



UHASSELT

KNOWLEDGE IN ACTION

Faculty of Business Economics

Master of Management

Master's thesis

Organisational change and stress

Enxhi Qyra

Thesis presented in fulfillment of the requirements for the degree of Master of Management, specialization Business Process Management

SUPERVISOR :

Prof. dr. Mark VANCAUTEREN

MENTOR :

De heer Robin CLERCKX



UHASSELT

KNOWLEDGE IN ACTION

www.uhasselt.be
Universiteit Hasselt
Campus Hasselt:
Martelarenlaan 42 | 3500 Hasselt
Campus Diepenbeek:
Agoralaan Gebouw D | 3590 Diepenbeek

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Acknowledgements

With this thesis, I will finalize my degree of master's of management with a specialization in Business Process Management at Hasselt University in Belgium. The topic allocated to me by the university is "Organizational change and stress". With this dissertation, I hope to emphasize the critical aspects of the research topic and contribute to the knowledge around it.

First of all, I would like to express my deepest gratitude to my supervisor, Prof. dr. Mark Vancauteren, for guiding and helping me make the thesis a well-done achievement. Additionally, I would like to immensely acknowledge my thesis advisor Mr Robin Clerckx for his kind and endless support. I am gratefully indebted for his valuable comments, and suggestions and for sharing his knowledge.

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Finally, I would like to extend my wholehearted thanks to my partner, Eros, for being helpful, supportive and encouraging me through all ups and downs.

Thank you!

Enxhi Qyra

Managerial summary

1. Research purpose

We are interested in stress because it is all around us. Stress is a combination of an emotional state or reaction and a physical and/or physiological response to the environment. Stress results can be linked to an employee's well-being and directly or indirectly related to health. Since employees' productivity is the micro-foundation of firm-level success, it is critical to examine their emotional states.

Organizational change can alter employees' emotional and psychological well-being. Since organizational change requires people to engage in new methods of functioning, it has a significant impact on the lives of individuals. Some possible negative outcomes are stress, low morale, worry, loss of direction, lack of loyalty, and lack of employee engagement. Additionally, employees may find organizational change challenging to adjust to in terms of flexibility. They may be required to work longer hours to finish training and help areas of the company that are understaffed during periods of change. As a result, ignoring their health and well-being may result in physical and mental stress symptoms.

Different types of employees based on labour contracts may be affected differently during organizational change. There is contradictory literature about the effect of contract type on employee stress. Researchers argue that permanent workers have more to lose during organizational change; hence their reaction may be stronger. On the other hand, other researchers argue that temporary workers experience higher levels of job insecurity and low levels of job satisfaction, leading to mental health problems and stress.

The scientific contribution of this study lies in the literature review and the statistical analysis regarding the effect that organizational change and contract type have on stress across 35 European countries. This thesis will answer the following research question: "To what extent does labour contract agreement impact mental distress during organizational change?".

2. Research methodology

This study uses the data collected by the Sixth European Working Conditions Survey (EWCS) in 2015 with more than 43,000 European workers. The sixth EWCS includes a total of 35 countries: the 28 EU Member States, the five EU candidate countries (Albania, Republic of North Macedonia, Montenegro, Serbia, and Turkey), as well as Switzerland and Norway. This research carries out the statistical analysis using the Ordinary Least Squares (OLS) method through SPSS (Statistical Package for the Social Sciences) software program. OLS is one of the methods for applying linear regression to obtain the best fit line for a dataset. The variable interaction is used to study the effect of contract type on stress during an organizational change. This variable is calculated as the multiplication of the variable *contract type* with the variable *organizational change*. In order to reduce the omitted variable bias, the statistical analysis performed in this thesis relies on four linear regression models. From one model to the next, more variables that could affect stress are added.

3. Findings

Throughout the four models, it was identified that there is a significant correlation between contract type and stress. According to the survey data, temporary employees (employees with a contract of limited duration and temporary agency contract) are less stressed than permanent workers. Still, only 13% of the interviewees are temporary employees. The organizational change variable resulted in a negative statistically significant coefficient in all four models, meaning that stress is increased. Sleep-related problems, emotional job, lack of work-life balance, and deadlines have the most considerable effect on stress. The analysis shows that all these variables increase stress. Moreover, one of the models suggests that female employees are more stressed than male employees. The interaction between *contract type* and *organizational change* results statistically insignificant in all four models. As a result, my hypothesis: "During organizational change, temporary workers are more stressed than permanent workers", is not supported by this data set.

4. Value of the study

The research is helpful insights for managers of organizations experiencing change. Managers can use this research to make informed decisions about labour contracts, as evidenced by the literature review, which shows that poor work organization, poor management, poor working conditions, and a lack of support from coworkers and supervisors contribute to work-related stress. Additionally, based on the results of my study, sleep-related problems, emotional job, lack of work-life balance, and deadlines have the most significant effect on stress. Therefore, managers at all levels must consider how change may impact their employees if they want to encourage them and should pay special attention to developing a helpful and trusting company culture.

5. Research limitations and recommendation

There are some limitations in this paper that could be addressed in future research. Firstly, although the study examined 35 countries, they were all European. Thus, it is not known the extent to which the results of this paper can be generalized to other parts of the world. Thus, the population under consideration has a bias towards permanent employees. For future studies, I would suggest to further address of the heterogeneity employment based on the labour contract. Lastly, this study is cross-sectional data analysis, and it only contains results based on the data that was available in 2015. A cross-sectional study is challenging to derive causal links from because this is a one-time measurement of exposure and result. For future research, I would suggest panel data which is data that contains observations about different cross-sections across time.

Abstract

Change is an essential aspect of any company, and it is unavoidable in most. With today's industry moving at a breakneck pace, managing change inside organizations is more vital than ever. Organizational change often has a host of disruptive effects on employees, and the most notable effect is that it frequently leads to employee stress. This thesis analyses the association between organizational change and contract types on stress. The paper starts with a review of existing literature in the field of organizational change, stress, and types of contracts in relation to the "Job demands-resources" framework. It highlights the possible harmful consequences of change at the employee level. Additionally, I hypothesize that permanent workers are more stressed during organizational change than temporary workers, and I test my hypothesis using the data from the Sixth European Working Conditions Survey (EWCS) released in 2015. The data was then analyzed using linear regression, and important aspects that must be considered when carrying out organizational changes were identified.

The findings suggest that organizational changes are associated with significant risks of employee stress. A positive correlation was found between contract type and stress. Sleep-related problems, emotional job, lack of work-life balance, and deadlines have the most significant effect on stress from the considered control variables. The analysis shows that all these variables increase stress. However, the interaction between contract type and organizational change is statistically insignificant. The results show that for this data set, the hypothesis: "During organizational change, temporary workers are more stressed than permanent workers" is not supported.

Keywords: organizational change, stress, contract type, temporary workers, permanent workers, JD-R model.

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1. Introduction

Despite all of life's uncertainties, one unavoidable truth remains: everything changes. Change may be triggered by internal or external factors, and it may appear in all shapes, sizes, and forms; as a result, it affects every company in every industry (By, 2005). Organisations are under ongoing pressure to improve and adapt due to rapid technological advancements, societal pressure, and a focus on employee well-being (Kelder, 2022). To be competitive in today's rapidly changing economic climate, firms must frequently adjust their strategic direction, structure, culture and workforce levels (Bordia et al., 2004). Organizational change is crucial not just because of the role it plays in sustaining collaborative outcomes but also because its ramifications might affect a variety of actors inside the organization (Bordia et al., 2004).

If organisations are to survive, they must adapt to changes in the environment in which they operate (Tsoukas & Chia, 2002). Change can take many forms, including quality improvement, work-family programs, facility relocation, restructuring and strategic change, mergers, and downsizing. Change is a key aspect of the organisation, and it is unavoidable in most companies. As a consequence of change, employees face a lot of uncertainty and stress since it raises expectations and requires people to engage in new methods of functioning (Bordia et al., 2004). Moreover, it creates a stir and causes individuals to reconsider their position in the organisation (Maitlis & Christianson, 2014). Additionally, organizational change, and the stress it conveys, leads to higher cognitive effort and uneasiness and it affects not only permanent workers but also non-standard employment relations, such as part-time, temporary or short-time contract workers (Kelder, 2022). According to Ageng'o, the impact of such changes on the people involved are factors to be considered when mastering change (Ageng'o, 2018).

The stress created by the organizational change directly impacts the societal and economic aspects of the organisation. According to Vakola and Nikolaou (2005), stress is a phenomenon characterised by the influence of situational and environmental stimuli on a person and the physiological and psychological response to those stimuli. In reference to several theories of organizational behaviour, organizational change can alter employees' emotional and psychological well-being (Vakola & Nikolaou, 2005). Examining employees' emotional states is critical because their productivity is the micro foundation of firm-level success. Workplace conflicts and employee discontent can reduce labour productivity and lead to considerable financial losses from an economic standpoint. Furthermore, research in applied psychology has found that an employee's mental health significantly impacts their satisfaction and productivity. Employees with depression have been observed to have lower focus and productivity at work. Finally, this emphasises the relevance of individual-level effects of organizational change, which may be unforeseeable by the enterprises themselves (Dahl, 2011).

