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The relationship between Flexible Work Arrangements availability, desirability, and usage on the Gen Z workers' Turnover Intention through the mediation effect of Job Satisfaction

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Master's Degree in International Management

Advisor:

PhD, Professor Maria João Velez, Assistant Professor, ISCTE-IUL, IBS

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We shall be able to rid ourselves of many of the pseudo-moral principles (...) by which we have exalted some of the most distasteful of human qualities into the position of the highest virtues. We shall be able to afford to dare to assess the money-motive at its true value. The love of money as a possession -as distinguished from the love of money as a means to the enjoyments and realities of life -will be recognized for what it is (...)

*John Maynard Keynes,
Economic Possibilities for our Grandchildren*

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Resumo

O objetivo desta dissertação é a análise da relação entre a disponibilidade, a desejabilidade, e o uso de Práticas de Trabalho Flexível nas Intenções de Saída da organização – utilizando a Satisfação com o Trabalho como mediador nesta relação - em trabalhadores de alta qualificação da Geração Z. A atual preocupação e prioridade que os trabalhadores têm vindo a demonstrar no que toca às suas prioridades com o equilíbrio entre a vida de trabalho e a vida pessoal, demonstrada pelos movimentos chamados de Great Resignation e Lying Flat, que se seguiram à pandemia da COVID-19 e respetivas quarentenas, são de extrema importância para os empregadores e gestores, uma vez que estes têm de saber lidar com esta mudança de paradigma se querem evitar as colossais – e muitas vezes desconhecidas – consequências de altos níveis de rotatividade de pessoal. O desejo de flexibilidade aparece cada vez mais frequentemente no topo da lista de prioridades das pessoas no que toca ao trabalho – especialmente na Geração Z. A coexistência deste facto com a realidade de que esta geração está a caminhar para se tornar a mais qualificada de sempre, desperta uma conclusão extremamente interessante: Práticas de Trabalho Flexível podem muito bem representar uma estratégia de retenção cada vez mais viável num cenário cada vez mais preocupante de altas rotações de pessoal.

Um questionário de trinta e oito perguntas foi utilizado para recolha de informação: trinta e uma destas perguntas acerca dos três conceitos de Práticas de Trabalho Flexível, Satisfação com o Trabalho, e Intenção de Saída da Organização (vinte e quatro, três, e quatro, respectivamente), e oito perguntas para controlo e caracterização da amostra. Esta, por sua vez, consistiu em 235 trabalhadores da Geração Z, a maioria dos quais trabalha em atividades como consultoria, banca, finanças e seguros, marketing, serviços de tecnologia, entre outras atividades caracterizadas pela seu trabalho de alta qualificação.

Os resultados não encontraram uma relação direta entre a disponibilidade nem uso das Práticas de Trabalho Flexível com as Intenção de Saída da Organização. Onde esta relação direta se verificou foi quando se olhou para as Práticas de Trabalho Flexível como a diferença entre a desejabilidade de Práticas de Trabalho Flexível e o uso destas Práticas; aqui, quanto maior esta diferença, maior a Intenção de Saída da Organização, e vice-versa. Por outro lado, o efeito da mediação da Satisfação com o Trabalho na relação entre Práticas de Trabalho Flexível e Intenção de Saída da Organização foi constantemente observada. Estes resultados contribuem para a

compreensão da crescente importância da flexibilidade no trabalho no que toca à prevenção de saídas da organização na atual geração mais jovem no mercado de trabalho - a Geração Z.

Palavras-chave: Flexibilidade; Satisfação com o Trabalho; Saída da Organização; Rotação de pessoal; Geração Z

Abstract

The goal of this dissertation is to analyze the relationship between the availability, desirability, and usage of Flexible Work Arrangements on highly qualified Gen Z workers' Turnover Intentions – using Job Satisfaction as a mediator in this relationship. The current work-life balance agenda and the new priorities of the workforce have come to show with the Great Resignation and Lying Flat movements, which followed COVID-19's pandemic and its respective lockdowns, are of utmost importance for employers to understand in order to avoid the colossal – and often unknown – costs of employee turnovers, as results show. The demand for flexibility is at the top of this generation's priorities when it comes to work. At the same time, as this generation is bound to be the most educated ever, the coexistence of these two characteristics makes for an extremely relevant realization: FWAs might just be an increasingly viable retention strategy for an increasingly worrisome turnover reality.

A questionnaire of thirty-eight questions was used for the collection of data: thirty-one regarding the three concepts of FWAs, JS, and TI - twenty-four, three, and four questions, respectively -, and eight regarding the control and characterization of the sample. The final sample consisted of 235 Gen Z workers, most of which working in activities such as consulting, banking, finance and insurance, Marketing, and IT, among other knowledge-intensive activities (KIAs).

Results found there was no direct relationship between the availability nor usage of FWAs and Turnover Intention. Where this direct relationship did exist was when looking at FWAs as the *difference* between the desired amount of FWAs usage and the actual FWAs usage; here, the bigger the difference, the bigger the Turnover Intention, and vice-versa. On the other hand, the mediation effect of Job Satisfaction in the relationship between FWAs and Turnover Intention was constantly observed. These results contribute towards the understanding of the growing importance of flexibility in the workplace when it comes to the prevention of turnovers with the workforce's youngest generation workers - Gen Z workers.

Keywords: Flexibility, FWAs, Job Satisfaction, Turnover Intention, Gen Z

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Introduction

Covid-19 was nothing short of the sheer opportunity for workers to take action on a long existing problem – their *job dissatisfaction* (Serenko, 2022). This action was named The Great Resignation and Lying Flat movements. Record-setting turnover rates were seen, as a massive number of employees refused to keep working under the unhealthy conditions they were being subjected to; some decided to switch organizations, other decided to move into totally different fields and pursue new areas, others decided to try and make their passions and hobbies their main source of income, and others were plainly set on staying out of the job market (Microsoft Work Trend Report, 2022; The Deloitte Global Survey, 2022).

More often than not, companies look at turnovers mainly as a *rate* index and only really account for their financial costs in the short term – which can easily range from thousands to dozens of thousands of dollars / euros per employee total (Waldman et al., 2004; Bland Jones, 2005; Cheryl Bland Jones, 2008; Carriquiry, 2013). Even so, this isn't where the consequences of turnovers are the direst – quite the opposite, as we'll come to understand in this thesis. When a turnover occurs, a new employee begins his / her learning of the job – its inherent tasks, firm specific methods, etc. (Waldman et al., 2003). Naturally, the initial productivity level of a new employee is lower than the former employee's, who was already acquainted with the ways of the job and the organization and performed them at a proficient level (Waldman et al., 2004). The difference between the former employee's productivity level and the lower new employee's is measured as *Costs of Reduced Productivity* (CoRP) (Cascio, 1991). The longer the time it takes the new employee to reach the former's productivity levels, the bigger the CoRP (Timothy Hinkin et al., 1983; Buchbinder et al., 1999; Waldman et al., 2004; Bland Jones, 2005; Carriquiry, 2013). For its measurement, an algorithm called the Learning Curve (LC) is used – a mathematical expression with a graphical representation of the pace at which the learning occurs (Timothy Hinkin et al., 1983; Anzanello & Fogliatto, 2011). Its shape varies from individual to individual and task to task (Kanfer, 1990; Nemhard & Osothsilp, 2002a). The steeper the LC, the faster the learning occurs and, thus, the smaller the CoRP are (Anzanello & Fogliatto, 2011). Yet, as jobs are increasingly more complex and knowledge-intensive, the time it takes for a new employee to reach job mastery levels are only getting longer and longer – since, in these cases, the LCs have small slopes – resulting in bigger and bigger CoRP. In addition to this, to make turnovers a whole lot more

worrisome issue in the current job market scenario, studies have found the CoRP to be the single biggest turnover cost (in some cases accounting for more than 70% of the total) (Buchbinder et al., 1999; Waldman et al., 2004; Bland Jones, 2005; Carriquiry, 2013).

Another way the turnovers are becoming a growing threat for today's knowledge-intensive company's - an already dominant, yet growing, share of the whole (Appendix 3) - are the often-overlooked costs of *knowledge loss* (Daghfous et al., 2013). Becker's (1964) Human Capital theory - which considers people as the most importance production factor -, alongside Grant's (1996) Knowledge-based theory - which defines the firm's primary role as *integrating* the knowledge which resides and belongs to each individual worker -, when an employee leaves, knowledge leaves with him / her, resulting in the degradation of a company's most valuable resource, and consequently, injuring its competitiveness.

There are three main realities which strongly contributed to the workforce's dissatisfaction regarding the current work paradigm (and consequent turnover): 1) Work has changed drastically in the last decades, from an industrial scenario, where manual and routine make-it-and-move-it type of activities were the norm; to a technology and automation dominated work scene, where non-routine, analytical, knowledge-intensive, and abstract tasks prevail (Autor et al., 2001; David Allen, 2015; Gomes, 2021). This made it so that work no longer has clear boundaries regarding their completion (David Allen, 2015). 2) To add to this, the growing usage of information and communication technologies (ICT) such as mobile phones, email, or any other form of communication, in the context of work, made way for what is known as the *Always-on* culture, which erases the physical boundaries of work, causing technostress and work-home conflicts (Park et al., 2011; Barnes & Jones, 2020; Vaziri et al., 2020). Alongside these two issues, 3) the current Hustle Culture, by setting the bar at unsustainable levels, demanding unrealistic results in shorter and shorter time frames, end up incentivizing and rewarding workaholic types of behaviors (Balkeran, 2020a; Yuningsih, 2022).

The *abstract nature* of modern work makes its "end" inexistent; the *Always-on Culture* makes it omnipresent; while at the same time the *Hustle Culture* demands more and more; faster and faster. The result? An unstainable work life and the burnout of people.

The seriousness of the workers dissatisfaction with the current work scenario has been made clear (Microsoft Work Trend Report, 2022; The Deloitte Global Survey, 2022; Serenko, 2022).

The costs companies incur when turnover occurs are extremely high and present a serious threat to its competitiveness (Waldman et al., 2004; Bland Jones, 2005; Carriquiry, 2013). Thus, the workers job satisfaction issue must be tackled. The *organizational adaption theory* says that employers are under constant pressure to adapt their employment practices to the preferences and demands of their workforce (Goodstein, 1994; Ingram & T. Simons, 1995). And so, given that the biggest reason attributed to the workers quitting their jobs was due to lack of work-life balance (Balkeran, 2020a; *Microsoft Work Trend Report*, 2022), Flexible Work Arrangements (FWAs) are, today more than ever (Chung & van der Lippe, 2020), a central management strategy capable of attracting, motivating, and retaining talent (Hill et al., 2008) and, consequently, providing firms with a competitive advantage in the labor market (Rau & Hyland, 2002).

But could caving to this demand injure the employers? Data shows that's not the case. FWAs – which include both flextime and flexplace practices –, by allowing for a better work-life balance, a better allocation of work, as well as by allowing workers to be better rested, healthier, more motivated, more creative, and more engaged, many studies have proven that the productivity *benefits* from FWAs (Gajendran & Harrison, 2007; Allen et al., 2013a; Künn-Nelen et al., 2013; Onken-Menke et al., 2017; Vallicelli, 2018; Kotey & Sharma, 2019; Barnes & Jones, 2020; Ellder, 2020). And, most importantly for this thesis' lens: FWAs have shown proof of decreasing Turnover Intention (Kelliher & Anderson, 2010; de Sivatte & Guadamillas, 2013; Kröll & Nüesch, 2019; Tsen et al., 2021).

In sum, there is a *current problem* in the labor market: work dissatisfaction has led to an extremely high number of turnovers (*Microsoft Work Trend Report*, 2022), and, due to their growing worrisome and multi-nature short-, medium-, and long-term negative consequences (Jones, 1990; Waldman et al., 2004; Serenko, 2022), employers are being challenged to invest in retention strategies as to avoid them and, hence, not jeopardize their competitiveness. At the same time, there's an *opportunity*: the workforce's demand for better work-life balance have never been higher – with Gen Z workers consistently reporting a more pronounced demand for flexibility than their demographic counterparts (Balkeran, 2020b; Chung & van der Lippe, 2020; *Microsoft Work Trend Report*, 2022; *The Deloitte Global Survey*, 2022). And so, the objective of this thesis is to test whether FWAs, by catering to the Gen Z's flexibility preferences / demands, decrease their Turnover Intentions, either through a direct effect or through the mediation effect of Job Satisfaction.

Literature Review

What Happened?

A historic wave of Turnovers

COVID-19's pandemic lockdowns gave people the opportunity to pause, introspect and reevaluate their life's purpose; mainly, in regard to work; their professional self-identities, as well as their long-term career goals and a clear conclusion was reached: *they were dissatisfied with their jobs* (Serenko, 2022). COVID-19 was but a wake-up call which led people to take action, resulting in what were called The Great Resignation and Lying Flat movements. They both refer to the same general movement where people quit their jobs and / or refuse to work under the current modern work conditions (Sull et al., 2022).

As to allow for a clear understanding of the dimension of this historic occurrence, we shall resort to two large and diverse-sampled reports: Microsoft's Work Trend Index of 2022 – which involved around 30.000 people from 31 countries -, and Deloitte's Global survey of 2022 – which involved more 46 countries, with more than 25.000 respondents, from which almost 15.000 are Gen Z, which is naturally of great interest to this thesis.

Microsoft's report found that in 2020, 17% of the total surveyed people quit their jobs, and, in 2021, that number increased to 18%. The latter percentage comes to a total of 47.8 million workers who quit their jobs, which comes to an average of nearly 4 million per month, the highest ever recorded (U.S. Bureau of Labor Statistics, Job Openings and Labor Turnover Survey, 2022). On top of this, in 2022, 43% of the overall workforce say they are considering changing employers within a year, and, among the Gen Z, this number is as great as 58% (*Microsoft Work Trend Report*, 2022). Deloitte's report (2022) pointed that, out of the almost 15.000 Gen Z workers, only 23% said they intended to stay with their current employer beyond 5 years. In 2021, 46% said they were seeking a major change into a totally new career field, some decided to try and make their main interests and hobbies their main occupation and others even said they were simply staying out of the job market (Microsoft Work Trend Report, 2022).

