEs and retention of employees remains circumstantial. The only study that generates results in favour of a direct relationship between those variables is the one conducted by Earle (2003). The author states that the workspace is amongst the top three factors that contribute to job retention (Earle, 2003). It was found that "when asked specifically whether the physical workplace would affect (employees') decision to leave a position, 51 per cent of employees and job seekers said it would" (Earle, 2003:248). Hence, based on the solid evidence for existing

circumstantial relationship and the findings of Earle (2003), a relationship will be assumed to exists, and the employees' satisfaction with FDEs will be used as an approximation of employee retention.

### 2.2.3. Mechanisms of employee attraction by the use of FDEs

Improving the workspace is not only useful for retaining employees, but can also be effective in employee attraction. Even when job satisfaction is high, some employee turnover can still be encountered. Companies should be able to quickly fill the gaps, created by leaving employees. According to Crush (2016), Hoskins (2014) and Haworth (2013) improvements of the workspace can, and do, increase the attraction of job seekers towards the firm. To explain the mechanisms underlying this phenomenon, the employer branding has merit. Employer branding "suggests that marketing concepts can be applied to recruitment" (Wallace et al, 2014:20) and views the employer (the company) as a brand and the employee as a customer (Sokro, 2012). Employer branding is used to differentiate and make the company unique in the marketplace, by portraying it as a good place to work (Sokro, 2012) and the main goal is to make the company more appealing to future employees (Wallace et al, 2014). A successful employer branding process "has been shown to increase the quantity and quality of job applicants" (Wallace et al, 2014:22).

To be successful in employer branding, the employer needs to develop a value proposition and market the value proposition to potential employees (Sokro, 2012). The value proposition "is the central message conveyed by the employer brand … (and) includes all the characteristics that make the firm a 'great place to work'" (Backhaus and Tikoo, 2004:165). Regretfully, academic literature does not provide substantial clarification about what topics are to be included in the value proposition, in order for it to elicit attraction. To find this out, professional literature and websites were examined. Several professional articles (Watson, 2015; Jost, 2016; Tolen, 2016; Tempsahead 2017), claim that employers are free to include any topics and elements of the business, that can appropriately represent the corporate culture. Such elements include the company values (i.e. teamwork), the current employees, and also different FDEs if necessary. Watson (2015) mentions workspace layout and furniture (i.e. ping-pong table, drinks fridge) as possible topics; Jost (2016) mentions technology (virtual and augmented reality); and Tolen (2016) mentions workspace location and environmental factors. The 'physical workspace' is also mentioned by Wallace et al (2014) and Love and Singh (2011), where the latter study explains that successfully branded employers have workspaces that are "ergonomically well-structured, have natural light, lounge areas, subsidised cafeterias and fitness areas, among other amenities" (Love and Singh, 2011:179). Hence, FDEs can be part of employer branding if the employer wishes so. A reason for FDEs to be communicated to potential employees is given by Earle (2003). The author states that after reorganizing their workspaces, 90% of the Monster.com employees "said the new

physical environment improves the company's competitiveness" and "68 per cent of employees who joined the organisation after the move to the new workspaces said the physical environment was an important factor in their decision to accept the position" (Earle, 2003:249). Once the value proposition is developed, it needs to be marketed to potential employees (Wallace et al, 2014). Potential employees develop a brand image of the company (Backhaus and Tikoo, 2004) and "form an opinion about the attractiveness" of the employer (Wallace et al, 2014:25). Based on this brand image they can potentially get attracted by the employer (Backhaus and Tikoo, 2004). The relationship between the brand image and attraction level is explained by the person-organization fit (Backhaus and Tikoo, 2004). Potential employees "compare the employer brand image they have to their needs, personalities, and values" and "the better the match between (firm) values (and) … (individual) values … the more likely the individual is to be attracted to the organization" (Backhaus and Tikoo, 2004:506). This view is also supported by Coldwell et al (2008), who states that with increased attraction there is also increased tenure.

## 2.3. Moderating variables of the relationship between usage of FDEs and attraction and retention of employees

The study does not assume a linear relationship between applied FDEs and attraction and retention of employees. Thus, variables that could moderate the relationship were identified from existing literature. The chosen moderators were age, gender, level of education, marital status, nature of employment (permanent or temporary), and duration of current employment. The age of participants defines their generation, which is already seen by other authors as a factor that affects the preference of FDEs (Coster and Govan, 2014; Earle, 2003; Jacoby, 2002; Fassoulis and Nikolaos, 2015). Gender, is the second moderating variable. In the study of Catanzaro et al. (2010) male participants showed slightly lower organizational preference towards employers that support collaboration. Furthermore, male and female occupants exert different levels of satisfaction with the workspace (Kim et al, 2013). Level of education was proposed as a moderating variable by both Jacoby (2002) and Fassoulis and Nikolaos (2015). According to Jacoby (2002), level of education can affect the way people respond to the physical environment. Fassoulis and Nikolaos (2015), who examined differences in workspace satisfaction of university administration employees, suggest that the level of education might affect satisfaction levels. Marital status is stated by Jacoby (2002) to influence the way people perceive the physical environment. Finally, nature and duration of employment were adopted as moderators from the studies of Fassoulis and Nikolaos (2015) and Frontczak et al (2011), which also study workspace perception. Fassoulis and Nikolaos (2015) state that job-related characteristics of employees (such as nature and duration of employment) can affect their workspace perception.

## 2.4. Different types of FDEs and their contribution towards attraction and retention of employees

This chapter consists of three sections, each dealing with a different FDEs dimension. The first two sections focus on the spatial layout and functionality, and ambient conditions dimensions proposed by Bitner (1992), and the third section presents the services dimension, introduced by Kok et al (2015). However, Bitner's third dimension (signs, symbols, and artifacts) will not be discussed, because it deals with the implicit and explicit messages, the physical environment sends to occupants (Bitner, 1992). For example, signs can send explicit messages about direction and rules, and symbols can implicitly send messages to occupants, such as communicating that the company is sustainable through the materials used in the construction (Bitner, 1992). The current research is interested in finding the extent, to which applied by the employer FDEs affect attraction and retention through their mere existence and not through the messages they send. As such, signs, symbols, and artifacts will not be included in the study.

2.4.1.  Spatial layout and functionality

Layout refers to the equipment and furniture, and their spatial relationships in the workspace (Bitner, 1992). Functionality on the other hand refers to "the ability of the same items to facilitate performance and the accomplishment of goals" (Bitner, 1992:66). Hence, this section will explain how the choice of furniture and equipment, layout, and functionality of the workspace affect attraction and retention of employees.

*2.4.1.1.  Furniture and Equipment*

Furniture includes all physical FDEs in the workspace, such as chairs, work surfaces, storage, telephone and electrical components, partitions, cabinets etc. (Marquardt et al, 2002). Furniture can increase environmental satisfaction (and hence job satisfaction) if it is ergonomic or adjustable (Marquardt et al, 2002). In the study of Marquardt et al (2002:6) ergonomic furniture is defined as furniture that can be "adapted to individual physical characteristics, and that is designed to reduce muscular strain". From all ergonomic furniture, chairs are believed to be of highest importance. According to Marquardt et al (2002), in the study of Louis Harris & Associates (1980), "73% of office workers reported that (chairs) influenced their personal comfort a great deal", where the higher the comfort is, the higher is the environmental satisfaction. In summary, both Marquardt et al (2002) and van der Voordt (2004) suggest a positive relationship between ergonomic furniture and job satisfaction. Furthermore, van der Voordt (2004:134) sees ergonomic furniture as one of the FDEs that can increase "attraction … of scarce personnel".

Furniture or equipment that can be found in the workspace is not the only FDE that can increase satisfaction. The possibility to use own electronic devices in the workspace is also seen as beneficial in scientific literature. Niehaves et al (2012) explains that this is called 'consumerization' and cites Harris et al (2011), who frames it as: "the adoption of consumer applications, tools and devices in the workplace"

(Niehaves et al, 2012:2). Such tools and devices include tablets, smart phones and private laptops (Niehaves et al, 2012). The benefit of allowing employees to use their own devices is stated to be an increased employee satisfaction: "among all positive aspects about consumerization employee satisfaction was most mentioned" (Niehaves et al, 2012:5). However, consumerization seems to be mostly beneficial for attracting employees from younger generations. It will be hard for organizations to recruit, engage and retain younger employees "if they aren't incorporating emerging social and digital technologies into the workplace" (Randstad, 2016:1).

Last but not least, plants have been found to have positive effect on working employees by Freeman (2008), Maxwell (2000) and Lee et al (2015). Freeman (2008) states that there are three main benefits from using plants in the workspace. First, plants can stop direct sunlight if placed on key locations. This creates natural shading and cools down the building during the hot seasons. Second, flowers and trees can cleanse and freshen the air in the workspace by reducing Carbon Dioxide and other pollutant gasses, reducing the amount of dust, and maintaining optimal humidity levels. Finally, by using different sizes and types of plants, companies can substantially reduce noise levels – a phenomenon also examined by Maxwell (2000). Through their various benefits, plants have been found to increase employee satisfaction (Lee et al, 2015) and productivity (Freeman, 2008).

### 2.4.1.2. Layout and Functionality

The layout depends on the spatial relationships between furniture and equipment in the workspace (Bitner, 1992) and can also affect its functionality. Since, functionality is measured by the employee performance in the workspace, this section will examine both the individual effect of the workspace layout on satisfaction and attraction of employees and how it affects employee performance. Based on the relationships between furniture and equipment, two extreme layouts can be identified: open plan office and close office layouts. Close office layout can be defined as "a workspace that has four walls to the ceiling and a door" (Haynes, 2008:194). Such workspaces prevent distractions, improve concentration, but isolate employees (Rajendra, 1995). On the other hand, open plan office layout can be defined as "a workspace whose perimeter boundaries do not go to the ceiling" (Haynes, 2008:194). Such workspaces increase "interaction and communication between employees" (Rajendra, 1995:425) and increase collaboration (Lee and Brand, 2005). It is hard to choose between the two. Closed workspaces increase environmental satisfaction (Rajendra, 1995), while open workspaces improve performance; a positive relationship between communication and performance exists (Boutelier, 2008).

