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Referring to Referrals

The effects of human-app interaction and network externalities on the acceptance and use of referral recruitment mobile apps

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Abstract

Employee recruitment has evolved from a business strategy to become a business necessity. Aided with the increased importance of technology in corporations, novel recruitment initiatives have started to emerge in the market as well, one of them being referral recruitment mobile applications. Previous research has demonstrated that referral recruitments can be more effective and beneficial for corporations, yet, a review of past research also unveils a limited knowledge of what factors and elements drive the adoption and user retention of digital referral recruitment platforms. Accordingly, the thesis aims to illuminate the essential elements that motivate and influences the acceptance and use of referral recruitment mobile applications. Based on the uses and gratifications (U&G) theory, UTAUT and the network externalities (NEs) paradigm, we then constructed a conceptual and empirical framework that breakdown the effects of human-app interaction and perceived network externalities on the users' attitude and, ultimately, their intention to refer in the referral recruitment platform. With a quantitative approach, more specifically the partial least square structural equation modelling (PLS-SEM), 89 referral agents from a Stockholm-based referral recruitment company were surveyed and analyzed. The results suggest that both human-app interactions and network externalities have significant impact on intention to refer through its moderating effects on utilitarian motivation, hedonic motivation and relational motivation. Potential users of referral applications will mostly choose a platform based on how practical and more convenient they are in helping them achieve their referral goals. Finally we also provided implications for managers who are aiming to create or improve upon a referral recruitment platform to the market.

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1. Introduction

Digitalisation, or digital transformation, has propelled us into an era within which digital business models and digitally driven business processes are the cornerstones of company operations (Abolhassan, 2017). Coupled with globalization and demographic changes, digital technologies have radically altered the way we work, conduct business, communicate, and basically how we live (Thite, 2020). Without employing digital solutions, corporations are abandoning various potential advancements in multiple business processes and, therefore, has a risk of relinquishing their competitive edge. Among other things, corporations are fueling digital transformation to enhance engagement with their customers, optimise operations, transform their products and services, as well as empower their Human Resource (HR) functions.

According to McWhorter (2010), technology advances have moved the HR field into a new realm, and as a result, people are increasingly connecting to technology, connecting through technology, and connecting within technology. Today's enterprises are then forced to deal with the constant flow of new technologies and information, fast digitalisation of the workplace and changing demand for employees' skills that encourages them to rethink the way they manage a workforce (Mazurchenko & Maršíková, 2019). Artificial intelligence, cloud computing, big data, robot-process automation, social media, real-time communication have all introduced new functionalities to HR practices in corporations. As a result, digital transformation has heavily influenced the way HR functions and is now fulfilled through using digital tools and apps to innovate processes, make decisions, and solve problems (Manuti & de Palma, 2017). One specific area of HR that has been experiencing radical change and increased importance in recent years is within the realm of talent sourcing and talent recruitment.

Recruiting has now become a strategic business priority, and not merely a tactical HR activity (Van Esch & Black, 2019). According to Van Esch & Black (2019), we can draw three interrelated reasons on why recruitment has become more and more imperative for a company's success. First, the basis of competitive advantage has shifted from tangible assets to intangible assets which include innovation, customer insight, customer service, and brand, among others (Madhani, 2012). Second, this shift of competitive advantage to intangible assets has increased the strategic importance of human capital, whereby people are either the sum or substance of

intangible assets or they are the principal driver of them (Black, 2019). Third, there is a talent shortage, especially relative to people who can drive competitive advantages embedded in intangible assets (ManpowerGroup, 2018). This talent shortage simply highlights the heightened value of smart and efficient recruitment in corporations. An organization's success and survival, after all, depend greatly on its ability to attract and retain skilled employees (Antony et al., 2020).

Sourcing and recruiting these highly sought after talents is not simple. In contemporary conditions of "war for talent," employers have to modify the recruitment strategy and expand the recruitment activities to attract needed talent (Kucherov & Zhiltsova, 2020). Auspiciously, the digitalisation of HR practices can now allow corporations to use more internet-based recruitment tools to create a wider net of talent sourcing. On the forefront of these novel recruitment tools is certainly LinkedIn, a multibillion-dollar online platform where users can browse and apply for vacant positions in companies. Additionally, a new recruiting movement is growing in the peripherals, which is the referral recruitment system through digital platforms.

Referral recruitment is essentially the practice of using recommendations of a current employee to identify and hire a new employee. Firms have frequently hire new people through this method and, more recently, firms have developed formalized methods for attracting referrals from current employees (Ekinci, 2016). Referral hiring has been estimated to account for 30% to 50% of an organization's filling of its job openings (Fernandez, Castilla, & Moore, 2000; Granovetter 1995). Drawing from Montgomery (1991), one rationale of firms for using employee referrals is that they serve as a screening mechanism to reduce the information asymmetry inherent to the hiring process. The basic premise of this idea is that referrals provide additional information about the job applicant's productivity that the firm otherwise would not have. Benefits for job seekers include a low cost method of locating jobs, higher probability of receiving an offer, and potentially higher wages (Pieper, 2015). The digitised extension of this existing system is referral recruitment through digital platforms such as websites, internal referral recruiting softwares, and, recently, mobile applications (apps). Through these digital platforms, registered users namely internal employees of the platform provider or even external partners can refer other individuals from their network to the vacant jobs listed in the platform. In exchange, the referrer will

commonly receive a monetary incentive for every successful recruitment. The digitised version of referral recruitment where external partners – commonly referred as referral agents – can refer professionals from their network to various jobs listed on a referral platform will become the focus of this thesis.

1.1. Problematization

The widespread uptake of mobile app usage in multiple industries, such as gaming or e-commerce, is complementary with consumers' expectations that their smartphones and tablets provide a variety of features and mobility to supplant the need for a desktop computer as it offers instant connectivity, usable and useful apps, feature convergence, and multi-modal use not previously seen in desktop computing (Gerlich et al., 2015). Following the success of the mobile adoption trend, many dedicated startups and HR-tech companies have recently concentrated in developing and offering a digitised and mobile version of referral recruitment platforms. Considering the increasing significance of recruitment in today's technology-driven ecosystem, the growth of digital and mobile referral recruitment platforms is arguably becoming even more important as it provides an additional channel for talent sourcing and talent recruitment for modern organizations. As it stands, studies on conventional referral recruitment models are already well known in practice and have been demonstrated in research in a number of disciplines (Pieper, 2015). However, a thorough study about referral recruitments through a more digital perspective has been missing in available literature.

This need for this form of clarity is also shared among business practitioners as well. Through an online interview with the Operations Manager of a Swedish-based referral recruitment platform called Platform X, she shared to us the challenges that the company is facing at the moment as they intend to solidify their digital offerings. Through the extensive interview, she acknowledged that there are too many parameters and variables when building a digital product, causing the final product's performance to be quite uncertain. A limited amount of financial resource and time restraints has forced companies to continuously experiment and tinker with their digital product with low efficiency. To amplify everything, the extended Covid-19 pandemic that is blighting the industry caused a 75% reduction in their successful referral recruitment (interview with the Project Manager at platform X). As it seems, a clearer study that can further illuminate

the successful digitalisation of referral recruitment platforms, especially the implementation of mobile apps, is much needed.

1.2. Purpose, Aim & Expected Contribution

There is an unsettled and competitive market in which app developers must find ways to distinguish an app in a rapidly-growing marketplace (Gerlich et al., 2015). In response to this, it would be very useful to know why people choose one digital platform over the other and what are the main influencing factors. While the increasing adoption of HR-tech platforms has inspired a number of studies in tracing the history and components of digitalisation in HR in general, limited research has been done into the factors which influence the adoption of digital HR platforms such as referral recruitment apps (referral apps). This study is thereby expected to contribute both theoretically to the field of digital referral recruiting, and to HR-tech practitioners that are wanting to optimize their investment and build an effective mobile recruitment platform. Thus, we are hoping to answer the following research question: *What motivates and influences the acceptance and use of referral apps?*

1.3. Delimitations

There are currently a few referral recruitment companies in the international market that provide a mobile platform as an infrastructure. However due to employee confidentiality and non disclosure agreements between companies and clients, we were not able to obtain access to those users who have real experience with a mobile referral application. Instead, the research topic was exclusively studied in a collaboration with a Swedish digital referral platform, anonymized as Platform X, that utilises a network of over 1,800 professional referrers to provide an external referral recruiting service for Swedish companies. Platform X was approached based on its accessibility, its business model in referral recruitment that matched the purpose of this study, and its vision for product development as they plan to incorporate a mobile app as part of its digital referral offerings. Additionally, a referral app concept was then incorporated in the study as a simple prototype that helps visualize basic ideas and create some inspiration for the respondents. This thesis therefore solely relies on the aforementioned conceptualized referral app to address the research topic, instead of using an existing and operational mobile app.

The thesis is further delimited to one particular Swedish digital referral platform. The sample that was utilized for the purpose of this study consists of 89 referral recruiting professionals referred to as referral agents of Platform X. The focus on the referral agents of one particular referral platform, in addition to its singular market focus of Sweden, might slightly limit our results to that of the Swedish context, but minimizes great discrepancies in cultural background and values of respondents that might impact their motivations and behaviours.

1.4. Research Outline

Understanding how mobile device owners use apps and the gratifications obtained from apps can help developers and marketers target their products and campaigns (Gerlich et al., 2015). With this thought in mind, the aforementioned problematization and aim of this study will be explored by using a quantitative approach assisted by a qualitative pre-study interview. Through a pre-study interview and online survey process directed at digital referral recruiting agents who are signed-up at Company X's platform, the relationship between human-app interactions, network externalities, and referral intentions will be investigated. A theoretical model will be proposed based on the uses and gratifications theory, the unified theory of acceptance and use of technology, and the network externalities paradigm. Results are presented in accordance to each hypothesis tested, with a later discussion of possible implications of these findings. Finally, the main findings are tied back to the aim of the thesis and the principal conclusions are presented. For simplicity, the study is divided into six sections: (i) *Introduction*, (ii) *Theory*, (iii) *Methodology*, (iv) *Results & Analysis*, (v) *Discussion*, (vi) *Conclusions*, and (vii) *Managerial Implications.*

2. Theory

This chapter will consist of two parts, namely the literature review and the theoretical framework. In order to grasp the nature of the study and legitimize its problematization, the literature review will present existing research on digitalisation in HR and referral recruitments, as well as mobile adoption in order to identify important research gaps that we are hoping to fill with this thesis and contribute to the theoretical knowledge of digital referral recruitment. Subsequently, a theoretical framework and conceptual model will then be developed based on complementing research and will in turn be utilized to drive the hypothesis generation and analyze empirical data.

2.1. Literature Review

The aim of this literature review is to define the current state of research regarding the effects of digitalisation in the field of HR and the development of mobile adoption theories. This segment will be further divided into four segments to compartmentalize and simplify each theme and will eventually lead to the theoretical framework and conceptual model in the subsequent segment. In this segment, the themes that we will discuss include: i) *digitalisation in HR*, to set the stage and give a broad introduction on how far technology has aided the HR industry, (ii) *referral recruitment*, to understand the motivations and mechanics behind the system, (iii) *mobile app motivation*, to review the current research on mobile app adoption, and (iv) *research gap*, to further motivate the focus of this paper.

2.1.1. Digitalisation in HR

Digital technologies are revolutionizing HR functions. Van Den Berge et al. (2020) observe that the traditional approaches to HR are no longer sufficient and there is a need for organizations to shift to digital HR management. In response to external environmental changes and demands, the HR function has slowly but steadily evolved from labour welfare to personnel administration to strategic HR and now to digital or smart HR (Bondarouk, Ruel, and Parry 2017). Digital transformation has forced HR practitioners to re-educate and update their competencies in order to meet competitiveness objectives. Digitalization in this respect is vital since it allows HR to play a significant role in promoting organizational change. Van Den Berge et al. (2020) assert that when HR is digitalized, it is able to assemble data, store and employ it as a driver of

organizational change. In addition, as a result of technology, practitioners in HR are now enabled to perform more strategic functions and not limited to their traditional role of being an administrative caretaker. Thite (2020) shares this perspective by stating that HR functions must be aligned with the external changes happening to the business. In this view, he claims that HR function should respond to such demands by aligning itself toward a strategic orientation as opposed to the initial role of the labor welfare department. Digitalization has been, therefore, an important tool for promoting HR-driven organizational change.

Meanwhile, digitalised employee recruitment has become an important aspect of HR transformation. In this view, Lumi (2020) claims that technology has revolutionized recruitment as a core function of HR and digitalised recruitment is found to be effective and efficient. The recruitment process has become less tedious and easy to perform. For instance, HR can tap the benefits of social media platforms such as Facebook or LinkedIn to filter and process employee recruitment (Lumi, 2020). Such social media platforms also allow for wider geographical reach during the recruitment process and allows HR recruitment to attract talent from a wider pool of potential candidates. Equally, the use of social media and other online tools such as artificial intelligence makes the recruitment process interesting and attractive (Halid, Yusoff, & Somu, 2019).

As mentioned before, e-recruitment mechanisms started to become more and more popular owing to their advantages in allowing human resources professionals to target a great number of candidates at a small cost (Faliagka et al., 2012). Baykal (2020) states that the number of online users is significant for this and has been demonstrated by the prioritization of employee selection through the internet. Online recruitment is preferred since it is both cheap and flexible (Capelli, 2001) but also can be utilized as a tool for image management (Girard & Fallery, 2011). Without a doubt, organizational websites help form first impressions for applicants and the information provided on these websites are effective for candidates' attitudes regarding the firms (Allen, Mahto, and Otondo, 2007). If the job seekers come across as neat, transparent, and appealing they tend to react more positively towards the employers and their screening process. Moreover, recruitment portals used by many companies as intermediaries for collecting new CVs are also helpful in saving time and money for the applicants (Baykal 2020). With technology, they can

get in touch with the employers without spending much money, compared to the older cases wherein classical methods of job search are tediously more physical and costly as they were required to spend money on transportation. Furthermore, in many recruitment processes today, candidates can perform a test that is automated and digital-based, and these systems use criteria that are reliable in evaluating the scores and choosing the most qualified people (Baykal, 2020). This process is reliable because it uses appropriate decision tools and systems to make a determination. Overall, utilizing the internet in administering job applications is very beneficial in comparison to traditional methods, owing to lower costs, reduced hiring cycle period, and non-stop access for job seekers to the related job advertisements despite their physical location (Sylva and Mol, 2009). All of these reasons simply illustrate the palpable benefits of digital recruitment as being cost-effective both to the applicant and the employer.

