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Lapland University of Applied Sciences

GREEN AND DIGITAL TRANSITION IN THE COMMERCIAL PROPERTY RENTAL SERVICES BUSINESS

Case Rovaseudun Markkinakiinteistöt Oy

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Master's thesis

Managing Sustainability and Systems Change
Master of Business Administration

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Abstract of Thesis

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Increasing economic, social, and natural crises affecting the wellbeing of our planet have drawn our attention to urgent adjustment need of our society and businesses to a more sustainable future. Green and digital transition addresses global challenges with interconnection of digital technologies and energy-efficient and sustainable business practices. The transition consists of various factors depending on the field of operation. The European Union (EU) plays an active role on the green and digital transition, with legislative initiatives and funding possibilities. Rabidly increasing number of legal instruments indicates the urgency and importance of having the transition implemented in the EU. However, the follow-up of continuously developing priorities and future expectations of the transition can be very challenging. Especially to smaller companies with limited resources. Companies can struggle to define correct actions to balance environmentally friendly and at the same time prosperous business activities.

Hence, the objective of this thesis study was to distinguish relevant key actions in green and digital transition for the case company. The purpose of this thesis study was to increase the understanding of the EU priorities and future insight of the transition. The knowledge base of this study consists of the existing literature, scientific articles and the EU legislation on the green and digital transition. The research method used in this study is a qualitative case study method. The empirical data is collected with the literature review and participant observation in the case company.

Based on the findings of this study, the implementation of green and digital transition into the business activities of the case company is dependent on various contextual factors, such as operational environment, available resources, customers' variable needs and level of technology used in the company. However, the compliance with the EU priorities on the transition can enhance the economic growth of the company without harming the wellbeing of the planet.

This study focuses on key actions in green and digital transition for the case company operating in the commercial property rental services business.

Keywords green transition, digital transition, commercial property, green building, sustainable development, megatrends

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Opinnäytetyön tiivistelmä

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Maailmamme hyvinvointiin vaikuttaneet taloudelliset, sosiaaliset ja ympäristöön liittyvät kriisit ovat kiinnittäneet huomiomme kiireelliseen tarpeeseen mukauttaa yhteiskuntaa ja yrityksiä kestävämpään tulevaisuuteen soveltuviksi. Vihreä ja digitaalinen siirtymä vastaa maailmanlaajuisiin haasteisiin yhdistämällä digitaalisen teknologian ja energiatehokkaan ja kestävän liiketoiminnan käytännöt. Siirtymä koostuu useista eri tekijöistä, jotka riippuvat yrityksen toimialasta. Euroopan unionilla on aktiivinen rooli vihreässä ja digitaalisessa siirtymässä lainsäädäntöaloitteiden ja rahoitusmahdollisuuksien myötä. Oikeudellisten välineiden lisääntyminen osoittaa, että siirtymä koetaan EU:ssa kiireelliseksi ja tärkeäksi. Jatkuvasti kehittyvien vaatimusten ja siirtymän tulevaisuuden näkymien seuranta voi kuitenkin olla haastavaa erityisesti rajalliset resurssit omaaville pienille yrityksille. Haasteena voi olla tarvittavien ympäristöystävällisten toimenpiteiden ja menestyvän liiketoiminnan määritteleminen ja yhteensovittaminen.

Tämän opinnäytetyön tavoitteena oli löytää kohdeyritykselle vihreään ja digitaaliseen siirtymään liittyvät toimintamallit. Opinnäytetyön tarkoituksena oli luoda ymmärrys EU:n asettamista tavoitteista koskien vihreää ja digitaalista siirtymää ja samalla hahmottaa siirtymän tulevaisuuden näkymiä. Opinnäytetyön tietopohja koostuu aiheeseen liittyvästä kirjallisuudesta, tieteellisistä julkaisuista ja vihreää ja digitaalista siirtymää koskevasta EU:n lainsäädännöstä. Opinnäytetyö on laadullinen tapaustutkimus, jonka aineisto on kerätty kirjallisuuskatsauksen ja osallistuvan havainnoinnin avulla.

Tutkimuksen tulosten perusteella vihreän ja digitaalisen siirtymän toteuttamiseen vaikuttavat esimerkiksi yrityksen toimintaympäristö, käytettävissä olevat resurssit, asiakkaiden muuttuvat tarpeet ja yrityksen käytössä oleva teknologian taso. EU:n siirtymälle asettamien tavoitteiden noudattaminen voi edistää yrityksen talouskasvua ympäristön, ilmaston ja yhteiskunnan hyvinvointia vahingoittamatta.

Tämä tutkimus keskittyy vihreän ja digitaalisen siirtymän toimintamalleihin liiketilojen vuokraustoimintaa harjoittavassa kohdeyrityksessä.

Avainsanat vihreä siirtymä, digitaalinen siirtymä, liiketila, kestävä rakentaminen, kestävä kehitys, megatrendit

CONTENTS

ACKNOWLEDGEMENTS

This thesis study can be considered as a reflection of my master's degree learning journey. Starting from the curiousness and eagerness to learn the journey continued through confusion and comforting discussions with fellow students, professors and friends. At certain point of the process, the objective of the thesis got clarified. As well as the value of the knowledge acquired from the master's degree studies. Since then, the goal has been clear – finalization of the Master's thesis and studies and search for opportunities to use this knowledge for sustainable, environmentally friendly and fair future.

I would like to thank everyone for the kind support I've received from you during this journey. My closest family, especially my spouse Make. Thank you for your continuous support and encouragement. I look forward to putting my computer on the side and spending more time with you. My dear parents, I can hardly wait for the upcoming Christmas together. Dear friends, colleagues, professors of the Lapland UAS and my fellow students – what a great journey! I'm so grateful for you being there for me. Thank you and I'm sure our paths will cross again.

ABBREVIATIONS

AI	Artificial intelligence
BREEAM	Building Research Establishment Environmental Assessment Methodology
CSDDD	Corporate Sustainability Due Diligence Directive
CSRD	Corporate Sustainability Reporting Directive
ELY centre	Centre for Economic Development, Transport and the Environment (ELY-keskus in Finnish)
EPC	Energy performance contract
ERA	European Rental Association
ERDF	European Regional Development Fund
ERT	European Round Table for Industry
ESG	Environmental, social and governance
ETLA	Research Institute of the Finnish Economy (Elinkeinoelämän tutkimuslaitos in Finnish)
EU	European Union
EUI	European Urban Initiative
FIGBC	Green Building Council Finland
JRC	Joint Research Centre (of the European Union)
Lapland UAS	Lapland University of Applied Sciences
LEED	Leadership in Energy and Environmental Design
NFRD	Non-Financial Reporting Directive
SFDR	Sustainable Finance Disclosure Regulation
Sitra	Finnish Innovation Fund
SMEs	Small and medium-sized enterprises
UN	United Nations
UN SDGs	United Nations Sustainable Development Goals
WEF	World Economic Forum

1 INTRODUCTION

Increasing awareness of climate crisis urged the world to accelerate sustainable solutions in our everyday life. According to findings of the Environmental Defence Fund survey (2019, 6), consumers, employees, and investors named the improvement of the world as number one priority for them. The environmental movement has progressed from land preservation to legislative protection of people and nature, and to innovations and market-based solutions for tackling climate change. Fast developing technology has accelerated innovations that can provide both sustainability and revenue growth to businesses (Environmental Defence Fund 2019, 6). Interconnection between actions against climate change and growth in business bottom line has been acknowledged by business leaders (Environmental Defence Fund 2019, 2). World Economic Forum (WEF) (2016, 3) gave recommendation to real estate industry leaders to define sustainability principles with a broader sense of environmental protection and consistency in ethical and professional business strategies. Clear rationalization of sustainability in firm-wide decisions and strategies can, according to WEF (2016, 6), result in cost reduction and possible enhancement of property values. Hence, opportunities exist to grasp new technologies and innovations to accommodate business activities with environmental goals.

Covid-19 pandemic escalated digitalization worldwide. Connectivity and use of digital services was already proliferating. The pandemic accelerated these trends further, thrusting businesses to digitalize their services. Some businesses advanced successfully with their digital transformation, while others encountered obstacles to reach their full potential. (World Economic Forum 2023, 6.)

The European Union (EU) engaged in rapid and inclusive transition, with intention to combat climate change and strengthen sustainable lifestyles. With green transition, the EU's attention was to ensure a livable planet and boost sustainable economic opportunities. At the same time, digitalization transformed societies and economies. The EU committed to digital transition by harnessing digital technologies with the prospect of enhancing sustainability and empowering people and businesses. Successful management of green and digital transition is the

foundation of sustainable, equal, and competitive future (Muench et al. 2022, 4-5). Business leaders have an opportunity to demonstrate their leadership by shaping the sustainability agenda, instead of just responding to compelling legislation. (World Economic Forum 2016, 3.)

In the following paragraphs, the motivation and background of this thesis study are presented, along with the introduction of the case company and the case study framework. Further, the purpose and objective of the study are outlined as well as the research questions of this thesis study. The structure of this study is exhibited in the final paragraph of this chapter. Additionally, the final paragraph demonstrates the conjunction between the thesis structure and the research questions of this study.

1.1 Motivation and background

Since the EU plan of being climate neutral by 2050 (Official Journal of the European Union, COM/2019/640 final, 2019), the need for transition towards more sustainable business activities has been inevitable. According to the European Rental Association (ERA) (2022), reaching the EU plan creates both challenges and opportunities to organizations operating in the rental services field. In June 2022, ERA (European Rental Association 2022) hosted a Sustainability Workshop in Riga, where possible barriers and solutions of the green transition were discussed. As a result, the complexity of the green transition for rental organizations and lack of incentives or support from governments were recognised. The European Round Table for Industry (ERT) (2022), consisting of 60 Chief Executives and Chairmen of major multinational organizations presented in their expert paper of "*Towards an EU Action Plan for a Digitally Enabled Green Transition*" that European organizations play a significant role in the green transition. Organizations hold the responsibility of delivering digital innovations supporting sustainable and competitive business activities in Europe.

Burinskienė & Nalivaikė (2024, 1) indicated in their bibliometric study that small and medium-sized enterprises (SMEs) play a key role in the EU economy, accounting for about 90% of all EU organizations. Okolo, Ohanagorom, Okocha,

Muoneke & Okere (2023, 2) presented SMEs being the main drivers for the European business activities, regional growth and employment. However, according to Burinskienė & Nalivaikė (2024, 2) the perspectives of sustainable transformations in competitive businesses are still unclear and require further research. Constant development of the EU regulations and initiatives have created a complex environment to operate, especially for SMEs with limited access to resources. Okolo et al. (2023, 2) brought up the inability of SMEs to develop their businesses across Europe due to complex regulation, overlapping rules and increasing technicalities. Nevertheless, Burinskienė & Nalivaikė (2024, 2) pointed out the significant competitive advantage companies can have with anticipation of the EU requirements on actions against climate change. Brave and innovative actions on green and digital transition can create new business opportunities and enhance the sustainability of services (Burinskienė & Nalivaikė 2024, 2). Hence, the motivation for this thesis study. The findings of this thesis study outline the EU priorities on green and digital transition, provide a future insight of the transition and define key actions in green and digital transition for the case company operating in the commercial property rental services business. This study supports the future operations planning of the case company and other SMEs operating in the same business field.

1.2 The case company and case study framework

The case company for this thesis study is Rovaseudun Markkinakiinteistöt Oy (henceforth to be referred as ‘the case company’), located in Rovaniemi, northern Finland. The case company was founded in 2002 and is a limited liability company owned by the City of Rovaniemi. The case company operates in the commercial property rental services field. At the time of writing this thesis, the case company had seven employees managing the rental services of various office, production, and warehouse buildings located in Rovaniemi. In addition to commercial property rentals, the case company is responsible for Rovaniemi market square and the main pedestrian shopping street outdoor sales points. As a property owner, building renovations and office space refurbishments are also included in the case company’s business activities. (Rovaseudun Markkinakiinteistöt Oy, 2024.)

The case study for this thesis was constructed with the following framework: Existing EU priorities on green and digital transition were examined with a literature review. Megatrends and future insight related to the case company's business field were explored. Business activities of the case company were observed simultaneously with the literature review. A deductive content analysis was processed with categories related to the EU priorities and actions on the green and digital transition, in reflection to the data received from the case company observation. As a result, key actions proposal on the green and digital transition was designed for the case company. The thesis study was limited to the commercial property rental services of the case company's business activities. Existing resources and the operational field of the case company were taken into consideration while designing the key actions proposal.

1.3 Purpose, objective, and research questions

The purpose of this thesis study was to acquire an understanding of the EU priorities and related actions on the green and digital transition, regarding the case company's business activities. Based on the research findings, the objective of this thesis study was to identify key actions in green and digital transition to the case company. As a result, proposed key actions support the future planning of the case company's business activities. It is noted that key actions presented in this thesis study are merely a proposal for the case company and the impact of the actions can only be recorded if they are implemented into the case company's future operations.

