เรียนรู้เพื่อรับใช้สังคม

THE IMPACT OF DIGITAL TRANSFORMATION ON EMPLOYEE JOB SATISFACTION

LI LIANG

A THESIS SUBMITTED IN THE PARTIAL FULFILMENT
OF THE REQUIREMENTS FOR THE MASTER
OF BUSINESS ADMINISTRATION IN DIGITAL BUSINESS
FACULTY OF BUSINESS ADMINISTRATION
HUACHIEW CHALERMPRAKIET UNIVERSITY
YEAR 2023

THE IMPACT OF DIGITAL TRANSFORMATION
ON EMPLOYEE JOB SATISFACTION

LI LIANG

APPROVED THIS THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENT FOR THE MASTER OF BUSINESS ADMINISTRATION
IN DIGITAL BUSINESS
ON DATE OCTOBER 28, 2022

Assoc. Prof. Dr.Orasa Tetiwat Chairman of thesis committee	Asst. Prof. Dr. Chatcharawan Meesubthong Thesis advisor
Asst. Prof. Dr. Chatcharawan Meesubthong Thesis committee	Asst. Prof. Dr. Lanthom Jonjoubsong Chairman of Master of Business Administration (Digital Business)
Asst. Prof. Dr. Lanthom Jonjoubsong Thesis committee	Asst. Prof. Janya Yodnil Dean of Faculty of Business Administration

THE IMPACT OF DIGITAL TRANSFORMATION ON EMPLOYEE JOB SATISFACTION

Li Liang
Master of Business Administration (Digital Business)
Thesis Advisor: Assoc. Prof. Dr. Chatcharawan Meesupthong

ABSTRACT

The technological development of the era has given more and more companies the opportunity to grow. One of the most important breakthroughs is digital transformation, which can help enterprises create a greater competitive advantage. In China, state-owned enterprises are the mainstay of the country's economic development, and their economic power cannot be ignored. In order to seize more opportunities for growth, many state-owned enterprises have also focused on the digital transformation of their companies, and Zhanjiang Cigarette Factory (ZCF) is one of them.

Human resource management is an important influence on the digital transformation of an enterprise, and employee job satisfaction is an important component of human resource management. Employees with high levels of job satisfaction can help to enhance the stability and growth of the company. The purpose of this study is to find out whether, and how, the digital transformation of enterprises has a positive impact on employees' job satisfaction. Thus, the influencing factors affecting both digital transformation and employee job satisfaction were analyzed. Relevant data were then collected from ZCF employees by means of questionnaires and the interrelationships between different factors were analyzed by employing regression analysis and other methods to assess the impact of corporate digital transformation on employee job satisfaction.

The results of hypothesis testing show that the digital transformation of top management and technological innovation have significant positive effects on all factors that affect employee job satisfaction. In addition, this study also assessed the importance of demographic factors and found that marital status can have a significant

positive impact on employees' work environment, and age was found to have a significant negative impact on employees' work-life balance. The research shows that enterprise digital transformation can have a positive impact on employee job satisfaction.

Keywords: Digital transformation, Employee job satisfaction, Demographics, Regression analysis, State-owned enterprise

Acknowledgement

You see, these white clouds gathered and scattered, scattered and gathered again, just like the five years I lived in the campus of Huachiew Chalermprakiet University. The years are old and fleeting, and I was separated from you by a stone's throw, and then I turned around and was on the other side of the world. Every day, late at night, I think of the thought of the heart with a deep sense of reluctance. With your hand through every bumpy road, seen every scenery, printed in every place of footprints, have become my most beautiful and unforgettable memories. If we forget each other in the river and lake, and look for you a thousand times in the dream, I look back, those lovely people spelled into a piece of time, branded in the depths of my heart.

I would like to thank Dr. Chatcharawan Meesubthong for his tireless efforts in revising my dissertation, and for his kind greetings and gentle attitude in communicating with me, patiently answering my doubts and encouraging me to finish my dissertation, which made me feel close and encouraged, and I sincerely thank you for your painstaking efforts. In addition, Dr. Patchara gave his valuable time to provide translation for our discussion on the thesis. I sincerely thank you for taking the time to help me finish my thesis. In addition, Dr. Lanthom Jon gave me some advice on the revision of my dissertation and helped me in my study life, and I sincerely wish you a happy family. Secondly, Dr. Mercy Mercies provided me with great insights on the framework of my dissertation in the last class before I started writing my dissertation, which helped me a lot to have some overall ideas for my dissertation. In addition, I would like to thank Assoc. Prof. Dr. Orasa Tetiwat as the chairman of the dissertation defense examiners, for providing future direction and help in revising my dissertation, and I admire your knowledge.

Furthermore, I would like to thank the three leaders of the hospital who took their time to be interviewed by me and provide data for my thesis. Also, I would like to thank all the staff and leaders of the hospital for their support and help with the data for my thesis. Secondly, I would like to thank my friend Song Yaoyu, who is studying in the UK, for discussing with me some problems of my thesis and providing great help in revising the format of my thesis. I would also like to thank my friends Li Shaojie and Liao Chengze for taking me out to eat food with them often in their spare time, so that

I can relieve the pain of homesickness. In addition, Yan Xiaoge provided me with a computer during my defense so that I could finish my PPT presentation smoothly. I am very grateful for her generous heart. I would also like to thank Ms. Bow of the International Exchange Office for personally taking me through the registration process for my student visa. In addition, I would like to thank the staff in the school cafeteria for providing me with delicious meals and smiling service when I was struggling with my dissertation, which affected my self-confidence and gave me a lot of psychological encouragement and help. At the same time, I would also like to thank the staff of the hostels, who have helped me from time to time during my five years. For example, they solved my Thai communication problems when I had trouble communicating over the phone with takeaways, and I am very grateful for their enthusiastic help.

Finally, I would like to thank all the kind Thai people I have met in my life, whose actions have taught me to always remember what I started with, and to be a person with a sense of purpose and gratitude. Of course, I would also like to thank my family for giving me some encouragement in my schooling and studies. My family members often talk to me and make me feel more relaxed. I wish my friends all the best for graduation, and I sincerely wish all my mentors good years and sunny days.

Li Liang

Abbreviation

CTGIC	China Tobacco Guangdong Industrial Co., Ltd
SOE	State-Owned Enterprise
ZCF	Zhanjiang Cigarette Factory

Table of Contents

Table of Contents (Continued)

List of Tables

List of Tables (Continued)

List of Figures

Chapter 1
Introduction

1.1 Introduction and Background of Zhanjiang Cigarette Factory

In the era of globalization economies around the world have grown with the development of technology. This is because technology has created numerous new opportunities and conveniences for people, both in terms of life and work. Nowadays, the digitalization brought about by technology is becoming a hot topic.

China is also undergoing a rapid digital transformation. Chinese state-owned enterprises (SOEs) plan to invest about $1.5 trillion between 2021 and 2025 to build facilities for emerging technologies such as 5G, artificial intelligence and the Internet of Things (Global Construction Review.com, 2022). Such infrastructure will drive growth in industry and China's international trade and encourage inward investment (War On The Rocks.com, 2022). SOEs are the economic and political foundation of the Chinese Communist Party and the Chinese state (Jin et al., 2022). Their development and operations are largely representative of the overall national planning of resources and assets. According to Zhang (2019), in his estimates of the share of GDP and employment by SOEs in China in 2017, the share of SOEs in China's GDP reached 23% - 28% and the share of employment ranged from 5% - 16% with SOEs generating about a quarter of China's economic revenue and being one of the very important pillars of economic development. However, digital transformation is a very complex process. If companies can control or avoid any negative impacts of the digital transformation process, they can maximize benefits while minimizing cost, thus making the digital transformation successful.

One of the key factors affecting organizational success is human capital (Gebczynska, 2022), which is reflected not only in the professionalism and competence of employees, but also in their involvement and commitment to the organization. Much depends on how satisfied they are with their jobs. Satisfied employees identify more with the organization they work for, which leads to greater motivation and potential to build a better organizational future. Although many scholars have conducted research on employee job satisfaction, there is no research on whether and how the digital transformation of enterprises will affect employees' job satisfaction. Therefore, from

the perspective of Chinese state-owned enterprises, this study has selected the Zhanjiang Cigarette Factory (ZCF), which is a state-owned enterprise, to explore the impact of the enterprises' digital transformation on employee job satisfaction.

Zhanjiang Cigarette Factory (ZCF) is a Chinese state-owned capital holding enterprise, established in August 1978. After the merger and reorganization of the tobacco industry in Guangdong Province in 2005, it became subordinate to China Tobacco Guangdong Industrial Co., Ltd (CTGIC). According to the criteria for enterprise size by the Chinese National Bureau of Statistics (2017), enterprises with 300-2,000 employees are classified as medium-sized enterprises. In 2022, ZCF had 616 employees, which makes it a medium-sized state-owned enterprise. ZCF is mainly engaged in the production and sales of cigarettes, with an annual production scale of 250,000 to 280,000 cases. There are 17 departments in the enterprise, including 14 company operation departments, such as the finance, human resources and information departments, and three production departments (Gdzygy.com, 2022). The standards for the production of cigarette products are divided into five grades: Grade I, Grade II, Grade III, Grade IV, and Grade V cigarettes. Grade I cigarettes have the highest quality and price. At present, ZCF mainly produces cigarettes in the range of Grade I to Grade III cigarettes. The main product is the Double Happiness brand of cigarettes. In addition, with the rise of e-cigarette products in Western countries as well as the domestic market in China, ZCF is gradually making preparations for product development and production in this field (Mi, 2022). However, the production process of e-cigarettes is different from that of cigarettes, which means that ZCF needs to create a new production line for this purpose. Although it will cost a lot in terms of capital investment, it is a good entry point to build a digital factory and to help ZCF build a digital production facility, which is a great opportunity to drive the digital transformation of the company.

1.2 ZCF and Digital Transformation

Manufacturing is an important pillar of national development and a core driver of economic growth, and with the development of digital technologies, traditional manufacturing industries around the world are caught up in a wave of digital transformation (Wang, 2015). Digital transformation refers to the adoption of

technologies to improve productivity, value creation, and social welfare (Ebert & Duarte, 2018). The benefits are so attractive to countries around the world that Germany has launched its "Industry 4.0" strategy and the U.S. has launched its "Industrial Internet" strategy to help the country's digital transformation of manufacturing. The Chinese government is also aware of the importance of digital transformation to the development of various industries. The digital economy brought about by digital transformation is driving changes in production methods, lifestyles and governance, becoming a key force in reorganizing global factor resources, reshaping the global economic structure and changing the global competitive landscape.

China is the world's largest producer and consumer of tobacco products. The country manufactured 2.36 trillion combustible cigarette sticks in 2019, accounting for 44.7% of global production. Of the world's 1.3 billion tobacco users, over 300 million are Chinese (Smoke Free World.org, 2022). As a Chinese state-owned manufacturing enterprise, ZCF is bound to respond to the national call for digital transformation, with the primary goal of the deep integration of digital technology with the real economy. As a result, the company wants to strengthen the digital infrastructure of the enterprise, improve the digital economy governance system and promote the development of the digital industrialization of the enterprise.

At the enterprise level, digital transformation is one of the most important ways to enhance the competitiveness of the enterprise. Even without considering the government policy aspect, ZCF itself needs to seize the opportunities brought by the digital economy, use digital technology to reshape its competitive advantage, enhance its own innovation capability and gain new growth momentum to cope with the complex and changing economic market. Digital transformation can improve the comprehensive productivity of each element in the company's production system by enhancing organizational innovation, optimizing human capital structure, promoting the integration of advanced manufacturing and modern services, and reducing costs (Chenyu et al., 2019). Oliveira and de SOUZA (2021) shared a similar view that digital transformation involves not only the implementation of technological solutions, but also coordination between digital technologies and human and organizational factors. There are many benefits that digital transformation can bring to ZCF. For example, through digital technology, the virtual part and the real part can be combined to create

a "world based on real events". For businesses, being able to use this “world” environment to model, improve, and test new products ultimately helps companies to reduce product development, implementation, and sales costs (Chudaeva et al., 2019). Digital technologies can also be used to build cloud computing platforms that will create a new workspace and paradigm for employees, make decisions and direct work at a higher speed and make the performance of each team member more transparent (Foerster-Metz et al., 2018). Additionally, digital transformation will transform the workplace for employees, providing them with work goals, learning platforms, and recognition systems, which offer feedback, and social and emotional connection through daily engagement with their teams (Rimon, 2017).

1.3 ZCF and Employee Job Satisfaction

Human resource management is an important factor that influences companies to carry out digital transformation, and employee job satisfaction is an important aspect of human resource management (Gebczynska, 2022). The concept of job satisfaction dates back to the 1930s and is important in the study of employee responses to work (Agho et al., 1993).

ZCF has taken various measures to improve the job satisfaction of its employees. In terms of its working environment, ZCF has reorganized the office space to provide a larger working space for its employees and has also strengthened work safety measures to provide a safe working environment for its employees. In terms of employee promotion opportunities, ZCF used to promote employees internally based on a combination of length of service, contribution and performance in the workplace. However, there are ethical risks and potentially destructive office politics (Chan, 1996) associated with this type of internal promotion, which can be influenced by subjective biases from managers and workplace relationships, which requires the mutual commitment of both parties to provide convenience for the other party. ZCF, in order to solve this problem, added position level restrictions to the criteria for the promotion of employees, strictly according to the occupational level of the employee. Although the promotion conditions for employees became more stringent than before, ZCF provides a lot of support for employees to learn, such as reimbursement for employees' learning expenses, assigning a senior employee to guide them through the process, etc.

This not only maintains fairness in each employee's promotion, but also solves the motivation problem for employees who perceive difficulty in obtaining promotion. In terms of employee compensation, ZCF used to focus on employees' labor compensation. The reason is that China's economic development in the past few decades has not been high, and people are focused on meeting their basic needs as their primary goal. As people's physiological needs gradually decrease, they will begin to generate higher-level needs (Zalenski & Raspa, 2006), and ZCF has also clearly observed this change. As a result, ZCF made significant changes to its existing employee compensation system in order to offer greater incentives for employees. In particular, ZCF introduced a flexible benefits plan that gave employees the opportunity to choose their own benefits from a variety of options (Barringer, 1991), which both reduced the cost of benefits for the company and substantially met the differentiated needs of employees.

1.4 Problem statement

1) It is not clear which digital transformation factors impact the job satisfaction of employees.

2) There is a need to determine whether the digital transformation of the company could have a positive impact on employee job satisfaction.

3) It is necessary to determine whether there are ways to improve employee job satisfaction through digital transformation.

1.5 Objectives

1) To identify factors related to digital transformation and job satisfaction.

2) To examine the correlation between the factors of digital transformation and employee job satisfaction.

3) To improve the overall level of employee job satisfaction by addressing the negative aspects of digital transformation.

1.6 Research Hypotheses

In order to test the correlation between digital transformation and employee job satisfaction, the following hypotheses were formulated in this study:

H1: Differences in employee sample characteristics have an impact on employee job satisfaction.

H1a: Demographic variables have an impact on employee training & development.

H1b: Demographic variables have an impact on employee loyalty.

H1c: Demographic variables have an impact on the working environment.

H1d: Demographic variables have an impact on job performance.

H1e: Demographic variables have an impact on employees' work-life balance.

H2: Digital transformation has a positive impact on employee job satisfaction.

H2a: Digital transformation variables have an impact on employee training & development.

H2b: Digital transformation variables have an impact on employee loyalty.

H2c: Digital transformation variables have an impact on working environment.

H2d: Digital transformation variables have an impact on job performance.

H2e: Digital transformation variables have an impact on work-life balance.

1.7 Research value

In recent years, there has been an increasing amount of research on digital transformation in China and abroad, indicating the growing importance of digital transformation for companies. Many researchers have investigated the digital transformation of enterprises and employee job satisfaction, and have established various frameworks in regard to digital transformation and the factors influencing job satisfaction. Such research results yield a lot of data, information, references and theory on ZCF digital transformation and employee job satisfaction. While many researchers and business managers have conducted research on digital transformation or job satisfaction, it was found that few have linked the two factors in a systematic study. Consequently. in this study, the different dimensions of digital transformation and employee job satisfaction will be identified, and the correlations between these factors will be observed to determine how digital transformation affects employee job

satisfaction. From an academic perspective, the findings will fill the gaps in existing research, enrich the relevant theories in this area, and provide a theoretical basis for future scholars. From an enterprise perspective, the findings will help companies, and even industries, to reduce unnecessary barriers in undertaking digital transformation. By maintaining or improving the job satisfaction of employees, the employee's loyalty to the company can be enhanced and the employment costs of the company can be controlled, thus reducing the burden of the company. From the employee perspective, greater job satisfaction is more likely to stimulate employees' work motivation, so that they can better serve the enterprise and create greater economic benefits.

Chapter 2
Literature review

The literature review of this paper is divided into three parts: a description of digital transformation, a description of employee job satisfaction, and the review and establishment of the research framework.

2.1 Digital Transformation

In order to understand digital transformation (DT), it is necessary to define it. The definitions of digital transformation vary according to the foci of scholars. According to Stolterman and Fors (2004), digital transformation is a change in which digital technology affects various aspects of people's lives differently, and it can also significantly affect individuals, businesses, and society (Tolboom, 2016). For companies, the changes brought about by digital technologies relate to business operations and the delivery of value to customers, which impacts all aspects of the business, including the corporate culture and human relationships (Mićić, 2017).

Digital transformation is the process of using technology to improve overall business performance (Westerman et al., 2014). Most of the well-known digital cases involve companies transforming physical products into digital deliverables (Kohli & Johnson, 2011), for example, converting analogue music into digital music that can be freely downloaded on the Internet. However, for companies whose products cannot be digitized, especially those in manufacturing industries that produce physical products, one of the most effective ways to find opportunities in the digital transformation trend is in terms of efficiency and improved information systems. Even though the technologies adopted by companies may not necessarily be the latest, they can achieve significant business improvements by enhancing customer experience, streamlining operations, etc. (Liere-Netheler et al., 2018).

Digital transformation involves the transformation of an organization's business activities, processes, capabilities and models, which involves taking advantage of the changes and opportunities brought about by digital technologies and their impact on society to bring about better strategic development (Demirkan et al., 2016). When a company's business model changes, it also brings changes in product or organizational

structure and process automation (Clohessy et al., 2017), and also includes the improved use of traditional technologies such as Enterprise Resource Planning (ERP) (Chanias, 2017). Westerman et al. (2014) interviewed 50 companies in 15 countries and found that different companies were moving forward with digital transformation at different rates and with varying degrees of success.

This demonstrates that not all industries maintain a consistent pace in their digital transformation process, and the digital projects, processes and strategies they adopt vary according to the industry. Some companies choose to digitize production information to gain a competitive advantage by building a digital infrastructure (Kohli & Johnson, 2011), while others choose to digitize their sales and communication channels to enhance their interactions with customers (Andrašec et al., 2021). It is clear from the evidence that all aspects of business are moving towards a world dependent on digital information systems in digital transformation, which is a comprehensive and fundamental change (Nieminen, 2014).

In order to better facilitate a smooth digital transformation, various scholars have analyzed the factors influencing this process. Liere-Netheler et al. (2018) identified 12 drivers in their study on digital transformation in manufacturing: 1) Process Improvement; 2) Workplace Improvement; 3) Vertical Integration; 4) Management Support; 5) Horizontal Integration; 6) Cost Reduction; 7) Customer Demand; 8) Supply Chain; 9) Innovation Push; 10) Market Pressure; 11) Laws/Government; 12) Employee Support.

Similarly, Zhang et al. (2022) identified the impact of digital transformation on enterprises in three dimensions:

a. Technology: IT infrastructure and IT management capabilities

b. Organization: Digital transformation strategy, Top management, and Employee skills

c. Environment: Government support and Partnerships

They also noted that technology and the working environment can ultimately lead to successful digital transformation by facilitating the improvement of organizational capabilities.

Moreover, Ahmad et al. (2021) also suggested six key metrics involved in digital transformation from the organizational side: 1) Organizational agility; 2)

Operational flexibility; 3) Customer focus measures; 4) Digital resources; 5) Value proposition of product and services; 6) Transition management.

Based on the above overview, it is clear that digital transformation is a process by which companies can continuously modify their business models as well as business processes in order to help them to acquire a competitive advantage (Davenport & Westerman, 2018). Although the processes and approaches used in the transformation process are not necessarily the same across different companies, they have the ultimate goal of redesigning the company's business through the use of digital technologies to achieve a range of benefits such as productivity gains, cost reductions and innovation to be able to compete more effectively in an increasingly digital world (Aguiar et al., 2019; Ulas, 2019).

2.1.1 Selection of digital transformation influence factors

In the above review on digital transformation, many factors that can influence digital transformation have been identified. However, to examine the impact of each factor on employee job satisfaction requires much work. Moreover, not every factor is applicable for every company, and different companies have different development plans. Therefore, it is necessary to identify the factors that are relevant for ZCF:

1) Digital resources

Digital resources can be defined as any computer-ready information source, usually containing valuable information and presented in text, image, simulation, video, or other interactive forms (Songer, 2007), which has unique features such as an editable, reprogrammable, and product agnostic (Piccoli et al., 2020). If enterprises want to complete digital transformation faster, it cannot be done without sufficient digital resources. As a cigarette manufacturing company, ZCF needs a lot of digital resources to support its digital transformation, both for production and organizational management.

As one of the key elements of digital transformation, it is necessary to examine whether employees have access to enough digital resources at work to allow them to assist in ZCF's digital transformation efforts, and to determine whether the difference in the level of digital resources has an impact on their job satisfaction.

2) Employee skills

Skill is an acquired response, usually the result of specialized training that enables someone to have the ability to perform a specific task and achieve a specific goal (Statt, 2004). Similarly, employee skills refer to the ability of an employee to be able to accomplish a specific job task or goal. Workers with higher skills are able to handle more complex work tasks and adapt quickly to a changing environment. Employees with sufficient digital skills are important for the digital transformation of organizations (Prezioso et al., 2020). They are able to use their skills to quickly interpret the information they receive about digital phenomena to solve problems and improve their decision-making processes. In addition, the more digital skills employees have, the less recruitment and training costs companies have to spend.

In brief, the skill level of employees can determine to some extent the labor cost of ZCF's digital transformation. This is certainly beneficial to the business' capital allocation, as more cash means having greater risk-taking capacity and a greater ability to reinvest in employees. This will further lead to more job stability and more development opportunities for employees. Thus, employee skills were selected as one of the factors influencing digital transformation to study the impact on employee job satisfaction.

3) Top management

Top management involves the management of the enterprise's long-term planning, policy-making and major decisions by the highest-level managers (Wrigley, 1988). Carpenter et al. (2004) noted that because high-level managers have greater influence over strategic decisions, members of the top team often use the measurement heuristic of the senior hierarchical level (e.g., title, position). In the digital era, an effective top management team is essential for enterprises to achieve digitalization (Mojambo, 2020). They are responsible for setting the overall goals and strategies of the business and provide the overall guidelines for the development of the business. This all ensures that the company stays on track in the digital transformation process.

Top management, as a factor influencing digital transformation, is able to examine employees' attitudes toward top management's strategies and initiatives for

digital transformation. It also helps to determine whether ZCF's top management has the strategic capacity to match internal resources with the digital environment.

4) Technological innovation

Technology is the overall complex of knowledge, skills, practices, capabilities, equipment and engineering practices necessary to produce a product or service, and technological innovation can lead to the emergence of new or improved products in the marketplace, or to the production of a new or changed process for commercial production (Souitaris, 2003) to be able to bring differentiation to the product, or even irreplaceability in the market. The definition of Chen et al. (2015), states that technological innovation refers to innovation in production technology, including the development of new technologies, and the application and reinvention of existing technologies. This is a complex process that starts with innovative awareness and ideas, and continues to identify and solve problems in the process in order to make them economically and socially valuable.

Combined with the digital evolution of recent years, these rapid changes, technological disruptions and unexpected competition are what drives many companies to turn to digital transformation. In order to achieve successful transformation, the factor of technological innovation has been employed to explore the extent to which it supports ZCF in its digital development.

This study explores the impact of digital transformation on employee job satisfaction. In order to determine how digital transformation is affecting employee satisfaction, the previously mentioned four factors that affect digital transformation have been selected for this study. The four factors are digital resources, employee skills, top management, and technological innovation.