Nowadays, in addition to permanent workers, there are non-standard employment relations of organising work, such as part-time work, temporary help agency, contract company employment, independent contracting, etc. that are emerging (Kalleberg, 2000). The growth of temporary employment is being driven by employers' demand for more flexibility and innovation, as well as their desire to reduce labour costs and administrative complexity (De Cuyper et al., 2008). Different types of

employees, based on their contract type, are affected differently by the change in the organisation. Therefore, they will have a different social and economic impact on the organisation. According to Dahl (2011), costs of organizational change towards employees are often not empirically considered in organizational research, hence creating a knowledge gap. Organizational change gives job insecurity to both permanent and temporary workers. Some researchers argue that permanent workers have more to lose, and hence their reaction may be stronger to the change. Others argue that loss of work from organizational change may be costly and it may imply financial difficulties, especially for temporary workers who often find it challenging to find alternative employment (De Cuyper et al., 2008).

Although research conducted by De Cuyper et al. (2008) has laid a strong foundation by studying the potential relationship that exists between employment contracts and stress, there has been a visible lack of research recently on the effect caused by an organizational change on employment contracts and the potential relationship to induced stress. Thus, it is imperative to study the underlying factors of organizational change, its effect on stress and whether employment contract plays a role. Organizational literature and research show that stress is positively related to organizational change. It is unclear if the stress of temporary workers is higher or lower than that of permanent workers or short term contract workers. Therefore, it is worthwhile to study this topic, broaden the knowledge and explain the effects of stress on different employees type. This research is guided by the following question: "To what extent does labour contract agreement impact mental distress during organizational change?". In order to answer this research question, a quantitative method will be used. Using the main concepts from the literature review and the data gathered from the European Working Conditions Survey (EWCS), this master thesis will inspect the relationship between organizational change and employee stress depending on the contract types of employment. The findings can help organisations, human resources (HR) and managers guide organizational change by deepening the understanding of the role of contract types in the stress level of employees. These insights can lead to customised change interventions that increase the likelihood of positive change outcomes. Thus, it is imperative to study the underlying factors of organizational change and its effect on stress, and whether employment contract plays a role. The following section presents the literature review, divided into three parts: employee stress, organizational change and contract types.

2. Literature review

2.1 Employee stress

2.1.1 What is employee stress?

We are interested in stress because it is all around us. It affects everyone and is present in every aspect of our lives. Stress is a multidimensional phenomenon characterised by the influence of situational and environmental stimuli on a person and the physiological and psychological response to those stimuli (Vakola & Nikolaou, 2005). Tension, anxiety, frustration, worry, emotional tiredness, distress, and aggravation are some of people's psychological reactions (Kelder, 2022). Increased heart rate, perspiration, insomnia, and high cortisol levels are signs of physiological stress (Baethge, Junker, and Rigotti, 2021). According to Christensen and Hammond (2015), stress is a state that causes physical and mental tension. These definitions demonstrate that stress is a complex phenomenon caused by several causes. As a result, stress is a combination of an emotional state or reaction to the environment and physical and physiological response to the environment (Vakola & Nikolaou, 2005).

Work-related stress is a reaction that people experience when confronted with work demands and pressures that are out of proportion to their knowledge and talents, which put their ability to cope to the test. Stress can arise in a variety of work situations. However, it is frequently exacerbated when employees believe they have insufficient support from managers and coworkers, as well as limited influence over work procedures. Because of today's work environment demands, pressure at work is unavoidable. Depending on the available resources and personal traits, pressure viewed as acceptable by an individual may even keep workers alert, motivated, and able to work and learn. However, stress results when that pressure becomes enormous or otherwise uncontrollable. Employee health and corporate performance can both be harmed by stress. Poor work organisation and design, poor management, unsatisfactory working conditions, and a lack of support from coworkers and supervisors can all contribute to work-related stress (World Health Organization, 2020). Other stressors contributing to work-related stress are poor supervision, disagreement with peers and clients, high job demands, over time, increased work-loads, and staff concerns, including a lack of resources. Moreover, these stressors are associated with burnout and poor job satisfaction (Khamisa et al., 2015).

2.1.2 The Job Demands - Resources Framework

Stress, and the situations that create it, have been analysed with different methods over the years. The most utilised and relevant one is the Job Demands-Resources framework from Bakker and Demerouti (2001). The Job Demands-Resources (JD-R) model is based on the concept that, while each occupation has its own set of risk factors for job stress, as illustrated in Figure 1, these elements can be divided into two groups (i.e. job demands and job resources). Job demands are those job characteristics that require sustained physical and/or psychological (cognitive and emotional) effort or skills. As a result, they are associated with certain physiological and/or psychological costs. High job pressure, an uncomfortable physical environment, and emotionally taxing customer encounters are all

examples of physiological and/or psychological costs. Even though job demands aren't always opposing, they can become stressful if achieving them necessitates a lot of effort from which the person hasn't fully recovered. Physical, social, or organizational aspects that assist you in achieving goals and minimising stress are referred to as job resources (job positives). Autonomy, excellent work relationships, career changes, coaching and mentorship, and learning and development are among them. Organisations, social relations, and tasks are all areas where job resources can be found (Bakker et al., 2003). According to the JD-R model, stress and burnout are typical when job demands are high, and job resources are low.

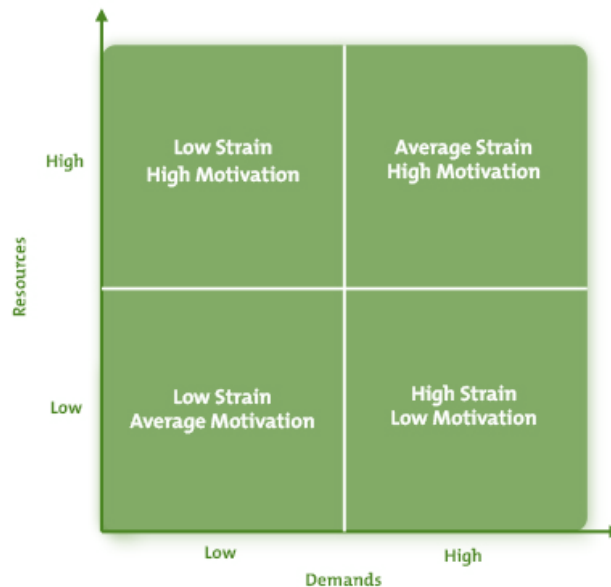


Figure 1: The JD-R Model (Bakker and Demerouti, 2006)

JD-R model explains that employee well-being results from two independent processes: first, in the health impairment process, poorly designed occupations and chronic job demands exhaust employees' mental and physical resources, draining mental energy and evoking stress processes. Second, during the motivational process, job resources demonstrate their motivating power by increasing work engagement, resulting in an increased organizational commitment (Lee et al., 2017). The JD-R model further indicates that the relationship between job demands and job resources is crucial for the development of job strain. Job resources, in particular, may mitigate the impact of job demands on job strain. Positive aspects of a job can help to mitigate the consequences of increased work-loads and increase motivation and engagement (Bakker & Demerouti, 2007). Therefore, the JD-R Model assists in understanding and responding to the needs of teams and employees.

Later research has bolstered the case for these two paths, as well as revealed that the two procedures have distinct results. For example, a study found that job demands were the most important predictors of absence duration (a sign of health problems) through burnout, and job resources were the most important predictors of absence frequency (a sign of motivation) through organizational commitment (Bakker et al., 2003). According to JD-R model, personal resources like optimism and self-

efficacy can be used in the same way as job resources can. Personal resources are people's perceptions of how much control they have over their surroundings. Personal resources are expected to mitigate the negative effects of job demands on strain while enhancing the positive effects of (challenge) job demands on motivation. For example, a study showed that weekly self-efficacy and optimism were favourably connected to flourishing when weekly impediment job demands were low (vs. high), and these personal resources were positively related to weekly work engagement when weekly challenge job demands were high (vs. low) (Bakker & Sanz-Vergel, 2013). Motivation has a positive impact on job performance, whereas job strain has a negative impact on job performance, according to the JD-R model. The ability to be goal-oriented and concentrated on work duties is aided by motivation. Furthermore, engaged employees have the necessary energy and enthusiasm to execute well. Workers who are exhausted or suffering from health problems, on the other hand, lack the necessary energy to complete their tasks. These claims are backed up by research. In a meta-study, it was found that burnout is negatively associated with performance (Taris, 2006). Bakker, Van Emmerik, and Van Riet (2008) also found that tiredness had a negative impact on objective performance (Bakker & Demerouti, 2017).

Another addition to JD-R framework is that employees that are inspired by their work are more likely to utilize job constructing behaviors, which leads to larger levels of job and personal resources, as well as even higher levels of motivation. The usefulness of job crafting has been proven in different studies over the years. For example, one of the studies discovered that job crafting in the form of seeking challenges and resources predicted positive changes in the workplace and was linked to increases in work engagement, job satisfaction, and burnout (Bakker & Demerouti, 2017; Tims et al., 2013). Furthermore, by motivating job crafting behaviors, intervention studies have shown positive benefits in employee well-being and job performance. As a result, through job designing, engaged people can construct their own "gain spiral" of resources and work engagement (Bakker & Demerouti, 2017).