Digitalised recruitment is also necessary for attracting millennials who are more tech- savvy than the prior generation. Millennials, also known as Generation Y, are the fastest-growing user demographic on LinkedIn (LinkedIn, 2016). Halid, Yusoff, and Somu, (2019) also examined that the current workplace is dominated by millennials who are accustomed to internet-connected devices and web-based applications and services. Millennials are distinct from other generations because of their unique career perceptions. Millennials typically look for three primary criteria when job searching: high pay, sense of achievement, and meaningful work experience (Brack & Kelly, 2012). As the millennial generation are fast becoming the majority of the workforce today, providing a work environment and introducing a recruitment process that suits their needs is therefore a necessity for organizations.

Despite the enormous potential of digital technologies in transforming HR and 72% of companies believing digital HR is an important priority, only 38% of companies are even thinking about it and only 9% are fully ready to employ them (Stephen et al., 2016). This shows that globally, the HR function is far from realizing the potential of digital technologies. Coupled with the continuous introduction and advancement in organizational HR functions, such as with referral recruitment programs for example, the potential for companies to fully utilize both the elements of digitalisation and HR is endless and still optimistically unexplored.

2.1.2. Referral Recruitment

Recruiting the right people for the job has been a pillar of cultivating and maintaining organizational success. However, organizations' recruitment activities are not always fruitful because they often lead to poor-fitting hires who voluntarily quit or are involuntarily terminated due to poor performance (Pieper, Greenwald, & Schlachter, 2017). Because the cost of recruiting and training new employees is estimated to be 38% of the departing employee's annual wage (Morey, 2007), deficiencies in the recruiting process can be quite expensive. Recruitment costs can accumulate in general through advertising, job fair expenses, and third-party agency or recruiter fees, as well as salary and benefits for the recruitment team (Pieper, Greenwald, & Schlachter, 2017). An organization, therefore, must choose wisely when deciding on its recruitment strategy that both minimizes costs and results in good hires that fit well in the organizational environment. Which is why referral hiring has been gaining more popularity in the business world as many of the costs associated with formal recruitment practices, such as advertising and third-party headhunting fees, can be avoided.

By definition referral recruitment refers to a situation where organizational employees disseminate information about job vacancies to their social networks (Schlachter, & Pieper, 2019). In an organizational context, referral recruitment works when a firm initiates by providing a program that rewards the referring employee with an incentive or bonus if their referrals are finally hired. After the referral recruitment policy, employees will tend to make an assessment of the abilities of the referrals within their social network. This assessment is necessary as it establishes if the applicant has the competencies required for the job vacancy. After the assessment, the employee then decides to make a recommendation based on the abilities of the applicant (Ekinci, 2016). This practice of hiring has remained popular and viable for many decades now. It is estimated that close to 30% to about 50% of job vacancies are filled through referral hiring (Schlachter, & Pieper, 2019).

There are many reasons that underscore the popularity of recruitment referrals in organizations. Referral hiring involves more than bringing coworkers into the workplace, it brings in "particular" coworkers — individuals known to insiders and likely to be strong social ties (Granovetter, 1973). Other research has also revealed that referral hires stay longer (Decker &

Cornelius, 1979; Weller et al., 2009) and perform better (Blau, 1990; Castilla, 2005) than employees hired through other recruitment channels such as newspaper ads or employment agencies. Burks et al. (2015) also found that referred workers yield profits 21% to 39% higher than non-referred workers.

Pieper et al. (2019) state that one of the main motivating factors of promoting the use of referral recruitment is the benefit of a productive social work environment. The understanding is that referral hiring not only leads to successful recruitment but also ensures that the new employees are socially connected with the current workforce. The reasoning behind this perspective is the fact that the referrals are individuals that already have social ties with referring employees. This is possible because referrers see the performance of their referral hires as a reflection of themselves in the eyes of their employer and coworkers, and these reputational concerns, in turn, lead referrers to be highly selective in choosing whom to refer (Smith, 2005). These social ties will then continue to thrive in the workplace which creates an environment where employees support each other tackling work expectations and challenges (Pieper et al., 2019). Referral recruitment is thereby seen as an important impetus for achieving a positive social environment in the workplace. It is also worth noting that employee turnover decreases when the work environment achieves motivation and work satisfaction (Pieper et al., 2019).

Another motivating factor behind the use of referral hiring is that it mitigates uncertainties regarding the new employees. Because the labor market encompasses much uncertainty, organizations can leverage their employees' social networks to reduce informational asymmetries in the hiring process and facilitate better matches (Pieper, Greenwald, & Schlachter, 2017). On the other hand, individuals who are candidates for the job sometimes experience emotional discomfort and an unpleasant experience when they are hired misfittingly to an incompatible organization (Billsberry & De Cooman, 2010). Critically, when an organization hires new employees it usually assumes risk regarding the behaviors or attitude of the potential candidates. However, these uncertainties can be decreased through the use of referrers. For instance, referrers can act as agents of disseminating information about the culture and work expectations of the organization to potential candidates. Unlike more traditional recruitment mediums (e.g., online job advertisements), referrals from employees within the organization can

provide potential candidates with direct knowledge about the organization's behavioral and cultural expectations. This will be instrumental in aiding the new hires to enter the job when they have already familiarized themselves with the culture and expectations of the organization (Pieper, Greenwald, & Schlachter, 2017).

In addition, the motivation of using referral hiring is that it generally leads to more quality applicants. The understanding behind this conclusion is that referrers recommend people who share their attributes. It is known that an individual's social network tends to be homogeneous regarding behavioral and intrapersonal characteristics (McPherson, Smith-Lovin, & Cook, 2001). Intuitively, this similarity is beneficial in that the referrer has previously passed through the hiring stages and secured a position at the organization, suggesting that the referred candidate, who is part of the referrer's social network, may be more likely to gain employment with the organization (Pieper, Greenwald, & Schlachter, 2017). Such similarity further ensures that the organization chooses hires who are compatible and in tandem with its value system, which promotes person-organization fit (Kristof, 1996). As it seems, referral recruitment is a crucial approach for realizing high-skilled and compatible hires in modern organizations.

2.1.3. Mobile App Motivation

Digitalization in HR can be further understood by examining the uptake of technology in organizations. Critically, research has found that information technology has played an increasing role in today's business world. The prominence of technology in organizations is a trend that began in the 1980s as it is reported that close to 50% of new capital-based investments that were made by organizations in that period focused on information technology (Westland & Clark, 2000). Yet, for technologies to improve productivity, they must be accepted and used by employees in organizations. Venkatesh et al. (2003) conducted a study that supports this perspective with his Unified Theory of Acceptance and Use of Technology (UTAUT). UTAUT became a useful tool for managers needing to assess the likelihood of success for new technology introductions and helps them understand the drivers of acceptance in order to proactively design interventions (including training, marketing, etc.) targeted at populations of users that may be less inclined to adopt and use new systems (Venkatesh et al., 2003). The same study also indicated the motivations behind the increase of user acceptability of technology in

today's organizations, specifically, different parameters were used to analyze and establish these motivations. The research model suggests that performance expectancy is one of the factors that drive the user acceptability of a digitalized workplace. In this view, participants of the study claimed that information technology was useful for managing tasks and improving their productivity. Effort expectancy is another motivation for the uptake of technology in organizations, which refers to the degree of ease associated with the use of the system. In this regard, the study participants cited that technology improved their work interactions and improved their skills. Some argued that the technology systems are simple to learn and operate. Equally, the positive attitude towards the use of technology is another reason for the uptake of technology in organizations. Employees cite that technology makes their work captivating or interesting (Venkatesh et al., 2003). The overall observation from this study is that UTAUT provided a refined view of how the determinants of intention and behavior towards technology have evolved over time.

The adoption of technology can also be understood by analyzing the perspectives of the Network Theory. According to Van den Bulte & Wuyts (2007), this theory follows study conclusions that focused on the significance of social networks in fostering technology diffusion. There are different reasons that underlie this perspective. One of the reasons is that technological innovation such as mobile apps diffuse as a result of peer influence. In other words, people within social networks influence each other towards innovative technologies like mobile apps. It has also been observed that uncertainty that comes with new technologies or innovations forces people to seek guidance from their social networks (Burkhardt & Brass, 1990). In such networks, people of authority or leaders have more leverage in influencing the opinion of the new technologies. That said, leaders in a social network can increase or decrease the adoption of new technology by the members of the group. Additionally, in relation to Granovetter's weak ties theory (1973), the strength of the ties among the social network members will also shape the level of technology adoption. Weak social ties in this view refer to social networks that are defined by casual relations. Conversely, strong social ties refer to the relationship that is defined by close friendship, immediate family relationship, and those in frequent contact (Taylor et al., 2011). All these reasons underline the significance of social networks in promoting mobile app adoption and other technologies.

During the last few years, mobile applications have increasingly become a fully-fledged market (Roy, 2017). Mobile apps can be defined as "small programs that run on a mobile device and perform tasks ranging from banking to gaming and web browsing" (Taylor et al. 2011). Escalating advances in information and communication technology has led to huge awareness for the mobile phones having extra features (Hassan et al. 2014), and the increase in smartphone consumers have resulted in the growth and rising use of mobile apps to meet the various needs of the consumer for any plausible purpose (Roy, 2017). Globally, users spend on an average 82% of their mobile minutes with apps and just 18% with web browsers (Gupta 2013).

In addition, the market for these mobile apps is crowded with consumers benefiting from different types of apps that can suit their divergent needs (Malik et al., 2017). Mobile apps, which can be commercial or non-commercial, offer a wide range of services which could include apps that relate to stock markets, news, sports, banking, shopping, travel, or navigation. In addition to informative usefulness, there are also apps that satisfy entertainment purposes, such as game apps (Angry Birds), social media (Facebook), and music (Spotify). Overall, mobile apps have revolutionized the consumer experience as it can satisfy both hedonic and utilitarian values depending on the app type and the usage need (Wang, Liao & Yang 2013).

Mobile app adoption is also gaining precedence in the business world. Kern (2016) states that as businesses aim to achieve efficiency and improve productivity, they are employing the benefits of mobile phone apps. The study also demonstrated that mobile apps are playing a critical role in reinforcing employee productivity while linking them to organizations' systems. A mobility report that was published by Apperian (2016) indicated that half of the business organizations are using mobile apps in their extended enterprise employees. The study showed that although 91% of organizations use mobile apps to target their internal employees, 51% of them used them for extended employees such as hourly contract workers. Similarly, the study revealed that great emphasis leans towards productivity apps as opposed to traditional apps for sales and service. This indicates that mobile apps act as tools for advancing mobility management to realize work outcomes. Business executives who were surveyed acknowledged that while mobile apps have

some challenges, they present great opportunities in terms of strategy (Kern, 2016). All of these reasons develop the concept that mobile apps are critical tools for improving work outcomes.

2.1.4. Research Gap

From the literature review, it is evident that technology, and specifically mobile technology, has revolutionized how organizations function and the adoption of these technology in organizations is motivated by different factors. Categorically, referral recruitment has also become a crucial HR strategy that is gaining precedence in many organizations. Although there has been multiple separate research about digitalisation in HR, referral recruitments, and mobile app motivation, there is still a scarcity of research which intersects those three underlying topics. Most of the research on digitalisation in HR are merely historical accounts or recommendations for its implementation, which in itself is quite unspecific. In terms of referral recruitments, past studies mostly explored the practicalities and psychological motivations of referral recruitments in organizations, while studies on digital referral recruitment platforms are so far still missing. These studies are, of course, still useful but should be considered archaic with regards to new mobile technologies in the field of referral recruitment. As new technologies are continuously being introduced, new research should also be accomplished to complement and support the diffusion of these new technologies. Therefore, in order to fill this gap in the literature, this research has two objectives: the first is to propose a theoretical model to help improve the understanding of the use of referral apps. The second is to use the aforementioned model to explore whether certain elements of a referral app have a significant impact on attitude and intention to refer within these platforms.

2.2. Theoretical Framework & Hypothesis Generation

This segment will be divided into two parts. First we will introduce our theoretical framework, whereby the second part will be applying these theories to generate our hypothesis model. To come up with a sensical and valid hypothesis model, we researched theories that relate to an individual's psychological motivations in choosing a certain digital and social medium. Fishbein and Ajzen (1975) believed that the immediate predictor of behavior is behavioral intention, which is determined by attitude and social influence – thus becoming the basis of our theoretical guideline. Therefore, our theoretical framework is chiefly based on the uses and gratifications

(U&G) theory (Rubin, 2009), UTAUT (Venkatesh et al., 2003), and the network externalities (NEs) paradigm (Witt, 1997).

2.2.1. Theoretical Framework

The U&G theory originated in the field of research into mass media and tries to explain the selection and use of a variety of mediums, including social media and mobile apps (Smith & Watkins, 2020). According to the theory, people actively choose and use a media to satisfy their needs or desires, influenced by social and psychological factors and, when those needs or desires are satisfied, this generates gratification that shapes their perception of the medium and motivates the individual to use it again (Rubin, 2009). The central premise of U&G theory is understanding what people do with media, which rests on the assumption that people are active, rather than passive, consumers of media (Katz et al., 1973). Although the roots of U&G theory centered on radio use (Wimmer & Dominick, 1994), the research has expanded to include television (Bogart, 1956; Geiger & Sokol, 1959; Macoby, 1954), magazines (Kim et al., 2015; Payne et al., 1988) cell phones (Leung & Wei, 2000), the internet (Jimenez et al., 2012; Leung, 2001; Ko et al., 2005), social media (Wang et al., 2012) and mobile apps (Gerlich et al., 2015; Schmitz Weiss, 2013).