The definition of research questions can be a challenging exercise and often requires further justification while the thesis study proceeds. Good research questions, according to Gillham (2000, 17) are those which enable achieving the thesis objective and can be answered in the study setting.

This thesis study intended to respond to the following questions:

1) What are the EU priorities on green and digital transition and related actions to support the successful transition?

2) What are the key actions in green and digital transition for the case company operating in the commercial property rental services business?

1.4 Thesis structure

The structure of this thesis consist of six main chapters. Followed by this chapter, chapter two presents the first part of the thesis knowledge base, with definitions of the green and digital transition along with the overview of the EU policy framework, taxonomy and financing instruments. Chapter three establishes the second part of the thesis knowledge base with examination of the EU legislative initiatives, sustainability reporting and green building certification, reflecting on the EU priorities on green and digital transition in the case company's business field. In addition, chapter three presents megatrends and future insight into the commercial property rental services business. Chapter two and three reply to the first reseach question 1) *What are the EU priorities on green and digital transition and related actions to support the successful transition*? The following chapter four defines the research methodology of this thesis study, including presentation of data collection and data analysis methods. In chapter five, thesis study findings are presented, including reflections of the content analyses of different categories and definition of key actions in green and digital transition for the case company. Chapter five replies to the second research question *2) What are the key actions in green and digital transition for the case company operating in the commercial property rental services business?* Finally, chapter six presents conclusions of this thesis study. Research of this study focused on the EU green and digital transition priorities and related key actions for the case company operating in the commercial property rental services business.

2 GREEN AND DIGITAL TRANSITION

Transition as a term is used when referring to nonlinear transformation from one equilibrium to another. The term is used in disciplines such as ecology, psychology, demography and physics, for example ecosystem transition or demographic transition. Interest in transitions research has increased due to recognition of possibilities given by understanding fundamental transitions versus to gradually following processes, particularly when considering sustainable development. (Loorbach, Frantzeskaki, & Avelino 2017, 600-601.)

The green and digital transition in the European Union relates to the EU policy framework and initiatives addressing climate change and technological development. With the Paris Agreement in 2015, the EU member states committed to actions against global warming. In December 2019, leaders of the European Union agreed in the European Council meeting to achieve climate neutrality by 2050. As a result of the Council meeting, the EU leaders requested the European Commission (the Commission) to take forward the work on the European Green Deal. The transition in climate neutrality with opportunities for technological development and economic growth was underlined as part of the meeting conclusions. (Council of the European Union N.d.)

In 2020 the Commission presented a strategy package of "*A new Industrial Strategy for a green and digital Europe*", where the EU digitalization was outlined among other strategical points. Since then, several other EU initiatives and strategies have been drawn, with the objective of enhancing digitalization in Europe. The EU's digital strategy "*A Europe fit for the digital age*" published in February 2020 aimed to enhance digital transition in everyday lives of people and businesses and at the same time, accelerate the climate neutrality by 2050. (European Commission N.d. A.)

According to Muench et al. (2022, 4-6, 20), the objective of the EU strategies and initiatives for green and digital transition is to engage people and businesses in sustainable and environmentally friendly lifestyles and economies. Green technology enhances actions against climate change. The increasing significance

of digitalization, on the other hand, empowers people and businesses and supports the transformation in sustainability of societies and economies. The implementation of green and digital transition depends on several social, political and economic factors that must be carefully considered. Economic factors, for example, include the costs and financing of transition. Additionally, the shift of employment market with growing and declining sectors affects people and businesses economically. The main political factors are regulatory frameworks and geopolitical aspect of the transition. Social factors can be behavioral change, acceptance and fairness related to the transition. These contextual factors require successful management for reaching the necessary green and digital technology delivering sustainable, environmentally friendly and fair future. Although green and digital transitions are different in their nature and dynamics, the importance of linking both to development of our societies and economies is evident. Green transition enhances climate neutrality and sustainability and requires consistency in political and societal field to accelerate. Digital transition, on the other hand, is technology-driven ongoing process. With correct actions, digital transition can be steered into powerful instrument to support equitable green transition. This chapter establishes the first part of the knowledge base for this thesis study, with definitions of the green and digital transitions and the EU priorities on the transition.

2.1 Definition of green transition

In the past the economic growth mainly relied on the usage of natural resources and these resources were thought to be limitless. At the time of writing this thesis, the economy experienced a shortage of raw materials resulting in increase of material prices. The crisis required new models to support economic growth without destroying the environment. Hence, the increasing need for the green transition. Cheba, Bąk, Szopik-Depczyńska & Ioppolo (2022, 1-2) descriped this shift to green economy as a green transformation, which has become one of the most significant development aspects in the world. It consist of creation of initiatives and legal framework enhancing green technology, energy savings, reduction of greenhouse gases, and other actions enhancing environment-friendly solutions in businesses and societies. Thus, Cheba et al. (2022, 2) defined the green transformation as an environment-conscious economic growth, assuring

high quality life to present and future generations with rational use of available natural sources. However, Cheba et al. (2022, 2) pointed out that no single globally recognised definition to green transformation yet exists, but the definition depends on several different factors. Siirilä et al. (2023, 5) defined the green transition as a shift from fossil energy sources to green energy solutions, affecting all aspects of activities in our society. According to Siirilä et al. (2023, 7), the green transition is realized through innovation, facilitation, service design, guidance and training. The Finnish Ministry of the Environment (N.d. A) declared the green transition to be an absolute necessity towards a sustainable economy. The key objective in transition, according to the Ministry of the Environment (N.d. A), is to phase out the use of fossil fuels and replace them with clean energy solutions. Muench et al. (2022, 8) presented the green transition to create an opportunity to transform current unsustainable activities in the societies and economies towards a just future with respect to planetary boundaries.

2.2 Definition of digital transition

Siirilä et al. (2023, 5) described digitalization as an increase of technological solutions creating new business opportunities and solutions for the green transition. Muench et al. (2022, 8) defined the digital transition as an evolving process shaping the future economies and societies. According to Rosário & Dias (2022, 2), emerging digital technologies have transformed the way how people and and businesses engage in their daily activities, leading to a digital transition. Rosário & Dias (2022, 2) defined the digital transition concept as a transition from analog to digital processes with digital tools supporting the performance and productivity improvement. In addition to increasing productivity, the digital transition enhances the development and implemenation of sustainable solutions (Rosário & Dias 2022, 2). Muench et al. (2022, 5) presented digital technologies to accommondate functions that can reinforce the green transition. Digital monitoring, tracking and forecasting can improve efficiency and reduce environmental impact of production and consumption (Muench et al. 2022, 5). Digitalization can also support to optimise operations and enable new level of intreraction. According to Muench et al. (2022, 5), data and data analysis create the foundation to green and digital transitions.

2.3 Twin transition

While green and digital transitions both transform our economies and societies, their nature and dynamics are different. The green transition is powered by the political and societal willingness to reach climate neutrality as quickly as possible. Whereas the digital transition is a technology-driven process, having private sector as the main driver. Therefore, correct steering and support is needed to harness the digital transition to support fair and just green transition. Both transitions run in parallel but linking them gives an advantage of their synergy and facilitates risk management. Hence, the integrated approach of twin transition to optimize the efforts of both transitions. (Muench et al. 2022, 9-10.)

In the 2022 "*Strategic Foresight Report*", the Commission (2022 A, 1) declared the twinning of green and digital transitions depending on the ability to deploy existing and future technologies, as well as on various economic, social, regulatory and geopolitical factors. In the report, the Commission (2022 A, 17) identified the understanding of interactions between the two transitions as a key element for the successful twin transition. According to the Commission (2022 A, 17), a dynamic approach is required to anticipate the needed change and support the change with adequate policy adaption. Burinskienė & Nalivaikė (2024, 1) highlighted the successful implementation of twin transition supporting the accomplishment of the United Nations Sustainable Development Goals (UN SDGs). Also, Blüm (2022) described the twin transition approach to create a significant opportunity for technology and data to promote sustainability goals. Blüm (2022) presented the twin transition strategy to support efficiency and productivity and accelarate sustainability by 'greening' technology and infrastructures. Burinskienė & Nalivaikė (2024, 1) acknowledged that the research of twin transition and significance of green technologies in digital transition is fragmented although the awareness of the topic is increasing.

2.4 EU policy framework

Finlex (Finlex N.d.), the Finnish Ministry of Justice owned public internet service of legal materials, has divided the EU policy framework to legally binding *regulations, directives and decisions.* The title of the instrument does not always conclude the

effect of the policy: For example, to clarify how binding the policy is, should it be applied directly as such or whom it is intended for, needs to be carefully examined within the policy content. Legally binding provisions are included in the articles of the regulation. *Regulations* are applied as such in national courts and other national authorities, including in relations between private parties. *Directives* are legal acts addressed to the EU member states: they oblige the member states to implement the measures required in the directive and to bring their national legislation in line with the content of the directive. Directives are usually used when the EU wants to leave discretionary power to the member states in some matter. Generally, directives are implemented into the national legislation of the member states by issuance of national policy. *Decisions* are binding in all respects, just like regulations. The decision may be addressed to an individual person or a community or a member state, but it is also possible that the decision is not specifically addressed to anyone, in which case it is like a general act. Generally, decisions are used in administrative proceedings to resolve individual cases, in which case they are addressed to a specific entity. In addition to legally binding instruments, the EU can issue instructive initiatives such as recommendations, statements, resolutions, declarations and action programmes. Although such initiatives are mainly political in nature, they may also have legal significance.

The Commission (N.d. B) defined six EU priorities for 2019-2024, to tackle future challenges of Europe. Of which according to Salomia (2021, 1), priorities of "*A European Green Deal*" and "*A Europe fit for the digital age*" proposed concrete measures to accelerate the green and digital transition in the EU. These two priorities and the key initiatives on the green and digital transition are examined in the following paragraphs.

The European Green Deal

Adopted in 2019, the European Green Deal (the Green Deal) (Official Journal of the European Union, COM/2019/640 final, 2019) provided a set of policy initiatives with an objective of transforming the EU into a fair, competitive and resource-efficient economy. The Green Deal reconstituted the EU strategy for tackling climate change, targeting for no net greenhouse gas emissions by 2050 and

enhancing the economic growth decoupled from the use of natural resources. With policy initiatives set in the Green Deal, the EU anticipated the acceleration of the green and digital transition. The Green Deal strengthened the EU strategy to implement the "*2030 Agenda for sustainable development*", adopted by the United Nations (UN) (2015) in September 2015.

Stefanis et al. (2024, 15-16) presented the Green Deal aiming to render the EU climate-neutral by 2050 with endorsement of policies and initiatives in numerous sectors, such as agriculture, construction, energy and transport. Stefanis et al. (2024, 15-16) bibliometric study defined the elements related to the Green Deal framework with the following key points:

1) Transition of circular economy as a central component of the Green Deal, enhancing efficient use of energy and resources, promoting recycling and reuse of materials, and reducing waste.

2) Emphasis on sustainable management of resources, reducing the ecological footprint and supporting the Green Deal target of promoting green technologies and practices.

3) Recognition of significant role of technological innovations, such as renewable energy and digitalization, in advancement of environmental sustainability.

4) Requirement for policy reforms, providing adequate governance and regulatory framework for implementing the Green Deal targets and ensuring the economic growth decoupled from the resource exploitation.

5) Acknowledgment of insights received from empirical research, ensuring data-driven policy formulation and implementation.

In the communication "*Towards a green, digital and resilient economy: our European Growth Model*" (The European Growth Model) the Commission (2022 B, 4) recognized number of actions required to meet the environmental objectives

of the Green Deal, such as tackling pollution, protection of biodiversity and decoupling economic growth from the use of natural resources. According to Stefanis et al. (2024, 2, 11), the key action area of the Green Deal was to approach reporting and regulation of the EU sustainability, enhancing transparency and accountability of environmental related data. For example, the "*Sustainable Finance Disclosure Regulation*" (SFDR) determined reporting requirements on sustainability risks and impacts mitigation in the financial market. Furthermore, the "*Corporate Sustainability Reporting Directive*" (CSRD) augmented environmentally sustainable reporting requirements to contain environmental, social and governance (ESG) aspects of economic activities.

The urban dimension of sustainable development was strengthened in the Green Deal with the "*European Urban Initiative*" (EUI), supporting the EU cities with development of sustainable urban strategies (Official Journal of the European Union, COM/2019/640 final, 2019, 23). Funded by the European Union, EUI provided knowledge and funding on innovative actions strengthening the sustainability of the cities (European Urban Initiative, N.d.). The "*Circular Economy Action Plan*" (Official Journal of the European Union, COM/2020/98 final, 2020), initiated in the Green Deal targeted to enhance climate neutral and circular product development. The circular economy action plan emphasised the reduction and reuse of materials, focusing particulary on resource-intensive industries such as construction, plastics, electronics and textiles.