Over time, stressed employees perceive and create additional job demands. This is the result of self-destructive behaviour. "Behavior that generates hurdles that may undermine performance" is what self-undermining is defined as. Employees who participate in self-defeating behaviour are more likely to endure significant levels of job strain (e.g., chronic weariness, health concerns) (Bakker & Costa, 2014). As a result, they communicate poorly, make more mistakes, and cause more disputes, adding to the already high demands of their jobs. Employees who are under a lot of stress at work are less able to control their emotions and are more prone to have problems at work. Self-defeating behaviour is a result of excessive job strain, and it is the fuel for a vicious cycle of high job expectations and strain (Bakker & Demerouti, 2017).

Finally, the JD-R theory has been used in practice in a variety of ways over the years, and it has also sparked a number of interventions. The JD-R monitor and organizational assessment are popular applications of JD-R theory. The JD-R monitor consists of an electronic questionnaire that employees can complete on their smartphone, tablet, or PC. Employees answer a series of questions about their job needs and resources, as well as their well-being and behaviour/performance. Participants

receive quick online and individualized feedback regarding their most critical job demands and resources, as well as their degree of well-being and other outcomes, after answering the questionnaire's final question. The JD-R monitor is constantly customized for the company where the participants work. Employees can use the interactive feedback mode to discuss future job changes with their supervisor or to ask for assistance if their well-being has deteriorated. Another practical application of JD-R model is organizational assessment. Most companies that care about their employees' well-being want to know how demanding their jobs are and how much money they have. Important job demands and job resources are examined at the individual level in an organizational assessment, but the entire firm's ratings are compared to national and/or sector benchmarks. In addition, an organizational report comprises the mean scores for different teams, departments, and/or locations on job demands, resources, well-being, and performance. Anonymity and confidentiality are assured in organizational assessments, and ratings for groups of less than ten people are rarely provided. Managers and leaders can use group profiles of job needs and resources to figure out what the most significant intervention goals are for groups/departments with performance issues, absenteeism, or other indicators (Bakker & Demerouti, 2017).

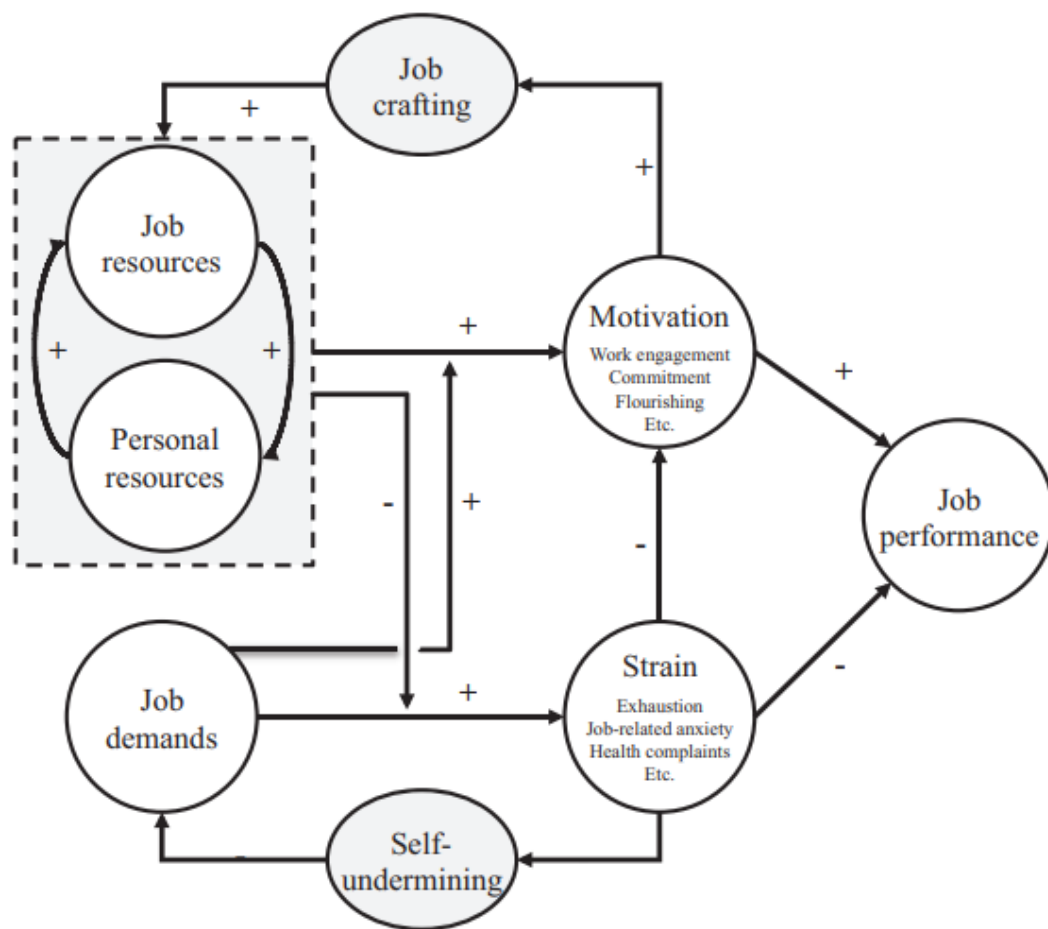


Figure 2: The Job Demand-Resources model, (Bakker and Demerouti, 2017)

2.2 Organizational change

2.2.1 What is organizational change?

In an ever-changing world of restructuring, mergers, and innovations, organizational change is typical in most firms. According to Balogun and Johnson (2005), organizational change is a complicated, unexpected, non-linear, and context-dependent process. It is often unsuccessful and has unforeseen and unpredictable consequences (Balogun & Johnson, 2005). Daft (2005) defines organizational change as introducing a new idea or procedure into an organisation, whether internal or external. Organizational change, according to Moran and Brightman (2001), is when a company shifts its focus and direction to meet changing client expectations and demands. Globalisation, technological change, digitalisation, and workforce changes are just a few examples of changes that necessitate organizational action. Some other examples of organizational change, according to Kelder (2022), can be changes to an organisation's strategy, goals, and purpose, as well as the adoption of a new IT system, work methods, and the establishment of a new culture.

These different kinds of organizational changes can occur as a result of events both outside and inside the company, respectively denoted as external and internal. External changes can take several forms, such as changes in government rules and regulations, production and process innovation, marketplace adjustments, labour market upheaval, and business internalisation (Lunenburg, 2010). These external changes may be forced onto organisations quickly, resulting in inadequate implementation and a negative employee experience. Moreover, external changes can cause changes or develop due to internal pressures (Silander, 2020). According to Aujla and Mclarney (2020), internal changes that can affect the organisation can be employment rules, administrative processes, and personnel issues. Different change levers have been used to characterise organizational changes, which simply refers to various aspects of the company, such as technology, marketing, quality, cost strategy, people management, and leadership (Sofat et al., 2015). Therefore, organizational changes can manifest themselves in various ways, both within and beyond the organisation.

Organizational change is the new normal and ever-present factor that compels businesses to adapt their operations to the changing environment. Rapid and extreme change, long-term changes, and everything in between are all possible (By, 2005). Overall, organizational change has been studied from a variety of perspectives. It frequently affects many employees, their job functions and positions, or even the entire company and its personnel. It is important to underline that if employees are not included early in the change process and lines of communication are not kept open throughout the process; the change may fail to be implemented successfully. Engaging employees at the start of organization change process is an important mechanism that ensures a timely and successful implementation.

Concerning the organizational change and individual impact, the employment contracts can reflect the direction of organizational changes, both during and after the completion of the process of change. Modern organisations have the potential capability of multiplying individual impacts to reflect organizational goals and strategic objectives. Thus, the evolution of the organisation through change

management is effectively reflected in individual employment contracts as well. Employees as internal stakeholders are also reflective of the organizational change (Mcgrath & Bates, 2017).

Different types of organizational change have different characteristics and different effects on employees' happiness (Dahl, 2011). If the organizational change causes stressors, as previously mentioned, more intense change programs may cause more stress than less intense change programs. One reason is that when change intensity increases, more changes in the organisation's core structure and practices occur, increasing job demands. On the contrary, as the intensity of change decreases, so does the cost of adjusting and the effort required to accomplish such modifications. As a result, employees may need fewer job resources to adapt to change (Lee et al., 2017).

The change varies from case to case. Only when a crisis happens can some organisations undertake and implement change. In many other cases, where there is no crisis, change occurs slowly, if at all, especially if the change is significant, such as a cultural shift or a new business model. Many businesses regard change as a part-time task to be completed after the 'day job' is completed (Murray & Richardson, 2003).

Organisations are not static entities. An organisation as a whole and its systems are dynamic and constantly changing (Glenn & Malott, 2004). Therefore, the level and length of change have wide ranges. For example, software updates are small changes that last in perpetuity, while mergers and acquisitions are impactful changes that might affect the organisation in all its entirety on shorter time basis. Murray and Richardson met several executives from over 30 organisations. They noticed that some organisations could only initiate and implement significant change when a crisis occurs. Most of the interviewed executives believe that if companies introduce significant change themselves, it takes a longer time, perhaps five years or a decade, if it happens at all (Murray & Richardson, 2003). Therefore, crises drive organizational change and together increase uncertainty and eventually stress.