The U&G theory also suggests that the satisfaction of an individual's expectations positively influences their attitude. Therefore, if the motivational factors that explain how a person selects a medium are identified, their use could be inferred. That is, motivation becomes a key element because it influences the selection and active use of the medium, as well as the possible outcome (Molinillo et al., 2018). The internet has particularly rejuvenated the utility of uses and gratifications theory because of its interactive nature and asynchronicity (Ruggiero, 2000). In recent years, studies into adoption of internet-based information systems or services have successfully applied the U&G theory by exploring user motivations. For example, attitude toward internet use is positively related to social gratification, the passive social gratification deriving from internet access and the active pursuit of interactions (Ji and Fu, 2013). Papacharissi and Rubin (2000) demonstrated that entertainment and information seeking were the greatest reported uses of the internet, followed closely by convenience, passing time, and

interpersonal utility. Similarly, Leung (2009) discovered that there were four motives connected to Internet use: recognition needs, social needs, cognitive needs, and entertainment needs.

This research posits that the U&G theory can be applied to the study of referral apps motivations as antecedents of their attitude, because users choose a particular mobile app motivated by needs that are influenced by social and psychological factors. In the mobile apps context, gratification refers to the extent that the users' needs are satisfied (Wei and Lu, 2014). Furthermore, the function of a referral recruitment platform is for the users to be able to make more referrals in a more simplified and engaging way. Hence we can assume that the greater the degree of gratification, the greater will be the users' attitude and intention to refer within the platform.

As media have become more dynamic, researchers have recognized the need to identify factors that express the attraction capabilities of such mediums. Researchers have identified convenience (Papacharissi & Rubin, 2000) and social interaction (Whiting et al., 2013) as some of those factors. Social media use such as Facebook, meanwhile, is motivated by socializing, entertainment, and self-expression (Cho et al., 2014). Additionally, other mobile apps are becoming more dynamic as well, with many of these applications starting to apply gamification features to increase user engagement (Catalán et al., 2019). Therefore, we believe it will be relevant if we refer to research on other platforms as well, such as online mobile games, and determine some of the factors that attract individuals to those platforms.

In the mobile game context, Wu et al. (2010) classified online gamers' gratifications into three types: enjoyment, social interaction and achievement. Subsequently, Wei and Lu (2014), in regard to mobile games, narrowed the classification down to the first two of these gratifications: enjoyment and social interaction. Recently, Liu (2016) also demonstrated the influence of utilitarian and hedonic outcome expectations on users' intention to play of online games. These findings suggest that achievement is not an important contributory factor for mobile game players' individual gratifications and we can forego it for this research on referral recruitment platforms. This makes logical sense as well because an individual will not choose a mobile app solely for achievement motivations. We can further breakdown utilitarian expectations into both performance expectancy and effort expectancy, based on the UTAUT by Venkatesh et al. (2003).

In terms of social interaction, the influence of network externalities has been identified as an important antecedent of mobile games use (Wei and Lu, 2014). Positive network externalities, i.e. network economies, increasing returns to adoption, or local positive feedback are a significant feature of market penetration and diffusion processes of many modern technologies (Witt, 1997). In the context of gaming, one would expect that the more players there are (especially in one's immediate environment), the greater will be the possibilities of interaction and, consequently, enjoyment of the game, which would, in turn, have a positive effect on an individual's intention to play (Molinillo et al., 2018). Researchers also suggest that the adoption of mobile devices is influenced by both the perceived usefulness and ease of use, and the behavior and attitudes of the consumers' social network (Lu, Yao, & Yu 2005). To a certain degree, specifically with regards to possibilities of interaction with other users, a positive network externality should also have a similarly positive effect on an individual's attitude towards using a referral recruitment platform.

Consequently, this study will therefore take into account three types of gratifications that can affect an individual's motivation for using a referral app: i) *utilitarian motivation*, because a mobile platform should promote functional simplicity, (ii) *hedonic motivation*, because a platform will be more engaging if it can produce a sense of enjoyment, and (iii) *relational motivation*, because the success of a referral recruitment platform will also depend on the social environment of the platform, such that it can improve a referrer's social reach.

2.2.2. Hypothesis Generation

Figure 1 shows the proposed theoretical model based on these hypotheses.
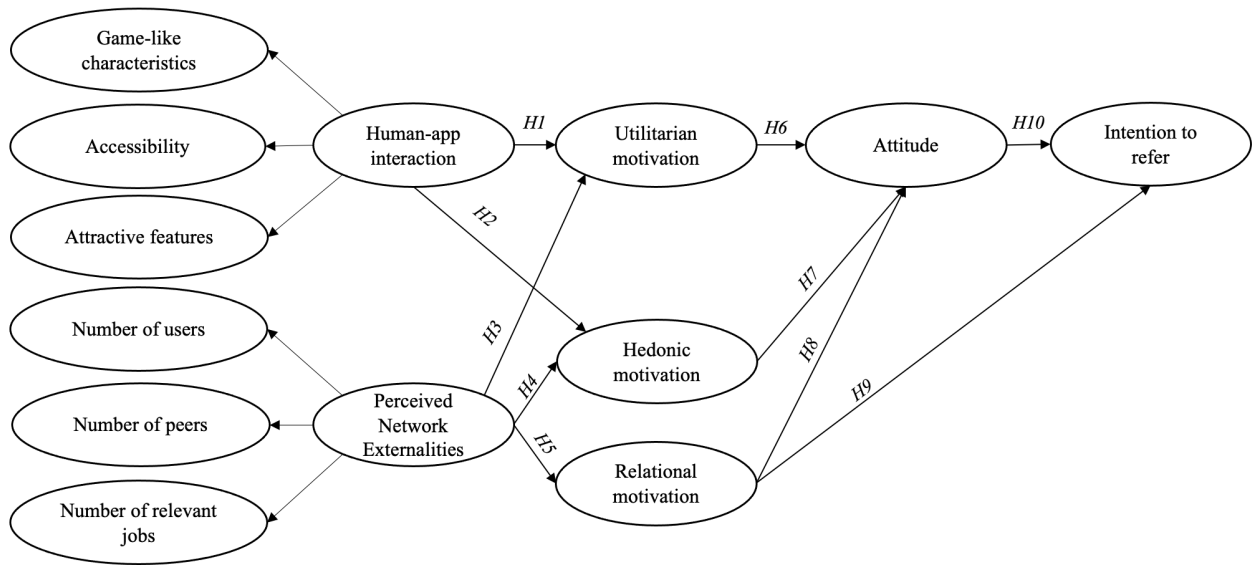
Figure I. Research Model

2.2.2.1. Effects of Human-App Interaction

Venkatesh and Davis (2000) stated that individuals form judgments on the perceived gratification of a system by cognitively assessing what a system is capable of in terms of their needs and desires. Their evaluation of the system's characteristics affects the user's cognitive service experience (Ding et al., 2011). This interaction with the system's characteristics influences the user's favorable, or unfavorable, perceptions regarding the gratification derived from using the system (Venkatesh and Bala, 2008). In this study, Human-App Interaction refers to a process by which a human and the mobile apps communicate and interact with each other through technology, thereby creating a personal experience. Human-App Interaction is modeled as a cumulative second-order construct affected by three first-order dimensions, which are game-like characteristics (e.g. badges, performance graph, avatars), accessibility characteristics (e.g. responsiveness, ease of use, anytime and anywhere access), and attractive characteristics (e.g. point collection, progress tracker). Some of these gamification features such as badges, performance graphs, and point collections are already being utilized in current non-digital HR practices, and Murawski (2020) claimed that these gamification tools increase employee motivation, engagement, and performance.

In particular to our case, we postulate that effective interactions between the user and the referral apps incorporated with these appealing dimensions of Human-App Interaction will positively influence Utilitarian Motivation and Hedonic Motivation. Utilitarian Motivation can be defined as a person's assessment of the extent to which using a given technology can help them achieve a goal with convenience. Meanwhile, Hedonic Motivation reflects on the degree to which users experience fun or enjoyment when using an information system. Therefore, the following hypotheses are proposed:

H1. Human-App Interaction (HAI) has a positive impact on the Utilitarian Motivation (UM) of referral apps.

H2. Human-App Interaction (HAI) has a positive impact on the Hedonic Motivation (HM) of referral apps.

2.2.2.2. Effects of Perceived Network Externalities

In this research, we define Perceived Network Externalities as social-networking components that are accessible through the platform and that the users can take advantage of, thereby opening the possibility to further expanding a user's networking reach. Perceived Network Externalities is also a cumulative second order construct of three first order dimensions, which include the number of users (all of the referral agents signed up on the platform, including new connections), number of peers (established connections whom the users can now interact with within the platform), and number of relevant jobs (available job positions that the agents can refer).

The extent of Network Externalities can affect the likelihood that consumers will obtain information about a technology's effort expectancy by observing prior adopters using the technology, or even by asking to borrow the technology from a prior adopter to try it themselves (Rogers, 2003). Since effort expectancy is part of Utilitarian Motivation based on the UTAUT by Venkatesh et al. (2003), therefore, it's acceptable to think that the larger the perceived size of the network of a referral app, the greater will be the Utilitarian Motivation.

Network Externalities have also been found to have a positive influence on the Hedonic Motivation of interactive information technologies, such as instant messaging and mobile social

games (Wei and Lu, 2014). Similarly to a referral app, the greater the Network Externality, the greater should be the Hedonic Motivation because each user will have a larger group of other users with whom to share the experiences, which results in greater enjoyment of the technology.

Relational Motivation refers to the additional social capital and ease of interaction that is gained from using a technological device. Therefore, we propose that the Relational Motivation of a referral app, such as cooperation and communication among other users which helps to expand their own network and knowledge-sharing, is one of the most important motivators for using the platform. Hiltz and Turoff (1985) revealed that computer-mediated communication systems increase users' social interaction, which requires a minimum number of contributors; thus, Network Externalities should positively influence Relational Motivation. In light of these considerations, the following hypotheses are proposed:

H3. Perceived Network Externalities (NE) have a positive impact on the Utilitarian Motivation (UM) of referral apps.

H4. Perceived Network Externalities (NE) have a positive impact on the Hedonic Motivation (HM) of referral apps.

H5. Perceived Network Externalities (NE) have a positive impact on the Relational Motivation (RM) of referral apps.

2.2.2.3. Effects of Gratification

According to the U&G theory, people actively choose and use a certain technology platform to satisfy their needs or desires, and when those needs or desires are satisfied, this generates gratification that shapes their attitude towards the medium and motivates the individual to use it again (Rubin, 2009). Users basically expect to obtain certain benefits from using mobile platforms, and these benefits serve as motivations for adopting new technologies (Venkatesh and Bala, 2008). In this study, Attitude is the degree of the individual's favorable or unfavorable feelings toward a technological platform. As previously mentioned, this study considers three types of user motivations: utilitarian, hedonic and relational. When these motivations are fulfilled and the benefits are attained when using a technological platform, gratifications will have been achieved. This gratification can then consequently cause an individual to use the technology

platform more and inadvertently adopt a more positive attitude towards it. With that in mind, the following hypotheses are proposed:

H6. Utilitarian Motivation (UM) has a positive impact on attitude (AT) toward referral apps.
H7. Hedonic Motivation (HM) has a positive impact on attitude (AT) toward referral apps.
H8. Relational Motivation (RM) has a positive impact on attitude (AT) toward referral apps.

2.2.2.4. Effects of Relational Motivation

Out of the three different motivations that we have proposed, Relational Motivation is perhaps the most fundamental impetus for using a referral recruitment platform. This makes sense because the wider an individual's social network is, the likelier the individual will make more successful referrals. Several researches have also identified an individual's social capital as a key factor in referral recruitments. Social network research suggests that the strength of the relationship (Granovetter, 1973) between the referrer and referral hire affects their interaction and thus, integrating this construct would provide a fruitful moderator of the relationship and referral hire outcomes (Pieper, 2015). Lin et al. (1981) also argued that the advantage garnered by social capital derives from the resources available through social ties, hence the significance of social capital will affect the outcomes of the person who has access to them. Referral hires from referrers with greater social capital should be better employees as well (Pieper, 2015). Consequently, a platform that can improve an individual's social capital should drive people to refer more. Therefore, the following hypothesis is proposed:

H9. Relational Motivation (RM) has a positive impact on the Intention to Refer (IR) on referral apps.

2.2.2.5. Effects of Attitude

Fishbein and Ajzen (1975) proposed that the immediate predictor of behavior is behavioral intention, which is determined by attitude and social influence. The U&G theory also suggests that when people's needs and desires from using a technology or media are satisfied, this motivates the individual to use it again (Rubin, 2009). As mentioned before, this research defines Attitude as the degree of the individual's favorable or unfavorable feelings toward a

technological platform. Thus, the more positive an individual's attitude towards a medium, the use of said medium could be inferred. Finally, this hypothesis is then proposed:

H10. Attitude (AT) has a positive impact on Intention to Refer (IR).

3. Methodology

3.1. Scientific Approach

With the purpose of understanding the motivations and explaining the influences that determine the acceptance and use of referral apps, this study was operationalized based on a quantitative method research (Bryman & Bell, 2011) that was incorporated with a pre-study interview. Inspired by the existing literature to initially construct a theoretical framework, this paper first contributes to the context of the referral recruitment by adding insights emerged from practitioners through interviews. The qualitative data from the interviews then plays an important role in relation to the testing of theories (Bryman & Bell, 2011) when being incorporated into the explanatory model. The model quantitatively outlines how human-app interactions and perceived network externalities impact users' attitudes and intentions to refer candidates on a referral app.

Practically, the quantitative approach that we utilized in order to test the generated hypotheses resulted in the use of a survey-based main study. More specifically, an online-based self-completion questionnaire was designed to best test the hypotheses. In order to help respondents visualize the idea of using a referral app and evaluating their motivations as well as their interactions with it, a simplified mobile app prototype was also designed and incorporated in the survey. Although self-reporting survey poses some limitations regarding guaranteed respondent honesty, it is acknowledged to be the most common method used given a study of quantitative nature (Bryman & Bell, 2011). This, in combination with the survey's ability to gather data from a larger number of respondents, makes it the main method for the purpose of this paper. Furthermore, the prior focus of the existing research on the theoretical aspects of traditional referral recruitment practices, lacking a digital perspective and empirically grounded evidence of the quantified relationships between the determining factors and the result, decreases the need of a similar more exploratory study as the main methodology.