In alignment with the circular economy objectives, the Green Deal envisaged reviewing of the "*Construction Products Regulation*" (Official Journal of the European Union, Regulation (EU) No 305/2011, 2011) and enforcement of the "*Directive on the energy performance of buildings*" (Official Journal of the European Union, Directive 2010/31/EU, 2010). Both initiatives were designed to enhance the circularity of building constructions and renovations (Official Journal of the European Union, COM/2019/640 final, 2019, 9). According to Stefanis et al. (2024, 11), the Green Deal defined a directional path for the EU policies and initiatives and influenced the economic landscape of sustainable investments. However, Burinskienė & Nalivaikė (2024, 16) identified inadequacy of existing tools

for SMEs to implement sustainable requirements highlighted in the Green Deal, especially regarding the digital transformation.

A Europe fit for the digital age

Alberti, Caperna, Colagrossi & Panella (2022, 7) distinguished two Commission communications which provided a vision and objectives to the EU priority "*A Europe fit for the digital age*". The first communication "*Shaping Europe's digital future*" (Official Journal of the European Union, COM/2020/67 final, 2020, 1-2) was adopted in February 2020. The communication envisaged the opportunities of digital solutions such as artificial intelligence (AI), quantum technologies and communications systems. The communication also considered risks and costs of digital technologies, such as protection of people's personal data and privacy, possible overload of artificial solicitations and security of critical infrastructures. In the communication the Commission (Official Journal of the European Union, COM/2020/67 final, 2020, 2) distinguished the following three key objectives for the next five years (2020-2025):

1) Development and deployment of technology with respect to European values to enhance competitiveness and facilitate people's everyday life.

2) A fair and competitive economy providing equal opportunities for all sizes of organisations in any sectors to develop, use and market digital technologies with respect to consumer rights.

3) A trustworthy, democratic and sustainable European society, empowering people to interact and provide data online and offline, respecting fundamental rights and enhancing resource-efficiency and climate-neutrality.

With the communication "*Shaping Europe's digital future*", the Commission envisioned a digitalized society with fundamental common values, equal opportunities for development and freedom to engage with the society regardless of age, gender or background. However, the Commission remarked that digital technologies are just a tool, irrespective of how advanced they can be. Even

though technology facilitates our daily life, it cannot solve all our problems. (Official Journal of the European Union, COM/2020/67 final, 2020, 1-2, 15.)

The second Commission communication "*2030 Digital Compass: the European way for the Digital Decade*" (Official Journal of the European Union, COM/2021/118 final, 2021, 2, 4) was adopted in March 2021. The communication responded to radically changed role of digitalization caused by the Covid-19 pandemic. During the pandemic, digital technology became imperative for society and economy. At the same time the pandemic exposed the vulnerability of the digital environment. With the communication, the Commission pursued digital policies to empower more prosperous, human-centered and sustainable digital future. In addition, the communication envisaged the sustainability and energy-efficiency of digital infrastructures and technologies, contributing to the reduction of greenhouse gas emissions in respect of the Green Deal. To achieve the envisioned EU capacity for the digital decade, the Commission (Official Journal of the European Union, COM/2021/118 final, 2021, 19) introduced a proposal of the "*The Digital Compass*", a policy programme tool governing the digital decade with the following key elements presented by the Commission (Official Journal of the European Union, COM/2021/118 final, 2021, 5-6, 10-11):

1) Digitally skilled citizens, workforce and highly skilled experts to master the world of tomorrow, supported by an effective policy-making and high-performing education in digitalization.

2) Secure, sustainable and high-performance digital infrastructure to enable technological development and support competitiveness of industries, with support of substantial investments and coordination.

3) Deployment of digital technologies in business and production to enable efficient use of resources and to enhance energy-saving and environment friendly business solutions and manufacturing processes.

4) Digitalized, fully accessible, easy-to-use and secure public services.

5) Commitment of equality and democracy of all EU citizens, encouraging participation in government activities and playing a role model to businesses in digitalization.

With the above-mentioned two communications, "*Shaping Europe's digital future*" and "*2030 Digital Compass: the European way for the Digital Decade*", the Commission intended to accelerate the digitalization in the EU (Alberti et al. 2022, 7). According to Salomia (2021, 2), the EU priority "*A Europe fit for the digital age*" enhanced the EU digital transformation by embracing investments, research, innovations and skills for the new generation of technologies. Muench et al. (2022, 9) highlighted the importance of supporting policymaking and avoidance of technological drawbacks for enhancement of the digital transition.

2.5 EU taxonomy and financing instruments

The Commission communication on "*The European Green Deal*" (Official Journal of the European Union, COM/2019/640 final, 2019, 16) highlighted the inclusion of long-term sustainable development into corporate governance frameworks. The communication also emphasized the growing importance of environmental data disclosure into operational acitivites. Okolo et al. (2023, 4) presented the EU funding requirements to reflect The Green Deal objectives to enhance the green and digital transition and sustainable business activities. The Commission communication on "*The European Growth Model*" (European Commission, 2022 B, 13), predicted sustainable finance framework to increase investments in environmentally conscious businesses. The communication presented the EU financial framework to support the transition towards sustainability and, the framework relying strongly on the EU taxonomy (European Commission, 2022 B, 13).

"*The Taxonomy Regulation*" (Official Journal of the European Union, Regulation (EU) 2020/852, 2020) entered into force in July 2020. The Commission (N.d. C) specified the EU taxonomy as a classification system to define economic activities

for reaching net zero trajectory by 2050 as aligned in The Green Deal. The Green Building Council Finland (FIGBC) (N.d. A) determined the EU taxonomy as a sustainable finance classification system enhancing The Green Deal objectives of being carbon neutral by 2050. The communication on "*The European Growth Model*" (European Commission, 2022 B, 13) described the EU taxonomy as outlining of economic activities contributing to environmental and climate objectives, in alignment with the transition activities. In addition, the communication of "*The European Growth Model*" stated the EU taxonomy to consolidate the transparency of sustainable investments and to create a structure to sustainability risks integration into the financial framework (European Commission, 2022 B, 13). The economic activity applying for the EU taxonomy is required to generate a substantial contribution to at least one of the following environmental objectives listed in "*The Taxonomy Regulation*" (Official Journal of the European Union, Regulation (EU) 2020/852, 2020, 17-22):

1) Economic activity contributing to climate change mitigation through avoidance or reduction of greenhouse gas emissions.

2) Economic activity contributing to climate change adaption with solutions for reducing risks of the current and future adverse climate impact on nature, people and assets.

3) Economic activity contributing to sustainable use and protection of water and marine resources, with realization of good environmental status of marine waters or prevention of degradation of marine waters presently having good environmental status.

4) Economic activity contributing to a circular economy through waste prevention, re-use and recycling, reduction of primary raw material use, applying energy efficient measures and increasing durability, reusability and recyclability of products.

5) Economic activity contributing to prevention or controlling of pollutant emissions into land, air or water. Or activity contributing to improvement of soil, air or water quality whilst minimizing adverse impact on environment and human health.

6) Economic activity contributing to protection and restoration of ecological environment and biodiversity through nature conservation and protection and restoration of natural ecosystems.

The objective of the EU taxonomy was to direct financing towards sustainable investments (Kaave, 2023, 117). Researcher Otto Kässi (2024, 4) from The Research Institute of the Finnish Economy (ETLA, Elinkeinoelämän tutkimuslaitos in Finnish) named three categories for the green transition funding in Finland: 1) green transition funding, to enhance direct or indirect reduction of greenhouse gas emissions, 2) transitional fundings, to enhance gradual transition to emission reduction, e.g. infrastructure for electric car charging points or investments on peat replacement, and 3) brown funding, providing production support to an industry sector causing direct or indirect greenhouse gas emissions. For the digital transition similar categorization based on the purpose of funding use was not available, according to Kässi (2024, 4). Instead, the funding on digitalization was categorized according to the granting authority estimation on how big portion of the funding is targeted for the development of digitalization. Hence, Kässi (2024, 5) categorized the digitalization as 4) digitalization funding, with more than a half of the allocated funding having been targeted for the digital technology according to the granting authority. Kässi (2024, 5) specified that the above-mentioned categories are mutually exclusive, i.e. a specific funding can belong to only one of these categories.

The "*NextGenerationEU*" (European Commission 2021) was initiated in 2020 by the European Union as a temporary financing plan to support the economic recovery from Covid-19 pandemic. With the "*NextGenerationEU*" initiative, the EU set financial framework for the upcoming seven years (2021-2027), securing resources for the EU's political priorities such as the Green Deal and digitalization. The "*NextGenerationEU*" recovery package consisted of different financing

instruments of which one example was the “*Sustainable Growth Programme*”, in Finland coordinated by the Finnish Ministry of Finance (N.d. A). According to the Finnish Ministry of Finance (N.d. B), the “*Sustainable Growth Programme*” supported the green transition with alternation of the economic structure and enhancement of the carbon-neutral solutions.

The Finnish Ministry of Finance (N.d. B) presented example projects eligible for the green transition funding with the following focus areas:

1) Production of clean energy (e.g. solar power, biogas, offshore wind energy and waste heat recovery).

2) Circular economy solutions and low-emission innovations in the industrial sector (e.g. hydrogen technology innovations).

3) Alteration of new technologies, practices and services in the construction sector.

4) Infrastructure for public charging electric vehicles.

5) Nature-based solutions in farming to reduce the nutrient load of the Baltic Sea.

Another example of the “*NextGenerationEU*” financing instrument, at the time of processing this thesis study, was the “*European Regional Development Fund*” (ERDF) which in Finland was governed by the Finnish Ministry of the Environment (N.d. B). ERDF provided funding for various development projects. The objectives of ERDF were to equate development disparities between the EU countries and regions, boost employment, increase vitality and enhance competitiveness and sustainable growth. The Finnish Ministry of the Environment (N.d. B) distinguished the green transition as one of the national ERDF priorities in 2021-2027 and specified the funding to be indented for development projects enhancing the transition. According to the Finnish Ministry of the Environment (N.d. B), projects

to be funded by the ERDF financing framework must be eligible for nationwide use and correspond the following themes:

1) "*Energy efficiency*" – projects promoting development of energy-efficient and carbon-neutral solutions, e.g. in industry, construction and renovation sectors and promoting efficient use of resources and smart solutions.

2) "*Climate change*" – projects creating solutions for climate change adaption and mitigation.

3) "*Circular economy*"- projects developing solutions for recycled material use rationalizing the use of natural resources.

In addition to the above-mentioned examples, financing instruments existed for designated projects, such as the "*Energy aid*" administrated by Business Finland (Business Finland N.d.), concentrating on energy saving or energy auditing projects. Or financing instruments generated by the Centre for Economic Development, Transport and the Environment (ELY centre N.d.) (ELY-keskus in Finnish). The objectives of the ELY centre financing instruments were to enhance organizational innovation and sustainable growth. The Regional Council of Lapland (Lapin Liitto N.d.) (Lapin liitto in Finnish) administrated fundings for projects effectively promoting the goals of the Lapland region and contributing to common targets of international funding programmes. The Green Deal (Official Journal of the European Union, COM/2019/640 final, 2019, 15) prepared by the Commission envisaged a framework for fostering green investments and financing instruments supporting sustainable projects. However, according to Burinskienė & Nalivaikė (2024, 14), initial investment requirements in sustainable and digital transition can be a considerable obstacle expecially to SMEs with limited resources.

3 GREEN AND DIGITAL TRANSITION IN THE CASE COMPANY'S BUSINESS FIELD

According to Business Finland (2024), green transition and sustainable development can generate great opportunities to SMEs, but also create challenges. Following the Green Deal objective of having climate neutral Europe by 2050, ERA (2022) defined the green transition and sustainable activities inevitable in business and industry sectors. ERA (2022) predicted that for rental companies the short-term costs of the transition generate long-term opportunities as enablers of decarbonization. Katafygiotou, Protopapas & Dimopoulos (2023, 22) presumed that green and sustainable properties have been integrated into our lives in our efforts to mitigate the climate change. As the world have started to understand the urgent need of carbon emission mitigation, WEF (2022) discovered the attitude change in the commercial property market, resulting in reflection of buildings' financial values. In this chapter, green and digital transition is examined more specifically in view of the case company's business activities. This chapter constitutes the second part of the knowledge base for this thesis study.

3.1 EU legislative initiatives

In respect of achieving climate neutrality by 2050 in Europe and preparing all economic sectors to meet the ambitious objective, the Commission prepared the "*Fit for 55*" (Official Journal of the European Union, COM/2021/550 final, 2021) legislative package. Adopted in 2021, the package consisted of legislative initiatives supporting the EU priorities set out in the Green Deal. With the "*Fit for 55*" package the EU committed all sectors in Europe to reduce the greenhouse gas emissions by 55% by 2030 (compared to 1990 level), this being the first milestone of reaching the carbon-neutral Europe by 2050. (European Commission N.d. D.)