To keep the benefits of these extreme layouts and remove their drawbacks, a 3rd type of layout exists. It is called flexible or multi-space layout and consists of "different types of workplaces, each geared towards different kinds of activities"

(Van der Voordt, 2004:134), communication technology, and ergonomic furniture. Such workspaces include "quiet rooms, spaces for teamwork, break areas and meeting rooms" (Boutellier et al, 2008:378). Rajendra (1995) states that employees in open workspaces occasionally have the need to concentrate, which means combining open and close layout is the most effective solution. Rajenda (1995) further states that flexible workspaces improve effectiveness and satisfaction of employees. The amount of different on-site facilities is of high importance (Hoskins, 2014; Coster and Govan, 2014). Different types of workspaces, suitable for different needs, should be available in the organizational campus as this improves the attractiveness of the employer (Hoskins, 2014; Crush, 2016). Moreover, younger employees are highly attracted to workspaces that stimulate both concentration and collaboration (Randstad, 2016).

Just like other equipment, plants can also be grouped in a separate area, called green outdoor area. Such areas are beneficial, because they can be used as resting places and can contribute for better stress reduction (Hartig et al, 2014; Stigsdotter and Grahn, 2004). Green spaces and gardens provide employees with the opportunities "to rest and restore the part of the brain that sorts out information as well as to obtain satisfaction" (Stigsdotter and Grahn, 2004:153). This view is also supported by Lottrup et al (2013) who state that on top of stress reduction, both visual and physical access to green outdoor areas during the working day lead to increased job satisfaction and improved performance. Hence, green outdoor areas should also have effect on employee retention.

### 2.4.2.  Ambient conditions

According to Newsham et al (2009), acoustics, lighting and ventilation are the main atmospheric conditions that improve environmental satisfaction. To these, Bitner (1992:66) also adds temperature, scent and colour, and states that "lighting, temperature, noise, music, and colour can all influence employee performance and job satisfaction". As it was already stated, satisfaction and job performance are related to retention of employees. Hence, each FDE will be examined in isolation, in order to understand how it affects staff turnover.

#### 2.4.2.1.  *Lighting*

Illumination and natural lighting of workspaces are two of the mostly liked FDEs in the study of Sundstrom and Sundstorm (1986). Lighting has an "influence on atmosphere and the visual impression of the workplace", which in turn partly defines "the quality of the workspace" (van Bommel et al, 2004:259). Haworth (2013) suggests that employee satisfaction and health can be improved by providing natural light. Crush (2016) supports these findings, by pointing out that employees exposed to natural light in the workspace sleep longer, have more physical activity and higher quality of life compared to workers not exposed to natural light. Moreover,

illumination is also found to increase productivity by a value between 2.8% and 20% (Cabe, 2011). Last but not least, light is also found to draw attention. Lighting can improve performance through phototropism, a condition, in which the immediate workspace environment of the employee is more brightly lit then any surrounding areas (Sundstrom and Sundstorm, 1986). In this situation, the gaze of the employee "may be naturally drawn to the work" (Sundstrom and Sundstorm, 1986:93).

However, it is hard to set an optimal lighting level, because lighting increases satisfaction up to a certain brightness level (Sundstrom and Sundstorm, 1986). After this level is reached, satisfaction decreases. This level depends on the seeing ability of the individual, where seeing ability is age dependent and the older the employee, the higher the demand for light is (Van Bommel et al, 2004). To offset this drawback, and to improve satisfaction from lighting, van Bommel et al (2004) and (Haworth, 2013) suggest the implementation of adjustable lights.

### 2.4.2.2. *Temperature*

Temperature is an important ambient condition, because it can cause dissatisfaction with the workspace (Sundstrom and Sundstorm, 1986). Temperature is the 3rd most complained about factor of the workspace in the study of Maula et al (2016). It can be affected by both light (through windows) and ventilation (Sundstrom and Sundstorm, 1986), which could make it difficult to adjust. This is an important issue, because too high or too low temperature results in decreased efficiency, increased discomfort (Segal, 2012) and increased stress levels (Maula et al, 2016). Hence, an optimal temperature should be set, in order to satisfy the largest part of the employees. Such an optimum is also known as 'thermal comfort', which means a "condition of mind which expresses satisfaction with the thermal environment" (Maula et al, 2016:286). Thermal comfort is found to be achieved between the extremes of "20º and 23ºC" (Sundstrom and Sundstorm, 1986:111). This view is also supported by Seppänen et al. (2006), who found that work performance increased with temperature up to 21-22ºC and dropped with temperature above 23-24ºC for the biggest part of the study sample. However, a constant temperature is also not a beneficial decision (Sundstrom and Sundstorm, 1986). The authors suggest that constant temperature causes 'thermal boredom', which decreases employees' comfort levels. On the other hand, a varying temperature is found to increase comfort and productivity (Sundstrom and Sundstorm, 1986). Moreover, it is found that even when temperature is set in the optimal range, there are still employees who will find it to be either too cold or hot (Sundstrom and Sundstorm, 1986). Both this and the former issues, can be solved by the implementation of adjustable ambient conditions (Obenreder, 2006). This is often achieved by the adoption of better ventilation systems.

### 2.4.2.3. *Ventilation*

According to Haworth (2013:4), "better air conditioning and ventilation … are among the most-requested workspace enhancements by employees". Newsham et al. (2009) states that satisfaction with workspace ventilation contributes to the overall workspace environmental satisfaction. Hence, through the mechanisms explained in the beginning of the section, ventilation could also have an effect on work satisfaction and retention rates.

Ventilation has two known effects. Firstly, ventilation is seen as a way to regulate temperature and humidity (Sundstrom and Sundstorm, 1986). This view is also supported by Gou et al (2014) and Zhang et al (2008). The former study is focused on sustainable buildings and claims that operable windows can be used for ventilation and "to achieve high satisfaction that underpins productivity at work" (Zhonghua et al, 2014:205). The latter study examines the effect of ventilation systems in cooling individual employees in order to regulate body temperature and improve the personalisation of the immediate workspace. The study finds support for the claim that ventilation can be effectively used in heat regulation. Secondly, good ventilation is seen as a basis for low air pollution and high air quality (Sundstrom and Sundstorm, 1986). Pollution is an important issue for workspace atmospherics, because it can increase stress levels, harm health and even hinder work performance (Sundstrom and Sundstorm, 1986). Obenreder (2006:9) supports this, by stating that "ventilation systems must be designed, tested, and maintained to ensure good air quality". Lastly, ventilation systems can also play a role in noise reduction (Sundstrom and Sundstorm, 1986).

### 2.4.2.4.    *Noise*

Open office layouts can generate high levels of noise. With an increase in workspace density, the amount of unplanned communication raises (Peponis, 2007). To be exact, about 34% of all people in the workspace communicate face-to-face at any one point in time (Sailer et al., 2015). Speech related noise is rated as most distracting by employees (Banbury and Berry, 2010; Markowski, 2015). Banbury and Berry (2010) also mention that other workspace sounds, such as ringing phones, are also distracting, but not as much as speech. It has been observed that "noise is unwanted, as it can result in disturbance and irritation" (Sundstrom and Sundstorm, 1986:129). Moreover, noise can lead to dissatisfaction with the workspace, reduced performance and annoyance (Banbury and Berry, 2010). Hence, noise needs to be avoided.

There are several ways to reduce noise. Firstly, as proposed by Maxwell (2000) and Banbury and Berry (2010), possible layout solutions are sound absorbent ceiling systems, cushioned carpets and partitions made of porous materials. Such insulations can "dampen down the overall ambient sound level and make it less intelligible" (Banbury and Berry 2010:35). Secondly, Banbury and Berry (2010) suggest that employees needing silence should be placed further away from areas or employees

known to be noisier. This could be achieved by the provision of individual or multi-space offices. Thirdly, noise from overheard speech was found to be the most common complaint, and can be solved by masking it with high-frequency sound, similar to the ones generated by ventilation systems (Veitch et al, 2002; Banbury and Berry, 2010). Hence, it is possible to "mask most of the speech so that it becomes less audible" (Banbury and Berry 2010:35). Lastly, noise could also be masked by music (Sundstrom and Sundstorm, 1986)

*2.4.2.5.    Music*

Listening to music was found to improve employees' mood by the study of Lesiuk (2005). The study focuses on the IT sector and how music affects IT workers' performance. It finds several effects of music listening. Firstly, music "increase(s) performance on tasks requiring creative output" by evoking positive feelings (Lesiuk, 2005:185). Secondly, it is suggested that music listening increases the quality of work and the ability of IT employees to integrate divergent materials. Thirdly, listening to music also decreases the time required for separate task, due to employees being more energised and alert. Lastly, music can increase creativity, which is beneficial as software designers are required to be creative (Lesiuk, 2005).

However, a study conducted by Furnham and Bradley (1997), shows that pop music is not good for all employees. The study suggests that a difference between introverts and extroverts exists. Extroverts find music not distracting as they are more used to working while listening to the radio (Furnham and Bradley, 1997). On the other hand, introverts "were less likely to work with the radio on, listened to the radio less in general and found it more distracting" (Furnham and Bradley, 1997:453). Since the study is based on pop music, the author also states that it might be the case that different type of music could be suitable for different types of personalities.

Hence, in order to improve the comfort of all employees, free choice of music should be made possible. This view is also supported by Haake (2011). The author states that different people prefer different music in different situations. Moreover, it is stated that sometimes people would even choose to not listen to music. Hence, employers "can benefit from recognizing the importance of employees being able to select their own music" (Haake, 2011:122).