2.2 Employee job satisfaction

Job satisfaction is a concept developed from organizational theory that is a complex phenomenon consisting of many influencing factors (Ravari et al., 2012). Although different definitions of job satisfaction have been offered by different scholars, the most commonly-used is the definition of Locke (1976), who considered job satisfaction as a positive emotional state resulting from one's evaluation of a job or work experience (Tsounis & Sarafis, 2018). Similarly, Hackman and Oldham's (1975)

study on Job Diagnostic Survey (JDS) also offers a relevant definition of job satisfaction as an employee's emotional response to the job. In brief, job satisfaction is the extent to which employees like their jobs (Hirschfeld, 2000). However, since employees have emotions of satisfaction, there are bound to be emotions of dissatisfaction as well. Therefore, employee job satisfaction can be divided into positive and negative states that depend on what the employee does. If the employee feels that the job is good, it represents satisfaction with the job (Jalagat, 2016). A high or low level of employee job satisfaction can reflect to some extent the state of employees in all aspects of their work. For example, greater job satisfaction can lead to better job performance results, while a lower level of job satisfaction can increase the employees' likelihood of leaving, etc. (Fahr, 2011). Waqas et al. (2014) found that there is a positive and strong correlation between job satisfaction and job loyalty, which means that employees with higher job satisfaction are more likely to want to maintain a long-term stable relationship with the organization. All of the above evidence shows the importance of employee job satisfaction for organizations, which can affect factors such as employee performance, the probability of leaving, and job loyalty.

However, as mentioned earlier, job satisfaction is a complex phenomenon consisting of many influencing factors because different employees have different needs, and these needs more or less affect employee satisfaction. In order to maintain or improve employee job satisfaction, it is necessary to determine the factors influencing job satisfaction. Statt (2004) pointed out that job satisfaction refers to employees' satisfaction with the rewards they receive at work, which is a kind of intrinsic motivation. However, in reality, job rewards are only part of the job and are not the sole determinant of job satisfaction. Consequently, it is necessary to determine other factors that can influence job satisfaction. In Kamal and Hanif's (2009) study, it was found that factors such as salary, promotion opportunities, compensation, and relationships with bosses and co-workers can greatly influence job satisfaction. Sowmya and Panchanatham (2011) also noted that pay and promotion are major factors that influence employees' job satisfaction, followed by factors such as job suitability, working conditions and employee relations, which are also important for maintaining the level of job satisfaction. In addition to salary factors, factors such as supervisor support, a good working environment, high job security levels, work-life balance,

career opportunities and promotion, employee training and development opportunities are all important influences on job satisfaction (Neog & Barua, 2014).

To facilitate the study of job satisfaction, other scholars have divided employees' job satisfaction into intrinsic and extrinsic dimensions. The intrinsic dimension is how employees feel about their jobs, such as their sense of accomplishment at work or their own job identity while the extrinsic dimension represents how employees feel about the external environment of their jobs, such as pay, benefits, work environment and coworker relationships, and other external emotional stimuli (Shim et al., 2002). Similarly, Karabiyik and Korumaz (2014) explained job satisfaction in terms of two dimensions, personal and organizational variables, where personal variables include influences such as age, gender, experience, and intelligence; and organizational variables include influences such as salary, promotion, supervision, and co-workers.

2.2.1 Selection of job satisfaction influence factors

As with the factors influencing digital transformation, the many influencing factors regarding employee job satisfaction are reviewed. The following influencing factors for this study have been selected based on the actual situation of ZCF employees.

1) Employee training & development

The main purpose of employee training is to increase the efficiency of employees by enhancing their abilities, by learning or changing their attitudes, thereby increasing their skills and knowledge (Hughey and Mussnug, 1997; Tahsildari and Shahnaei, 2015). It is also an organized way for organizations to provide development and improvement in the quality of new and existing employees through such interventions to enhance the technical skills of employees, thereby improving the organization's quality of goods and services in the face of fierce competition (Nda & Fard, 2013).

As for employee development, it is a system that helps employees to develop or progress in their current job to achieve their future goals (Shelton, 2001). While Harrison (2000) argued that employee development is the process of developing employees' knowledge, skills and abilities in the organization (Jangbahadur and Sharma, 2017), employers provide structured learning experiences for employees to

improve their performance and personal growth, which is long-term (Tansky and Cohen, 2001).

Many scholars have defined employee training and employee development separately and regard them as two different concepts. However, in ZCF, employee training is only a part of employee development because employee training is not only to improve organizational performance, but also to enrich employees' skills, knowledge and experience. In short, employee training aims to provide employees with better development opportunities. Therefore, this paper chooses to integrate employee training and employee development into one factor to study its impact on employee job satisfaction.

2) Employee loyalty

According to Mowday et al. (1982), employee loyalty is an expression of organizational commitment and is the relative strength of an individual employee's identification and involvement with a particular organization (Pandey and Khare, 2012). It also refers to the willingness of an employee to make an investment or personal sacrifice in order to strengthen the relationship with the organization (Reichheld, 2003), and loyalty to the organization. When an employee is convinced that working in the current organization is the best option, the employee may contribute to the organization to the best of their ability (Waqas et al., 2014).

High employee loyalty means a lower tendency to leave, feeling secure in the organization, and satisfaction with their job. However, digital transformation is essentially a change in the organization. This study selects employee loyalty as one of the influencing factors that can help us to explore whether ZCF affects employee loyalty during digital transformation, thus ultimately affecting job satisfaction.

3) Working environment

The work environment includes the two dimensions of work and background. A job includes all of the different characteristics of the job, such as the way a job is performed and completed, and the working environment includes physical and social working conditions (Raziq and Maulabakhsh, 2015). A more detailed explanation is given in the definition of Opperman (2002), who stated that the work environment is mainly composed of the technical environment, the human environment and the organizational environment (Bushiri, 2014). The technological environment

creates elements for employees to perform job duties or activities, including tools, equipment, technological infrastructure, and other physical or technological elements. The human environment refers to those related to employees such as colleagues, superiors, and teams, and the organizational environment is the system, procedures, values and philosophies of the enterprise.

Digital transformation will change the work environment of employees, but does the attitude of employees change when working in this new altered environment? This can serve as an influencing factor to support the study of the relationship between digital transformation and job satisfaction.

4) Job performance

The definition of Malkanthi and Ali (2016) states that job performance is directly linked to employee productivity, which is represented by the number of acceptable quality units produced by an employee in a manufacturing environment within a given time period. Similarly, Boakye (2015) defined job performance as the accomplishment of a given task measured against preset known standards of accuracy, completeness, cost, and speed, which is a common view in many organizations, who often link job performance with employee rewards to motivate employees to work harder.

Digital transformation can help organizations or individuals to improve their job performance and helps to determine which aspects of ZCF's transformation process are more or less effective in terms of job performance improvement.

5) Work-life balance

Brough et al. (2020)’s definition of work-life balance is the extent to which a person is engaged and satisfied with his or her work role and family role. Equal time, engagement and satisfaction in the individual's work and non-work roles are integral to this definition. In Sirgy and Lee (2018)’s study of work-life balance, four more detailed features were identified: 1) In the whole role system of a person, there is a tendency to fully participate in the behavior of each role with a focused and caring attitude; 2) to devote approximately equal levels of attention, time, commitment or commitment to multiple roles; 3) to generate equal amounts of satisfaction in work and non-work role areas; 4) to distribute time and mental energy in a balanced way in work

and non-work life while being able to obtain a great deal of satisfaction from work and non-work life.

Work and life are not two conflicting areas, but two parts that can complement and promote each other. Comparing the work-life balance before and after digital transformation can help us to analyze whether and where digitalization has had a moderating effect on employees' lives and work.

This study aims to analyze the impact of digital transformation on employee job satisfaction. Thus, analyzing the factors that influence employee job satisfaction is an integral part. Based on the findings of the literature review and the need for a suitable way to conduct a ZCF employee job satisfaction questionnaire, five factors that influence job satisfaction were selected for this study: 1) employee training & development, 2) employee loyalty, 3) work environment, 4) job performance, and 5) work-life balance.

2.3 Demographic characteristics

In this study, considering the differences in cultural backgrounds, Gender, Age, Marital status, Education, and Duration of Work (years) were selected to determine the degree of influence of these factors on employee job satisfaction. In addition, It was not allowed to investigate information related to employee income due to ZCF regulations, so income factors were not included in the study.

1) Gender

Gender is a relatively important factor in the relationship between demographic variables and employee job satisfaction. The differences between men and women in terms of family needs, work motivation, and work behavior can cause different levels of differences in their job satisfaction (Emmanuel & Agaha, 2021). In the study by Piosik et al. (2019), it was found that the difference in job satisfaction between men and women was not significant. However, when the industry in which the company operates changed, the job satisfaction of male respondents was lower than that of female respondents. Therefore, it is necessary for us to consider the effect of gender factor on job satisfaction in this study.

2) Age

It has been a common conclusion in many researches that job satisfaction increases with age. Riza et al. (2018) confirmed the finding of a positive relationship between the age of employees and their job satisfaction. Similarly, in the research of Ramos et al. (2021), employees with higher age had higher levels of job satisfaction because they had higher recognition and compensation as well as a greater possibility of promotion. However, Yeo et al. (2018) found that Japanese employees' job satisfaction decreased with age, which clearly contradicts the findings of the previous study. Thus, in this study there is a need to determine the relationship between age and employee satisfaction in a Thai context.

3) Education

The various levels of education of employees means that there are certain differences in the knowledge, skills, and opportunities that they possess. This all directly affects their attitudes towards their jobs. Ramos et al. (2021) argued that employers give more weight to the opinions of highly educated people, leading to a situation where highly educated employees have higher job satisfaction than less educated employees. However, the opposite situation also exists as Bernabé et al. (2017) found that highly educated people have lower job satisfaction than low educated people when they are unable to obtain the desired position. It can be seen that the educational background of an employee can directly lead to changes in his or her work environment and his / her personal expectations, thus indirectly having an impact on his / her job satisfaction. Therefore, it is necessary to consider the influence of educational factors on employees' job satisfaction.

4) Work time

Work experience refers to the level of knowledge and skills acquired by employees at work, which can be measured by the length of time employees have been at work (Rosmi & Syamsir, 2020). According to Jung et al. (2017), factors such as working hours, working years and salary have a direct positive effect on job satisfaction, as extensive experience and expertise can help employees adapt quickly to the work environment and build confidence. However, ZCF is still at an early stage of digital transformation. The need still exists to explore whether employees with different

levels of work experience (measured in years) have different perceptions of job satisfaction during the transformation process.

5) Marital status

In regard to employees' marital status, married employees hold higher levels of job satisfaction than single employees (Hoboubi et al., 2017). This may be because single employees are less certain about their current job and wonder if they should invest in this job to maintain stability. Ali et al. (2018) also confirmed that married employees have higher job satisfaction and are more cooperative, dedicated, engaged, and committed than single employees. It can be seen that married employees tend to be more stable in their current jobs and thus have a more focused approach to their work. As a result, the impact of the marital status of employees on job satisfaction in the context of the company's digital transformation needs to be explored.

2.4 State-owned companies

China has the largest system of state-owned assets in the world (Jin et al., 2022). Over the past 40 years, China's state-owned enterprises (SOEs) have helped the Chinese economy grow by leaps and bounds (Lin et al., 2020), which is evidence of the importance of SOEs to China's market economy.

SOEs in China can be divided into two types, traditional SOEs and reformed SOEs (Kai, 2008). A traditional SOE serves as an institution that controls the allocation of national resources (including natural, financial and human resources) in order to achieve a rational allocation of national resources and to help achieve specific development goals. Even now, traditional SOEs continue to play an important strategic function for China (Leutert, 2020). Through the redistribution of resources, investments in infrastructure are made to the poorer provinces in the interior of China in order to better drive local economic development. Since China's reform and opening up in 1978, most SOEs have been gradually transformed into modern public-private enterprises in order to improve the efficiency of market competition. This change brings two benefits, reducing the burden of government costs associated with inefficient SOEs on the one hand, and creating opportunities for private sector participation and expansion on the other (Garnaut, 2018). Finally, while all of these transformations have been successful in improving the economic performance of the enterprises, the social and political

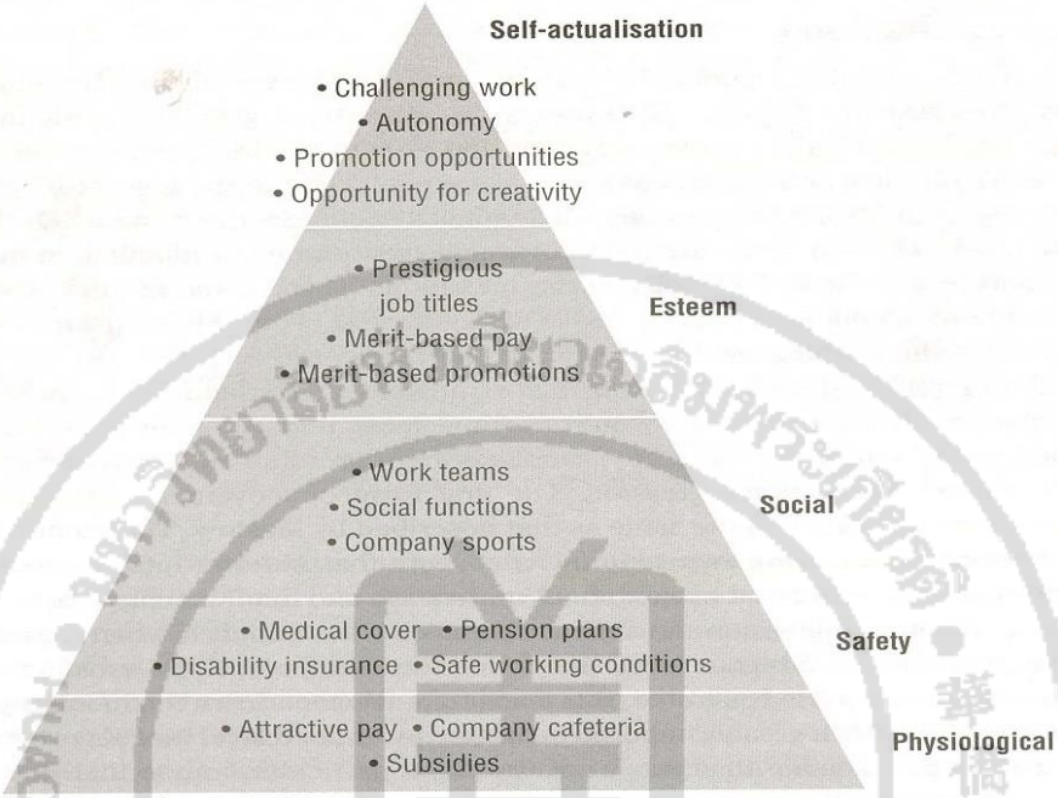
mission of these SOEs has diminished as the incentive system, management, and equity structure within these enterprises has changed. The difference between reformed SOEs compared to private enterprises is the amount of state shareholding.

ZCF is a traditional state-owned enterprise in China's tobacco manufacturing industry. According to the Chinese government's Tobacco Monopoly Law of the People's Republic of China, the China Tobacco Control Board is authorized to operate all aspects of China's tobacco industry, including tobacco cultivation, tobacco leaf purchase and distribution, the production and distribution of cigarettes, cigars and other tobacco products, and the import and export business of China's tobacco industry. Thus, all business activities in the tobacco industry are delegated by the Chinese government to the China National Tobacco Corporation (He et al., 2013). Consequently, tobacco resources are completely monopolized by the Chinese government, and this centrally planned model is more conducive to managing China's huge tobacco industry.

2.5 Maslow's Hierarchy of Needs

People's actions are always accompanied by some goals, and they start from their own needs and take actions to meet such needs in order to achieve this goal. A widely recognized theory on needs is Maslow's Hierarchy of Needs, which was developed by the famous psychologist Abraham Harold Maslow (1908-1970) in the 1940s. Maslow believed that people would be motivated by the satisfaction of their own needs, but there is a hierarchy of people's needs. According to Maslow's Hierarchy of Needs theory, these needs are ranked from the bottom of the hierarchy up (see Figure 1), in order: physiological needs, security needs, social needs, respect needs, and self-actualization needs. If there are unmet low-level needs, the person's thoughts, actions, and existence are dominated by such needs until they are met. After the lower-level needs are satisfied, the next level of needs will emerge in daily life. Consequently, the motivational effects people receive can vary depending on their hierarchical level of needs (Hansia, 2009; Zalenski & Raspa, 2006).

Figure 1 Model of Maslow's Hierarchy of Needs



Reference: Hansia, 2009

2.5.1 Maslow's Hierarchy of Needs and Job Satisfaction

Bringing employees' job satisfaction into Maslow's Hierarchy of Needs theory, it can be found that physiological needs include employees' needs for clothes, food, and shelter, which can be satisfied by the organization's salary and benefits. Safety needs include job safety and job security, which can be met by strengthening the construction of a safe and comfortable working environment and various types of insurance. Social needs generally refer to a person's need to establish good feelings or relationships with other people or organizations, such as good collegial relationships, a sense of belonging to the organization, and so on. A further level of needs is respect needs, which can be divided into personal respect/recognition for self and respect/recognition from others or the organization, but in general, both types of respect needs are inseparable from the employee's personal achievements and status. The most advanced need is the self-actualization need, and employees with this need are often

more willing to look for opportunities to achieve their maximum potential, so as to pursue more challenging work tasks.

Usually, people will consider pursuing higher level needs only after they have addressed the most basic lower level needs, and, based on Champoux's viewpoint cited by Hansia (2009), most people who work satisfy the lowest level physiological needs and security needs, but there remain higher level needs that are not met, which often have a negative impact on employees' job satisfaction. When employees' job satisfaction is low, it can lead to a series of problems such as higher probability of employee turnover (Fahr, 2011). However, some companies do not know what causes this situation, so the connection between Maslow's Hierarchy of Needs theory and job satisfaction needs to be investigated to analyze the factors affecting employees' job satisfaction at the level of their needs, to identify the causes of the problem at the root, and to provide opportunities to meet their needs as much as possible.

2.6 Lewin's Change Model

Lewin's Change theory was developed by Kurt Lewin, a psychologist in the 1940s, and involves a change management model called Lewin's Change Model, which applies to individual, group, and organizational change and explains the three main stages involved in moving from the current state to the desired future state, namely "unfreeze-change-refreeze" (Kaminski, 2011).

The first stage is "unfreezing". When faced with the stimulus of a new reality, organizations have a variety of questions: Will the new technology or model reorganize the existing market order? Will the organization be able to maintain a competitive advantage under the old model of operation? Will these new things bring greater benefits to the organization in the future? In the face of many such questions, organizations must be aware of the importance and urgency of change, especially when they are constrained by the old paradigm to move forward. The active involvement of all affected parties, including employees and senior management, in the change process is the most important factor for effective change (Levasseur, 2001). The "unfreezing" of organizational change is only achieved when everyone breaks with and tries to change the current work behaviors that have been solidified.

The second phase is "change". This is the period when the main objective is to make change happen, where the leader needs to constantly show the direction of the change, maintain active communication and a sense of cooperation among the affected parties, and motivate the participants to develop new thoughts, feelings and behaviors. Clearly, this period is also one of the most time-consuming and costly for the organization, with the development or introduction of new systems, the reorganization or improvement of structures and processes, and additional corporatist training, all of which the organization must go through. However, with continuous learning and practice, this phase will yield the greatest results for the organization (Levasseur, 2001; Kaminski, 2011).

The final stage is "refreezing," which Schein (1996) argued means that the new behavior must be somehow consistent with the learner's other behaviors and personality, otherwise it will lead to forgetting what has been learned and trigger a new round of inconsistency. In other words, during this phase, both the organization and the individual should establish new habits or processes of action based on "change" so that it becomes the normal standard operating procedure. This is an ongoing phase that lasts until the organization faces the next period of "unfreezing" (Kaminski, 2011).

2.6.1 Lewin's Change Model and Digital Transformation

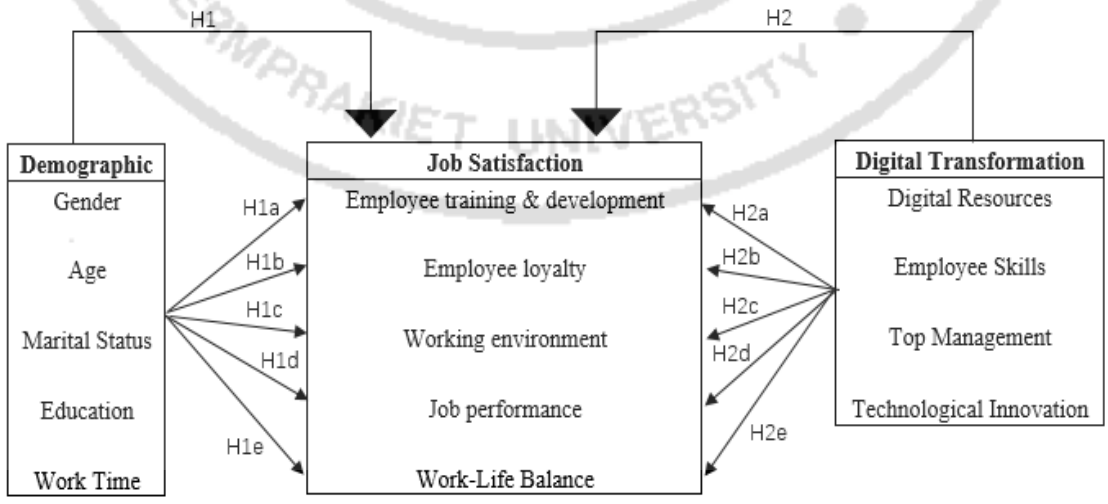
The way digital technology in used our personal lives, work, and society has changed the face of business, and the process is ongoing (Demirkan et al., 2016). If organizations want to survive, then digital transformation is the best option. Digital transformation is a specific form of organizational transformation based on the implementation of information systems (IS) (Chanias, 2017), so this also naturally involves the application of Lewin's Change Model.

With the emergence of new digital technologies, many organizations are now under pressure to change in order to meet customer needs and competitive pressures (Tolboom, 2016), and it is clear that they have a vague sense that the current organizational model is "outdated" and must be changed to bring about growth opportunities for the organization. This is when organizations enter the "thawing" phase. Mobile devices, which connect billions of people together, have the ability to process, store, and access knowledge through intelligent machines, all of which present huge opportunities for organizations. Entrepreneurs and executives are aware of this,

and organizations must adapt to these changes if they do not want to be left behind by the growth of their industry and their competitors (Demirkan et al., 2016; Wang, 2015). Vial (2019) saw digital transformation as a blend of information, computing, communication, and connectivity technologies that trigger significant changes in attributes that improve the entity's process. Thus, in a sense, digital transformation and the "change" phase of Lewin's Change Model are the same thing, and for organizations that are still in the old model, the introduction or development of these new technologies and their application in operational processes is what they need to go through. However, the reality is much more complex and some organizations will have more factors to change during this phase, including but not limited to business activities, processes, capabilities, and models, among others (Demirkan et al., 2016). Some of the more successful examples of digital transformation are currently companies such as Google, Netflix, Amazon and Apple and they are already at a very high level (Tolboom, 2016). Digital transformation has brought them a new operating model and continues to enhance their influence in the world. By employing Lewin's Change Model, it is easier to locate the current digital transformation stage of ZCF, thereby helping us to make targeted recommendations more effectively to improve employee job satisfaction.

2.7 Theoretical Framework and Hypotheses

Figure 2 Theoretical Framework



H1: Differences in employee sample characteristics have an impact on emplyees job satisfaction.

H1a: Demographic variables have an impact on employee training & development.

H1b: Demographic variables have an impact on employee loyalty.

H1c: Demographic variables have an impact on working environment.

H1d: Demographic variables have an impact on job performance.

H1e: Demographic variables have an impact on work-life balance.

H2: Digital transformation has a positive impact on employee job satisfaction.

H2a: Digital transformation variables have an impact on employee training & development.

H2b: Digital transformation variables have an impact on employee loyalty.

H2c: Digital transformation variables have an impact on working environment.

H2d: Digital transformation variables have an impact on job performance.

H2e: Digital transformation variables have an impact on work-life balance.