3.2. Preparatory Work

The study was empirically tested through a collaboration with Platform X, a Sweden-based digital referral recruiting platform. Platform X, founded in 2018, operates based on the idea of utilizing the private networks of exclusively-chosen professional experts to recommend high-

qualified referral recruitments. It is currently the only digital-based external referral platform in Sweden, among a very few in Europe. Through more than 1,500 carefully picked leading HR recruiters and influential professionals who have wide networks of candidates within the Nordics (referred to as "agents" henceforth), Platform X connects and combines networks to help companies find the best fit talents that they are looking for. Once these agents become members on Platform X, they will have access to information regarding the available vacant positions in the participating companies. The more senior positions within an organization normally require the help of personal networks with presupposed intelligence about the candidates to source the right talents since the public sourcing tools such as LinkedIn are considered inefficient. Agents can refer candidates that could be a potential match for the companies directly on the platform by filling in the basic information of the candidates. They are also able to track their referral process through automatic emails sent by Platform X. In exchange for successful referrals, more specifically when the candidate becomes the official employees of the clients, agents will receive monetary rewards for their referral effort. Besides the appealing monetary rewards as incentives, agents have opportunities to participate in a wide range of exclusive community activities on Platform X such as monthly webinars about market trends and training sessions to widen their professional network.

Platform X was involved in both the preparatory process and the main study in different set-ups. The preparatory methodological work of this study consisted of three main areas described below, namely (i) a design of a prototype of a referral app, (ii) a pre-study interview with the Community Manager of Platform X, and (iii) a survey pilot test.

3.2.1. A design of referral app prototype

Prototyping has become a key research tool in product and interaction design during the last twenty years (Koskiene & Frens, 2017). Hence, the largest part of our preparatory efforts consists of designing a referral app prototype that will help survey respondents in visualising the concept. The purpose of research prototypes is to articulate and test concepts that respond to questions from theoretical literature or a research program rather than product development. When prototypes are used as vehicles for research, where they are aids in providing answers to

research questions and making contributions to knowledge, a different set of their properties comes into view (Wensveen & Matthews, 2014).

In the context of this paper, a need for a referral app prototype was decided based on two reasons. Firstly, there are a limited number of mobile referral apps currently available in the market, which makes it regrettably challenging for the authors to reach out and establish a working partnership given the time and resource constraints of the thesis. More importantly, all of the mobile referral apps that are available in the market function as an internal employee referral tool, meaning that they are privately integrated within the companies' HR infrastructure to leverage employees' networks as a recruiting channel. The fact that the referral apps' accessibility is restricted only to the employees of the clients and that there are non-disclosure agreements between suppliers and clients, this essentially precludes us from the possibility of engaging with the actual users on these referral recruitment platforms. Secondly, Platform X, although being the most appropriate subject for our study due to its fitting digital business model and a trailblazer in the referral recruitment industry, has yet to have a referral app themselves. In fact, agents on platform X perform referral activities and connect with others through a website version. Therefore, a referral app prototype that enables tangible interactions, invites respondents to express their ideas, emotions and usage intention towards such a platform is needed. The prototype was inspired by the designs and interfaces of several referral apps available in the market and was built on a digital prototyping platform called Proto.io. In addition, several game mechanics that hypothetically would impact the Human-App interaction such as badges, avatars, referral progression bar and achievement tracking tools were incorporated in the prototype in order to articulate and visualise the ideas of Image Characteristics and Attractive Characteristics. An example of several screens of the prototype are included in Figure II.
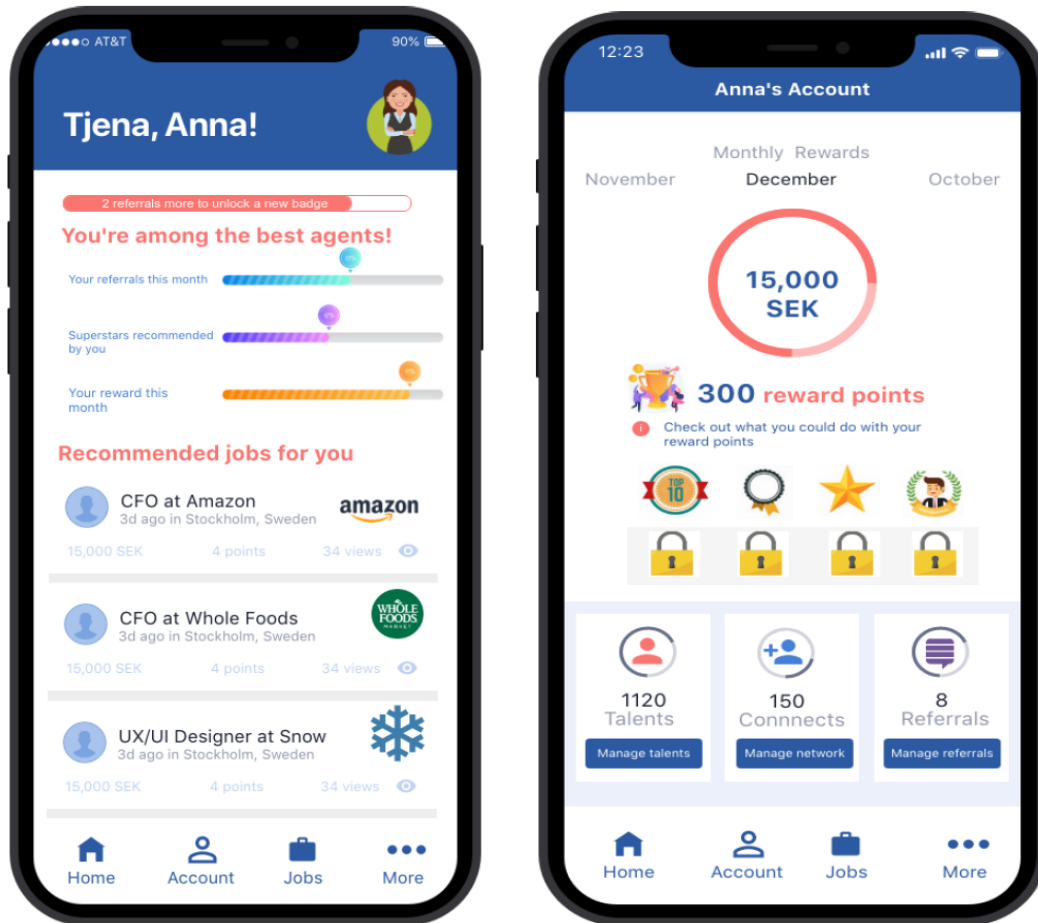
Figure II. The mobile referral app prototype

3.2.2. Pre-study interview

While developing the questionnaire, a pre-study interview was at the same time adopted in order to explore more insights that could be incorporated in the research. The exploratory stance is preferable at this stage as qualitative research may serve better the needs of insight generation (Bryman & Bell, 2011). Even though there are existing questions for the mobile technology acceptance model that has been developed and extended in different industries such as gaming (Molinillo et al., 2018; Kim et al., 2010), there are few studies that have adapted the theory to the referral recruitment industry. Due to the lack of such knowledge, an interview with an industry expert who has had a credible degree of experience with the digital referral recruitment model would substantially benefit this research in adding more practical perspectives and insights as we build the questionnaire. The industry expert that was chosen for the interview was the Community Manager at Platform X, who have had extensive experience with the network of

referral agents and managed the agent engagement activities in their platform. Therefore an interview with her was believed to be able to provide us with a deep initial insight on agents' motivations and the influencing factors on their choice of using a digital referral platform like Platform X. The interview was designed as a semi-structured interview, in which an interview guide had been prepared and sent out to the Community Manager for review beforehand, however the interviewee had a great deal of leeway in how to reply. This semi-structured interviewing approach was chosen in order to provide the interviewees the best way to frame and explain the events, patterns, and forms of behaviour (Bryman & Bell, 2011). The questionnaire for the pre-study interview is presented in Appendix I.

3.2.3. Survey Pilot Test

Before initiating the actual gathering of data for the main study, a simpler pilot-test was conducted in order to facilitate the experience of future respondents. The main objective of this test was to ensure the comprehensibility and clarity of scales and measures used in the final survey design (Saunders, Lewis & Thornhill, 2009). The pilot-test was distributed to 10 agents within the aforementioned Stockholm-based platform X, who were later asked to give verbal feedback on their experience of answering the survey. The pilot-group were further asked to note the time needed for completing the survey. 8 out of 10 respondents were non-native English speakers, ensuring that the wording could be understood by this group, together with grammatical insights from 2 native English speaking pilot-test respondents. Some feedback regarding clarity issues with the initially chosen scale for job satisfaction resulted in a change of measure, as well as minor changes to one of the instruction texts for the final version of the survey.

3.3. Main study

The main study was designed as a result of preparatory efforts, methodologically consisting of (i)sampling efforts, (ii) survey design, and (iii) data collection.

3.3.1. Sampling & Sample

Data collection and the sampling process largely consist of two stages, namely establishing the setting of the research conducted and the choice of respondents (Bryman & Bell, 2011). The initial probing of the empirical study provided a basis of how potential respondents could be

found. Due to the Swedish referral recruitment industry laggard in technology transformation where Platform X is the only digital referral platform in the market, as well as its large base of over 1,500 agents who have some experience with the elementary digital tool, Platform X's agents are considered the most appropriate study subjects. However, according to the platform, only 20 percent - 30 percent of the agents are still currently active, which as a result could affect the response rate and the final sample size. The empirical data used to test the research model were collected through an online survey distributed to the aforementioned 1,500 agents through Platform X's email newsletter with the help of the Community Manager. An introduction to the survey and its goals, including a hyperlink to the survey form, was included in the emails that were sent to these agents. There were also several steps that were taken during the sampling process to minimize the problem of bias: participation was voluntary with no reward system that might encourage certain profiles to participate, the purpose of the questionnaire was explicitly explained, and, lastly, all incomplete or invalid questionnaires were eliminated. Of the 139 agents who submitted a response to the survey, 89 questionnaires were completed and therefore valid responses. Respondents ranged in age from as young as 20 years old, with the largest portion age group being agents of more than 50 years old - which makes sense based on the existing demographic of platform X where most of the agents are more senior and experienced professionals who have established extensive networks during their time in the industry. The gender distribution for the sample was 57.3 percent male and 40.4 percent female. Lastly, the sample consisted of 94.4 percent Swedish respondents and 5.6 percent other nationalities, reflecting the accurate background of the agents of platform X as a referral platform mainly focused in the Swedish market. Table I shows the sample's characteristics.

Variable (Category)	Percentage
Age group	
20-29 years old	14.6
30-39 years old	25.8
40-49 years old	29.2
>50 years old	30.3
Gender	
Male	57.3
Female	40.4
Other	1.1
Prefer not to say	1.1
Nationality	
Swedish	94.4
Other	5.6

Table I. Characteristics of the respondents

3.3.2. Survey Design

The survey for the main study consisted of seven modules corresponding to the variables outlined in the conceptual model of the theoretical framework, namely Human-app Interaction (HAI), Perceived Network Externalities (NE), Utilitarian Motivation (UM), Hedonic Motivation (HM), Relational Motivation (RM), Attitude (AT), and Intention to refer (IR) as well as three demographic items. The detailed survey is presented in the Appendix I. The two models of Human-app Interaction and Perceived Network Externalities are then divided into 6 sub-models: Game-like characteristics (GC), Accessibility (AC), and Attractive features (AF) as component models of the former, and Number of users (NU), Number of peers (NP) and Number of relevant jobs (NJ) for the latter. The questionnaire measurement items were adapted and developed based on the insights from the pre-study interview with the Community Manager and the previous studies of acceptance and usage of mobile game users (Molinillo et al., 2018; Kim et al., 2010) using a similar framework and methodology. The construct measurements consisted of multiple items on a seven-point Likert scale where 1 represented "strongly disagree" and 7 "strongly agree." In total, the questionnaire featured 40 items. The measures are presented in Table II (Appendix).

Although Swedish was the native language for the majority of respondents, all were expected to possess a high proficiency in English considering that English is the main language used for job posts and written communication on Platform X. Consequently, English was chosen as the preferred language for the questionnaire. To avoid any risk of altering the validity, replicability or reliability by wrongly wording translations, the original language of the measures was preferred. The risk of misunderstandings was further limited by pre-testing the survey on both native and non-native English speakers as mentioned in section 3.2.3. Survey Pilot Test. Honest self-reports on all modules were incentivized by clarifying the anonymity of respondents both in the invitation to participate in the study coming from the Community Manager at Platform X through the company's email sending system and in the instruction text of the questionnaire.

3.3.3. Data Collection

The survey for the main study was designed and distributed through the online survey software Qualtrics, and the data was collected between March the 24th, 2021 and April the 14th, 2021. Unlike other studies that might have several challenges to distribute such a survey to a professional network due to the sensitivity of the member data, this study has received tremendous support from Platform X to get access to its referral agent network. To guarantee comparability, all respondents received identical information regarding the study. Anonymity was furthermore guaranteed to respondents in order to maximize honesty and participation. To maximize response rates, two reminder emails were sent out to the sample of X agents during the middle and end of the data collection period.

3.3.4. Data processing

The data collected was processed first hand using the statistics analysis software IBM SPSS Statistics which allows a smooth transfer of data of 89 responses from the survey tool Qualtrics. Hence, the transfer of data did not suffer from any factors relating to human errors. It was further processed through (i) data checks to test the distribution and (ii) recoding of variables to enable further analysis.

3.3.4.1. Data checks

After excluding incomplete data points, descriptive statistics were used to investigate the sample. Normality checks using a Kolmogorov-Smirnov test were conducted to establish the distribution of data for each measure. The Kolmogorov-Smirnov test indicates that all variables do not follow a normal distribution over the seven point scales with $p < 0.001$. Table III shows a summary of the normality test.