*2.4.2.6.    Colour*

Colour of light has an effect on human behaviour (Baron et al, 1992; van Bommel et al, 2004). It is claimed that "bluish morning light has … an activating (alerting) effect, while the red … (light) has a relaxing effect" (van Bommel et al, 2004:264). According to the same study, both activating and relaxing lighting is required in the workspace. Moreover, Baron et al. (1992) state that warmer light leads to better interpersonal communication and easier conflict resolution. As such, warmer light

could be a better choice, in order to increase the workspace satisfaction. Finally, even though these main themes exist, van Bommel et al. (2004) state that each employee has a different preference towards the colour of light.

Colour of light is not the only element affecting workers' mood and productivity. According to Kwallek et al. (1997), colour of the workspace can have significant effect on productivity. The study links colour to arousal and productivity, where the optimal level of arousal is linked to the complexity of the task. As such, Kwallek et al. (1997:130) conclude that "more cognitively complex tasks require less arousal to reach optimal performance" and less complex tasks, can be achieved "even at very high levels of arousal". However, according to the same study, if arousal is too much, performance will deteriorate. The study then explains that warm colours (i.e. red) are more arousing than cool colours (i.e. blue). Finally, Kwallek et al. (1997:123) explain that the arousal potential of colours depends on the screening ability of employees, where screening ability is the ability to "screen out irrelevant" FDEs in the workspace. High screeners perform worse in blue-green workspace environment and low screeners perform poorly in red workspace environment (Kwallek et al., 1997).

Hence, in order to improve the working conditions for all employees, employers should provide different kinds of workspaces. This view is supported by Manning (1965:17), who states that workspaces, where floors are in the same layout and colour, are "asking for trouble". Manning (1965) then states that changing workspaces stimulate rapid responses to events and increase efficiency.

### 2.4.2.7. *Control over ambient conditions*

As it was observed earlier in the study, employees' satisfaction improved when they were able to personalise the immediate workspace. Options for such personalization can also be granted towards ambient conditions. This is mentioned by Obenreder (2006) as one of the characteristics of innovative workspace designs. Obenreder (2006) claims that the ability to adjust lighting levels, temperature and ventilation within the personal workspace results in more satisfied and productive employees. Cabe (2011:48) supports this view and states that control depends upon "simple, robust control devices such as openable windows, radiator valves and window blinds". An important point, made by Newsham et al. (2009:142), is that "in taking actions to improve satisfaction with lighting, one must take care not to affect other (FDEs in) the indoor workspace environment negatively". The authors then clarify this with an example, where people seated near windows are better exposed to daylight but are also exposed to higher thermal extremes. Hence, employers could make customization of ambient conditions possible for their employees, in order to increase worker satisfaction (Haworth, 2013) and hence retention rates.

### 2.4.2.8. *Conclusion*

Each of the ambient FDEs examined in this section – lighting, temperature, ventilation, noise, music, colour – were found to influence employee satisfaction and performance. Earlier it was explained that by increasing employee satisfaction, employers can also increase retention rates since the former is an approximation for the latter. For this reason, all of the examined ambient FDEs will be included in the surveys.

### 2.4.3. Services

Services are examined separately because they are not part of the Bitner classification. Services were defined as FDEs by Kok et al (2015) and were found to affect occupant satisfaction. Kok et al (2015) states that services are valued higher than physical elements and increase occupant's satisfaction more. These findings were generated in educational workspaces, but they might also hold true for the IT and consultancy industries. Both scientific and professional literature was used to identify the following services.

Catering and the availability of food in the workspace are often pointed out as a source of employee satisfaction and attraction. According to FMLink (2017), a professional Facility Management online magazine, "investment in cafe and restaurant facilities is an integral part of its employee attraction and retention strategy". In a study conducted by PFM, professional evaluator of the Facility Management industry, it was found that 72.9% of companies offered on-site restaurants and the vast majority also provided vending machines (FMLink, 2017). These findings are supported by Coster and Govan (2014), who found out that food and drink outlets were generating employee attraction. Moreover, around 30% of respondents in a survey conducted by Harris Poll said the availability of food throughout the day contributes to their workplace happiness.

Apart from catering, the availability of car parking and on-site gym were also found to boost employee attraction by both academic and professional sources. According to Hutchings et al (2011), who focus on the attraction and retention practices of Australia resource companies, benefits like car parking and on-site gym are often used. According to the study, 18% of the companies use such facilities in their strategies to attract and retain employees. Car parking and on-site gyms were also found to attract and retain employees in the IT and professional services sectors. Car parking and on-site gym were respectively on 1st and 3rd places, mentioned by 45% and 20% of the respondents in the study of Coster and Govan (2014) as generating attraction to the employer.

Since they are believed to affect the attraction and retention of employees, the presence of catering, parking and gym facilities will be included in the surveys.

### 2.4.4. Theoretical Framework

Based on the discussion so far, a theoretical model was constructed. It is graphically represented in Figure 1 below and is then explained in more detail.

| FACILITY DESIGN ELEMENTS DIMENSIONS | EMPLOYEE PERCEPTION OF FDE | EMPLOYEE RESPONSE MODERATORS | EMPLOYEE INTERNAL RESPONSES | EMPLOYEE BEHAVIOUR |
|---|---|---|---|---|

Employer application of facility design elements

Spatial Functionality/Layout

- Furniture
- Layout

Ambient conditions:

- Lighting
- Temperature
- Ventilation
- Noise
- Music
- Colour

Services:

- Catering
- Car parking
- On-site gym

Direct experience

Indirect experience

- Age
- Gender
- Education
- Marital status
- Employment type and nature

Environmental satisfaction

Person-organization fit
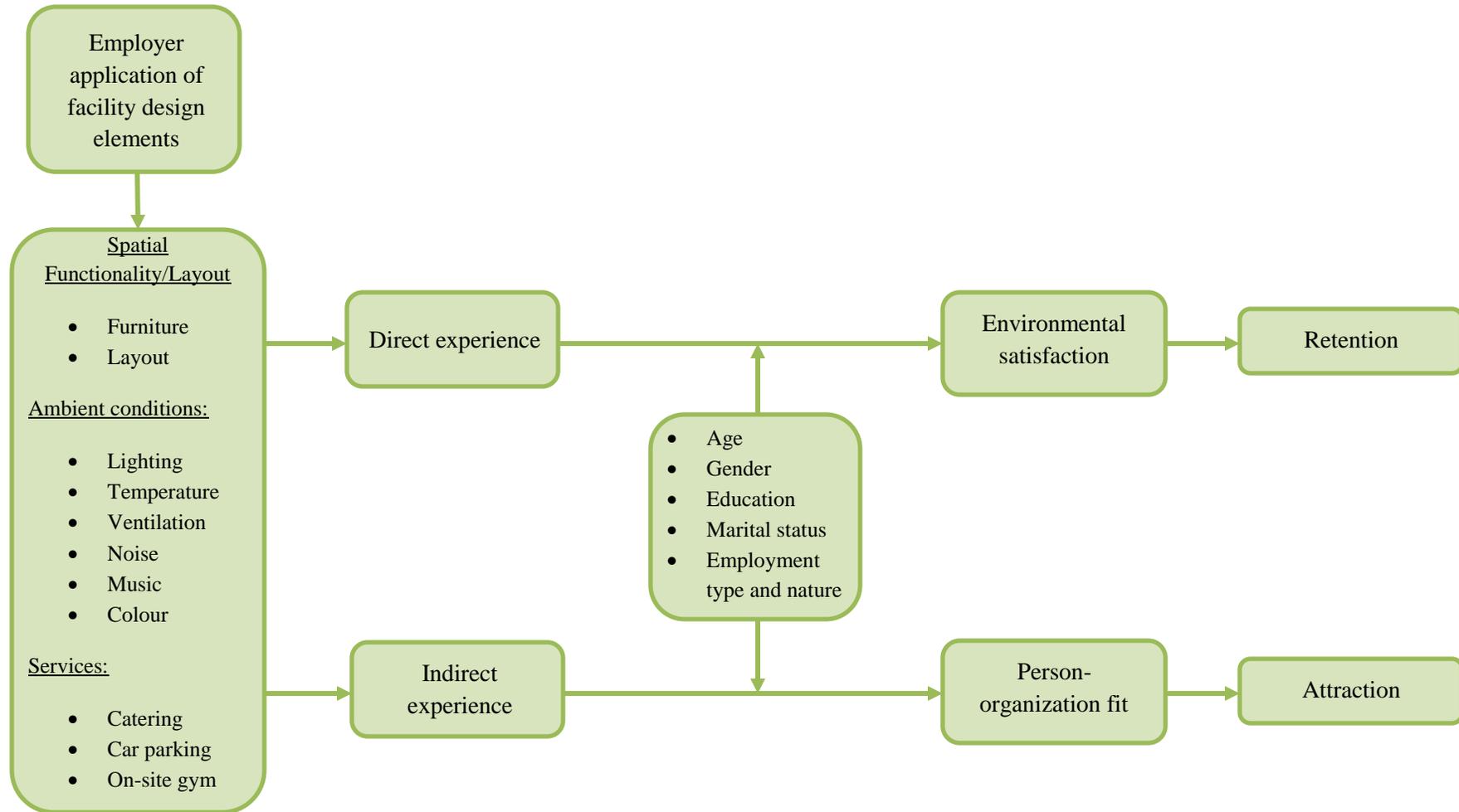
Retention

Attraction

**Figure 1 - Theoretical Model**

The theoretical model of this study is an adaptation of the environment-user relationship framework, designed by Bitner (1992). The framework consists of five main sections, each of which contains different components.