Table 1 Digital Transformation literature review

No	Author(s)&Year	Title of Paper	Methodology	Main Findings/Outcome	Limitation/Gaps in Literature	TBLScope
1	Stolterman, E., & Fors, A. C. (2004)	Information technology and the good life	Propose concepts based on past theories and the current integration of information technology and life	Based on continuously developing technical experience and theory, this paper puts forward the concept of digital transformation and the related concepts of its critical base.	Most of the content only stays in the theoretical stage, and more relevant data are needed to verify it.	Information technology
2	Kohli, R., & Johnson, S. (2011).	Digital Transformation in Latecomer Industries: CIO and CEO Leadership Lessons from Encana Oil & Gas (USA) Inc.	Based on the method of qualitative research, the research and analysis were carried out with the case of Encana Oil & Gas Company in the USA.	The article took the American company Encana Oil & Gas as a case sample, studies and analyzed its various measures in the process of digital transformation, in order to summarize the experience that can be used for reference.	The sample used in this article was only companies in a single industry, and its conclusions may not be broadly applicable to other industries.	Digital transformation

Table 1 (Continued)

No	Author(s)&Year	Title of Paper	Methodology	Main Findings/Outcome	Limitation/Gaps in Literature	TBLScope
3	Nieminen, J. (2014)	*Understanding & Managing Digital Transformation–A case study of a large Nordic retailer*	Based on qualitative research methods, combined with a systematic literature review, and 15 semi-structured interviews with middle and senior management of a large retailer	Digital transformation can be divided into five different stages to help understand this phenomenon. The five phenomena are as follows: 1 Denial2. Confusion3. First Steps4. Re-organization5. Systematic Execution	Since the findings are based on studies from a single organization, there are certain limitations, so more research data are needed to verify their generalizability	Digital transformation
4	Westerman, G., Bonnet, D., & McAfee, A. (2014).	The nine elements of digital transformation	Based on qualitative research methods, research was conducted with the executives of various companies	The three areas of customer experience, operational processes and business models are the keys to digital transformation. These three areas also include three elements, making a total of 9 elements. The changes in the 9 elements are all conducive to promoting the digital transformation of enterprises.	Most of the companies in the research sample above were in the process of practice and had not achieved perfect results	Digital transformation

Table 1 (Continued)

No	Author(s)&Year	Title of Paper	Methodology	Main Findings/Outcome	Limitation/Gaps in Literature	TBLScope
5	Demirkan, H., Spohrer, J. C., & Welser, J. J. (2016).	Digital innovation and strategic transformation	A comparative study based on the case experience of different companies	Enterprises can gain competitive advantage through digital transformation and innovation	The research on theories and examples in this paper only covered the surface of the problem, which needs further research, such as the influence variables or the relationship between them.	Digital transformation
6	Tolboom, I. H. (2016).	The impact of digital transformation.	Based on quantitative research methods, quantify information about the impact of digital transformation on organizations to conduct research and analysis.	Digital transformation has the greatest impact on the organization's value proposition and will change the organization in many different fields in the future, because in most business model structures, at least one element will change moderately or more strongly in the trend of digital transformation.	The data sources were too single, the conclusions are not applicable in scope, and may be affected by the subjectivity of the respondents.	Digital transformation

Table 1 (Continued)

No	Author(s)&Year	Title of Paper	Methodology	Main Findings/Outcome	Limitation/Gaps in Literature	TBLScope
7	Mićić, L. (2017).	Digital transformation and its influence on GDP	Comparing countries in the Western Balkans by reviewing digital transformation and high-tech entrepreneurship in Europe	The increase of digital transformation investment can have a positive impact on economic growth and key indicators such as GDP, productivity and employment	The data of the research samples were from developed countries such as in Europe, and it is uncertain whether the conclusion is also applicable to low-income countries	Digital transformation
8	Clohessy, T., Acton, T., & Morgan, L. (2017).	The impact of cloud-based digital transformation on ICT service providers' strategies	Combined with comparative research cases and qualitative research methods, semi-structured interviews were conducted with senior personnel of 15 ICT service providers for comprehensive research	Cloud based digital transformation has an impact on the strategy, agility and competitive positioning of ICT service providers	The research results were based on a purposeful small sample of 15 companies, and there were difficulties in large-scale promotion	Digital transformation

Table 1 (Continued)

No	Author(s)&Year	Title of Paper	Methodology	Main Findings/Outcome	Limitation/Gaps in Literature	TBLScope
9	Chanias, S. (2017).	Mastering digital transformation: the path of a financial services provider towards a digital transformation strategy.	Used a case study method to study the formation of digital transformation strategy from the perspective of enterprise process / activity	Digital transformation strategy is formed through various contingency strategic activities before top management introduces a holistic approach, this is a bottom-up process.	The research results are not generalizable, and it is necessary to further verify whether these results are also applicable to organizations with different characteristics	Digital transformation
10	Davenport, T. H., & Westerman, G. (2018).	Why so many high-profile digital transformations fail.	This article adopts the case comparison research method, using a large number of company cases for comparative analysis	In the wave of innovation in information technology, executives' understanding of the role of new technologies and their impact on markets, products/services and distribution channels can help executives make the right decisions to a large extent, which is beneficial for business success in digital transformation	The theory of the article lacks certain data support, and there may be some theoretical deviations	Digital transformation

Table 1 (Continued)

No	Author(s)&Year	Title of Paper	Methodology	Main Findings/Outcome	Limitation/Gaps in Literature	TBLScope
11	Liere-Netheler, K., Packmohr, S., & Vogelsang, K. (2018).	Drivers of digital transformation in manufacturing.	12 interviewers were interviewed based on qualitative research methods	In the study of manufacturing companies, the article found 12 factors driving digital transformation.	There is potential for further refinement of the findings, such as subsequent studies using quantitative or case study methods.	Digital transformation
12	Aguiar, T., Gomes, S. B., da Cunha, P. R., & da Silva, M. M. (2019, October).	Digital transformation capability maturity model framework.	This paper used the design scientific research method and combined the ISO / IEC 330xx structure standard series to build the model framework	The article developed a digital transformation capability maturity model framework that assesses an enterprise's digital capabilities. This model framework can help companies to improve and build better plans.	The maturity of the research model is low, and there is a lack of data for verification and evaluation	Digital transformation
13	Ulas, D. (2019).	Digital transformation process and SMEs	Observe the performance of SMEs in the Turkish manufacturing industry in the process of digital development and draw conclusions.	It proposes 19 driving factors that can promote the digital transformation of enterprises, and lists the programs and software that small and medium-sized enterprises can benefit from digital transformation.	The results obtained are more in theory and need more practice to test	Digital transformation

Table 1 (Continued)

No	Author(s)&Year	Title of Paper	Methodology	Main Findings/Outcome	Limitation/Gaps in Literature	TBLScope
14	Krhač Andrašec, E., Urh, B., Senegačnik, M., & Kern, T. (2021).	Implementation of the Digital Sales Channel in the Coatings Industry.	A mixed quantitative and qualitative research approach was used to study 18 plus paint companies in the European Union.	The article designed a detailed process model using structured interviews and analyzed the model using structural and operational metrics. Finally, a new digital sales process was formed, and it was verified that this sales process can be shortened by up to 32% compared to the personal sales process.	The study only focused on analyzing the use of digital sales channels throughout the logistics chain of the coatings industry.	Digital sales channels
15	Ahmad, A., Alshurideh, M., Al Kurdi, B., Aburayya, A., & Hamadneh, S. (2021).	DIGITAL TRANSFORMATION METRICS: A CONCEPTUAL VIEW.	Through literature analysis and case study methods, identify and determine the influencing factors involved in the digital transformation of enterprises.	The article builds and provides a framework of factors influencing an organization's digital transformation, including six metrics. Finally, it explains how the knowledge of these digital indicators can be used to benefit the entire digital transformation process.	The conclusions are still at the theoretical stage and require a large number of subsequent experiments to verify their effectiveness.	Digital transformation

Table 1 (Continued)

No	Author(s)&Year	Title of Paper	Methodology	Main Findings/Outcome	Limitation/Gaps in Literature	TBLScope
16	Zhang, X., Xu, Y., & Ma, L. (2022).	Research on successful factors and influencing mechanism of the digital transformation in SMEs.	Based on quantitative analysis methods, a questionnaire was sent to the owners or managers of 180 enterprises to collect data.	Technology and environment can ultimately lead to the success of digital transformation by promoting the improvement of organizational capabilities, in which organizational capabilities play a mediating role.	Considering the influence of regional culture and other factors, the research results may not be universal. And, the influence of the relationship between more different factors can be considered in future research.	Digital transformation

Table 2 Job Satisfaction literature review

No	Author(s)&Year	Title of Paper	Methodology	Main Findings/Outcome	Limitation/Gaps in Literature	TBLScope
1	Hackman, J. R., & Oldham, G. R. (1975).	Development of the job diagnostic survey.	Based on quantitative research methods, data were collected from 658 employees in 62 different job positions in 7 organizations for analysis.	Launched the Job Diagnostic Survey (JDS) tool, which can diagnose employees' existing jobs and assess the impact of job changes on employees, and also provides related assessment dimensions for job satisfaction.	JDS tools have prerequisites like literacy requirements, jobs that are not suitable for diagnosing a single individual, etc.	Job satisfaction
2	Hirschfeld, R. R. (2000).	Does revising the intrinsic and extrinsic subscales of the Minnesota Satisfaction Questionnaire short form make a difference?	Based on a quantitative research approach, data were collected from two samples of full-time employees at the headquarters of a Fortune 200 financial services firm and full-time staff at a university enrolled in graduate and undergraduate studies	Modification of the intrinsic and extrinsic subscales of the Minnesota Satisfaction Questionnaire in short form did not have a significant impact on the results obtained	-	Job satisfaction

Table 2 (Continued)

No	Author(s)&Year	Title of Paper	Methodology	Main Findings/Outcome	Limitation/Gaps in Literature	TBLScope
3	Shim, S., Lusch, R., & O'Brien, M. (2002).	A hierarchical model of values, leadership, job satisfaction and commitment: Human resources management implications for the retail industry.	By constructing a hierarchical model, questionnaires were distributed to 1400 managers nationwide, and 205 questionnaires were finally collected and analyzed based on the above data.	The influence chain of personal values→leadership style→job satisfaction→organizational commitment is confirmed.	The hierarchical model needs to be further refined, introducing structures such as role conflict, role overload, and role ambiguity.	Human Resources Management
4	Statt, D. A. (2004).	*The Routledge Dictionary of Business Management*.	-	Provide a more detailed explanation of all business terms	-	Business terms explained
5	Kamal, Y., & Hanif, F. (2009).	Pay and job satisfaction: A comparative analysis of different Pakistani commercial banks.	Questionnaires were distributed to executives of three commercial banks for data collection based on quantitative research methods	By changing organizational variables, such as pay grades, employee input in policy development, work environment, etc., organizational commitment can be increased, which will further increase employee commitment and satisfaction	Insufficient sample size, so conclusions may not be representative of most groups	Job satisfaction

Table 2 (Continued)

No	Author(s)&Year	Title of Paper	Methodology	Main Findings/Outcome	Limitation/Gaps in Literature	TBLScope
6	Fahr, R. (2011).	Job design and job satisfaction—empirical evidence for Germany?	Analytical studies were performed using data from the German Socio-Economic Panel (SOEP) for 2001 based on quantitative analysis.	Employees with high job satisfaction who work in enriched workplaces are positively associated with high productivity, regardless of whether they adapt to those workplaces based on preferences or characteristics	Considering that the sample data all come from a single country and region, it is uncertain whether the conclusions are applicable to other countries and regions or people with different cultural factors.	Job satisfaction
7	Sowmya, K. R., & Panchanatham, N. (2011).	Factors influencing the job satisfaction of banking sector employees in Chennai, India.	Based on quantitative research methods, questionnaires were distributed to employees of 8 public sector banks and 5 new private sector banks to collect data	Compensation, promotion, job suitability, working conditions, and employee relations are all major factors that affect employee job satisfaction. And employees have a significant tendency toward optimistic supervisory behavior and pleasant organizational structure.	The relevant theory used to support the research is slightly insufficient	Job satisfaction

Table 2 (Continued)

No	Author(s)&Year	Title of Paper	Methodology	Main Findings/Outcome	Limitation/Gaps in Literature	TBLScope
8	Ravari, A., Mirzaei, T., Kazemi, M., & Jamalizadeh, A. (2012).	Job satisfaction as a multidimensional concept: A systematic review study.	Systematic review of 38 articles by means of literature analysis	Job satisfaction is a multidimensional concept that includes personal abilities, attitudes, beliefs, and value systems. And employees have positive emotions and attitudes, commitment and responsibility characteristics are very important to achieve job satisfaction.	Because the research results are based on a literature analysis, it may be affected by the shortcomings of the literature itself.	Job satisfaction
9	Karabiyik, B., & Korumaz, M. (2014).	Relationship between teacher's self-efficacy perceptions and job satisfaction level.	Based on a quantitative research method, the study was conducted by collecting data from 83 teachers	There is a significant positive correlation between perceptions of self-efficacy and job satisfaction	The conclusions may not apply to people in other occupations.	Job satisfaction

Table 2 (Continued)

No	Author(s)&Year	Title of Paper	Methodology	Main Findings/Outcome	Limitation/Gaps in Literature	TBLScope
10	Neog, B. B., & Barua, M. (2014).	Factors influencing employee's job satisfaction: An empirical study among employees of automobile service workshops in Assam.	A descriptive study was used to collect data from 100 employees of 10 automakers for analysis.	Salary is the most important factor affecting employee job satisfaction. Other factors include supervisor support, good work environment, high JS (Job Security) level, work-life balance, career opportunities and promotion, and employee training and development opportunities.	The total amount of sample data is too small, and more data verification conclusions are needed	Job satisfaction
11	Waqas, A., Bashir, U., Sattar, M. F., Abdullah, H. M., Hussain, I., Anjum, W., & Arshad, R. (2014).	Factors influencing job satisfaction and its impact on job loyalty.	Based on descriptive research and quantitative analysis, an analytical study was conducted on 148 data collected on employees of different private and public institutions.	Job satisfaction is affected by factors such as job reward, job recognition, and work environment. At the same time, job satisfaction is positively correlated with job loyalty, but the relationship between decision participation and job satisfaction is not significant.	The sample data comes from a small geographic area, and the sample size is small, so it is not representative of the entire population of Pakistan	Job satisfaction

Table 2 (Continued)

No	Author(s)&Year	Title of Paper	Methodology	Main Findings/Outcome	Limitation/Gaps in Literature	TBLScope
12	Jalagat, R. (2016).	Job performance, job satisfaction, and motivation: A critical review of their relationship.	The relationship between the three variables of job performance, job satisfaction and job motivation is studied with the help of theoretical models and literature.	Job satisfaction, job performance and job motivation interact and depend on each other, making the work process circular rather than linear, and job satisfaction has a higher positive impact on employee performance.	More data are needed to verify the coverage of its theory.	Job satisfaction
13	Tsounis, A., & Sarafis, P. (2018).	Validity and reliability of the Greek translation of the Job Satisfaction Survey (JSS).	Based on quantitative research method, data collection and analysis were conducted on 239 employees engaged in drug addiction treatment of different specialties.	The findings validate that the Greek version of JSS is a valid and reliable tool for measuring job satisfaction	There are the following 4 limitations: 1. The sample size of the study is relatively small; 2. The sample data are only from employees engaged in drug addiction treatment; 3. The extent of generalization is limited; 4. The tools similar to JSS are not used to compare	Job satisfaction

Table 3 Maslow's Hierarchy of Needs literature review

No	Author(s)&Year	Title of Paper	Methodology	Main Findings/Outcome	Limitation/Gaps in Literature	TBLScope
1	Zalenski and Raspa, 2006	Maslow's Hierarchy of Needs: a framework for achieving human potential in hospice.	Using the case study method, combined with Maslow's Hierarchy of Needs Theory for analysis and research	This paper improves the palliative care needs hierarchy model based on Maslow's Hierarchy of Needs theory, which can be used to provide a comprehensive approach to assessing patients' needs and designing interventions	The research results remain in the theoretical stage and need to be verified by a lot of follow-up practice.	Health Care
2	Hansia, 2009	*Factors influencing job satisfaction*	Based on a quantitative analysis method, questionnaires were distributed to different departments of the company for data collection, in which employees and HR employees use two different questionnaires to conduct surveys.	The research results show that the most prominent factor affecting employee job satisfaction is reward (here, reward refers to economic remuneration), followed by communication between superiors and subordinates.	The sample size collected was too small, only 35 people in total, and the findings may not be generalizable.	Job Satisfaction

Table 4 Lewin's Change model literature review

No	Author(s)&Year	Title of Paper	Methodology	Main Findings/Outcome	Limitation/Gaps in Literature	TBLScope
1	Schein, E. H. (1996).	Kurt Lewin's Change theory in the field and in the classroom: Notes toward a model of managed learning.	Use descriptive research methods and qualitative research to study Lewin's Change Theory and related extended applications	This article expands on Lewin's Model of Change, discusses process consulting and clinical research, and describes a design to teach the management of planned change.	It is unclear whether its findings apply to other organizations	Change management
2	Levasseur, R. E. (2001).	People skills: Change management tools—Lewin's Change Model.	The descriptive research method is used in the article, and the explanation is based on lewin's change model combined with my own understanding.	On the basis of Lewin's Change Model, combined with theories of leadership and organizational management, it analyzes the problems that may arise in the process of organizational change.	Lack of substantial theories to support the conclusions stated	Change management
3	Kaminski, J. (2011).	Theory applied to informatics-Lewin's Change theory.	The literature research method is used to analyze and explain Lewin's change theory.	The Lewin's Change Model and related theories are analyzed and explained in detail through the literature method.	Some arguments lack relevant theory.	Change management

Table 4 (Continued)

No	Author(s)&Year	Title of Paper	Methodology	Main Findings/Outcome	Limitation/Gaps in Literature	TBLScope
4	Wang, R. (2015).	Industry 4.0 Challenges and solutions for the digital transformation and use of exponential technologies.	The article uses a mix of quantitative and qualitative methods to conduct a research analysis of Swiss-made companies	The article analyzes the main challenges faced by the Swiss manufacturing industry in realizing the digital transformation of the industry and benefiting from exponential technologies, and devises targeted solutions, including: vertical networking, horizontal integration, through-engineering and exponential technologies.	The main research area of this article focused on the Swiss manufacturing industry, and its conclusions and solutions may not be applicable to other regions and other industries.	Digital transformation
5	Vial, G. (2019).	Understanding digital transformation: A review and a research agenda.	Based on the literature research method, this article reviews and analyzes 282 literatures and summarizes them.	Digital transformation is a process in which digital technologies can disrupt the process and trigger a strategic response by companies. Businesses will attempt to change their path to value creation while managing structural changes and organizational barriers that affect both positive and negative outcomes of this process.	The main limitations include: the analysis of this article was conducted by only one researcher, subject to possible bias; the review is limited to is disciplines; the article arguments are slightly insufficient at the coverage level	Digital transformation

Table 5 Definition of Digital Transformation Influencers

Variables	Definitions	References
Digital resources	A digital resource can be defined as any computer-ready information source, usually containing valuable information and presented in text, image, simulation, video, or other interactive forms (Songer, 2007). Digital resources have unique characteristics such as editable, reprogrammable, and product agnostic (Piccoli et al., 2020)	Songer, 2007; Piccoli et al., 2020
Employee skills	According to Statt (2004), a skill is an acquired response, usually the result of specialized training that enables someone to have the ability to perform a specific task and achieve a specific goal. Thus, employee skills refer to the ability possessed by an employee to be able to accomplish a specific job task or goal. Workers with higher skills are able to handle more complex work tasks and adapt quickly to a changing environment. Employees with sufficient digital skills are important for the digital transformation of organizations (Prezioso et al., 2020).	Statt, 2004; Prezioso et al., 2020
Top management	Top management is the management of the enterprise's long-term planning, policy-making and major decisions by the highest level managers（Wrigley, 1988）. Carpenter et al. (2004) noted that because high-level managers have greater influence over strategic decisions, members of the top team often identified using the measurement heuristic of senior hierarchical level (e.g., title, position).	Wrigley, 1988; Carpenter et al., 2004

Table 5 (Continued)

Variables	Definitions	References
Technological innovation	Technology is the overall complex of knowledge, skills, practices, capabilities, equipment and engineering practices necessary to produce a product or service, and technological innovation can lead to the emergence of new or improved products in the marketplace, or to the production of a new or changed process for commercial production (Souitaris, 2003). In the definition of Chen et al. (2015), technological innovation refers to innovation in production technology, including the development of new technologies, and the application and reinvention of existing technologies. This is a complex process that starts with innovative awareness and ideas, and continues to identify and solve problems in the process in order to make them economically and socially valuable.	Souitaris, 2003; Chen et al., 2015

Table 6 Definition of Job Satisfaction Influencers

Variables	Definitions	References
Employee training	The fundamental purpose of employee training is to increase the efficiency of employees by enhancing their abilities, by learning or changing their attitudes, thereby increasing their skills and knowledge (Hughey and Mussnug, 1997; Tahsildari and Shahnaei, 2015). It is also an organized way for organizations to provide development and improvement of the quality of new and existing employees, through such interventions to enhance the technical skills of employees, thereby improving the organization's quality of goods and services in the face of fierce competition (Nda & Fard, 2013).	Hughey and Mussnug, 1997; Tahsildari and Shahnaei, 2015; Nda and Fard, 2013
Employee development	In Shelton's (2001) definition, employee development is a system that helps employees to develop or advance in their current job to achieve future goals while Harrison (2000) argued that employee development is the process of developing the knowledge, skills, and abilities of employees in an organization (Jangbahadur and Sharma, 2017) and that employers provide employees with structured learning experiences that enhance their performance and personal growth, which is long-term in nature (Tansky and Cohen, 2001) .	Shelton, 2001; Jangbahadur and Sharma, 2018; Tansky and Cohen, 2001

Table 6 (Continued)

Variables	Definitions	References
Employee loyalty	According to Mowday et al. (1982), employee loyalty is an expression of organizational commitment and is the relative strength of individual employees' identification and involvement with a particular organization (Pandey and Khare, 2012). It also refers to the willingness of an employee to make an investment or personal sacrifice in order to strengthen the relationship with the organization (Reichheld, 2003), and also loyalty to the organization, where he is convinced that working in the current organization is the best option, thus contributing to the organization to the best of his ability (Waqas et al., 2014).	Pandey and Khare, 2012; Pandey and Khare, 2012; Waqas et al., 2014
Working environment	The work environment includes two dimensions of work and background. A job includes all the different characteristics of the job, such as the way a job is performed and completed. The context includes physical and social working conditions (Raziq and Maulabakhsh, 2015). A more detailed explanation is given in the definition of Opperman (2002), where the work environment is mainly composed of the technical environment, the human environment and the organizational environment (Bushiri, 2014). The technological environment creates elements for employees to perform job duties or activities, including tools, equipment, technological infrastructure, and other physical or technological elements. The human environment refers to those related to employees such as colleagues, superiors, and teams. The organizational environment is the system, procedures, values and philosophies of the enterprise.	Raziq and Maulabakhsh, 2015; Bushiri, 2014

Table 6 (Continued)

Variables	Definitions	References
Job performance	In the definition of Malkanthi and Ali (2016), job performance is directly linked to employee productivity, evaluating the number of acceptable quality units produced by an employee in a manufacturing environment within a given time period. Similarly,Boakye (2015) defined job performance as accomplishment of a given task measured against preset known standards of accuracy, completeness, cost, and speed. And in fact, this is a common view in many organizations, which often use job performance to link with employee rewards to achieve the effect of motivating employees to work harder.	Malkanthi and Ali, 2016; Boakye, 2015
Work-life balance	In Brough et al. (2020)'s definition, work-life balance is the extent to which a person is engaged and satisfied with his or her work role and family role. Equal time, engagement and satisfaction in the individual's work and non-work roles are integral to this definition. In Sirgy and Lee (2018)'s study of work-life balance, four more detailed definitions are given: 1) In the whole role system of a person, the tendency to fully participate in the behavior of each role with a focused and caring attitude; 2) to devote approximately equal levels of attention, time, commitment or commitment in multiple roles; 3) to generate equal amounts of satisfaction in participation in work and non-work role areas; 4) to distribute time and mental energy in a balanced way in work and non-work life, while being able to obtain a great deal of satisfaction from work and non-work life.	Brough et al., 2020; Sirgy and Lee, 2018

Chapter 3
Research methodology

This chapter describes the research methodology for this study and the way in which the relevant research data were collected. It covers the population, sample size and sampling methods, data collection methods, data analysis, research quality, and the duration of the research.