2.2.2 What are the negative health consequences of organizational change?

Since organizational change raises expectations and requires people to engage in new methods of functioning, it has a significant impact on the lives of employees. Large-scale organizational change frequently has an impact on the entire organization, including departments, work units, and individual workers (Fløvik et al., 2019b). According to the organizational change literature, people are concerned about the impact of change on themselves, their jobs, and their coworkers (Rafferty & Griffin, 2006). Employees can be negatively impacted by the imminence, duration, and temporal ambiguity around change events. Indeed, heightened uncertainty about the future of one's employment or the direction of organizational change has been highlighted as a significant source of stress (Pollard, 2001). Others argue that organizational change acts as a stressor through the individual's negative assessment of the changes in the workplace (Pahkin et al., 2011).

As stated in several organizational behaviour theories, organizational change can alter employees' emotional and psychological well-being (Dahl, 2011). It creates a stir and causes individuals to reconsider the situation (Maitlis & Christianson, 2014) or brings them cognitive strain, insecurity,

and, eventually, stress (Kelder, 2022). According to Aujla and Mclarney (2020), some possible negative consequences experienced by employees are: stress, low morale, worry, loss of direction, lack of loyalty, and lack of employee engagement. Stress results can be linked to an employee's well-being and directly or indirectly related to health (De Keyser et al., 2011). Employees' worries can be seen in various ways, including physical and mental health issues, changes in daily habits, and work and personal life quality. Moreover, significant job changes or employment uncertainty may cause more severe stress symptoms in the long run (Aujla & Mclarney, 2020). Individuals' reactions to organizational change are expected to be influenced by their perception of and assessment of the change's consequences on them. This argues that an individual's response to a change is formed through interactions between their attitudes, beliefs, and feelings about the change. The way people interact with organizational change determines whether or not a change is successful (Khaw et al., 2022). According to Bamberger et al. (2012), an employee's perception of change is an important aspect to be considered during organizational change. The psychological reaction is linked to an individual's classification of a given organizational change as threatening or not. Coping strategies, negative affectivity, stress prior to shifting, perceived social support, and length of employment can all influence this process. Personal traits such as personality type, temperament, IQ, and genetic characteristics can all influence how a person interprets and reacts to life events (Bamberger et al., 2012).

Since employees' productivity is the micro-foundation of firm-level success, it is critical to examine their emotional states. Applied psychology research has shown that employee satisfaction and productivity significantly depend on their mental health. Employees with depression have been proven to have worse focus and productivity in the office and increased absenteeism. Furthermore, employees may find organizational changes challenging to adjust to in terms of unique flexibility. They may be required to work longer hours to finish training and help areas of the company that are understaffed during periods of change. As a result, failing to pay attention to their health and well-being may result in the above-mentioned physical and mental stress symptoms (Dahl, 2011). Moreover, changes in technology and working habits, as well as the significant upheavals of mergers, downsizing, and restructuring, are increasingly causing little daily pressure for employees.

Suppose organizational change is problematic, as the literature suggests. In that case, it should be more difficult in companies that strive to transform themselves across numerous dimensions at once than in organisations that seek more minor changes. Broader and more comprehensive changes have been described as fundamental or core changes in the literature. When more central and core features of businesses are targeted, more employees may be affected. Small changes may be less harmful since individuals' adjustment costs are modest in these situations. On the other hand, more extreme changes may be more detrimental because the cost of adjusting and the time and effort required to accomplish these changes are substantially higher. The more change there is, the more personnel are exposed to it (Dahl, 2011).

In addition, organizational change is often associated with adverse employee health and increased sickness absence (Fløvik et al., 2019a). Employee sickness absence and unfavourable health impacts have been linked to organization-level downsizing, mergers, expansion, and restructuring in

previous studies. Nonetheless, some researchers have discovered a slight decrease in sick leave, or no change at all, following similar changes. Other researchers have linked such changes with poor health, sick leave, work disability pension, early retirement, and mortality among individuals who remained on after downsizing. Furthermore, several studies have linked the extent of downsizing (i.e., the number of people laid off) to sick leave and emotional exhaustion, as well as prolonged and recurrent organizational-wide changes (Fløvik et al., 2019b). Researchers have often theorized that organizational change can lead to poor health and increased sick leave by creating a work atmosphere that is commonly described as tense and potentially damaging to employees' health. According to the findings of a recent multilevel study, job expectations, job control, and social support may play a mediation role in the association between various changes (such as reorganization, downsizing, and layoffs) and increased mental anguish (Hakanen et al., 2019). Moreover, according to Fløvik et al. (2019), prior research has generally focused on the health consequences of discrete, large-scale, company-wide changes like restructuring, outsourcing, and downsizing.

The last decade has seen a rise in awareness of the potential negative consequences of labour aspects on mental health. Workplace stress and occupational health have been the subject of previous research, which has revealed consistent evidence of links. Organizational change is frequently thought of as a negative exposure. A study from Finland shown by Bamberger et al., (2012) found that the risk of health problems was at least two times higher after major downsizing than it was before the downsizing. According to longitudinal research published a few years later, employees who had suffered considerable downsizing had a significantly faster drop in self-rated health (Kivimäki et al., 2001). Concomitant increases in physical demands, job insecurity, and job control were partially responsible for the rise in health problems. Furthermore, downsizing and recurrent exposure to fast personnel expansion may predict long-term sick leave and hospitalisations (Bamberger et al., 2012). Intensification of job strain, time pressure, reduction of social support, lack of control, and position ambiguity are all well-documented concerns that may accompany organizational changes, all of which have been linked to mental health issues (Bamberger et al., 2012). Two comprehensive evaluations of work-related psychosocial factors and depression discovered a link between perceived psychosocial job pressures and a higher likelihood of depressive symptoms or a severe depressive episode (Bamberger et al., 2012). In both meta-analysis and reviews, job uncertainty has been consistently associated with negative mental health impacts (Bamberger et al., 2012). Another component that may be influenced by organizational change is job discontent, which has been linked to depression and anxiety in meta-analyses (Faragher et al., 2013). Examining organizational change as a potential work stressor has certain advantages because organizational change is more tangible than, say, a shift in the individual's sense of meaning at work (Bamberger et al., 2012).

2.2.3 JD-R framework in organizational change

The JD-R model is a useful theoretical framework for the employees' evaluations of change, and it depends on how work characteristics influence the change. Several academics have used the JD-R model to study employee stress, particularly in the context of organizational change. According to these

researchers, organizational change leads to higher job demands, such as workload and emotional needs, as well as new routines, skills, and behaviours, all of which can negatively impact employees' well-being (Lee et al., 2017). Employees with more resources are more inclined to adapt their behaviours to the change and cope with the discomfort because job resources is a mechanism that employees can use during organizational change can assist them in protecting themselves from change (Proost et al., 2015).

Employees may perceive they have resources to protect themselves, especially during organizational changes, when firms endeavour to hear their thoughts and provide relevant information, which are frequent organizational strategies to improve procedural justice (Lee et al., 2017). Researchers found that job demands were negatively and job resources were positively related to organizational change, work engagement, affective commitment to the organisation, and weariness (Schumacher et al., 2016). Additionally, researchers also discovered that job resources had a buffering effect on the link between job demands and outcomes (Proost et al., 2015). Organizational change can increase job demands and cause stress for employees, influencing employees' evaluation of and adaptation to organizational change (Lee et al., 2017).

2.3 Contract types

2.3.1 Introduction to contract types

The nature of employment relationships has changed in recent decades (Aleksynska, 2018). Employers' demands for more flexibility and innovation and their desire to cut labour costs and administrative complexity are driving the growth of temporary employment (De Cuyper et al., 2008). Many European countries have seen an increase in the number of temporary workers (ILO, 2016). Temporary employment has increased recently in developed Western European countries like France and the Netherlands and transition economies like Croatia, Slovakia, Montenegro, and Poland (Aleksynska, 2018). Individual and organizational work contracts come in a variety of shapes and sizes. Some people have contracts that bind them to one organisation for an indefinite period (known as a standard contract). In contrast, others have contracts that are limited to a specific period. In recent years, nontraditional employment arrangements such as part-time work, temporary help agency and contract firm employment, short-term and contingent work, and independent contracting have grown in popularity (Kalleberg, 2000). These types of contracts are examples of non-standard work contracts between individuals and businesses (George and Prithviraj 2015).

Most jobs in the European Union countries are based on written employment contracts. However, in certain nations, such contracts are only available in limited circumstances (for example, in the public sector, for apprentices, or for other persons undergoing some formal training within an enterprise). Taking these various institutional arrangements into account, the terms "temporary job" and "work contract of limited length" (as well as "permanent job" and "work contract of unlimited duration") describe situations that are comparable under different institutional contexts. Employment may be considered temporary if both the employer and the employee agree that the job's termination is determined by objective factors such as meeting a deadline, completing an assignment, or the return of a temporary replacement employee. In the case of a short-term work contract, the contract usually

specifies the conditions for its termination. People with seasonal jobs, people recruited by an employment agency or business and hired out to a third party for a "work mission," and people with particular training contracts are all covered in these categories. If no objective criteria exist for terminating a job or employment contract, it should be considered permanent or of indefinite length (OECD, 2022).

