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CO-OPETITION IN THE CONTEXT OF SUSTAINABILITY GOALS

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Table of contents

LIST OF ABBREVIATIONS

SDG - Sustainability Goals
UN - Unit Nation
SPP - Sustainable Procurement Pledge

LIST OF ILLUSTRATIONS

LIST OF TABLES

1. INTRODUCTION

The idea for this research project stems from my practical professional experience. During my work at the second largest cargo airport in Europe, the question arose of how coopetition is influenced by sustainability goals. This is because during my work I was able to observe the establishment of the world's largest logistics service provider as well as other logistics companies. Their growth was also due to the collaboration of cooperation partners and competitors. In particular, the topic of "sustainability" was already implemented as a corporate strategy in this sector a few years ago. Probably also because transport by air leaves a much higher Co^2 footprint than transport by water, road or rail. Perhaps also because consumers are becoming increasingly aware that long supply chains do not necessarily contribute to sustainability. The Corona pandemic was the latest example of how much disruptions in supply chains influence business activities and have an economic impact. Although the last few years have made this increasingly clear, cooperation has grown not only in the logistics sector, but also in all other sectors of the economy. However, the vast majority of these relationships take the form of cooperation. Nevertheless, cooperation between competitors has also been noted for some time, the so-called coopetition, i.e. the simultaneous existence of cooperation and competition between competitors. From our own observations, it is obvious that the motivation for these connections has arisen from the pressure related to the Global Goals for Sustainable Development, which were adopted by the world community in 2015 as Agenda 2030.

Although coopetition can combine the best of cooperation and competition, especially in relation to sustainability technologies, there are only fragmented and limited scholarly articles on the subject, despite a steady stream of published studies in this area over the last two decades. Related to this, while

research has certainly pointed to the new development, a continuous and in-depth engagement with this paradox, is only slowly being observed and still proves to be of little enlightenment. Most research in the field of coopetition focuses on questions of the advantages and disadvantages of such an alliance. (Dagnino and Rocco (2011); Garraffo and Siregar (2021); (Himpel; 2009)). The implications of coopetition in the context of sustainability issues are less explored. A large body of research aims to investigate the benefits of these mergers and the legal frameworks associated with them. (Bouncken et al. (2015)). For example, academic literature has pointed out that while coopetition improves financial performance (Luo, Ri Luo (2014)) and create new markets (Ritala et al. (2014)), but is also a risky strategy that can lead to negative consequences such as opportunistic behaviour, conflict and free-riding (Quintana-García and Benavides-Velasco (2004)). Sustainable motivations are often neglected in research; therefore, they are poorly represented in the literature. However, when global surveys of managers are taken into account, it is found that the environment is recognised as an important issue. However, there is uncertainty about how to address these environmental sustainability challenges on a co-opetition basis (Elliot (2013, p. 1)). The bottom line is that coopetition as a function of sustainability goals is a significant, if under-researched, phenomenon with potentially promising practical implications. This is because cooperation between competitors is increasingly observed in the context of sustainability issues. Therefore, more evidence and systematisation of the outcomes of coopetition as a function of sustainability goals is needed. To fill these gaps, this paper addresses both the reasons for coopetition in relation to sustainability and why such cooperation is initiated and carried out, and finally the outcomes that this process leads to. It also looks at how the multiplex requirements of competition, cooperation and the three pillars of sustainability, i.e. economic, social and environmental, are ultimately interrelated. The study is conducted using the QMethod, a lesser

known method. The aim of this dissertation is to use this research approach to gain an understanding of the reasons for motivation and to understand and use decision-making criteria in the future.

1.1. Research question and purpose of the empirical research

Much research has been done in the field of coopetition, but the key research question remains unanswered:

What influence do sustainability goals have on coopetition?

My hypotheses are therefore concerned with structural change in the economy and are based on opinions that can be substantiated on the basis of scientific research:

- H1. The demand for improved environmental awareness and the intensifying competition should lead to an increased merger between competitors, because companies want to reduce their costs and retain their customers with sustainability and protection of the environment.
- H2. Business is undergoing a transformation due to increasing environmental awareness. Regardless of the aspirations of coopetition, more experience in cooperation and networking leads to more willingness among companies to join forces with value competitors from a sustainability point of view.
- H3: Companies that want to continue to hold their own in the market could face losses in the future. Only those who cooperate with market participants will have better market opportunities in the future.
- H4: Companies that pay attention to the environmental and social impacts of their core business are more forward-looking, more risk-conscious and better positioned overall. The willingness to cooperate with a competitor is much higher.

The aim of the study is to show the self-awareness of the companies, to identify more consciously with sustainable products in the future and to carry out cooperation with competitors. Advantages and disadvantages are also to be filtered out and presented, as well as the willingness and motivation to take on this topic. Furthermore, different types of motivation will be identified and analysed.

2. LITERATURE REVIEW

2.1 coopetition

2.2.1 Definition and emergence of coopetition

In order to understand the motivation of a cooperation between competitors, the terms must first be examined.

The term "coopetition" is derived from the English words "cooperation" and "competition" and is thus understood as a relationship built on simultaneous competition and cooperation. Co-operation as a combination is intended to make mutual dependence more efficient and effective and thus generate higher economic rents than would be the case with pure competition (Porter (2014)) or pure cooperation. The strategy is based on the idea that by competitors working together, total value can be created and shared (Porter and Kramer, 2011 M.E. Porter and M.R. Kramer (2011)). A large number of scholars agree that Raymond John Noorda, CEO of the software company Novell, first coined the term in the 1980s/1990s and is thus considered by many to be the creator of coopetition (Daidj (2017)). The first authors to shape the paradox as the term "coopetition" and actually address it scientifically were Brandenburger and Nalebuff (1996). Despite the fact that scientists made a significant contribution to early network research, it was not until the early 1990s that the term "coopetition" gradually gained relevance. This is because in the past competition and cooperation were fundamentally separated, before

more recently the coopetition paradigm emerged, meaning that companies not only either cooperate or compete with certain stakeholders, but often do both at the same time (Ritala et al. (2014)).

