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Research Paper

Effects of the COVID-19 Pandemic on SME Sustainability: Case Study of Car Dealerships in Switzerland

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ABSTRACT

Purpose: The article examines the impact of the COVID-19 pandemic on the sustainability of SMEs in the German-, French- and Italian-speaking parts of Switzerland.

Methodology: The study was conducted by using survey research as research methodology. In a quantitative study, a sample of 259 car dealerships were analyzed by using Spearman's rank correlations, Kruskal-Wallis test and Dunn test to test five hypotheses.

Findings: The results show that, generally, the car dealerships investigated meet the basic requirements for overcoming the COVID-19 crisis. A comparison of how the sustainability of the car dealerships was assessed before the outbreak of the coronavirus and after the end of the Lockdown shows that the pandemic does not generally have an influence on the assessment of sustainability. Thus 50% see their future more optimistically.

Practical implications: Findings of this study is directly relevant for the car dealership. Based on a clear understanding of their own business they must develop a strategy for the future. They must also analyze whether they have the necessary knowledge to cope with disruptive changes. For their part, national sales companies and governmental agencies have an important framework-building role.

Originality/value: This paper examines how SMEs in one of the most important industries assess their sustainability in the light of a global crisis. The findings of this study can be transferred to other SMEs.

Keywords: COVID-19; SMEs; automotive industry; Switzerland.

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1. Introduction

The COVID-19 pandemic is causing severe human suffering globally. It has also generated a major economic crisis, with a halt in production, a collapse in consumption and confidence (OECD, 2020). With regard to the business perspective, small and medium-sized enterprises (SMEs) were the ones most exposed to the risks resulting from the COVID-19 pandemic. Many countries intensively worked on adopting various measures of both financial and non-financial support such as direct financing, tax stimuli or financial guarantees (Cepel *et al.*, 2020). Numerous research teams across the world have analyzed the impact of COVID-19 pandemic on SMEs (e.g. Didier *et al.*, 2021; Alves *et al.*, 2020; Beglaryan and Shakhmuradyan, 2020; Hadi and Supardi, 2020; Kraus *et al.*, 2020; Juergensen *et al.*, 2020; Lim *et al.*; 2020; Papadopoulos *et al.*, 2020; Prohorovs, 2020; Rathore *et al.*, 2020).

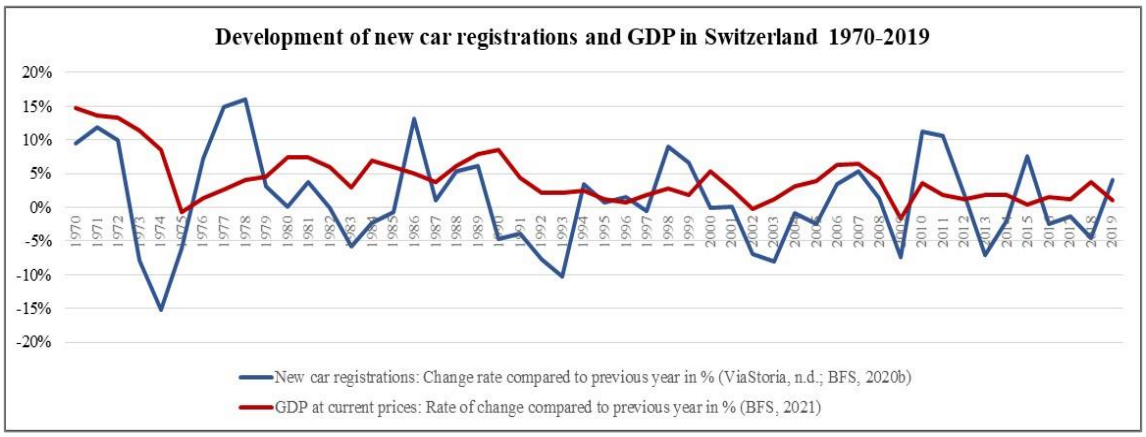
In all OECD countries, SMEs form the backbone of the economy and account for the majority of companies, value added, and employment (OECD, 2020). This is also emphatically evident in Switzerland: in 2018, 89.1% of a total of 608,952 companies in Switzerland employed up to nine people, and SMEs with up to 250 employees accounted for 99.7% of all companies (BFS, 2020a).

The COVID-19 pandemic affects companies on the supply side (e.g., temporary shutting down of operations), the demand side (e.g., declining consumer income), and the financial side (e.g., higher credit restrictions). These issues affect both large and small companies. However, the impact on SMEs is particularly severe in view of their higher vulnerability and lower resilience relative to their size (Juergensen *et al.* 2020; OECD, 2020). A study conducted in the US in April 2020 shows that 75% of the companies surveyed only have enough liquidity reserves for a maximum of two months (Bartik *et al.*, 2020). The susceptibility of SMEs to the COVID-19 pandemic is supported by the results of a cross-sectoral study from Switzerland, according to which 99.7% of start-ups and SMEs are affected by the COVID-19 pandemic, and 11.5% of them even to an extent that threatens their existence (Gurtner and Hietschold, 2020).