The revised "*Energy Efficiency Directive*" (Official Journal of the European Union, Directive (EU) 2023/1791, 2023) was one of the "*Fit for 55*" legislative initiatives, highlighting the importance of efficient use of energy and reduction of energy consumption. The directive outlined the poor energy performance of the EU buildings, being accountable for about 40% of the total EU energy use. In addition, the directive emphasized the importance of building automation and other energy

management solutions to support energy-efficiency of buildings. Further, green mobility was underlined with the charging infrastructure for electric vehicles. (Official Journal of the European Union, Directive (EU) 2023/1791, 2023, 3, 8-9.)

Another initiative of the "*Fit for 55*" was the "*Energy Performance of Buildings Directive*" (Official Journal of the European Union, Directive (EU) 2024/1275, 2024) having an objective of fully decarbonized EU building stock by 2050. This vision required a progressive calculation of greenhouse gas emissions throughout the whole life cycle of the building, as buildings are responsible for carbon emissions during the whole building lifetime (before, during and after the operational lifetime). In addition to thermal characteristics, the building energy performance monitoring should include other increasingly important factors of building performance, such as the usage of renewable energy sources, building automation and smart solutions, heat recovery from wastewater and exhaust air, indoor environmental quality and passive heating and cooling elements. The "*Energy Performance of Buildings Directive*" pointed out the relevance of the Commission communication on the "*Renovation Wave*" (Official Journal of the European Union, COM/2020/662 final, 2020), addressing the double challenge of efficient use of energy and resources in buildings and building sector affordability. The objective of the "*Renovation Wave*" communication was to increase the annual renovation rate (percentage change of moving from one energy label to more efficient energy label). The focus of the "*Renovation Wave*" was on poorly performing buildings, playing a key role in achieving climate neutrality by 2050. The ambitious objective demanded powerful actions, including innovative cooperation with all stakeholders. (Official Journal of the European Union, Directive (EU) 2024/1275, 2024, 2-3, 8, 23.)

The Commission communication on the Green Deal also prompted new initiatives and cooperation between different stakeholders. To support the collaboration between different regions and stakeholders within different areas of expertise, the EU initiated the "*Horizon Europe*" programme (Official Journal of the European Union, Regulation (EU) 2021/695, 2021). The programme provided funding for the EU research and innovation projects. Additionally, the Green Deal perceived the importance of the digital technologies, offering an opportunity to monitor and

optimise the use of energy and natural resources. The new "*Circular Economy Action Plan*" (Official Journal of the European Union, COM/2020/98 final, 2020), highlighted in the Green Deal, encouraged businesses to offer durable, reusable and repairable products, allowing customers to make informed consumer choices. Also the role of new business models related to sharing and renting products and services was recognised in the Green Deal. However, these products and services should be genuinely sustainable and affordable. (Official Journal of the European Union, COM/2019/640 final, 2019, 8-10, 18.)

3.2 Sustainability reporting

The Green Deal (Official Journal of the European Union, COM/2019/640 final, 2019, 17) envisaged the inclusion of sustainability into the corporate governance framework of businesses, as many companies were still focusing on financial performance rather than sustainable development of company's activities. Further, the increasing need for environmental data disclosure of companies' business activities was acknowledged by the Green Deal. Hence, the amendment of the "*Non-Financial Reporting Directive*" (NFRD) leading to extended "*Corporate Sustainable Reporting Directive*" (CSRD) (Official Journal of the European Union, Directive (EU) 2022/2464, 2022). The new CSRD directive entered into force in January 2024, with reporting obligation as of 1 January 2025.

Komssi & Suomen Yrittäjät (2023) from the Finnish confederation of entrepreneurs (Suomen yrittäjät in Finnish) stated that the CSRD affects companies with more than 500 employees operating in the regulated market. Kaave (2023, 104) pointed out that as of 1 January 2026, the CSRD applies also to listed SMEs. However, listed SMEs are given a two-years transition time, and the mandatory reporting starts as from 2027 (Kaave 2023, 104). In addition to the CSRD, Kaave (2023, 103) distinguished another EU sustainability project affecting SMEs directly or indirectly. This project was the "*Corporate Sustainability Due Diligence Directive*" (CSDDD) which, at the time of Kaave's article was still a proposal. The CSDDD (Official Journal of the European Union, Directive (EU) 2024/1760, 2024) entered into force in July 2024. According to the Commission (2024), the objective of the CSDDD was to enhance responsible and sustainable corporate practices within

the companies and across their value chains. The Commission (2024) stated that new directive steered companies to monitor environmental and human right impact of their operations. The Commission (2024) outlined that the CSDDD does not apply for SMEs. However, according to the Commission (2024), the directive gives support and provides protective measures for SME business activities. Moreover, Kaave (2023, 104) encouraged SMEs to apply simplified reporting on a voluntary basis. According to Kaave (2023, 104), the Commission argued about Environmental, Social and Governance (ESG) closure (Official Journal of the European Union, COM/2023/314 final, 2023) becoming a common practice in the future and forming a basis, e.g. for financial transactions. Kaave (2023, 104) presented that ESG can help companies to improve their reputation.

Komssi & Suomen Yrittäjät (2023) declared, that even though the compliance of the CSRD directive is not mandatory for smaller companies, possible partial compliance with simplified reporting can create future expansion possibilities to the company. According to Komssi & Suomen Yrittäjät (2023), information on sustainable activities enhances the company's marketing and endorses company's financing possibilities. Kaave (2023, 105) concluded, that existing (at the time of Kaave's article publication in November 2023) sustainability legislation did not directly apply for SMEs. However, the legislation affected SMEs indirectly, through possible contractual cascading with larger companies. Kaave (2023, 101) presented, that incentives in sustainable business practices can be beneficial for SMEs, e.g. commitment to ESG objectives gives a positive signal to stakeholders and financiers.

3.3 Green building certification

Vieira de Castro, Ramírez Pacheco & Neila González (UNEP FI 2014, as cited in Vieira de Castro et al. 2020, 251) described commercial property business to be multifaceted with stakeholders having different interests and concerns about the property. Hence, Vieira de Castro et al. (2020, 252) explained that stakeholders seek for some type of green building certificate for the property, for example the *"Leadership in Energy and Environmental Design*" (LEED) or the "*Building Research Establishment Environmental Assessment Methodology*" (BREEAM).

FIGBC (Green Building Council Finland N.d. B) stated that the certification system was created to enable environmental impact comparison of buildings. FIGBC (N.d. B) indicated the certification process to ensure a throughout (design, built and function) configuration of building sustainability.

According to Simon (Yale Office of Sustainability 2020), green building certification gives confirmation of building to meet required energy, environmental and human health standards. Simon & Jackson (Yale Office of Sustainability 2020) presented four most well-known green building certifications, of which the first one was the previously mentioned LEED certificate. Simon & Jackson indicated that LEED is the most used certificate around the world. Simon explained that LEED includes all elements of sustainability, e.g. air quality, energy, lighting, light pollution, noise pollution, acoustics and materials. Simon further specified, that LEED promotes the building as a "giant machine" where all elements work together. According to Simon & Jackson, LEED certification consists of different levels, each level adding more strict requirements for the certificate. The second certification according to Simon & Jackson was the "*WELL Building certification",* focusing on the human health and promoting the built environment improvement with a viewpoint of enhancing building user's physical, emotional and mental wellbeing. Simon & Jackson specified that WELL certificate targets building design to encourage building users for exercising, having proper nourishment and adequate sleeping as well as the design enhances the diversity. The "*Living Building Challenge*" was the third certification presented by Simon & Jackson. According to Simon & Jackson the "*Living Building Challenge*" is the most ambitious certificate when considering the building certification methodology. To meet the requirements of the "*Living Building Challenge",* building needs to be net positive in terms of waste, water and energy use, as Simon & Jackson explained and further emphasized that the "*Living Building Challenge"* certificate applies for buildings with "regenerative" design. The fourth and the last certification indicated by Simon and Jackson is the "*Energy Star Building Certification*", having standards of meeting energy-efficiency requirements of the United States Environmental Protection Agency. (Yale Office of Sustainability with Simon & Jackson 2020.)

According to FIGBC (Green Building Council Finland N.d. B), BREEAM classification is formed from the European standards and hence it is the most used environmental certification in the construction sector. FIGBC (Green Building Council Finland N.d. B) indicated that BREEAM classification standards can be consolidated to correspond best practises in Finland, thus BREEAM requirements can be incorporated into national projects. As Simon & Jackson (Yale Office of Sustainability 2020) commented about LEED certification, FIGBC (Green Building Council Finland N.d. B) also presented LEED being the most used global environmental classification system of buildings. According to FIGBC, the strength of the LEED is the unified criteria and comparability worldwide.

In addition to the above-mentiond green building certifications, FIGBC (Green Building Council Finland N.d. B.) identified two more environmental classifications. The first one was the "*YL classification"* (Rakennustiedon YL-luokitus, former RTS-ympäristöluokitus in Finnish), intended for construction projects aiming for environmentally responsible building. FIGBC explained that YL classification was developed for environmental classification of buildings in Finnish conditions, and in cosideration of the Finnish legislation. According to FIGBC, YL classification is based on the European standards and follows common national practices. The second classification mentioned by the FIGBC is "*The Nordic Swan Ecolabel*" (The Swan label, Joutsenmerkki in Finnish), being the most acknowledged environmental label in the Nordic countries. FIGBC clarified that the Swan label criteria applies to all Nordic countries and FIGBC further explained that the purpose of the Swan label is to ensure environmentally friendly building life cycle and safe and healthy building management. According to FIGBC, the Swan label focuses on criteria of material choices, energy efficiency, chemicals and recycling. FIGBC pointed out that the intrerest in building construction under the Swan label has been increasing signifigantly. FIGBC indicated that the achieved environmental certificate strongly communicates the building owner's environmental friendliness. Companies and organizations around the world use certifications to improve the building energy-efficiency, save costs and mitigate the use of natural resources. (Green Building Council Finland N.d. B.)

3.4 Megatrends and future insight

Siirilä et al. (2023, 44) described the megatrend as a general direction of development, consisting of several phenomena. Or as a broad arc of change, for example an ecological sustainability crisis consisting of different causing factors connected to each other. According to Siirilä et al. (2023, 44), megatrends are often visualized in global level, even though they have a local impact. Kuhn (2022, 21) defined global megatrends as universal trends influencing divergent spheres of life at different levels. Sitra, the Finnish Innovation Fund (Sitra, N.d) determined megatrend as "*general direction of development*" including various phenomena encompassing universal change. Sitra (Sitra, N.d) described, that megatrends are generally considered to take place globally and the development of them is often considered to progress to the same direction. Siirilä et al. (2023, 44) presented a thought of having many futures and us being able to influence them. According to Siirilä et al. (2023, 44), with our everyday choices at this present moment, we have the responsibility to consider also the long-term effect of our choices. Siirilä et al. (2023, 44) questioned on how we can improve our ability to perceive change and make better choices for the future here and now? Dufva & Rekola (2023, 6) presented Sitra's vision on how to overcome current global challenges, especially after Covid-19 pandemic and Russia's invasion of Ukraine. Sitra's (Sitra, N.d) vision predicted that Finland accomplishes building a fair, inspiring and sustainable future where people can live prosperous life within the planet's carrying capacity. According to Dufva & Rekola (2023, 6), to adapt our society and everyday life to respect our planet requires forward-looking thinking and ability to change.

In the "*Science for Policy*" report prepared by the EU's Joint Research Centre (JRC), Cagnin, Muench, Scapolo, Störmer & Vesnic-Alujevic (2021, iii) presented "*foresight scenarios on the global standing of the EU in 2040*". The report was prepared in a view of the Commission's "*2021 Strategic Foresight Report*" and was conducted in relation to the EU's open strategic autonomy (Cagnin et al. 2021, iii, 1). The report described trends and emergent challenges in view of 2040 and beyond. The findings of the report were structured in five systemic areas: 1) environment, 2) technology, 3) society, 4) economy and 5) geopolitics (Cagnin et al. 2021, iii-vi). In "*Sitra's megatrends 2023*" report, Dufva & Rekola (2023, 8)

presented the "*big picture of change*" with five different themes: 1) nature, 2) technology, 3) people, 4) economy, and 5) power. According to Dufva & Rekola (2023, 8), these themes are frequently used in trend analysis framework. Kuhn (2022, 21) described different levels of megatrends with 1) environmental, 2) economic, 3) social, 4) political, and 5) cultural dimensions. Dufva & Rekola (2023, 8) pointed out that using an analysis framework of different themes prevents us from focusing on one single theme. However, Dufva & Rekola (2023, 8) emphasized that the examination of linkages between emergent challenges and changes is more important than applying a specific framework. Hence, in this thesis study the interconnection between green and digital transition, megatrends, future insight and the case company's operating environment were taken into consideration while processing the study. Megatrends and future insight presented in the following paragraphs were studied in alignment with the above-mentioned reflection.