The first section is called 'Facility design elements dimensions'. It represents the independent variables of the study – the FDEs applied in the workspace or employer branding by the employer. This study focuses on the first two FDE categories, defined by Bitner (1992), namely those of functional and ambient nature, and the services category, defined by Kok et al (2015). Hence, all such FDEs found in the literature are listed in the framework. The choice of FDEs may be moderated by the managers' personal characteristics, such as age and gender. Even though, gender and age will be touched upon in the employer questionnaire, they are not explicitly stated in the theoretical framework, because the word 'employer' there relates to the management team as a whole, rather than individual managers. The second section of the framework is called 'Employee perception of FDEs'. Originally it is called 'Holistic Environment' (Bitner, 1992), but it was renamed, because this study examines the reaction of employees towards individual FDEs and not towards the holistic environment. It represents the mechanisms through which potential and current employees perceive FDEs. Current employees directly experience the workspace on a daily basis. This is referred to as 'direct experience' in the theoretical framework. On the other hand, as discussed in the former section, potential employees can only perceive FDEs indirectly, using the value propositions employers generate through employer branding (Sokro, 2012; Wallace et al, 2014). This is referred to as 'indirect experience' in the theoretical framework. The third section represents the moderating variables, which can affect the employees' perception of FDEs. Age, gender, level of education, marital status, nature of employment, and duration of employment are all expected to influence the way both current and potential employees perceive the workspace. They could affect the relationship between the dependent and independent variables. The fourth section is called 'Employee internal responses' and represents the responses generated by the employees' perception of FDEs. Current employees, perceiving the workspace through direct experience, are expected to feel environmental satisfaction, which is positively correlated to job satisfaction and thus, retention (Newsham et al, 2009; Rust et al, 1996). Potential employees, which perceive the workspace indirectly, based on messages generated by employer branding, are expected to form beliefs about the workspace which they can use to match their own values with the values of the employer (Backhaus and Tikoo, 2004). Once values match, potential employees are expected to get attracted to the employer (Backhaus and Tikoo, 2004). This is also called person-organization fit (Backhaus and Tikoo, 2004). Person-organization fit and satisfaction are examined as internal responses of potential and current employees respectively, because in the study of Bitner (1992), satisfaction is classified as emotional internal response and values and beliefs are classified as cognitive internal responses. Finally, the fifth section is called 'Employee behaviour' and represents the two dependent variables. These are the two possible final effects, stemming from the process of FDEs perception -  attraction, for potential employees, or retention for current employees.

# 3. Methodology

This section explains how the research was operationalised. It explores the topics of: research design; sampling methods; data collection methods; and data analysis methods. The study was focused on two separate study populations (IT and consultancy employers and employees), which were both approached by the use of surveys. These surveys differed from each other in the nature of their contents. Hence, where applicable, the two surveys are examined in different sub-sections.

## 3.1. Research design/strategy

This research can be classified as explorative and quantitative in nature. On one hand, even though previous studies have explored the effects FDEs have on attraction and retention of employees, none of them have focused on such a wide variety of FDEs or on the IT and consultancy sectors. Hence, the current study aims to generate new insights in an area where little knowledge exists and can thus be classified as explorative (Kumar, 2011). On the other hand, the research aimed to quantify employee and employer perceptions towards the attraction and retention qualities of individual FDEs. In other words, it aimed to discover how many employees and employers perceive the chosen FDEs as attractive and retaining and to what extent. It aimed for high number of respondents and reported data using statistical analyses, thus its quantitative nature (Kumar, 2011).

Furthermore, cross-sectional research design was employed in this study for three reasons. Firstly, this study aimed to generate descriptive results. The best way to answer descriptive questions is by using cross-sectional design (Katz, 2006). Secondly, the study aimed to examine two study populations – IT and consultancy employers, and IT and consultancy employees. In this situation, cross-sectional design was useful, because it allowed for comparison of different groups of people in one point in time (Salkind, 2010). Thirdly, this study aimed to examine the effects of using FDEs on attraction and retention of employees in the current moment in time. Cross-sectional studies are "useful in obtaining an overall 'picture' as it stands at the time of the study" (Kumar, 2011:106). As such, any findings are authentic for the time period during and directly following the study. The study does not examine whether findings change with time, meaning that data was collected only once. As Kumar (2011) states, cross-sectional studies are best for situations where the study population is contacted only once.

## 3.2. Sampling/research material

Judgemental sampling was used to select representative samples of the IT and consultancy employee and employer populations. This sampling method allowed for selecting respondents that "have the required information and (were) willing to share it" (Kumar, 2011:189). In order to select the respondents, several steps were undertaken. Companies were selected within and outside the Netherlands, because the war for employees is a global phenomenon. All companies were required to own or rent physical workspaces (i.e. offices). Furthermore, non-Dutch companies had to be International (operating in more

than one markets across the globe).

The size of the sample was also important. According to Kumar (2011:179), "the greater the sample size (is), the more accurate the estimate of the true population mean (will be)". Based on the nature and time frame of the study, 150-200 responses were set as a desirable sample size. To reach this sample size, several estimations were conducted. First, the average number of employees in a single tech company is about 93 people (de Bruin, 2015). Second, response rates normally vary between 20 and 50 percent (Kumar, 2011:141). For estimation purposes, a pessimistic response rate of 20% per company was assumed. Based on these estimations it was found out that in order to reach 150 responses, at least 8 companies had to be approached and to reach 200 responses, the companies needed to be at least 11.

To reach the targeted number of respondents, all companies on the list of Computable (2012) and de Bruin (2015) were contacted both by phone and e-mail. The companies included in the rankings operate in both the consultancy and information technology sectors. The total amount of organizations contacted was 70 and included both IT manufacturers and consultants. Even though much effort was put into gathering responses, 13 employees and 2 managers answered the surveys.

### 3.3. Methods of Data Collection

The study incorporated one primary data collection method (surveys) in approaching both study populations. The surveys had different structures, depending on the studied population and their contents were based on the scientific knowledge found in the literature review.

#### 3.3.1.   The surveys

Based on the theoretical framework (see Chapter 2), two digital questionnaires were built. Questionnaires were used, because they are the best way of gathering data from respondents that are scattered over a wide geographical area (Kumar, 2011). The employee questionnaire focused on assessing the employees' perceptions towards the workspace and asked questions related to the attraction and retention towards FDEs. The employer questionnaire measured the employer perceptions towards the attraction and retention qualities of the workspace by asking questions related to the purpose, with which FDEs are applied in the workspace.

Each questionnaire consisted of three sections. The first section included multiple-choice questions, addressing the moderating variables, identified in literature (see section 2.3). All respondents were asked to identify their age, gender, marital status, degree of education, length and type of employment. Age categories were developed based on different generations; each answer category depicted different age generation. The rest of the questions were not developed by the researcher, but were adapted from the database of Qualtrics (the software used for the surveys' development). The second and third sections measured respondent perceptions towards the attraction and retention qualities of FDEs, found during the literature study (see section 2.4). To do so, interval ratio questions, with Likert scales were used.

Liker scales were chosen as they "place different respondents in relation to each other in terms of the intensity of their attitude towards an issue" (Kumar, 2011:160). A 7-point scale was selected, because it provides the possibility for the respondents to select a neutral position (score of 4), when they do not have a clear opinion on a question.

To measure attraction perceptions, current employees were asked to imagine that they are searching for a new employer and to make a final decision, they examine the FDEs of potential future employers. Employees were asked to identify the extent, to which they are attracted toward each FDE. It was assumed that the more an employee is attracted towards an FDE, the more this FDE supports the employee's values, meaning that a better person-organization fit and hence, attraction towards the employer is achieved. Furthermore, framing the question in this manner measured the attraction qualities of FDEs, when explicitly communicated, which is the case in employer branding. To evaluate their perceptions towards the retention potential of FDEs, employees were asked to identify the level of satisfaction, each FDE generates for them. In this question, satisfaction was used as a measure of retention (see section 2.2.2). On the other hand, evaluating the perceptions of employers towards the attraction and retention qualities of individual FDEs was more complicated, because the employer in the study refers to the company, represented by managers. To evaluate employer perceptions, the employer questionnaire assessed the perceptions of individual managers towards the extent, to which FDEs are used for attraction and retention purposes in their workspaces. It was assumed that employers would not intentionally use FDEs for attraction/retention purpose, if managers do not perceive those FDEs as capable of serving this purpose. Hence, the average perception of individual managers towards the used for attraction and retention FDEs, was assumed to be a sufficient estimate of the employer perception. Employers were also asked to provide information about the average amount of job applications they receive per month through an open question. All questions were developed in co-operation with an external researcher, specialised in the field of Facility Management.

Benefits and limitations of the data collection instrument were also considered. On one hand, a benefit of using questionnaires is that they guarantee the anonymity of the respondents (Kumar, 2011). Anonymity could increase the honesty of employees, because no potential conflicts could arise between them and the employer. Anonymity could also increase the honesty of employers, because no competitive advantage will be compromised. On the other hand, a well-known issue with surveys is that they suffer from lower response rates (Kumar, 2011). To increase response rates, the questionnaires were formed in a way that allow respondents to complete them within five minutes. To ensure the time limit was not exceeded, two techniques were employed. Firstly, questionnaires consisted of interval ratio questions in order to decrease the time required for giving an answer. Secondly, test surveys were conducted, where the time for completion was recorded for each test participant.

3.3.2.  Relation of survey questions to the theoretical framework

The questionnaires were created in a way to depict the elements of the theoretical framework. The relationship between questions from both surveys and the theoretical framework elements is depicted in Table 1. Each question is plotted next to the element it relates to. The two questionnaires are presented under Appendix A.