	Statistic	df	Sig.		Statistic	df	Sig.
GC1	0.21	89	<.001	NJ1	0.256	89	<.001
GC2	0.175	89	<.001	NJ2	0.281	89	<.001
GC3	0.22	89	<.001	UM1	0.277	89	<.001
GC4	0.206	89	<.001	UM2	0.199	89	<.001
AC1	0.292	89	<.001	UM3	0.288	89	<.001
AC2	0.279	89	<.001	UM4	0.271	89	<.001
AC3	0.259	89	<.001	HM1	0.189	89	<.001
AC4	0.278	89	<.001	HM2	0.163	89	<.001
AF1	0.165	89	<.001	HM3	0.216	89	<.001
AF2	0.154	89	<.001	HM4	0.256	89	<.001
AF3	0.24	89	<.001	RM1	0.165	89	<.001
AF4	0.193	89	<.001	RM2	0.173	89	<.001
NU1	0.205	89	<.001	AT1	0.241	89	<.001
NU2	0.206	89	<.001	AT2	0.283	89	<.001
NU3	0.191	89	<.001	AT3	0.296	89	<.001
NP1	0.226	89	<.001	IR1	0.308	89	<.001
NP2	0.168	89	<.001	IR2	0.202	89	<.001
NP3	0.201	89	<.001	IR3	0.325	89	<.001
				IR4	0.277	89	<.001

Table III. Test of Normality

3.3.4.2. Recoding of variables

There were five reverse-scored items included in the survey to eliminate choice bias. These items were recoded so that higher scores on each item were equivalent to higher levels of positive

Attitude towards referral apps and Intention to refer.

4. Results and analysis

The results are displayed in two stages: first, in the reliability and validity of the measurement model, and second, in the assessment of the research hypotheses and the structural model with the partial least squares structural equation modelling (PLS–SEM) approach. The PLS-SEM technique is appropriate to use for this study for three reasons: first, the normality of the data cannot be guaranteed when the sample size is small (the Kolmogorov–Smirnov test in the 4.1.1 section does only accepts H0 in any of the 37 items); second, the structural model is complex and includes many constructs, indicators and/or model relationships; and last, the analysis is concerned with testing a theoretical framework from a prediction perspective (Hair et al., 2019). In addition, the final sample size which is 89 respondents exceeds the minimum value of ten times the largest number of inner model paths directed at a particular construct in the inner model (Barclay et al., 1995). The variables of the study have been analyzed with three stages such as development of equation path model, assessment of measurement model, and assessment of structural model. Human-App Interaction and Perceived Network Externalities are represented as second-order constructs, following a repeated indicator approach for their handling.

4.1. Measurement model assessment

First, the reliability and validity of the measurement model is assessed. Reliability centers around whether the measures used are accurate and stable; hence greatly affecting the replicability of the study (Saunders et al., 2009). Measurement validity denotes whether or not a measure really captures the concept that is intended to be captured (Saunders et al., 2009).

In this model, a bootstrapping procedure carried out with 5,000 subsamples was used to estimate the statistical significance of the measurement model and structural model (Hair et al., 2014; Streukenset et al., 2016). For reflective models, outer loadings show how much each observable variable or item contributes absolutely to the definition of the construct while outer weights indicate the relative contribution of an indicator to the definition of its corresponding variable (Calvo-Mora et al., 2005). Loadings are generally expected to be greater than 0.6 (Matsunaga, 2010) but loadings more than 0.5 are considered acceptable. This was verified for most of the items in the study, except NU1 (loading: 0.396) for network of users and NP1 (loading: 0.298)

for network of peers. AF3 and NP2 are kept for the analysis as their loadings are close to 0.5 and significant (p<0.01) (Table IV).

Cronbach's alpha (CA) is the traditional way of measuring the reliability of the variables or constructs. As a rule of thumb, a Cronbach's alpha ≥0.7 is used to signify an excellent reliability of the construct but the value more than 0.6 is also acceptable (Westergaard et al., 1989). In the PLS-SEM method, composite reliability (CR) is measured for the constructs for internal consistency, which should exceed 0.7 (Hair et al., 2014). In addition, average variance extracted (AVE) values that measure the convergent validity of the constructs are recommended above 0.5 (Fornell and Larcker, 1981). In this model, the CR of all constructs stand more than 0.7, and AVE values of X Y Z are above the recommended value, satisfying all the above conditions for further measurements. The values of CA, CR and AVE obtained for the PC construct are shown in Table IV below.

Another important aspect to assess in the case of variables with formative indicators (Human-App Interaction and Perceived Network Externalities) is the control of the collinearity level in order to ensure the stability of the estimations. Collinearity problem, judged by the variance inflation factor (VIF) arises when two or more predictor constructs are highly correlated, meaning that one construct can be linearly predicted by other predictor variables with high level of accuracy. According to Kleinbaum et al., 1988, the VIF must be below 5. Although the VIF more than 5 may indicate multicollinearity problem, a VIF below 10 is also considered acceptable (Hair et al., 1995), therefore AC1 and AC2 are kept in this analysis. Thus, all the constructs fulfilled this requisite for the study model (Table IV).

Construct	Items	Loadings	CA	CR	AVE	VIF
Game-like characteristics (GC)	GC1	0.743***	n/a	n/a	n/a	2.021
	GC2	0.746***				1.842
	GC3	0.815***				1.503
	GC4	0.88***				2.117
Accessibility (AC)	AC1	0.836***	n/a	n/a	n/a	5.5
	AC2	0.914***				7.381

Construct	Item	Loading	CA	CR	AVE	VIF
	AC3	0.86***				3.33
	AC4	0.94***				3.907
Attractive Features (AF)	AF1	0.762***	n/a	n/a	n/a	1.981
	AF2	0.898***				1.98
	AF4	0.85***				1.539
Number of users (NU)	NU2	0.976***	n/a	n/a	n/a	3.941
	NU3	0.953***				3.941
Number of peers (NP)	NP3	1***				3.202
Number of relevant jobs (NJ)	NJ1	0.653***	n/a	n/a	n/a	1.247
	NJ2	0.926***				1.498
Utilitarian Motivation (UM)	UM1	0.854***	0.82	0.881	0.651	
	UM2_a	0.731***				
	UM3	0.756***				
	UM4	0.877***				
Hedonic Motivation (HM)	HM1	0.919***	0.9	0.931	0.774	
	HM2	0.922***				
	HM3	0.933***				
	HM4_a	0.729***				
Relational Motivation (HM)	RM1	0.964***	0.924	0.963	0.929	
	RM2	0.964***				
Attitude (AT)	AT1	0.934***	0.903	0.939	0.838	
	AT2_a	0.895***				
	AT3	0.918***				
Intention to refer (IR)	IR1	0.904***	0.86	0.905	0.705	
	IR2_a	0.806***				
	IR3_a	0.801***				
	IR4	0.843***				

*Note: CA, Cronbach's α; CR, composite reliability; AVE, average variance extracted. ***p<0.01*

Table IV. Measurement scales

Discriminant validity ensures that each construct of the model is different from each other where one construct is not represented by other constructs in the model (Henseler et al, 2015). Two different methods for the assessment of discriminant validity have been conducted in this study using PLS-SEM analysis technique. First, the Fornell-Larcker method is more acceptable for the assessment of validity dealing with reflective items. Thus, the diagonal values are showing the measures of validity having higher than the variance shared between each pair of constructs (Fornell and Larcker, 1981). Table V shows the results obtained from verifying discriminant validity from the Fornell-Larcker method.

	GC	AC	AF	NU	NP	NJ	UM	HM	RM	AT	IR
GC	n/a										
AC	0.714	n/a									
AF	0.808	0.589	n/a								
NU	0.683	0.716	0.578	n/a							
NP	0.71	0.652	0.69	0.819	n/a						
NJ	0.673	0.705	0.649	0.584	0.557	n/a					
UM	0.686	0.818	0.643	0.742	0.727	0.681	0.807				
HM	0.752	0.757	0.687	0.711	0.771	0.635	0.805	0.88			
RM	0.677	0.626	0.625	0.541	0.651	0.583	0.658	0.741	0.964		
AT	0.732	0.8	0.645	0.739	0.73	0.67	0.818	0.805	0.706	0.915	
IR	0.682	0.776	0.612	0.652	0.63	0.74	0.783	0.824	0.701	0.816	0.839

Table V. Fornell-Larcker Criterion

The second method to assess discriminant validity is cross loadings, meaning that the indicator's outer loading of the respective construct should be higher than the loadings of other constructs (Hair et al., 2014). In this study, associated indicator's loadings are higher than other cross loading of the constructs confirming discriminant validity of the constructs. Table VI shows the results obtained from verifying discriminant validity from cross loadings.

	GC	AC	AF	NU	NP	NJ	UM	HM	RM	AT	IR
GC1	**0.744**	0.484	0.659	0.559	0.581	0.385	0.495	0.561	0.473	0.526	0.483
GC2	**0.749**	0.442	0.645	0.479	0.611	0.386	0.517	0.614	0.567	0.529	0.473
GC3	**0.814**	0.638	0.581	0.576	0.534	0.663	0.55	0.632	0.557	0.601	0.611
GC4	**0.88**	0.646	0.729	0.581	0.593	0.589	0.616	0.606	0.562	0.657	0.575
AC1	0.676	**0.836**	0.478	0.543	0.502	0.565	0.631	0.605	0.545	0.681	0.623
AC2	0.691	**0.914**	0.56	0.621	0.582	0.651	0.721	0.645	0.581	0.755	0.663
AC3	0.549	**0.86**	0.437	0.707	0.58	0.572	0.796	0.692	0.514	0.703	0.734
AC4	0.64	**0.94**	0.546	0.684	0.632	0.677	0.773	0.739	0.583	0.728	0.747
AF1	0.657	0.363	**0.762**	0.504	0.61	0.442	0.505	0.538	0.516	0.549	0.443
AF2	0.73	0.537	**0.898**	0.52	0.607	0.62	0.562	0.6	0.569	0.549	0.535
AF4	0.637	0.476	**0.825**	0.437	0.553	0.47	0.55	0.572	0.501	0.541	0.547
NU2	0.664	0.713	0.532	**0.976**	0.775	0.566	0.745	0.691	0.539	0.727	0.633
NU3	0.655	0.665	0.572	**0.953**	0.807	0.56	0.678	0.682	0.499	0.697	0.627
NP3	0.708	0.653	0.686	0.816	**1**	0.557	0.73	0.773	0.647	0.729	0.629
NJ1	0.481	0.386	0.431	0.383	0.377	**0.653**	0.429	0.394	0.403	0.481	0.507
NJ2	0.602	0.689	0.578	0.54	0.51	**0.926**	0.638	0.598	0.529	0.599	0.674
UM1	0.671	0.783	0.604	0.607	0.632	0.671	**0.854**	0.714	0.67	0.762	0.708
UM2_a	0.467	0.513	0.402	0.563	0.494	0.422	**0.731**	0.503	0.403	0.576	0.459
UM3	0.496	0.602	0.488	0.505	0.473	0.53	**0.756**	0.559	0.444	0.573	0.603
UM4	0.556	0.708	0.563	0.708	0.727	0.549	**0.877**	0.784	0.567	0.705	0.723
HM1	0.667	0.755	0.59	0.691	0.716	0.64	0.793	**0.919**	0.662	0.743	0.777
HM2	0.73	0.637	0.674	0.609	0.719	0.562	0.724	**0.922**	0.758	0.737	0.723
HM3	0.717	0.701	0.628	0.707	0.757	0.576	0.738	**0.933**	0.701	0.776	0.778
HM4_a	0.513	0.567	0.496	0.471	0.5	0.44	0.559	**0.729**	0.458	0.606	0.61
RM1	0.649	0.577	0.611	0.507	0.616	0.552	0.618	0.721	**0.964**	0.712	0.654
RM2	0.657	0.63	0.601	0.535	0.63	0.572	0.651	0.708	**0.964**	0.649	0.699
AT1	0.659	0.758	0.591	0.63	0.597	0.645	0.767	0.77	0.702	**0.934**	0.801
AT2_a	0.607	0.655	0.525	0.632	0.638	0.551	0.712	0.699	0.605	**0.895**	0.687
AT3	0.739	0.778	0.636	0.768	0.769	0.638	0.767	0.769	0.627	**0.918**	0.747
IR1	0.63	0.699	0.547	0.558	0.534	0.753	0.65	0.749	0.627	0.76	**0.904**
IR2_a	0.597	0.711	0.494	0.669	0.66	0.558	0.78	0.761	0.62	0.742	**0.806**
IR3_a	0.461	0.581	0.487	0.429	0.407	0.517	0.581	0.562	0.49	0.554	**0.801**
IR4	0.579	0.601	0.552	0.505	0.48	0.635	0.598	0.665	0.598	0.652	**0.843**

Table VI. Cross loadings

4.2. Structural model assessment

Once the quality of the measurement instrument had been assessed, the proposed model was estimated, using a repeated indicator approach. First, it is evident that all the dimensions for HAI and NE have highly significant loadings (p<0.001) on their corresponding constructs (GC: 0.943; AC: 0.859; AF: 0.891; NU: 0.922; NP: 0.913, NJ:795).

PLS-SEM algorithm provides model relationships (path coefficients) among the constructs, which represents hypothesized relationships of the constructs. The standardized values provided by path coefficient are higher than zero signifying positive relationship between the constructs, whereas, the t-value or p-value signifies the level of relationships. The research results are shown in Table VII here. All the proposed research hypotheses are positively significant, except H8 (RM→AT) with T-value less than 1.96 proving the relationship is insignificant. In particular, AT towards referral apps is a very important determinant of IR (H10: β.0.64 and p<0.001). Interestingly, AT was influenced by UM in the first instance (H6: β.0.43 and p<0.01), by HM (H7: β.0.348 and p<0.01) in the second instance despite the relationship being quasi-significant, but not at all by RM (H8: β.0.165 and p>0.05). While RM did not yield a significant relationship with AT, the effect of RM on IR (H9: β.0.25 and p<0.05) was also quasi-significant. UM, the most statistically significant influence on AT, was explained by NE and HAI, thus validating the claims in H3 (β.0.543 and p<0.001) and H1 (β.0.323 and p<0.001). It is also important to note the effects of HAI on HM (H2: β.0.4, p<0.001), as well as NE on HM (H4: β.0.472, p<0.001) and RM (H5: β.0.668, p<0.001). Therefore the role of these two external influences (HAI and NE) has been confirmed as second-order constructs. The research results are shown in Table VII here.