Rajska-Wolińska (2020) described, that in addition to a shift from traditional working practices to more flexible working models, companies and buildings are assessed from a holistic point of view. Hence, according to Rajska-Wolińska (2020), property owners face the challenge of adjusting office spaces to meet tenant's altered needs. Faulds & Raju (2021, 30) recognized the potential of property purpose redesigning to enhance the company culture, employee collaboration and innovation. Rajska-Wolińska (2020) stated that the work automation and use of AI have resulted in redefinition of employee profiles and skills. Rajska-Wolińska (2020) pointed out that this evolution reflects to changed needs of companies' workspaces and increasing demand for spaces enhancing creativity and team brainstorming. In addition, Rajska-Wolińska (2020) explained that companies are expected to seek hybrid rental contracts, combining traditional rental contract with flexibility for unpredictable economic cycles. Rajska-Wolińska (2020) further specified that even though such contract models might entail additional costs, companies anticipate the possibility for quick asset reorganizing in case needed. Faulds & Raju (2021, 30) identified some employees preferring hybrid working model, dividing the working time between home and office. According to Faulds & Raju (2021, 30), companies are challenged to find suitable workplace solutions in response to the hybrid reality. Cost reductions from

minimized property footprint enabled by the hybrid work practises is well acknowledged by the companies. Hence, Faulds & Raju (2021, 31) defined flexibile space to become essential in the companies' property strategies.

According to Kuhn (2022, 38), new technologies have created new opportunities enforcing digitalization to become a megatrend in business and communication. Kuhn (2022, 38) described the speed of new development being breathtaking. Cagnin et al. (2021, 76) presented that the EU promotes the green vision towards carbon neutrality in 2050 with leading "*clean-tech*" countries, enhancing the eco-friendly way of living. Rajska-Wolińska (2020) distinguished digitalization, automation, changes in the business processes and flexibility causing the emerge of new technologies. According to Rajska-Wolińska (2020), the cause of technological acceleration is mainly due to Covid-19 pandemic.

GlobalVision (2024), a Romanian based provider of property development, construction and asset management services, announced the development of new "*AI-powered ESG platform.*" The platform was designed to enhance the operational efficiency, sustainability and responsible governance of the property. According to GlobalVision (2024), the ESG-solution of the platform operates with customized AI models, trained for the property and energy applications. Rajska-Wolińska (2020) described that the future entails applications providing access to flexible working spaces. As an example, Rajska-Wolińska (2020) indicated "*Colliers Mobility Pass"*, providing booking possibility of more than 5000 coworking spaces situated mainly in Poland.

Pellegrino, Wernert & Chartier (2022, 6) examined the framework of the "*Energy performance contract*" (EPC) in a project of social housing net-zero energy renovation in the Netherlands and in France. Pellegrino et al. (2022, 6) explained that the project originated from the emergent need for energy neutrality and recognition of possible future verification requirements of the actual energy consumption in property labelling and certification procedures. According to Pellegrino et al. (Shang et al. 2017, as cited in Pellegrino et al. 2022, 6) the aim of the EPC was to provide contractual security and assurance in the building energy consumption that is monitored over time. However, Pellegrino et al. (2022, 16)

stated that the EPC project demonstrated some building tenants experiencing difficulties to familiaze with complex energy monitoring systems. Pellegrino et al. (Shove 2003, Pellegrino 2013, as cited in Pellegrino et al. 2022, 16) also pointed out that tenants might choose the comfort over the lower energy costs. Hence, EPC would not affect to tenant's consumer behaviour, as reasoned by the Pellegrino et al. (2022, 16).

Rajska-Wolińska (2020) brought up the concept of property as a "*service*", which has gained popularity since the Covid-19 pandemic. Rajska-Wolińska (2020) explained that the building service layer can be based on the property data, enabling to design the space according to user's needs. For example, as Rajska-Wolińska (2020) demonstrated, applications used for this purpose can streamline the office management with mobile access to the building or reservation of the parking place. With the collected data, the services can be adjusted to better correspond the actual user needs (Rajska-Wolińska 2020).

Cagnin et al. (2021, 75) specified that grasping the future with absolute certainty is not possible. However, future scenarios help to frame hypotheses about the forthcoming times, as Cagnin et al. (2021, 75) further explained. Kuhn (2022, 21) stated megatrend to become a buzzword used by futurists and consults when selling analyses of future business opportunities. However, according to Kuhn, (2022, 21) megatrends are reflected by research institutions and international organizations with intention of engaging in influencing dialogue and policymaking. Dufva & Rekola (2023, 8), in alignment with Sitra's impact objectives, emphasized the reconstruction of ecology, renewal of economy, strengthening of future-oriented thinking and capacity of change in society. Dufva & Rekola (2023, 8) stated that there are many possible futures, with many different views about them and, what is important in shaping the future is the understanding of different perspectives.

Siirilä et al. (2023, 44-45) explained, that the green transition is accelerated by the megatrends of ecological reconstruction, growing effects of global warming, extreme weather conditions, decrease of biodiversity, overconsumption of natural resources, soil depletion and increasing amount of waste. Ecological sustainability

crisis can be considered as a cohesive entity due to its effects connected to each other in nature. The factors of the ecological sustainability crisis also feed each other. For example, greenhouse gases cause global warming and ocean acidification, which in turn accelerates the biodiversity loss. The drivers of these factors are human actions and economic and societal practices, such as consumption choices, product manufacturing, supply chains and construction. The objective is to adjust human actions to the limits of planet's carrying capacity. Hence, in practice the green transition means taking over the ecological sustainability crisis. Siirilä et al. (2023, 44-45.)

4 METHODOLOGICAL IMPLEMENTATION OF THE STUDY

This chapter presents the chosen philosophical and methodological implementations of this thesis study. The chapter starts with the definition of the research philosophy, with justification of the selected research method. Next, the data collection and data analysis procedures are clarified, with rationalization of the chosen theory development approach. And finally, the reliability and validity aspects of the collected data are analyzed. The research design of this thesis study is based on the green and digital transition in the commercial property rental services business.

4.1 Research philosophy

According to Saunders & Bristow (2023, 30), our own beliefs and assumptions about how the world functions have an influence on the data we collect and how we interpret the collected data. Saunders & Bristow (2023, 32) described the term research philosophy as a system of beliefs and assumptions about knowledge progression. The description refers to the knowledge development when launching a research study in a particular field. The chosen research philosophy defines the conception of the world within which the research is processed.

Research philosophies can be distinguished by looking at three forms of research assumptions, which are: ontology, epistemology and axiology. Ontological assumptions refer to the *nature of reality*, by reflecting how we see and study the research object. These objects can be, for example, organizations and their management. Epistemological assumptions refer to the *knowledge*. In integrative context of organizations and management this means different forms of knowledge, roaming from numerical to visual data and from facts to stories, all being justifiable. Consistency with ontological and epistemological assumptions and selected research design and methods can enhance the accuracy and usability of the research findings. Axiological assumptions refer to the aspect of *values and ethics* within the research process. In this context, the researcher needs to decide how to progress with own values and of the people included in the research. (Saunders & Bristow 2023, 33, 35-36.)

In addition to the above-mentioned philosophical assumptions, a set of continua opposing each other is distinguished when presenting the philosophical and methodological choice of the research (Niglas 2010, as cited in Saunders & Bristow 2023, 36). Opposing two components are *objectivity* and *subjectivity*. The objectivity relies on the theory of *realism* and consequently, the subjectivity embraces the theory of *nominalism*. Subjective assumptions allow the researcher to investigate multiple narratives, enhancing the understanding of different realities and social factors. While processing the research with subjectivity, the researcher may actively contribute to the data creation. When the research philosophy of this thesis study was scrutinized, the above-mentioned description reflected closely on the chosen research approach. Hence, this thesis study was processed with the subjective philosophical viewpoint. The researcher's active contribution to the research data creation can encounter difficulties to detach researcher from the personal values. This possible restriction was thoroughly explored while processing this study. Consequently, the radical change perspective was identified as the research sociology. The radical change paradigm allows the subjectivist researcher to question the way things are currently done, and, through the research, offers insight to support the change for better practices. (Saunders & Bristow 2023, 37-38, 39, 41.)

The previously presented philosophical hypothesis delineate different ways of experiencing the world and their influence on methodological choices of the research. However, in this thesis study the focus was on finding practical solutions to support the case company's future activities, rather than focusing on the research philosophy. According to Saunders & Bristow (2023, 54), practicality is an indication of pragmatism in the business and management research philosophy. With pragmatism, research findings are considered in terms of their practical consequences in a specific context (Saunders & Bristow 2023, 54). Pragmatists consider reality as practicality of ideas and value the knowledge as enabling instrument for carrying out the ideas successfully.

4.2 Case study as research approach

The research of this thesis was conducted with case study approach which is, according to Yin (2015, 8), one variant of the qualitative research. Gillham (2000, 10) explained qualitative research method to focus on the kind of evidence, facilitating the understanding of a specific case. Yin (2015, 9) distinguished qualitative research from other forms of social science research with following five features: 1) studying the content of people's lives, in their real-world setting, 2) representing views and prospect of people, 3) unequivocally participating and auditing the real-world circumstances, 4) creating insight from actual and prospective concepts to support understanding of social behavior and thinking, and 5) recognizing the possible importance of multiple source evidence, instead of concentrating to one single source.

Woodside (2010, 16) described the case study approach as research focusing on description, understanding, prediction and/or controlling of the individual case. Woodside (2010, 2) emphasized the importance of these phases in data collection of case study research. According to Williamson (2002, 112), (Orlikowski and Baroudi, 1991) data collection techniques in case study are observation, interviews, questionnaires, and analysis of texts or documents. The key characteristics of case study research is the use of multiple sources of evidence (Gillham 2000, 1-2). Another distinguishing feature of case study approach is to begin the research with understanding of the context first and then proceeding with theoretical notions (Gillham 2000, 1-2).

Case study is specifically used in research where understanding and examination of context has a significant importance. Case study approach is applied when acquiring knowledge of processes or phenomena, where the importance of individual experiences and action contexts are considered critical. This is particularly considered in the areas of dynamic or non-matured phenomenon where definitions or common language have not yet been defined. (Williamson 2002, 113.)

After consideration of previously presented characteristics of the qualitative case study, this approach was alleged as the most appropriate research method for this thesis study. Yin (2015, 3) analyzed qualitative research method to enable researcher to study people's everyday lives in their natural settings, considering different circumstances. Hence, results from the research represent actual ideas and activities of real people practicing them in a real-world context (Yin 2015, 9).

4.3 Data collection with literature review and participant observation

According to Gillham (2000, 18), the strategy for the case study research is to start collecting data with an open mind. Data collection of this thesis study was processed with two methods: 1) literature review and 2) participant observation. According to Gillham (2000, 13), when data collection is processed with different methods on the same issue, process is called multi-method approach. Yin (2015, 11) highlighted the value of data collection and presentation from variable sources, typically following qualitative research in the real-world settings.

First data collection method used in this thesis study was a literature review, with the purpose of examining existing priorities and future insight of the thesis context. Literature review consisted of the EU legislation, scientific articles and reports of the well-established organizations within the thesis context. Sources were mainly accessed through the online library services, provided by the Lapland University of Applied Sciences (Lapland UAS). According to Gillham (2000, 2), literature review can start after the understanding of the thesis context has been established by examining the reality of the case setting. Hence, the literature review started slightly after participant observation of the case company which was used as a second data collection method in this thesis study.