Table 1- Relationship between survey questions and theoretical framework

| Theoretical framework element | Employee survey questions (№) | Employer survey questions (№) |
| --- | --- | --- |
| Person-organization fit | 8, 9 | |
| Satisfaction of employees | 10, 11 | |
| Moderating variables | 2, 3, 4, 5, 6, 7 | 2, 3, 4, 5, 6 |
| Application/use of FDEs | | 8, 9, 10, 11 |

### 3.4. Data Analysis

Since both respondent groups were asked about their perceptions towards the attraction and retention qualities of individual FDEs, the same statistical analyses were conducted for both surveys. The data was analysed using software for statistical analysis of quantitative data, IBM SPSS Statistics. Due to the limited amount of responses, the analysis consisted predominantly of descriptive statistics.

Firstly, mean averages for the attraction and retention qualities of FDEs within each respondent group were generated. Mean averages represented the overall employee and employer perceptions towards the attraction and retention qualities of different FDEs.

Secondly, Pearson correlations were generated between attraction and retention scores given to individual FDEs within each respondent group. Correlations aimed to examine whether the attraction and retention perceptions of FDEs are related. Correlations can show whether the attraction qualities of individual FDEs move in the same or negative direction to their retention qualities, without implying causation. It is important, however, that these correlations are significant. Significance is crucial as it serves as a proof that the generated correlations are valid. Hence, on one hand, significant positive correlations can show that FDEs that (do not) generate attraction, also (do not) generate retention and vice versa. On the other hand, significant negative correlations could mean that FDEs that generate attraction, do not generate retention and vice versa. However, the exact causality in these relationships cannot be observed. It cannot be said if the FDE's attraction is caused by its retention qualities or vice versa.

Finally, the mean employer and employee scores given to the attraction and retention potential of FDEs were compared using a Mann-Whitney U Test, to see whether opinions differ across respondent groups. In order to identify such differences, the Mann-Whitney U Test assumes two hypotheses: Hypothesis 0, under which there is no difference between respondent groups' perceptions; and Hypothesis 1, under which there is a difference. These hypotheses are not related to the objective of the study, but only to the nature of the test. Hence, they do not affect the explorative nature of the research.

### 3.5. Ethical concerns

Both surveys (towards employers and employees) incorporated identical ethical codes. Prior to distributing the surveys, an informed consent was received by each respondent. Participants were informed about the nature of the research and explained the way the data is to be handled. It was explicitly stated that all responses will be treated anonymously and with care. Each employer was promised a copy of the study once completed. Additionally, the surveys began with a section, explaining the rights of the respondent. Since personal data (age, gender, education level, marital status, type and nature of employment) was collected, participants were allowed to skip questions, which they found to be too sensitive. This was implemented, in order to ensure that respondents felt comfortable filling the survey and that no invalid answers were given. Any personal data was also gathered through categories. For example, age was gathered through categories, based on the different generations. Thus, none of the respondents can be recognised based on their personal profile.

### 3.6. Reliability and Validity

#### 3.6.1. Reliability

Six factors can affect the reliability of the research instrument (Kumar, 2011). Two of these factors were applicable for the study instrument and were given more attention: 1) 'the wording of questions'; 2) 'the respondent's mood'.

The wording of the questions is very important, because "respondents may interpret the questions differently at different times, resulting in different responses" (Kumar, 2011:169). In order to decrease the chance of this happening, extra care was taken in order for the wording of the questions to be clear and understandable. The questionnaires were presented to another researcher for an objective assessment and test surveys were conducted. Collected feedback was incorporated in the surveys in order to maximise their quality. The mood of the respondents was also considered. According to Kumar (2011:169), "a change in a respondent's mood when ... writing answers in a questionnaire can ... affect the reliability of that instrument". To ensure the respondent mood stays constant, several factors were considered. First, extra care was taken for the questions to be framed in a grammatically correct and fluent way, in order not to irritate the respondent. Second, the time required for the survey to be completed was kept as short as possible, so that the respondents do not get annoyed.

#### 3.6.2. Validity

The two types of validity related to the surveys were face and content validity. Face validity is increased when each survey question is logically connected to a study objective (Kumar, 2011). Two steps were taken to maximise face validity. Firstly, extra care was taken for the development of questions, which can gather all the needed data. Secondly, test studies were undertaken to check whether the answers provided by test participants were sufficient. Inappropriate questions were then improved.

Content validity is an indicator of whether the questions cover the full extent of the issue of interest (Kumar, 2011). To maximise this validity, an expert researcher was asked to provide objective feedback and point out any weaknesses and

limitations. Based on the given feedback, some of the survey questions were revised and improved.

# 4. Results

This section will introduce the results, generated by the analysis of the two surveys, used to gather primary data. The surveys were filled in by 13 employees and 2 employers respectively. The data gathered from these participants was analysed using different quantitative statistical methods. The generated results are summarised in this chapter. However, due to the small amount of responses, the possible effects of the moderator variables were not analysed. Thus, only the questions evaluating the perceptions of employees and employers towards the attraction and retention qualities of FDEs were part of the data analysis.

## 4.1. Frequencies

The first step of the data analysis was to examine the frequency of responses regarding individual FDEs. While there were no missing employer responses, several employees failed to answer all questions.

In terms of their attractiveness to potential employees, all FDEs were rated by the full number of respondents, except for 'presence of ergonomic furniture' and 'sufficient daylight exposure', which were rated by 12 respondents. In terms of their retention quality (measured by satisfaction), FDEs were rated by all, but 2 respondents. All FDEs were evaluated by 11 respondents, except the 'presence of ergonomic furniture', which was evaluated by 10 participants. The overall retention quality of the selected set of FDEs was rated by 11 respondents.

## 4.2. Mean averages

The second step of the data analysis was to generate the mean averages for the scores given by employees and employers to FDEs towards their attraction and retention qualities. The results show that employees tend to be more positive about the attraction and retention qualities of FDEs than employers. By comparing category means, the findings show that employees perceive the layout and functionality of the workspace as most attractive and retaining ($M = 5.86$ and $5.62$ respectively), followed by ambient conditions ($M = 5.65$ and $5.47$) on 2nd and services ($M = 5.08$ and $4.61$) on 3rd place (see Table 2).

### 4.2.1. Employees

According to the employees, the top three most attractive FDEs were 'sufficient daylight exposure' ($M = 6.25$, $SD = 1.14$) on first place, 'the presence of green outdoor area' ($M = 6.23$, $SD = 1.60$) on second and 'possibility to use own electronic devices' ($M = 6.00$, $SD = 1.08$), 'an office layout, supporting communication and collaboration' ($M = 6.00$, $SD = .71$) and 'presence of ergonomic furniture' ($M = 6.00$, $SD = 1.13$) sharing the 3rd place (see Table 2). On the other hand, the three least attractive FDEs were 'use of colours to enhance performance and creativity' ($M = 5.08$, $SD = 1.61$), 'availability of on-site gym' ($M = 5.08$, $SD = 1.71$) and 'availability of parking facilities near the office' ($M = 4.08$, $SD = 2.06$). According to the 13 respondents, in

overall the selected set of FDEs was perceived to be attractive for employees ($M$ = 5.62, $SD$ = .51).

In relation to their retention qualities, the top three FDEs were 'possibility to work anytime anyplace' ($M$ = 6.09, $SD$ = 1.04), 'an office layout, supporting communication and collaboration' ($M$ = 5.91, $SD$ = .83) and 'sufficient daylight exposure' ($M$ = 5.82, $SD$ = 1.17). Conversely, the three least retaining FDEs were pointed to be 'variation in the catering offer' ($M$ = 4.73, $SD$ = 1.01), 'availability of on-site gym' ($M$ = 4.27, $SD$ = 1.35), and 'availability of parking facilities near the office' ($M$ = 4.27, $SD$ = 1.35). In overall, the selected set of FDEs was perceived as retaining for current employees ($M$ = 5.55, $SD$ = .69).

### 4.2.2. Employers

The two FDEs perceived by employers as being most attractive to employees were the 'availability of an on-site gym' ($M$ = 5.00, $SD$ = 1.41) and 'availability of parking facilities' ($M$ = 5.50, $SD$ = 0.71) (see Table 2). All other FDEs were perceived as having no effect on attraction of employees with 'sufficient daylight exposure' ($M$ = 2.50, $SD$ = 2.12), 'indoor climate' ($M$ = 2.50, $SD$ = 2.12), 'presence of ergonomic furniture' ($M$ = 2.50, $SD$ = 2.12), 'possibility to use own electronic devices' ($M$ = 2.50, $SD$ = 2.12), 'use of plants in and around the workplace' ($M$ = 2.50, $SD$ = 2.12), 'use of colours to enhance performance and creativity' ($M$ = 2.50, $SD$ = 2.12) and 'the variation in the catering offer' ($M$ = 2.50, $SD$ = 2.12), being the lowest. In overall, employers believe that the selected set of FDEs influences employees to be attracted to their companies ($M$ = 5.50, $SD$ = 0.71).

In regards to retaining employees, employers perceive only 'availability of parking facilities' ($M$ = 5.00, $SD$ = .00) to have effect on employee retention. The rest of the FDEs were perceived as having no effect on employee retention, with 'sufficient daylight exposure' ($M$ = 2.50, $SD$ = 2.12), 'indoor climate' ($M$ = 2.50, $SD$ = 2.12), 'use of colours to enhance performance and creativity' ($M$ = 2.50, $SD$ = 2.12), 'availability of catering facilities' ($M$ = 2.50, $SD$ = 2.12), 'the variation in the catering offer' ($M$ = 2.50, $SD$ = 2.12) and 'use of plants in and around the workplace' ($M$ = 2.50, $SD$ = 2.12) being perceived as the least effective for retention purposes. In overall, employers believe that the selected set of FDEs influences employees to continue working for them ($M$ = 5.50, $SD$ = 0.71).

## 4.3. Correlations

Pearson correlations were generated between attraction and retention scores given to individual FDEs within each respondent group, in order to examine whether the attraction and retention qualities of FDEs are related and move in the same or negative direction to each other.