Porter and Kramer also concluded that the approach is based on the consideration that an overall value of competitions can be created and shared (Porter and Kramer, 2011). The basic motivation is to create a competitive advantage over other counterparts through close cooperation, be it through new access to contacts, improved productivity and/or quality, access to raw materials or reduced risks. Furthermore, this form offers advantages for companies facing increasing pressure to integrate the global value chain , due to "(a) the increasing importance of economies of scale and the internalisation of global activities, (b) the reduction of profit margins as a result of global competition or declining demand, and (c) the increasing need to improve productivity and efficiency". In each case, cooperation is becoming more and more compelling" (Luo (2007)). Furthermore, Bouncken points out that this cooperation is usually anchored in the corporate strategy and is needed to cope with the dynamic business field with fluctuating uncertainties (cf. (Bouncken et al., 2015)). Furthermore Padula and Dagnino (2007) point out that coopetition enables companies that manage partially overlapping and converging interests and goals to create value by cooperating and competing simultaneously.

2.2 Sustainability

2.2.1 Definition of sustainability

Under the title "Word of the Century. Formula for Survival" is published in 1995 in a Spiegel Spezial (Spiegel publishing house) sustainable development was named as the new buzzword of the environmental movement and prophesied that it would prove to be the key word of the 21st century. However, it was not only in the 2000s but already in connection with the use

of wood that Hans Carl von Carlowitz described this term at the beginning of the 18th century, in which he called for a constant and sustained use of the forest.

Whether in business, the media or academia, the term sustainability has become part of our vocabulary in recent years. What is sustainability? The answer to this question is not only complex, but is also complicated by different terminology that is often associated with the environment, climate change and resource conservation. And if this is not broad enough, sustainability is also associated with the manufacture and production of goods, energy consumption, environmental and climate protection management. The term is used by a variety of actors: such as Friday for Future, energy companies, food producers, the automotive industry, ministries, managers and consumers. Various definitions can be found in the relevant literature on sustainability issues. These mainly refer to different aspects of sustainability. Pufè (2017) often formulates the definition in connection with economic approaches, as follows: "Sustainability means not generating profits that then flow into environmental and social projects, but generating profits in a way that is already environmentally and socially compatible." Another attempt was made by Herman Daly (former Senior Economist of the Environment Department of the World Bank). He also took an economic view. In his view, the consumption of materials and energy should be limited and the world population stabilised. As a result, he listed four essential features that he believed should be part of a definition of sustainability. These characteristics include: 1.the rate of depletion of renewable resources must not exceed the rate of regeneration, 2. emissions must not exceed assimilative capacity, 3. consumption of non-renewable resources must compensate for a corresponding increase in the stock of renewable resources, and 4. technological progress must increase material efficiency instead of material

throughput (Hardtke, A./ Prehn, M. (2001). If one follows the simplest principle by consistently translating the word "sustainability" into German, this word is composed of "nach" and "haltig". The logical consequence is that this word means "effect that lasts for a long time". And this also corresponds to one of the most common definitions for the term sustainability, which was formulated from the Brundtland Report of the United Nations in 1987. This states: "Humanity is capable of sustaining development, that is, ensuring that it meets the needs of the present without compromising the ability of future generations to meet their own needs." (Hardtke, A./ Prehn, M., 2001). Hauff translates this as follows: "Sustainable development is development that ensures that future generations are not worse off in meeting their needs than those living at present." (Hauff, 1987).

Due to the multitude of terms, numerous scientific considerations and definitions, the term has developed a strongly interdisciplinary character. It turns out that depending on the origin of the definitional approach, different focal points are addressed. In research, two different strands of research have emerged. They focus either on ecological or economic perspectives. Regardless, most definitions include the balanced use of resources to ensure the continuity of an economic or ecological entity. In summary, the term "sustainability" does not have a simple clear definition, but is rather a result of numerous definitional approaches that take into account the different elements of sustainability. However, the following conclusion can be drawn from an ecological as well as an economic point of view:

1. sustainability is oriented towards the present and the future.
2. resources, such as tangible/intangible goods, economic/ecological units are protected, especially if they are non-renewable.
3. The continued existence of a reference object is to be ensured in the short and long term.

Sustainability can thus be understood as a form of ecological and economic action that is intended to ensure comparable or better living conditions for present and future generations by carefully applying and appropriately protecting the element necessary for this. Sustainability focuses on environmental, economic and social aspects (Encyclopaedia of sustainability (2023)).

2.2.2 Emergence of the sustainability principle

The origin of the sustainability principle goes back to the 18th century, Carlowitz's forest management principle. Already at that time, Carl von Carlowitz called for "a steady and sustained use of the forest." It was used as the most vivid metaphor to explain the sustainability principle: Trees that are cut down must be replanted so as not to deplete the resource base - and thus the economic base. If you cut down all the forest, you have a lot of wood in the short term, but little over the next decades. (Pufé, 2017)

It was not until 250 years ago that Dennis Meadows and his team of researchers made their decisive contribution. The report "Limits to Growth" in 1972. Based on a computer simulation, it showed the deterioration of the planet if humanity did not become more resource-efficient. The report is the origin of the beginning of the more recent scientific debate on sustainable development and called for a new "world economic policy".

In the following period, politics and civil society in particular took up the resource-economy principle again, also under the awareness of the "Limits to Growth" report. During the 20th century, the world community's awareness of environmental pollution, overpopulation, poverty and resource depletion increased, leading to the first international conference on nature conservation. Public and political interest in conservation issues continued to grow in the mid-1970s, beginning with the adoption of binding regulations between states to protect the environment, such as the Washington Convention on

International Trade in Endangered Species of Wild Fauna and Flora. The problems thus became more specific and the goals more concrete. The historical precursors that shaped the image of sustainability include the "Brundtland Report", the "Rio Summit", "Agenda 21" and the UN Millennium Development Goals. In 1983, the United Nations founded the so-called World Commission on Environment and Development (WCED), an independent commission of experts in Geneva. The reason for writing this Brundtland Report and founding the Commission at that time was the realisation that the quality of the environment worldwide was being significantly affected and rapidly deteriorating due to human economic activities. It was the time of the greenhouse gas. The change in emission levels led to the accompanying climate change. The world's population was also growing, increasing the pressure on available resources. The aim of the report was to provide a perspective report on "long-term sustainable development on a global scale by 2000 and to make recommendations on how environmental concerns can be translated into greater cooperation among developing countries and among countries at different stages of economic and social development, leading to the achievement of common and mutually supportive goals that take into account the interrelationships between people, resources, environment and development, including to consider ways and means by which the international community can deal more effectively with environmental concerns, and to help establish common understandings of long-term environmental problems and the corresponding efforts required to successfully address the problems of environmental protection and enhancement, as well as a long-term agenda for action in the coming decades and aspirational goals for the global community". to elaborate.