Furthermore, 56% of Gen Z workers are considering a shift to remote work in the year ahead versus 49% overall, with 52% of Gen Z hybrid employees saying they're moving to a new location because they're able to work remotely, versus just 38% overall. Likewise, 58% of this generation is also considering a shift to hybrid work in the year ahead, versus 53% overall, with three in four people saying remote working is their preferred mode of working (*Microsoft Work Trend Report, 2022*).

The top reasons people attributed to quitting were as follows: 24% said their decision was due to prioritizing their wellbeing and mental health, 24% attributed it to lack of / wish for a better work-life balance, and 21% said it was due to the lack of flexible working options (*Microsoft Work Trend Report, 2022*) Alongside these data, 53% of all respondents said they are more likely to prioritize health and wellbeing over work than before the pandemic, and 47% said they were more likely to put family and personal life over work (*Microsoft Work Trend Report, 2022*)

The demand for work-life balance has been such that it has already begun to show signs of out-throning monetary and benefit compensations: a recent study found that 44% of workers said they preferred having a good work-life balance than a higher salary (Balkeran, 2020a), with Gen Z workers reporting to have work-life balance at the top of their priority list when it comes to choosing an employer (*The Deloitte Global Survey, 2022*). This generation's likelihood to engage with a company posting on LinkedIn if it mentions "flexibility" is far higher (77%) than Millennials (30%) and others on the platform (*Microsoft Work Trend Report, 2022*).

What are Turnovers?

Turnover refers to the rotation of workers in between companies, jobs, occupations and even between states of employment and unemployment (Abassi & Hollman, 2000) and it refers to the process associated with filling a vacancy (Ongori, 2007). They can be of both voluntary, where an employee, upon reflection, decides to leave an organization, or "quit"; and involuntary, where the decision to terminate the employment relationship originates from the employer (Shaw et al., 1998). Turnover *intention* has been found to be the best predictor of actual turnover (Mobley, 1977)

Turnover is one of the most impactful causes of low productivity and low employee morale (Abassi & Hollman, 2000) and is thus a big corporate risk for every company (Daghfous et al., 2013), causing not only financial costs, but also a loss of knowledge in the organization ((Cascio, 1991; Grant, 1996). Due to its importance, complexity, and, mainly, its current relevance – as well as to not overload and break the flow of this Literature Review - a dedicated section was written for a deeper understanding of the Turnover Costs; it can be found at the end of the Literature Review section – page 39. Its main goal was to, through a more in-depth approach, logically breakdown and shed light on the aspects of the turnover costs which make them particularly worrisome in today's corporate world. Here though, again, as to not disrupt the intended logical flow of the presentation of the issues at hand, a more superficial review of turnovers is presented.

The most complete and influential turnover cost-measuring method was developed by Wayne F. Cascio back in 1991. In it, the costs of turnover were divided into several categories: *separation costs*, *replacement costs*, and *training costs* - these three costs are considered as direct / out-of-pocket costs (Tziner & Birati, 1996). And, for the first time in turnover measuring studies, Cascio delineated a fourth factor that ought to be taken into consideration when accounting for the totality of the turnover costs: *the Costs of Reduced Productivity* (CoRP) (Cascio, 1991).^{*} Tziner and Birati (1996) criticized Cascio's model due to the lack of a clear distinction between *functional* (good) and *dysfunctional* (bad) turnover. They then defined the former as a lay off or voluntary step-away from a poor performer, making room for a possible better / more fitted worker; and the latter as the termination or decision to quit by a good performer. One major contribution of their study to the measuring of turnover costs was the addition of the detrimental effects of a dysfunctional turnover in the forms of erosion of performance levels of the remaining workforce due to a morale drop. They also added to Cascio's model the extra time and effort of coworkers and supervisors to integrate the new employees, as well as the interruption in production, sales,

^{*}Which is of utmost importance to grasp in order to acquire a good understanding of the increasingly worrisome impacts of turnovers for companies nowadays. It will be thoroughly presented and broken-down in the dedicated Turnover Costs chapter.

deliveries, and customer services (Tziner & Birati, 1996). Also, the fact that Cascio assumes that turnover always has negative effects has divided the literature; with some agreeing with him, (Hinkin et al., 2000; Baron et al., 2001) arguing that turnover has a disruptive effect on

organizational routines, and consequently affects performance and work quality negatively – backed by a 2020 study of the two decades of teacher turnover (Sorensen & Ladd, 2020) -, and others disagreeing, defending that in fact it can turn out to have a beneficial effect for the employer (Dalton & Todor, 1979; Staw, 1980; Dalton et al., 1982), saying that turnover only marginally reduces productivity and that workers are easy to replace – with the ever possibility of attaining a better performing worker. Naturally, this case applies most when the person leaving is a poor performer, resulting in a functional turnover, as previously defined; yet, multiple studies suggest that turnover mainly affects high performers, in which case the turnover is considered as a dysfunctional turnover (Pavalko, 1970; Allison, 1974; Dreher, 1982). A middle-ground between these two distinct positions claims that turnover is not necessarily good nor bad, but is rather an issue which, much like any other, requires an equilibrium (Abelson & Baysinger, 1984; Glebbeek & Bax, 2004). This stream of literature says that turnover costs should be handled through a mere management optic, i.e., a cost-benefit analysis. Thus, these authors argue that investing in retention methods and strategies is only logical when below the cost of an employee's turnover. This makes it so that the *optimal point* is where the marginal cost of the retention equals the marginal cost of the turnover. So, once the cost of retention surpasses the cost of turnover** of a given employee, the decision to let that employee go should be made, since further attempts to retain that employee would be considered as non-optimal and economically inefficient (Abelson & Baysinger, 1984; Glebbeek & Bax, 2004)***. What this position fails to consider is that there's more to turnovers than their immediate and short to medium-term costs; namely, there's a *loss of knowledge*.

** The calculation of the turnover costs, with a focus on CoRP and the Learning Curve, will be further, and more deeply, talked about in the Turnover Costs chapter; as well as the limitations of its calculations.

***It's worth mentioning that this last stream of thought has been primarily about seasonal positions.

Knowledge loss

In 1996, economist and scholar Robert M. Grant (1996) brought up a new *knowledge-based theory of the firm*, arguing that firms, rather than having their own knowledge, as the current

literature suggested (Levitt & J. G. March, 1988; Spender, 1989; Huber, 1991; Nonaka, 1991, 1994) merely *integrate* each person's individual knowledge (Grant, 1996). Grant's theory defended that knowledge resides within the individuals and it is the duty of the firm to explore coordination mechanisms through which they should be able to integrate and apply this very knowledge, creating value through improved creativity, problem-solving and innovation (Gurteen, 1998; Giampaoli et al., 2017; A. Papa et al., 2020; Pereira et al., 2022). It's worth to note that knowledge and knowledge-based resources and capabilities are considered more valuable than traditional sources of economic power and are the true ultimate source of a company's competitive advantage (Hislop, 2003; Sharp, 2003; Haesli & Boxall, 2005; Curado & Bontis, 2006; Santoro et al., 2021)

Constant turnover is proven to disrupt the knowledge sharing flow of the company, since it is proven that the negative psychological effects caused by constant turnovers on the remaining workers makes them less likely to share knowledge with others, thus reducing the company's productivity (Abassi & Hollman, 2000; Shaw et al., 2005; Jacobs & Roodt, 2007; Pisano et al., 2017; Issac et al., 2021). Not to mention that the employees who leaves might join a competing organization and, on top of bringing their know-how knowledge with them, they might share the firm-specific knowledge they acquired in their former employer by sharing their business formulas and other formerly confidential information, thus compromising their competitive advantage (Manhart & Thalmann, 2015).

What Caused this Massive Turnover Wave?

In a nutshell: an inhumane work paradigm

The growing usage of information and communication technologies (ICT) such as mobile phones, email, or any other form of communication, in the context of work makes it so that work no longer stays at the office after one goes home (Park et al., 2011). Thus, a new working culture arose: the *Always-on culture* - which can be defined as the employees' struggle to disconnect from work in non-working time in response to the employers' expectation of constant availability (McDowall et al., 2017; Barnes & Jones, 2020). By blurring, or even erasing, the boundaries between work and home-life, this *technology invasion* (Tarafdar et al., 2007) causes what is referred to as *technostress* (Vaziri et al., 2020), fostering work-family conflicts (Allen et al., 2013b; Como et al., 2020) – which can be defined as the conflict arising from the clash of roles between the mutually incompatible work and family domains (Greenhaus & Beutell, 1985).

This new paradigm prevents psychological detachment from work and prevents employees from recovering, thus jeopardizing their productivity and injuring both their physical and mental health, contributing mainly to feelings of *burnout* (Park et al., 2011; Derks & Bakker, 2014; Pencavel, 2016) – which the 11th Revision of the International Classification of Diseases, by the WHO, defines as “a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed” and is characterized by three dimensions: a) feelings of energy depletion or exhaustion; b) increased mental distance from one's job, or feelings of negativism or cynicism related to one's job; and c) reduced professional efficacy” (WHO, 2019). As to shed some light on exactly how burned-out our chosen generation – Generation Z – is, in 2022 it was reported that 46% feels burned-out due to the intensity / demand of their working environment (*The Deloitte Global Survey*, 2022).

Entrepreneur, business owner and philanthropist Andrew Barnes (2020) argues that the rule of *business hours* has now become obsolete due not only to the *Always-on culture*, but its coexistence with the current *Hustle culture* – which can be defined as an unspoken commitment agreement between supervisors and employees which defines the former's expectation of the latter's productivity, often unrealistic and unsustainable, i.e. unmanageable workloads and being reachable for work related issues at any time (Balkeran, 2020a), leading to excessive dedication

to one's work and creating an unhealthy work-life balance (Yuningsih, 2022). Hand-in-hand with the mentioned *technology invasion* (Tarafdar et al., 2007) that causes *technostress* in the Always-on culture: *technology overload* (Vaziri et al., 2020) too contributes to the Hustle Culture – by pressuring workers to work faster and longer - further increasing the technostress current employees are falling victims to (Vaziri et al., 2020). The Hustle culture can be interpreted as a culture fostered by workaholic employers who consider rest as a waste of time and often argue one's worth is directly, if not exclusively, related to one's productivity at work (Fry & Cohen, 2009; Yuningsih, 2022). It is worthy to note that this masculine-dominated doctrine is fueled, celebrated, and made mainstream by highly successful entrepreneurs like Jack Ma and Elon Musk, for example, who, respectively, argue for the *996 rule* – working from 9 am through 9 pm, 6 days per week, - and a minimum of 80 hours of *in-office work* per week (Li Xiaotian, 2019; Di et al., 2020; Crandall et al., 2021).

Many companies today have deeply rotted habits that are embedded in the Always-on and Hustle cultures (Yuningsih, 2022). Yet, where these truly synergize and climax is in a popular modern entrepreneurial philosophy called *Blitzscaling* – which many modern companies follow, even whilst often unaware that there's a name for this way of operating (Crandall et al., 2021).

In their book *Blitzscaling*, Reid Hoffman and Chris Yeh (2018) present the theorization of the concept of “blitzscaling” as a technique companies can opt for by acting only in benefit of *growth*. This means prioritizing growth – as much and as fast as possible - with no regard to by which means to achieve it, meaning mostly, a disregard for efficiency. In *Lab Rats*, Dan Lyons (2019) criticizes this philosophy of *growing fast, making money, and cashing out*, arguing that there's no intention of building a sustainable and long-lasting business which will actually benefit society as a whole: there are no values, no mission, no commendable goals, nor future, and, therefore, no sense of responsibility*, namely, to its workers – requiring that they work extremely long

*On this idea of “no responsibility / morality”, in his novel *The Brothers Karamazov* (1880), through the character of Dimitri Karamazov, Fyodor Dostoyevsky raised the idea that: *If there is no God, everything is permitted*. If one were to follow the same line of thought as Dostoyevsky (1880) , the same applies to the corporate world: If long term sustainability is not desirable in the first place, then this type of toxic working environment is not only allowed but incentivized; since, for short periods of time, working more hours *does* yield more output (still keeping in mind that *quality* is likely to suffer) (Pencavel, 2015) – which are then followed by the negative consequences in health and productivity, both at the individual and the organizational level, as previously stated.

hours, inside and outside of working hours, under tremendous amounts of pressure, while at the same time demanding high productivity rates (Fry & Cohen, 2009; Balkeran, 2020a; Yuningsih, 2022).

These demands, however, are not only humanly impossible, but the sheer attempt has drastic health consequences. In his article *The Productivity of Working Hours* (2015), economist and academic John Pencavel created a formula to explain how the law of diminishing returns applies to the worker's productivity evolution throughout a day: "if H_i is worker i 's hours of work over a period of time and if E_i is i 's work effort per hour over that period, then i 's effective labor input, L_i , may be defined as $L_i = E_i \times H_i$, an expression without empirical content, as yet, because E_i is unobserved. If E_i is simply a constant, a , then $L_i = a \times H_i$ and worker i 's effective labor input is proportional to his working hours and, if i is typical of workers, a firm's effective labor input is the sum of hours worked over all workers, a justification for the use of worker-hours. More plausibly, i 's work effort depends on his hours of work: $E_i = f(H_i)$ where $f(H_i)$ embodies the stress, fatigue, monotony, and stimulation that accompanies work." (Pencavel, 2015, p. 2). To put it into simpler terms, a worker's productivity depends on both the *number of hours* he / she spends working and the *effort* he / she is able of putting into those hours.