3.1 Research methodology

This study was conducted by combining quantitative research methods with qualitative research methods. The quantitative research method is able to quantify and measure different variables in the form of data, and then produce results that present direct or indirect relationships between these variables (Badrianto and Ekhsan, 2020). On this basis, a questionnaire was used to collect data from the employees of ZCF. The questionnaire was based on the digital transformation of ZCF and the factors influencing employee job satisfaction. The digital transformation and employee job satisfaction issues were compiled into problem tables, which were distributed to all employees in ZCF in the form of online distribution, so as to collect relevant research data for the research.

Qualitative research is a form of social action that focuses on the ways in which people interpret and make sense of their experiences in order to understand the social reality of individuals (Mohajan, 2018). After completing the data analysis and determining the relationships between the factors, the researcher made recommendations to improve employee job satisfaction through digital transformation and conducted online interviews with five ZCF employees.

3.2 Population and sample

3.2.1 Population

The population of this study is all employees working at ZCF 2022, totaling 616 people. These can be divided into four categories according to job function: managers, technical workers, administrative clerks and logisticians. There were about

86 managers, 300 technical workers, 80 administrative clerks and 150 logisticians (Mi, 2022).

3.2.2 Samples

1) Sampling techniques

In this study, a self-selection method was employed for data collection. Self-selection sampling, as a non-probability sampling technique, is a very inexpensive and widely available way to obtain sample data in online surveys (Bhardwaj, 2019; Lehdonvirta et al., 2021). Self-selection means that respondents can choose whether to participate in the survey or not. In order to increase their willingness to participate in the survey, the number of sensitive and privacy-related questions about the respondents in the questionnaire should be minimized.

2) Sample size

In a survey research, the sample size can help us to make accurate inferences about the overall or generalized findings. Too large a sample will waste a lot of resources and time, while too small a sample will not produce decisive and reliable results (Sharma, 2020). Thus, Taro Yamane Formula: n = N / (1 + Ne2) was used to determine the minimum value of the sample size. In this formula, n represents the sample size, N represents the population size and e represents the marginal error value (Chaokromthong and Sintao, 2021). A confidence interval of 95% was employed so the error value at this point is 5%. Based on this setting and the Taro Yamane Formula for sample size calculations, the resulting value is about 243. This result shows that if the sample data are to be representative of the characteristics of the overall population, the sample size must be greater than 243.

Figure 3 Taro Yamane Formula

$$n = \frac{\mathrm{N}}{1 + \mathrm{N}e^2}$$

Reference: Chaokromthong and Sintao, 2021

3.3 Data gathering techniques.

In this research, an online questionnaire was employed for data collection. Online questionnaires are a very common form of questionnaire, with the advantages of immediate data processing, reduced fieldwork, the possibility of introducing audiovisual elements that aid understanding, and lower research costs (Borgobello et al., 2019). The questionnaire will be distributed to employees at ZCF through the medium of WeChat Questionnaire Star (APP). In addition to this, online interviews will also be conducted with five ZCF employees based on the structured interview method. The structured interview method ensures the validity, bias prevention, and reliability of the researcher in the analysis (Adhabi & Anozi, 2017) and helps to provide evidence of the effectiveness of actions in regard to enhancing job satisfaction.

A Likert scale was used to measure job satisfaction in this questionnaire. This is one of the most basic and popular attitude scales, which has the advantage of being a psychometric instrument with a simple scale construction that is easy to read, complete, and highly reliable. The scale usually uses five to seven alternatives, ranging from "Strongly Disagree" at one end to "Strongly Agree" on the other, with "Neither Agree nor Disagree" in between, and assigning them 1,2,3 ...." to facilitate subsequent calculations and statistics (Taherdoost, 2019; Yusof et al., 2019). On this basis, each employee selected the most appropriate response for the question according to his or her situation, and the scores for each question were summed to yield a total score. The aggregated scores will indicate the strength or weakness of the employees' attitudes and opinions for each level of agreement/disagreement.

3.4 Data analysis

After collecting the data, the sample data were organized and summarized based on statistical analyses such as frequency, mean, and regression. Regression analysis according to Lin et al. (2021), refers to the use of statistical data to analyze the quantitative changes of various variables, and to reflect and describe any relationships in the form of regression equations. The reasons for selecting regression analysis are as follows: a. Regression analysis can help us calculate whether an independent variable or a group of independent variables has a significant relationship with a dependent variable; b. Regression analysis can more easily calculate the relative strength of the

influence of different independent variables on the dependent variable; c. Make predictions (Sarstedt and Mooi, 2018).

Regression analysis can be divided into univariate linear regression analysis and multiple linear regression analysis according to the number of dependent and independent variables. Univariate linear regression analysis only includes one independent variable and one dependent variable, and the relationship between the two can be approximated by a straight line, while multiple linear regression analysis includes two or more independent variables (Lin et al., 2021; Nataraja, 2018). As discussed in the literature review, the variables in this study are more than two, so a multiple linear regression analysis is employed to determine the relationship between digital transformation and employee job satisfaction. Poorly performing items were then identified, such as those with low means, to create a revised interview questionnaire. The interviewees' responses were used to understand their perceptions and knowledge of different variables, and to summarize and analyze the interview transcripts to make recommendations for the improvement of digital transformation and employee job satisfaction.

3.5 Research quality

3.5.1 Reliability

In this study, Cronbach's alpha is used to assess the reliability of the questionnaire items. Cronbach's alpha is widely used as a tool to assess the reliability of questionnaire data and generally varies between 0 and 1 (Bujang et al., 2018). Before the official distribution of the questionnaire, a smaller sample size of 30 should be used to conduct the experiment. When the alpha value is within the interval value of 0.6 to 1, it indicates that the questionnaire has high reliability, but if the alpha value is below the minimum value of 0.6, it indicates that the data reliability is relatively low and therefore cannot be used (Yap et al., 2018).

3.5.2 Validity

The validity of the questionnaire reflects whether the questionnaire items are well designed and can effectively reflect the research objectives of this study. After the completion of the design of the questionnaire, an expert, who is a senior person in the field of human resource management research, will be invited to conduct a

comprehensive inspection on the rationality of the questionnaire items. Based on her professional suggestions, any unsuitable questions will then be revised in the questionnaire, and it will be finalized.

3.5.3 Ethical issues

In regard to religious, cultural and political factors, the questionnaire was designed to avoid sensitive information to protect the rights of the respondents. Moreover, all information collected through the questionnaire will be kept strictly confidential. The data will be used only for the research analysis of this study and will not for any commercial interest or wrongful act. The above guarantees are repeated in the questionnaire introduction so that the respondents can provide real and effective data for the research while maintaining trust in us. This thesis proposal will be examined and approved by Huachiew Chalermprakiet Research Ethical Committee, and the researcher will fully comply with the relevant regulations.

3.6 Duration of the Research

The following table shows the time planning for this study:

Table 7 Duration of the research

Activity	In 2022				
	May	June	July	August	September
1. Preparation/Pan	_____				
2. Design proposals and questionnaires		_____			
3. Distribute questionnaires, collect data and analyze data			_____	_____	
4. Discuss research results					_____

3.7 Conclusion

This study was based on a quantitative and qualitative research method. An online questionnaire is first used to collect relevant data. The required sample size was calculated using the Taro Yamane Formula, and the result was 243. Before the questionnaire was officially distributed, experts were invited to check the validity of

the questionnaire items and to test the reliability of the questionnaire by distributing a smaller sample size of 30 copies. If the Cronbach's alpha value is above 0.6, a questionnaire with the remainder of the sample will be distributed to collect data, but if the Cronbach's alpha is below 0.6, the researcher will modify the questionnaire and then repeat the above steps so as to ensure the validity of the questionnaire. The data will finally be analyzed using multiple linear regression analysis for the purpose of determining whether the digital transformation of companies has an impact on employee job satisfaction. Finally, online interviews will be conducted with five ZCF employees to collect opinions on job satisfaction improvement.

Chapter 4
Data Analysis

4.1 Reliability of Questionnaire

Before proceeding with the data analysis, a reliability test needs to be performed on this questionnaire. Table 8 shows the results obtained after the test using Cronbach's alpha, and it can be seen that the alpha value of the whole questionnaire is at 0.985, which is greater than 0.6. This indicates that the reliability of this questionnaire is very high, and therefore further correlation analysis can be performed.

Table 8 Cronbach's Alpha test

Reliability Statistics	
Cronbach's Alpha	N of Items
0.985	30

4.2 Descriptive Statistical Analysis

4.2.1 Participant Demographic Content

Table 9 Demographic Statistics

	Items	**Frequency**	**Percent**
Gender	Male	211	81.2
	Female	49	18.8
Marital status	Unmarried	69	26.5
	Married	188	72.3
	Divorced	3	1.2
Age	21-30	57	21.9
	31-40	48	18.5
	41-50	96	36.9
	51 and above	59	22.7

Table 9 (Continued)

	Items	Frequency	Percent
Education	Junior college	129	49.6
	Bachelor	102	39.2
	Master	18	6.9
	PhD	11	4.2
Work years	Less than 5	38	14.6
	5-10	47	18.1
	11-15	31	11.9
	16 and above	144	55.4

Table 9 shows the demographic data of the participants in the survey (n=260), which includes gender, marital status, age, education, and working age. From the table, 81.2% of the participants were male with 211 participants while there were only 49 female participants, which means that the results of this survey will be dominated by male employees. In terms of marital status, there were 188 married people, accounting for 72.3%, followed by 69 unmarried employees, and only a few employees who were divorced. In terms of age structure, the majority of employees were between 41-50 years old, followed by 51 years old or above. In terms of educational background, the majority of employees were college and bachelor degree holders, at 49.6% and 39.2% respectively, with only a few employees with higher education. Finally, more than half of them have been working in ZCF for 16 years or more which suggests that the loyalty of the employees is relatively high.

4.2.2 Mean and Standard Deviation for Each Variable

In this section, the mean and standard deviation of each variable were examined and analyzed. These variables include: Digital Resources, Employee Skills, Top Management, Technological Innovation, Employee Training & Development, Employee Loyalty, Working Environment, Job Performance and Work-Life Balance.

Table 10 Mean and Standard Deviation for each variable

	Variable	Mean	S. D.
Digital Transformation	Digital Resources	3.76	1.07
	Employee Skills	3.82	1.03
	Top Management	3.83	1.02
	Technological Innovation	3.89	1.06
	Employee Training & Development	3.91	1.01
Job Satisfaction	Employee Loyalty	3.96	1.02
	Working Environment	3.94	1.02
	Job Performance	3.89	1.00
	Work-Life Balance	3.89	1.01

Table 10 shows the mean value for each factor. It can be seen that the highest mean value is 3.96 for employee loyalty,, which supports the inference made above that ZCF employees have a high level of loyalty. In second and third places are Working Environment and Employee Training & Development, with mean values of 3.94 and 3.91, respectively. Technological Innovation, Job Performance and Work-Life Balance were found to have the same mean value of 3.89. The last three were 3.83 for Top Management, 3.82 for Employee Skills and 3.76 for Digital Resources.

Table 11 Descriptive Results for Digital Resources

Item	Mean	S. D.
The enterprise has sufficient resources to ensure the implementation of the digital transformation strategy.	3.68	1.27
Enterprises can quickly obtain resources such as production information from various digital channels.	3.78	1.21
Enterprises can effectively avoid big data traps and extract useful data information.	3.79	1.21
Do you feel that the enterprise has professional competence of digital resource management team?.	3.77	1.19

Table 11 shows the mean values for each item in the digital resources area for the employees who completed this questionnaire. The highest mean value was 3.7923 for the ability of companies to effectively avoid big data traps and thus extract useful data information. The lowest mean value of 3.6846 was for having sufficient resources to secure the implementation of their digital transformation strategy. This shows that ZCF has a relatively good ability to extract information from digital resources, but it is not enough to ensure the smooth digital transformation in the enterprise's own digital resource reserve.

Table 12 Descriptive Results for Employee Skills

Item	Mean	S. D.
There are a large number of digital professionals in the enterprise.	3.8	1.24
Enterprise are placing great emphasis on the digital capabilities of their employees.	3.8	1.19
Employee digital skills create higher performance for teams.	3.84	1.18
Employees are proficient in using various data algorithms to analyze and mine data information.	3.83	1.2

Table 12 shows the mean value for each item in the area of employee skills for the employees surveyed. It is clear that employees are more likely to agree that digital skills can create higher performance for their teams, with the highest mean value of 3.84. This illustrates how employees' digital skills can indeed advance the progress of digital transformation by improving the performance capabilities of the team. The mean values for the two areas of corporate digital talent ownership and the value for employees' digital capabilities were the lowest, both at 3.80. As a result, ZCF still needs to strengthen its focus on the digital capabilities of its employees and recruit more digital talents to drive the digital development of the company.

Table 13 Descriptive Results for Top Management

Item	Mean	S. D.
Corporate executives are open and transparent in the formulation and implementation of digital transformation strategies.	3.8	1.21
Corporate executives are often able to provide various facilities such as digital devices, appropriate software to support the development of digital transformation.	3.88	1.12
Corporate executives can effectively coordinate the contradictions and conflicts between different departments in the process of digital transformation.	3.85	1.12
Corporate executives have a positive attitude in the construction and management of digital environment or culture.	3.81	1.22

Table 13 shows the means of the surveyed employees for each item in terms of top management. Employees had the highest level of agreement that the company can provide various digital facilities, with a mean value of 3.88. Conversely, employees had the lowest level of agreement that ZCF is transparent about the development and implementation of its digital transformation strategy, with a mean value of 3.80. Thus, ZCF is more inclined to optimize various production or management facilities at the top management level to advance the digital transformation of the whole enterprise.

Table 14 Descriptive Results for Technological Innovation

Item	Mean	S. D.
The current technological innovation capability of the enterprise can provide a solid foundation for the digital transformation of the enterprise.	3.9	1.2
The technological innovation planning of enterprises is closely integrated with the development of digital transformation.	3.86	1.2
Technological innovation has accelerated the process of enterprise digitalization.	3.88	1.17
Technological innovation provides more developing directions for enterprise digitization.	3.93	1.21

In Table 14, the mean value for each item in terms of technological innovation is presented. The employees have the highest recognition that technological innovation can provide more development direction for the company's figures, with a mean value of 3.93. However, companies had the lowest mean value of 3.86 for closely aligning their innovation planning development with digital transformation. Thus, the impact of technological innovation factors on ZCF's digital transformation is more in terms of being able to provide more direction to the company.

Table 15 Descriptive Results for Employee Training & Development

Item	Mean	S. D.
Enterprises have clear goals and planning for the development of digital capabilities of employees.	3.88	1.2
Enterprises provide employees with adequate and professional digital skills training.	3.83	1.17
The employee is able to apply the new skills/knowledge from training to perform their work efficiently.	3.95	1.11
The enterprise can create a better career path for employees or opportunities for more career development.	3.99	1.13

Table 15 shows the mean value for Employee Training & Development for each of the programs surveyed. The majority of participants believed that ZCF has created a better career path or more opportunities for them to develop their careers, with a mean value of 3.99. However, the lowest mean value of 3.83 was for companies to provide adequate and professional digital skills training for their employees. This shows that ZCF does provide better career paths and opportunities for its employees, but its work on digital skills training for employees still needs to be improved.

Table 16 Descriptive Results for Employee Loyalty

Item	Mean	S. D.
Do you think the enterprise is offering you the prospect future with digital transformation?	3.92	1.16
Do you think that your team is working well with high commitment? Such as they will not leave work even if they have to stay late or work on holidays.	3.97	1.17
Recently, most employees stay with the enterprise and the turnover rate is low.	4.02	1.13
Do you feel a sense of achievement in your contribution to the digital transformation of the company?	3.92	1.19

Table 16 shows the mean value for each item on employee loyalty for the employees surveyed. The majority of respondents agreed that they would like to stay at the company and that the turnover rate was low, with a mean value of 4.02. In second place was the respondents' belief that their team can work well with high commitment, with a mean value of 3.97. As a result, ZCF employees have a high level of employee loyalty, and this result is due to ZCF's high organizational commitment.

Table 17 Descriptive Results for Working Environment

Item	Mean	S. D.
The digital transformation of the enterprise provides employees with better work equipment.	3.99	1.13
Digital facilities improve worker safety at work.	3.91	1.16
The workflow of employees has been better optimized.	3.91	1.16
Changes in work environment and patterns play a positive role in job coordination among employees.	3.93	1.17

Table 17 shows the mean value for each item in the Working Environment category. It can be seen that the respondents are more likely to agree that the digital transformation of the company provides them with better working facilities, with a mean value of 3.99. However, the lowest mean value was 3.91 for improving job security and optimizing workflow. Therefore, although ZCF has provided better working equipment in the digital transformation, this equipment is not very obvious in terms of work safety and workflow optimization.

Table 18 Descriptive Results for Job Performance

Item	Mean	S. D.
The performance appraisal standards of employees have become more reasonable and standardized.	3.9	1.08
Employees can easily complete the previously difficult work.	3.85	1.17
The enterprise can match jobs with employees' talents.	3.88	1.15
Each link of the workflow is more transparent, which is more convenient for employees to deal with emergencies.	3.92	1.16

Table 18 shows the mean value for each item in the Job Performance area for the employees surveyed. The majority of respondents agreed that the various aspects of their workflow were more transparent and it was easier for employees to handle unexpected situations, with a mean value of 3.92. The lowest mean value of 3.85 was

for being able to do previously more difficult tasks with ease. As can be seen, ZCF's digital transformation has more to do with optimizing employees' behavior at work and still provides very limited help in facing difficult tasks.

Table 19 Descriptive Results for Work-Life Balance

Item	Mean	S. D.
Employees can manage their time more effectively to deal with various problems at work.	3.82	1.09
Employees have enough time for personal life issues.	3.85	1.15
Employees are more likely to concentrate on work because of the support of their families.	3.96	1.13
The enterprise presents its caring program to employee work life balance by giving family benefits to help them address the imbalance between work and family time. Such as New Year presents, cinema tickets.	3.93	1.17

Table 19 shows the mean value for each item in Work-Life Balance for the employees surveyed. Most of the employees' family members are supportive of their work and thus they are able to concentrate more on their work with a mean value of 3.96. On the other hand, the lowest mean was that employees have enough time to deal with all the challenges at work, at 3.82. The second lowest was that employees have enough time to deal with their personal lives, with a mean value of 3.85. Therefore, ZCF's employees have a slight imbalance in the Work-Life Balance, where the percentage of work is greater than the percentage of home life.

4.3 Multiple Linear Regression Analysis (Demographics and Employee Job Satisfaction)

Multiple linear regression analysis is an analytical method used to test the direct or indirect relationship between two or more variables. In order to verify the relationship between demographics and employee job satisfaction in companies, multiple reproducibility regression analysis will be employed. Generally, researchers choose significance levels at 0.0001, 0.001, 0.01, 0.05, and 0.1 (O'Brien et al., 2018). To make the results more convenient, a significance level of 0.1 was selected in this

study. In other words, when the significance is lower than 0.1, there is a significant effect.

4.3.1 Demographic Variables and Employee Training & Development

Table 20 Model Summary of Employee Training & Development (1)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.223[a]	0.05	0.031	1.00014	1.947

a. Predictors: (Constant), Work years, Gender, Education, Marital status, Age

b. Dependent Variable: Employee Training & Development

Table 21 Employee Training & Development Regression results (1)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4.01	0.408		9.821	0.000		
	Gender	0.032	0.165	0.012	0.194	0.846	0.928	1.077
	Marital status	0.236	0.184	0.107	1.288	0.199	0.537	1.861
	Age	-0.121	0.099	-0.126	-1.216	0.225	0.346	2.891
	Education	0.086	0.085	0.066	1.009	0.314	0.864	1.158
	Work years	-0.122	0.09	-0.138	-1.356	0.176	0.361	2.768

a. Dependent Variable: Employee Training & Development

The variables of demographics (Gender, Age, Marital status, Education and Work years) were selected as independent variables and Employee Training & Development as dependent variables for regression analysis. The results are presented in Table 20 and Table 21. In Table 20, it can be seen that the R-squared is 0.050 which indicates that demographic variables can explain Employee Training & Development

variables at 5%. Moreover, the significance value for each demographic variable was greater than 0.1. It can be concluded that demographic factors do not have a significant effect on employee training & development variables. H1a 'Demographic variables have an impact on employee training & development' was rejected.

4.3.2 Demographic Variables and Employee Loyalty

Table 22 Model Summary of Employee Loyalty (1)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.183[a]	.033	.014	1.01813	2.044

a. Predictors: (Constant), Work years, Gender, Education, Marital status, Age

b. Dependent Variable: Employee Loyalty

Table 23 Employee Loyalty Regression results (1)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.840	.416		9.240	.000		
	Gender	.084	.168	.032	.501	.617	.928	1.077
	Marital status	.257	.187	.116	1.373	.171	.537	1.861
	Age	-.112	.101	-.117	-1.113	.267	.346	2.891
	Education	.079	.086	.061	.918	.359	.864	1.158
	Work years	-.087	.092	-.098	-.951	.343	.361	2.768

a. Dependent Variable: Employee Training & Development

The independent variable remained unchanged, and the dependent variable was changed to employee loyalty for regression analysis. The results obtained are shown in Tables 22 and 23. In Table 22, the R-squared value shown is 0.033, which indicates that demographic variables can explain the Employee Loyalty variable at 3.3%. In

addition, the significance values of the demographic variables shown in Table 23 were above 0.1. Thus, demographic variables do not have a significant effect on employee loyalty. H1b 'Demographic variables have an impact on employee loyalty' was rejected.

4.3.3 Demographic Variables and Working Environment

Table 24 Model Summary of Working Environment (1)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.192[a]	.037	.018	1.01485	1.878

a. Predictors: (Constant), Work years, Gender, Education, Marital status, Age

b. Dependent Variable: Working Environment

Table 25 Working Environment Regression results (1)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.871	.414		9.345	.000		
	Gender	.029	.167	.011	.173	.863	.928	1.077
	Marital status	.323	.186	.146	1.736	.084	.537	1.861
	Age	-.121	.101	-.126	-1.205	.229	.346	2.891
	Education	.068	.086	.052	.790	.430	.864	1.158
	Work years	-.108	.091	-.121	-1.180	.239	.361	2.768

a. Dependent Variable: Employee Training & Development

The independent variable was kept constant and the dependent variable was replaced with work environment for regression analysis. The results obtained are shown in Tables 24 and 25. In Table 24, the R-squared value is 0.037, which indicates that

demographic variables can explain the Working Environment variable at 3.7%. On the other hand, the significance value of marital status shown in Table 25 was 0.084, which is less than 0.1, and the significance values of other variables were all greater than 0.1. In addition, the unstandardized coefficient of marital status was 0.323, which means that marital status has a positive relationship with work environment. Thus, marital status can have a positive and significant impact on the work environment. H1c 'Demographic variables have an impact on working environment' was accepted.

The equation of regression is written as: Working Environment = 0.323*Marital status + 3.871.

4.3.4 Demographics Variables and Job Performance

Table 26 Model Summary of Job Performance (1)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.215[a]	.046	.027	.98880	1.887

a. Predictors: (Constant), Work years, Gender, Education, Marital status, Age

b. Dependent Variable: Job Performance

Table 27 Job Performance Regression results (1)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.764	.404		9.325	.000		
	Gender	.156	.163	.061	.956	.340	.928	1.077
	Marital status	.233	.181	.107	1.284	.200	.537	1.861
	Age	-.161	.098	-.172	-1.647	.101	.346	2.891
	Education	.075	.084	.059	.889	.375	.864	1.158
	Work years	-.055	.089	-.063	-.622	.534	.361	2.768

a. Dependent Variable: Employee Training & Development

The independent variable remained unchanged, and the dependent variable was changed to job performance for regression analysis. The results obtained are shown in Tables 26 and 27. In Table 26, the R-squared value shown is 0.046, which indicates that demographic variables can explain the Job Performance variable at 4.6%. However, the significance values of the demographic variables shown in Table 27 were above 0.1. Thus, demographic variables do not have a significant effect on job performance. H1d 'Demographic variables have an impact on job performance' was rejected.