The official title of the report was "Our Common Future". (Brundtland Report, 1987) but more commonly known in the local literature as the Brundtland

Report. The origin refers to the name of the chairman Gro Harlem Brundtland. The aim of this report was to give recommendations for action for sustainable development. The merit of the Brundtland Report at that time was to have brought the report of sustainable development to the public for the first time as a global uniform guiding principle. The report was the first to state that global environmental problems are mainly caused by human consumer behaviour. The perception of the problem and the resulting approach to solving it led to a strategy that brought together development and the environment and thus coined the term "sustainability". This resulted in the definition: "sustainability" = "environment" + "development".

The UN report, the so-called Brundtland Report, was followed by the UN Conference in Rio in 1992. The legendary Rio Conference. On the basis of the Brundtland Report, which was considered by the UN General Assembly in 1989, it was realised that there was an urgent need for action at the international level. The proposals and demands of the need for action called for at that time were to be translated into binding treaties and conventions. A total of 178 states took part in the conference, the aim of which was to deal with development problems in an environmental context and to set the course for sustainable development worldwide. A total of six documents were agreed upon, which promoted the formal legal anchoring of sustainability. Not only were the documents signed, but also the "Agenda 21" was launched, which was unified as a United Nations action programme (Vereinte Nationen, 2023). Agenda 21 comprises a package of measures consisting of 40 chapters divided into four sections. 1. social and economic, 2. natural resource management, 3. empowerment of major groups and 4. ways of implementation (Kuhn et al. (1998)). The package of measures primarily served to encourage international organisations and national governments, as well as all other political levels, to act in accordance with these goals. The successor agenda is the so-called

"Agenda 2030", which came into force on 1 January 2016. This is explained in more detail in 2.2.3.

Another milestone in sustainability was the United Nations Millennium Conference in September 2000, when 189 countries adopted the Millennium Declaration (Vereinte Nationen, 2000). It defined four programmatic, mutually influencing and interdependent fields of action for international politics. The most important goals were peace, security and disarmament, development and poverty reduction, protection of the common environment, human rights, democracy and good governance.

Eight international development goals were later derived from the Declaration, the Millennium Development Goals (Köhler (2015)) The main concern was to secure the global future and thus ensure sustainable development worldwide.

2.2.3. models and concepts of sustainability

The term ecological sustainability has already been mentioned in the foregoing. However, sustainable development requires two further levels, economic and social sustainability. Whereas in the past profit-making alone was the entrepreneurial goal and thus the supporting pillar of any project, this has been supplemented by the ecological pillar due to resource scarcity and environmental pollution. Against the background that not only employees are affected by environmentally damaging business activities of companies, but also numerous internal and external actors such as the social environment, communities and developing countries, the social pillar was added. The model already emerged in the 1990s. The Brundtland Report of 1987 gave particular importance to the model based on three pillars, the so-called "three-pillar model", which regards the three dimensions mentioned as equally important pillars of sustainability. They were used for the first time at the World Summit in Johannesburg in 2002 as a yardstick for sustainability in international treaties. However, the so-called "one-pillar concept", which focuses solely on

the ecological perspective, should also be mentioned. Furthermore, the scientific literature refers to a "four- and multi-pillar concept" whose models include cultural and institutional issues in addition to the three pillars of ecology, economy and social affairs.

The three-pillar model of sustainable development is based on the idea that sustainable development can only be achieved through the simultaneous and equal implementation of ecological, economic and social goals. Only in this way can the ecological, economic and social performance of a society be ensured and improved. The three aspects are thus interdependent. The "three-pillar model" has been trend-setting for sustainable development, as it takes into account the interdependence of the respective stakeholders from an ecological, economic and social perspective. Nevertheless, the three-pillar model is controversial to some extent among experts. Critics complain that above all it can only be applied to a limited extent and that only few practical consequences can be derived from it. In a report by the German Council of Environmental Advisors in 2002, the Council rejected the three-pillar model as an orientation model because it degenerated into a "three-column wish list" in which every actor could enter his or her concerns. Nevertheless, this pillar model has contributed significantly to the understanding of sustainability. It makes clear that all three foundations are needed for sustainability and that they are interdependent.

2.2.4 Corporate sustainability

Globalisation, economic crisis, financial crisis. Tighter legislation, a shortage of skilled workers, changes in consumer and demand behaviour. Scarcity of resources, climate change, the rich-poor divide and consumer behaviour - these aspects are forcing companies to rethink. (Pufé, 2017)

For this reason, the issue of sustainability in companies has become more important than ever in recent times. It has evolved from a forced eco-topic imposed by politicians into a future potential for economic growth. Hardtke points out that the importance of these issues can vary from industry to industry and company to company, depending on the respective agenda. For example, the energy sector and the mineral oil industry are currently focusing more on social responsibility, whereas the consumer goods industry and the production-intensive sectors are primarily putting material and resource efficiency at the forefront of their activities (Hardtke, A./ Prehn, M. (2001)).

Although this development is positive, it seems sobering that the majority of companies see sustainability as a priority benefit for their own survival, and not for the survival of the global community. This is not reprehensible, since companies are primarily founded and operated for economic purposes. Nevertheless, insofar as corporate motives speak for sustainable action, there are certain potentials for value creation that are worth mentioning and bring advantages for these companies. In his conceptual foundations of corporate sustainability, Dyllick already refers to political-ethnic and strategic reasons that play a key role in determining whether a company is motivated to act sustainably (Linne and Schwarz (2003)).

In the future, however, the entrepreneurial challenge will be to continue to operate profit-oriented and profitably under sustainability aspects. Depending on this, this understanding must be expanded to include ecological and social success factors. In addition to economic efficiency, eco-efficiency (economic-ecological efficiency) and socio-efficiency (economic-social efficiency) are two further important parameters in the context of sustainable development.

2.3 Consumer behaviour

Main driver of sustainability concepts in companies

Companies are also forced by consumer behaviour to deal with sustainability. In recent times, different patterns of consumer behaviour have been observed, which are changing significantly in line with current developments. Consumers, especially the younger generation, have precise ideas about what sustainability should look like. This is already evident today in their shopping behaviour. When buying, this generation already pays attention to the fact that the company acts socially and ecologically. This purchasing behaviour is evident in the purchase of everyday products, such as food. This purchasing behaviour is not only reflected in food manufacturers, but also in textile companies or drugstore manufacturers. This shows that a company's image is already linked to the factor of sustainability and that the image is mainly determined by just a few factors. These include the quality of the product, economic success and sustainability. The consumer definitely sees sustainability as a possible criterion when making a purchase decision.