Yet, as Pencavel (2015) found, as the hours of work accumulate, fatigue and stress increase, which negatively affects the workers' effort input throughout the hours of work, thus the diminishing returns on workers' productivity (Pencavel, 2015). Few studies have sought to quantify the productivity loss resulting from the extension of the hours of work, but in a study of 18 manufacturing sectors in the US, between 1956 and 1991, one found that a 10% increase in the hours of work resulted in a reduction of output by around 2% to 4% (Dolton, 2017). Furthermore, long working hours increase the probability of errors and accidents, which result in (sometimes colossal) costs, of both time and money, to the employer (Rogers et al., 2004; Dembe et al., 2005; Ricci et al., 2007; Rho, 2010); these accidents refer not only to those inside of working hours, but also outside, namely in commuting vehicle crashes, which have been proven to have a significantly higher change of occurring to workers after long shifts (Barger et al., 2005). The importance of rest in between working weeks is also significant, for, as Pencavel (2015) found with the case of British Health of Munition Workers Committee in WW1, a seven days' work resulted in a six days' output; that is, working with no days off yielded the same output, at the end of the week, as working with 1 day off per week.

Work overload is associated with many health issues, both mental and physical, from: fatigue, stress, anxiety, depression, burnout, hypertension, cardiovascular disease, hyponatremia, immunosuppression, chronic pain, diabetes, smoking, shortage of sleep, and even decrease in cognitive functioning in aspects such as vocabulary and reasoning in the long-term (Artazcoz et al., 2009; Colligan & Higgins, 2006; Pencavel, 2015; Spurgeon et al., 1997; Virtanen et al., 2009).

Other than the decrease in productivity, the impacts that these personal issues have on an organizational level have been identified to be in the form of low morale, hostility in the workplace, interpersonal conflicts, an increase in benefit expenses, and increase in absenteeism and, finally, turnover (Colligan & Higgins, 2006; Daghfous et al., 2013; Serenko, 2022)

Tony Schwartz (2010) writes in his book *The Way We're Working Isn't Working*: "Human beings are not designed to run like computers: at high speeds, continuously, and for long periods of time." (p.15). He argues we are rather the opposite: we are *designed to pulse*; the very way a human being functions is through cycles of *spending* and *renewing* energy, specifically, he argues, the four different sources of energy that fuel us: physical, emotional, mental, and spiritual. As he puts it, "we're hardwired to make waves". In work, unlike computers, we ought to embrace our nature and work in cycles, in sprints with breaks in between that will allow us to refuel (Pencavel, 2016). Yet, the current status quo of work and the hustle culture are in direct conflict with this logic (Balkeran, 2020a; Yuningsih, 2022).

Most managers have no metrics to measure their employee's productivity by (Barnes & Jones, 2020; Carriquiry, 2013; Schwartz et al., 2010). This results in managers often naming their best and most hardworking employees to be the ones working the longest hours and leaving the office the latest (Fry & Cohen, 2009). Employees have understood this, and so, an increasing number of workers end up staying longer than they needed to in order to show one's engagement and commitment to their work (Fry & Cohen, 2009; Gomes, 2021). This practice has become so normalized that an employee who leaves work at the designated end of his / her daily working schedule is viewed as a poor worker and is frowned upon by colleagues (Gomes, 2021; Yuningsih, 2022); thus, alongside the always-on and hustle cultures that characterize modern work, this dynamic too further contributes to working longer hours, consequently worsening the previously mentioned physical and mental health problems that come with it.

Other than the current Always-on and Hustle cultures, there's yet another big issue which, in culmination with these two, ultimately made the work scene as unhealthy and unsustainable as we've described it; and that issue is: the *endlessness of work*

This *endlessness* resulted from the conflict between two things a) the increase in the technology usage in jobs and b) the lack of an appropriate reduction in the hours of work

a)

David H. Autor et al. (2001) defines job as a series of tasks such as moving an object, executing a calculation, communicating a piece of information, and / or resolving a discrepancy. These authors argued jobs can take four forms, distinguishing them between two dimensions. The first dimension being *routine* jobs vs *non-routine* jobs; and the second being *manual* vs *cognitive* (Autor et al., 2001). According to the author, a routine job is defined as a job of repetitive nature with a limited and well-defined set of tasks; while a non-routine job, on the other, is defined as a job of non-repetitive tasks, including problem solving and interactive processes. Both can be of either *manual* or *analytical* nature, the former relating to a job requiring mostly physical labor, while the latter focuses most on intellectual work. Thus, we can identify four types of jobs: routine manual, routine analytical, non-routine manual, and non-routine analytical. An example of each one could be: an assembly line worker, an accountant, a clerk, and a manager, respectively. The article goes on to explain how technology tends to *replace* humans in many routine jobs but mostly only *complement* those working non-routine jobs. The less routine and manual-intensive a job is, as well as the more abstract tasks it involves, the harder it is to be taken over by technology; in other words, the less *automatable* it is (Autor et al., 2009, 2015).

Josten and Lordan (2019) , who considered Autor et al.'s (2001, 2009, 2015) work as the seminal work for its own and sought to develop on the concept of automatable jobs, distinguishing between two degrees at which this phenomenon happens. They defined *automatable jobs* as jobs which cannot be substituted by technology but are rather partially automatable, with human employees and their personal interaction being indispensable to its operation. In contrast, *fully automatable jobs* are jobs where technology has reached a stage of development which makes it viable to completely substitute human beings. Within the next decade, 47% of all jobs in the EU and 25 other countries are estimated to become (partially) automatable, while 35% will be considered as fully automatable jobs (Josten & Lordan, 2019) – the most affected jobs were

found to be in transportation and logistics, office and administrative support, and manufacturing (Autor et al., 2015; Frey & Osborne, 2017) and the least affected will be those which include 'people' and 'thinking' skills (Josten & Lordan, 2019). These workers are referred to as *knowledge-workers* or *knowledge-intensive workers*, which can be defined as individuals who considers knowledge as their main capital, and who continuously engage in learning and training throughout their careers; they work with abstract knowledge as well as create new knowledge (Davenport, 2005; Pyörriä, 2005). Similarly, a *knowledge-intensive firm* implies that knowledge is considered a more important input than capital and labor (Starbuck, 1992). The nature of jobs has been changing drastically throughout time, from predominantly routine-manual tasks to non-routine analytical and abstract tasks: The evolution of the tertiary sector in the last 175 years (information of later than 2015 was not available), is likely to draw the picture of the evolution of this very knowledge-intensive work (see Appendix 3). As to help its interpretation, according to to ISCED97, levels 5+6 or ISCED11, levels 5 to 8: "An activity is classified as knowledge intensive if tertiary educated persons employed more than 33% of the total employment in that activity." And so, a person who works a more routine and less abstract and less knowledge-intensive job is more at risk of losing his / her job to technology than their counterpart (Autor et al., 2015), causing what is called *Technological Unemployment*: which occurs when the growth of technology usage outpaces the laborers' ability to find new uses for themselves, representing a temporary issue which eventually yields positive results for the whole of economy (Keynes, 1930). Joseph Schumpeter (1962) named this phenomenon *creative destruction*, which refers to the destruction of old forms of production and the creation of new ones, making for a reorganization of the overall production processes, namely, in more efficient ways of doing things. So, workers who lose their jobs due to technological unemployment require an up-skill in order to be able to acquire the knowledge these new ways of working require (Frey & Osborne, 2017; Nathan & Ahmed, 2018). Thus, *knowledge-workers* are expected to thrive in the upcoming years (Autor et al., 2015; Peters, 2017; Josten & Lordan, 2019). And Gen Z is bound to soon make up the majority of this group, with studies pointing towards this generation to soon become the highest educated ever; and whose interest lays strongly on knowledge-intensive activities (KIAs – Appendix 1 and 2), with, e.g., 51% considering the tech industry as their industry of main interest (*The Deloitte Global Survey, 2022; Microsoft Work Trend Report, 2022*)

b)

Economist John Maynard Keynes, in his much-celebrated essay *Economic Possibilities for our Grandchildren* (1930), wrote that people would greet the technological progress with open arms since it brings with it an increase in production output and, at the same time, the ability to reduce the number of hours worked.

A study conducted in 2007 saw that an increase in technology use – in this case, in the form of industrial robots, which accounted for 2.25% of the stock capital stock in the industries of this study -, led to an increase in 0.37% to the annual labor productivity (Turcotte et al., 2004) and another found that an increase in 10% of technology use resulted in a 5% increase in the overall productivity (Graetz et al., 2017), backing up the first of Keynes' predictions.

In the US, in 1959, a year prior to the beginning of the third Industrial Revolution (IR), so, before the automation of production through the implementation of electronics and information technology (Xu et al., 2018), the productivity – measured as GDP per hour of work adjusted to the inflation – was 25\$ per hour (OurWorldInData, 2022). In 2021, two industrial revolutions later, the third IR as well and The Fourth Industrial Revolution - term coined by Klaus Schwab in his book *The Fourth Industrial Revolution* (Klaus Schwab, 2017) referring to the digital revolution of the 2000's and 2010's -, this value was just under 74\$ per hour (OurWorldInData, 2022), an increase of just under 200%. So, in 2021, the productivity of an hours' work was equivalent to that of 3 hours of work in 1959 (OurWorldInData, 2022). So, one might wonder, "In 2021 do people work more or less a third of the time they did back in 1959?". Not only do we know this is not the case, but, according to Keynes (1930), this would *never* be the case, since, he argues, the increase in output is directly related to the living standards of a society.

Data tells us the decrease in hours worked was no more than 167 hours, from 1.958 hours in 1959 to 1.791 hours in 2021 (OECD, 2022). If we use the estimated average of 260 days worked in a year per worker, we conclude that in 2021, people worked a sheer 39 minutes less per day than they did in 1959 (OECD, 2022), making the second part of Keynes' (1963) predictions quite lackluster; not to mention that, keeping in mind the Always on and Hustle cultures, which have people working way beyond their contractual hours (Yuningsih, 2022) would make an easy argument against this already negligible "reduction" of working time.

In conclusion to this section's question: "What caused this massive turnover wave?"

There are three main reasons which strongly contributed to the workforce's record-setting turnover rates, driven by their dissatisfaction regarding the current work paradigm: 1) What constituted work has utterly changed when compared to some decades ago: from assembly line and make-it-and-move it type of activities that characterized the industrial world, to what's called the "knowledge work" that defines the modern scenario - work was visible and so was its completion. Yet, this abstract nature of modern jobs has made so that work no longer has clear boundaries (David Allen, 2015). 2) On top of that, this lack of boundaries applies not only to the limits of a job's extend in terms of its length and completion, but also to its location. The *Always-on Culture*, due to the great and growing usage of information and communication technologies (ICT), has made it so that work no longer stays in the office when one goes home (Park et al., 2011), which causes technostress. 3) Alongside these two issues, the current *Hustle Culture*, and the employers behind it, by setting the bar at unsustainable levels, demanding unrealistic results in impossible time frames, end up incentivizing and rewarding workaholic-type behaviors, further contributing to technostress. At the same time, contrary to Keynes' (1930) reduction of working hours prediction in the face of technology progress, an adequate and proportional reduction of working time has not been seen - rather the opposite.

The *abstract nature* of modern work makes its completion inexistent; the *Always-on Culture* makes it omnipresent; the *Hustle Culture* makes its demand unstainable. The result? An unstainable work life and the burnout of people.

Another way that would summarize this situation would be to simply state: *Currently, Job Demands far-outweigh Job Resources*. In 2001, Demerouti et al. developed the *Job Demands-Resources (JD-R) model*. It states that, from an employee point of view, a work environment can be classified into two categories: job demands, and job resources. Job demands are the aspects of a job that require physical and/or mental effort and that are therefore linked with physiological and/or psychological costs. While job resources refer to the physical, social, and organizational features of a job that: contribute to the attainment of the work-related goals, cultivate personal growth and development; and decrease the physiological and psychological costs of the job demands (Demerouti et al., 2001). And so, when the external environment lacks

resources, i.e. *job resources*, workers cannot cope with the negative influence of job demands (Demerouti et al., 2010) – thus leading to the mentioned burnout.

A desperate quest for more Job Resources

Thus, people have started taking the reduction of hours of work into their own hands (Gomes, 2021). For reference, from the late 1960s through the mid-1980s, the number of *voluntary* part time workers was practically constant at 13% - yet, there was an increase in the number of *total* part time workers in these years (from 14% to 22%); this was due to the increase in *involuntary* part time workers – as employers began *imposing* this regime as a mean to cut down labor costs (Tilly, 1991). In contrast, in 2021, 85% of part time workers were so due to their own preference – i.e., for *non-economic* reasons -, which shows that the majority of people working part time today are willing to have pay cuts in order to work less hours (US Bureau of Labor Statistics, 2020)– which is in line with the modern worker’s philosophy and mindset behind what generated the Great Resignation and Ling Flat movements: both of them an extremely strong call for change which first arouse the urgency for the writting of this thesis.

Having workers work part time allows the employer to save on labor costs – with the presumption that these workers will produce less output than those working full time -, yet, it has been proven that firms with a larger share of part time workers are more productive than those with a larger share of full-time workers – an increase of 10% in the part time share has resulted in increases of almost 5% in productivity - due to a better allocation of work and less down time (Künn-Nelen et al., 2013). Thus, part time workers are being paid below their marginal productivity in comparison to those working full-time (Gomes, 2021). Therefore, a question of quantity vs quality of working hours arises.

This question was the very starting point which drove Andrew Barnes – one of the main business leaders behind the trending movement of the reduction of the working journey from five to four days per week – to trial a four-day week for in his company Perpetual Guardian. Perpetual Guardian was the first to implement a 6-mounth a trial of reducing the weekly hours of work, from 40 to 32 – by working four 8-hour days instead of the traditional five. By the end of this trial - which resulted in a permanent implementation of the four-day week -, his staff was better rested, more motivated, more engaged, more satisfied with their jobs, more creative, had better

work-life balance, was happier, less stressed and, in culmination of all of these: more *productive*, with increases of 6% in revenue, 12.5% in overall profitability and 14.5% in profitability per employee (Barnes & Jones, 2020).