### 4.3.1. Employee correlations

Statistically significant positive correlations were found to exist between attraction and retention scores of 12 FDEs (see Table 2). These FDEs are: 'possibility to work

anytime anyplace' (r = .81, p < .01), 'availability of parking facilities'(r = .75, p < .01), 'presence of ergonomic furniture' (r = .80, p < .01), 'possibility to use own electronic devices' (r = .91, p < .001), 'sufficient daylight exposure' (r = .87, p < .001), 'indoor climate' (r = .88, p < .001), 'acoustics in the office' (r = .91, p < .001), 'use of colours to enhance performance and creativity' (r = .87, p < .001), 'possibility to work at personal workplace' (r = .63, p < .05), 'use of plants in and around the workplace' (r = .67, p < .05), 'personal control over the immediate workplace'(r = .68, p < .05) and 'availability of an on-site gym' (r = .65, p < .05). The attraction qualities of these FDEs are similar to their retention qualities. In other words, it can be expected that if applied in the workspace, these FDEs will generate similar amounts of attraction and retention.

### 4.3.2. Employer correlations

In the employer survey, attraction and retention of the used FDEs were found to be perfectly correlated (r = 1, p < .001) (see Table 2). This was true for all FDEs, except for 'the presence of green outdoor area', 'possibility to work at a variety of workplaces' and 'personal control over the workplace', for which *r* was not possible to be calculated, due to respondents giving the same score for both attraction and retention. Employers perceived the FDEs' qualities to attract and retain employees to be equal.

## 4.4. Aligning of employee and employer opinions

Finally, a Mann-Whitney U Test was conducted, to align the means of employees and employers regarding their opinions. The test aimed to find out whether the different respondent groups have different opinions about the attraction/retention qualities of individual FDEs.

Employees and employers significantly differ in their opinions about the attractiveness of different FDE's with statistical significant gaps of seven items (41.18%) with gaps ranging from 1.50 to 3.75. Between employees and employers, the difference in mean scores were as follows: 'the presence of green outdoor area' (gap = 2.23), 'possibility to work at a variety of workplaces' (gap = 1.77), 'an office layout, supporting communication and collaboration' (gap = 1.50), 'presence of ergonomic furniture' (gap = 3.50), 'possibility to use own electronic devices' (gap = 3.50), 'sufficient daylight exposure' (gap = 3.75) and 'indoor climate' (gap = 3.35) (see Table 2). These elements can be stated to be perceived as more attractive by employees than employers with statistical significance.

The opinions of respondent groups regarding the retention quality of FDEs is predominantly similar, except for the 'possibility to work at a variety of workplaces' (gap = 2.73) and the 'use of plants in and around the workplace' (gap = 2.95), which are perceived as having strong retention qualities by employees, but not employers. These results are further supported by the large differences in attraction/retention mean scores between employees and employers for the above-mentioned FDEs'.

**Table 2 - Means and standard deviations of, and correlations between FDE attraction and retention scores of employees and employers (7-point scales). Aligned opinions about attraction/retention between different respondent groups (Mann-Whitney U Test).**

| FDEs | Employees (N=13) | | | | | | | Employers (N=2) | | | | | | | Aligned opinions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Attraction | | | Retention | | | R (A,R) | Attraction | | | Retention | | | R (A,R) | Attraction | | | Retention | | |
| | N (valid) | Mean | Std. Deviation | N (valid) | Mean | Std. Deviation | | N (valid) | Mean | Std. Deviation | N (valid) | Mean | Std. Deviation | | Mean difference | Sig. | Decision | Mean difference | Sig. | Decision |
| **Layout and Functionality** | | 5.86 | | | 5.62 | | | | 3.63 | | | 3.63 | | | | | | | | |
| Possibility to work anytime anyplace | 13 | 5.92 | (1.75) | 11 | **6.09** | (1.04) | 0.81** | 2 | 4.50 | (0.71) | 2 | 4.50 | (0.71) | 1*** | | | | | | |
| Presence of a green outdoor area (e.g. garden) | 13 | 6.23 | (0.60) | 11 | 5.55 | (0.82) | | 2 | 4.00 | (0.00) | 2 | 4.00 | (0.00) | N/A | 2.23 | 0.02 | Reject H0 | | | |
| Possibility to work at a personal workplace (e.g. office) | 13 | 5.54 | (1.39) | 11 | 5.18 | (1.25) | 0.63* | 2 | 4.50 | (0.71) | 2 | 4.50 | (0.71) | 1*** | | | | | | |
| Possibility to work at a variety of workplaces, each geared towards different kinds of activities (social areas, meeting rooms, concentration rooms) | 13 | 5.77 | (0.83) | 11 | 5.73 | (0.79) | | 2 | 4.00 | (0.00) | 2 | 3.00 | (1.41) | N/A | 1.77 | 0.04 | Reject H0 | 2.73 | 0.03 | Reject H0 |
| Office layout, supporting collaboration and communication | 13 | 6.00 | (0.71) | 11 | 5.91 | (0.83) | | 2 | 4.50 | (0.71) | 2 | 4.50 | (0.71) | 1*** | 1.50 | 0.04 | Reject H0 | | | |
| Presence of ergonomic furniture (e.g. chairs) | 12 | 6.00 | (1.13) | 10 | 5.70 | (1.83) | 0.80** | 2 | *2.50* | (2.12) | 2 | 3.00 | (1.41) | 1*** | 3.50 | 0.04 | Reject H0 | | | |
| Possibility to use own electronic devices (e.g. smartphones) | 13 | 6.00 | (1.08) | 11 | 5.55 | (1.21) | 0.91*** | 2 | *2.50* | (2.12) | 2 | 3.00 | (1.41) | 1*** | 3.50 | 0.04 | Reject H0 | | | |
| Plants in and around the workplace | 13 | 5.46 | (1.39) | 11 | 5.45 | (0.93) | 0.69* | 2 | *2.50* | (2.12) | 2 | *2.50* | (2.12) | 1*** | | | | 2.95 | 0.03 | Reject H0 |
| **Ambient Conditions** | | 5.65 | | | 5.47 | | | | 3.10 | | | 3.20 | | | | | | | | |
| Sufficient daylight exposure in the office | 12 | **6.25** | (1.14) | 11 | 5.82 | (1.17) | 0.87*** | 2 | *2.50* | (2.12) | 2 | *2.50* | (2.12) | 1*** | 3.75 | 0.04 | Reject H0 | | | |
| Indoor climate (e.g. ventilation, temperature) in the office | 13 | 5.85 | (0.90) | 11 | 5.36 | (1.36) | 0.88*** | 2 | *2.50* | (2.12) | 2 | *2.50* | (2.12) | 1*** | 3.35 | 0.02 | Reject H0 | | | |

| | N | Mean | (SD) | N | Mean | (SD) | R(A,R) | N | Mean | (SD) | N | Mean | (SD) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acoustics (e.g. acceptable, non-distractive noise levels) at the office | 13 | 5.54 | (1.61) | 11 | 5.64 | (1.29) | 0.91*** | 2 | 4.50 | (0.71) | 2 | 4.50 | (0.71) | 1*** |
| Colours that enhance performance and creativity | 13 | 5.08 | (1.61) | 11 | 5.18 | (1.60) | 0.87*** | 2 | *2.50* | (2.12) | 2 | *2.50* | (2.12) | 1*** |
| Personal control over the immediate workplace (e.g. adjustable desk height, adjustable light brightness) | 13 | 5.54 | (1.33) | 11 | 5.36 | (1.21) | 0.68* | 2 | 3.50 | (0.71) | 2 | 4.00 | (0.00) | N/A |
| **Services** | | 5.08 | | | 4.61 | | | | 4.00 | | | 3.63 | | |
| Availability of parking facilities | 13 | *4.08* | (2.06) | 11 | *4.27* | (1.35) | 0.75** | 2 | **5.50** | (0.71) | 2 | **5.00** | (0.00) | 1*** |
| Availability of catering facilities at the office (e.g. issuing places, opening hours) | 13 | 5.54 | (0.78) | 11 | 5.18 | (1.17) | | 2 | 3.00 | (2.83) | 2 | *2.50* | (2.12) | 1*** |
| Variation in the catering offer (e.g. choice of food and drinks) | 13 | 5.38 | (1.19) | 11 | 4.73 | (1.01) | | 2 | *2.50* | (2.12) | 2 | *2.50* | (2.12) | 1*** |
| Availability of an on-site gym | 13 | 5.08 | (1.71) | 11 | *4.27* | (1.56) | 0.65* | 2 | 5.00 | (1.41) | 2 | 4.50 | (0.71) | 1*** |
| Overall contribution of the office conditions towards attraction/retention of employees | 13 | 5.62 | (0.51) | 11 | 5.55 | (0.69) | | 2 | 5.50 | (0.71) | 2 | 5.50 | (0.71) | 1*** |

Notes: Rejecting $H_0$ in the Mann-Whitney U Test means that respondent categories (employees; employers) have significantly different opinions about the attraction/retention qualities of the FDE. Non-significant results in the Mann-Whitney U Test are not reported.

R (A,R) denotes the Pearson correlation between attraction and retention rates, where non-significant correlations are not reported.