In the upstream execution, the consumer contributes significantly to competition between companies. Also, as early as 2001 Hardtke/Prehn noted that for companies that are economically more oriented towards growth targets, the sustainability approach could also result in new paths to faster growth and more profitability. Hardtke, A./ Prehn, M. (2001). Against this background, a paradigm shift is emerging. Companies are increasingly aligning their value chains in a sustainable way, differentiating themselves through changed product and service offerings, further developing their success mechanisms and changing entire markets. Companies that ignore this business trend today must ask themselves to what extent their core business can still be competitive in the future. From the preceding literature research, the assumption can thus be made that no conflict need arise between

competition and sustainability - on the contrary: competition, as an organising principle, regularly serves the common good. Competition drives providers in markets to think about how attractive offers can win new customers or retain existing customers. (Berlin: Stiftung Marktwirtschaft, 2022).

In my research, I was able to establish that sustainability can be a business opportunity for start-ups and for established companies. Sustainable business models and innovations are an important way to differentiate oneself from the competition. In particular, companies need to decide in which areas sustainability is particularly worthwhile. Consumers must use their tight budgets as effectively as possible to achieve maximum sustainability. A prerequisite for both is the highest possible transparency beyond the value chain. Similarly, anchoring positive contributions to the environment and society makes it easier to build a corporate and employer brand compared to non-sustainable business models. (Leal Filho, 2019).

3. SELECTION OF THE RESEARCH METHOD

In order to identify the different subjective perspectives, the Q-methodology is used as a research strategy. It provides a basis for systematically exploring a person's subjectivity, point of view, opinion, belief and basic attitude. It provides insight from a variety of stakeholder perspectives to inform replicable research findings and support decision-makers. (Brown, 1994).

3.1 Q-method

While working on the research topic, I gained insights that were based on objective, professional opinions due to my work environment, but were not sufficient for a large-scale research study. This was because an already conducted survey, which was broadly based and included a rational questionnaire survey, did not lead to a representative evaluation due to an insufficient number of addressees with decision-making responsibility, such as senior executives with managerial responsibility or managing directors of medium-sized or large companies. For this reason, an approach had to be chosen that could reliably prove my hypotheses. Already in the past, my co-supervisor Professor Sándor Kerekes gave a lecture on a special method that maps a spectrum of opinions. A method for quantifying the subjective impressions of any situation, -the Q-method. The Q-method aims to provide insight into the perceptions and feelings of individuals at a level where comprehensive social forces operate within individual agency (Heinze (2020)). The basic principle is to find the structure and form of subjective opinions that cannot be proven! The Q-method only deals with subjective opinions, and although these are typically not provable, it can still be shown that they have a structure and form (Kerekes (2021)). This is because the Q method assesses a relatively large number of statements with a relatively small number of people involved in the observation. The correlation coefficients calculated by the method represent the correlation between the individuals

(Comrey and Lee (1992)). Practical experience in using the Q method proves that there are only a limited number of different views on a given topic (Brown (1993)). Thus, if the set of statements, the "Q-set", is well constructed (i.e. it contains the widest possible range of opinions on the topic under study), we should be able to identify a wide range of different views in public discourse, using as few as possible 20-60 statements (Kerekes (2021)). Therefore, this evaluation procedure is very suitable because this study requires collecting information about individuals' beliefs and perceived experiences. This method collects valid information, i.e. participants' views are faithfully reflected, as well as minimising the potential for researcher bias that can arise from the analysis of traditional questionnaire and survey methods. The Q method was thus identified as suitable for achieving the required outcome of identifying the underlying motivational influences on voluntary associations among competitors who are environmentally active and have set sustainable development goals.

3.1.2 Theoretical foundations of the Q method.

The Q-method is hardly known in the tradition of German-language research. It sees itself as an interface between the qualitative and quantitative methodological approach. This method is used in particular to record complex opinion patterns, attitudes and value orientations from a subjective perspective. The method was developed by William Stephenson in the 1950s at Oxford University. He was a psychologist (and also a physicist) interested in finding new ways to study people's beliefs and attitudes. Stephenson (1953)). The original approach was described by Stephenson as early as 1936. In use, the items of the CQ set are arranged by the assessor in such a way that they characterise the person being assessed. That is, the items "are placed in an order corresponding to representativeness [or importance] to the person, those that are most characteristic of him being given high scores, while those

that are least characteristic are given low scores" (Stephenson, 1936). The best-known expert on the Q method, and one who is still alive today, is Stephen Brown of Kent State University. In 1980 he wrote an authoritative book on the science of the Q method and continues to be actively involved in all aspects of Q research. Brown's 1993 Q Primer (Brown (1993)) provides excellent methodological depth and quotes extensively from the original work of William Stephenson. Stephen Brown believes that Q is able to reveal the structure of people's beliefs and opinions. It involves participants sorting through different statements according to how those statements fit with their beliefs and understandings. The Q method looks for the patterns that emerge in participants' Q sorts. When patterns are found, it indicates that there are intersubjective orders of beliefs that are shared by people. This leads to the notion of social perspectives (Addams and Proops (2000)). Basically, the Q-sorting method is subject to certain technical limitations, because the rater has to classify the Q-scores into a certain number of categories and (most importantly) with a certain number of points in each category (Block, 1961). The aim is to form types of subjective views on a subject area. For it is not the proportion of survey participants of the same opinion on certain topics that is examined, but the way in which public discourse can be typified. Namely, the results do not show with whom one agrees, but what causes the agreement and which statements the respondents disagree with. Thus, the commonalities in the subjective constructions of the individuals as well as their differences are to be shown. This means that the Q-method is not concerned with the representative survey of types, but rather with generating existing typical opinions. In principle, it can be assumed that the ratio between the number of statements and the number of people included in the study is approximately 2:1. Practical experience and the literature also show that with 20-60 statements with a group of participants of 20-30 people, the stability of the correlations can already be sufficient and, more importantly, that with these

statements the different positions can be described in a variety of ways (Brown, 1996). The basic prerequisite is that the set of statements, the so-called "Q-set", the spectrum of opinion, covers the subject area under consideration as far as possible in order to examine a broad spectrum of divergent positions in public discourse with the help of up to 20-60 statements. The Q-sorting technique serves as the instrumental basis of the Q-method for determining the spectrum of opinion.