Now that we exposed that a better balance and allocation of work benefits both employee and employer – by resorting to Pencavel's (2015) mathematical explanation, as well as multiple empirical cases – the solution we hereby propose to the current turnover problem might come as no surprise.

What's the solution, then?

The *organizational adaption theory* says that employers are under constant pressure to adapt their employment practices to the preferences and demands of their workforce (Goodstein, 1994; Ingram & T. Simons, 1995). Keeping in mind the workers' extreme job dissatisfaction issue which lead to the massive turnover wave of the Great Resignation and Lying Flat movements; their increasing demand for better work-life balance; the proven fact that the *quality* beats the *quantity* of working hours in terms of overall productivity; and, finally, keeping in mind the enormous costs associated with turnovers, *Flexible Work Arrangements* (FWAs) are now, more than ever (Chung & van der Lippe, 2020), a central management strategy capable of attracting, motivating, and retaining talent (Hill et al., 2008) and, consequently, providing firms with a competitive advantage in the labor market (Rau & Hyland, 2002)*.

Flexible Work Arrangements

FWAs can be defined as employer-provided benefits which allow the employees autonomy and control over *where* and/or *when* to perform their job tasks (Rau & Hyland, 2002; Lambert et al., 2008). FWAs include shiftwork, part-time work, job-sharing, temporary work, overtime, weekend work, fixed-term contracts, annual-hours contracts, home-based work, telework, reduced hours, compressed work weeks, and even ease of taking days off of work (Rau & Hyland, 2002; Kossek & Michel, 2011; Wheatley, 2017; AUSTIN-EGOLE et al., 2020). Research has distinguished between two types of FWAs: flexibility in terms of *place*, and flexibility in terms of *time* – which includes both different scheduling of working hours, and different lengths of working hours (Possenried & Plantenga, 2011). It is important to distinguish between these types of FWAs modalities, since, for example, individuals may have scheduling flexibility but still be required to complete all their work onsite. Likewise, individuals may be allowed to complete all work tasks from home, yet still be required to follow a set schedule (Allen et al., 2013b). Although each of

* Investments in adequate retention strategies can yield very high return rates (Abassi & Hollman, 2000). For reference, in 2003, way before the current boom in demand for FWAs, Deloitte estimated to have saved \$41.5 million due to reduced turnover attributable to offering FWAs (Maloney, 2010, p. 13).

of the arrangements can be used individually, they are often combined to complement one another (Chung, 2009). While many companies have established policies regarding the availability of FWAs, this availability is still very bound to differ between employees under the same employer due to the fact that these are often negotiated between the two parts according to the former's circumstances, and personal needs and preferences (Hornung et al., 2008). This negotiation happens both in formal ways, such as when the policy "right to request (flexibility)" is present in a certain company; or in an informal way, where an employee and employer come to a simple verbal agreement (Cooper & Baird, 2015).

Some of the advantages that have been associated with FWAs have been found to be: better work-life balance, increase in subjective health perceptions, less stress, greater organizational commitment, better recruitment and retention, greater productivity, lower absenteeism, and lower work-family conflict (Gajendran & Harrison, 2007; Allen et al., 2013a; Künn-Nelen et al., 2013; Onken-Menke et al., 2017; Vallicelli, 2018; Kotey & Sharma, 2019; Barnes & Jones, 2020; Ellder, 2020). Yet, a recent study showed that some of the benefits of FWAs vary according to the person's age, finding that absenteeism decreased, and subjective health perceptions improved only in older workers, whilst work-family conflicts reduced only among middle-aged workers (Piszcze & Pimputkar, 2021). Another distinction which influences the FWAs' outcomes is whether these are employee or employer-driven – i.e. if the main interest for its usage resides mainly within the employee or the employer's side (Demerouti et al., 2010). The former scenario is often regarded as *time-autonomy*, while the latter as *time-restriction* (Costa et al., 2003). According to Demerouti et al. (2010) drawing on the JD-Resource theory (Demerouti et al., 2001), time-autonomy can be classified as a job resource, while time-restrictions can be interpreted as job demand, since the former positively contributes to one's attainment of the work-related goals – by allowing for the adjustment of one's responsibility to his / her individual preference and rhythm; while the latter, with its bureaucracies and unpredictable time variations, is proven to add to the degree of exhaustion and, therefore, requires effort and energy, i.e. psychological costs (Demerouti et al., 2010).

Some of the potential disadvantages that come with FWAs, mainly yielding from the digital technology usage in flexplace practices (Soga et al., 2022), are: social isolation (Mulki & Jaramillo, 2011) , negative effects on team working (van der Lippe & Lippenyi, 2020) , and work–family conflicts (Allen et al., 2013a; Como et al., 2020). The last one comes as a result of *work-*

intensification, which can occur through either *enforced intensification*, i.e. when employers increase the workload alongside providing more flexibility; or through *enabled intensification*, i.e. when there's a blur of both psychological and the physical boundaries between work and personal life (Chung & van der Lippe, 2020), which often end up damaging family structures (O'Connor & Cech, 2018; Bellmann & Hübler, 2021). Also, unusual working hours, like shift or rotating work can cause discontentment (Wanger, 2017) and result in complications on social life (Greubel et al., 2016).

But, more importantly for the current study and aim of this thesis: FWAs are proven to increase *job satisfaction*. The concept of job satisfaction has seen widely different definitions and discussions throughout the years, but in general terms, we will refer to it as the function between what one desires from a job and what it is capable of providing (Locke, 1969). In his book *The Human Side of Enterprise*, McGregor (1960), argued that management has the power of enhancing the employees' job satisfaction through the fulfillment of universal human needs of self-actualization, which is done by: creating opportunities, unleashing potential, removing barriers, fueling growth, and providing guidance. McGregor (1960) said the primary means of assuring these things is to give employees the *freedom* and *autonomy* of decision-making and self-direction. This is very much the case in the "Scandinavian Model" (Gustavsen, 2007). Yet, what Gustavsen found was that there was no "secret formula" to this model, but rather a *pattern* behind it: *trust*; the trust with which employers give this very *autonomy* - that McGregor mentions (1960) - to their employees.

FWAs, by giving employees this very autonomy; by allowing for more freedom and control over the completion of one's work (Rau & Hyland, 2002), have been proven to be positively related job satisfaction (Igbaria & Guimeraes, 1999; Hyman & Summers, 2004; Kelliher & Anderson, 2008; de Sivatte & Guadamillas, 2013). One of the main reasons for this relation is best understood through the *resource-allocation theory* (Allen et al., 2013b);, which states that allowing the workers to readily and proactively allocate their work according to their personal preferences increases their psychological well-being (Bentley et al., 2016), and consequently, their job satisfaction (Hackman & Oldham, 1980; Barnett et al., 1999). This represents the first hypothesis to be tested in this study.

H1: FWAs are positively related to Job Satisfaction

The sheer availability of FWA has been found to yield a more positive job attitude among employees (Grover & Crooker, 1995) , given that it shows the employer's concern for his / her workers (Batt & Valcour, 2003) - which then yields acts of reciprocation, explained by the *social-exchange theory* (Blau, 1964): where employees, in appreciation of having flexible work options available to them, respond with more favorable job attitudes towards their employers, and less turnover intention (Kelliher & Anderson, 2010; de Sivatte & Guadamillas, 2013; Kröll & Nüesch, 2019; Tsen et al., 2021). In a recent large study of 16,920 respondents from 35 countries, although FWAs were proven to reduce turnover intention, it found that in employees whose work was more dependent on that of the others' – i.e. when one's job requires a collaboration or an input of a colleague in order to progress -, by causing work-conflicts (Demerouti et al., 2010), FWAs have resulted in a greater intention of leaving the organization (Tsen et al., 2021). Also, another fairly large study of 3918 managers across 15 countries found that only flex-time practices had a significant positive effect on turnover intention (Masuda et al., 2012). Thus, the second hypothesis.

H2: FWAs are negatively related to Turnover Intention

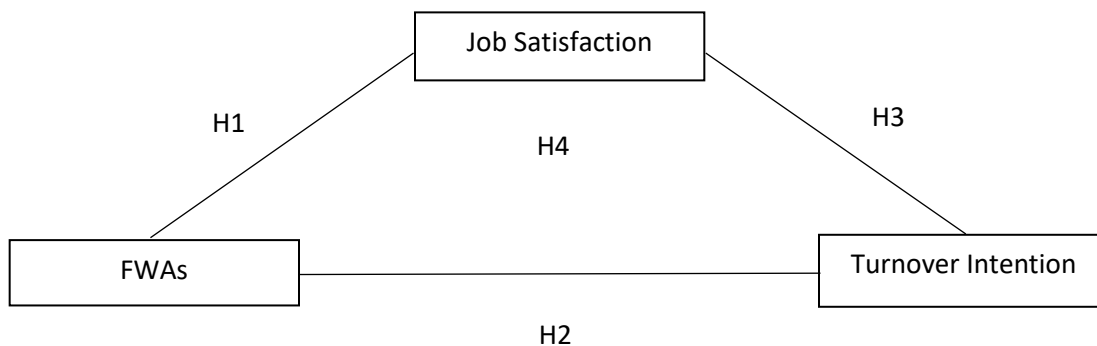
“Job satisfaction and dissatisfaction are a function of the perceived relationship between what one wants from one's job and what one perceives it as offering or entailing” (Locke, 1969, p. 316); or, in other words, the worker's attitude on the job, consisting of evaluative, cognitive, and affective components (Weiss, 2002) has been found to be one of the strongest predictors of turnover, since a worker who is satisfied with his / her job is more likely to choose to stay with an employer than a worker who isn't (Brayfield & Crockett, 1955; Vroom, 1964; Porter & Steers, 1973; Locke, 1975; Mobley, 1977; Russell et al., 2009; Wang et al., 2011; Cegarra-Leiva et al., 2012; Posthuma et al., 2013; Olusegun, 2015; Azeez et al., 2016). Yet, it is important to note that the culture of the organization significantly affects this relationship between job satisfaction and turnover intention (Habib et al., 2014). Hence, the third hypothesis.

H3: Job Satisfaction is negatively related to Turnover Intention

As seen: the majority of the job dissatisfied-workers who quit during the Great Resignation and Lying Flat movements overwhelmingly justified their reasons as being related to the lack of FWAs and the work-life balance, and consequent mental health benefits, these are capable of providing (Microsoft Work Trend Report, 2022). At the same time, the above-mentioned studies do back up these workers' assumption that FWAs, through providing flexibility and autonomy over one's allocation of work, increase job satisfaction. And, finally, since job satisfaction is negatively related to turnover intention, this, then, begs the final hypothesis.

H4: Job Satisfaction mediates the relationship between FWAs and Turnover Intention

Scheme 1 – The Hypotheses



As previously mentioned, a dedicated chapter was written on Turnover Costs. Its reading complements this Literature Review by dissecting and exposing exactly why turnovers are bound to worsen in the foreseeable future as the highly qualified Gen Z workers become an increasingly larger share of the workforce. The chapter begins in the next page. Refer to page 49 for the Methods chapter and respective study of the above-mentioned hypotheses.

Turnover Costs

In the early 1960s, further attention began being directed at humans in the context of production – in addition to the other factors of production: physical capital, labor, land and management (Mincer, 1962; Becker, 1993) and thus was developed the Human Capital Theory, with major conceptualization contributions by both Theodore W. Schultz (1961) and Gary S. Becker (1964). This theory suggests that both individuals and society extract economic benefits from investments in people (Schultz, 1961; Becker, 1964) and that, from an organizational *expenditure* point of view, human capital ought to be considered as an asset rather than an expense (Flamholtz, 1974), since it does not refer to an expenditure whose gratification will be immediate, but will rather yield results later (Vaizey, 1962). Although, the Human Capital Theory's bottom line focus on people as a factor of utmost importance – more so than the remaining production factors (Becker, 1964) - in the success of organizations and society as a whole was pointed out long before the decade of 1960, by economists such as Adam Smith – who said that human effort is what lies at the root of all wealth; not only from a quantitative point of view but also a qualitative one, which includes the *abilities* of people on top of their mere participation in work; John Stuart Mill – who defended that human abilities could not be considered as *wealth* themselves, but could rather *attract* wealth; in other words, he argued the abilities contained within each individual to be *economic utilities*, representing the *means* to acquire wealth; Alfred Marshall – who defined *personal wealth* as all the faculties, energies, and habits which directly contribute to making people industrially efficient; and Irving Fisher, who wrote that humans are considered as much capital as machines are in the productive processes (Sweetland, 1996).

Much like any object of investment, human capital too can appreciate, remain the same, or depreciate – which is highly influenced by the way it is managed (Flamholtz, 1974). Investments are made in human capital through medical care and nutrition (Schultz, 1981), internal migration (Schultz, 1961), acquiring knowledge about the economic system (Becker, 1962), and education – which the Human Capital Theory considered as the prime human capital investment, given that it increases people's economic capabilities (Becker, 1962; Schultz, 1971). The theory's literature points several means of investment through education: formalized primary, secondary and higher levels of education (Becker, 1962; Cohn, 1980), informal education both at work and at home (Schultz, 1981), on-the-job training and apprenticeships (Mincer, 1974) , and specialized

vocational secondary and higher-level education (Corazzini, 1967). This increase in education is then reflected on a higher productivity, thus representing the outcome of the companies' investments (Becker, 1964; Schultz, 1971; Mincer, 1974; Cohn, 1980). Naturally then, when companies experience turnovers, human assets are depleted: the unamortized investment in people is lost, and there is an opportunity cost associated with unrealized human value (Flamholtz, 1974).

The current chapter on the turnover costs will be presented according to the following structure: 1) the quantifiable financial costs; and then, 2) the non-quantifiable costs, which include a) the limitations when calculating the financial costs, as well as the costs with b) knowledge loss.