N/A, meaning cannot be computed because at least one of the variables is constant

Highest mean scores are shown in Bold, lowest mean scores are shown in Italics

*p < .05

**p < .01

***p< .001

# 5. Discussion

By following its objective to measure the extent, to which IT and consultancy employers and employees perceive FDEs as useful in attracting and retaining employees, the study also generated insights about, which FDEs attract and retain IT and consultancy employees to the greatest extent, when applied in the workspace. The findings suggest that FDEs can increase retention (Rust et al, 1996; Fassoulis and Nikolaos, 2015) and influence the job choices of employees, potentially increasing the number of job applicants (Wallace et al, 2014; Earle, 2003). Spatial layout and functionality and ambient conditions were found to have a significant effect on employee attraction and retention rates, with slightly stronger effects for spatial layout and functionality than ambient conditions. This difference could stem from the changing needs employees have towards the workspace today. Employees tend to be highly attracted and retained by workspaces stimulating face-to-face communication, collaboration and flexibility (Randstad, 2016; Haworth, 2013; Coster and Govan, 2014; Lowe et al, 2008; The Hartford, 2016). Since these workspace characteristics are highly affected by the spatial layout and functionality of the workspace (van der Voordt, 2004), it is only logical for the latter to be more attractive and retaining for employees. While the spatial layout and functionality of the workspace was found to have stronger effect on employee attraction and retention, ambient conditions were also found to be of significant importance. Not only ambient conditions were confirmed to have strong influence on staff retention, but were also found to significantly affect employee attraction. It seems that when explicitly communicated, ambient conditions have the potential to increase the attractiveness of the workspace. This could be attributed to ambient conditions being harder to perceive than other FDEs (Bitner, 1992). Hence, including ambient conditions in the employer branding could be beneficial for the proper branding of the workspace and the generation of increased attraction towards the employer (Love and Singh, 2011).

While findings regarding the physical layout and functionality, and ambient conditions of the workspace were consistent with existing literature, weak support was found for the claims that services (such as car parking, catering and on-site gym) increase attraction and retention rates of the workspace (Coster and Govan, 2014; Hutchings et al, 2011). Even though services were found to have significant effect on the workspace attractiveness in the educational environment (such as a university campus) (Kok et al, 2015), they seem to be perceived as less attractive than other FDEs by IT and consultancy employees. This difference could be attributed to the nature of employment in the two industries. While education frontline employees (e.g. lecturers) (Kok et al, 2015) can freely move around the campus and change their working environment, IT and consultancy employees often spend their working hours seated in the same workspace. This increases the need for furniture that can reduce muscular strain and increase comfort (Marquardt et al, 2002).

Finally, even though employees were on average mostly attracted and retained by the spatial layout and functionality of the workspace, employers did not share their views. Significant perception gaps were found regarding the attractiveness of spatial layout and

functionality FDEs in the workspace. These gaps could be attributed to employers having strategic rather than functional perspectives on the workspace (Kok et al, 2015). While employees desire a workspace, stimulating their comfort and operational convenience, employers desire workspaces, which can attract skilful employees (Kok et al, 2015). As such, while dealing with strategic issues, such as generating better images for their workspaces, employers might have become too distant from the actual work being done in the company, leading them to underestimate the importance of the physical layout and functionality (Kok et al, 2015).

# 6. Conclusions

The aim of the research was to identify the extent to which IT and consultancy employers and employees perceive FDEs as being attractive and retaining for employees and to find if any differences in these perceptions exist. The literature review highlighted that the spatial layout and functionality, ambient conditions and services in the workspace can significantly improve the attraction and retention of employees. By comparing the perceptions of employees and employers towards the attraction and retention qualities of different FDEs, the study was able to identify several perception gaps between these parties. On one hand, the spatial layout and functionality of the workspace (e.g. open office, individual office, ergonomic furniture, etc.), and its ambient conditions (e.g. daylight exposure, indoor climate, etc.) were perceived by employees as more attractive and retaining than the services (e.g. car parking, on-site gym, catering facilities, etc.), which were favoured by employers. On the other hand, while employers perceived all FDEs as having similar effect on attraction and retention, this was true only for several FDEs, according to employees. To close these perception gaps and become more attractive and retaining for employees, employers should: focus on implementing spatial layout and functionality, and ambient condition FDEs; focus on implementing FDE combination, which can provide higher value for money; and involve staff members in the design of the workspace, in order to ensure their needs are addressed.

# 7. Practical implications, limitations and suggestions for future research

This section will start by suggesting guidelines, which employers can follow, in order to improve the attraction and retention qualities of their workspaces. It will then present several limitations, which the study exerts and will end by suggesting several topics for future research.

## 7.1. Practical implications

This research can suggest three guidelines, which can help employers design workspaces, capable of generating high levels of attraction and retention of IT and consultancy employees. Firstly, instead of services, employers should prioritise the optimisation of the spatial layout and functionality, and ambient conditions of the workspace. For example, employers should be able to achieve high employee retention rates by providing a naturally lit open workspace, combined with ergonomic furniture, and allowing employees to use their own electronic devices, and to work anytime anyplace. Furthermore, with employees being highly attracted by such FDEs, these should be also explicitly communicated through the value proposition of the employer branding. Workspaces following these guidelines, should be able to increase the inflow of young innovative employees, and the productivity, and job satisfaction of existing staff members.

Secondly, some FDEs have been found to attract and retain employees to similar degrees (employee attraction and retention perceptions were significantly correlated). Employers who desire to improve their workspaces, should prioritise the implementing of such FDEs, as they can provide the best value for money. However, employers should bear in mind that while such FDEs can improve attraction and retention to a similar extent, they might not do so to the highest extent. For example, an employer might be better off combining an open office layout with the possibility to work from home, if concentration is needed, instead of solely providing individual offices. The former combination could increase the attraction and retention qualities of the workspace more, while potentially being less expensive to establish. Hence, even though employers should strive to implement FDEs with similar attraction and retention capabilities, they should always search for alternative combinations, which can yield better results for the same amount of money.

Lastly, an efficient way of improving the attraction and retention qualities of the workspace is by allowing employees to become co-creators in its design. Since employees are the ones using the workspace on a daily basis, they should be involved in its development. Applying this approach guarantees that employees' needs are addressed and thus, could increase the employee attraction and retention qualities of the workspace.

## 7.2. Limitations

As every other study, this one also has several limitations, which will be discussed in this section. The biggest limitation of the study is the small number of participants that agreed to fill the surveys. The original plan of the study was to reach at least 150 respondents and not

achieving this goal had four implications. Firstly, it was impossible to prove with statistical significance whether used in the workspace FDEs improved attraction and retention of employees, and if moderator variables affected this relationship. The reliability of examined moderator effects increases with sample size (Mcclelland and Judd, 1993; Arnold, 1984). Hence, with 15 respondents, any findings regarding moderator variables would have failed to reach significant reliability. Furthermore, no representative groups were able be formed based on the selected moderators. Secondly, a comparison between different employers was planned to be conducted to examine whether different combinations of FDEs generate different amount of monthly job applications. Having employers from only one employer in the study made such comparisons impossible. Thirdly, the small number of manager participants could have been responsible for the perfect correlations between attraction and retention scores of all FDEs. Being from the same company, the two managers might have had similar perceptions. Lastly, with the current sample size generalisations were impossible. Hence, any conclusions drawn from the results are to be seen as suggestions.

Another limitation is that the study gathered primary data solely through surveys. Observations could have been included for collecting specific workspace information, such as temperature levels and daylight intensity, which could have allowed for a better data triangulation, and easier identification of outliers.

A final limitation is that the study did not control for the type of workspace, which respondents were positioned in. In other words, the study was not focused solely on one type of workspace (e.g. global HQ, regional HQ, local office, etc.). Hence, it was impossible to determine whether the type of workspace affected the employee perceptions of the attraction and retention qualities of FDEs.

### 7.3. Suggestions for future research

Several suggestions for future research can be given. Firstly, there is a need for a replicating study with a higher number of respondents, which to validate the current results. It should be noted that employers seemed to be uninterested in the topic, even though they were informed that the results could improve the attraction and retention qualities of their workspaces. Since the added value of the research is not motivating enough on its own, alternative incentives should be taken into consideration when approaching potential respondents.

Secondly, it would be interesting to examine the extent to which generation differences affect the perception of the workspace. This is crucial, because it could help employers communicate better with their younger workforce and design workspaces, which comply to the needs of the latter.

Thirdly, as globalisation increases, it could be beneficial to examine the extent, to which cultural differences affect employee and employer perceptions towards FDEs qualities to attract and retain employees. Employee and employer perceptions could be compared between ethnic groups, cultures and geographical regions. Such insights could help multinational and global employers, to design local workspaces, capable of better attracting

new and retaining old workforce.

Lastly, employers could benefit from knowing what causes attraction and retention to move in a similar direction. The cause for the correlation, could be exploited by employers to simultaneously improve the attraction and retention qualities of their workspaces. Such knowledge could also provide better understanding of the ways, in which attraction and retention are affected by FDEs and how they can be better manipulated in the workspace.

# Appendices

## Appendix A: The Surveys

### The employee survey

**Dear participant,**

**Welcome to my workplace perception survey.**

**I would like to thank you for agreeing to participate in this survey. It is part of a research which studies the effect of office conditions on the attraction and retention of IT and consultancy employees. The war for employees in these sectors is a serious phenomenon, which makes it difficult for companies to find new employees. Therefore, I am interested to find out to what extent office conditions can make a difference in the quest for getting new employees or retaining existing ones. The results of this research are expected to contribute towards the development of better practices for attraction of potential and retention of current employees, which in turn can results in better overall performance.**

**The questions you will encounter will gather data about your personal background and your perception of the office environment. You can rest assured that any answers you provide will be treated anonymously and kept in strictest confidentiality. If you are uncomfortable with answering some questions, feel free to leave them unanswered.**

**The survey is expected to take less than 5 minutes to complete.**

**Section description I**

**This section is aimed at gathering information about your background.**

1) Which company do you work for? Please write your answer in the field below:

   _____

2) What is your age?
   a) 18 – 30
   b) 31 - 39
   c) 40 – 51
   d) 52 and above

3) What is your gender?
   a) Male
   b) Female

4) What is your marital status?
   a) Single

b) Married
c) Living common law (living together as a couple, but not married)
d) Widowed
e) Divorced
f) Separated

5) What is the highest degree or level of education you have completed?
    a) Less than high school
    b) High school graduate
    c) College degree (or equivalent; Dutch MBO)
    d) Professional degree (or equivalent; Dutch HBO)
    e) Bachelor's degree
    f) Master's degree
    g) Ph.D.
    h) Other

6) Which of the following options describe you better?
    a) You are a permanent employee
    b) You are a temporary employee

7) How long have you been working for your current employer?
    a) Less than 3 months
    b) Between 3 months and 6 months
    c) Between 6 months and 1 year
    d) Between 1 year and 3 years
    e) Between 3 years and 5 years
    f) More than 5 years

**Section II**

**This section aims to find out which office elements you perceive as most attractive when you choose an employer.**

8) This question requires you to imagine a situation, in which you have decided to change your employer. In order to make a final decision, you examine the workspace conditions of potential future employers. To what extent are you attracted toward each of the following office conditions, on a scale from 'Totally unattracted' to 'Highly attracted'?