3.2. Concept development

To begin with, a series of statements are collected and then developed that reflect the spectrum of perceptions about the research topic. The starting point for my formulation of the Q-sort is based on literature research and a survey conducted in advance in May 2022 with 23 managing directors, CEOs and senior executives who run their own company or were part of a group. I also used the opportunity as a member of the group "KoopKurrenz - Kooperation und Wettbewerb in der Plattform-Ökonomie" (Cooperation and Competition in the Platform Economy), which was initiated by a member of the BOSCH Group. This experience enabled me to formulate the corresponding statements. In the next stage, statements are developed from the discourse, i.e. the development of the Q-sets. Furthermore, the conditions and instructions are created. The selection of the statements is essential for the Q-set. In particular, care must be taken to select a variety of viewpoints and avoid overlaps. For my study based on the Q-method, taking into account the mathematical assumptions of the factor analysis method and the experience with the Q-method, about forty statements are needed that meet the requirements of the method and adequately represent the scope of the problem under study. Approximately 60 statements were therefore created in advance, which went through further stages in order to eliminate ambiguities and repetitions. Due to the complexity that affects a coopetition, especially with

regard to sustainability, it was necessary not only to create the questions from the perspectives of managers and companies, but also to include consumers in order to obtain an overall assessment. Because it already became apparent during the literature research that the motivation to cooperate with a competitor is also based on the attitude of the consumer or the customer and thus a customer loyalty is sought by the company. If we look at the younger generation, the literature shows a change in the basic attitude towards a brand, for example. This has already been explained in 2.2.6 Consumer behaviour. It was also important to consider state intervention when creating the questions. In 2.2.5. corporate sustainability, content was already listed as to why companies are becoming more sustainable. The eco-topics imposed by politics were also referred to. Therefore, it was also necessary to include this in the creation of the questionnaire..

Of these statements collected in the preliminary rounds, the following 39 statements finally remained after consultation with experts, which, in the opinion of the experts, represent the public discourse on cooperation with competitors and aspects of the sustainability goals well , which can be taken from Table 2.

1. Co-operation reduces competition, reduces efficiency and therefore has a negative impact on sustainability.	2. Competition encourages innovation, while cooperation tends to slow down innovation....
3. Cooperation between competitors is only feasible in the short term. In the long run, all market players tend to be free-riding.	4. Co-opetition is theoretically beneficial for all parties, but in practice it is rarely successful....
5. Consumers have little impact on the sustainability performance of businesses....	6. People buy a lot of things they don't use. It would be sustainable if we only bought products that we really need.
7. Companies ensure transparency of their activities along the entire supply chain.	8. The UN 2030 Sustainable Development Goals encourage cooperation between competitors.
9. Retailers and consumer goods companies work closely together to jointly implement sustainability strategies.	10. The prices of products produced by enterprises that take sustainability requirements into account should be cheaper

	than those produced in the conventional way.
11. The regulator should oblige companies to enforce their social and environmental standards through written contracts along the entire supply chain.	12. When competitors merge, they do so mainly to save costs.
13. Increasing competition and a complex and uncertain business environment make cooperation with competitors an essential strategic tool.	14. Companies will be forced to work closely with competitors to meet their sustainability commitments by 2030.
15. Coopetition is primarily about creating new markets and expanding existing ones; improving environmental performance is secondary.	16. Businesses are important economic actors, but their role in achieving global environmental sustainability is not important.
17. The increasing demand for sustainable production and the valuable use of resources in a largely globalised economy strengthens the desire for joint entrepreneurial cooperation.	18. Collaboration offers advantages for companies as they face increasing pressure to integrate the global value chain.
19. Consumer purchasing behaviour has a decisive impact on environmental and climate protection.	20. consumers tend to see the responsibility for sustainable consumption more as their own and are not aware of the role of business in promoting sustainable consumption.
21. Any dimension of sustainability can only be achieved along the entire supply chain of a product...	22. consumers are not interested in the sustainability features of products, but in their availability at the right quality and price
23. I would pay more for a product if it met certain sustainability criteria.	24. For international car manufacturers, profit is more important than the environmental impact of their business.
25. when buying a product, it is important to me that it has little packaging and is seasonal and from the region...	26. the more a company contributes to sustainability, the more it can retain its customers...
27. In the future, cars will no longer be status symbols. Young people will see their vehicle as a mobility tool that should not overburden the environment.	28. The sustainability reputation of a car brand is a decisive factor when buying a car.
29. Brand loyalty plays a bigger role when buying a product than actual performance.	30. When buying a product, environmental performance is important to me.
31. Everyone should be able to afford to buy only environmentally friendly products.	32. It is important to me that my manufacturers, from whom I like to buy products, produce in an environmentally friendly way.

33. The goal of companies is to know and understand the customer so well that the product or service fits them and sells itself.	34. a company should certify to the consumer that its products have been produced sustainably.
35. There should be subsidies from the state for the production of sustainable goods.	36. A company that develops a new technology innovation that contributes to environmental awareness should share the innovation with other companies.
37. Start-up companies strive unsuccessfully to innovate because market success fails to materialise	38. People trust local products because of their good value for money.
39. The issue of organic food is overrated because most of the food we eat contains chemicals anyway.	

Figure 1: Q-sorting questions

Subsequently, these statements were loaded into an Excel file and a corresponding manual and instructions on the procedure for the participant were deposited. A Q-grid (evaluation sheet) was also created in the Excel-based file. The next step is to select the participants for the survey. Care must be taken to ensure that the selection of participants is such that they have clear viewpoints on the research topic. (Brown, 1980) Another requirement is diversity of observable demographic characteristics, e.g. age, gender, social class, education, assuming an equivalent diversity of opinions (Watts, 2012). For this reason, a deliberate choice was made to include people in the sample who have a high level of information on the topic and can represent the full range of public discourse. For this reason, 30 participants were selected for this study and care was taken to ensure that stakeholders from important interest groups were represented among the Q - participants because they have diverse and well-educated opinions. People with well-educated opinions find it easier to do the Q-sorting and are likely to do a more robust sorting. Participants were selected from two different university institutions with work experience and from companies in which they held certain key roles. Attention was also paid to gender distribution. After the selection of the participants, the Q-sorting was carried out at. The participants were given statements in the form of a

questionnaire. The participants are presented with statements in the form of randomly numbered cards. They then have to rank the cards on a predefined scale in relation to each other, depending on the extent to which they agree with the respective statement. First, these cards have to be classified into three groups depending on whether they agree, disagree or are indifferent to the statement. They then rank the statements in relation to each other according to the categories of the rating scale, carefully reflecting on their decisions individually. Participants then rearrange the cards until their Q-range best represents their own point of view.