Hypothesis	β	T Statistics (|O/STDEV|)	P Values
H1: HAI -> UM	0.323***	4.13	0.000
H2: HAI -> HM	0.4***	4.004	0.000
H3: NE -> UM	0.543***	6.774	0.000
H4: NE -> HM	0.472***	5.085	0.000
H5: NE -> RM	0.668***	7.192	0.000
H6: UM -> AT	0.43**	2.938	0.003
H7: HM -> AT	0.348*	2.509	0.012
H8: RM -> AT	0.165	1.743	0.081
H9: RM -> IR	0.25*	2.537	0.011
H10: AT-> IR	0.64***	6.521	0.000

*Note: ***p<0.001, **p<0.01, *p<0.05*

Table VII. Result of hypothesis tests

Coefficient of determination (R^2) corresponds to the variance of the endogenous construct that was explained by the exogenous latent variable of the model. No rule of thumb is possible to establish for R^2, as it depends on the area of study and the model's complication. Adjusted R^2 value assisted to avoid biases of the complex model where the outcomes deal with the different number of a data set of exogenous latent constructs. In general, adjusted R^2 value reduces the value of R^2 by the number of explaining constructs and sample size. Thus, interpretation of adjusted R^2 is not possible like R^2, but gets an overall idea about how it produces results in different setup. The results of adjusted R^2 are very close to R^2 value meaning that no significant differences between original data set and extended or other data set. In this study, the explained variance (R^2) of the variable IR is 0.697. This indicates that the IR of referral apps is influenced by the variables proposed in the model, with an explanatory power of 69.7 percent while AT was explained by 75.2 percent of the variables. (Table VIII)

Variable	R Square	R Square Adjusted
UM	0.692	0.685
HM	0.697	0.69
RM	0.446	0.44
AT	0.752	0.743
IR	0.697	0.69

Table VIII. Coefficient of Determination (R^2 and adjusted R^2)

Table IX shows the model's total effects. In particular, given that HAI and NE are considered as exogenous variables in this study, the total effects of these two variables on both AT and IR are of particular interest. In this sense, NE has a 0.508 value in total effect on AT and 0.492 on IR (both highly significant (with $p<0.001$)). In addition, HAI has a 0.278 value in total effect on AT and 0.178 on IR (both also highly significant (with $p<0.001$)).

	HAI	NE	UM	HM	RM	AT	IR
HAI	-	-	0.323	0.4		0.278	0.178
NE	-	-	0.543	0.472	0.668	0.508	0.492
UM	-	-	-	-	-	0.43	0.275
HM	-	-	-	-	-	0.348	0.222
RM	-	-	-	-	-	0.165	0.356
AT	-	-	-	-	-	-	0.64
IR	-	-	-	-	-	-	-

Table IX. Model's total effect

4.3. Hypothesis testing

H1. Human-App Interaction (HAI) has a positive impact on the Utilitarian Motivation (UM) of referral apps.

The p-value of HAI is 0.000, which is lower than 0.001, hence there is a significant linear relationship between Human-App Interaction and Utilitarian Motivation. The beta coefficient of HAI (0.323) is statistically significantly different from 0, meaning that Human-App Interaction affects Utilitarian Motivation positively. Thus, H1 is accepted.

H2. Human-App Interaction (HAI) has a positive impact on the Hedonic Motivation (HM) of referral apps.

The p-value of HAI is 0.000, which is lower than 0.001, hence there is a significant linear relationship between Human-App Interaction and Hedonic Motivation. The beta coefficient of HAI (0.4) is statistically significantly different from 0, meaning that Human-App Interaction affects Hedonic Motivation positively. Thus, H2 is accepted.

H3. Perceived Network Externalities (NE) have a positive impact on the Utilitarian Motivation (UM) of referral apps.

The p-value of NE is 0.000, which is lower than 0.001, hence there is a significant linear relationship between Perceived Network Externalities and Utilitarian Motivation. The beta

coefficient of NE (0.543) is statistically significantly different from 0, meaning that Perceived Network Externalities affects Utilitarian Motivation positively. Thus, H3 is accepted.

H4. Perceived Network Externalities (NE) have a positive impact on the Hedonic Motivation (HM) of referral apps.

The p-value of NE is 0.000, which is lower than 0.001, hence there is a significant linear relationship between Perceived Network Externalities and Hedonic Motivation. The beta coefficient of NE (0.472) is statistically significantly different from 0, meaning that Perceived Network Externalities affects Hedonic Motivation positively. Thus, H4 is accepted.

H5. Perceived Network Externalities (NE) have a positive impact on the Relational Motivation (RM) of referral apps.

The p-value of NE is 0.000, which is lower than 0.001, hence there is a significant linear relationship between Perceived Network Externalities and Relational Motivation. The beta coefficient of NE (0.668) is statistically significantly different from 0, meaning that Perceived Network Externalities affects Relational Motivation positively. Thus, H5 is accepted.

H6. Utilitarian Motivation (UM) has a positive impact on attitude (AT) toward referral apps.

The p-value of UM is 0.003, which is lower than 0.01, hence there is a significant linear relationship between Utilitarian Motivation and Attitude. The beta coefficient of UM (0.43) is statistically significantly different from 0, meaning that Utilitarian Motivation affects Attitude positively. Thus, H6 is accepted.

H7. Hedonic Motivation (HM) has a positive impact on attitude (AT) toward referral apps.

The p-value of UM is 0.012, which is higher than 0.01 but still lower than 0.05, hence there is a linear relationship between Utilitarian Motivation and Attitude. The beta coefficient of HM (0.348) is statistically significantly different from 0, meaning that Hedonic Motivation affects Attitude positively. Thus, H7 is accepted.

H8. Relational Motivation (RM) has a positive impact on attitude (AT) toward referral apps.

The p-value of RM is 0.081, which is higher than 0.05 hence there is no significant linear relationship between Relational Motivation and Attitude. Therefore, Relational Motivation does not affect Attitude toward referral apps. Thus, H8 is rejected.

H9. Relational Motivation (RM) has a positive impact on the Intention to Refer (IR) on referral apps.

The p-value of RM is 0.011, which is higher than 0.01 but still lower than 0.05, hence there is a linear relationship between Relational Motivation and Intention to Refer on referral apps. The beta coefficient of RM (0.25) is statistically significantly different from 0, meaning that Relational Motivation affects Intention to Refer on referral apps positively. Thus, H9 is accepted.

*H10*. Attitude (AT) has a positive impact on Intention to Refer (IR).

The p-value of AT is 0.000, which is lower than 0.001, hence there is a significant linear relationship between Attitude and Intention to Refer on referral apps. The beta coefficient of AT (0.64) is statistically significantly different from 0, meaning that Attitude affects Intention to Refer on referral apps positively. Thus, H10 is accepted.

The conclusion of the hypothesis testing is summarised in Table X.

Relationship	Hypothesis	Results
H1: HAI -> UM	H1. Human-App Interaction (HAI) has a positive impact on the Utilitarian Motivation (UM) of referral apps.	Supported
H2: HAI -> HM	H2. Human-App Interaction (HAI) has a positive impact on the Hedonic Motivation (HM) of referral apps.	Supported
H3: NE -> UM	H3. Perceived Network Externalities (NE) have a positive impact on the Utilitarian Motivation (UM) of referral apps.	Supported
H4: NE -> HM	H4. Perceived Network Externalities (NE) have a positive impact on the Hedonic Motivation (HM) of referral apps.	Supported
H5: NE -> RM	H5. Perceived Network Externalities (NE) have a positive impact on the Relational Motivation (RM) of referral apps.	Supported
H6: UM -> AT	H6. Utilitarian Motivation (UM) has a positive impact on attitude (AT) toward referral apps.	Supported
H7: HM -> AT	H7. Hedonic Motivation (HM) has a positive impact on attitude (AT) toward referral apps.	Supported
H8: RM -> AT	H8. Relational Motivation (RM) has a positive impact on attitude (AT) toward referral apps.	Rejected
H9: RM -> IR	H9. Relational Motivation (RM) has a positive impact on the intention to refer (IR) on referral apps.	Supported
H10: AT-> IR	H10. Attitude (AT) has a positive impact on Intention to refer (IR).	Supported

Table X. Conclusion of hypothesis testing

5. Discussion

This section will present further discussion of the results presented in the above hypothesis testing. With a primary standpoint in results from each tested hypothesis, the section is divided into two adjacent discussions, the first diving deeper into the construction of both Human-App Interaction and Network Externalities tested in relation to the three types of gratifications that can affect an individual's motivation for using a referral app, namely Utilitarian Motivation, Hedonic Motivation and Relational Motivation, and the second exploring the effect of these three gratifications towards the user's attitude towards the app and intention to use it for their candidate referral activities.
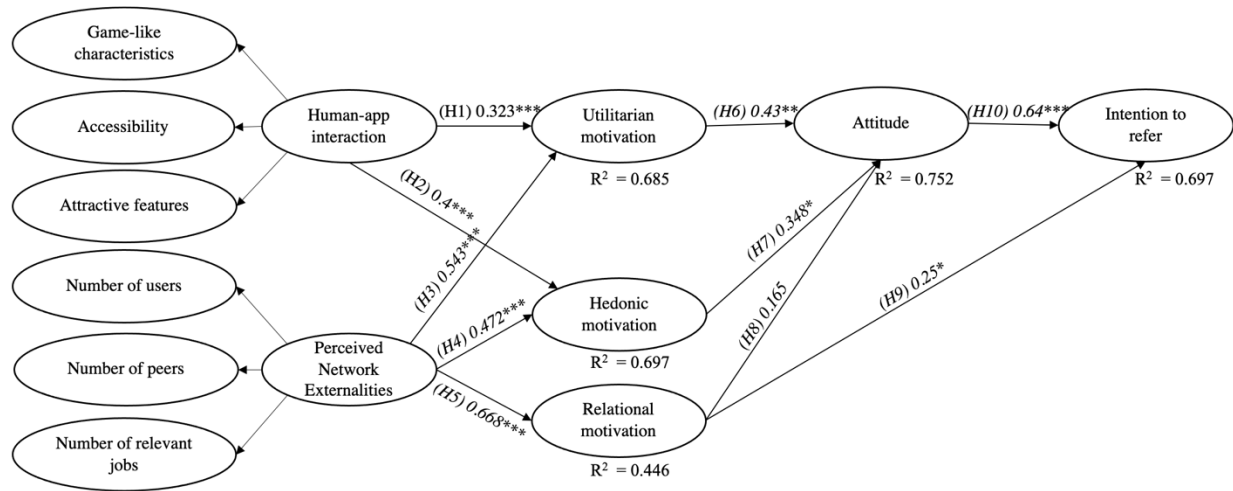
Notes: *p<0.10; **p<0.05; ***p<0.001

Figure III. Revised conceptual model based on hypothesis testing

The results confirm our research question that the motivation and usage of customers when it comes to technological adoption of a referral recruitment app could be understood by the uses and gratifications (U&G) theory (Rubin, 2009), UTAUT (Venkatesh et al., 2003), and the network externalities (NEs) paradigm (Witt, 1997). More specifically, the results help improve the understanding of the factors influencing the adoption and use of mobile technology that has elements of both human-app interaction and perceived network externalities. Based on the results, both human-app interactions and network externalities have significant impact on intention to refer through its effects on utilitarian motivation, hedonic motivation and relational motivation.

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5.1. Effects of Network Externalities

Network Externalities factor has been found to have a strong, positive influence on Utilitarian Motivation, Hedonic Motivation and Relational Motivation. This is an important contribution because even though there has been previous research that investigated the relationship between Network Externalities and the aforementioned three types of user motivations in the adoption of mobile apps such as gaming (Hsu et al. 2004; Molinillo, 2018; Chang et al. 2014), electronic payment (Gowrisankaran, 2004) and e-commerce (Bonaccorsi, 2002), no prior studies have made this claim in the field of digital referral recruitment.

Network Externalities, mainly driven by the size of the user network on the platform and the amount of relevant jobs available for these users to make a referral action, has a significant impact on Utilitarian Motivation - the perception of functional simplicity of the app. The more people that are known to use a referral app to assist their referral activities, the easier it will seem for other people to adopt it in their day-to-day professional work as well. This finding, in line with the perception that a large number of people use a particular technology has a positive impact on the acceptance of that technology (Rogers, 2003), raised an interesting insight when the demographics of the respondents are zoomed in. While the users - who are referral agents - of platform X are accomplished and senior professionals (with more than 59 percent of the respondents aged above 40 years) who were specifically selected to join platform X as they possess wide networks of talents that was established over the years during their careers, these people might not be as tech-savvy as the younger groups such as the millennial generation. In contrast to millennials who tend to be heavily influenced by the design aspect of a technology (Nawaz, 2020), the senior group of users relies on trust of other people's experience when using a technology to decide on the technology's effort expectancy. It has also been observed that uncertainty that comes with new technologies or innovations forces people to seek guidance from their social networks (Burkhardt & Brass, 1990). As a result, the size of the user network, constituting the perception of network externalities, plays a significant role in influencing Utilitarian Motivation.

The impact of Network Externalities on Hedonic Motivation and Relational Motivation is also consistent with the results obtained by Wei and Lu (2014), although these authors applied the

framework and estimated the effect in the specific context of mobile social games. The greater the Network Externalities, the greater the Hedonic Motivation is because each user on the referral app will have a larger group of other users with whom to share the professional experiences and tips besides their primary purpose of referral candidates, which results in the greater enjoyment of using the technology. In addition, the greater the Network Externalities or the greater a users' social reach, the greater their Relational Motivation will be as each user will have more opportunities to expand their own network and knowledge-sharing with other users, an effect consistent with the results from the study conducted in a mobile gaming context by Molinillo (2018).