1. (Quantifiable) Financial Costs

Literature lacks in the number of turnover cost studies; on top of that, the few that do exist lack in variety of industries, since most of which are in the *healthcare sector*, more specifically, and almost exclusively, about *nursing* turnover – due to recurring nature (Waldman et al., 2003, 2004; Bland Jones, 2004, 2005; Cheryl Bland Jones, 2008). Due to nursing being a much more popular object of turnover cost studies than any other profession, literature has developed The Nursing Turnover Cost Calculation Methodology (NTCCM) (T. E. Hall, 1981; Hoffman, 1985; Jones, 1990). As of today, there isn't any other predefined calculation method for turnovers. The literature on turnover cost measuring methods is still in development, with turnover cost studies usually refining and suggesting new aspects to enter the equation, as for example did Carriquiry (2013) in one of the most recent turnover costs studies, when accounting for the turnover costs of an engineering firm, where he suggested that the high risk of a new hire leaving the company within the first year should be accounted for through the application of a *turnover rate multiplier* (Farber, 1999). So, industries other than healthcare usually create their own calculation methods, mostly based off the same theories (e.g. Cascio, 1991; Tziner & Birati, 1996) but every each one differing in some degree to what would cater better to its particular case – and in some rare but existing cases, suggesting new general ways / components to enter the measurement procedures, as was with the mentioned-case with Carriquiry (2013).

Yet, in general, the quantifiable costs of turnovers include: i) *separation costs* - exit interviews, administrative costs and severance payments -, ii) *replacement costs* – from advertising the new

position vacancy in the available media channels, processing candidate applications, conducting screening interviews, assuring the candidate's compatibility, holding decision making meetings, to medical examinations and carrying out orientation activities -, iii) *training costs* – which include all the costs of welcoming, integrating and preparing the new worker for his / her new position: company time spent introducing the worker to the network; its regulations, norms of conduct, performance regulations, company's values and mission, as well as making and guiding the worker through formal training programs and job-training activities -, and, finally, iv) the Costs of Reduced Productivity (CoRP), - which can be described as the smaller efficiency of the new hire when compared with the former employee's efficiency (Wasmuth & Davis, 1983; Tziner & Birati, 1996; Baron et al., 2001; Bland Jones, 2004; Waldman & Arora, 2004; Waldman et al., 2004; Carriquiry, 2013; Sorensen & Ladd, 2020).

Due to its importance – and, it can be added, *growing* importance, as we will shortly come to understand why -, as well as its more complex nature when compared to the more straightforward nature of the separation, replacement and training costs: the CoRP will be object of a deeper analysis.

As seen in the Literature Review chapter, the CoRP component was first suggested to integrate the overall turnover costs by Cascio (1991). Since then, the concept has been generally adopted in these type of studies (Wasmuth & Davis, 1983; Tziner & Birati, 1996; Baron et al., 2001; Bland Jones, 2004; Waldman & Arora, 2004; Waldman et al., 2004; Carriquiry, 2013; Sorensen & Ladd, 2020) and its formula has been progressively refined, mainly by The Nursing Turnover Cost Calculation Methodology (NTCCM) (Bland Jones, 2004).

The Costs of Reduced Productivity (CoRP) consist of the productivity difference between the productivity of the previous proficient employee and the new hire's productivity. Even though the new hire's prior experience helps close in the gap – as it will be further discussed ahead –, the new hire's efficiency and productivity will most likely always be below that of the former employee, given that a large part of the knowledge required to perform at the level of the former employee is firm-specific and can thus only begin to exist when in-job (Cascio, 1991; Tziner & Birati, 1996; Waldman et al., 2003). This CoRP occurs during the time it takes for the new hire to reach the previous hire's level, and so, the longer this period is, the bigger the costs firms incur in with CoRP, and after said level is reached, these costs disappear – or rather, begin amortizing (Waldman et al., 2003). Yet the CoRP doesn't just occur in the new hire, but also in the coworkers

and supervisors, whose productivity also decreases in comparison to their regular productivity levels due to the time spent training, guiding helping, orienting and integrating the new hire (Bland Jones, 2004, 2005; Waldman et al., 2004; Carriquiry, 2013). In refining the CoRP concept, Jones (1990) added to the The Nursing Turnover Cost Calculation Methodology (NTCCM) the productivity lost *prior* to the turnover: arguing that in the 3 months prior to the turnover (when there's already a set intention of voluntary turnover), the productivity decreases severely.

This *time* that it takes the new hire to reach the former employee's productivity levels depends on his / her learning speed, or *learning rate* (Wasmuth & Davis, 1983; Waldman et al., 2003, 2004; Bland Jones, 2004, 2005). Thus enters the concept of *learning* in the context of productivity, first observed by Wright (1936), when, in an airplane manufacturing facility, he realized that as the quantity of units manufactured doubled, the number of hours it took to produce each unit decreased; this was due to the fact that workers tend to demand less time to perform a certain task the more they do it, given that its repetition increases their familiarity with the operations and tools (Wright, 1936; Teplitz, 1991; Dar-El, 2000).

There are several aspects that influence this *learning process*: i) the training programs' structure (Terwiesch & Bohn, 2001; Vits & Gelders, 2002; Serel et al., 2003; Azizi et al., 2010); ii) the workers' motivation performing the tasks (Kanfer, 1990; Eyring et al., 1993; Natter et al., 2001; Agrell et al., 2002)); iii) the prior experience the worker possesses in said task(s) (Nembhard & Uzumeri, 2000b, 2000a; Nembhard & Osothsilp, 2002a), which is translated in the initial performance level (Kvalseth, 1978); and, finally, iv) the task complexity (Wright, 1936; Pananiswami & Bishop, 1991; Nembhard & Osothsilp, 2002a). The way these aspects influence the worker's learning processes is represented in mathematical models called Learning Curves (LCs) (Wright, 1936; Teplitz, 1991; Badiru, 1992; Argote, 1999; Fioretti, 2007). The LCs measure the performance of workers through dependent variable such as i) the time it takes to produce a single unit; ii) the number of units produced per time interval; iii) the cost of producing each unit; and iv) the percentage of non-conforming units produced (Teplitz, 1991; Franceschini & Galetto, 2002).

A major influencing factor, especially in today's technology-focused work, is the concept of *task complexity* – previously stated as an influencing factor of the Learning Curve (LC) –, since the learning rate is proven to be slower in more complex tasks (Edosomwan, 1986; Lance et al., 1989; M. J. Papa & Papa, 1990). Also, higher task complexity negatively influences the *initial*

performance level of a new hire (Kvalseth, 1978; Nembhard, 2000) – another influencing factor of the LC. Furthermore, due to the increasingly competitive environment, many companies seek to provide customers with a great variety of products, and, consequently, by having shorter production runs and frequent product changes, workers have to rotate among tasks prior to becoming fully proficient at them (Nembhard & Osothsilp, 2002b) – which, alongside with task complexity, interrupts their learning process and increases what is known as *forgetting rates* (E. R. Hall et al., 1983; Lance et al., 1998; Nembhard, 2000; Osborn et al., n.d.; Shields et al., 1979; Wood, 1986).

Robert E. Wood (1986), sought to conceptualize a widely applicable definition of the concept of *task complexity*. Firstly, he wrote that every *task* has three essential components: the product(s), the acts, and the information cues. The *products* are the measurable outcomes of the acts. Tasks are differentiated from one another according to the products associated with each one of them. The *acts*, he explained, are the behavior pattern with an identifiable direction or purpose. Lastly, the *information cues* are bits of information about the characteristics of stimuli objects upon which a person bases the judgement he or she is required to make for the accomplishment of a task. It is important to point that Wood (1986) considered the latter two aspects – acts and information cues –, as *task inputs*, since the handling of these two require a certain (variable) amount of knowledge, skills and resources that an individual must possess for a successful task performance.

Wood (1986) also wrote that the *total task complexity* derives from three different task-complexity aspects: component, coordinative, and dynamic: i) *Component complexity* being the direct function of the number of different acts needed for the performance of the task, as well as the number of different information cues which need to be processed in the execution of those acts. As the number of distinct acts increase, so does the knowledge and skills required to accomplish the tasks due to the fact that there are more activities and events one needs to be aware about and able to perform; ii) *Coordinative complexity*, which includes the timing, frequency, intensity and location requirements for the performance of required acts. Again, the more complex these are, the greater the knowledge and skills the individual must have in order to be capable of performing the task(s); iii) *Dynamic complexity*, which refers to the nonstationary nature of the relationships between task inputs and products; in other words, the need to adapt to changes in a task during its performance. The changes in either the set of

required acts and information cues or the relationships between inputs and products can also create shifts in the knowledge or skills required for a task. Wood (1986) argues that the relationship between task complexity and performance is thought to have a curvilinear curve, since an increase in the level of complexity at the bottom of the spectrum may lead to higher levels of challenge activation / motivation (Scott, 1966) and thus increasing performance (Locke et al., 1981). However, when complexity levels get higher, the capacities required may exceed those possessed by individuals, leading to an overload, and thus lowering performance (Wood, 1986).

To summarize: task complexity influences the peoples' learning rates, which is graphically / mathematically represented in the Learning Curves (LCs). These curves are used to calculate the Costs of Reduced Productivity (CoRP), which are then added to the other turnover costs (separation, replacement, and training), and is thus obtained the *Total Turnover Costs*.

Why, then, have we decided to explore as deep as to get to the complexity of tasks if the subject at stake in this thesis is turnover? Because, as the following studies will show, the task complexity which characterizes this study's target sample – highly qualified Gen Z workers – knowledge-intensive occupations (Autor et al., 2001, 2009, 2015), has a tremendous influence on the total costs of turnovers. Studies on turnover costs yielded very different results according to the knowledge-intensity of the industry / firm – which is directly related to the task complexity of one's work. Hence the point that's important to be made clear: *Gen Z is bound to be the most educated ever; the more qualification-requiring knowledge-intensive jobs this generation is occupying are characterized by their bigger task complexities; bigger task complexities result in slower learning rates; slower learning rates result in bigger CoRP; bigger CoRP yield (much) bigger total turnover costs*. Allow me to give some examples of how much the knowledge intensity of the job affects the total turnover costs.

In lodging, the cost of a single turnover, from two different hotels, ranged from \$7.419 for a front-office associate to \$3.376 for a line cook (in the same hotel), and from \$9.989 for an administrative assistant, sales and catering personnel to \$1.737 for room-service waitstaff in the other. As well, the turnover costs for a front-desk associate varied between \$7.419 in one city to \$16.801 in another (Hinkin et al., 2000). Another study on lodging reported costs between \$5.965 and \$12.881 for a front desk associate – again, costs differed from hotel to hotel (Wasmuth & Davis, 1983). Another study of turnover, this time in a more knowledge-intensive industry; a

medium sized manufacturing firm in northern Europe, the cost of turnover of an engineer was concluded to be \$41,549 (Carriquiry, 2013). In the healthcare industry, many studies were conducted on nurse turnover, as previously stated. One study found these to range from \$27.927 and \$37.437 per registered nurse (Waldman et al., 2004) and another to be between \$62.000 and \$67.000. (Jones, 2005). The results of the latter study were revisited in 2007 and adjusted to the inflation, which then corresponded to costs per turnover to be between \$82.000 and \$88.000 (Jones, 2008). Waldman et al.'s (2004) study, also included the turnover costs of physicians - a job characterized for an even bigger task complexity than those of lodging and nursing, for example -, which varied between \$183.488 and \$220.250 (Waldman et al., 2004). Another study focused on primary care physicians found these costs to be: \$236,383 for general/family practice, \$245,128 for general internal medicine, and \$264,645 for pediatrics, which, during the four-year time span of the study, resulted in costs of \$24.5, \$22.3, and \$22.2 million for each specialty, respectively (Buchbinder et al., 1999).

Waldman's study (2004) reported to have the total turnover costs representing between 3.4% and 5.8% of the total annual operating budget. These numbers amounted to between \$17 - \$29 million, out of the total annual operating budget of \$500 million. The Costs of Reduced Productivity (CoRP) share in the whole of the turnover costs was that of 42% to 66% of the total turnover costs - \$7 to \$19 million, respectively*. Now, one might in all fairness ask: *which is it? Were the total turnover costs \$17 or \$29 million?* What Waldman did was he calculated the CoRP using two different Learning Curves (LCs); that is, he measured two different scenarios: the *worst*, and the *best-case* scenario, as he named them. For the former, directed at workers with little or no previous experience, he used a linear LC, where the learning rate is constant; whilst for the

*Carriquiry's study (2013), e.g., found that the CoRP accounted for just above 70% of the total turnover costs – around \$650.000 out of \$914.000

latter, directed at workers with previous experience, he used a Pareto LC, where 80% of the total learning needed to reach a job mastery level occurs within the first 20% of the time. The difference between these two scenarios was estimated to be \$12 million in CoRP, and thus, in the total turnover costs.

The same thing did Jones (2005), where, similarly, she used two different LCs to measure both the learning rate of a new, inexperienced worker, and an experience one. Yet, through

interviews, where she asked managers to time it usually takes for workers to become 90% productive, she estimated the shape of the LCs herself – which ended up quite similar to the Linear and Pareto ones used by Waldman (2004). For experienced workers, it was estimated that it took an average of 6 weeks to reach the 90% mark. Whereas it required an average of 14 weeks for new workers – less than 1 year of experience – to reach that same mark. Financially, in a year's span, this resulted in CoRP of \$99,800 with experienced new hires and \$572,000 with new, inexperienced new hires.

And so, in order to obtain the fairest and most accurate turnover cost for each firm / situation, the use of the correct Learning Curve, when measuring the CoRP, is of utmost importance (Mazur & Hastie, 1978). Yet, alongside the fact that LCs of almost every conceivable shape have been found (Mazur & Hastie, 1978), turnover costs are faced with many other challenges and limitations that make up the *non-quantifiable costs of turnovers*.