In the United States, temporary workers are considered workers who are on call, independent contractors, temporary help, and contract company workers who do not anticipate their job to last. Meanwhile, workers who do not fall into the categories of contingent workers defined above are referred to as permanent workers. In Canada, a permanent job is supposed to last as long as the employee desires or as long as business conditions allow. On the other hand, a temporary job has a set end date or will end when the project is finished or a fixed-term contract. According to Australia's definition, permanent workers are employees having limitless paid leave entitlements in positions or work contracts, including ordinary workers with contracts of 12 months or more. Seasonal/temporary/fixed contract work was provided as the rationale for employees on a fixed-term contract, or whose estimated length of the main job was shorter than one year (OECD, 2022).

2.3.2 Contract types and stress

According to several studies, temporary workers are more stressed than permanent workers. By using the second and third European Survey on Working conditions, Benach (2004) found out that non-permanent employees reported higher levels of job dissatisfaction but lower levels of stress than permanent employees. Part-time workers almost always had worse health indicators than full-time workers (Benach et al., 2004). Moreover, permanent employees expect their employers to provide them with relatively secure employment, whereas temporary employees accept insecurity as a part of their contract and daily work environment (De Cuyper et al., 2008). Perceived job instability then represents a breach of permanent workers' expectations but not of temporary workers' expectations, causing permanent but not temporary workers to feel betrayed by their employer. As a result of the betrayal, permanent workers may have a lower level of happiness than temporary workers (Kirves et al., 2011). Likewise, a study by Mazaheri (2014) proved that permanent employees had higher levels of job satisfaction than temporary employees. Job insecurity has been associated with reduced levels of job satisfaction (Shakir and Zia, 2014). Temporary employees are not satisfied with their jobs, and they have a higher level of occupational stress than their permanent counterparts (Mazaheri, 2014).

Much research on permanent employees has discovered a variety of potential work-pressures determinants. These work pressures are more common in temporary employment situations, and they've been used to predict negative attitudes, low well-being, and undesirable behaviour by temporary workers. For starters, labour market theories such as the Flexible Firm, Internal Labour Market Theory, Human Capital Theory, and Segmentation Theory suggest that temporary workers are regarded as peripheral workers in whom employers are unlikely to invest long-term. The lack of these investments may contribute to work stress, which has been related to poor health (De Cuyper et al., 2008). Moreover, temporary workers are thought to be sensitive to workplace pressures because of bad job conditions

such as lack of control, role-related stress, and inadequate support. Temporary workers don't seem to have much say in workplace decisions. Furthermore, temporary workers may face role-related stress because they are new to the organisation and unfamiliar with its practices. They may also be given a set amount of time and assistance in understanding their responsibilities (Aronsson et al., 2002). Additionally, regular coworkers may provide minimal help to temporary workers. This, in turn, may impede temporary workers' attempts to raise their voices, particularly because they may lack the necessary competence and knowledge of organizational policies and processes to establish a constructive discourse. The enormous number of studies on the negative impacts of the lack of control, the role of stress, and the challenges in adjusting to these circumstances show that temporary workers have worse psychological outcomes than permanent workers (De Cuyper et al., 2008).

According to the literature, another type of temporary worker is the temporary agency worker (TAW). A TAW is usually assumed to be a more unfavourable employment status than permanent work arrangements. It is frequently related to unstable labour and life situations. This unfavourable status is frequently the result of temporary workers being treated unequally and unfairly compared to existing staff (Arrowsmith, 2006). Temporary agency workers often receive lesser pay and fewer benefits, have limited access to career planning and training, have lower professional ranks, receive fewer occupational health and safety training, and have less access to health promotion activities. Furthermore, they frequently work in difficult and dangerous situations. All of these factors contribute to TAW's unique risk potential. When focusing on specific outcomes and comparing temporary agency workers to permanent employees, we still find consistent evidence, for example, that temporary agency workers had greater levels of sadness and weariness (Hünefeld et al., 2020).

2.3.2.1 Contract types and stress during organizational change

Given the widespread nature of organizational changes, it's astonishing how little we know about how different groups of employees react to organizational changes and how this last one influences employees' health and well-being (De Keyser et al., 2011). It can be argued as an inference from existing research that temporary workers have less stress during the process of organizational change (Vahtera et al., 2004). Furthermore, according to Vahtera et al. (2004), downsizing (a form of organizational change) is associated with increased sickness absence among permanent workers. This is not the case for temporary workers, even though they have a higher likelihood of losing their jobs. Additionally, some authors highlight the possibility that temporary workers may become permanent workers and thus potential rivals for promotion in the future. For this reason, job insecurity in permanent workers is higher than in temporary workers (De Cuyper et al., 2009).

Most of the time authors argue that temporary workers are portrayed as either supplements or substitutes for permanent workers. During periods of high labour demand or economic development, businesses may hire temporary workers. Temporary workers are laid off when demand decreases or when the economy is in trouble. This motivation attempts to keep permanent workers employed, even if the economy is slumping. Second, in light of rapid technological advancement, temporary employment may provide immediate access to specific talents that are unavailable or not needed in the long run.

Temporary workers contribute knowledge and skills to the organization's human capital in this situation. When their skill is institutionalized, they are let go (De Cuyper et al., 2009).

In addition, according to Grønstad et al. (2020), because temporary workers are more likely to lose their positions as a result of downsizing, greater job instability may push them to work while sick, thus increasing stress. In other words, we might infer that financial constraints resulting from contract renewal concerns may create incentives for sick employees to report to work. Reduced absence levels prior to unit-level downsizing imply a change in attendance behaviour due to heightened job insecurity (Grønstad et al., 2020).

2.3.3 Contract type and JD-R framework

As a result of the trend toward more significant usage of temporary work, concerns about the impact of temporary employment on individuals have been expressed. For this reason, psychological studies comparing the attitudes, well-being, and behaviour of temporary and permanent employees have sprung up (De Cuyper et al., 2008). Job demand and resources do not affect all employees equally. Van den Tooren and de Jong (2014) believed that type of contract is an important moderator of the JDR model. Their research expanded the JDR model by contract type to take research on the model in a new direction (i.e. temporary contract vs permanent contract). According to the evidence, temporary workers are more tolerant of job uncertainty and they are more likely to benefit from the buffering function of autonomy than permanent workers (van den Tooren & de Jong, 2014). Recently, the authors noted that the temporary agency employees reported lower levels of the job resources that were most important for their vitality at work, thus making them a vulnerable employment group (Hakanen et al., 2019). Based on the latter paper and all the previous discussions on organizational change, contract types and stress, the hypothesis tested in this thesis is: "During organizational change, temporary workers are more stressed than permanent workers".

3. Methodology

3.1 Data

The impact of organizational changes on employee health is challenging to study. Individuals' health is commonly investigated through surveys or interviews. Since inquiries about mental health are so delicate, these methods of investigation are difficult to formulate and implement. For example, interviewees may avoid directly answering questions to conceal a probable medical condition. In addition, measuring, characterizing, and comparing organizational changes in large samples and across organizations is difficult (Dahl, 2011).

For this master thesis, I am using the data retrieved from the Sixth European Survey on Working Conditions (EWCS), which took place in 2015. The European Foundation for the Improvement of Living and Working Conditions (Eurofound) is the agency that conducts the EWCS. The survey is based on a face-to-face questionnaire provided to a random sample of 'persons in employment (i.e., employees and the self-employed) who are representative of the working population in each EU country. People were considered employed if they worked for pay or profit for at least an hour in the week leading up to the interview. The targets were all residents of these countries aged 15 or older (16 or older in Bulgaria, Norway, Spain, and the UK). The target sample size in most countries was 1,000. The aim was raised to 1,200 in Poland, 1,300 in Spain, 1,400 in Italy, 1,500 in France, 1,600 in the United Kingdom, and 2,000 in Germany and Turkey to reflect the significant workforce in larger countries. Eurofound also gave countries the option of increasing their sample size. Belgium, Slovenia, and Spain all accepted the offer, resulting in sample sizes of 2,500, 1,600, and 3,300 people, respectively. The sixth EWCS has 43,850 interviews across all 35 European countries (28 EU Member States, plus Albania, North Macedonia, Montenegro, Serbia, Turkey, Switzerland, and Norway). Additionally, the interviews covered a wide range of topics, including employment status, sectors and occupations, size of the company; physical environment; work intensity; working hours and commuting; social environment; work-related health risks and well-being; cognitive and psychosocial factors; harassment and discrimination; skills, training, and discretion; job prospects, job security, and sustainability; work satisfaction; earnings; unpaid work; work-life balance. Additionally, personal and demographic data such as age, gender, and educational background were also collected (Eurofound et al., 2017).