5.2. Effects of Human-App Interaction

Similar to network externalities, Human-App Interaction has a significant influence on Utilitarian Motivation and Hedonic Motivation. In other words, an easy and attractive experience where a human and a referral app communicate and interact with each other - whereby this thesis has defined three types of interactions, namely Game-like Characteristics, Accessibility Characteristics, and Attractive Features - will directly and positively impact a user's motivations in adopting the technology. This finding, tested within the context of referral recruitment apps in the referral recruitment industry, is in line with the previous findings of previous studies about the relationship between human-technology interaction and the technology adoption (Szalma, 2014; Cetto, 2015). In this study, Game-like Characteristics of a referral app are reflected through several gamified elements such as user avatars, badges for referral achievements, performance graphs showing referral success rate and monetary reward statistics. This is an important contribution as there was several previous research that investigated the impact of gamification features in a physical HR practices in order to increase employee motivation, engagement, and performance (Murawski et al., 2020; Shahri et al., 2019; Perryer et al., 2016), the thesis is one of the first research that applied, digitalised, and validated the impact of those gamification features in a digital HR environment. In addition, the finding that Accessibility Characteristics of the referral app contributing to the interaction of humans and apps - which was manifested through the ease of use, anywhere and anytime access - is also in-line with previous research about the technology acceptance model of mobile apps (Kim et al., 2009). Finally, Attractive Features that display the attractive technical functions (e.g candidate management

feature, progress tracker) of the referral app in order to help users better manage and perform their referral activities also plays a significant part of the Human-App Interaction.

The results of this thesis also support previous research that studied technological adoption of mobile apps in other industries such as gaming, showing that the influence of Human-App Interaction on Utilitarian Motivation (e.g. Choe et al., 2015; Venkatesh et al., 2008), as well as on Hedonic Motivation (e.g. Ha, 2007; Kim et al., 2010). This insight is in line with previous studies findings which have shown that Utilitarian Motivation is directly and positively impacted by effective interactions between individuals and information systems (Davis et al., 1989; Venkatesh and Bala, 2008). Particularly, in the mobile technologies field, it has emerged that certain characteristics of mobile payment systems (Kim, Mirusmonov and Lee, 2010) and mobile games (Choe et al., 2015) significantly increase Utilitarian Motivation. The composition of Human-App Interaction introduces a novel and more interactive concept of referral recruitment activities, where anyone with a network of talents can refer a candidate anywhere and anytime and of their convenience without being constrained in a workplace context, making every referral activities easier and more engaging. The greater attractive characteristics and the higher the level of accessibility of a referral app, the greater Utilitarian Motivation as the easier it is for users to refer a candidate. This is also in line with an interesting insight from the interview with the Community Manager of Platform X regarding one of the biggest challenges for referral agents on its platform. Even though platform X has made an effort to optimize the referral process by setting up a minimum number of fields for agents to fill in when doing a referral, namely candidate's name, email and reason for the referral, the website interface for these referral activities is not ideal for "speed", not portable and sometimes might be cumbersome to use. The agents have a day job and are not full-time focused on recruitment. Therefore, the mobility and simplicity of a referral app that enables users to quickly get updated on the latest jobs added and make referrals on the go will positively contribute to the Utilitarian Motivation factor. Furthermore, when the process of referral activities are made to be less cumbersome, more interactive and exciting, the greater the enjoyment of the technology would be for the users (Hedonic Motivation). Therefore Human-App Interaction that was driven by entertaining components such as Game-like characteristics will positively influence Hedonic Motivation. This finding about the inferred relationship between Game-like Characteristics and Hedonic

Motivation is in line with findings from other research in mobile exercise apps (Jang, 2018) and healthcare apps (Lin, 2018). Altogether, these findings are an important contribution to the study of technological adoption models because most of the recent research works have underestimated the effect and optimization of Human-App Interaction on the users' of mobile devices (e.g. Chong et al., 2012; Wei et al., 2009).

5.3. The relationship of Utilitarian Motivation, Hedonic Motivation and Relational Motivation on Attitude and Intention to Refer

First, this study shows a strong and direct positive relationship between Attitude and Intention to Refer. Not only does this finding show a novel connection that is little known in the context of the referral recruitment industry, it adds new knowledge to the application of the Unified Theory of Acceptance and Use of Technology (Venkatesh, 2003). It should also be noted that Utilitarian Motivation and Hedonic Motivation play an important role in explaining the adoption of a referral app. This finding is in line with prior research's findings about the influence of Utilitarian Motivation and Hedonic Motivation on technology adoption such as those by Agarwal et al. (2000); Dabholkar (1996); van der Heijden (2004); Venkatesh, (2000); and Venkatesh et al., (2012).

In particular, Utilitarian Motivation has the most statistically significant impact on Attitude towards the platform and indirectly on Intention to use a referral app. These results confirm that a mobile referral platform that promotes functional simplicity would motivate people to adopt it, which is in line with the UTAUT by Venkatesh et al. (2003), U&G theory by Venkatesh and Bala (2008) and findings by Davis et al. (1989). Based on the UTAUT by Venkatesh et al. (2003), Utilitarian Expectations (Motivations) can be broken down into and explained by both performance expectancy and effort expectancy. Effort Expectancy can cause a user to adopt a more positive attitude toward a technology and, consequently, use it more (Molinillo, 2018). Prior empirical studies also show that Effort Expectancy has a positive influence on both perceived convenience and attitude (Davis et al., 1989; Kim, Mirusmonov and Lee, 2010; Venkatesh and Bala, 2008). Further, Utilitarian Motivation is more strongly influenced by the effect of Network Externalities than by that of Human-app interaction, meaning that potential users adopt a referral app in a belief that the app is easy and practical to use because other people

use it, and less based on their initial individual assessment of the app's characteristics. In other words, the perception of the network size, influencing the perception of the degree of ease associated with the use of the system, will therefore play a crucial role in users' motivation of using the referral app. Although people in Sweden are in general experienced with technology and have a good foundation of knowledge on how to use the technology and mobile apps, which can be seen in other industries such as eCommerce with 50 percent of Swedish customers shopping on their phone (Statista, 2019), mobile apps are still a rarity in such a matured, old, and quite obsolete industry as the referral recruitment industry in Sweden. The finding is enhanced especially put in the context of the main population of this study being the older group of users above 40 years of age. This possible explanation is in line with the UTAUT framework by Venkatesh et al. (2003) where the authors found there was a mediated relationship between users' age and their motivation as well as behaviors towards technology adoption.

Hedonic Motivation plays a secondary role in influencing Attitude and therefore has an indirect impact on Intention to use a referral app. Reflecting upon the findings of previous studies in other industries such as gaming (e.g Liu et al., 2011; Wei et al., 2014, Lee, 2009; Park et al, 2014), this finding that relates Hedonic Motivation with Attitude and Intention to Refer is an important contribution as it adds new knowledge on the referral recruitment industry. If the referral app promotes convenience, attractive and fun characteristics such as the game-like features, it would create the main sources of gratification of a mobile referral app. Employees from a study conducted by Venkatesh et al., (2003) also cited that technology makes their work more captivating and interesting, which reaffirms our findings that hedonic gratification supports their attitude towards a new technology.

Interestingly, the model indicates that users' attitude towards referral apps was found to not be influenced by Relational Motivation. In other words, the social environment that the platform offers does not statistically influence the degree of the individual's favorable or unfavorable feelings toward the technological platform. Additionally, Relational Motivation showed a relatively weak impact on users' intention to use an app to refer candidates. This supports the findings of prior studies using the similar framework but in other industries such as social network games (Chang, 2013) and mobile social games (Hsiao et al., 2016; Wei et al., 2014).

This could be explained that even though the relational environment has no relationships with potential users' attitude towards the referral app, it helps, though marginally, in motivating them to try out the technology for their referral activities. One explanation for this finding could be that the sense of community and network on the referral app platform is considered to be a "nice to have" feature rather than an essential element which influences users to use the platform in the first place. That said, unlike a social networking site that aims to bolster relational connections among professionals, a referral app by its name is first and foremost a functional platform that is intended to digitally assist candidate referral activities. It is therefore likely that the relational element is rather a subsequent product of the referral app usage than a cause of the technology adoption. Furthermore, the social network element - Relational Motivation - could already be established and fulfilled in more traditional settings through both physical and virtual means without a mobile referral app. More specifically, people already have established professional networks through physical networking events, in-person meetings or via digital networking platforms such as LinkedIn. In fact, as the world's preeminent social network for professionals, LinkedIn has about 3 million users in Sweden which accounts for 30 percent of its entire population and more than 53 percent of the country's workforce (Next Business Academy, 2019). It is indeed a crucial part of professional lives and proven to be effective in performing its intended objective as a social networking platform. Hence, Relational Motivation was already achieved via such means would yield an agnostic attitude of potential users towards a referral app. Perhaps the users' main intention of using a referral app is to make their referral activities simpler and engaging, which also explains why Utilitarian Motivation and Hedonic Motivation is more influential towards attitude than Relational Motivation. In other words, even though it is observed that people within social networks influence each other towards innovative technologies like mobile apps (Van den Bulte & Wuyts, 2007), in this case, the network effect indicates ease, convenience and attractiveness of the app rather than serves a relational connection purpose.

6. Conclusion

This thesis was initially motivated by the rise in importance of employee recruitments, which resulted in various HR-tech companies developing innovative products. Mobile apps have also become a normality within the tech space and every company who has ambitions to be inventive should follow suit. One such innovative result within the HR-tech industry is referral recruitment platforms that are starting to migrate to a more mobile-driven offering. With anything that is new, uncertainties will surely follow and our research was mainly derived from the challenges that are faced by these platforms in terms of user adoption and retention. Despite its rising relevance in the market, there has not been enough research that illuminates more light on the adoption of digital-based referral recruitment platforms. What are the main purposes of potential users for using this new form of technology? Which features are essential in order to maintain the users' engagement within the platform? These are some of the basic queries that we aimed to answer with our thesis, until we have finally arrived at our current research questions: what motivates and influences the acceptance and use of referral apps?

We sought to answer this question with the aid of gratification, network externalities, and technology adoption theories, as we established a working framework to test our hypotheses. We hypothesized that human-app interactions (such as game-like characteristics and other attractive features), along with network externalities (number of users and relevant jobs within the platform) would have an impact on the users' intention to refer in the platform through its effects on utilitarian motivation, hedonic motivation and relational motivation. Our analysis has confirmed the validity of these relationships and presented a novel and clearer picture towards the adoption of such technology.

Our thesis has shown that both human-app interaction and perceived network externalities indirectly affect the users' attitude towards the platform as well as their intention to refer in the platform through two important moderators: utilitarian motivation and hedonic motivation. From these two, utilitarian motivation was observed to be the more statistically influential towards the users' attitude towards the platform, as well as indirectly to their intention to refer. This result was quite expected as it was previously demonstrated in prior findings of technological adoption research. This revelation indicates that an intuitive and simplified user experience, among other

things, is much to be desired within a referral recruitment platform by the users and it could prove crucial to the future development of the industry.

Quite interestingly as well, although utilitarian motivation and hedonic motivation are shown to positively affect attitude, relational motivation was seen to not statistically affect the users' attitude towards the platform despite our initial hypothesis to be so. Additionally, relational motivation also presented a relatively weak direct influence on the users' intention to refer. This thesis can thereby indicate that the additional social environment that the platform can offer to potential users is not seen as a definitive feature which directly contributes to the usage of the technological platform. What the results show, however, is that perceived network externalities (moderated through utilitarian motivation and hedonic motivation) can still encourage potential users to try the platform when there are more people in the platform, perhaps as a way for them to enquire to their peers about the how the app works and other inquisitive actions that usually comes when adopting a new form of technology.

In sum, this thesis solidifies that potential users adopt a mobile referral app on the basis that it is easy, convenient and practical to help them achieve the most important goal of referring a candidate, rather than to obtain other hypothetical goals namely by being entertained or merely to expand their social network. The hedonic experience, however, would also be a complementary element of a referral app that motivates users to adopt the technology. Conclusively, and in relation to our preceding research question, human-app elements and perceived network externalities are key traits that positively affect the acceptance and use of referral apps, albeit through multiple moderating motivational factors that precede them.

7. Managerial implications

This section will be dedicated to discussing the practical implications that our research can affect business practitioners in digitally-lead organizations. As our research mainly focuses on a referral recruitment platform that connects a multitude of business actors through network effects, we will be dividing this segment into three parts where each of them will be specifically dedicated to one stakeholder who has the potential to be affected and, hopefully, aided by this research.

7.1. Implications to service providers

At the center of referral recruitment platforms are the service providers or HR-tech companies who have developed this technological platform and offered its services to the public. Consistent with the lack of research on digital referral recruitment platforms, these kinds of HR platforms or referral recruitment apps are also still a rarity in the market even though their existences have started to materialize. Uncertainties will of course be abundant for new business models like these as there hasn't been a proven successful platform beforehand in which the companies can draw inspiration from. Nonetheless, our research should be able to contribute to these referral recruitment platforms who are in development or have launched and wish to continually improve their products.

Considering that referral agents currently already have a non-mobile platform to accomplish their referral activities, the introduction to a new technology should therefore offer a good enough reason for these agents to migrate to a new innovative platform. As our research has demonstrated, both human-app interactions and perceived network externalities are crucial elements that influence the users' attitude towards the platform and their intention to refer candidates to companies. It seems that the users' main motivation in using a referral app is to find a platform that can make their referring activities simpler, more enjoyable and engaging, compared to the currently existing conventional and non-digital method. Therefore, in order to improve the attractiveness and 'stickiness' of the platform, managers should decide to invest more resources in developing better human-app features that lead to a higher sense of enjoyment when using the platform. Attractive features and game-like characteristics would be absolutely beneficial, such as introducing badges, achievements, and performance graphs. Accessibility is

also an important element that contributes to a high utilitarian satisfaction, meaning that creating a referral platform that is responsive and without annoying bugs should be of priority for service providers. If these basic and essential elements are not fulfilled, their interest and commitment to the platform could in turn become restricted and unfulfilled.