2. (Non-Quantifiable) Costs

a. The limitations when calculating the financial costs

The first big limitation to the measurement of the turnover costs retracts to the sheer lack of primary data, in this case, with managers not registering and accounting for many turnover-related expenditures (Waldman et al., 2004). Often, companies look at turnovers as a non-monetary occurrence, myopically registering their occurrence solely in terms of “turnover-rates” (Flamholtz, 1974). As well, manager's lack of productivity measurements, along with the mathematical complexity of obtaining an accurate LC for each scenario – varying from industry to industry, company to company, job position to job position, and even person to person – makes it extremely hard to acquire the right turnover cost (Mazur & Hastie, 1978; Tony Schwartz et al., 2010; Carriquiry, 2013)

Other aspects that pose a limitation to the calculation of the turnover costs can be referred to as *net effects* (Waldman et al., 2004), which include issues such as the disruption of the firm's culture, resulting in a more defensive behavior, morale drop in the remaining workforce, a decrease in the quality of the work, increase of malpractices and decreases consumer satisfaction

and loyalty, and consequently, jeopardize the company's attractiveness in the job market, making it miss out on the best human capital (Tziner & Birati, 1996; Baron et al., 2001; Stovel & Bontis, 2002; Tracey & Hinkin, 2008; Serenko, 2022),

b. The knowledge loss

As previously stated, before Grant's knowledge-based theory of the firm – which, to recap, defines the firm's primary role as *integrating* the knowledge which resides and belongs to each individual worker-, literature defended that the firm created, stored, and deployed knowledge (Levitt & J. G. March, 1988; Spender, 1989; Huber, 1991; Nonaka, 1991, 1994).

Grant's theory is in line with that of Simon's (1991), who said that all learning takes place inside individual human heads and that organizations learned only through two ways: through the learning of its members, and through the acquisition of new members who possessed knowledge which the organization didn't previously have.

Knowledge has been traditionally viewed by economists as it being a public good, in the sense that, once created, it can be consumed by additional users; so, anyone who acquires new knowledge can resell it without losing it (Arrow, 1984); as well, knowledge is subject to economies of scale, meaning that while the original development of knowledge - especially tacit knowledge - is expensive, the marginal cost of its future application is very cheap, and it may frequently be reproduced and applied in other areas (Serenko, 2022) – which brings us to the concept of *knowledge transferability* (Grant, 1996). In this sense, Grant (1996) described a firm as an organization whose goal is to manage team production rather than a sheer institution which serves as a market to manage knowledge transactions; in other words, he argued the reason a firm exists in the first place is to provide the individual knowledge holders with *incentive* and *direction*. This concept of *knowledge transferability* is of utmost importance given that a firm's ability to retain its competitive advantage in the face of turnovers lies in its capacity of knowledge transferability (Barney, 1986).

Grant distinguished between two types of knowledge, each with a different difficulty of transferability. The first one refers to *explicit* knowledge, which includes documents, manuals, databases, etc; this type of knowledge, he argues, is easily transmittable through communication. The second one refers to tacit knowledge, which refers to the know-how, know-

about, skills, and contextual knowledge. In contrast to explicit knowledge, tacit knowledge is revealed through application rather than communication; in other words, it is acquired through practice – and, one might add: its transmissibility is slow and greatly uncertain (Grant, 1996). The latter form of knowledge is then the one which is lost the most in turnovers (Stovel & Bontis, 2002; Gul et al., 2012). One major loss that comes with the loss of tacit knowledge is in the form of *relational capital*, which can be defined as the firms' workers' ability to interact with a wide range of external stakeholders, including customers, suppliers, competitors, trade partners and industry associations (Mention & Bontis, 2013). And so, when turnovers occur, firms lose the knowledge *embedded* in those relationships (Mention & Bontis, 2013). This knowledge is created because when people work together, they frequently begin interacting socially: they develop professional friendships based on similar values, reciprocal likings, and trust; eventually building networks of friendship links together with numerous coworkers and sometimes even other shareholders (Sias & Cahill, 1998; Berman et al., 2002). Such friendship networks often act as an informal way for knowledge sharing and distribution (Droege & Hoobler, 2003). This loss of relational capital happens because the departed worker had developed these personal connections with the mentioned stakeholders (DeLong, 2004) – connections which may very well take years to re-build. (Serenko, 2022). One final factor where turnover may harm companies through the disruption of knowledge transfer is when senior experienced workers leave the company, since they often serve as valuable mentors who help guide and supervise the newly hired employees (Serenko, 2022).

Method

Measures

The goal of this study is to gain knowledge on the impact flexibility has on highly qualified Gen Z workers' turnover intentions through the mediating effect of their job satisfaction. A questionnaire was created in order to analyze the relationship between Flexible Work Arrangements (FWAs) and the workers' Turnover Intentions (TI), as well as to analyze the mediating effect of Job Satisfaction (JS). The questionnaire was made using "Google Forms" and spread through Linked-In connections. A total of thirty-eight questions made up the questionnaire: thirty-one regarding the three concepts of FWAs, JS, and TI (twenty-four, three, and four, respectively), and eight regarding the control and characterization of the sample.

Before getting to the first question of the first topic (FWAs), the respondents were presented, through a text box at the top of the page, with the clarification of the context and goals of said survey, as well as assured of both the confidentiality of the collected data and its exclusive usage for academic purposes. Following this, the first line in the survey's body said "I have acknowledged and understood the above written information and I agree to participate in the present study.". In front of it was check-box which the respondent had to check in order to be able to submit his / her answer.

Given that the chosen sample of people in this study consists in Portuguese people working in the national territory, the questionnaire was carried out in Portuguese. Three scales were used: that of FWAs; Job Satisfaction, and Turnover Intention. Given that these were written in English, in order to assure that each questions' original comprehension was kept as intended, the back-translation method for cross-cultural research was applied (Brislin, 1970).

The first section of the questionnaire was regarding FWAs. Here, a scale of twenty-four questions was used in eight groups of three questions (Rau & Hyland, 2002). Each group had the following structure:

"The most that XXX or my workgroup would allow me (...)"

"Ideally, (...)"

“In actuality, (...)”

The first question of each group inquired about the *Maximum* which the respondent’s employer, or workgroup, would allow for a certain type of flexibility; the second question asked what the *Ideal* amount of that certain flexibility would be according to the respondent’s personal preference / need; while the third question was regarding the amount of that certain flexibility which the respondent *Actually* uses. The answer options were:

5 – Four or five times per week

4 – Between one and three times per week

3 – once or twice per month

2 - Less than once per month

1 – Never

The eight specific FWAs inquired were: *“change the times that I begin and end my workday”*, *“change the location of where I conduct my work”*, *“shorten my hours after working a long day or week”*, *“work from an alternate location after working a long day or long week”*, *“vary my work schedule”*, *“vary the location of where I complete my work”*, *“determine my work schedule by the projects I work on, rather than the hours I am assigned to work”*, and *“determine my work location by the projects I work on, rather than the location to which I am assigned to work”*. As one can see, half of the questions are regarding flextime practices – such as the first, third, fifth and seventh questions -, and the other half regarding flexplace practices – as is the case with the remaining second, fourth, sixth, and eighth questions. Cronbach’s alpha was .923

Regarding Job Satisfaction, the three-item overall satisfaction subscale from the Michigan Organizational Assessment Questionnaire (MOAQ) was applied (Gammann, Fichman, Jenkins, & Klesh, 1979) using a 7-point Likert-type scale (1=strongly disagree, 7= strongly agree). These consisted of: *“Globally, I’m satisfied with my job”*, *“In general I don’t like my job”*, and *“In general, I like working here”*. The second question (*“In general I don’t like working here”*) was reversed. Cronbach’s alpha was .882.

For the Turnover Intention, a scale of four questions was used (Robinson, 1996), likewise using a 7-point Likert-type scale. These were: *“Since I started working in this organization, I’ve thought*

about changing job”, “If things go as I intend, I think three years from now I’ll still be working in this organization”, “I would prefer to work in another organization”, and “I intend to stay a long time in this organization”. Cronbach’s alpha was .880.

Finally, in order to control and characterize the sample, the following data was collected: Age, gender, academic level / qualification, sector worked in, industry, size of organization (regarding number of employees), and finally, the time the respondent has been working under their current employer.

Sample

Person characterization

The respondents are 54.7% female and 45.3% male. The whole sample comes to a total of 235 participants, all of which are Gen Z workers – who, as of the writing of this thesis, go to upwards of 25 years old -, with a mean age of 23 years old. Regarding their academic qualifications, 51% hold a bachelor’s degree, 42% a Master’s Degree and 7% a Post-Graduation degree.

Worker characterization

88% work in the private sector, and 12% in the public sector. Consultancy, Banking, and Finance & Insurance accounted for almost 56% of the whole sample, with 36.2%, 10.6%, and 8.9% respectively; followed by industries such as IT, Sales, Marketing & Advertising, HR, and Logistics, with 8.6%, 7.2%, 6.8%, 3.4%, and 2.6% respectively. Regarding the size of the organization, 57.4% of the surveyed people works in an organization with more than 1000 employees, 14.9% work in an organization with 250-999 employees, 12.8% with 50-249 employees, 10.2% with 10-49, and finally, 4.3% have less than 10 employees. The mean tenure is just shy of a year, with almost 11 months so.

Results

We decided to test the four hypotheses through three different lenses. For such, we have created three different scenarios' which will allow for a richer overview of the hypotheses' inter-playing dynamics. What differs from scenario to scenario is the composite variable used in the place of the FWAs in Scheme 1. Having this said, let's get into the results obtained in the analyzes.

The Pearson Correlations shown in Table 1 have confirmed both the significance, and direction of the relationships priorly described between FWAs, Job Satisfaction and Turnover Intention. The most important for our analyzes being the respective positive and negative effect of FWAs availability (FWA.1) with both Job Satisfaction (.362), and Turnover Intention (-.240); the respective positive and negative effect of FWAs usage (FWA.3) with both Job Satisfaction (.160), and Turnover Intention (-.088); the respective negative and positive effect between the difference between the amount of flexibility the respondents would ideally want to use and the amount they actually use (FWA.2-3) with both Job Satisfaction (-.334), and Turnover Intention (.353); and, finally, between Job Satisfaction and Turnover Intention (-.683).

A descriptive analyzes in Table 2 shows that the respective mean answers and standard deviation were: 3.38 and .951 in the availability of FWAs (FWA.1); 3.71 and .786 in the desired quantity of FWAs (FWA.2); and 2.90 and .897 in the actually used FWAs (FWA.3); .81 and .804 in the difference between the desired flexibility and the actually-used flexibility (FWA.2-3); 5.66 and 1.103 in Job Satisfaction, and finally, 3.82 and 1.690 in Turnover Intention.

In order to test the hypotheses, Hayes' (2013) PROCESS bootstrap macro for SPSS (model 4) was used. Given that Rau and Hyland's (2002) questions regarding FWAs covered availability (scenario a.), desired / ideal amount (scenario b.), and actual usage of these arrangements (scenario c.).

So, in the first scenario – scenario a. – FWAs are interpreted as the *availability* of FWAs (Table 3). Here, there has been found to be a significant positive relationship between the availability of FWAs and the employees' Job Satisfaction (H1) (Coeff = .4235; p-value < .05). On the other hand, the direct effect of this availability to the employees' Turnover Intentions (H2), although negative - as expected -, was insignificant (Coeff = -.0120; p-value > .05). The effect that Job Satisfaction had on Turnover Intentions (H3), was not only significant but showed a strong negative effect (Coeff = -1.0477; p-value < .05). Finally, the mediation effect of Job Satisfaction in the relationship

between the availability of FWAs and the employees' Turnover Intentions (H4) was likewise negative and significant (Coeff = $-.4437$; BootCI [$-.6098$, $-.2782$]). The total effect of FWAs availability on Turnover Intentions includes both the direct effect – H2 –, and the indirect effect, i.e. the mediation effect of Job Satisfaction – H4. This means that the total effect is that of $-.4557$. This way, we can observe how much of the total effect is due to the mediation effect. In this case, the mediation role of Job Satisfaction accounted for just over 97% of the total effect.

In the second scenario – scenario b. – FWAs will refer to the *actual usage* of said FWAs (Table 4). In this case, the employees use of FWAs showed positive and significant effects on Job Satisfaction (Coeff = $.2016$; p-value $< .05$) – confirming H1 –, and had, yet, again, an insignificant relationship with Turnover Intentions (H2), but this time, a positive relationship (Coeff = $.0398$; p-value $> .05$). Where the effects were again stronger were, again, in the significant and negative relationship between Job Satisfaction and Turnover Intention (Coeff = -1.0492 ; p-value $< .05$), which is in line with H3. Finally, the effects of the FWAs usage in the employees Turnover Intention through the mediating effect of Job Satisfaction was negative (Coeff = $-.2115$; BootCI [$-.3932$, $-.0317$]), confirming once again the final hypothesis, H4. The total effect of FWAs on Turnover Intention is $-.1717$. Given that H2 found a positive relationship, this means that the mediation effect of Job Satisfaction accounted for 100% of the mediation effect between the usage of FWAs and Turnover Intention.

Finally, in the third scenario – scenario c. – FWAs will represent the *difference* between the amount of flexibility the respondents would ideally want to use and the amount they actually use (Table 4). In this final scenario, H1 showed a significant negative relationship between FWAs and Job Satisfaction (Coeff = $-.4534$; p-value < 0.05). In regards to H2, in this this scenario it was found a significant positive relationship in the direct effect of FWAs on Turnover Intention (H2) (Coeff = $.2965$; p-value < 0.05). . The effect of Job Satisfaction on Turnover Intention (H3) was again, as expected, significant and very similar to the other scenarios' values (Coeff = $-.9715$; p-value < 0.05). Finally, the mediation effect of Job Satisfaction in the relationship between the FWAs and the employees' Turnover Intentions (H4) was also significant (Coeff = $.4405$; BootCI [$.2430$, $.6394$]). This results in a total effect of FWAs on Turnover Intention of $.7370$, which makes it so that the mediation effect accounts for just under 60% of the total effect.