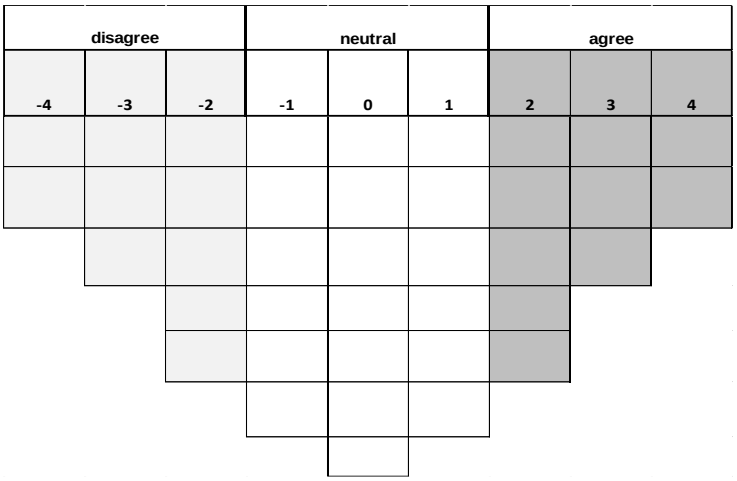

Figure 2: Q-sorting method and classification

Q-sorting took place from November to mid-December 2022. All sorting templates were cross-checked at the end of the sorting exercise. Additional personal insights and reflections of the participants were additionally collected to improve the data analysis. Own experiences with the research method showed that the sorting process is perceived as motivating. Furthermore, it is also possible to now see one's own position towards an object area - such as the "attitude towards consumption" - in a clearer and more differentiated way after processing the Q-sort. Overall, the participants needed about 40 minutes

to complete the sorting, with some faster sorts taking about 20 minutes and some slower sorts taking over an hour.

At the beginning of the Q-analysis, the Q-statements and the Q-sorts were read into the free software programme PQMethod (by Peter Schmolck) and a quasi-normally distributed arrangement was entered into the programme. The programme asks for the maximum number of possible statements per column/category. This means that it must be specified that e.g. for "-4" a maximum of 2 statements may be placed, for "-3" a maximum of 3 statements and so on. (cf. Figure 2). Once the quasi-normally distributed basic framework has been entered into the programme, PQMethod then allows the Q-statements and Q-varieties of the 23 test persons to be entered and evaluated. As a result, the following table shows which participants load significantly on a factor. The Q-sorts marked with X are significant and define the respective factor.

Tabelle 1: Four factor solution

Factor Matrix with an X Indicating a Defining Sort							
	Loadings						
QSORT	1		2		3		4	
Dirk	0.2154		0.3072		**0.7710**	**X**	0.2563	
Florian	0.4716		-0.0253		-0.0137		**0.4835**	**X**
Gayane	**0.5617**	**X**	-0.2672		0.4076		0.2006	
Götz	-0.3759		-0.0979		0.0014		**0.7149**	**X**
Judith	0.0845		0.1563		**0.7689**	**X**	0.0375	
Jürgen	**0.4506**	**X**	0.1996		0.0355		0.2080	
Karina	0.1565		0.4703		0.1429		**0.6292**	**X**
Phyllis	0.3591		0.3030		**0.7056**	**X**	0.0023	
Rene	0.1118		**0.6380**	**X**	-0.0483		0.1063	
Ruth	-0.1506		**0.6513**	**X**	-0.0221		0.0963	
Uwe	-0.0247		0.1686		-0.1120		**0.4570**	**X**
Valeria	**0.6427**	**X**	0.1771		0.3298		0.0884	
Wolfgang	-0.4038		-0.1027		-0.0557		0.3310	
Dennis	**0.7054**	**X**	0.2048		0.1649		0.0806	
Sound	**0.7206**	**X**	-0.2869		0.1698		0.0530	
Tai	0.1507		**0.7860**	**X**	0.2292		0.0514	
Plantek	0.2279		**0.5820**	**X**	0.1616		0.3607	
Bakthik	-0.0918		0.2038		0.0724		**0.6116**	**X**
Ingo	0.4379		0.2900		-0.4125		0.2867	
Natalie	-0.0229		-0.0244		**0.7472**	**X**	0.0311	
Alexandra1	0.2415		-0.1407		0.3482		0.3949	
Manuel	**0.5413**	**X**	0.3638		-0.0237		0.3119	

Alexandra2	-0.0055	**0.7124 X**	0.2733	0.2054
% expl.var.	15	14	13	11

In the result of the automatic marking of the 23 Q-sortings by the programme PQMethod, this explains a total of 53% of the variance of the variables. Although the loss of information is remarkably high at 47%, a total of 20 of the 23 participants can be assigned to one of the four factors. Three of them (13, 19, 21) cannot be assigned to any of the four factors. As a result, the marking yielded the following distribution: six Q-sortings loaded on the first factor, three of them with a factor loading >0.6, five on the second factor, four with factor loadings >0.6, four on the third factor, all of them with factor loadings >0.6, and five on the fourth factor, three of them with factor loadings above >0.6. Three Q-sortings did not load on any of the factors. According to Bortz (2016) for a generalising interpretation of a factor structure, the condition must be fulfilled that at least four variables (in the case of the Q technique, persons) have factor loadings >0.6. Against this background, the factors determined here can be regarded as a meaningful dimensional reduction.

3.3. Interpretation

The next step is to analyse and evaluate the common themes and viewpoints within the four factors following Stephenson's (1935, 1953) holistic approach. Whereby I assumed that each type is related to the person's qualification or profession. During the research, it could already be seen that there were already different opinions on sustainability and cooperation with competitors. At least four type variants are expected with the referral of the opinion patterns. At the end of the analysis, the following four types with corresponding opinion patterns were identified based on the Q-method:

<u>1.Type: Conscious leaders and committed managers</u>

Characteristics: Influential position, sustainability-oriented with experience in cooperation with competitors. The opinion of Type 1 can be described as economically liberal, as cooperation with competitors is viewed positively from a sustainability point of view and sustainable products should have a corresponding price. This characteristic has already gained experience in dealing with competitors in the past and sees sustainability as a corresponding cost factor.

2.Type: Emotionally engaged, but not strategists

Characteristics: No influential position, sustainability-oriented. The opinion of type 2 could be described as pragmatic. The basic attitude of this type is that economic, social or ecological problems should be remedied by government action in the guidelines and regulations are prescribed. This can be, for example, regulations for the keeping of animals in stables or the renovation of buildings. In this way, sustainability is enforced by legal requirements.