According to Gillham (2000, 45), observation method is described with three main elements: 1) observing what people do, 2) listening to what people say, and 3) occasionally presenting clarifying questions. Gillham (2000, 46) divided observation method into two variations: 1) participant observation, where researcher is involved in case setting activities, mainly used in the qualitative research and 2) detached/structured observation, where researcher is watching the case setting from outside in a specific timeline and carefully counting and

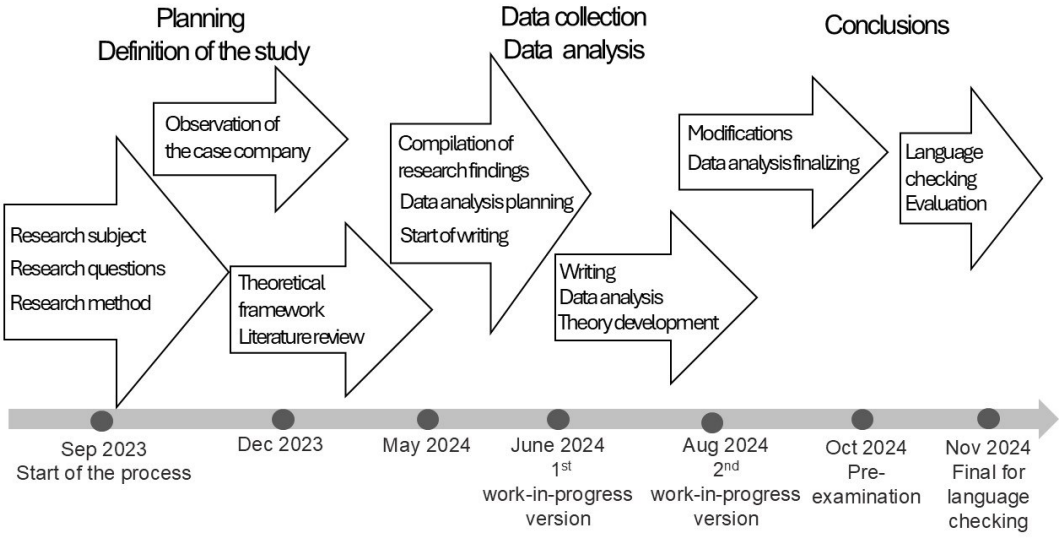
classifying results, commonly used in the quantitative research. In this thesis study, the case company observation is conducted with the participant observation method. At the time of processing this thesis study, the thesis author was employed by the case company. Hence, the case company observation could be included into the thesis author's work activities. Observation focused on the case company's activities in relation to the thesis context, more specifically on green and digital transition of the case company's business activities. Existing practices were reflected on the literature review findings. This analytical proceeding supported the knowledge development within the thesis context. During the observation, the thesis author had a possibility to consult the employees of the case company on their specific competence areas. All employees of the case company being in the same office, consultations could be conducted with face-to-face discussions. Gilham (2000, 20) emphasized the importance of collecting multiple sources of evidence, by observing what people do, what people say, what is produced and, what does the documentation reveal. Hence, the evidence of this thesis study was collected with the literature review and observation of the case company's business activities. Data collection findings were documented in a excel format, enabling the reflection and analysis of the collected data. Analysed data was then woven into a narrative account what Gillham (2000, 20), Yin (1989) called a chain of evidence, i.e. each key element in the account is supported by different kind of evidence.

4.4 Reseach process

Gillham (2000, 38) emphasized that two data collection methods should be processed simultaneously (familiarity with the case and knowledge from the literature), by allowing interaction of the two methods and possibility to feed each other. Literature review of this study started soon after the observation of the case company. Hence, in this thesis study the chosen two data collection methods were processed concurrently. This progressive influence of the research is recognised, according to Gillham (2000, 38) as one of the emergent characters of the case study approach.

The research process of this thesis study started in September 2023. Firstly, initial research subject and research questions were defined, in agreement with the thesis commissioner. The observation of the case company started soon after, in late autumn 2023. The case company observation resulted to modifications of the thesis context. The subject of the thesis got more defined and narrowed to a specific area of interest, the green and digital transition. This clarification supported the outlining of the theoretical framework. The literature review started in December 2023 and continued concurrently with the case company observation. The simultaneous processing of the case company observation and theory development supported the definition of the thesis structure. In May 2024, the compilation of the research findings was considered sufficient to plan the data analysis and to start the thesis writing phase. The first work-in-process thesis version was submitted for viewing at the beginning of June 2024. The writing phase continued throughout the summer and autumn, having the second work-in-process version ready by the end of August 2024. The pre-examination version of the thesis was executed for viewing at the end of October 2024. And the final version of the thesis was processed for the language checking in mid-November 2024. To summarize, the timeline of this thesis study started in September 2023 and continued until November 2024, as presented in below thesis research process plan (Table 1).

Table 1. The thesis research process plan



4.5 Content analysis of research data

Content analysis was described by Elo & Kyngäs (2008, 107) Cole (1988) as a method of analysing written, verbal and visual information. With the content analysis method, replicable and valid inferences can be produced from data to their context with the intention of having new knowledge, insight, depiction of facts or practical action guidelines (Krippendorff 1980, as cited in Elo & Kyngäs 2008, 108). Aim of the content analysis was to obtain a concise and broad description of the thesis study findings. The outcome of the analysis was presented in categories describing the findings. With presented categories, the purpose was to build a conceptual structure of the analysis as presented by Elo & Kyngäs (2008, 108).

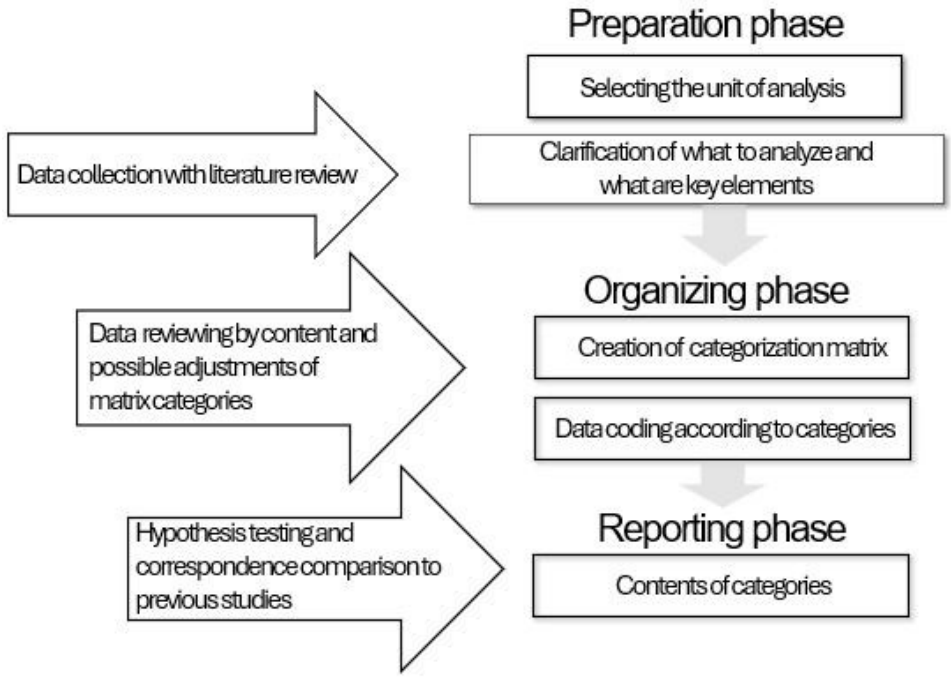
According to Elo & Kyngäs (2008, 109), content analysis method can be used in both quantitative and qualitative data analysis processes and the analysis can be processed either with a deductive or inductive approach. The choice of the analysis approach to theory development depends on the purpose of the study (Elo & Kyngäs 2008, 109). Inductive approach is recommended in case of inadequate former knowledge of the phenomenon, or in case of existing knowledge being fragmented (Lauri & Kyngäs 2005, as cited in Elo & Kyngäs 2008, 109). Deductive approach is favorible when the stucture of the analysis is implemented on the basis of existing knowledge and the objective of the study is theory testing (Kyngäs & Vanhanen 1999, as cited in Elo & Kyngäs 2008, 109). Deductive content analysis is processed by using pre-existing categories based on the theory or previous research findings (Armat, Assarroudi, Rad, & Sharifi 2018).

In this thesis study the data analysis is based on knowledge acquired from the literature review and the results of the case company observation thus the theory developed was processed with the deductive data analysis approch. According to Elo & Kyngäs (2008, 109), no exact rules exists for analysing the data. Hoewever, flexibility and lack of precise guidelines can generate challenges in the content analysis process (Elo & Kyngäs 2008, 113). The fundamental feature of all content analysis is the classification of textual words into specific content categories (Weber 1990; Burnard 1996, as cited in Elo & Kyngäs 2008, 109). The deductive

content analysis of this thesis study was processed in three main phases: preparation, organizing, and reporting, as presented by Elo & Kyngäs (2008, 109). The preparation phase of the analysis started by selecting the analysis unit, with consideration of what to analyse and what key elements are important within the thesis context. Data collection with the literature review supported the perception of the thesis context key elements thus the analysis unit got confirmed during the data collection process. The analysis unit of this thesis study was the "*key actions in green and digital transition to the case company operating in the commercial property rental services business"*.

In the next phase, organization of the content analysis, a categorization matrix was created with main categories and interdependent sub-categories to correspond the key elements distinguished in the literature review. Definition of categories can be a challenge, as categories need to be both empirically and conceptually grounded. However, the reliability of categories can be checked by continuous reflection of collected data versus categories during the analysis process. After the creation of categories, the analysis process continued with data coding into the matrix, according to factual connection of data to each category. During the data coding process, adjustment of categories was needed to better correspond the selected key elements of the thesis study. After the coding was completed, the analysis process continued with the reporting phase. The analysis results were reported as contents of the categories, i.e. significance of the categories. The deductive content analysis process used in this thesis study is visualized in the following table (Table 2). (McCain 1988; Cavanagh 1997; Patton 1990; Dey 1993; Sandelowski 1993, 1995; Kyngäs & Vanhanen 1999; Polit & Beck 2004, as cited in Elo & Kyngäs 2008, 109, 111-113.)

Table 2. The deductive content analysis process used in this thesis study (adapted from Elo & Kyngäs 2008, 110).



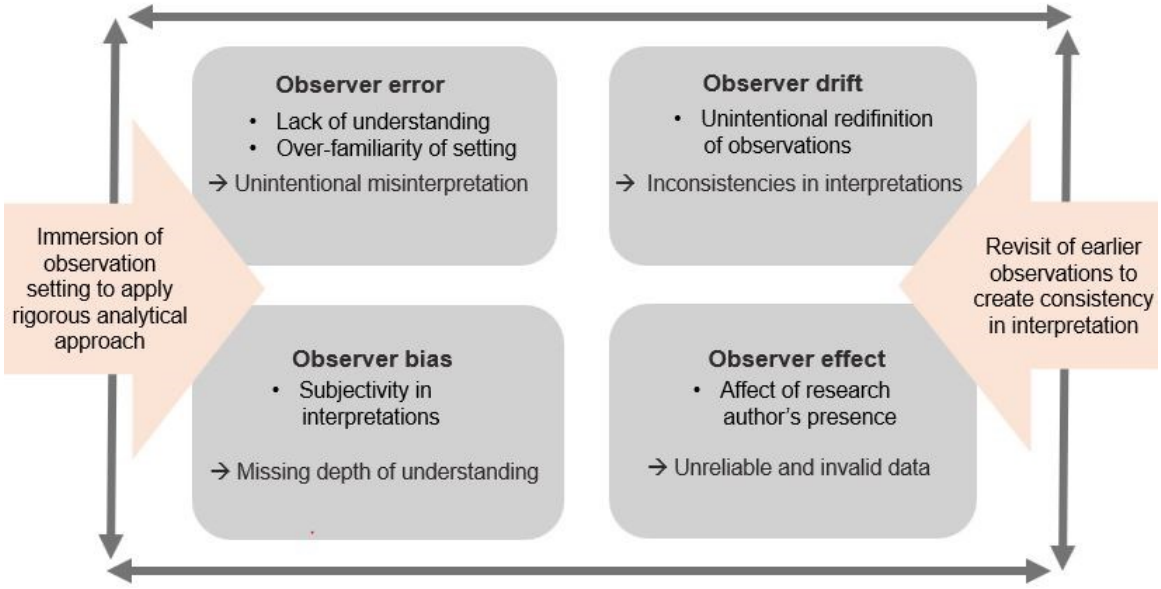
4.6 Reliability and validity of collected data

Yin (2015, 9) explained that instead of presenting values and preconceptions of the research author, results of the qualitative research can reflect real-world events experienced by people living them. According to Gillham (2000, 10), this "*search for meaning"* can give possible explanation to matters in question. Qualitative research method enables the research author to investigate events that are not clearly recognised in the company's business activities and, the qualitative method allows the research to be carried out with processes as results rather than just giving the "*significance*" to the results (Gillham 2000, 11).

However, Williamson (2002, 113), Yin (1994, 10) pointed out that the case study research method can be associated with the disadvantage of possible bias of the research author. The data collection and analysis can be subject to influence of the researcher's interpretation. This can lead to possible limitation of validity in research findings. Gillham (2000, 18) explained that research author can have unconscious assumptions that can cause difficulties to determine research results. Elo & Kyngäs (2008, 114) descriped that the challenge of research content

analysis relates to refinement of research questions and research author's unconscionable interpretation of the research results. Saunders, Lewis & Thornhill (2023, 407-408) identifed possible reliability and validity threats in the research when using participant observation method. Saunders et al. (2023, 407-408) listed four interrelated quality issues that needs to be considered when using participant observation, these issues being 1) observer error, 2) observer drift, 3) observer bias, and 4) observer effect. In the following table (Table 3) previusly listed quality issues are outlined with reflection of related causes and effects.