4.3.5 Demographic Variables and Work-Life Balance

Table 28 Model Summary of Work-Life Balance (1)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.216[a]	.047	.028	.99123	2.070

a. Predictors: (Constant), Work years, Gender, Education, Marital status, Age

b. Dependent Variable: Work-Life Balance

Table 29 Work-Life Balance Regression results (1)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.737	.405		9.235	.000		
	Gender	.097	.163	.038	.593	.553	.928	1.077
	Marital status	.276	.182	.127	1.518	.130	.537	1.861
	Age	-.177	.098	-.188	-1.801	.073	.346	2.891
	Education	.099	.084	.078	1.176	.241	.864	1.158
	Work years	-.047	.089	-.054	-.530	.596	.361	2.768

a. Dependent Variable: Employee Training & Development

The independent variable was kept constant and the dependent variable was replaced with work-life balance for regression analysis. The results obtained are shown by Tables 28 and 29. In Table 28, the R-squared value is 0.047, which indicates that demographic variables can explain the Work-Life Balance variable at 4.7%. On the other hand, the significance value of age shown in Table 25 was 0.073 less than 0.1, and the significance values of other variables were all greater than 0.1. Moreover, the unstandardized coefficient of age was -0.177, which means that age has a negative relationship with work-life balance. Thus, age can have a negative and significant impact on the work-life balance. H1e 'Demographic variables have an impact on work-life balance' was accepted.

The equation of regression is written as: Work-Life Balance = -0.177*Age + 3.737.

4.4 Multiple Linear Regression Analysis (Digital Transformation and Employee Job Satisfaction)

4.4.1 Digital Transformation Variables and Employee Training & Development

Table 30 Model Summary of Employee Training & Development (2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.893[a]	.798	.795	.46053	2.024

a. Predictors: (Constant), Technological Innovation, Digital Resources, Top Management, Employee Skills

b. Dependent Variable: Employee Training & Development

Table 31 Employee Training & Development Regression results (2)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.395	.115		3.425	.001		
	Digital Resources	.004	.052	.005	.085	.932	.268	3.736
	Employee Skills	.086	.069	.088	1.243	.215	.158	6.337
	Top Management	.395	.067	.398	5.913	.000	.175	5.713
	Technological Innovation	.425	.058	.443	7.293	.000	.215	4.642

a. Dependent Variable: Employee Training & Development

The variables of digital transformation (Digital Resources, Employee Skills, Top Management and Technological Innovation) were selected as independent variables and Employee Training & Development as the dependent variable for regression analysis. The results are presented in Table 30 and Table 31. In Table 30, it can be seen that the R-squared is 0.798, which indicates that four digital transformation variables can explain Employee Training & Development variables at 79.8% while the remaining 20.2% was explained by other variables not included in this study. In Table 31, the significance values for the two factors Top Management and Technological Innovation were much less than 0.05. However, the significance values of 0.932 and 0.215 for Digital Resources and Employee Skills, respectively, were both greater than 0.05. This means that Top Management and Technological Innovation can significantly influence Employee Training & Development while Digital Resources and Employee Skills do the opposite. Furthermore, the unstandardized coefficients of Top Management and Technological Innovation were positive as they were 0.395 and 0.425, respectively. Thus, Top Management and Technological Innovation can positively

influence Employee Training & Development. H2a ‘Digital transformation variables have an impact on employee training & development’ was accepted.

The equation of regression is written as: Employee Training & Development =0.395* Top Management + 0.425*Technological Innovation + 0.395.

4.4.2 Digital Transformation Variables and Employee Loyalty

Table 32 Model Summary of Employee Loyalty (2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.887[a]	.787	.784	.47672	2.025

a. Predictors: (Constant), Technological Innovation, Digital Resources, Top Management, Employee Skills

b. Dependent Variable: Employee Loyalty

Table 33 Employee Loyalty Regression results (2)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.471	.119		3.942	.000		
	Digital Resources	-.074	.054	-.077	-1.381	.168	.268	3.736
	Employee Skills	.106	.072	.107	1.474	.142	.158	6.337
	Top Management	.310	.069	.310	4.484	.000	.175	5.713
	Technological Innovation	.558	.060	.575	9.242	.000	.215	4.642

a. Dependent Variable: Employee Training & Development

The digital transformation variables were selected as independent variables and Employee Loyalty as the dependent variable for regression analysis. The R-squared value of 0.787 shown in Table 32 is within the acceptable range, which indicates that the four digital transformation variables can explain 78.7% of the Employee Loyalty variables while the remaining 21.3% was explained by other variables not included in this study. Further analysis in Table 33 shows that Digital Resources had a significance value of 0.168, and Employee Skills had a significance value of 0.142. Since the significance values for both Digital Resources and Employee Skills were greater than 0.05, there was no significant effect. Top Management and Technological Innovation both had a significance value of almost 0, which is less than 0.05, hence there was a significant difference. In addition, the unstandardized coefficients of Top Management and Technological Innovation were positive at 0.310 and 0.558 respectively, so it can be concluded that both factors have a positive effect on Employee Loyalty. H2b 'Digital transformation variables have an impact on employee loyalty' was accepted.

The equation of regression is written as: Employee Loyalty =0.310* Top Management + 0.558*Technological Innovation + 0.471.

4.4.3 Digital Transformation Variables and Working Environment

Table 34 Model Summary of Working Environment (2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.853[a]	.727	.723	.53878	2.062

a. Predictors: (Constant), Technological Innovation, Digital Resources, Top Management, Employee Skills

b. Dependent Variable: Working Environment

Table 35 Working Environment Regression results (2)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.553	.135		4.097	.000		
	Digital Resources	.009	.061	.010	.151	.880	.268	3.736
	Employee Skills	.044	.081	.044	.538	.591	.158	6.337
	Top Management	.405	.078	.405	5.180	.000	.175	5.713
	Technological Innovation	.418	.068	.432	6.129	.000	.215	4.642

a. Dependent Variable: Employee Training & Development

The independent variables were kept constant and the dependent variable was changed to Working Environment. The results are shown in Tables 34 and 35. In Table 34, the R-squared value of 0.727 is within the acceptable range, indicating that the variables of digital transformation can explain 72.7% of the work environment while the remaining 27.3% was explained by other variables not included in this study. In Table 35, the significance values of 0.880 for digital resources and 0.591 for employee skills were both greater than 0.05, so they are not significantly different. The significance values for top management and technological innovation were less than 0.05, combined with their unstandardized coefficients of 0.405 and 0.418, respectively. As a result, Top Management and Technological Innovation have a positive impact on the work environment. H2c '(Digital transformation variables have an impact on working environment' was accepted.

The equation of regression is written as: Working Environment =0.405* Top Management + 0.418*Technological Innovation + 0.553.

4.4.4 Digital Transformation Variables and Job Performance

Table 36 Model Summary of Job Performance (2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.865[a]	.748	.744	.50742	1.956

a. Predictors: (Constant), Technological Innovation, Digital Resources, Top Management, Employee Skills

b. Dependent Variable: Job Performance

Table 37 Job Performance Regression results (2)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.530	.127		4.171	.000		
	Digital Resources	-.004	.057	-.004	-.064	.949	.268	3.736
	Employee Skills	.069	.076	.072	.908	.365	.158	6.337
	Top Management	.398	.074	.406	5.408	.000	.175	5.713
	Technological Innovation	.406	.064	.428	6.315	.000	.215	4.642

a. Dependent Variable: Employee Training & Development

The independent variables are kept constant and the dependent variable is changed to Job Performance. The results obtained from the multiple linear regression analysis are shown in Tables 36 and 37. The R-squared value of 0.748 is within the acceptable range, which indicates that the variables of digital transformation explain 74.8% of the job performance while the remaining 25.2% was explained by other variables not included in this study. It is clear that in terms of significance values, Digital Resources were 0.949 and Employee Skills were 0.365, neither of which is significantly different. The variables that satisfy the condition of less than 0.05 were

Top Management and Technological Innovation. Their unstandardized reference coefficients were positive values of 0.398 and 0.406, respectively. Among the four variables in digital transformation, only Top Management and Technological Innovation had a significant effect on Job Performance and were positively correlated. H2 d 'Digital transformation variables have an impact on job performance' was accepted.

The equation of regression is written as: Job Performance $=0.398*$ Top Management + 0.406*Technological Innovation + 0.530.

4.4.5 Digital Transformation Variables and Work-Life Balance

Table 38 Model Summary of Work-Life Balance (2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.847[a]	.717	.712	.53928	2.067

a. Predictors: (Constant), Technological Innovation, Digital Resources, Top Management, Employee Skills

b. Dependent Variable: Work-Life Balance

Table 39 Work-Life Balance Regression results (2)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.616	.135		4.556	.000		
	Digital Resources	-.018	.061	-.019	-.292	.770	.268	3.736
	Employee Skills	-.033	.081	-.034	-.407	.685	.158	6.337
	Top Management	.474	.078	.483	6.061	.000	.175	5.713
	Technological Innovation	.424	.068	.445	6.202	.000	.215	4.642

a. Dependent Variable: Employee Training & Development

The independent variables were held constant, and the dependent variable was replaced with Work-Life Balance. Tables 38 and 39 show the results of the multiple linear regression analysis using these variables. In Table 38, the R-squared value of 0.717 is in the acceptable range, which indicates that the variables of digital transformation explain 71.7% of the work-life balance while the remaining 28.3% was explained by other variables not included in this study. In terms of the significance values in Table 39, 0.770 for digital resources and 0.685 for employee skills both indicate that they are not significantly different. However, Top Management and Technological Innovation were significant values and satisfy the condition of less than 0.05, and their respective unstandardized coefficients were positive at 0.474 and 0.424 respectively. Thus, the researcher can conclude that Top Management and Technological Innovation have a significant effect on Work-Life Balance and are positively correlated with each other. H2e 'Digital transformation variables have an impact on work-life balance' was accepted.

The equation of regression is written as: Work-Life Balance =0.474* Top Management + 0.424*Technological Innovation + 0.616.

4.5 Qualitative analysis

In the previous analysis, the mean value of each variable item was summarized and the most recognized items were obtained for each variable. In order to further explore the impact of digital transformation on employees' job satisfaction, the employee perceptions of the low mean items needs to be analyzed. Thus, based on the qualitative research method, the researcher selected the two items with the lowest mean values for each variable to create a qualitative questionnaire. Five employees from ZCF were selected for online interviews to better understand the current situation of ZCF. Table 40 shows the names and positions of the interviewees:

Table 40 Interviewee information

Pseudonym Name	**Position**
Mrs. Mo	Deputy Office Director
Mrs. Peng	Senior Engineer of Information Department
Mrs. Zhou	Deputy Director of the factory
Mrs. Wu	Minister of Production
Mrs. He	Staff in the Machine Maintenance Department

4.5.1 Digital resources

From the results of the quantitative analysis, ZCF has the lowest acceptance of having enough digital resources to support digital transformation. However, the opposite result was revealed in this interview. In terms of digital resources, all four interviewees stated that ZCF had enough digital resources to secure digital transformation. Only Mr. Zhou felt that ZCF was still relatively short of digital resources to support the development of digital transformation, arguing that:

Although we have a certain foundation in information technology management, we still lack some support in reaching the requirements of digital transformation.

It is evident that ZCF has a very high level of information technology , which is supported by the interviews that revealed that ZCF has enough digital resources, perhaps because they also include the company's own information resources.

In terms of the professional competence of the digital resource management team, all three respondents believed that ZCF's management team is professionally competent. Mr. Peng and Mr. Zhou held the opposite opinion, as they both thought that ZCF still needs to leverage the power of third parties to assist ZCF's digital development. From the perspective of the general environment, Mr. Peng argued that the current digital resource management team still lacks certain strengths:

With the current more advanced technologies, such as cloud, big data and microservices architecture of these technologies, it is still difficult to attract some personnel or resources to support them.

On the other hand, Mr. Zhou explained it in terms of the coverage of the team's capabilities:

However, the analysis and application of data is not extensive enough; we still rely on some outsourcing to maintain and develop some information technology or data-based business.

In summary, although ZCF is currently well-developed in terms of information technology, it is slightly weaker in terms of digitalization. There is a certain shortage of digital resources so that external forces are needed to promote the work of digital transformation.

4.5.2 Employee skills

In terms of the reserve of digital professionals, four interviewees believed that ZCF has enough digital professionals to basically meet the requirements of digital transformation and development at this stage. Only Mr. Mo held the opposite view, as he thought this was one of ZCF's current weaknesses, which was the slow pace of training in digital professionals. Although Mr. Zhou holds a positive view, Mr. Mo's thoughts also confirmed in his explanation that:

At present, we still have a certain amount of computer or related talents in terms of job allocation. But most of them are as a form of reserve talent, and only a few of them are working in digital or information technology.

Although ZCF has met the requirements for talent reserve, these talents only have a relevant foundation and lack experience, which is not enough to carry out deeper digital transformation work.

However, ZCF managers pay more attention to employees' digital capabilities. All five interviewees agreed with this view. In addition, from Mr. Mo's and Mr. Peng's explanations, the managers' attention does not match the actions they have taken. There is still more room for improvement in related measures, such as the introduction of talent and training.

4.5.3 Top management

In terms of the senior management of ZCF, the five interviewees agreed that the formulation and implementation process of ZCF's digital transformation strategy was very open and transparent. Mr. He gave a more detailed explanation on this point:

There is transparency from the call for projects, to the bidding, to the disclosure of information. If there are pain points in some of these projects, they are brought up. This process is not only known by the top management and leaders, this is done by the bottom staff for feedback to the top, and only then the top will make the corresponding decisions. This is both a bottom-up and top-down process in which the whole team is involved.

It can be seen that this is a process in which all ZCF personnel can participate. However, there are still some confidentiality measures for some key data, which is an unavoidable situation. Moreover, the five interviewees also indicated that they could feel the positivity of ZCF's senior staff regarding the digital environment and culture of the company. At the same time, Mr. Mo mentioned an interesting point:

Of course, the object of popularization is more inclined to the operational staff, like our administrative staff only need to understand these systems and how to allocate arrangements is enough.

From this point of view, the focus of the enthusiasm of senior personnel is the operational staff engaged in production work, but the attention of the management is relatively weak. As a result, ZCF is open and transparent in its top management and attaches great importance to building a digital environment and culture for the enterprise.

4.5.4 Technological innovation

In the responses of the five respondents, they all agreed that ZCF's technological innovation was closely integrated with digital transformation. Mr. He argued that the technology or equipment upgrades brought about by digital transformation can provide better support for the enterprises' technological innovation. Similarly, Mr. Peng's view stated that:

We adopt the current advanced digital technology, big data technology, cloud technology, virtualization technology, etc., and fully combine and develop with our core innovation technology.

Four respondents answered in the affirmative on whether technological innovation can drive the development of digitalization. Mr. Mo, Mr. Wu and Mr. Peng all stated that technological innovation and digital technology can play a mutually driving role. Mr. Ho thought that technological innovation can drive digital

transformation by optimizing and upgrading various facilities. Only Mr. Zhou thought the push was not obvious. Mr. Zhou pointed out that the current technological innovation of ZCF is more focused on the improvement of the process because ZCF's current development plan not only focuses on digital transformation, but also includes the goal of high efficiency and quality, which greatly increases the requirements for production processes. In general, it was broadly accepted that ZCF's technological innovation appetite for digital transformation is closely aligned and has played a role in driving it.

4.5.5 Employee Training & Development

In terms of employee training & development, Mr. Mo and Mr. Zhou said ZCF did not have a clear plan for their digital capabilities. Mr. Peng, Mr. Wu and Mr. He stated the contrary. From the perspective of their positions, Mr. Mo and Mr. Zhou are both in administrative management positions, while the other three are in production and information positions. It is obvious that ZCF's digital capability planning focuses on key positions, while there isnot so evident in administrative positions. This is effective in the short term, but detrimental in the long term. As Mr. Peng pointed out:

But honestly, our company's understanding of digitalization is still in its infancy. The planning and development of digital capabilities for individual employees is still relatively weak. Here we still need to pay more attention and deepen the company, in order to slowly become better.

In terms of training, only Mr. Mo said that he had not received any training on digital skills, and the other four had received training, but, Mr. Mo said that he still hoped to receive training:

Although our position is not specialized in this area, at least we need to have an understanding of the basic logic related to digitalization, which will be more conducive to our thinking and decision making for the company.

In general, ZCF is highly targeted in employee training and development, which also leads to the neglect of other employees. In the long run, this is a bad phenomenon, so there is still a lot of space for improvement in the future.

4.5.6 Employee loyalty

Four interviewees gave positive answers on whether the digital transformation of enterprises can bring a better future for employees. Most people

believed that the digital transformation of enterprises can bring higher efficiency and quality to their work, which is the main impact. Mr. He thought that the two aspects are not connected. But paradoxically, his explanation was that if digitalization can make the business better, then his income and career will be better with it.

On the question of whether the employees feel a sense of fulfillment for their contribution to the transformation of the company, all of them displayed a positive attitude. Most of the respondents gave examples based on their own experiences and described how they were involved in the digital transformation of their enterprise. Without exception, these experiences were recognized and supported by the enterprise, which made them feel very satisfied. In summary, ZCF employees agreed that digital transformation can have a good impact on the enterprise and may optimize their work experience. Moreover, employees' own contributions to the transformation are recognized and supported by the enterprise, which can greatly enhance their sense of fulfillment, with a subsequent positive impact on loyalty.

4.5.7 Working environment

In terms of work environment, all interviewees believed that digital transformation could improve job security. Most of this improvement comes from the optimization of systems and equipment by digital technology, which can improve employees' work safety by improving fault tolerance. Mr. Peng gave a more detailed explanation on this point:

We now have an integrated control platform for employee safety that monitors our employees' work environment and work behavior in real time. In case of unsafe behavior, the system will alert and instruct our employees to promote their personal safety at work. It also contains alerts about fire and other natural hazards to increase the safety of employees in the company.

On the other hand, all five interviewees agreed that digital transformation has optimized their workflow. This optimization is multifaceted, including convenience, efficiency, data processing and process optimization. All of these have greatly improved the original work environment of the employees. Overall, the impact of digital transformation has indeed improved systems and equipment to enhance the work safety of employees and optimize work processes.

4.5.8 Job performance

In terms of job performance, four interviewees felt that digital transformation had made their jobs less difficult, while only Mr. Zhou said the effect was less pronounced. He thought that the current digital transformation of ZCF had only optimized some work with low data quality requirements, but for some more difficult work, i subsequent transformation work needed to be deeper to be solved. This view also reflects the immaturity of ZCF's digital transformation at this stage. Therefore, only some jobs with low technical requirements can be optimized.

On the other hand, they all agreed that the enterprise will assign employees to suitable positions according to their strengths because employees' personal strengths are one of the factors that ZCF employs to assign work. This will enable employees to maximize their personal value and promote their enthusiasm for work. Mr. He argued that:

For companies, it can achieve less training costs. For the employees, it can also bring out their strengths, which can help them achieve better results in their work.

In summary, ZCF's digital transformation can simplify employees' work, but it does not have a significant effect on work with high data quality requirements. The main reason is that the process of digital transformation of ZCF is not deep enough, which needs to be rectified by strengthening the subsequent transformation construction work. In addition, assigning appropriate jobs to employees based on their strengths not only reduces the training costs of the company, but it can also increase work enthusiasm, which has a positive impact on job performance and job satisfaction.

4.5.9 Work - life balance

In terms of work-life balance, three interviewees said they did not have enough time to deal with difficult issues at work while the other two said the opposite. When faced with this situation, except for choosing to work overtime, Mr. Mo also chose to use external means to solve problems:

Including going to other colleagues for help, or using work teams for task distribution, etc.

Mr. Peng added the following:

At such times, the researcher usually reports to our supervisors to find a solution. There are also other ways to solve the problem, such as adjusting the working hours of the staff to give them more rest time in the evening.

In regard to the time allocated to their lives, three interviewees said they had enough time to deal with life's problems while the remaining two felt they had less time. Interestingly, although Mr. Peng spent more time at work, he still had enough time to allocate to his personal life. However, everyone faces different situations in life, and these are force majeure factors. The time required for different situations will also vary, as Mr. Mo said：

I think balance is an ideal state, which may vary from person to person.

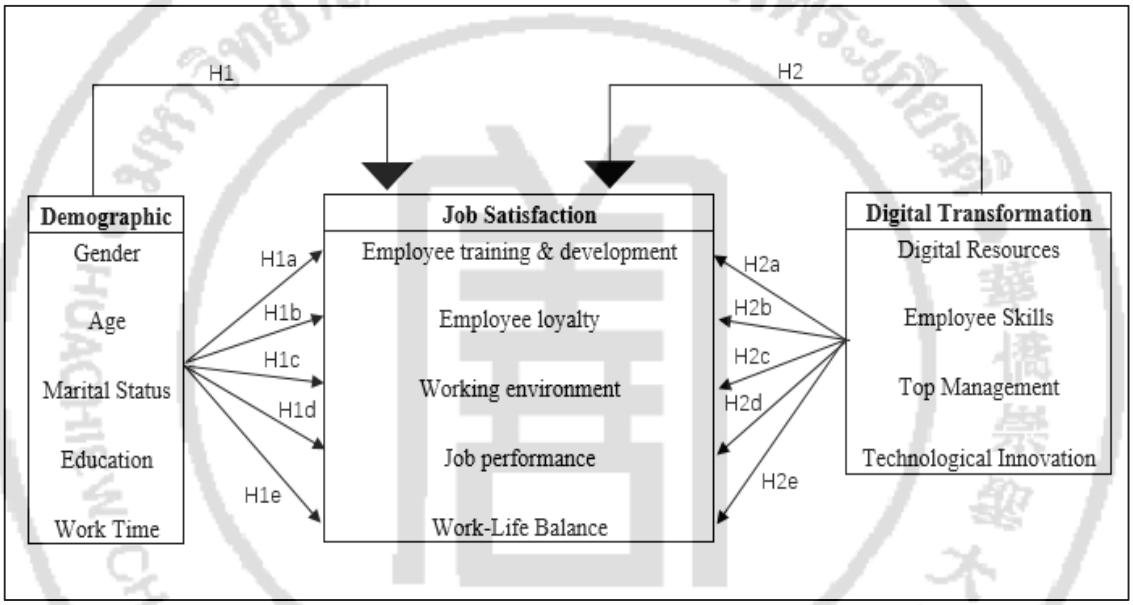
As a result, ZCF employees often do not have enough time to deal with the problems they meet at work, but the time allocated to their personal life basically meets their needs.

Chapter 5
Conclusion

5.1 Discussion

Following the detailed analysis in Chapter 4, clear results have been obtained. Before the discussion and conclusion of the results, it is necessary to review the theoretical framework and hypotheses of this study:

Figure 4 Theoretical Framework



H1: Differences in employee sample characteristics have an impact on employee job satisfaction.

H1a: Demographic variables have an impact on employee training & development.

H1b: Demographic variables have an impact on employee loyalty.

H1c: Demographic variables have an impact on working environment.

H1d: Demographic variables have an impact on job performance.

H1e: Demographic variables have an impact on work-life balance.

H2: Digital transformation has a positive impact on employee job satisfaction.

H2a: Digital transformation variables have an impact on employee training & development.

H2b: Digital transformation variables have an impact on employee loyalty.

H2c: Digital transformation variables have an impact on working environment.

H2d: Digital transformation variables have an impact on job performance.

H2e: Digital transformation variables have an impact on work-life balance.

5.1.1 Demographics and Employee Job Satisfaction

In the multiple linear regression analysis of Demographics and Employee Job Satisfaction, the positive and significant effect of marital status on work environment and the negative and significant effect of age on work-life balance were found (H1c and H1e were accepted). No significant effects existed between other factors (H1a, H1b and H1d were rejected).

In China, married employees face greater job pressure. These pressures stem from their own mortgage, child support, and elderly care. These all require a lot of money. Therefore, they will try their best to maintain the stability of their work, which includes the relationship with colleagues or superiors. This result confirms the conclusion of Ali et al. (2018) who found that married employees are more cooperative, dedicated, engaged and committed to their work. On the other hand, the changes in the working environment and mode brought about by the digital transformation of enterprises will further promote the coordination of work among employees. Therefore, the influence of marital status on the working environment in this study is mainly generated from the working atmosphere and relationship of employees.

In terms of work-life balance, as employees get older, the balance changes. The first reason is that their personal energy becomes more limited. Personal aging is accompanied by various diseases, which can cause lost time and money for treatment and maintenance. Secondly, life also requires facing financial issues such as car loans and mortgages as mentioned earlier, which invariably increases the pressure on individuals. Therefore, the negative impact of age on work-life balance comes from the rising proportion of employees' life demands.