3.Type: Modern leaders, business and sustainability are not contradictory

Characteristics: Influential position, sustainability-oriented with partial experience in working with competitors. The opinion picture of Type 3 can be described as optimistically responsible. A core statement is that consumers and companies have a mutual responsibility for sustainability.

4.Type: Mainly practitioner-trained professionals

Characteristics: With predominantly influential position, sustainability-oriented with predominant experience in cooperation with competitors. The opinion profile of Type 4 can be described as conservative, economically liberal, reasonable but also critical. Consumers and companies are seen as

having a mutual responsibility for sustainability, but here the economic view is in the foreground. Thus, entrepreneurship and economic aspects are clearly in the foreground. Especially in the case of innovations and scarcity of resources, this attitude can be advantageous.

Due to the complexity of the modes of action and the consideration of the perspectives of managers and companies as well as consumers, the four types reflect a comprehensive picture. In particular, types three and four link sustainability as a shared responsibility as entrepreneurs and the consumers. Thus, 50% of the identified groups link customer loyalty with consumers. Sustainability is associated with a customer loyalty motivation. Group one sees it differently. It is true that there is also a motivation for sustainability here. However, the consumer is not in the foreground here, but rather that one must implement sustainability oneself, which must, however, have a certain price. Type two, which sees sustainability with state intervention, is conspicuous. This means that sustainability is not seen on a voluntary basis, but would rather be implemented on the basis of state regulations.

4. DISCUSSION OF THE RESULTS

This evaluation presents an empirical investigation of societal perceptions and attitudes towards sustainable products, as well as the responsibility of who contributes to them. The study shows that the production of sustainable products is based on three pillars according to the opinion leaders. These include the actual consumers as consumers, the companies that produce and offer products, but also regulatory authorities that should oblige companies to act sustainably. For this purpose, the Q-methodology was conducted to reveal the basic opinion structures regarding sustainability and cooperation with competitors. The Q approach in this study produced four types of opinion patterns, namely the "Conscious leaders and committed managers", "Emotionally committed but not strategists", "Modern leaders, business and sustainability are not contradictory" and "Mainly practitioner-trained professionals". The opinion patterns of the respective types show that different processes and influence assumptions, which are summarised under the concept of sustainability, appeal to different groups of people.

Increasing competition, innovations, efficiency, for example, are supported by type 1 "conscious executives and committed managers", while low-priced products and the influence of regulatory authorities are supported by type 2, the "emotionally committed, but no strategists". On the other hand, the opinion of type 3, the "modern executives, business and sustainability are not contradictory", is that it is important to know whether a product has been produced sustainably and whether the manufacturer can prove this if necessary. They are also aware that the production of sustainable goods is more expensive and would therefore support state subsidies. In particular, people belonging to this opinion type believe that local products can offer good value for money and that organic products do not contain chemicals. On the other hand, type 4 "Mainly skilled workers" see rather advantages in an increasing

cooperation of competitors by creating new markets and expanding existing markets and a merger based on cost savings. They also take a rather sober view of the automotive industry. You believe that the automotive industry is more concerned with profit than with the environmental impact on your business. In particular, you were sobered by the fact that people buy too many things they don't really need. This reinforces the image of a distinct consumer society. The consumer society can thus be seen in part as a fundamental cause of current environmental problems. However, the respondents believe that the consumer has a significant influence on the products offered and can significantly contribute to sustainable production, although the opinion prevails that sustainable products have their price, but that the consumer should be able to afford it. In fact, some respondents were of the opinion that these products should be offered at a lower price. Some of the respondents were even in favour of government subsidies. Overall, the approach of the Q-method thus reflects the hypotheses of research question *H1*, in which the demand for improved environmental awareness and the intensifying competition strengthen the alliance between competitors. In particular, companies may want to reduce their costs and retain their customers with sustainability and care for the environment. *H2* can also be evaluated as correct, because it has been shown in the application of the Q-method that more experience with regard to cooperation and networks shows an increased willingness among companies to join forces with other value competitors under sustainability aspects. This hypothesis in particular could be confirmed on the basis of the experiences of the individual types, although the opinions differed with regard to the duration of a tie with the respective competitor as well as under the sustainability goals of the 2030 Agenda. The resulting outcomes can already be observed in practice. The best example is digital networking. The cloud initiative "Catena-X", for example, should digitally map the entire value chain in the future (Höpner and Kerkmann (2023)) This is already being used by

competitors "Volkswagen" and "Mercedes", for example. This example is already practice-related and not just part of scientific research. This means that the ways of thinking of a future environmental awareness and the associated customer loyalty are already being implemented in reality *H4* was also confirmed, namely that companies that pay attention to the environmental and social impacts of their core business are more forward-looking, more risk-conscious and better positioned overall. The willingness to cooperate with a competitor is much higher. This was also shown by literature research on scientific articles as well as apparent cooperation with large companies. Here, mergers could be found on different levels. These include, for example, vertical or horizontal cooperation along a production chain or in R&D areas in order to share scarce and finite resources. This also leads to a confirmation of *H3* that companies that want to continue to compete in the market on their own have to expect higher loss rates. Since only companies that cooperate with market participants will have better market opportunities in the future. This can be confirmed especially in the area of research and development and the use of scarce resources.

5. CONCLUSION

The reason for the study was to close the research gap on the topic of coopetion in connection with sustainability goals. The evaluation of the study shows that the heterogeneity in the preferences and attitudes of fellow citizens should definitely be taken into account when it comes to raising awareness for sustainable products. The Q study also shows that the population is basically positively disposed towards sustainable products. Even if they see the influence of sustainability in different focal points. Their own knowledge about cooperation with competitors as a whole varies among the defined types, and this is reflected in the opinions expressed in the individual statements.

Although my dissertation topic is about cooperation with competitors, as a result of this, the influence on sustainability issues of the respective consumers on companies must also be sharpened in equal measure in order to include people who are sceptical about this topic. In particular, people who belong to this opinion group believe that behavioural changes by individuals have little impact on them. Accordingly, these people are less motivated to actively contribute. The intention of the people should also be examined more closely, what motivation they have if cooperation with competitors is only focused on from the profit aspect. They should also be motivated to strive for cooperation if it is not causally based on profit maximisation.