Equally important are the network externalities elements of the platform, such as the number of users and number of relevant jobs that are listed in that platform, which will allow the potential users to expand their social networks and aid them with their referral processes. It is, therefore, emphatically crucial for marketing managers to focus their efforts in acquiring a good number of users and relevant jobs to earn credibility in the eyes of the users. This is because computer-mediated systems increase users' social interaction, which still requires a minimum number of contributors (Hiltz and Turoff, 1985). Through this network externalities enhancement, this will in turn enhance the utilitarian motivation and hedonic motivation of the platform, whereby both forms of gratifications are important in affecting the attitude towards the platform as well as the users potential intention to refer candidates with the technology.

7.2. Implications to employers

Sourcing and recruiting highly sought after talents are not easy for companies. In this modern era where the "war for talent" is even more evident, employers have to modify the recruitment strategy and expand the recruitment activities to attract needed talent (Kucherov & Zhiltsova, 2020). As referral recruitment platforms are starting to appear and grow in the market, and since referral recruitment platforms benefit from network effects for all parties, we believe it is wise for employers to expand their talent sourcing reach and collaborate with referral apps by posting their jobs on such mobile platforms.

We view this holistic referral process as a self-sufficient cycle. As revealed in this research, referral agents can be motivated and inclined to utilize a referral app that is easy and exciting to use. Furthermore, when a bigger social network can also be guaranteed by the platform, all of this can lead to more agents in accomplishing their referral processes in the platform. As there has been multiple research that shows referral recruitment is more beneficial for employers, the companies will in turn benefit from this entire referral process. As companies are satisfied with

their recent referral-based hire, employers should continue to support the referral app by posting more jobs there which should in turn motivate more agents to join the platform. When this entire process is repeated, the platform becomes bigger and richer as this entire cycle repeats and nurtures itself.

Therefore we see this referral ecosystem as a symbiotic relationship where each stakeholder has the capability to incrementally improve the environment as a whole. Thus, employers have a big role within this cycle as they enrich the perceived network environment by adding more jobs that are available. Hence, it is absolutely beneficial for employers to fully-utilize the emergence of mobile technology and referral recruitments.

7.3. Implications to referral agents

Each actor in this ecosystem - the service providers, employers, and referral agents - have a huge role to play in promoting the effectiveness of the community, yet we would argue that referral agents are the most crucial element of this referral ecosystem as they are the main actors who ensure the progression of the referral process and generate the profit for all parties. There will always be substitutes for the service providers and employers who post job openings in the market, whereas referral agents have the freedom to choose between these options. The wheel of referral recruitments simply would not turn without the work of the referral agents. Therefore, these agents would have the most bargaining power towards the other stakeholders, namely the service providers and employers.

However, the implications of this research for referral agents can be two-fold. First of all, as a large part of referral agents that were surveyed in our research consists of more experienced and older professionals, hence we can expect that they are not as tech savvy as the younger generations. Therefore these agents would need more support from the service providers in order to be able to deliver a consistently intuitive user experience in the platform. On the other hand, the younger generation agents, who are more accustomed with new technology in their lives, would welcome this introduction of new technology in their referral process.

In general, as the human-app and network elements are fulfilled within the platform, more referrals are predicted to happen by agents. This is applicable for either agent demography because it will be easier and more engaging for the referral agents to initiate and finalize the referral process. Less efforts will subsequently be required to track their referral process as there are now useful features to assist them with this. They can now also leverage their more expansive network to potentially share referral tips, exchange networks, or simply share their experiences with other agents to strengthen their relational gratification within the platform.

Conclusively, referral agents have the power to demand improvements towards the referral recruitment platforms. Agents could and, in fact, should work closely together with the service providers in order to constantly seek the enrichment of the platform which would in turn benefit the entire ecosystem. It's not uncommon for service providers to work with a small group of lead users or a cluster of core users who can constantly contribute to the future requirements and direction of the platform. Therefore, a close collaboration between the agents and service providers is absolutely essential for the progression of the referral ecosystem.

7.4. Limitations and Future research

7.4.1. Limitation

One of the principal limitations of this thesis exists in the convenience sample which consists of referral agents from only one referral recruitment platform in Sweden. The study requires a specific set of users or potential users of a mobile referral app, resulting in the sample size being slightly more limited than preferred. While the most ideal subjects for this study are referral recruitment platforms that have existing mobile referral apps, these companies do not allow external access (i.e student researchers) to the end users of the platform, who are in this case their clients' employees, due to the confidentiality of clients and the complex bureaucracy of certain organizations. This hindrance led to the main challenge in our attempt to obtain a preferably more diverse sample. Another difficulty during the sampling process is that despite the substantial user base of the chosen digital platform X (with more than 1,500 agents), it was estimated by the platform that only 20 to 30 percent of these agents are still active users. This much smaller initial sample resulted in a limited final data set. It is possible that a larger dataset would have rendered more statistically significant conclusions, the final sample, however, still

deemed reliable and satisfactory when being analysed using the chosen statistical method. Furthermore, the results of this study are limited due to the differences in the demographic variables, more specially age and gender of the respondents. Moreover the predictability of the research model could have been increased had more independent factors been proposed in our research model. However, more factors would make the questionnaire already long even longer and the respondents less willing to answer the survey, which would have made the data collection less manageable.

A second limitation is that the transversal nature, which "hinders the connection between research and everyday life" (Bryman & Bell, 2011), gives us only a snapshot of the current situation and does not allow for a more dynamic analysis. Finally, the research framework ends at "Intention to refer" and does not go a step further to the "Actual usage" stage, which refers to the concept of investigating whether and how the user eventually uses the product or the platform. This limitation was realized and deliberately decided in the beginning of the research as it would not make sense to study the actual usage behaviors when the chosen referral platform X does yet have a mobile referral app in place.

7.4.2. Future research

While this thesis offers intriguing insights regarding the factors that motivate and influence the acceptance and use of referral apps, the conclusion and preceding discussion open up to some interesting lines of future research.

First of all, the relationships investigated in the thesis are limited given the sample used. It is, therefore, recommended that further research be conducted with a more variety of referral recruitment platforms in other countries and cultures, resulting in a more probabilistic sample.

Second, given the large gap in the current literature, this research rather attempted to produce the latest insights regarding technological evolution in a specific HR area such as referral recruitment. It therefore provides a springboard for future research to replicate and extend on the existing finding. As this research was built upon an interactive prototype to visualize the idea of referral apps, further research involving an actual product that reflects a full set of features will

have the potential to further validate and strengthen the current findings. In addition, to widen the scope of the study, future works could investigate how certain user characteristics (e.g gender, age group, referral app use frequency) moderate the relationships between the variables of the framework. The subsequent relationships between "Intention to refer", "Actual usage" - the final stage of the UTAUT model (Venkatesh et al., 2003) - and a further step of "Post usage" are also recommended to be studied to add more insights to the holistic effect of the factors on the whole user experience. Future work could also include other untested variables that directly influence "Intention to use" to improve the predictive capacity of the model. These variables could include screen-to-screen flow experience on the referral app, time flexibility or different reward schemes (both monetary and non-monetary).

Finally, not only could this research of technological adoption of referral apps be used in the future study of referral recruitment, it could potentially be applied in the product development process of other technology within the HR tech and talent tech sphere, especially those concerned with talent engagement and retention.

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Appendix

Appendix I. Pre-study interview guide

1. What do you think are the motivations for agents to sign-up with Platform X?

2. What are agents' perception about monetary rewards at Platform X? More specifically, how does Platform X know if the monetary rewards are reasonable and attractive to agents? Do you think if the monetary rewards increase, there will be more referrals coming from agents?

3. What activities are you using to attract new agents and engage with existing agents on Platform X? (engaging as in keep the agents active and referring candidates to jobs on Platform X)

4. What do you think are the factors that are preventing agents from referring a candidate? (e.g number of jobs, number of non-relevant jobs, process to refer a candidate, etc)

5. How does the flow of referrals look, starting from agents referring candidates until the agents get the reward in their accounts upon the successful referral?

6. How do you think a referral mobile app would help engage more agents?

7. What do you think are some critical features on the app that might further influence agents to engage with Platform Xand increase their referral intentions?

8. If there are reasons that agents might not be very excited about using an app for Platform X, what do you think they could be? (for example industry culture that agents prefer to work with a more traditional way as Platform X is doing now?)

Table II. Measures used in this study

Measures	Item	Measurement items
Game-like characteristics	GC1	Badges for my referral achievements would make referral apps fun for me to use
	GC2	An avatar for my profile would make referral apps exciting for me to use
	GC3	A seamless flow on referral apps would keep me interested in using the apps for referral activities
	GC4	A performance graph in referral apps to keep track of my individual performance would keep me excited, for example my referral success rate, monetary statistics, etc.
Accessibility	AC1	A referral app can make referral activities happen anytime (during working hours, in free time, etc)
	AC2	A referral app can make referral activities happen anywhere (at work, during commute, at networking events, etc
	AC3	A referral app would provide a more convenient interface than a web platform
	AC4	A referral app is fast to use for referral activities
Attractive Features	AF1	I like to be able to set a referral goal for myself and see myself achieve it
	AF2	I like to be able to manage my own talent pool for my referral activities on a referral app
	AF3	I like to be able to keep track of the complete referral process
	AF4	I like to receive reward points for each successful action during my referral process
Number of users	NU1	I perceive that a good number of agents currently use Platform X's referral platform to refer
	NU2	I perceive that there will be more agents on Platform X if there is a mobile referral app
	NU3	I perceive that there will be more companies working with Platform X if there is a mobile referral app
Number of peers	NP1	I perceive that some people from my personal network are also Platform X's agents

	NP2	I perceive that the lack of people from my own personal network on a referral app would be the main barrier that prevents me from using it
	NP3	I perceive that more people in my personal network will join Platform X if there is a referral app
Number of relevant jobs	NJ1	I perceive that Platform X have vacant jobs that are relevant to my field and network
	NJ2	I perceive that more open jobs listed on a referral app will help me to refer more candidates
Utilitarian motivation	UM1	I think a referral app would be convenient for my referral activities
	UM2	I do not think a referral app would help me to refer candidates in a more efficient way[a]
	UM3	I find a referral app would be easy to use
	UM4	I think using an app to refer would take less effort than a normal referral website
Hedonic motivation	HM1	Making a referral on a referral app with features such as in the prototype would be more relaxing for me
	HM2	Making a referral on a referral app with features such as in the prototype would be more fun for me
	HM3	Making a referral on a referral app with features such as in the prototype would be more enjoyable for me than on a website
	HM4	I would not enjoy making a referral on a referral app[a]
Relational motivation	RM1	I think by being able to make a referral on a referral app would enable me to interact with more agent peers
	RM2	I think by being able to make referrals on a referral app would increase my opportunities to interact with more agent peers
Attitude	AT1	I would have positive feelings towards referral apps in general
	AT2	Using a referral app does not appeal to me[a]

	AT3	It would be a good idea to use a referral app for referral activities
Intention to refer	IR1	I am willing to use a referral app to refer a candidate
	IR2	I would prefer a normal referral website than a referral app[a]
	IR3	I will not give a referral app a try[a]
	IR4	I will take initiatives to explore a referral app for the basic use of referring a candidate

Note: [a]Reverse scoring

Appendix II. Example screenshots of the survey

Handelshögskolan i Stockholm

This survey is conducted for a Master's thesis at Handelshögskolan (Stockholm School of Economics) in collaboration with _____ This survey should take no longer than 10 minutes. By proceeding to the next pages, you will give us your permission to use your responses for our research purposes. Your answers will be treated with utmost confidentiality.

In this study, we are aiming to understand your experience of using _____ as a referral recruiting platform and explore your attitude towards the concept of using a mobile app for your referral activities (referred to as "*referral app*" from now on).

First, we would like to invite you to try out a prototype of the aforementioned referral app. You can interact with the prototype as if it was a real app by following the instruction or tapping on the buttons. It might feel a bit unresponsive, but it can give you an idea on the basic features and user experience of the app. After trying the prototype, please answer the subsequent questions. **It is important that you try the prototype first, otherwise the questions will make little sense.**

*Please be informed that this prototype only serves as a tool to help you in answering this academic study. It will assist you in visualising the concept and the features of a hypothetical referral app, and it does not by any means indicate any certain product development from _____ in the future. This study is also unrelated to a previous _____ mobile app that you might have interacted with before.

Link to the prototype: https://pr.to/WNDTRX/

If you have any questions, please feel free to reach out to us:
Hardwi Pinandityo - 41614@student.hhs.se
Thuy Vu - 41634@student.hhs.se

Finally, we thank you very much in advance for your participation in our study! :)

After trying some example features on the prototype, please tick one box for each statement below to show how much you agree or disagree with it

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Badges for my referral achievements would make referral apps fun for me to use	◯	◯	◯	◯	◯	◯	◯
An avatar for my profile would make referral apps exciting for me to use	◯	◯	◯	◯	◯	◯	◯

What do you think about the role of networks on a referral app?
(Please tick one box for each statement below to show how much you agree or disagree with it)

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I perceive that a good number of agents currently use Agentum's referral platform to refer	◯	◯	◯	●	◯	◯	◯
I perceive that there will be more agents on Agentum if there is a mobile referral app	◯	◯	◯	●	◯	◯	◯

How do you think doing referral activities on a referral app would help you?

(Please tick one box for each statement below to show how much you agree or disagree with it)

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I think a referral app would be convenient for my referral activities	○	○	○	○	○	○	○
I do not think a referral app would help me to refer candidates in a more efficient way	○	○	○	○	○	○	○

How likely would you use a referral app for your referral activities?

(Please tick one box for each statement below to show how much you agree or disagree with it)

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I would have positive feelings towards referral apps in general	○	○	○	○	○	○	○
Using a referral app does not appeal to me	○	○	○	○	○	○	○
It would be a good idea to use a referral app for referral activities	○	○	○	○	○	○	○

Handelshögskolan i Stockholm

What is your age group?

○ 20-29 years old

○ 30-39 years old

○ 40-49 years old

○ >50 years old

What is your gender?

○ Male

○ Female

○ Other

○ Prefer not to say

What is your nationality?

○ Swedish

○ Other

Did you try multiple screens of the prototype?

○ Yes, I did!

○ No, I skipped that

What is this survey about?

○ Studying user experience with online shopping

○ Studying user experience with mobile games

○ Studying user experience with mobile referral apps