3.2 Methods

One of the most often used statistical techniques is regression analysis. For this master thesis, I used linear regression. Linear regression is a linear method for modelling the relationship between a scalar response and one or more explanatory variables (known as dependent and independent variables)

(Stock & Watson, 2019). We try to estimate the magnitude of a dependent variable, which is the outcome variable stress, using a set of independent factors. The linear regression model with a single regressor is $Y_i = \beta_0 + \beta_1 X_i + u_i$, where Y is the dependent variable and X is the independent variable. The population regression line, or population regression function, is $b_0 + b_1 X_i$. This is the estimated average relationship between Y and X throughout the entire population. The coefficients of the population regression line, also known as the parameters of the population regression line, are the intercept b_0 and slope b_1 . The term u_i is the error term. An independent variable (X) is a variable whose value does not change by the effect of other variables, and it is used to manipulate the dependent (Y). Suppose that I want to predict the stress of the employees of an organization based on gender (Figure 3), then I can plot a regression line that passes through all the data points. The red population regression line is the best fit line for predicting stress with the greatest accuracy and can be estimated using sample observations $(Y_i, X_i) i = 1, \dots, n$, by Ordinary Least Squares (OLS) (Stock & Watson, 2019).

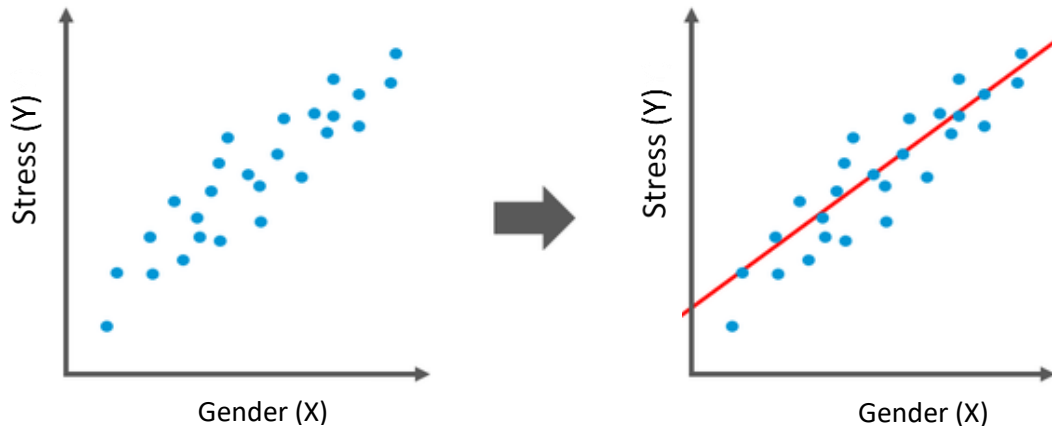


Figure 3: Ordinary Least Squares (OLS), (Stock & Watson, 2019)

Least squares is one of the methods for applying linear regression to obtain the best fit line for a dataset. The most common application is to draw a straight line that minimizes the sum of squares of the errors caused by variations between the observed value and the model's predicted value. To find the best fit line for a set of pairs $(x_1, y_1), (x_2, y_2) \dots$ we can:

1 - Calculate the mean of x values and the mean of y values:

$$\bar{X} = \frac{\sum_{i=1}^n x_i}{n} \quad \bar{Y} = \frac{\sum_{i=1}^n y_i}{n}$$

2. Calculate the slope of the best line by using the formula:

$$\widehat{\beta}_1 = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sum_{i=1}^n (x_i - \bar{x})^2}$$

3. Calculate the y-intercept of the line by the below formula:

$$\widehat{\beta}_0 = \bar{Y} - \widehat{\beta}_1 \bar{X}$$

The predicted values \hat{Y}_i and residuals \hat{u}_i are of OLS are:

$$\hat{Y}_i = \hat{\beta}_0 + \hat{\beta}_1 X_i, \quad i = 1, \dots, n$$

$$\hat{u}_i = Y_i - \hat{Y}_i, \quad i = 1, \dots, n$$

From a sample of n observations of X_i and Y_i , $i = 1, \dots, n$ are computed the estimated intercept ($\hat{\beta}_0$), slope ($\hat{\beta}_1$), and error term (u_i) (Stock & Watson, 2019). For my regression analysis, I have used SPSS (Statistical Package for the Social Sciences), a software program that performs statistical analysis of data.

3.3 Omitted Variable Bias

Confounding variables in research studies affect both the cause and effect that the researchers are evaluating. As a result, if the analysts do not account for these confounders in their statistical model, the genuine relationship between two other variables may be exaggerated or hidden. The statistical process must ascribe confounding variables' effects to model variables, which biases the estimated impacts and confounds the proper link. This is known as omitted variable bias by statisticians (Frost, 2019). By focusing for instance, only on one variable (for example, gender), that affects stress; we ignore some potentially essential determinants of stress; for this reason, we add control variables. A control variable is anything that is kept constant or constrained. It's a variable that has no bearing on the study's objectives but is monitored since it could influence the results. In this case, control variables include employee characteristics, firm characteristics, working conditions, etc. By ignoring the other factors that affect stress, the OLS estimator could be biased; that is, the mean of the sampling distribution of the OLS estimator might not equal the true causal effect of a unit change in the stress-gender ratio. The OLS estimator will exhibit omitted variable bias if the regressor is correlated with a variable that has been omitted from the analysis and that influences, in part, the dependent variable. When two conditions are met: (1) the omitted variable is correlated with the included regressor, and (2) the omitted variable is a determinant of the dependent variable, omitted variable bias occurs (Stock & Watson, 2019).

3.4 Variables

Dependent Variable

As a dependent variable (stress), the study uses the question Q61m from the questionnaire: "You experience stress in your work?". The possible answers are 1. always, 2. most of the time, 3. sometimes, 4. rarely, 5. never, 7. not applicable. Please note that the higher the variable, the lower the stress.

Independent variables

For the independent variable *interaction*, I have multiplied the variable *Contract type* with the variable *organizational change*. The variable *interaction* will be used to test my hypothesis. *Contract*

type and *organizational change* are dummy variables that I created from the questions from the questionnaire. A dummy variable (or binary variable) is a variable that is either 0 or 1. A binary variable is used to indicate a binary outcome. Dummy variables are the primary way categorical variables are included as predictors in statistical and machine learning models (Stock & Watson, 2019).

For the dummy variable Contract type, I used question Q11: "What kind of employment contract do you have in your main job?" This dummy variable takes the value of 1 if the individual has a "contract of limited duration" and "a temporary employment agency contract." The answers "don't know (spontaneous)" and "refusal (spontaneous)" is considered as system missing value. When no data value is kept for a variable in observation, it is called missing data or missing values (Acock, 2005). All other answers are equal to 0.

On the other hand, for the dummy variable "Organizational change," I used question Q20: "During the last three years, has there been a restructuring or reorganization at the workplace that has substantially affected your work?" This dummy variable takes the value of 1 for the individuals who answer "yes" and a value of 0 for individuals who answer "no". All other responses are considered as system-missing values.

Control Variables

Several other observable variables that could influence stress were also taken into account by using the questions from the questionnaire. For demographic characteristics, I have taken into account: *gender, age, education*. Other variables considered are: *part-time/full-time work, years being in the company, hours/week work, minutes of travelling home to work and back, working on Saturday and NET monthly earnings*. Additionally, I have created a dummy variable for "Team work". The dummy variable takes the value 1 for individuals who answer "yes" and value 0 for individuals who answer "no". All other responses are considered system-missing values. All the variables and their questions are shown in the table below.

Table 1: The control variables (I)

Variables	Questions from the EWCS
Gender	Q2a: Gender
Age	Q2b: Starting with yourself how old are you?
Education	Q 106_country: What is the highest level of education or training that you have successfully completed?
Part-time/full-time work	Q2d: And do you work part-time or full time?
Years being in the company	Q17: How many years have you been in your company or organization?
Hours/week work	Q24: How many hours do you usually work per week in your main paid job?
Minutes of travelling home to work and back	Q36: In total, how many minutes per day do you usually spend travelling from home to work and back?
Working on Saturday	Q37c: And how many times a month do you work on Saturdays?
NET monthly earnings	Q104_euro. Q104 – Please can you tell us how much are your NET monthly earnings from your main paid job?"
Team work	Q58 – Do you work in a group or team that has common tasks and can plan its work?

Source: The European Working Conditions Survey (EWCS), 2015

Furthermore, I have used the sum variable for nine questions.

The variable for *sleep-related problems* is generated by the summation of three primary questions: Q79a, Q79b and Q79c. The values of the answers range from 1 to 5, with 1 indicating Daily sleep related problems, and 5 indicating Never or no sleep-related problems.

Dangerous job variable reflects harmful working conditions related to the work environment and is an aggregation of questions: Q29a, Q29b, Q29c, Q29d, Q29e, Q29f, Q29g, Q29h and Q29i. The values of the answers range from 1 to 7, with 1 indicating All of the time exposure to the danger job factors, and 7 indicating Never or no exposure to danger job factors.

Physical job variable is about physical demanding jobs and is a sum of questions: Q30a, Q30b, Q30c, Q30d, Q30e and Q30i. The values of the answers range from 1 to 7, with 1 indicating All of the time involvement in job that requires physical activity, and 7 indicating Never or no involvement in physical activity at job.

For *emotional job* variable, which includes questions about emotional experiences in work regarding clients, employees, situations etc., I summed the questions: Q30f, Q30g and Q30h. The values of the answers range from 1 to 7, with 1 indicating All of the time involvement in emotional situation at work, and 7 indicating Never.