In conclusion, demographics can have an impact on employees' job satisfaction, so H1 is accepted.

5.1.2 Digital Transformation and Employee Job Satisfaction

In the multiple linear regression analysis of Digital Transformation and Employee Job Satisfaction, the researcher found that among the four factors influencing the digital transformation of enterprises, Top Management and Technological

Innovation can have a significant impact on all factors of employee job satisfaction (H2a, H2b, H2c, H2d and H2e were accepted). However, the variables of Digital Resources and Employee Skills did not have a significant effect on employee job satisfaction.

In terms of digital resources, data integration is essential for the digital transformation of companies. However, data integration is often a very difficult task, and this is usually left to specialized teams, for forecasting, analysis, etc (Ahmad et al., 2021). As a cigarette production company, most of the employees at ZFC are engaged in production-type work. Therefore, the average employee is rarely exposed to this aspect in their work activities, resulting in the non-significant effect of the variable of Digital Resources on their job satisfaction. In terms of employee skills, many participants agreed that digital skills would help improve the performance of the team. However, digital skills are only a part of employee skills and are the result of specialized training to equip employees to perform specific tasks and achieve specific goals (Statt. 2004). The skills and knowledge they possess have a greater impact on the executive level on the job (Zhang et al., 2022). This has a greater weight on the digital strategy or management of the company than on the employees themselves. Thus, employee skills, while a very important factor for digital transformation, are not significant in terms of the degree of impact on employee job satisfaction.

In top management, besides being responsible for setting and planning the strategic goals of the company, an important role is to support employees, help them solve various problems at work, and coordinate conflicts between different job functions (Hsu et al., 2018). As seen in the previous analysis, ZCF supports its employees more in terms of optimizing the various production facilities. In Kohli and Johnson's (2011) view, there do exist companies that are building a digital infrastructure to gain a competitive advantage for the business. ZCF also has a large number of employees focused on the operational side of production, so this type of support is certainly very effective. With a lot of support from the top, employees will be less hindered in the execution of their work, which will naturally have a direct impact on their job satisfaction. In the case of technological innovation, the degree of adoption of the innovated technology is influenced by the behavior of individuals, organizations and the environment in which they live (Liere-Netheler et al., 2018). The innovation

and adoption of technology must take into account the relationship between the needs of the organization and its intrinsic economy. In other words, when this need is met in the organization, it will inevitably produce emotional fluctuations for the people in the organization. New technology optimizes the workflow and the difficulty of the work. In general, it ultimately leads to a better work experience for the employees.

In conclusion, ZCF's digital transformation has a positive impact on employee job satisfaction, so H2 is accepted. According to their respective R-square values, Employee Training & Development is 0.798, Employee Loyalty is 0.787, Working Environment is 0.727, Job Performance is 0.748, and Work-Life Balance is 0.717. In descending order, they are Employee Training& Development, Employee Loyalty, Job Performance, Working Environment, and Work Life Balance. Thus, digital transformation mainly affects employees' job satisfaction from two aspects, namely Top Management and Technological Innovation, and the biggest impact is on Employee Training & Development, followed by Employee Loyalty, and the smallest impact is on Work-Life Balance.

5.1.3 Interview analysis

From the results, the development of ZCF in the dimensions of technological innovation, employee loyalty, work environment and work performance is relatively good. Therefore, a brief summary will be presented based on the most significant aspects of the problem.

In regard to digital resources, the digital resource reserve in the enterprise is still slightly insufficient, and the entire digital resource management team lacks relevant experience so that external forces are still needed to assist in their work. This is a bad signal, which means that employees cannot enjoy adequate digital resources in their work, which is very unfavorable for the transformation of enterprises. Adequate digital resources can help companies create differentiated value (Goerzig & Bauernhansl, 2018). In the future, ZCF also needs to obtain effective digital resources from more channels. At the same time, they need to strengthen the ability training of the digital resource management team so as to help enterprises carry out the transformation work more smoothly.

In terms of employee skills, ZCF has a sufficient pool of digital talent at this stage. Digital talent is critical to every organization involved in product innovation,

and becomes even more critical to success in the workplace (Nofrita et al., 2020). Workers with higher skills are able to handle more complex work tasks and adapt quickly to a changing environment (Prezioso et al., 2020). The problem is that most of ZCF's digital talent is only able to work on relatively simple tasks, which still requires some experience. However, the management of ZCF is also aware of this pain point and intends to increase the training of digital talent in the enterprise.

At the top management, all interviewees agreed that ZCF's digital transformation strategy development and implementation process is open and transparent. In this process, ZCF employees are almost fully involved. It is a virtuous cycle overall, from the upper-level staff to implement policies down to the lower level employees, and then the lower level will feedback the problems and ideas back to the upper level for optimization. However, from the interviewees' comments, it appears that ZCF's digital development efforts are biased towards key departments, such as Production and Information, with a weaker focus on leadership positions. Most companies today are developing new digital business strategies, but they easily overlook the importance of digital leadership in this process (de Araujo et al., 2021). Digital leaders are key members in driving an organization's digital business model and strategy, ensuring that organizational functions are aligned with the external environment and provide valuable guidance in major projects. This ensures that companies do not go astray in the digital transformation process (Mojambo, 2020).

In terms of employee training & development, the problems ZCF has with digital leadership development are reaffirmed. At this stage, ZCF's staff training and development are focused on key positions or departments, thus neglecting leadership training. For the long-term growth of the company, it is necessary to enhance the development of digital leadership.

In terms of Work - life balance, most ZCF employees are in a slightly unbalanced state. In this state, the proportion of the work side is slightly larger than the life side. Working overtime is a common solution when they do not have enough time to handle their work. It is clear that the workload of ZCF in the process of digital transformation is significant. However, too much work demand usually has a negative impact on work-life balance (Brough et al., 2020). Over time, this will increase the work pressure of employees, thereby affecting their mental health. It will eventually

have a negative impact on employees' job satisfaction and may cause a negative chain reaction.

In conclusion, ZCF still has some problems in the dimensions of Digital Resources, Employee Skills, Top Management, Employee Training & Development and Work - life balance, which still need continuous improvement.

5.2 Recommendation

After the analysis presented in Chapter 4, the researcher obtained the results of various variables in which digital transformation and technological innovation in top management can affect employee job satisfaction. There are still significant improvements in four variables: employee skills, top management, employee training and development, and work-life balance. Thus, the researcher will make recommendations in regard to these four variables to be able to improve the job satisfaction of employees.

5.2.1 Employee skills

Currently, ZCF's employees are still weak in digital skills, and most of the work has to be carried out with external assistance. This is detrimental to the long-term development of the enterprise. If external assistance is not available, it can easily lead to a stagnation in the digital development of the company. Therefore, enterprises should give employees more opportunities to exercise their abilities, including overseas study and participation in major projects, which can offer rich experience for employees. This will also make employees feel valued by the enterprise, and it may have a positive impact on job satisfaction. In addition, there is a need to enhance talent acquisition. Having more professional digital talent will ensure a smooth transition, and a more professional team will give employees more confidence in the company.

5.2.2 Top management

At the present, the top management of ZCF is anxious to improve the production capacity and product quality. Consequently, most of the attention is focused on the improvement and optimization of the equipment or training for the employees, but the training of the leaders is neglected. Digital leaders need to be critical, adaptive, resilient, and open to new thinking and technologies, and these skills need to be constantly cultivated (de Araujo et al., 2021). Digital leadership is a strategic way of

thinking that can use all available resources to improve our work while predicting the changes needed to foster a focus on participation and achievement (Anak&Sri, 2022). Thus, ZCF still needs to pay more attention to the cultivation of leaders' digital ability.

5.2.3 Employee Training & Development

Similarly, in terms of employee training & development, ZCF needs strengthen the development of digital leadership in the enterprise. Secondly, it should provide more extensive and professional training in digital skills for employees; not only for employees in key positions, but also for other employees. As the interviewees pointed out, having more knowledge and skills related to digitalization can help them understand the logic related to digitalization and will provide better help for enterprises in their thinking and decision-making. In addition, more and more employees receive good digital ability training, which is also conducive to building the digital culture and environment of the enterprise.

5.2.4 Work - Life Balance

In the process of digital transformation, enterprises have a lot of work, which is unavoidable. Although employees can choose to work overtime to solve their work problems, this is fundamentally reduces their free time, which will ultimately lead to an imbalance in work and life. When this situation arises, using the power of others to think about solutions together might be better. Sharing opinions as a team can also help improve team cohesion. In addition, enterprises can consider introducing flexible welfare plans to solve the conflict between the life and work of employees. In this plan, employees can choose relevant benefits according to their personal needs, such as elderly care services, childcare plans, telework, etc. To optimize the balance between work and life by reducing the pressure on employees in their daily lives.

5.3 Conclusion

The research purpose of this study was firstly determine the influencing factors of digital transformation and employee job satisfaction, and secondly, to examine the correlation between ZCF's digital transformation and employee job satisfaction, and then to put forward relevant suggestions based on the existing problems of ZCF to improve employee job satisfaction.

In this study, quantitative and qualitative research methods were employed. An online questionnaire was conducted among 260 ZCF employees, and an online interview was conducted with five ZCF employees. The final results of the hypothesis tests are shown in Table 48.

Table 41 Test Results for the Hypotheses

Hypotheses	Outcome
H1: Differences in employee sample characteristics have an impact on employee job satisfaction.	Accepted
H1a: Demographic variables have an impact on employee training & development.	Rejected
H1b: Demographic variables have an impact on employee loyalty.	Rejected
H1c: Demographic variables have an impact on working environment.	Accepted
H1d: Demographic variables hava an impact on job performance.	Rejected
H1e: Demographic variables have an impact on work-life balance.	Accepted
H2: Digital transformation has a positive effect on employee job satisfaction.	Accepted
H2a: Digital transformation variables have an impact on employee training & development.	Accepted
H2b: Digital transformation variables have an impact on employee loyalty.	Accepted
H2c: Digital transformation variables have an impact on working environment.	Accepted
H2d: Digital transformation variables have an impact on job performance.	Accepted
H2e: Digital transformation variables have an impact on work-life balance.	Accepted

This study employed four factors on digital transformation: Digital Resources, Employee Skills, Top Management and Technological Innovation. The factors affecting job satisfaction are: Employee Training & Development, Employee Loyalty, Working Environment, Job Performance and Work-Life Balance. Through multiple linear regression analyses, only Top Management and Technological Innovation were found to have significant effects on job satisfaction. The greatest impact was Employee Training & Development, followed by Employee Loyalty, and Work-Life Balance, which had the least impact. In terms of demographics, marital status had a positive and significant effect on work environment and age had a negative and significant effect on work-life balance.

There are various indications that ZCF is now in the "Chang" stage of digital transformation. Employees and managers are aware of the importance and urgency of this change, which can bring huge benefits to the enterprise. By using digital technology to realize benefits such as productivity improvement, cost reduction and innovation, the organization can compete more effectively in an increasingly digital world (Aguiar et al., 2019; Ulas, 2019). In further interviews, it was found that ZCF's top management maintains a positive attitude in the work of digital transformation, especially in terms of providing various digital facilities and employee training. The staff expressed high satisfaction with this aspect. This can play a good role in the improvement of employees and the optimization of work, thereby improving work experience and improving job satisfaction. However, ZCF still has weaknesses in employee training, focusing on the improvement of data processing and production technology while ignoring the cultivation of digital leadership capabilities. Under the influence of different factors, the digitalization process can be divided into two development routes. One is more traditional and slow, dealing with management and upgrades of existing infrastructure. The other is more agile and experimental, leveraging new technologies to respond to new business and customer needs (Fernandez-Vidal et al., 2022). ZCF obviously belongs to the former. In the long term, ZCF should gradually focus on digital leadership and other aspects of development.

Digital transformation is a multi-faceted change process that is unlikely to produce significant results in the short term. Although it can bring many positive changes to the enterprise, it also brings many unknown challenges. The purpose of this

study is to promote the motivation of employees in transformational work by studying the relationship between digital transformation and job satisfaction. This not only stimulates higher work motivation for employees, but also accelerates the speed of enterprise transformation, which is a win-win situation.

In conclusion, this study fills a certain research gap, and provides a theoretical basis for subsequent scholars who are interested in this field. Although the results confirm the relationship between digital transformation and employee job satisfaction, there are still some limitations. The first limitation is region as the enterprises and samples studied are all from China. Secondly, the selection of influencing factors of digital transformation and employee job satisfaction is not comprehensive. Therefore, future research should investigate other regions as the research target and explore the relationships between other factors.

Bibliography

Adhabi, E., & Anozie, C. B. (2017). Literature review for the type of interview in qualitative research. International Journal of Education, 9(3), 86-97.

Agho, A. O., Mueller, C. W., & Price, J. L. (1993). Determinants of employee job satisfaction: An empirical test of a causal model. Human relations, 46(8), 1007-1027.

Aguiar, T., Gomes, S. B., da Cunha, P. R., & da Silva, M. M. (2019, October). Digital transformation capability maturity model framework. In 2019 IEEE 23rd International Enterprise Distributed Object Computing Conference (EDOC) (pp. 51-57). IEEE.

Ahmad, A., Alshurideh, M., Al Kurdi, B., Aburayya, A., & Hamadneh, S. (2021). Digital transformation metrics: a conceptual view. Journal of management Information and Decision Sciences, 24(7), 1-18.

Ali, A., Hussain Khan, I., Ch, M. A., & Akram Ch, A. S. (2018). Level of job satisfaction among employees of banking industries at lahore 2016. European Online Journal of Natural and Social Sciences: Proceedings, 7(3 (s)), pp-92.

Anak, A. S. M. A., & Sri, D. G. (2020). Revealing the digital leadership spurs in 4.0 industrial revolution. Asri, AASMAN, & Darma, GS, Revealing the digital leadership spurs in, 4, 93-100.

Badrianto, Y., & Ekhsan, M. (2020). Effect of work environment and job satisfaction on employee performance in pt. Nesinak industries. Journal of Business, Management, & Accounting, 2(1).

Barringer, M. W., Milkovich, G. T., & Mitchell, O. S. (1991). Predicting employee health insurance selections in a flexible benefits environment.

Bernabé, B., Izquierdo, A. C., & Rivera, M. D. G. (2017). Job Satisfaction among Spanish Fitness Instructors: A comparative Study across age, gender, work experience and higher degree studied. European Journal of Human Movement, (39), 128-142.

Bhardwaj, P. (2019). Types of sampling in research. Journal of the Practice of Cardiovascular Sciences, 5(3), 157.

Bibliography (Continued)

Boakye, E. (2015). The impact of teamwork on employee performance. Unpublished Thesis, University of Ghana.

Borgobello, A., Pierella, M. P., & Pozzo, M. I. (2019). Using questionnaires in research on universities: analysis of experiences from a situated perspective. REIRE Revista d'Innovació i Recerca en Educació, 12(2), 1-16.

Brough, P., Timms, C., Chan, X. W., Hawkes, A., & Rasmussen, L. (2020). Work–life balance: Definitions, causes, and consequences. Handbook of socioeconomic determinants of occupational health: From macro-level to micro-level evidence, 473-487.

Bujang, M. A., Omar, E. D., & Baharum, N. A. (2018). A review on sample size determination for Cronbach's alpha test: a simple guide for researchers. The Malaysian journal of medical sciences: MJMS, 25(6), 85.

Bushiri, C. P. (2014). The impact of working environment on employees' performance, the case of Institute of Finance Management in Dar es Salaam (Doctoral dissertation, The Open University of Tanzania).

Carpenter, M. A., Geletkanycz, M. A., & Sanders, W. G. (2004). Upper echelons research revisited: Antecedents, elements, and consequences of top management team composition. Journal of management, 30(6), 749-778.

Chan, W. (1996). External recruitment versus internal promotion. Journal of Labor Economics, 14(4), 555-570.

Chanias, S. (2017). Mastering digital transformation: the path of a financial services provider towards a digital transformation strategy.

Chaokromthong, K., & Sintao, N. (2021). Sample Size Estimation using Yamane and Cochran and Krejcie and Morgan and Green Formulas and Cohen Statistical Power Analysis by G* Power and Comparisions. Apheit International Journal, 10(2), 76-86.

Chen, J., Lin, S., & Meng, Z. (2015). Enterprise technological innovation and market innovation of innovative management. Journal of the Metallurgical and Mining Industry, 9, 980-984.

Bibliography (Continued)

Chenyu, Z., Wenchun, W., & Xuesong, L. (2021). How digital transformation affects the total factor productivity of enterprises. Finance and Trade Economics (07), 114-129. doi: 10.19795/j.cnki.cn11-1166/f.20210705.001.

China State Council. (2022). The State Council on the issuance of the "14th Five-Year Plan" for the development of the digital economy notice. (Jun 15, 2022) http://www.gov.cn/zhengce/zhengceku/2022-01/12/content_5667817.htm

Chudaeva, A. A., Mantulenko, V. V., Zhelev, P., & Vanickova, R. (2019). Impact of digitalization on the industrial enterprises activities. In SHS Web of Conferences (Vol. 62, p. 03003). EDP Sciences

Clohessy, T., Acton, T., and Morgan, L. 2017. "The impact of cloud-based digital transformation on ICT service providers' strategies," Bled eConference , Bled, Slovenia, pp. 111-126.

Davenport, T. H., & Westerman, G. (2018). Why so many high-profile digital transformations fail. Harvard Business Review, 9, 15.

de Araujo, L. M., Priadana, S., Paramarta, V., & Sunarsi, D. (2021). Digital leadership in business organizations. International Journal of Educational Administration, Management, and Leadership, 45-56.

Demirkan, H., Spohrer, J. C., & Welser, J. J. (2016). Digital innovation and strategic transformation. It Professional, 18(6), 14-18.

Dhamija, P., Gupta, S., & Bag, S. (2019). Measuring of job satisfaction: the use of quality of work life factors. Benchmarking: An International Journal.

Dorman, D. (March 28, 2022). CHINA'S PLAN FOR DIGITAL DOMINANCE. War On The Rocks.com. https://warontherocks.com/2022/03/chinas-plan-for-digital-dominance/

Ebert, C., & Duarte, C. H. C. (2018). Digital transformation. IEEE Softw., 35(4), 16-21.

Emmanuel, N., & Agaha, A. N. L. (2021). Testing the moderating effect of gender on job satisfaction and employees' behaviours relationship: Evidence from mobile telecommunication network (MTN) Buea, Cameroon. European Scientific Journal ESJ, 17(1), 236-255.

Bibliography (Continued)

Fahr, R. (2011). Job design and job satisfaction—empirical evidence for Germany?. management revue, 28-46.

Foerster-Metz, U. S., Marquardt, K., Golowko, N., Kompalla, A., & Hell, C. (2018). Digital transformation and its implications on organizational behavior. Journal of EU Research in Business, 2018(S 3).

Garnaut, R., Song, L., & Fang, C. (2018). CHINA'S 40 YEARS OF REFORM AND DEVELOPMENT 1978–2018. SOCIAL SCIENCES ACADEMIC PRESS (CHINA), 345.

Gebczynska, M. (2022). Job Satisfaction in Manufacturing SMEs During Digital Transformation. European Research Studies, 25(1), 604-617.

Goerzig, D., & Bauernhansl, T. (2018). Enterprise architectures for the digital transformation in small and medium-sized enterprises. Procedia Cirp, 67, 540-545.

Hackman, J. R., & Oldham, G. R. (1975). Development of the job diagnostic survey. Journal of Applied psychology, 60(2), 159.

Hansia, B. L. (2009). Factors influencing job satisfaction (Doctoral dissertation, Nelson Mandela Metropolitan University).

He, P., Takeuchi, T., & Yano, E. (2013). An overview of the China national tobacco corporation and state tobacco monopoly administration. Environmental health and preventive medicine, 18(1), 85-90.

Hirschfeld, R. R. (2000). Does revising the intrinsic and extrinsic subscales of the Minnesota Satisfaction Questionnaire short form make a difference?. Educational and Psychological Measurement, 60(2), 255-270.

Hoboubi, N., Choobineh, A., Ghanavati, F. K., Keshavarzi, S., & Hosseini, A. A. (2017). The impact of job stress and job satisfaction on workforce productivity in an Iranian petrochemical industry. Safety and health at work, 8(1), 67-71.

Hughey, A. W., & Mussnug, K. J. (1997). Designing effective employee training programmes. Training for Quality.

Bibliography (Continued)

Hsu, H. Y., Liu, F. H., Tsou, H. T., & Chen, L. J. (2018). Openness of technology adoption, top management support and service innovation: a social innovation perspective. Journal of Business & Industrial Marketing.

Jalagat, R. (2016). Job performance, job satisfaction, and motivation: A critical review of their relationship. International Journal of Advances in Management and Economics, 5(6), 36-42.

Jangbahadur, U., & Sharma, V. (2018). Measuring employee development. Global Business Review, 19(2), 455-476.

Jin, X., Xu, L., Xin, Y., & Adhikari, A. (2022). Political governance in China's state-owned enterprises. China Journal of Accounting Research, 15(2), 100236.

Jung, J., Bozeman, B., & Gaughan, M. (2017). Impact of research collaboration cosmopolitanism on job satisfaction. Research Policy, 46(10), 1863–1872. doi:10.1016/j.respol.2017.09.003

Kai, Z. (2008). THE STATE-OWNED ENTERPRISE REFORM IN CHINA. Université des sciences et technologies de Lille.

Kamal, Y., & Hanif, F. (2009). Pay and job satisfaction: A comparative analysis of different Pakistani commercial banks. Available at SSRN 1428346.

Kaminski, J. (2011). Theory applied to informatics-Lewin's change theory. Canadian Journal of Nursing Informatics, 6(1).

Karabiyik, B., & Korumaz, M. (2014). Relationship between teacher's self-efficacy perceptions and job satisfaction level. Procedia-Social and Behavioral Sciences, 116, 826-830.

Kohli, R., & Johnson, S. (2011). Digital Transformation in Latecomer Industries: CIO and CEO Leadership Lessons from Encana Oil & Gas (USA) Inc. MIS Quarterly Executive, 10(4).

Krhač Andrašec, E., Urh, B., Senegačnik, M., & Kern, T. (2021). Implementation of the Digital Sales Channel in the Coatings Industry. Processes, 9(7), 1168.

Lehdonvirta, V., Oksanen, A., Räsänen, P., & Blank, G. (2021). Social media, web, and panel surveys: using non- probability samples in social and policy research. Policy & internet, 13(1), 134-155.

Bibliography (Continued)

Leutert, W. (2020). State-owned enterprises in contemporary China. In The Routledge handbook of state-owned enterprises (pp. 201-212). Routledge.

Levasseur, R. E. (2001). People skills: Change management tools—Lewin's change model. Interfaces, 31(4), 71-73.

Liere-Netheler, K., Packmohr, S., & Vogelsang, K. (2018). Drivers of digital transformation in manufacturing.

Lin, H., Gaosheng, R., Ning, M., Li, C., Bo, H., & Xiaofan, G. (2021, July). Combination forecasting model of equipment and material prices for power grid production technological transformation projects based on unary linear regression and grey theory. In IOP Conference Series: Earth and Environmental Science (Vol. 827, No. 1, p. 012019). IOP Publishing.

Lin, K. J., Lu, X., Zhang, J., & Zheng, Y. (2020). State-owned enterprises in China: A review of 40 years of research and practice. China Journal of Accounting Research, 13(1), 31-55.

Malkanthi, S. P. S., & Ali, M. A. M. H. (2016). Impact of job design on employees' performance in people's banks of Ampara district.

Mi, L., Production department manager of ZCF, 2022.

Mićić, L. (2017). Digital transformation and its influence on GDP. ECONOMICS-Innovative and Economic Research, 5(2), 135-147.

Mohajan, H. K. (2018). Qualitative research methodology in social sciences and related subjects. Journal of Economic Development, Environment and People, 7(1), 23-48.

Mojambo, G., Tulung, J. E., & Saerang, R. T. (2020). The Influence of Top Management Team (TMT) Characteristics Toward Indonesian Banks Performance During the Digital Era (2014–2018). Available at SSRN 3541856.

Nataraja, N. S., Chilale, N. R., & Ganesh, L. (2018). Financial performance of private commercial banks in India: multiple regression analysis. Academy of Accounting and Financial Studies Journal, 22(2), 1-12.