Table 1 - Correlations

		FWA.1	FWA.2	FWA.3	FWA.2-3	JS	TI
FWA.1	Pearson Correlation	-	.358**	.791**	-.533**	.362**	-.240**
	Sig. (2-tailed)	-	<.001	<.001	<.001	<.001	<.001
FWA.2	Pearson Correlation	.358**	-	.550**	.363**	-.159*	.261**
	Sig. (2-tailed)	<.001	-	<.001	<.001	.015	<.001
FWA.3	Pearson Correlation	.791**	.550**	-	-.578**	.160*	-.088
	Sig. (2-tailed)	<.001	<.001	-	<.001	.014	.180
FWA.2-3	Pearson Correlation	-.533**	.363**	-.578**	-	-.334**	.353**
	Sig. (2-tailed)	<.001	<.001	<.001	-	<.001	<.001
JS	Pearson Correlation	.362**	-.159*	.160*	-.334**	-	-.683**
	Sig. (2-tailed)	<.001	.015	.014	<.001	-	<.001
TI	Pearson Correlation	-.240**	.261**	-.088	.353**	-.683**	-
	Sig. (2-tailed)	<.001	<.001	.180	<.001	<.001	-

** - Correlation is significant at the 0.01 level (2-tailed)

* - Correlation is significant at the 0.05 level (2-tailed)

Table 2 – Means and Standard Deviation of main indexes

Index	Mean	Std. Deviation
FWAs (from 1 to 5)	-	-
FWA.1 - Available flexibility	3.39	.951
FWA.2 - Ideal / desired flexibility	3.71	.786
FWA.3 - Actual use of flexibility	2.90	.897
FWA.2-3 - Difference between ideal and actual use	.81	.804
Job Satisfaction (from 1 to 7)	5.66	1.103
Turnover Intention (from 1 to 7)	3.82	1.690

Table 3 (Scenario a. - Availability)

Hypothesis	Coefficient	p-value	BootCI
H1	.4235	.0000	-
H2	-.0120	.8960	-
H3	-1.0477	.0000	-
H4	-.4437	-	[-.6098, -.2782]

Table 4 (Scenario b. - Usage)

Hypothesis	Coefficient	p-value	BootCI
H1	.2016	.0116	-
H2	-.0398	.6655	-
H3	-1.0492	.0000	-
H4	-.2115	-	[-.3932, -.0317]

Table 5 (Scenario c. – Difference between Availability and Actual Use)

Hypothesis	Coefficient	p-value	BootCI
H1	-.4534	.0000	-
H2	.2965	.0054	-
H3	-.9715	.0000	-
H4	.4405	-	[.2430, .6394]

Discussion

The results of this study found significant positive effects of FWAs on Job Satisfaction. Likewise, Job Satisfaction has been significantly and negatively related to Turnover Intention. Consistently – across the three Scenarios -, these effects were observed. As well as the fact that Job Satisfaction mediates the relationship between FWAs and the employees' Turnover Intention. This makes it so that employers who experience high turnover rates, or that simply want to avoid experiencing high turnover rates in the future, ought to explore the path of providing their youngest generation workers with flexible work practices, since, as shown in H1 of Scenario a. – which showed results in line with other studies (Allen, 2001; McNall et al., 2010; Masuda et al., 2012; Yunus & Sayed Mostafa, 2022) -, the *sheer availability* of FWAs has been found to yield greater Job Satisfaction - which has been widely regarded as one of the main predictors of turnover intentions (Brayfield & Crockett, 1955; Vroom, 1964; Porter & Steers, 1973; Locke, 1975; Mobley, 1977; Russell et al., 2009; Wang et al., 2011; Cegarra-Leiva et al., 2012; Posthuma et al., 2013; Olusegun, 2015; Azeez et al., 2016). The reason for this can be attributed to the fact that it manifests the employer's concern for his / her employee's needs, preferences, and well-being (Grover & Crooker, 1995; Batt & Valcour, 2003; McNall et al., 2010). According to the social-exchange theory (Blau, 1964), these employees then tend to show more positive job attitudes, including that of higher organizational commitment, and, consequently, less intention to leave (Tsen et al., 2021), as H4 of Scenario a. has likewise proven – again, in accordance with other related studies (Allen, 2001; Batt & Valcour, 2003; McNall et al., 2010; Masuda et al., 2012).

In line with the results of other studies (McNall et al., 2010; Wheatley, 2017; Neirotti et al., 2019; Mullins et al., 2021; Berber et al., 2022) was the positive and statistically significant relationship

between the *usage* of FWAs and Job Satisfaction (H1 of Scenario b.). On the other hand, contrary to the mentioned studies, a significant direct effect of neither the FWAs availability nor usage was found with Turnover Intention (H2). A possible reason for this is the fact that this study's sample consists of young workers, who are very much at the beginning of their careers, and who work, very predominantly, at prestigious international corporations (such as Deloitte, EY, PwC, and KPMG), and therefore, due to how competitive it is to secure a position in them, are not considering leaving their organizations at the moment. The positive and significant mediation effect of FWAs usage on Turnover Intention through Job Satisfaction (H4 of Scenario b.) was in line with those of Berber *et al.* (2022) and Azar *et al.* (2018), the reason being exactly in the same line of thought as in Scenario a. – where, as a response to having their employers providing them with the possibility of using a certain amount of FWAs, and thus unchaining the employees reciprocation-behavior effects driven by the social-exchange theory (Blau, 1964), where, through a better satisfaction, one has, among other positive attitudes, less turnover intentions leave (Tsen *et al.*, 2021). The only difference in this scenario (b.) in relation to the former, is that instead of this dynamic resulting from the employer providing the FWAs, it results from the actual usage of these benefits.

Furthermore, employers who do already have flexibility practices implemented in their companies can benefit from assessing whether these are in line with their employees' desired quantity / frequency of usage. Scenario c. was developed to assess this compatibility, or lack of, and how this influences the employees' Job Satisfaction and Turnover Intention.

As we've seen, the direct effect of both FWAs availability and usage on Turnover Intention was insignificant (H2 of Scenario a. and H2 of Scenario b., respectively). The reason for such could be attributed to the fact that what *does* yield a more significant effect on Turnover Intention is not how much flexibility one has available nor how often one uses said FWAs, but rather how close the flexibility usage is to the *desired* flexibility usage (Bentley *et al.*, 2016) – hence the creation of Scenario c.. The decision for the creation of this scenario was based on the following logic: a person who has X amount of flexibility might ideally desire an even greater amount and is thus not completely satisfied with their flexibility. While another person who uses that exact same amount of flexibility might be completely satisfied with that amount, since, e.g., due to their personal preference or even the sheer nature of their job, they do not wish for more (Hackman & Oldham, 1980; Barnett *et al.*, 1999; Bentley *et al.*, 2016).

In this scenario, the result observed in H1 ought to be interpreted as *“the smaller the difference between the desired flexibility usage and its actual usage, the greater the Job Satisfaction”*. Likewise, as this difference increases, the least satisfied the employee will be, since its autonomy is smaller than what is desired (Hackman & Oldham, 1980; Barnett et al., 1999; Igbaria & Guimeraes, 1999; Hyman & Summers, 2004; Kelliher & Anderson, 2008; de Sivatte & Guadamillas, 2013; Bentley et al., 2016). Interestingly, albeit not surprisingly, given the previously mentioned logic, in regard to H2, this scenario (c.) was the only one out of the three which found a significant relationship in the direct effect of FWAs on Turnover Intention. Again, in this scenario, this reads that *“the bigger the difference between the availability and actual use of FWAs, the greater the employees’ turnover intentions”*, and vice versa. Finally, the mediation effect of Job Satisfaction in the relationship between the FWAs and the employees’ Turnover Intentions (H4) was also significant and positive. This resulted in a weight of the mediation effect of 60% of the total effect. The weaker mediation effect in this scenario when compared to the previous two – which were 97% in scenario a. and 100% in scenario b. -, is due to the significant relationship found in H2 in this scenario, which was not found in the former two.

This scenario has shown how important it is for employers to assure that their employees are actually using as close to the amounts of flexibility they wish to as possible in order to try and avoid turnovers. Yet, employers must beware that simply increasing the available amount isn’t bound to fix the problem. Here’s why.

As we can observe in Table 4, the mean usage of flexibility is 2.90, and, coming as no surprise, people have reported to be using less flexibility than they would ideally want to, with a mean desirability of 3.71 – so, the actual usage of flexibility is closer to “once or twice per month” while the desired amount is closer to “between one and three times per week”. In 47% of the cases, people have said to be using less flexibility than what they would like to. Where this was reported to happen the most was with the shortening of hours after a long day or a long week of work (57% of the cases). While, on the other hand, where this happens the least is with varying of the location from where they complete their work (3%).

Logically, if people ideally want more than the amount they use, it is expected that they will use the totality that is available for them to use. In other words, it is expected that the actual usage (2.90) would be somewhat equal to the available amount. Yet, this is not the case, as the mean availability reported is 3.39. So, people are *using* less flexibility (2.90) than they are *allowed* to

(3.39) even though they *want* more (3.71). Which makes for a very interesting dynamic: there are cases in which people desire to use the totality, or more, of the FWAs which they *can* use, but are yet *depriving* themselves from doing so. To be precise, this dynamic – where “usage” < “availability”, while at the same time “desirability” > or = to “availability” – happened in almost 1 in every 5 cases (18%, to be precise). Where this was reported to happen the most was with the FWAs of “shortening of hours after a long day or a long week of work” (26%), “Vary my work schedule” (23%), and “changing my starting and finishing hours of the working day according to their personal preference / need” (20%) - which, interestingly, are all flextime practices, as oppose to flexplace practices (recalling that the survey section of FWAs was made up of 50% flextime practices and 50% flexplace practices). One possible reason for this contradictory dynamic of deprivation is the fact that working flexibly is still in conflict with the *ideal worker model*, where rigid work schedules, such as “9 to 5” e.g., prevail (Wight & Raley, 2009). This makes it so that those who opt to use the flexibility options which are available to them often end up facing negative career repercussions such as career marginalization, which makes career progression harder (Atkinson & Hall, 2009; Wheatley, 2012; Yunus & Sayed Mostafa, 2022). Likewise, this deprivation can result not only from a top-down fear of scrutiny, along with the negative consequences resulting from it, but also a fear of judgement and disapproval from colleagues (Gomes, 2021). And so, as to conclude – with the help of this last scenario: employers must not only assure that the availability of FWAs meets as much the desired amounts as possible, but they also ought to create an environment in which employees do not deprive themselves from using them.

Limitations and Future Research Directions

Both Job Satisfaction and Turnover Intention, due their personal natures, are aspects which are unique to each individual and, thus, only he / she is able to effectively report them. On the other hand, there are data which could be provided by other people - in addition to the employees – such as managers / supervisors, e.g, as is the case with questions 1.3, 2.3, 3.3, 4.3, 5.3, 6.3, 7.3, and 8.3, which refer to the actual usage of FWAs. So, it is recommended that, in order to try and obtain a greater reliability of information, researchers expand their data sources – and thus avoid the limitation of common method bias.

Additionally, a longitudinal approach could help better understand and analyze how the FWAs availability, desirability and usage changes in time and how these changes are related to both the employees' Job Satisfaction and Turnover Intention. As well, this approach would allow for the overcoming of a limitation regarding Turnover Intention, since, although it presents an important index which shapes an employees' behavior at work (Tziner & Birati, 1996; Baron et al., 2001; Stovel & Bontis, 2002; Tracey & Hinkin, 2008; Serenko, 2022), a longitudinal study would assess whether or not those intentions turned into actual turnover or not.

Given that the survey was carried out on-line, another limitation can be attributed to the inherent uncertainties that come with the sheer nature of these non-face-to-face interactions.

Finally, although not exactly a limitation but rather a characteristic: the chosen sample makes it so that the findings of this thesis cannot be generalized to all demographic groups nor to all types of “office work”, since, not only was the sample rather niche in terms of age group – Gen Z only – but also, the type of work of the respondents consists of knowledge intensive activities (Appendix 2) – characterized by less routine and more abstract tasks - which required high levels of qualification (Autor et al., 2001; David Allen, 2015; Gomes, 2021). So, one must beware that not only is Gen Z characterized by its more pronounced demand for flexibility than other demographic groups (Microsoft Work Trend Report, 2022), but also the fact that the very jobs of these highly qualified workers are more bound to not only use flexible options, but also to benefit from them when compared to jobs of less qualification and more routine-task working, for instance (Autor et al., 2001, 2009, 2015)

The main future research direction we provide is related to the contradictory dynamic found and mentioned in the discussion chapter – the fact that, in this study, almost one in every five people used less FWAs than they had available, even though they ideally desired to use either the full available amount or more. This dynamic has shed light on the fact that, for employers, it isn't enough to allow their employees to use more flexibility as to harvest the benefits that come with it; but rather, they ought to ensure the employees don't feel they need to deprive themselves from using it, since, as this thesis has found (in scenario c.): the bigger the difference between one's desired usage and one's actual usage, the less the job satisfaction and the bigger the turnover intentions. To thoroughly understand the reasons why this deprivation happens, as well as the consequences of it, would allow employers to understand the practical implications of implementing FWAs on an organizational level in a way which will truly yield the desired, but-sided, benefits. For example, in cases where the reason for this deprivation is due to the priorly-mentioned fear of career marginalization and consequent negative consequences regarding career advancement, a study of the moderator role of trust in management / the supervisor could very well yield interesting and useful insights which would push the literature forward. A last note on future research directions is the observed fact that this deprivation happened 26% more often in flextime practices than it did in flexplace practices. This could be related to the fact that, although a lot of literature has advanced our understanding of remote work, especially during and after the COVID-19 pandemic, with numerous studies finding that, among many other positive indexes, peoples productivity increased (e.g. de Vincenzi et al., 2022; Galanti et al., 2021; N. E. M. Elshaiekh et al., 2018; Umishio et al., 2021) and more and more employers seem to be internalizing the benefits of flexplace practices; unfortunately, the benefits of flextime practices, although not lacking in proof, both theoretical (e.g. Pencavel, 2015, 2016) and empirical (e.g. Barnes & Jones, 2020), are yet to be fully embraced.