'Totally unattracted'; 'Unattracted'; 'Somewhat unattracted'; 'Neither unattracted, nor attracted'; 'Somewhat attracted'; 'Attracted'; 'Highly attracted'

    a) Possibility to work anytime anyplace
    b) The availability of parking facilities near the office
    c) The presence of a green outdoor area (i.e. garden or any form of natural area)
    d) The possibility to work at a personal workplace (e.g. own office)

e) The possibility to work at a variety of workplaces, each geared towards different kinds of activities (social areas, meeting rooms, concentration rooms, etc.)
f) The office layout, supporting collaboration and communication
g) The presence of ergonomic furniture (e.g. chairs) at the office
h) The possibility to use your own electronic devices (e.g. smartphones, music players, tablets)
i) The use of plants in and around the workplace
j) Sufficient daylight exposure in the office
k) The indoor climate (e.g. ventilation, temperature) in the office
l) The acoustics (e.g. acceptable, non-distractive noise levels) at the office
m) The use of colours to enhance performance and creativity
n) Personal control over the immediate workplace (e.g. adjustable desk height, adjustable light brightness, indoor climate)
o) The availability of catering facilities at the office (e.g. issuing places, opening hours)
p) The variation in the catering offer (e.g. choice of food and drinks)
q) The availability of an on-site gym

9) Overall, to what extent do the above mentioned office conditions influence you being attracted to the employer?
'Totally unattracted'; 'Unattracted'; 'Somewhat unattracted'; 'Neither unattracted, nor attracted'; 'Somewhat attracted'; 'Attracted'; 'Highly attracted'

## Section III

**This section aims to find out the extent to which individual office conditions increase your satisfaction with the office.**

10) To what extend does each of the following office conditions increase your satisfaction with the office you are currently working on a scale from 'Totally decrease satisfaction' to 'Highly increase satisfaction'? Imagine that all of them are available in your office.

'Totally decrease satisfaction'; 'Decrease satisfaction'; 'Somewhat decrease satisfaction'; 'Neither decrease, nor increase satisfaction'; 'Somewhat increase satisfaction'; 'Increase satisfaction'; 'Highly increase satisfaction'

a) Possibility to work anytime anyplace
b) The availability of parking facilities near the office
c) The presence of a green outdoor area (i.e. garden or any form of natural area)
d) The possibility to work at a personal workplace (e.g. own office)
e) The possibility to work at a variety of workplaces, each geared towards different kinds of activities (social areas, meeting rooms, concentration rooms, etc.)
f) The office layout, supporting collaboration and communication
g) The presence of ergonomic furniture (e.g. chairs) at the office
h) The possibility to use your own electronic devices (e.g. smartphones, music players, tablets)

i) The use of plants in and around the workplace
j) Sufficient daylight exposure in the office
k) The indoor climate (e.g. ventilation, temperature) in the office
l) The acoustics (e.g. acceptable, non-distractive noise levels) at the office
m) The use of colours to enhance performance and creativity
n) Personal control over the immediate workplace (e.g. adjustable desk height, adjustable light brightness, indoor climate)
o) The availability of catering facilities at the office (e.g. issuing places, opening hours)
p) The variation in the catering offer (e.g. choice of food and drinks)
q) The availability of an on-site gym

11) Overall, to what extent do the above mentioned office conditions influence you to continue working for the employer?

Totally do not influence; Do not influence; Somewhat do not influence; Neither do not influence, nor influence; Somewhat influence; Influence; Highly influence

**The employer survey**

**Dear participant,**

**Welcome to my workplace perception survey.**

**I would like to thank you for agreeing to participate in this survey. It is part of a research which studies the effect of office conditions on the attraction and retention of IT and consultancy employees. The war for employees in these sectors is a serious phenomenon, which makes it difficult for companies to find new employees. Therefore, I am interested to find out to what extent office conditions can make a difference in the quest for getting new employees or retaining existing ones. The results of this research are expected to contribute towards the development of better practices for attraction of potential and retention of current employees, which in turn can results in better overall performance.**

**The questions you will encounter will gather data about your personal background and your perception of the office environment. You can rest assured that any answers you provide will be treated anonymously and kept in strictest confidentiality. If you are uncomfortable with answering some questions, feel free to leave them unanswered.**

**The survey is expected to take less than 5 minutes to complete.**

**Section I**

**This section is aimed at gathering information about your own and your company background.**

1) Which company do you work for? Please write your answer in the field below:
   _____

2) What is your age?
   a. 18 – 30
   b. 31 – 39
   c. 40 – 51
   d. 52 and above

3) What is your gender?
   a. Male
   b. Female

4) What is your marital status?
   a. Single
   b. Married
   c. Living common law (living together as a couple, but not married)
   d. Widowed
   e. Divorced
   f. Separated

5) What is the highest degree or level of education you have completed?
   a. Less than high school
   b. High school graduate
   c. College degree (or equivalent; Dutch MBO)
   d. Professional degree (or equivalent; Dutch HBO)
   e. Bachelor's degree
   f. Master's degree
   g. Ph.D.
   h. Other

6) How long have you been working in the company?
   a. Less than 3 months
   b. Between 3 months and 6 months
   c. Between 6 months and 1 year
   d. Between 1 year and 3 years
   e. Between 3 years and 5 years
   f. More than 5 years

7) On average, how many job applications do you receive per month? Please write your answer in the field below:

_____ *(approximate numbers are acceptable)*

**Section II**

**This section aims to find out to what extent you intentionally use office conditions in order to attract potential employees to the company. Answer on a scale from 'Totally unintentionally' to 'Totally intentionally'.**

8) To what extent do you **intentionally use** each of the following aspects for **attracting** potential employees?

'Totally unintentionally'; 'Unintentionally'; 'Somewhat unintentionally'; 'Neither unintentionally, nor intentionally'; 'Somewhat intentionally'; 'Intentionally'; 'Totally intentionally'

    a. Possibility to work anytime anyplace
    b. The availability of parking facilities near the office
    c. The presence of a green outdoor area (i.e. garden or any form of natural area)
    d. The possibility to work at a personal workplace (e.g. own office)
    e. The possibility to work at a variety of workplaces, each geared towards different kinds of activities (social areas, meeting rooms, concentration rooms, etc.)
    f. The office layout, supporting collaboration and communication
    g. The presence of ergonomic furniture (e.g. chairs) at the office
    h. The possibility to use your own electronic devices (e.g. smartphones, music players, tablets)
    i. The use of plants in and around the workplace
    j. Sufficient daylight exposure in the office
    k. The indoor climate (e.g. ventilation, temperature) in the office
    l. The acoustics (e.g. acceptable, non-distractive noise levels) at the office
    m. The use of colours to enhance performance and creativity
    n. Personal control over the immediate workplace (e.g. adjustable desk height, adjustable light brightness, indoor climate)
    o. The availability of catering facilities at the office (e.g. issuing places, opening hours)
    p. The variation in the catering offer (e.g. choice of food and drinks)
    q. The availability of an on-site gym

9) Overall, to what extent do you think the above mentioned office conditions influence potential employees to be attracted to you as an employer?

'Totally do not influence'; 'Do not influence'; 'Somewhat do not influence'; 'Neither do not influence, nor influence'; 'Somewhat influence'; 'Influence'; 'Highly influence'

**Section III**

**This section aims to find out the extent to which office conditions are intentionally applied in order to retain existing employees. Answer on a scale from 'Totally unintentionally' to 'Totally intentionally'.**

10) To what extent do you **intentionally use** each of the following aspects in order to **retain** existing employees?

'Totally unintentionally'; 'Unintentionally'; 'Somewhat unintentionally'; 'Neither unintentionally, nor intentionally'; 'Somewhat intentionally'; 'Intentionally'; 'Totally intentionally'

   a. Possibility to work anytime anyplace
   b. The availability of parking facilities near the office
   c. The presence of a green outdoor area (i.e. garden or any form of natural area)
   d. The possibility to work at a personal workplace (e.g. own office)
   e. The possibility to work at a variety of workplaces, each geared towards different kinds of activities (social areas, meeting rooms, concentration rooms, etc.)
   f. The office layout, supporting collaboration and communication
   g. The presence of ergonomic furniture (e.g. chairs) at the office
   h. The possibility to use your own electronic devices (e.g. smartphones, music players, tablets)
   i. The use of plants in and around the workplace
   j. Sufficient daylight exposure in the office
   k. The indoor climate (e.g. ventilation, temperature) in the office
   l. The acoustics (e.g. acceptable, non-distractive noise levels) at the office
   m. The use of colours to enhance performance and creativity
   n. Personal control over the immediate workplace (e.g. adjustable desk height, adjustable light brightness, indoor climate)
   o. The availability of catering facilities at the office (e.g. issuing places, opening hours)
   p. The variation in the catering offer (e.g. choice of food and drinks)
   q. The availability of an on-site gym

11) Overall, to what extent do you think the above mentioned office conditions influence current employees to continue working for you as an employer?

'Totally do not influence'; 'Do not influence'; 'Somewhat do not influence'; 'Neither do not influence, nor influence'; 'Somewhat influence'; 'Influence'; 'Highly influence'

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