National Bureau of Statistics. (2017). Statistical division of large, medium, small and micro enterprises. (July 22, 2022) http://www.stats.gov.cn/tjsj/tjbz/201801/t20180103_1569357.html

Bibliography (Continued)

Nda, M. M., & Fard, R. Y. (2013). The impact of employee training and development on employee productivity. Global journal of commerce and management perspective, 2(6), 91-93.

Neog, B. B., & Barua, M. (2014). Factors influencing employee's job satisfaction: An empirical study among employees of automobile service workshops in Assam. The SIJ Transactions on Industrial, Financial & Business Management (IFBM), 2(7), 305-316.

Nieminen, J. (2014). Understanding & Managing Digital Transformation–A case study of a large Nordic retailer (Master's thesis).

Nofrita, R., Kamil, I., Jonrinaldi, J., Yuliandra, B., & Halim, I. (2020). The Effect of Digital Talent on Individual Innovation Behavior, Skills of Revolution Industry 4.0 as Mediator Variables. Jurnal Optimasi Sistem Industri, 19(2), 133-143.

O'Brien, S. M., Feng, L., He, X., Xian, Y., Jacobs, J. P., Badhwar, V., ... & Shahian, D. M. (2018). The Society of Thoracic Surgeons 2018 adult cardiac surgery risk models: part 2—statistical methods and results. The Annals of thoracic surgery, 105(5), 1419-1428.

Oliveira, K. K. D. S., & de SOUZA, R. A. (2021). Digital transformation towards education 4.0. Informatics in Education.

Ozili, P. K. (2022). The acceptable R-square in empirical modelling for social science research. Available at SSRN 4128165.

Pandey, C., & Khare, R. (2012). Impact of job satisfaction and organizational commitment on employee loyalty. International Journal of Social Science & Interdisciplinary Research, 1(8), 26-41.

Piccoli, G., Rodriguez, J., & Grover, V. (2020). Digital Strategic Initiatives and Digital Resources: Construct Definition and Future Research Directions. Available at SSRN.

Piosik, A., Strojek-Filus, M., Sulik-Górecka, A., & Szewieczek, A. (2019). Gender and age as determinants of job satisfaction in the accounting profession: evidence from Poland. Sustainability, 11(11), 3090.

Bibliography (Continued)

Prezioso, G., Ceci, F., & Za, S. (2020). Employee skills and digital transformation: preliminary insights from a case study. ImpresaProgetto-Electron J.

Products INFO. Gdzygy.com (2022).

https://www.gdzygy.com/PCWeb/produce.html?MenuID=3f325808-7c6c-4abf-a99e-8347b7dfc8ac (Jun 13, 2022).

Ramos, L. R., Esteves, D., Vieira, I., Franco, S., & Simões, V. (2021). Job Satisfaction of Fitness Professionals in Portugal: A Comparative Study of Gender, Age, Professional Experience, Professional Title, and Educational Qualifications. Frontiers in Psychology, 11, 621526.

Ravari, A., Mirzaei, T., Kazemi, M., & Jamalizadeh, A. (2012). Job satisfaction as a multidimensional concept: A systematic review study. Journal of Occupational Health and Epidemiology, 1(2), 95-102.

Raziq, A., & Maulabakhsh, R. (2015). Impact of working environment on job satisfaction. Procedia Economics and Finance, 23, 717-725.

Reichheld, F. F. (2003). The one number you need to grow. Harvard business review, 81(12), 46-55.

Rimon, G. (2017). Six surprising truths about how digital transformation will change HR. Strategic HR Review.

Riza, S. D., Ganzach, Y., & Liu, Y. (2018). Time and job satisfaction: A longitudinal study of the differential roles of age and tenure. Journal of management, 44(7), 2558-2579.

Rogers, D. (June 20, 2022). China's state-owned firms to spend $1.5 trillion on smart infrastructure. Global Construction Review.com.

https://www.globalconstructionreview.com/chinas-state-owned-firms-to-spend-1 - 5 - trillion-on-smart-infrastructure/ (July 6, 2022).

Rosmi, R., & Syamsir, S. (2020). The Influence of Integrity and Work Experience on Employee Performance. International Journal of Research and Analytical Reviews (IJRAR), 7(1), 789-794.

Sarstedt, M., & Mooi, E. (2019). Regression analysis. In A Concise Guide to Market Research (pp. 209-256). Springer, Berlin, Heidelberg.

Bibliography (Continued)

Schein, E. H. (1996). Kurt Lewin's change theory in the field and in the classroom: Notes toward a model of managed learning. Systems practice, 9(1), 27-47.

Sharma, S. K., Mudgal, S. K., Thakur, K., & Gaur, R. (2020). How to calculate sample size for observational and experimental nursing research studies. National Journal of Physiology, Pharmacy and Pharmacology, 10(1), 1-8.

Shelton, K. (2001). The effects of employee development programs on job satisfaction and employee retention.

Shim, S., Lusch, R., & O'Brien, M. (2002). A hierarchical model of values, leadership, job satisfaction and commitment: Human resources management implications for the retail industry. Journal of Marketing Channels, 10(1), 65-87.

Sirgy, M. J., & Lee, D. J. (2018). Work-life balance: An integrative review. Applied Research in Quality of Life, 13(1), 229-254.

Songer, N. B. (2007). Digital resources versus cognitive tools: A discussion of learning. Handbook of research on science education, 471, 491.

Souitaris, V. (2003). Determinants of technological innovation: current research trends and future prospects. The international handbook on innovation, 7(07), 513-528.

Sowmya, K. R., & Panchanatham, N. (2011). Factors influencing job satisfaction of banking sector employees in Chennai, India. Journal of law and conflict Resolution, 3(5), 76-79.

Statt, D. A. (2004). The Routledge dictionary of business management. Routledge.

Stolterman, E., & Fors, A. C. (2004). Information technology and the good life. In Information systems research (pp. 687-692). Springer, Boston, MA.

Taherdoost, H. (2019). What is the best response scale for survey and questionnaire design; review of different lengths of rating scale/attitude scale/Likert scale. Hamed Taherdoost, 1-10.

Tahsildari, A., & Shahnaei, S. (2015). Enhancing organizational effectiveness by performance appraisal, training, employee participation, and job definition. European Journal of Business and Management, 7(12), 56-63.

Bibliography (Continued)

Tansky, J. W., & Cohen, D. J. (2001). The relationship between organizational support, employee development, and organizational commitment: An empirical study. Human resource development quarterly, 12(3), 285-300.

Tolboom, I. H. (2016). The impact of digital transformation.

Tsounis, A., & Sarafis, P. (2018). Validity and reliability of the Greek translation of the Job Satisfaction Survey (JSS). BMC psychology, 6(1), 1-6.

Ulas, D. (2019). Digital transformation process and SMEs. Procedia Computer Science, 158, 662-671.

Vial, G. (2019). Understanding digital transformation: A review and a research agenda. The journal of strategic information systems, 28(2), 118-144.

Wang, R. (2015). Industry 4.0 Challenges and solutions for the digital transformation and use of exponential technologies. Finance, Audit Tax Consulting Corporate: Zurich, Swiss, 1-12.

Waqas, A., Bashir, U., Sattar, M. F., Abdullah, H. M., Hussain, I., Anjum, W., & Arshad, R. (2014). Factors influencing job satisfaction and its impact on job loyalty. International Journal of Learning and Development, 4(2), 141-161.

Westerman, G., Bonnet, D., & McAfee, A. (2014). The nine elements of digital transformation. MIT Sloan Management Review, 55(3), 1-6.

Wrigley, K. C. (1988). Top Management Succession in Three Multiple High Street Retail Companies in the United Kingdom. The University of Manchester (United Kingdom).

Yap, R. J. C., Komalasari, F., & Hadiansah, I. (2018). The effect of financial literacy and attitude on financial management behavior and satisfaction. BISNIS & BIROKRASI: Jurnal Ilmu Administrasi dan Organisasi, 23(3), 4.

Yeo, B., Serenko, A., Palvia, P., Sato, O., Sasaki, H., Yu, J., ... & Sasaki, H. (2018). Exploring Job Satisfaction of IT Workers in Taiwan, Japan, and China: The Role of Employee Demographics, Job Demographics, and Uncertainty Avoidance. In AMCIS.

Bibliography (Continued)

Yuchen, X. (May 26, 2021). China Could Lead Transformation of The Tobacco Sector. Smoke Free World.org. https://www.smokefreeworld.org/china-could-lead-transformation-of-the-tobacco-sector/ (Jun 15, 2022).

Yusof, N. A. D. M., Jamil, P. A. S. M., Hashim, N. M., Karuppiah, K., Rasdi, I., Tamrin, S. B. M., ... & Sambasivam, S. (2019). Likert Scale vs. Visual analogue scale on vehicle seat discomfort questionnaire: a review. Malaysian Journal of Medicine and Health Sciences, 15(204).

Zalenski, R. J., & Raspa, R. (2006). Maslow's hierarchy of needs: a framework for achieving human potential in hospice. Journal of palliative medicine, 9(5), 1120-1127.

Zhang, C. (2019). How much do state-owned enterprises contribute to China's GDP and employment?.

Zhang, X., Xu, Y., & Ma, L. (2022). Research on successful factors and influencing mechanism of the digital transformation in SMEs. Sustainability, 14(5), 2549.

Appendix A

The Certificate of Ethical Approval

Acquire Knowledge to Serve Society

THE CERTIFICATE OF ETHICAL APPROVAL
(CERTIFICATE OF EXEMPTION)
THE ETHICS COMMITTEE OF RESEARCH
HUACHIEW CHALERMPRAKIET UNIVERSITY

October 17th, 2022

Project Title	The Impact of Digital Transformation on Employee Job Satisfaction
Principal Investigator	Mr. Li Liang
Faculty / Program	Master of Business Administration Program in Digital Business

This is to certify that the research project above has been approved in accordance with the Declaration of Helsinki by the Research Ethics Committee at Huachiew Chalermprakiet University.

Signature

(Wirat Tongrod , Ph.D.)
Chairman of the Board
Research Ethics Committee
Huachiew Chalermprakiet University

Approval Date	October 17th, 2022
Certificate Number	อ.1250/2565

This approval is valid until 16th October 2024.

Appendix B

Questionnaire Statement

เรียนรู้เพื่อรับใช้สังคม

Questionnaires for the study on

The Impact of Digital Transformation on Employee Job Satisfaction

My name is Li Liang—a graduate student at the Master of Business Administration (M.B.A.) in Digital Business at Huachiew Chalearmprakiet University in Thailand. As a part of this degree, I am conducting a thesis on the topic "The Impact of Digital Transformation on Employee Job Satisfaction". The study is designed explore the impact of digital transformation on employee's job satisfaction in enterprise in China. For the complete of the study, researcher need Zhanjiang Cigarette Factory's employees to answer the questionnaires. The data collection is started from September to October 2022.

This research is conducted on a strictly anonymous with the confidentiality of participants. Your name will not be identified in this report and data collected will be seen only the researcher and thesis advisor. Your participation is voluntary. If you are willing to answer the questionnaires, please tick to declare that you consent to give the data for this research. The data you provide will be used for this study only.

Further information and questions about this project, please contact me at e-mail address god13729008052@gmail.com and my thesis advisor, Dr. Chatcharawan Meesupthong at e-mail address luckychat36@gmail.com.

Regards

(Mr. Li Liang)
Researcher

เรียนรู้เพื่อรับใช้สังคม

Consent to Participation in Research

The Impact of Digital Transformation on Employee Job Satisfaction

I have been given and have understood an explanation of this research project. I understand that I may withdraw myself (or any information I have provided) from this project (before data collection and analysis is complete) without having to give reasons.

☐ I understand that the data collected will be visible only to the researcher and thesis advisor, and my name will not be identified in this report.

☐ I understand that the data I provide will be used only for this study and will not be used for any other purpose, nor will it be released to others without my written consent.

☐ I understand that answering the questions in the questionnaire means that I have read the consent form and volunteered to participate in this research without any enforcement from anyone.

Appendix C
Quantitative questionnaire

The questionnaire is divided into two parts. The first part is about the basic personal information of employees. The second part examines the employees' satisfaction with various factors in their work.

1. Basic personal information (Single-choice questions, please tick "√" on the selected option)

1.1 Gender:

A: Male B: Female

1.2 Marital status:

A: Unmarried B: Married C: Divorced

1.3 Age:

A: 22-30 B: 31-40

C: 41-50 D: 51 and above

1.4 Education:

A: Junior college B: Bachelor

C: Master D: Ph.D.

1.5 Working years:

A: 5 or less B: 5-10

C: 11-15 D: 16 and above

2. Influencing factors of enterprise digital transformation (please tick "√" on the selected option)

Please choose the option that you think most agree with according to the actual situation. (1=very dissatisfied, 2=somewhat dissatisfied, 3=basically satisfied, 4=somewhat satisfied, 5=very satisfied)

Digital resources (e.g. cloud services, production data, computing resources, etc.)					
	1	2	3	4	5
The enterprise has sufficient resources to ensure the implementation of the digital transformation strategy.					
Enterprises can quickly obtain resources such as production information from various digital channels.					
Enterprises can effectively avoid big data traps and extract useful data information.					
Do you feel that the enterprise has professional competence of digital resource management team?.					

Employee skills					
	1	2	3	4	5
There are a large number of digital professionals in the enterprise.					
Enterprise are placing great emphasis on the digital capabilities of their employees.					
Employee digital skills create higher performance for teams.					
Employees are proficient in using various data algorithms to analyze and mine data information.					

Top management					
	1	2	3	4	5
Corporate executives are open and transparent in the formulation and implementation of digital transformation strategies.					
Corporate executives are often able to provide various facilities such as digital devices, appropriate software to support the development of digital transformation.					
Corporate executives can effectively coordinate the contradictions and conflicts between different departments in the process of digital transformation.					
Corporate executives have a positive attitude in the construction and management of digital environment or culture.					

Technological innovation					
	1	2	3	4	5
The current technological innovation capability of the enterprise can provide a solid foundation for the digital transformation of the enterprise.					
The technological innovation planning of enterprises is closely integrated with the development of digital transformation.					
Technological innovation has accelerated the process of enterprise digitalization.					
Technological innovation provides more developing directions for enterprise digitization.					

Employee Training & Development					
	1	2	3	4	5
Enterprises have clear goals for the development of digital capabilities of employees.					
Enterprises provide employees with adequate and professional digital skills training.					
The employee is able to apply the new skills/knowledge acquired well to practical work.					
The enterprise can create a better career path for employees or opportunities for more career development.					

Employee loyalty					
	1	2	3	4	5
Do you think the enterprise is offering you the prospect future with digital transformation?					
Do you think that your team is working well with high commitment? Such as they will not leave work even if whether they have to stay late or work on holidays.					
Recently, most employees stays with the enterprise and the turnover rate is low.					
Do you feel a sense of achievement in your contribution to the digital transformation of the company?					

Working environment					
	1	2	3	4	5
The digital transformation of the enterprise provides employees with better work equipment.					
Digital facilities improve worker safety at work.					
The workflow of employees has been better optimized.					
Changes in work environment and patterns play a positive role in job coordination among employees.					

Job performance					
	1	2	3	4	5
The performance appraisal standards of employees have become more reasonable and standardized.					
Employees can easily complete the previously difficult work.					
The enterprises can match jobs with employees' talents.					
Each link of the workflow is more transparent, which is more convenient for employees to deal with emergencies.					

Work-life balance					
	1	2	3	4	5
Employees can manage their time more effectively to deal with various problems at work.					
Employees have enough time for personal life issues.					
Employees are more likely to concentrate on work because of the support of their families.					
The enterprise presents its caring program to employee work life balance by giving family benefits to help them address the imbalance between work and family time. Such as New Year presents, cinema tickets.					

Appendix D

Interview list

Pseudonym Name	Position
Mrs. Mo	Deputy Office Director
Mrs. Peng	Senior Engineer of Information Department
Mrs. Zhou	Deputy director of the factory
Mrs. Wu	Minister of Production
Mrs. He	Staff of Machine Maintenance Department

Appendix E

Interview transcripts

Interview transcript of Mrs. Mo

Part 1: Demographic questions

Name: Feiyue Mo

Age: 35

Position: Deputy Office Director

Working time: 12

Part 2: Variables

Digital resources

1. When talk about Digital resources, do you think that our company has sufficient resources to ensure the implementation of the digital transformation strategy or not? Why? Please explain.

I think there are enough resources. Because now in the general environment, the country is advocating digital transformation, which is an important node for the survival and development of enterprises. Traditional intensive processing enterprises like us are definitely inseparable from the construction of digitalization.

2. Do you feel that the enterprise has professional competence of digital resource management team? Please give some examples for this situation.

I feel that the current digital resource management team within our organization has sufficient expertise. They are equipped with strategic ideas and knowledge about digitalization. However, there is still a lack of technical talent pool about smart manufacturing, and researcher rely more on external forces.

Employee skills

1. Do you think the company has large number or enough digital professionals in the enterprise or not. If the enterprise does not have enough digital professional in the enterprise will this cause any slow down of productivity or efficiency? What is your opinion about this?

As far as I understand, I think our companies do not yet have enough digital professionals, and this is a shortcoming in the recent high-quality development of our companies. Although researcher have been making efforts to cultivate technical talents in this area over the years, the overall pace is still slow. Therefore, at this stage, it may not be enough to meet the talent needs of our enterprise intelligent manufacturing strategic planning.

2. The enterprise and its leader are placing great emphasis on the digital capabilities of their employees or not? What do you think. If not what the enterprise can do more to put effort on digital capabilities.

Our leaders attach great importance to the digital competence of our employees. However, when it comes to concrete measures, there are still some shortcomings. At present, the digital capability of employees in the enterprise is more at the level of operation and use, and there is still a lack of capability in research and development.

Top management

1. Do you think the company executives are open and transparent in the formulation and implementation of digital transformation strategies? If not, what would be the reason?

Yes, in addition to the confidentiality of some data in this aspect of digital transformation, the development plans and goals of enterprises are very clear. Now we are moving forward in the two directions of smart manufacturing and green development. The employees are also very clear about our current development direction, which is very clear in general.

2. Can you feel the enthusiasm of the senior management for the construction and management of the digital environment or culture of the enterprise? Please give some examples.

It is obvious to feel it. Since I joined the company more than ten years ago, all aspects of the company, not only production, but also management and operation, have been gradually using digital processes or carriers to replace the original manual records and analysis. Companies often invite some technical experts in digitalization to popularize this knowledge to us. Of course, the object of popularization is more

inclined to the operational staff, like our administrative staff only need to understand these systems and how to allocate arrangements is enough.

Technological innovation

1. Do you think the technology innovation plan of the company closely follows the development of digital transformation? If not, please explain why?

I think it is closely followed, and now technological innovation is a very important strategic point for the company. The establishment of technological innovation is also increasing year by year, and we are guiding our employees to pay attention to technological innovation through various means and measures. At the same time, we will apply various advanced digital tools to match the development of our technological innovation in this process.

2. Do you think that the technological innovation capability of the enterprise can play a role in promoting the digital transformation of the enterprise? If so, in what ways?

I strongly agree with this, it is a very practical experience. In particular, the analysis and application of basic data, digital technology has provided a solid foundation for technological innovation. At the same time, this has accelerated the pace of technological innovation in our enterprises, thus again promoting the development of digitalization. I think everyone can feel this point.

Employee Training & Development

1. Does the company have a clear planning direction for the development of your digital capabilities? If not, please explain why?

For my position, it is not. Generally, these are for some key positions, such as information departments, equipment departments and production departments of these positions, companies have a very clear training orientation. Which includes the promotion of employees and skills training, are their respective plans.

2. In terms of digital skills, does the company provide you with targeted training? If not, do you want the company to provide you with training? Why?

No, but I wish they would have trained me on it. Not only companies, but also the whole society will become more and more mature in the process of digital

development. Although our position is not specialized in this area, at least we need to have an understanding of the basic logic related to digitalization, which will be more conducive to our thinking and decision making for the company.

Employee loyalty

1. Do you think the digital transformation of your business can lead to a better future for your work? Why?

I think it will. There is a different voice in the society that after the digital transformation, although the efficiency will be improved, it will also lead to the replacement of some basic operation positions. However, I think this is an irreversible direction for enterprises, and as long as we can keep up with this digital boom, we will not be so easily eliminated by the times. If we can actively adapt to this general environment, it will certainly have a positive impact on our work, such as improving efficiency, quality, accuracy, etc.

2. Do you feel fulfilled by your contribution to the digital transformation of your business? Why?

Yes. Just two years ago, I advanced the development of a digital system for the enterprise, and it was very successful. In the area of corporate management and performance appraisal, we developed an information system with the information department that optimized the traditional workflow of raw statistical analysis and manual data entry, greatly improving efficiency and saving employees a lot of time. Although I myself do not know much about the related development technology, I have followed up the whole process for the functional design and user experience of the system. I am very proud of all these contributions.

Working environment

1. Do you feel that job security has increased with the implementation of digital facilities?

Of course. In terms of working environment, such as fire safety, the control and response in these aspects of smoke sensing and humidity collection are supported by digital technology.

2. Will your workflow be optimized under the influence of digital transformation? If yes, please give some examples.

That's right. Nowadays, many workflows are not using traditional workflows if they can be converted to digital processes. Because, the first digital process is convenient and efficient, the second point is also very important point, can help us to classify and summarize, and after many years can also query, data is not easy to lose. If it is paper data, it is easy to be damaged and not easy to save.

Job performance

1. Do you think that previously difficult jobs have become easier under the influence of digital transformation? Why?

Yes, this is obvious. For example, in the collection of data in the production line, each process and machine used to accumulate a lot of data, but these data all existed in information silos, and it was difficult to connect and analyze them in series. However, in recent years, the use of digital technology has been able to integrate these systems and break through the original barriers to data sharing. Through systematic analysis, it provides a basis for decision making in our operation and management. Therefore, there is still a positive impact in this regard.

2. Do you think the company allocates suitable jobs according to your own strengths? If not, do you hope so? Why?

Right. The demands on the digital aspect are high, and without systematic knowledge it will be difficult to perform the relevant work. However, even if the employee is not specialized in this field, but has a certain degree of relevance and interest in this area, the company will consider assigning these employees to the appropriate work.

Work - life balance

1. When you encounter a problem at work, do you have enough time to solve it? If not, what approach would you take?

In my view, there are inevitably situations where work can't be accommodated. It is difficult to make arrangements when the workload is heavy and demanding within a certain period of time. In my personal way of handling the situation, besides working

overtime, I also use external forces to solve the problem, including going to other colleagues for help, or using work teams for task distribution, etc. However, today's interview also made me realize that we still lack the support of information technology in management, and there is still scope for us to explore in this aspect. This kind of improvement can help us to deal with difficult problems at work.

2. Do you have enough time to take care of your daily life? What is the proportion of life and work?

I think balance is an ideal state, which may vary from person to person. I think I have less time to deal with my own life issues and more time for work. There is still a lack of time for my own children's development and companionship.

Interview transcript of Mrs. Peng

Part 1: Demographic questions

Name: Haohua Peng

Age: 36

Position: Deputy Director of Information Department

Working time: 13

Part 2: Variables

Digital resources

1. When talk about Digital resources, do you think that our company has sufficient resources to ensure the implementation of the digital transformation strategy or not? Why? Please explain.

From our business only, we basically have enough resources to secure digital transformation. This is not necessarily the case if one is talking about having excess digital resources.

2. Do you feel that the enterprise has professional competence of digital resource management team? Please give some examples for this situation.

From the point of view of our industry, we really do not have enough professional strength to complete the digital transformation, still need a third party more professional information technology team to assist in achieving. The current more advanced technologies, such as cloud, big data and microservices architecture of these technologies, we are still difficult to draw some personnel or resources to support. More often, we need some project cooperation, using the technical resources and human resources of third parties to assist us.

Employee skills

1. Do you think the company has large number or enough digital professionals in the enterprise or not. If the enterprise does not have enough digital professional in the enterprise will this cause any slow down of productivity or efficiency? What is your opinion about this?

Through the development of these years, enterprises should have a certain reserve of digital personnel, which basically can meet part of the work needs of our

digital transformation in the early stage. If the digital transformation reaches a certain level at a later stage, more talents in this area need to be added, and the skill level and technical level also need to be further improved, even more professional technical training is needed. Through these different methods to train professional and technical personnel to protect our digital manpower needs.

2. The enterprise and its leader are placing great emphasis on the digital capabilities of their employees or not? What do you think. If not what the enterprise can do more to put effort on digital capabilities.