Conclusion

This thesis has shed light on the growing importance of employers listening to what are their newest generation of employees' – Gen Z - needs and demands in terms of flexibility if they want to avoid the extremely costly consequences of turnovers. As exposed in a dedicated chapter, employers are often not aware of the consequences of turnover in the big picture, with a tendency of looking at them as a sheer rate rather than assessing their real costs. This comes as no surprise, given that even the literature struggles to capture the total effects felt by an organization which incurs in turnovers. The little turnover-cost-assessing literature which thoroughly aimed to capture the whole and assess the totality of the multi-nature and longitudinal consequences of turnovers, found that the easy-to-account-for, out-of-pocket monetary costs - which some employers indeed keep track of through accounting data - accounted for a sheer part of a much bigger and much more complex picture (Waldman et al., 2004; Bland Jones, 2005; Cheryl Bland Jones, 2008; Carriquiry, 2013). Likewise, one must not disregard the consequences - either extremely hard or even impossible to quantify – of turnover costs such as knowledge loss and the hit the organization gets in its reputation, ultimately leading to undesirability in the job market and consequent struggle to acquire human talent – which, as Grant's (1996) knowledge-based theory of the firm affirms: is the cornerstone of any organization's competitive advantage.

On top of these already worrisome facts, the dedicated Turnover Costs chapter allowed us to understand that the damages caused by turnovers are not bound to disappear any time soon – perhaps rather the opposite -, because, as knowledge intensive industries, and their respective knowledge-intensive activities and services (KIAs and KIS, respectively) increase (Appendixes 1 through 3), so do their inherit task complexity (Autor et al., 2001; David Allen, 2015; Gomes, 2021). In turn, this task complexity then directly affects one's learning rhythm, which, finally, increases the CoRP – which studies have found to represent a very significant share of the total quantifiable turnover costs, in some cases accounting to upwards of 70% of that total (Waldman et al., 2004; Bland Jones, 2005; Cheryl Bland Jones, 2008; Carriquiry, 2013). Hand in hand with this trend that might worsen the consequences of turnovers, as covered, Gen Z desires more flexibility than other, older demographic groups (*Microsoft Work Trend Report*, 2022). These two

trends together make flexibility's role in preventing the *growing* damages of turnovers that much more important - thus the writing of this very study.

To conclude, one aspect which enriched this thesis' study in comparison to others is the fact that it looked at how FWAs interacted with Job Satisfaction, Turnover Intention, and Turnover Intention *through* Job Satisfaction, not only through a FWAs-availability lens – as did Masuda *et al* (2012), e.g. -; nor did it analyze it according to the FWAs usage – as did many other (e.g. Berber *et al.*, 2022; McNall *et al.*, 2010; Mullins *et al.*, 2021; Neirotti *et al.*, 2019; Wheatley, 2017) -, but rather through both of these lenses *plus* a third lens which analyzed how the *difference* between the desired flexibility and the actually used flexibility interacted with Job Satisfaction and Turnover Intention. Although research lacks no proof of the benefits of FWAs for both employee and employer – which could be laughably summed up as “A healthier, happier, and more motivated employee is more productive, thus benefiting the employer at the end of the day” –, in this study, only in two thirds of the cases have employers met their employees' desired usage of flexibility. But even then, employees deprive themselves from using FWAs they *can* use and, in all truth, *wish* to use. Therefore, this constitutes one of main the future research directions of this thesis: understanding the causes, consequences, possible moderators, e.g, would push the literature forwards and better allow employers to understand the practical implications of implementing FWAs on an organizational level in a way which will truly yield the desired, both-sided, benefits of these practices.

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Appendix

Appendix 1

“An activity is classified as knowledge intensive if tertiary educated persons employed (according to ISCED97, levels 5+6 or ISCED11, levels 5 to 8) represent more than 33% of the total employment in that activity.”

$$\frac{\text{Number of persons employed in sectors identified as knowledge intensive}}{\text{Total number of persons employed}}$$

The following economic activity sectors are defined as **knowledge-intensive services**, abbreviated as **KIS** ([NACE](#) Rev.2 codes - 2-digit level between brackets):

High-tech knowledge-intensive services:

- Motion picture, video and television programme production, sound recording and music publishing activities (59);
- Programming and broadcasting activities (60);
- Telecommunications (61);
- Computer programming, consultancy and related activities (62);
- Information service activities (63);
- Scientific research and development (72)

Knowledge-intensive market services (excluding financial intermediation and high-tech services):

- Water transport (50);
- Air transport (51);
- Legal and accounting activities (69);
- Activities of head offices; management consultancy activities (70);
- Architectural and engineering activities; technical testing and analysis (71);
- Advertising and market research (73);
- Other professional, scientific and technical activities (74);
- Employment activities (78);
- Security and investigation activities (80)

Knowledge-intensive financial services:

- Financial service activities, except insurance and pension funding (64);
- Insurance, reinsurance and pension funding, except compulsory social security (65);
- Activities auxiliary to financial services and insurance activities (66)

Other knowledge-intensive services:

- Publishing activities (58);
- Veterinary activities (75);
- Public administration and defence; compulsory social security (84);
- Education (85);

- Human health activities (86);
- Residential care activities (87);
- Social work activities without accommodation (88);
- Creative, arts and entertainment activities (90);
- Libraries, archives, museums and other cultural activities (91);
- Gambling and betting activities (92);
- Sports activities and amusement and recreation activities (93)

Appendix 2

Based on this classification, there are two aggregates in use: total Knowledge Intensive Activities (KIA) and Knowledge Intensive Activities – Business Industries (KIABI).

Table 1 – Total Knowledge Intensive Activities (KIA)

NACE Rev. 2 codes	Description
09	Mining support service activities
19	Manufacture of coke and refined petroleum products
21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
26	Manufacture of computer, electronic and optical products
51	Air transport
58	Publishing activities
59	Motion picture, video and television programme production and pharmaceutical preparations
60	Programming and broadcasting activities
61	Telecommunications
62	Computer programming, consultancy and related activities
63	Information service activities
64	Financial service activities, except insurance and pension funding
65	Insurance, reinsurance and pension funding, except compulsory social security
66	Activities auxiliary to financial services and insurance activities
69	Legal and accounting activities
70	Activities of head offices; management consultancy activities
71	Architectural and engineering activities; technical testing and analysis
72	Scientific research and development
73	Advertising and market research
74	Other professional, scientific and technical activities
75	Veterinary activities
78	Employment activities
79	Travel agency, tour operator reservation service and related activities
84	Public administration and defence; compulsory social security
85	Education
86	Human health activities
90	Creative, arts and entertainment activities
91	Libraries, archives, museums and other cultural activities
94	Activities of membership organisations
99	Activities of extraterritorial organisations and bodies

Table 2 – Total Knowledge Intensive Activities – Business Industries (KIABI)

NACE Rev. 2 codes	Description
09	Mining support service activities
19	Manufacture of coke and refined petroleum products
21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
26	Manufacture of computer, electronic and optical products
51	Air transport
58	Publishing activities
59	Motion picture, video and television programme production and pharmaceutical preparations
60	Programming and broadcasting activities
61	Telecommunications
62	Computer programming, consultancy and related activities
63	Information service activities
64	Financial service activities, except insurance and pension funding
65	Insurance, reinsurance and pension funding, except compulsory social security
66	Activities auxiliary to financial services and insurance activities
69	Legal and accounting activities
70	Activities of head offices; management consultancy activities
71	Architectural and engineering activities; technical testing and analysis
72	Scientific research and development
73	Advertising and market research
74	Other professional, scientific and technical activities
75	Veterinary activities
78	Employment activities
79	Travel agency, tour operator reservation service and related activities
90	Creative, arts and entertainment activities

Presentation of the USA and Japan data

As the data for Japan and the United States are not available on Eurostat production unit in charge with LFS statistics, they are extracted from the available public data: ~

- USA: Current Population Survey (CPS) with the North American Industry Classification System (NAICS)

Table 3 – Total KIA and KIABI categories for the USA data

KIA	KIABI
Support activities for mining	Support activities for mining
Computers and electronic products manufacturing	Computers and electronic products manufacturing
Petroleum and coal products manufacturing	Petroleum and coal products manufacturing
Pharmaceutical and medicine manufacturing	Pharmaceutical and medicine manufacturing
Air transportation	Air transportation
Information	Information (without Libraries and archives)
Finance and Insurance	Finance and Insurance
Legal services	Legal services
Accounting, tax preparation, bookkeeping, and payroll services	Accounting, tax preparation, bookkeeping, and payroll services
Architectural, engineering, and related services	Architectural, engineering, and related services
Computer systems design and related services	Computer systems design and related services
Management, scientific, and technical consulting services	Management, scientific, and technical consulting services
Scientific research and development services	Scientific research and development services
Advertising, public relations, and related services	Advertising, public relations, and related services
Veterinary services	Veterinary services
Other professional, scientific, and technical services	Other professional, scientific, and technical services
Employment services	Employment services
Travel arrangements and reservation services	Travel arrangements and reservation services
Independent artists, performing arts, spectator sports, and related industries	Independent artists, performing arts, spectator sports, and related industries
Hospitals	
Offices of physicians	
Offices of dentists	
Offices of chiropractors	
Offices of optometrists	
Offices of other health practitioners	
Educational services	
Museums, art galleries, historical sites, and similar institutions	
Membership associations and organizations	
Public administration	

- JP: Labour Force Survey with the Japan Standard Industrial Classification (JSIC).

Table 4 – Total KIA and KIABI categories for the JP data

KIA	KIABI
Mining and quarrying of stone and gravel	Mining and quarrying of stone and gravel
Manufacture of chemical and allied products	Manufacture of chemical and allied products
Manufacture of petroleum and coal products	Manufacture of petroleum and coal products
Manufacture of business oriented machinery	Manufacture of business oriented machinery
Electronic parts, devices and electronic circuits	Electronic parts, devices and electronic circuits
Manufacture of electrical machinery, equipment and supplies	Manufacture of electrical machinery, equipment and supplies
Manufacture of information and communication electronics equipment	Manufacture of information and communication electronics equipment
Communications	Communications
Broadcasting	Broadcasting
Information services	Information services
Internet based services	Internet based services
Video picture, sound information, character information production and distribution	Video picture, sound information, character information production and distribution
Air transport	Air transport
Finance and insurance	Finance and insurance
Scientific and development research institutes	Scientific and development research institutes
Professional services, n.e.c	Professional services, n.e.c
Advertising	Advertising
Technical services, n.e.c	Technical services, n.e.c
Miscellaneous living-related and personal services	Miscellaneous living-related and personal services
Services for amusement and hobbies	Services for amusement and hobbies
School education	Employment and worker dispatching services
Miscellaneous education, learning support	
Medical and other health services	
Social insurance and social welfare	
Employment and worker dispatching services	
Political, business and cultural organizations	
Religion	
Foreign governments and international agencies in Japan	
National Government services	
Local Government services	

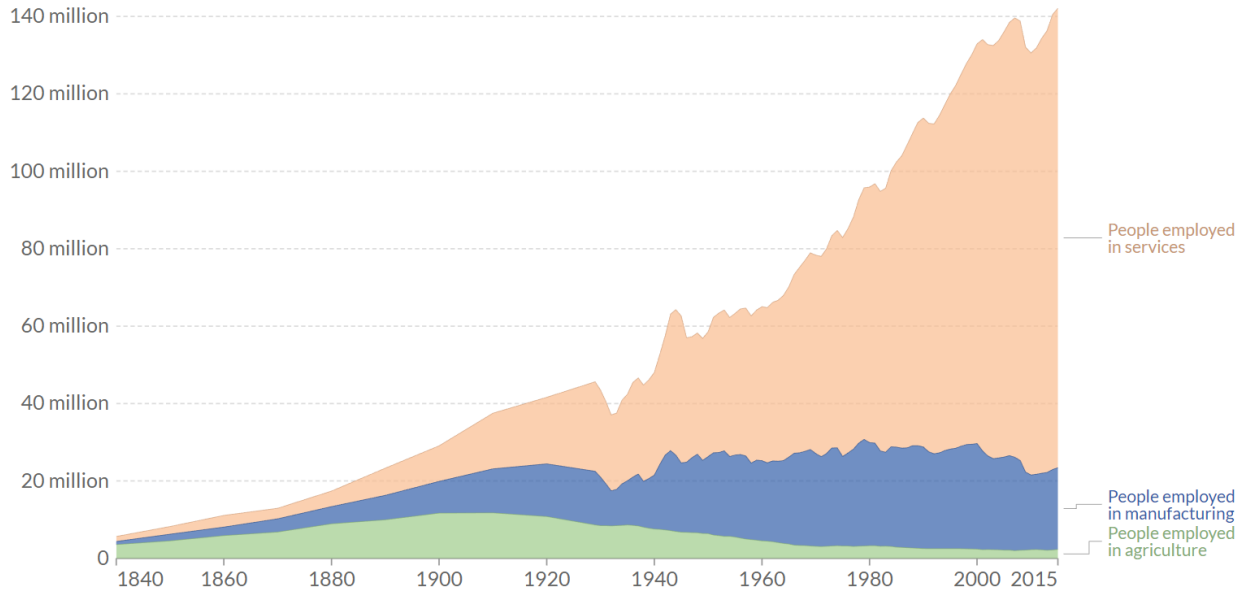
Appendix 3

Employment by economic sector, United States, 1840 to 2015

Number of people employed by economic sector.

Our World
in Data

[Change country](#) ☐ Relative



Source: Our World In Data based on Herrendorf et al. (2014)
OurWorldInData.org/structural-transformation-and-deindustrialization-evidence-from-todays-rich-countries • CC BY