Table 3. Data quality issues in observation (adapted from Saunders, Lewis & Thornhill 2023, 407-408).



As illustrated in the above table, the research setting being unknown to the observer, cultural and interpersonal nuances needs to be clarified before interpretation of the observation findings. Alternatively, if the observer is very familiar with the setting, the observer may have difficulties to analyze findings with an outsider viewpoint. Therefore, immersion of the observation setting is required in order to have rigorous data analysis approach. As data collection and analysis are ongoing iterative processes, a revisit of earlier collected findings is needed while continuing with data collection. This reflection enhances the consistency in data interpretation. (Saunders et al. 2023, 407.)

According to Elo & Kyngäs (Polit & Beck 2004, as cited in Elo & Kyngäs 2008, 112), the reliability of the research can be increased by linking the collected data to results of the research and by providing a detailed inscription of the data analysis process. Hence, in this thesis study the content analysis process is descriped in as much detail as possible and further presented in a table (Table 2. The deductive content analysis process used in this thesis study). Gillham (2000,28) advised to first clarify expectations and preferences related to the research content. They need to be acknowledged and written down. And they need to be accepted as part of the research process. This helps to clarify researcher's position in the scheme of things.

5 FINDINGS

The findings of this thesis study are based on the content analysis of the empirical data collected with the literature review and participant observation in the case company. The selected analysis unit was based on the objective of the study, namely "*the key actions in green and digital transition to the case company operating in the commercial property rental services business."* Categories of the content analysis matrix were formed after the accomplishment of the thesis knowledge base. This procedure supported the identification of requisite categories providing response to the research questions of the study. The findings presented in this chapter are divided into paragraphs corresponding to the content analysis categories, which are 1) EU priorities on green and digital transition, 2) actions supporting the transition, 3) EU taxonomy and funding requirements, 4) impact of megatrends and future insight, 5) key points of the case company observation, and 6) key actions to the case company. Each category is visualized in the corresponding paragraph. The content analysis demonstrated the cohesiveness of different categories, supporting the viewpoint of the green and digital transition being interconnected in their nature. Hence, the categorization matrix is presented in interrelated stages.

5.1 EU priorities on green and digital transition

The data analysis of the literature review distinguished two principal EU priorities on green and digital transition, which were "*A European Green Deal" and "A Europe fit for the digital age."*. While the Green Deal targeted for net zero greenhouse gas emissions by 2050, the "*Europe fit for the digital age*" anticipated opportunities for digital solutions with consideration of risks and costs of the digitalization. The content analysis demonstrated the two principal priorities to complement each other. The analysis continued with the determination of the main priorities of the above-mentioned two principal priorities. For the Green Deal, main priorities were identified to elements of 1) circular economy, 2) sustainable resource management, 3) technological innovations, 4) policy reforms, and 5) acknowledgment of research insights, supporting data-driven policy formulation and implementation. For the "*Europe fit for the digital age*", the analysis specified

priority elements of 1) development and deployment of technology with respect to European values, 2) fair and competitive economy with equal opportunities for all sizes of organisations in any sectors, and 3) democratic and sustainable Europe. These analysis results on the EU green and digital transition principal and main priorities constructed the first stage of the content analysis, which is pictured in the following categorization matrix (Table 4).

Table 4. The EU principal and main priorities on green and digital transition (adapted from Elo & Kyngäs 2008, 112)

	Pricipal EU priorities	Targets	Main EU priorities
GREEN AND DIGITAL TRANSITION	The European Green Deal	Zero greenhouse gas emissions by 2050 and economic growth decoupled from the use of natural resources	**Circular economy** - efficient use of energy and resources, recycling and reuse of materials, waste reduction
			Sustainable resource management - reduction of ecological footprint, promotion of geen technologies and practices
			Technological innovations - renewable energy and digitalization
			Policy reforms - adequate governance of the regulatory framework, economic growth decoupled from the resource exploitation
			Acknowledgment of research insights - data-driven policy formulation and implementation
	A Europe fit for the digital age	Envisaging opportunities for digital solutions and considering risks and costs of digital technologies	**Development and deployment of technology with respect to European values** - enhancement of the competitive economy, facilitation of people's everyday life
			Fair and competitive economy with equal opportunities for all sizes of organisations in any sectors - use of digital technologies with respect to consumer rights
			Democratic and sustainable Europe - interaction with data online and offline, respect of fundamental rights, enhancement of resource-efficiency and climate-neutrality

The previously described first stage of the analysis supported the next step of the analysis to define the EU sub priorities on green and digital transition. The objective of the sub priority analysis was to establish a more detailed description of the EU transition priorities within the thesis context. The sub priorities analysis resulted in desired priority specifications. However, the specifications were noticed to be associated with both previously defined two EU principal priorities. Hence, the sub priorities analysis results were listed to comprehend both principal priorities. The analyses resulted to 22 EU sub priorities which were 1) circularity of building constructions and renovations, 2) tackling pollution, protection of biodiversity, reduction of greenhouse gas emissions, 3) digital technologies enabling energy-saving and environment friendly business solutions, 4) sustainable urban strategies and innovations, 5) sustainable investments, 6) digital solutions (AI, quantum technologies, communications systems), 7) sustainability and energy-efficiency of digital infrastructures and technologies, 8) enhancement of transparency and accountability, 9) environmentally sustainable reporting requirements, 10) environmental, social and governance (ESG) aspects, 11) long-term sustainable development into corporate governance framework, 12) digitally skilled workforce and skilled experts, 13) protection of people's personal data and privacy, 14) equal opportunities, 15) security of critical infrastructures, 16) secure, sustainable and high-performance digital infrastructure, 17) prosperous, human-centered and sustainable digital future, 18) digitalized society with fundamental common values, 19) digitalized, fully accessible, easy-to-use and secured services, 20) decoupling economic growth from the use of natural resources, 21) environmental data disclosure into operational activities, and 22) playing a role model to businesses in digitalization. The results of the sub-priority analysis demonstrated consistency in the EU transition priorities. Sustainability was mentioned in the analysis' results seven times out of 22. Digitalization appeared in different forms nine times. Circularity and energy-efficiency resulting from the sub-priority analysis were in alignment with the analysis result of the main EU priorities. The factual connection of the use of digital technologies with respect to consumer rights could be distinguished in both main and sub-priority analyses. Protection of people's personal data and privacy and secured digitalized services appeared five times in different context of the sub-priority analysis results. Additionally, the EU sub-priority analysis results exhibited the importance of ESG aspect and the

disclosure of environmental data into operational activities. One of the Green Deal targets, decoupling economic growth from the use of natural resources, was emphasized with the sub priority analysis result. The results of the EU sub-priority analysis complemented the categorization matrix with more specific priority definitions within the thesis context, as visualized in the following table (Table 5).

Table 5. The EU sub priorities on green and digital transition (adapted from Elo & Kyngäs 2008, 112)

	Pricipal EU priorities	Targets	Main EU priorities	Sub EU priorities
GREEN AND DIGITAL TRANSITION	The European Green Deal	Zero greenhouse gas emissions by 2050 and economic growth decoupled from the use of natural resources	**Circular economy** - efficient use of energy and resources, recycling and reuse of materials, waste reduction	Circularity of building constructions and renovations
				Tackling pollution, protection of biodiversity, reduction of greenhouse gas emissions
				Digital technologies enabling energy-saving and environment friendly business solutions
			Sustainable resource management - reduction of ecological footprint, promotion of geen technologies and practices	Sustainable urban strategies and innovations
				Sustainable investments
			Technological innovations - renewable energy and digitalization	Digital solutions (AI, quantum technologies, communications systems)
				Sustainability and energy-efficiency of digital infrastructures and technologies
			Policy reforms - adequate governance of the regulatory framework, economic growth decoupled from the resource exploitation	Enhancement of transparency and accountability
				Environmentally sustainable reporting requirements
			Acknowledgment of research insights - data-driven policy formulation and implementation	Environmental, social and governance (ESG) aspects
				Long-term sustainable development into corporate governance framework
	A Europe fit for the digital age	Envisaging opportunities for digital solutions and considering risks and costs of digital technologies	**Development and deployment of technology with respect to European values** - enhancement of the competitive economy, facilitation of people's everyday life	Digitally skilled workforce and skilled experts
				Protection of people's personal data and privacy
				Equal opportunities
			Fair and competitive economy with equal opportunities for all sizes of organisations in any sectors - use of digital technologies with respect to consumer rights	Security of critical infrastructures
				Secure, sustainable and high-performance digital infrastructure
				Prosperous, human-centered and sustainable digital future
				Digitalized society with fundamental common values
			Democratic and sustainable Europe - interaction with data online and offline, respect of fundamental rights, enhancement of resource-efficiency and climate-neutrality	Digitalized, fully accessible, easy-to-use and secured services
				Decoupling economic growth from the use of natural resources
				Environmental data disclosure into operational acitivites
				Playing a role model to businesses in digitalization

The analyses results of the EU priorities elaborated a partial response to the first research question: *What are the EU priorities on green and digital transition and related actions to support the achievement of the successful transition?* However, the second part of the research question was still to be discovered. Hence the content analyses continued with the analysis category “actions supporting the transition”, of which the results are presented in the following paragraph.

5.2 Actions supporting the transition

To reach a comprehensive understanding of the actions supporting the case company’s green and digital transition, the next stage of the analysis was processed with empirical data related to the case company’s operation field. The two EU principal priorities, “*A European Green Deal” and “A Europe fit for the digital age”* comprised several legislative initiatives with recommended actions to enhance the climate neutrality by 2050. The analysis results of these actions highlighted the significance of efficient energy use and reduction of energy consumption. Actions on building automation and energy management solutions to monitor and report building performance were also pointed out with the analysis. As well as green mobility with charging infrastructure for electric vehicles. The analysis results emphasized the ESG aspects and responsible corporate practices. Simplified, voluntary-based sustainability reporting practices were recognized in the results with connection to future business opportunities.

Actions on sharing and renting products and services and innovative cooperation with the stakeholders were also pointed out with the analysis results. The increase of the annual building renovation rate (percentage change of moving from one energy label to more efficient energy label) along with green building certification were particularized in the results, to meet energy, environmental and human health standards of buildings. Last but surely not least, the analysis draw attention to the action of having fully decarbonized EU building stock by 2050 with the first milestone of the greenhouse gas emissions reduction by 55% by 2030 (compared to 1990 level). The analysis results of actions supporting the transition in the case company’s business field envisioned in the following table (Table 6) constructed the next stage of the analysis categorization matrix.

Table 6. Actions supporting the transition (adapted from Elo & Kyngäs 2008, 112)

First milestone	Actions supporting the transition
Reduction of the greenhouse gas emissions by 55% by 2030 (compared to 1990 level) - first milestone of reaching the carbon-neutral Europe by 2050	Efficient use of energy and reduction of energy consumption
	Building automation and other energy management solutions
	Progressive calculation of greenhouse gas emissions throughout the whole building life cycle
	Green mobility with charging infrastructure for electric vehicles
	In addition to thermal characteristics, building energy performance monitoring to contain usage of renewable energy sources, building automation and smart solutions, heat recovery from wastewater and exhaust air, indoor environmental quality and passive heating and cooling elements
	Increase of the annual building renovation rate (percentage change of moving from one energy label to more efficient energy label)
	Green building certification to meet energy, environmental and human health standards
	Innovative cooperation with all stakeholders
	Offering durable, reusable and repairable products
	Sharing and renting products and services
	Enhancement of responsible and sustainable corporate practices
	ESG aspects supporting the improvement of the company reputation
	Partial/simplified compliance with sustainability reporting practises, creating future expansion possibilities
	Monitoring of environmental and human right impact of the operations (simplified reporting on a voluntary basis)
	Fully decarbonized EU building stock by 2050

5.3 EU taxonomy and funding requirements

As Okolo et al. (2023, 4) described, the EU funding requirements reflect the Green Deal objectives of enhancing the green and digital transition. The Commission (2022 B, 13) envisaged increasing investments in environmentally conscious businesses and presented the EU financial framework strongly relying on the EU taxonomy. To clarify the EU taxonomy and funding requirements in relation to the green and digital transition, an analysis category of this subject matter was included into the categorization matrix. The analysis resulted to requirements on circular economy, energy efficiency, clean energy and carbon neutral solutions with respect to mitigation of climate change. Electric vehicles charging infrastructure was also drawn from the analysis. Additionally, organizational innovation and sustainable growth were distinguished by the analysis. As well as new technologies, practices and services along with solutions for recycled material use. The analysis results also pointed out energy saving and auditing projects. In summary, as presented in the following table (Table 7), the analysis results of the EU taxonomy and funding requirements consisted of activities contributing to environmental and climate objectives, in alignment with the green and digital transition priorities.