Yes. From now on, depending on different industries, their development direction, vision and development goals, they may consider digital transformation as just an auxiliary means. It does not consider how to enhance the core competitiveness of enterprises through digital transformation. Therefore, I think our country still needs to pay more attention to digital talents in terms of policy. For our enterprises, we need to strengthen the introduction and training for digital talents.

Top management

1. Do you think the company executives are open and transparent in the formulation and implementation of digital transformation strategies? If not, what would be the reason?

In this aspect, the top management is still relatively open and transparent. The 14th Five-Year Plan, and even the longer-term 10-year plan, are relatively transparent in these aspects and our employees are aware of them. Therefore, it is still very clear about the future direction of the employees' own digitalization.

2. Can you feel the enthusiasm of the senior management for the construction and management of the digital environment or culture of the enterprise? Please give some examples.

This is able to be felt. For example, in the 14th Five-Year Plan just mentioned, there is an information development plan, which includes the entire digital transformation plan of our enterprise. At the same time, the recruitment of digital talents has also increased, and the capital and personnel investment in this area is gradually increasing.

Technological innovation

1. Do you think the technology innovation plan of the company closely follows the development of digital transformation? If not, please explain why?

Right. All of our technological innovations are now closely integrated with digital transformation. We adopt the current advanced digital technology, big data technology, cloud technology, virtualization technology, etc., and fully combine and develop with our core innovation technology.

2. Do you think that the technological innovation capability of the enterprise can play a role in promoting the digital transformation of the enterprise? If so, in what ways?

This is indisputable. I think technological innovation is combined with modern information technology, process technology and other high-end technology. So in this area, if we are still using the older technology to achieve is more difficult. Nowadays, the whole society is in a digital environment, and if we want to improve our competitiveness, we have to combine advanced technologies. Therefore, the technological innovation of our enterprises will inevitably combine with these high-end technologies to develop in parallel. From the result, both in terms of manpower, capital and attention, it will be a boost to the digital transformation of our enterprises.

Employee Training & Development

1. Does the company have a clear planning direction for the development of your digital capabilities? If not, please explain why?

Yes. But honestly, our company's understanding of digitalization is still in its infancy. The planning and development of digital capabilities for individual employees is still relatively weak. Here we still need to pay more attention and deepen the company, in order to slowly become better.

2. In terms of digital skills, does the company provide you with targeted training? If not, do you want the company to provide you with training? Why?

Yes. For example, big digital technologies, microservice architecture building, virtualization technologies and other such skills are provided to employees for learning through regular training.

Employee loyalty

1. Do you think the digital transformation of your business can lead to a better future for your work? Why?

I personally think it is helpful. In particular, I personally am engaged in this kind of information technology-related work, and the digital transformation of the whole enterprise will provide a relatively large platform for me. It also provides a big environment for my own digital work. This is certainly a very nice opportunity for the realization of my personal values. This has a positive impact on employee loyalty.

2. Do you feel fulfilled by your contribution to the digital transformation of your business? Why?

Right. I have been in charge of several projects on digital transformation, and my colleagues and team have given me great support during the process, and these projects have been valued and recognized by the company. This has brought me a great sense of accomplishment.

Working environment

1. Do you feel that job security has increased with the implementation of digital facilities?

Right. We now have an integrated control platform for employee safety that monitors our employees' work environment and work behavior in real time. In case of unsafe behavior, the system will alert and instruct our employees to promote their personal safety at work. It also contains alerts about fire and other natural hazards to increase the safety of employees in the company.

2. Will your workflow be optimized under the influence of digital transformation? If yes, please give some examples.

This is inevitable. With the development of digitalization, our traditional and complicated workflow will become clearer and clearer through digital combing and statistical calculation by machines, thus optimizing the workflow. For example, if we analyze some key parameters in the manufacturing process of some products, the previous analysis through manual analysis will have disadvantages such as low accuracy and the amount of data is not easy to handle. And now we can use the intelligent analysis technology of big data to be able to solve these shortcomings and

get the results we want quickly to improve the quality and production efficiency of our products. All of these can bring great optimization to our workflow.

Job performance

1. Do you think that previously difficult jobs have become easier under the influence of digital transformation? Why?

Yes. Before our processes were optimized by digital technology, we had to work offline. But now, especially during the new crown epidemic, with just a phone or a computer, we are able to accomplish many tasks from home. This eliminates our commuting time and has a great impact on productivity. On the other hand, mobile work can greatly improve our responsiveness at all times.

2. Do you think the company allocates suitable jobs according to your own strengths? If not, do you hope so? Why?

This is actually a direction of development for our company, to try to take advantage of the strengths and weaknesses. According to the different skill characteristics of each employee to assign work, to achieve the maximum value of each of our employees. In turn, this can also promote the staff's recognition of their own work.

Work - life balance

1. When you encounter a problem at work, do you have enough time to solve it? If not, what approach would you take?

It's a real dilemma between work and life, and it's hard for us to balance. At such times, we usually report to our supervisors to find a solution. There are also other ways to solve the problem, such as adjusting the working hours of the staff to give them more rest time in the evening.

2. Do you have enough time to take care of your daily life? What is the proportion of life and work?

Now there is still some time to deal with the life aspect. Because companies have annual leave and don't have to work on weekends, there is still enough time for us personally to deal with personal or family life issues. The ratio of life and work is basically balanced.

Interview transcript of Mrs. Zhou

Part 1: Demographic questions

Name: Hao Zhou

Age: 51

Position: Deputy director of the factory

Working time: 26

Part 2: Variables

Digital resources

1. When talk about Digital resources, do you think that our company has sufficient resources to ensure the implementation of the digital transformation strategy or not? Why? Please explain.

Nowadays, our enterprises are more advanced in terms of automation, and we are able to work with information technology in some related businesses. Although we have a certain foundation in information technology management, we still lack some support in reaching the requirements of digital transformation. This is our current situation.

2. Do you feel that the enterprise has professional competence of digital resource management team? Please give some examples for this situation.

Now we have an information department in digital resource management, which is mainly responsible for our system operation and data analysis. However, the analysis and application of data is not extensive enough, we still rely on some outsourcing to maintain and develop some information technology or data-based business.

Employee skills

1. Do you think the company has large number or enough digital professionals in the enterprise or not. If the enterprise does not have enough digital professional in the enterprise will this cause any slow down of productivity or efficiency? What is your opinion about this?

At present, we still have a certain amount of computer or related talents in terms of job allocation. But most of them are as a form of reserve talent, and only a few of

them are working in digital or information technology. The demand is basically met in terms of talent. If we do not have enough digital talents, it will definitely have an impact on our productivity. Therefore, our company is now very urgent to implement digital work, which includes the training and reserve of digital talents, as well as other equipment and facilities and various digital platforms.

2. The enterprise and its leader are placing great emphasis on the digital capabilities of their employees or not? What do you think. If not what the enterprise can do more to put effort on digital capabilities.

We attach great importance to this aspect. As we talked about earlier, the future productivity improvement can't be achieved without the support of digitalization. And various other demands also need digitalization as well, to improve our quality. Therefore, now we are also gradually and systematically working on our digital transformation.

Top management

1. Do you think the company executives are open and transparent in the formulation and implementation of digital transformation strategies? If not, what would be the reason?

We are very transparent in the process of digital transformation strategy development and implementation. Whether it is our own enterprise planning or the 14th Five-Year Plan, we have a very clear idea and program in information construction.

2. Can you feel the enthusiasm of the senior management for the construction and management of the digital environment or culture of the enterprise? Please give some examples.

I can say that we are very active. For example, in addition to the professional training of our employees, we also participate in other ways to build digitalization. Recently, there was an industrial robotics competition in Guangdong Province, we encourage our employees to participate in it.

Technological innovation

1. Do you think the technology innovation plan of the company closely follows the development of digital transformation? If not, please explain why?

I think we are. For example, just now in the 14th Five-Year Plan, there is a plan for information technology construction, whether on the business side or on the production equipment and facilities, there is a clear plan for digital transformation.

2. Do you think that the technological innovation capability of the enterprise can play a role in promoting the digital transformation of the enterprise? If so, in what ways?

In terms of our technological innovation, we have focused more on process improvement. In terms of digital transformation, although we are also using various means to carry out our work, we still lack some specific or specialized innovative means so far. Therefore, the effect of our digital transformation through technological innovation is not obvious at present.

Employee Training & Development

1. Does the company have a clear planning direction for the development of your digital capabilities? If not, please explain why?

I think in terms of digital capability development, we are focusing more on the overall planning of the company. In terms of employees, most of the planning is based on the position that the employee is in. In the information department, for example, there is more detailed planning. In general, our management does not have a plan for this.

2. In terms of digital skills, does the company provide you with targeted training? If not, do you want the company to provide you with training? Why?

Yes. We have a professional training organization within our company, they provide digital skills training courseware, and we have completed the training content as required.

Employee loyalty

1. Do you think the digital transformation of your business can lead to a better future for your work? Why?

I feel very strongly about this aspect. I think the digital transformation in the future will definitely improve my work efficiency and quality. Our enterprise now has a certain foundation of information technology, and if we want to improve our overall competitiveness, we must set our eyes on the digital enterprise model. We have been thinking and exploring how to be more effective in digital transformation in all aspects of our business. We expect to be able to reach a certain level of digital transformation in the near future.

2. Do you feel fulfilled by your contribution to the digital transformation of your business? Why?

Yes. Because I myself am very interested in digital transformation, and I am happy to explore it. Moreover, I think that a modern enterprise with a certain foundation of information technology needs to keep working on it. Let's make this traditional way of operation or management into digital form, and eventually build into a smart factory. These are the current direction of our enterprise's work.

Working environment

1. Do you feel that job security has increased with the implementation of digital facilities?

I haven't thought about it seriously in this aspect. However, in terms of digital construction, there will certainly be a good effect on the improvement of the error tolerance rate. In other words, we can reduce the human errors of our employees through the analysis and application of this big data.

2. Will your workflow be optimized under the influence of digital transformation? If yes, please give some examples.

I think it is optimized. In the future, I believe it can be optimized even more. We are now optimizing more from the office collaboration system, ERP system and other quality analysis systems. All of these have optimized our workflow.

Job performance

1. Do you think that previously difficult jobs have become easier under the influence of digital transformation? Why?

The ideal state is right. At the moment, we have a little bit of improvement in some of the areas of work where the quality of data is not very demanding. But, as I said earlier, on most of the work, I personally don't think the effect is particularly obvious. Perhaps as the digital transformation progresses, these issues will be slowly addressed.

2. Do you think the company allocates suitable jobs according to your own strengths? If not, do you hope so? Why?

We will combine many factors, and the expertise of the staff here is also one of the factors to be considered.

Work - life balance

1. When you encounter a problem at work, do you have enough time to solve it? If not, what approach would you take?

Usually, I have enough time to solve the difficult problems in my work. If I feel that the quality of my work does not meet my requirements, I may consider working overtime.

2. Do you have enough time to take care of your daily life? What is the proportion of life and work?

I don't think I have this problem. I am still in a normal state in terms of work and life.

Interview transcript of Mrs. Wu

Part 1: Demographic questions

Name: Lei Wu

Age: 38

Position: Minister of Production

Working time: 13

Part 2: Variables

Digital resources

1. When talk about Digital resources, do you think that our company has sufficient resources to ensure the implementation of the digital transformation strategy or not? Why? Please explain.

I think the enterprise has sufficient resources. Enterprises are currently providing sufficient human and financial resources on digital transformation every year.

2. Do you feel that the enterprise has professional competence of digital resource management team? Please give some examples for this situation.

The digital management team of our company has professional capabilities. We have an information center for digitalization, and we have a large number of talents in it.

Employee skills

1. Do you think the company has large number or enough digital professionals in the enterprise or not. If the enterprise does not have enough digital professional in the enterprise will this cause any slow down of productivity or efficiency? What is your opinion about this?

There are currently enough digital professionals in our enterprise. Without enough digital professionals, this will definitely lead to a decrease in productivity. The reason is that a large number of digital information systems in our companies require digital professionals to maintain them. If these personnel are not sufficiently prepared, then the operation of our system will not be guaranteed. Therefore, it will lead to a decrease in our productivity.

2. The enterprise and its leader are placing great emphasis on the digital capabilities of their employees or not? What do you think. If not what the enterprise can do more to put effort on digital capabilities.

Our leaders are currently placing great emphasis on the digital competence of our employees. For example, we usually have a training program for digital competencies, with courses for professionals and general employees with different characteristics. From this, we can verify that our leadership attaches great importance to this.

Top management

1. Do you think the company executives are open and transparent in the formulation and implementation of digital transformation strategies? If not, what would be the reason?

Now it was done openly and transparently. In our strategic planning, there is a professional module for digital transformation. The contents of this module are all open to the enterprise.

2. Can you feel the enthusiasm of the senior management for the construction and management of the digital environment or culture of the enterprise? Please give some examples.

At present, the top managers attach great importance to digitalization. Both from the national level and the company level, there is a consensus on the development capability of digitalization. In the course of the project, there are many projects about digitalization and informatization that have received the attention and affirmation of the top management. Of course, certain results have been achieved in the end.

Technological innovation

1. Do you think the technology innovation plan of the company closely follows the development of digital transformation? If not, please explain why?

At present, our technological innovation is keeping up with the development of digitalization. The technological innovation planning of our equipment is all towards informationization and digitalization. On the other hand, both production organization

and hardware equipment have higher requirements in information technology and digitalization.

2. Do you think that the technological innovation capability of the enterprise can play a role in promoting the digital transformation of the enterprise? If so, in what ways?

Technology innovation capabilities and digital transformation they are complementary. Digital transformation will force digital innovation, and technological innovation facilitates digital transformation. At present, our enterprises are constantly putting forward higher requirements in information management. Therefore, technological innovation plays a good role in promoting our digital transformation.

Employee Training & Development

1. Does the company have a clear planning direction for the development of your digital capabilities? If not, please explain why?

This is clearly planned. Currently, digital competence is a basic competence for every employee, and there will be higher requirements for professional talents. For our management staff, we still need to have a certain understanding of digitalization. Therefore, our training can be reflected.

2. In terms of digital skills, does the company provide you with targeted training? If not, do you want the company to provide you with training? Why?

Yes, this is the same as what I said earlier. For different levels and characteristics of talent, companies have professional training.

Employee loyalty

1. Do you think the digital transformation of your business can lead to a better future for your work? Why?

Yes, digital transformation has enabled a lot of work to be done in the form of offline to online, for example, from fixed site to home. This keeps things smooth and easy, whether we are facing a new crown epidemic or various other unexpected situations.

2. Do you feel fulfilled by your contribution to the digital transformation of your business? Why?

This is undoubtedly true. Now we are promoting the information technology and digital construction project, the enterprise still gives a strong support. I still have a sense of achievement about this.

Working environment

1. Do you feel that job security has increased with the implementation of digital facilities?

That's for sure. For example, our face recognition system and digital time and attendance system make our employees have a better and safer working environment.

2. Will your workflow be optimized under the influence of digital transformation? If yes, please give some examples.

Workflow can be optimized with digital transformation. For example, our process approval, in the past, required various complicated processes such as printing, signing, and distribution. But now, you only need to confirm it on your cell phone and send it, and the other party can be processed directly when they receive the message. This has all helped us a lot in our work.

Job performance

1. Do you think that previously difficult jobs have become easier under the influence of digital transformation? Why?

This is true. There are many jobs that are digitally supported, and many difficult jobs do become easier. Remote video conferencing, for example, was almost impossible in the past and required a special trip to a more distant location to participate. And now it is possible to have a discussion just online, which improves efficiency.

2. Do you think the company allocates suitable jobs according to your own strengths? If not, do you hope so? Why?

It will. Because the characteristics of each employee are different, the enterprise will also consider their work needs in addition to their characteristics. Let the right person in the right position, which is our enterprise's human resources department needs to focus on.

Work - life balance

1. When you encounter a problem at work, do you have enough time to solve it? If not, what approach would you take?

I usually have enough time to work it out.

2. Do you have enough time to take care of your daily life? What is the proportion of life and work?

I have enough time to deal with personal or family life problems. Work and life are two things that depend on one's balance of these aspects. Only this way, work can bring a better life, and in turn can promote work.

Interview transcript of Mrs. He

Part 1: Demographic questions

Name: Decou He

Age: 30

Position: Staff of Machine Maintenance Department

Working time: 9

Part 2: Variables

Digital resources

1. When talk about Digital resources, do you think that our company has sufficient resources to ensure the implementation of the digital transformation strategy or not? Why? Please explain.

I think yes. In fact, our business is in the process of transformation. I personally feel that our enterprise has been gradually pushing forward the digitalization work, mainly focusing on the central control aspect.

2. Do you feel that the enterprise has professional competence of digital resource management team? Please give some examples for this situation.

Our company has a professional information department, which mainly supports our digital network and technology. The main team here is a senior engineer in digitalization, and other people also have the corresponding engineer title.

Employee skills

1. Do you think the company has large number or enough digital professionals in the enterprise or not. If the enterprise does not have enough digital professional in the enterprise will this cause any slow down of productivity or efficiency? What is your opinion about this?

I personally believe that digital transformation is a revolutionary change, and this process definitely needs the support of talents. In addition to the information department I mentioned before, we also have corresponding professionals in our production department. We may not have a large amount of digital talent in our organization, but we still have enough talent to support our digital transformation activities.

2. The enterprise and its leader are placing great emphasis on the digital capabilities of their employees or not? What do you think. If not what the enterprise can do more to put effort on digital capabilities.

Our company will recruit new employees every year. In the recruitment process, we will specifically involve the recruitment of college students in this field. This shows that our senior personnel still attach great importance to the talent reserve in this area.

Top management

1. Do you think the company executives are open and transparent in the formulation and implementation of digital transformation strategies? If not, what would be the reason?

Of course. I will explain from one aspect. The passing rate of information and digital projects we have done in recent years is relatively high. There is transparency from the call for projects, to the bidding, to the disclosure of information. If there are pain points in some of these projects, they are brought up. This process is not only known by the top management and leaders, this is done by the bottom staff for feedback to the top, and only then the top will make the corresponding decisions. This is both a bottom-up and top-down process in which the whole team is involved.

2. Can you feel the enthusiasm of the senior management for the construction and management of the digital environment or culture of the enterprise? Please give some examples.

On this issue, I can illustrate it from another aspect. Our enterprise has a studio that often organizes training on cutting-edge information technology. In addition, our enterprise often sends employees to foreign training. From these aspects, I can realize that enterprise leaders attach importance to digital knowledge training.

Technological innovation

1. Do you think the technology innovation plan of the company closely follows the development of digital transformation? If not, please explain why?

I am now responsible for the project. We found that the passing rate of some information projects is relatively high. Previously, we had a project for this aspect of

big data. In this project, we were able to record data from the production process through sensors and then transfer it into the server. Later on, we can organize and analyze these data twice, so that we can find some shortcomings in our production process. In other words, this big data can improve the process quality of our products. It is precisely because of the support of these digital technologies that we can constantly improve the pain points in the production process. Therefore, our technological innovation is closely following the digital development.

2. Do you think that the technological innovation capability of the enterprise can play a role in promoting the digital transformation of the enterprise? If so, in what ways?

Yes, that's right. For example, all of our technological innovations have upgraded hardware or software aspects such as monitoring equipment, communication networks, and server systems. It is with these new ideas that we are driving our digital transformation, there is no doubt about it.

Employee Training & Development

1. Does the company have a clear planning direction for the development of your digital capabilities? If not, please explain why?

Digital development is a big trend. Our company definitely has to follow this big trend and keep progressing. Otherwise the backwardness of technology will lead us to be eliminated. For our employees, keeping up with this general trend is also the planning orientation of the enterprise for us, and we keep learning this knowledge.

2. In terms of digital skills, does the company provide you with targeted training? If not, do you want the company to provide you with training? Why?

As I said before, companies have provided us with some training or foreign assignments. Personally, we will constantly accumulate experience in our actual work and get in touch with some cutting-edge technologies, which is also a good way to improve.

Employee loyalty

1. Do you think the digital transformation of your business can lead to a better future for your work? Why?

I don't think there is a very direct connection here. However, if the enterprise develops well, its benefits will inevitably increase. This will also affect our employees' income or career. This will also bring more confidence to our employees.

2. Do you feel fulfilled by your contribution to the digital transformation of your business? Why?

Honestly. Although our work is rather tiring now, if you think about it, there is still a certain sense of accomplishment when you can improve the pain points of the company with your full participation.

Working environment

1. Do you feel that job security has increased with the implementation of digital facilities?

For example, in the absence of remote control system and remote sensing technology, if our employees want to measure the temperature or dust density on the site, they must go to the site to measure in person. But now with the digital equipment, we can directly access the data on site in the central control room. This has greatly improved the security of employees.

2. Will your workflow be optimized under the influence of digital transformation? If yes, please give some examples.

For example, in terms of illuminance, our traditional way is to use the human sense to operate. If the light becomes dark, it needs to be artificially enhanced. However, with the involvement of digital equipment, we do not have to pay attention to this problem all the time, and we directly submit it to intelligent equipment for adjustment. After this technology upgrade, our workflow and work content have been better optimized.

Job performance

1. Do you think that previously difficult jobs have become easier under the influence of digital transformation? Why?

Of course. For example, in case of failure of on-site equipment, employees can't keep an eye on the equipment all the time. The traditional practice is to wait until the equipment has a problem before going to repair it. Nowadays, with the function of big

data, the operational data of the field equipment can be collected without interruption and the status of the equipment can be predicted. This can help us to be able to intervene in advance and reduce the failure rate of equipment. It has greatly improved the pain points of our business in this area.

2. Do you think the company allocates suitable jobs according to your own strengths? If not, do you hope so? Why?

There is a saying that, make the best use of everything, and make the best use of people. It must be better to assign appropriate jobs after identifying the corresponding strengths of employees. For companies, it can achieve less training costs. For the employees, it can also bring out their strengths, which can help them achieve better results in their work.

Work - life balance

1. When you encounter a problem at work, do you have enough time to solve it? If not, what approach would you take?

Now I'm really busy with my work, while I am choosing to work overtime to solve all of them.

2. Do you have enough time to take care of your daily life? What is the proportion of life and work?

Honestly. Work takes up a lot of time. Our principle is to deal with things as they come up, and if it's something at home, we'll ask the leader for leave. Fortunately, our leaders are more open-minded and usually approve. Overall, there is still less time for the life aspect, so we have to overcome it slowly.

เรียนรู้เพื่อรับใช้สังคม

หนังสือยินยอมการเผยแพร่ผลงานวิจัย

Letter of Consent for Publication of Research

论文发表同意书

เขียนที่ มหาวิทยาลัยหัวเฉียวเฉลิมพระเกียรติ

วันที่ 1 พฤษภาคม พ.ศ. 2566

ข้าพเจ้า นาย/นาง/นางสาว Mr./Mrs./Miss 学生姓名 Li Liang

รหัสนักศึกษา Student ID 学号 646049-824

ระดับ level 学位 ✓ ปริญญาโท Master's degree 硕士 ❒ ปริญญาเอก Ph.D. 博士

หลักสูตร Courses 课程 บริหารธุรกิจมหาบัณฑิต

สาขาวิชา field of study 专业 ธุรกิจดิจิทัล

คณะ Faculty 学院 บริหารธุรกิจ

Email电子邮件 1451552946@qq.com

ชื่อเรื่อง (ดุษฎีนิพนธ์/วิทยานิพนธ์/การศึกษาอิสระ Title (dissertation/Thesis/Independent study (申请检查学位论文/毕业论文/选修)

(ชื่อภาษาอังกฤษ) (English Title)(英文名称) THE IMPACT OF DIGITAL TRANSFORMATION ON EMPLOYEE JOB SATISFACTION

✓ **อนุญาต** ให้ศูนย์บรรณสารสนเทศ มหาวิทยาลัยหัวเฉียวเฉลิมพระเกียรติ เผยแพร่งานวิจัยของข้าพเจ้าสู่สาธารณะ เพื่อเป็นผลงานทางวิชาการ ผ่านระบบฐานข้อมูลงานวิจัย ThaiLIS

❒ **Permit** the Information Center at Huachiew Chalermprakiet University to publish my research to the public as an academic achievement through the ThaiLIS research database system

❒ 我同意将本人論文透過华侨崇圣大学信息管理中心發表至泰国文献数据库 ThaiLIS

❒ **ไม่อนุญาต Not permitted 不同意**

ลงชื่อ Sign ..... ผู้วิจัย Researcher 作者签名

(Mr. Li Liang)