For *work-life balance* I summed the questions: Q45a, Q45b and Q45c. The values of the answers range from 1 to 5, with 1 indicating All of the time, and 5 indicating Never.

For *deadlines* I summed the questions Q49a and Q49b. The values of the answers range from 1 to 7, with 1 indicating All of the time, and 7 indicating Never.

Discrimination includes all prejudicial treatment that individuals may have experience in their work and is a sum of questions: Q72a, Q72b, Q72c, Q72d, Q72e, Q72f and Q72g. The values of the

answers range from 1 to 2, with 1 indicating Yes they have been subject of a form of discrimination at work for the past 12 months, and 2 indicating No.

Abuse consists of all violent treatments the interviewees may have experienced at work. The variable contains questions: Q80a, Q80b, Q80c, Q80d, Q81a, Q81b and Q81c. The values of the answers range from 1 to 2, with 1 indicating Yes they have been subject of a form of abuse at work for the past 12 months, and 2 indicating No.

Work demands is a aggregation of the following questions: Q50a, Q50b, Q50c, Q50d and Q50e. The values of the answers range from 1 to 2, with 1 indicating Yes their work depends other people, and 2 indicating No.

All the variables and their questions are shown in the table below.

Table 2: The control variables (II)

Variables	Questions from the EWCS
<i>Sleep-related problems</i>	Q79a - Difficulty falling asleep [Last 12 months, any sleep-related problems?] Q79b - Waking up repeatedly during the sleep [Last 12 months, any sleep-related problems?] Q79c - Waking up with a feeling of exhaustion and fatigue [Last 12 months, any sleep-related problems?]
<i>Dangerous job</i>	Q29a - Vibrations from hand tools, machinery etc. [Are you exposed at work to...?] Q29b - Noise so loud that you would have to raise your voice to talk to people [Are you exposed at work to...?] Q29c - High temperatures which make you perspire even when not working [Are you exposed at work to...?] Q29d - Low temperatures whether indoors or outdoors [Are you exposed at work to...?] Q29e - Breathing in smoke, fumes (such as welding or exhaust fumes), powder or dust etc. [Are you exposed at work to...?] Q29f - Breathing in vapours such as solvents and thinners [Are you exposed at work to...?] Q29g - Handling or being in skin contact with chemical products or substances [Are you exposed at work to...?] Q29h - Tobacco smoke from other people [Are you exposed at work to...?] Q29i - Handling or being in direct contact with materials which can be infectious [Are you exposed at work to...?]
<i>Physical job</i>	Q30a - Tiring or painful positions [Does your main paid job involve...?] Q30b - Lifting or moving people [Does your main paid job involve...?] Q30c - Carrying or moving heavy loads [Does your main paid job involve...?] Q30d - Sitting [Does your main paid job involve...?] Q30e - Repetitive hand or arm movements [Does your main paid job involve...?] Q30i - Working with computers, laptops, smartphones etc [Does your main paid job involve...?]
<i>Emotional job</i>	Q30f - Dealing directly with people who are not employees at your workplace [Does your main paid job involve...?] Q30g - Handling angry clients, customers, patients, pupils etc. [Does your main paid job involve...?] Q30h - Being in situations that are emotionally disturbing for you [Does your main paid job involve...?]
<i>Work-life balance</i>	Q45a - Kept worrying about work when you were not working [How often have you...?] Q45b - Felt too tired after work to do some of the household jobs which need to be done [How often have you...?] Q45c - Found that your job prevented you from giving the time you wanted to your family [How often have you...?]
<i>Deadlines</i>	Q49a - Working at very high speed [And, does your job involve...] Q49b - Working to tight deadlines [And, does your job involve...]
<i>Discrimination</i>	Q72a - Age discrimination [Past 12 months at work, subjected to?] Q72b - Discrimination linked to race, ethnic background or colour [Past 12 months at work, subjected to?] Q72c - Discrimination linked to nationality [Past 12 months at work, subjected to?] Q72d - Discrimination on the basis of your sex [Past 12 months at work, subjected to?] Q72e - Discrimination linked to religion [Past 12 months at work, subjected to?] Q72f - Discrimination linked to disability [Past 12 months at work, subjected to?] Q72g - Discrimination linked to sexual orientation [Past 12 months at work, subjected to?]
<i>Abuse</i>	Q80a - Verbal abuse [Last month, subjected to any of the following?] Q80b - Unwanted sexual attention [Last month, subjected to any of the following?] Q80c - Threats [Last month, subjected to any of the following?] Q80d - Humiliating behaviors [Last month, subjected to any of the following?] Q81a - Physical violence [Last 12 months, subjected to any of the following?] Q81b - Sexual harassment [Last 12 months, subjected to any of the following?] Q81c - Bullying/ harassment [Last 12 months, subjected to any of the following?]
<i>Work demands</i>	Q50a - The work done by colleagues [Is your pace of work dependent on...] Q50b - Direct demands from people such as customers, passengers, pupils, patients, etc. [Is your pace of work dependent on...] Q50c - Numerical production targets or performance targets [Is your pace of work dependent on...] Q50d - Automatic speed of a machine or movement of a product [Is your pace of work dependent on...] Q50e - The direct control of your boss [Is your pace of work dependent on...]

Source: The European Working Conditions Survey (EWCS), 2015

4. Results

4.1 Summary table

The summary table provides a summary of all variables at an individual level, giving details about the sample and providing information about the population from which the sample was drawn (Larson, 2006). I have presented the most valuable information for my data analysis through this table, such as the number of valid observations, the statistical distribution of variables (min, max, mean), and standard deviation. The variables used in this summary table are continuous. N, which shows the sample size excluding missing values, varies from 33,399 to 43,841 from a total of 43,850 interviews. Min, max, and mean show the smallest, the largest, and the mean values of the variables. On average, 13% of individuals have a contract of limited duration or a temporary employment agency contract, while the remaining 87% had a contract of unlimited duration. 22% of the interviewee had experienced an organizational change in the last three years. Standard deviation measures the spread of a set of observations; the larger the standard deviation, the more spread out the observations are (Stock & Watson, 2019).

Table 3: Descriptive statistics of the variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Contract type	36,022	0.00	1.00	0.13	0.34
Organizational change	41,738	0.00	1.00	0.22	0.41
Gender	43,841	1.00	2.00	1.50	0.50
Age	43,691	15.00	89.00	43.37	12.75
Part time/Full time work	40,742	1.00	2.00	1.81	0.40
NET monthly earnings	33,399	0.04	271,140.00	1,346.02	2,278.87
Education	43,639	2.00	418.00	211.80	125.41
Sleep	43,709	3.00	15.00	11.85	3.01
Team Work	43,409	0.00	1.00	0.53	0.50
Years of being in the company	42,511	1.00	999.00	125.76	315.78
Hours/week work	42,372	1.00	126.00	37.73	13.24
Minutes of traveling home to work and back	39,200	1.00	420.00	40.01	34.30
Working on Saturday	42,675	1.00	999.00	458.60	496.32
Dangerous job	43,225	9.00	63.00	56.16	8.32
Physical job	43,390	6.00	42.00	30.62	5.64
Emotional job	43,438	3.00	21.00	14.99	4.53
Work-life balance	42,318	5.00	25.00	19.45	3.87
Deadlines	43,454	2.00	14.00	8.84	3.72
Discrimination	43,377	7.00	14.00	13.89	0.50
Abuse	43,408	7.00	14.00	13.72	0.83
Work demands	39,244	5.00	10.00	8.02	1.33

Source: The European Working Conditions Survey (EWCS), 2015

4.2 Regression table

The statistical analysis performed in this thesis relies on four linear regression models. From one model to the next, more variables that could affect stress are added to reduce the omitted variable bias. For the intercept, I have shown the unstandardized β , while for other variables, I have included the standardized coefficient β . Unstandardized β represents the slope of the line between the predictor variable and the dependent variable. The strength of each independent variable's effect on the dependent variable is compared using a standardized beta coefficient (Stock & Watson, 2019). The coefficient standard error is shown in the second row of each variable. The standard error of the coefficient indicates how accurately the model estimates the unknown value of the coefficient (Stock & Watson, 2019). The p-value (also called significance probability) is the probability of getting a test statistic that is at least as different from the null hypothesis value as the statistic observed by random sampling variation, given that the null hypothesis is valid. Alternatively, the p-value is the minimum level of significance at which the null hypothesis may be rejected (Stock & Watson, 2019). In the table below, the p-value is represented by the stars behind the estimated β coefficients. I also have added the N, R-square, and adjusted R-square. The R-square and adjusted R-square indicate how many data points are contained within the regression equation's line. However, there is one significant distinction between R-square and adjusted R-square: Every variable, according to R-square, explains the variation in the dependent variable. The adjusted R-square indicates how much variation is explained by solely the independent factors that affect the dependent variable (Everitt & Skrondal, 2010). Additionally, I have deleted the missing observations list wise. If there was one missing value in any of the variables, I deleted the entire line.