Table 7. EU taxonomy and funding requirements (adapted from Elo & Kyngäs 2008, 112)

	EU taxonomy and funding requirements
Economic activities contributing to environmental and climate objectives, in alignment with the transition activities	New technologies, practices and services
	Circular economy solutions
	Energy saving/auditing projects
	Solutions for climate change adaption and mitigation
	Production of clean energy
	Electric vehicles charging infrastructure
	Organizational innovation and sustainable growth
	Energy-efficient and carbon-neutral solutions
	Solutions for recycled material use rationalizing the use of natural resources

5.4 Impact of megatrends and future insight

The thought presented by Siirilä et al. (2023, 44) about existence of many futures and us being able to influence them with our everyday choices gives us the responsibility to consider the long-term effects of our present choices. Hence, it was considered justified to supplement the content analysis matrix with next category, which was “megatrends and future insight” in the commercial property rental services business. The analysis results of this category exhibited a holistic point of view of the building assessment. Visualized by the analysis results, the future office spaces are adjusted to meet tenant’s altered needs. The enhancement of the company culture, employee collaboration and innovation were pointed out by the analysis. As well as the eco-friendly way of living. Emerge of new technologies, digitalization and automation were considered to bring changes in business processes. The results of the analysis visioned hybrid rental contacts, enhanced by the flexible working models. In addition, energy performance contracts and space demand for creativity and brainstorming became apparent in the analyses results. Further, operational efficiency, sustainability and responsible governance of the property were emphasized by the analysis. Supported by the property labelling and certification. Additionally, the results specified the property as a “*service*”. The overview of the analysis results is presented in the following table (Table 8).

Table 8. Megatrends and future insight (adapted from Elo & Kyngäs 2008, 112)

Megatrends and future insight
Flexible working models
Building assessment from holistic point of view
Office space adjustment to meet tenant's altered needs
Enhancement of company culture, employee collaboration and innovation
Space demand for creativity and team brainstorming
Hybrid rental contracts
Eco-friendly way of living
Digitalization, automation, changes in the business processes
Emerge of new technologies
Operational efficiency, sustainability and responsible governance of the property
Property labelling and certification
Energy performance contract
Property as a "service"

5.5 Key points of the case company observation

The collected data from the case company observation exhibited some elements to be considered while elaborating the key actions to the case company. The broad operational environment including various type of buildings and limited organizational resources of the case company needed to be taken into consideration. Tenants' variable needs were also acknowledged by the observation. At the time of processing this thesis, the case company possessed charging points for electric vehicles in five different locations in Rovaniemi city area. The Granlund Manager property maintenance software was used to monitor energy consumption and maintenance of buildings. The energy efficiency and maintenance challenges of older buildings were recognized. Tenant accountability on the energy consumption was depended on the rental space of the case company. Streamlining of business processes was ongoing, at the time of writing this thesis. As well as the digitalization of services. The recycling waste management was in use in most properties of the case company. The green

financing was recognized as an opportunity for the future operations. As well as closer cooperation with the stakeholders. During the case study observation, the case company encountered some organizational challenges in relation to the shortfall of personnel. However, the challenge generated more defined and uniformed business operation practises. The key points of the case company observation are presented in the following table (Table 9).

Table 9. Key points of the case company observation (adapted from Elo & Kyngäs 2008, 112)

Key points of the case company observation
Broad operational environment (office spaces, workshops, warehouses and industrial buildings)
Variable needs of tenants
Granlund Manager property maintenance software in use (maintenance and energy consumption monitoring)
Energy efficiency and maintenance challenges in older buildings
Tenant accountability on the energy consumption varies, depending on the rental space
Waste recycling in use in most properties
Electric vehicles charging points in five locations
Digitalization of services ongoing
Green financing opportunities
Stakeholders cooperation
Business processes streamlining ongoing
Limited organizational resources
Organizational changes - challenges and opportunities

5.6 Key actions to the case company

Previously presented analysis results constructed the base for the final stage of the analysis. The last category of the analysis matrix was the “key actions to the case company”. The objective of this category was to generate a response to the second research question: *What are the key actions in green and digital transition for the case company operating in the commercial property rental services business?* For achieving an adequate response, analysis results of previous categories were examined as an entity of results. Additionally, the analysis results were reflected with previously presented key points of the case company observation. The aim of the reflection was to define the key actions that can be incorporated into the case company’s business activities.

The final analysis provided results of actions on digitalized services, providing accuracy, security and savings of organizational resources. Hybrid rental contracts were emphasized, reflecting tenant’s altered needs. Also recycled solutions, for example in space refurbishment, were recognized by the analysis results. As well as the property categorization, with examples of categories such as productive, creative or eco-friendly space. The importance of transparent, fair and equal stakeholder collaboration was drawn from the analysis. With enhancement of responsible and sustainable corporate practices. Tenant accountability in energy consumption and related process alignment was pointed out by the analysis. The enhancement of holistic and responsible property governance, supported by the property labelling on building energy performance and indoor environmental quality were also identified by the analysis.

The last action resulting from the analysis was the partial or simplified compliance with sustainability reporting practices, for example in the form of ESG. The EU reporting requirements on green and digital transition were not perceived to bind the case company at the time of processing this thesis study. However, the analysis demonstrated the sustainability reporting to enhance the trustworthiness and transparency of the company. The key actions to the case company resulting from the final analysis are listed in the following table (Table 10).

Table 10. Key actions to the case company (adapted from Elo & Kyngäs 2008, 112)

Key actions to the case company
Digitalization of services (accurancy / serurity / savings of organizational resources)
Hybrid rental contracts (reflecting tenants needs)
Recycled solutions (eg. in space refurbisment)
Property categorization (eg. productive / creative / eco-friendly space)
Stakeholder collaboration (transparent, fair, equal)
Enhancement of holistic and responsible property governance
Tenant accountability in energy consumption (process alignment)
Property labeling (building energy performance, indoor environmental quality)
Enhancement of responsible and sustainable corporate practises
Partial/simplified compliance with sustainability reporting practises (eg. form of ESG)

The ESG aspect of the EU priorities and actions supporting the green and digital transition was emphasized in results of three different analysis stages of the categorization matrix. First time ESG appeared in the “EU sub priorities” on green and digital transition analysis category. Second time, the ESG aspect was pointed out in the analysis category of the “actions supporting the transition”. And third time the importance of ESG was exhibited in the category of “key actions to the case company”. According to results of the analyses, ESG aspect and sustainability reporting in the form of ESG can accelerate future business opportunities and enhance the trustworthiness and transparency of the company. In addition, the analyses predicted ESG reporting to form the basis for future financial transactions. ESG commitment was also seen as a positive signal to the

stakeholders. Based on these analyses results, the ESG aspect inclusion into the key actions presented to the case company was considered beneficial. Hence, the key actions in green and digital transition to the case company operating in the commercial property services business were designated in the form of ESG, as pictured in the following table (Table 11).

Table 11. Key actions to the case company in ESG form (adapted from Elo & Kyngäs 2008, 112)

6 CONCLUSIONS

This chapter concludes this thesis study, starting with the summary of the study. Followed by the evaluation of validity, reliability and limitations of the study. Finally, at the end of this chapter the recommendations for the future study are presented with final reflections from the thesis author.

6.1 Summary of the study

The objective of this thesis study was to define key actions in green and digital transition for the case company operating in the commercial property rental services business. The study started by acquiring the knowledge base of the EU priorities on green and digital transition. The EU legislative framework on the transition was examined with the literature review. Business activities of the case company were observed concurrently with the thesis theory development. The simultaneous process enhanced the theory alignment within the thesis context and increased the understanding of the case company's opportunities and challenges in the transition. In addition to the comprehension of the EU priorities of the transition, the purpose of this thesis study was to explore the future insight of the green and digital transition. Hence, the research continued with examination of megatrends and future insight of the commercial property rental services business.

Once the theory base of the thesis was considered adequate, the collected empirical data was analyzed with the deductive content analysis. The analysis process was conducted with the categorization matrix of six different categories, which were 1) EU priorities on green and digital transition, 2) actions supporting the transition, 3) EU taxonomy and funding requirements, 4) impact of megatrends and future insight, 5) key points of the case company observation, and 6) key actions to the case company. The objective of selected categories was to elaborate responses to the research questions of the study. The analyses results with respect to the first research question *What are the EU priorities on green and digital transition and related actions to support the achievement of the successful transition?* demonstrated the significance of the EU objective of being climate neutral by 2050. The EU priorities and related actions for achieving the desired

transition pointed out the importance of energy efficient solutions and reduction of energy consumption.

For the case company the distinguished EU priorities by the analyses were considered challenging, as the case company has also older buildings in the property portfolio. However, the case company had an advantage of existing energy consumption monitoring system comprising almost all buildings. The analyses results in relation to the second research question *What are the key actions in green and digital transition for the case company operating in the commercial property rental services business?* identified actions on building automation to support efficient property energy performance. Additionally, the results specified actions on enhancement of tenants' accountability in energy consumption and hybrid rental contracts reflecting tenants' variable needs. The case company's existing energy consumption monitoring system can support the application of the energy consumption aspect into the rental contracts. Further, the hybrid rental contracts can be especially considered in spaces with high tenant turnover.

The analyses of data collected from the case company observation identified limited organizational resources in the case company. However, one stage of the analyses resulted in enhancement of the stakeholder collaboration. Hence, the case company is encouraged to examine possible cooperation with stakeholders to aid the resource shortage of the case company. Additionally, as identified by the analysis results, the collaboration with stakeholders can enhance the innovation and productivity of businesses. Further, the action on digitalization of services resulted from the analysis can provide a possibility to reorganize limited resources. With digitalization, the time consumed for repetitive processes can be utilized for more productive and inventive activities. Reporting of the case company's operational activities and related transparent communication can be considered beneficial to the case company's reputation. In addition, the incorporation of ESG aspect into the case company's strategy can create future business opportunities.

This thesis study presents key actions in green and digital transition to the case company operating in the commercial property rental services business. Limited

resources of the case company were taken into consideration while processing the thesis study analysis results. The specific operational environment of the case company was considered while progressing with the study. Hence, the findings of the study can be argued to be beneficial also to other companies operating in the same field. However, as emphasized by ERA (2022), a successful green and digital transition in the rental services business relies on changing the customers' habits and possessing people with right skillset.

6.2 Evaluation of the study – validity, reliability and limitations

Gillham (2000, 19) presented, that new knowledge can be interpreted in respect to what we already know, until our knowledge proves so deficient that the "knowledge framework" undergoes a paradigm shift – an entire change of understanding of what we are studying. In this thesis study, the knowledge framework was based on the existing EU regulation and scientific articles on the green and digital transition. Moreover, the research of megatrends and future insight added some elements to the knowledge base. As well as the data collected from the case company observation. The complexity of the EU legislation created challenges to distinguish explicit priorities related to the case company's business activities. Hence, the thesis theory was built with consistency, including precise specifications and listings if necessary to distinctly complement the development of the thesis theory base. In addition, the deductive content analysis was used to define relevant EU priorities and related key actions to the case company.

Even though the thesis topic was restricted to the case company's operation field, the aspect of green and digital transition resulted in a wide range of literature findings. At this stage the instruction of Elo & Kyngäs (2008, 113) was taken into consideration, to keep the research questions in mind while processing the research. Same advice was followed with the content analysis process. Hence the categories of the content analyses were determined according to the research questions. Even though the reporting of the analyses results was considered challenging, the consistency of categories facilitated the coherent presentation of the analyses results.

Gilham (2000, 20) emphasized the importance of collecting multiple sources of evidence. Additionally, Yin (2015, 9) recognized the benefits of multiple source evidence, rather than concentration on one single source. To enhance the validity and reliability of the research, the emprical data of this thesis study was collected with the case study observation and the literature review. These two data collection methods were processed simultaneously, as they were considred supporting to each other. The case company observation of this thesis study was conducted with the participant observation method. The thesis author being employed at the case company at the time of the observation, the bias of the research results needed to be carefully considered. Hence, the data collected with the observation was recorded into the excel file without any further assumptions from the thesis author. However, it needs to be noted that even though the observation results were reflected with the literature findings the results from the observation did have an important impact on the study findings.

6.3 Recommendations for the future study

The findings of this thesis study achieved the objective of defining key actions in green and digital transition to the case company operating in the commercial property rental services business. In addition, the study purpose of acquiring the adequate knowledge base of the EU priorities and recommended actions in the transition was accomplished. However, constantly developing EU regulatory framework and evolving technology create interesting possibilities for the future research. One future research path could be to examine how small size companies have been able to accommodate the EU priorities on green and digital transition into their business activities. Another research path could be to explore how the future EU regulation commits small size companies for the transition. Further interesting research path could be to investigate how the EU experiences the accomplishment of ambitious goal of being climate neutral by 2050. In conclusion, the findings of this thesis study can be utilized as a base for various directions of future research within the thesis context.

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