Even if the Q method has produced heterogeneous opinion patterns, it should nevertheless not be neglected that the consumer society can partly be seen as the fundamental cause of our environmental problems today. Accordingly, greater importance is also attached to reducing consumption. All respondents believe that there could be many potential savings in everyday consumption if only those things were bought that are actually needed. This shows that only cooperation with competitors or the intervention of regulatory authorities or subsidies does not do justice to society's perception of sustainability goals.

The pursuit of sustainability goals is seen as a joint task of all stakeholders. The economy is also seen as having a relatively large responsibility to actively produce sustainably or to achieve the political sustainability goals and to promote innovations that contribute to this. However, the state is also seen as having a certain responsibility.

It can be stated that individually rational, short-term and thematically isolated courses of action by social groups inevitably lead to suboptimal results. Today, more than ever, political decision-makers have the responsibility to set the appropriate rules of the game; however, the game itself is determined by the

feasibility in the respective companies and the conscious responsibility of consumers. Only in this way is there a chance to bring about substantial progress in the sustainability discussion, as is also inherent in the human, evolutionary-driven development process. (Hardtke/ Prehn (2001)).

In summary, the research objectives stated at the beginning of the study were achieved by answering the following research questions.

6. NEW SCIENTIFIC RESULTS

This paper contributes to the two core topics of coopetition and sustainability in the academic literature and presents new insights for coopetition research. The study systematically examines coopetition in the context of sustainability goals by focusing on influences and processes as well as outcomes. The findings show:

1. coopetition in the context of sustainability goals addresses different levels and actors also cooperate and compete at different levels simultaneously to achieve environmental, economic and social benefits.

2. the study presents the perspective of consumers and their demand for sustainability and implements this in the cooperation of competitors. Thus, from a scientific point of view, the topic represents a special form of consideration that has hardly been taken into account in the current scientific literature.

3 Furthermore, this study contributes to sustainability research by showing coopetition as an effective instrument.

4. the research also contains the insight that it takes more than just the cooperation of competitors to initiate sustainable processes.

5. the research topic shows coopetition in relation to sustainability goals, that competitors do not only want to join forces from an economic point of view,

but also want to drive innovation through effective cooperation and optimise the use of scarce resources within a coopetition and thus also want to and can expand their market shares.

6 Coopetition in relation to sustainability goals thus implies interactions between competitors, but also consumers as well as regulators.

The result of this study also shows that these common interactions are not contradictory, but contain interdependent behavioural characteristics that have grown over a longer period of time as a result of the 2030 Agenda and could become even stronger in the future as the year 2030 approaches and e.g. life cycle assessments of the individual countries in Europe are considered.

Co-opetition and sustainability thus form an interdependence in which sustainability and co-opetition requirements are interlinked.

As a result of this research topic, it is therefore suggested that sustainability must take into account economic, social as well as environmental concerns and that therefore different types of impacts, whether from a consumer or business perspective, can lead to positive outcomes.

By applying the Q-method, the results of the cooperation competition can be presented from different perspectives depending on the sustainability line, namely from the business perspective and from the social perspective, which is ultimately the consumer perspective.

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Leipzig, Germany, 03.07.2023

8. PUBLICATION LIST

8.1 The published publications relating to the topic of the dissertation

Doreen Kämpf; Coopetition in the Context of Sustainability Goals - A Systematic Overview; Journal: *Regional and Business Studies*, Editorial Board, H-7400 Kaposvár, Guba Sándor u. 40. e-mail:rbs@uni-mate.hu

Doreen Kämpf; Competitor cooperation in the context of sustainability reasons using the Q method; *Milton Friedmann Egyetem*

Doreen Kämpf; Competitor cooperation, a case study of influence in relation to sustainability; *Milton Friedmann Egyetem*

8.2 The published publications not relating to the topic of the dissertation

Wohllebe, Atilla; Hübner, Dirk-Siegfried; Kämpf, Doreen; Podruzsik, Szilárd Classification of Mobile App Users in Multi-Channel Retail - an Exploratory Analysis International Journal of Recent Contributions from Engineering, Science & IT 10: 1 pp. 4-16., 13 p. (2022) *DOI Teljes dokumentum Publication:32744147 Admin approved Core Citing Journal Article (Article) Scientific*

Uwe, Radtke; Doreen, Kaempf Relation Heating System of Kaposvár and Sustainability In: Pop, Gh; Bíró, B E; Csata, A; György, O; Kassay, J; Koroseczné Pavlin, R; Madaras, Sz; Pál, L; Péter, K; Szőcs, A; Tánczos, L J; Telegdy, B (eds.) Challenges in the Carpathian Basin : global challenges - local answers : interdependencies or slobalisation? : *15th International Conference on Economics and Business Cluj*,

Kolozsvár, Romania : Editura Risoprint (2021) 1,337 p. pp. 1197-1215. , 19 p. *Publication:32217839 Validated Core Citing Chapter in Book (Conference paper) Scientific*

Uwe, Radtke; Doreen, Kaempf Lifelong learning-studying in the European higher education area with Covid-19 *INTERNATIONAL JOURNAL OF LEARNING AND CHANGE* In press Paper: 10039866 (2021) DOI Publication:32113473 Published Core Journal Article (Article) Scientific

Uwe, Radtke; Doreen, Kaempf; Relation between Urban energy systems - analysis of smart metering district heating system of Kaposvár and sustainability IOSR *Journal of Environmental Science*, Toxicology and Food Technology 15: 3 pp. 59-65., 7 p. (2021) DOI Teljes dokumentum Publication:31935518 Admin approved Core Journal Article (Article) Scientific

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Case study of small and very small businesses in Germany during Covid-19 in 2021 *INTERNATIONAL JOURNAL OF MANAGEMENT AND ENTERPRISE DEVELOPMENT* 21: 2 pp. 164-178, 15 p. (2022) DOI Scopus Publication:32492389 Admin approved Core Citing Journal Article (Article) Scientific

9. CURRICULUM VITAE

Doreen Kämpf, born on 21 June 1975 in Leipzig, Germany, completed a dual degree in business administration at the State Academy of Studies in Glauchau from 1994 to 1997, specialising in transport economics, and also successfully completed a Master's degree at the University of Applied Sciences in Merseburg in 2016, specialising in "Taxes - and Accounting". From January 2002 to August 2020, she worked as a finance officer at Mitteldeutsche Flughafen AG. She was then employed as Head of Finance at the Leipzig Chamber of Industry and Commerce and subsequently as Head of Budget at Merseburg University of Applied Sciences, a position she currently holds. Since September 2019, she has been a doctoral candidate at Mate University, Hungarian University of Agriculture and Life Sciences.

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