- **Model 1:** The first model includes contract type, organizational change, and the interaction variable. From table 2, it is noticed that contract type has a value of 0.033 and has a significant and positive effect on stress (stress reduction). Organizational change has a value of 0.135 and has a significant and negative influence on stress (an increase in stress). Meanwhile, the interaction, which is negative, does not correlate with stress. The value of adjusted R-Square indicates that 2% of the variance in stress can be predicted from the variables of contract type, organizational change and interaction.
- **Model 2:** The model features key variables from Model 1, as well as essential employee characteristics (control variables) such as gender, age, education, and sleep-related problems. All these new variables influence stress except gender. Moreover, organizational change and education resulted in negative coefficients. The variable of sleep-related problems has the largest standardized β coefficient, which means that it has the biggest effect on stress. Meanwhile, *interaction* remains negative and insignificant. The value of adjusted R-Square in this model results in 9.3%.

- **Model 3:** In addition to the variables in the second model, the third model also includes variables that are about essential firm characteristics such as part-time/full-time work, NET monthly earnings, teamwork, years of being in the company, hours/week of work, minutes of traveling home to work and back, working on Saturday. All the new variables significantly influence stress except part-time/full-time. From the variables of Model 2, now gender has a significant and negative effect on stress. The variable of interaction continues to remain insignificant, but the value is positive. The variables of sleep-related problems, age and years of being in the company have the largest standardized β coefficient, which means that they have the biggest effect on stress. In model 3, the value of adjusted R-Square is 12.5%.
- **Model 4:** In addition to the variables in the third model, this model includes variables related to working conditions such as dangerous jobs, physical jobs, emotional jobs, work-life balance, deadlines, discrimination, abuse, and work demands. All the new variables significantly influence stress except a dangerous job. From the variables of the previous model, gender, part-time/full time, and interaction are insignificant. The control variables of work-life balance, deadlines and emotional job have the largest standardized β coefficient, which means that they have the biggest effect on stress. The value of adjusted R-Square indicates that 30% of the variance in stress can be predicted from the variables of independent variables and control variables mentioned above.

Control variables

Individual factors may influence workers' experiences of organizational change; thus, the regressions included a set of control variables at the individual level. From regression results, we note that age, education, and sleep-related problems are significant in every model included, so they probably influence stress. For gender, we find mixed results, its significant in Model 3 and not significant in other models. Meanwhile, working part-time or full-time is not associated with stress in models 3 and 4. However, they are control variables, so we cannot fully interpret them. Sleep-related problems have the biggest standardized coefficient β compared to other variables; a 10-point increase in sleep-related problems corresponds to an increase of 0.1-0.3 points in stress, for example.

Table 4: Regression results

	Model 1	Model 2	Model 3	Model 4
(Intercept)	3.196***	1.703***	2.344***	-1.813***
	0.008	0.041	0.063	0.191
Contract type	0.033***	0.046***	0.02**	0.023***
	(0.02)	(0.02)	(0.024)	(0.023)
Organizational change	-0.135***	-0.113***	-0.095***	-0.032***
	(0.015)	(0.015)	(0.017)	(0.016)
Interaction (contact type x organizational change)	-0.004	-0.002	0.008	0.008
	(0.048)	(0.047)	(0.054)	(0.051)
Gender		0.004	-0.04***	0.00
		(0.012)	(0.014)	(0.014)
Age		0.083***	0.085***	0.012*
		(0.000)	(0.001)	(0.001)
Education		-0.035***	-0.033***	-0.049***
		(0.000)	(0.000)	(0.000)
Sleep related problems		0.263***	0.263***	0.096***
		(0.002)	(0.002)	(0.002)
Part time/Full time work			0.003	0.001
			(0.022)	(0.021)
NET monthly earnings			-0.036***	-0.026***
			(0.000)	(0.000)
Team Work			-0.046***	-0.019***
			(0.014)	(0.014)
Years of being in the company			0.056***	0.036***
			(0.000)	(0.000)
Hours/week work			-0.109***	-0.037***
			(0.001)	(0.002)
Minutes of traveling home to work and back			-0.049***	-0.029***
			(0.000)	(0.000)
Working on Saturday			0.049***	-0.023***
			(0.000)	(0.000)
Dangerous job				-0.007
				(0.001)
Physical job				0.027***
				(0.001)
Emotional job				0.156***
				(0.002)
Work-life balance				0.241***
				(0.002)
Deadlines				0.203***
				(0.002)
Discrimination				0.014*
				(0.013)
Abuse				0.081***
				(0.008)
Work demands				0.033***
				(0.006)
N	34,409	34,133	24,696	22,264
R2	0.02	0.093	0.125	0.301
Adjusted R2	0.02	0.093	0.125	0.300

***p<0.001; **p<0.01; *p<0.05

Source: The European Working Conditions Survey (EWCS), 2015

5. Discussion

This study investigates the relationship between contract types and stress during organizational change. The relationship is investigated through a statistical analysis relying on data from the Sixth European Working Conditions Survey, conducted in 2015. The statistical analysis performed in this thesis relies on four linear regression models. From one model to the next, more variables that could affect stress are added to reduce the omitted variable bias. In the following, this section discusses the result of the analysis.

Throughout the four models, it was identified that there is a significant correlation between contract type and stress. According to the survey data, temporary employees (employees with a contract of limited duration and temporary agency contract) are less stressed than permanent workers. This result does not directly agree with the literature review since the findings are contradictory between temporary and permanent workers. Thus, the population under consideration has a bias towards permanent employees.

The organizational change variable resulted in a statistically significant coefficient in all four models. The standardized β coefficient has a negative value, which means that if we go from value 0 (there has been no organizational change in the last three years) to value 1 (there has been an organizational change), the stress increases. This result is also supported by the literature.

Gender is included in three models (Model 2,3,4) and is statistically significant only in model three, but with a negative coefficient. Thus, it results that female employees are more stressed than the male ones.

Sleep-related problems, emotional job, lack of work-life balance and deadlines have the highest standardized β coefficient, thus meaning that they have the biggest effect on stress from the considered control variables. The analysis shows that all these variables increase stress.

The interaction between contract type and organizational change results statistically insignificant in all four models. As a result, for this data set, the hypothesis: "During organizational change, temporary workers are more stressed than permanent workers" is not supported. One important reason might be that this study is a cross-sectional data analysis which means that I am analyzing a data set at a fixed point in time (Brady & Johnson, 2008). Finally, while this study focused on temporary workers with fixed-term contracts, the non-standard labour population as a whole should not be considered homogeneous.

Managerial implications

One of the most important conclusions of this study is that contract type is not relevant during organizational change processes. However, more research is needed to validate these findings.

Despite the need for future research, the current study has a practical implication for organizations and managers. This study contributes to the literature to an understanding of organizational processes in the context of change by testing the consequences of organizational change on employees' health. Better understanding how a firm's organization and decisions influence its

employees is obviously of general interest to society. This research can play a crucial role for managers of organizations undergoing change. Managers can utilize this research to make informed decisions about their employees, as seen by the result of the study, where poor work organisation and design, poor management, unsatisfactory working conditions, and a lack of support from coworkers and supervisors can all contribute to work-related stress. Managers at all levels must anticipate how change may affect their people. Managers should invest special attention in creating a supportive and trusting organizational culture if they support and cooperate in times of change. Employees need to be clear about the change program and introduce and highlight the personal benefits change could have for employees beyond its importance for the organization. Moreover, managers need to be aware of important psychological differences between temporary and permanent workers and the long-term consequences of high levels of job stress.

Successfully managing an organizational change can boost employee morale and encourage constructive teamwork and job enrichment. These elements can have a direct and beneficial impact on productivity and quality of work, as well as reduce production cycles and costs. Effective organizational change management allows a company to remain in a constant state of evolution while also facilitating periods of broad business change, allowing employees to remain motivated and productive as new technology or procedures are implemented.

Limitations and recommendations

There are some limitations in this paper that could be addressed in future research. For example, the sample of the survey is very large, which is usually good since a larger sample provides a more accurate result. Although the study examined 35 countries, they were all European. Thus, it is not known the extent to which the results of this paper can be generalized to other parts of the world.

Additionally, only 13% of the interviewees are temporary employees. Thus the population under consideration has a bias towards permanent employees. This could be one of the reasons that the hypothesis is not supported, and the present study was unable to address the population of temporary employees. For future studies, I would suggest the address of the heterogeneity of types of employees based on the labour contract.

Lastly, as mentioned above, this study is a cross-sectional data analysis; it only contains observations from 2015. A cross-sectional study is difficult to derive causal links from because this is a one-time measurement of exposure and result. Non-response is a common concern in cross-sectional research, and it can lead to bias in outcome measurements. This is especially problematic when non-responders' traits differ from those of responders. When participants are asked about previous exposures, recall bias might emerge (Setia, 2016). For future research, I would suggest panel data which is data that contains observations about different cross-sections across time (Wooldridge, 2010). There are numerous advantages of using panel data, and it has often been favored by academics over cross-sectional data because of many advantages. Panel data, in general, is thought to yield more precise model parameter inferences and a larger capacity to capture the complexity of human behavior. Additionally, panel data allows you to account for characteristics that are difficult to detect or measure,

such as cultural differences or differences in business procedures between organizations, as well as variables that change over time but not between entities (Wooldridge, 2010).

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