Overall, comparing different industries, the automotive industry is seen as one out of eight industries mostly affected by the COVID-19 pandemic (Hadi and Supardi, 2020). This aspect gains additional relevance when it is taken into account that the automotive industry is an important pillar of the global economy. The annual sales of the automotive industry are equivalent to the sixth largest economy in the world (ILO, 2020) and account for 7% of GDP in Europe, 3-3.5% in the United States, and 10% in China (Schmidt *et al.*, 2020). Globally, nearly 5% of the workforce is directly or indirectly employed in the automotive industry (Graham, 2010) with, for example, 14 million workers in Europe, 8 million in the US and 5 million in China (Schmidt *et al.*, 2020). The automotive industry is also very important for Switzerland: One of eight jobs depends directly or indirectly on the automotive industry: In 2018, 19,861 companies in the automotive industry and associated service providers with 226,230 employees (AGVS, 2020a) generated sales of CHF 94.4 billion (FRS, 2020). With a GDP of CHF 719.6 billion (BFS, 2021), 13.1% of the GDP was thus generated by the automotive industry. If we narrow our focus further, in 2018 there were around 5,200 car dealerships in Switzerland generating a turnover of CHF 34.8 billion (FRS, 2020).

Global economic crises have already occurred several times during the economic cycle. Examples include the first oil crisis in 1973, the dotcom bubble in 2000, and the 2008 financial crisis (Trede *et al.*, 2020). Each crisis has had its own characteristics. In 2008, the automotive industry worldwide experienced a "great recession" caused by the financial crisis, sharply rising commodity prices, and a speculative bubble on the crude oil market. (Sturgeon and Biesebroeck, 2009). Each time, the Swiss economy was faced with an initial state of shock that had to be dealt with, and each crisis had an impact on the Swiss GDP and on Switzerland's car market (see Figure 1). Time has shown that the effects of these crises were usually overcome after a manageable period.

Figure 1: Development of GDP and new vehicle registrations in Switzerland 1970 – 2019



Source: Authors

The current COVID-19 crisis differs in key aspects from previous economic crises. In particular, none of them had been caused by a pandemic, nor was there a need to restrict people's movements or have an economic shutdown. (Trede *et al.*, 2020).

The results for the first six months of the 2020 financial year for the sale of new cars in Switzerland and Liechtenstein are sobering. Compared to the previous year, there was a decline of 34.3 percent by the end of June to 103,201 new registrations (auto-schweiz, 2020a). Viewed in isolation, the low point was reached in April 2020 with 9,382 new registrations and a drop of 67.2 percent compared to the previous year (auto-schweiz, 2020a). In no other month since the oil crisis in the 1970s have there been fewer than 10,000 new car registrations (auto-schweiz, 2020b).

At the same time, the automotive industry is also facing a phase of fundamental change: Megatrends that manufacturers and retailers will have to deal with are connectivity/digitalization, shared mobility, powertrain electrification, autonomous driving and true customer focus (Hoffmann *et al.*, 2019; Weidenbach *et al.*, 2019; Heineke *et al.*, 2017).

The above described market data and developments clearly show the major challenges facing the automotive industry. Car dealerships are a main component of the automotive industry until today: No dealerships mean no sales (with exception of online sales) and no aftersales. Therefore, car dealerships are of central importance for ensuring individual mobility. The question is to what extent the COVID-19 pandemic has once again raised the bar of challenges for car dealerships. Our case study, therefore, focuses specifically on car dealerships in Switzerland and examines the effects of the COVID-19 pandemic on these companies. The study seeks answers to the following research question: *"How has the COVID-19 pandemic affected the assessment of Swiss car dealerships regarding*

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their sustainability, and what needs to be done to ensure the sustainability of Swiss car dealerships?". In this paper, the term "sustainability" is used in the sense of "survivability" of car dealerships.

In order to answer the research question, we use survey research as our research methodology. Data were collected by a structured online questionnaire and statistical methods are used to analyze the data. There are three specific contributions of this paper: Firstly, helping decision-makers to reflect on their strategy quality and their allocation of labour on strategic and operational issues during crises. Secondly, giving clear recommendations for car dealerships, national sales companies (NSCs) and politics to secure sustainability of car dealerships. These recommendations are also useable for SMEs in other branches. Thirdly, to provide a basis for further research work on related topics based on the results of this study. The paper is structured in five sections: After introduction in section 1, section 2 discusses the theoretical framework and the hypotheses to be investigated. Section 3 explains the used research methodology, the sampling and the data analysis methods. Section 4 highlights the results from our empirical analysis. Finally, section 5 presents recommendations to secure sustainability, the impact on enterprises and society and an outlook for potential further research opportunity.

2. Theoretical background and hypotheses

In this section we describe the theoretical framework with the basic philosophy of a management model in general and the "St. Gallen Management-Model" (SGMM) in particular. Finally, we formulate five hypotheses to be investigated.

The concept of "management model" serves as the basis for the formulation of the hypotheses to be examined. A management model covers all choices made by a company's top executives regarding how to define objectives, motivate effort, coordinate activities, and allocate resources (Birkinshaw and Goddard, 2009). In that sense, a management model refers to choices at the level of "how" work gets done (Birkinshaw and Ansari, 2015).

Using the management model framework and going one step deeper, our considerations are based on the theoretical research framework of the SGMM, which views management from a systems theory perspective (Ulrich, 1968) and has over time been further developed in its fourth generation (Rüegg-Stürm and Grand, 2019). The SGMM is well known and recognized (Belak an Duh, 2012) and one of the most accepted models of integrated management (Thommen, 2002). Furthermore, it is also used as a direct conceptual framework for further focused considerations, e.g. in cybernetics (Schwanninger, 1994; 2006), in quality management (Seghezzi et al., 2013) or in marketing (Bieger, 2019). It aims to contribute to a holistic approach to complex management challenges and to process them in an integrative manner. It does not represent the idealized entrepreneurial reality, but, rather, it strengthens the collective imagination of those responsible when dealing with management challenges. Through careful reflection and by anticipating difficult-to-understand cause-effect relationships, the SGMM helps to identify new impact dynamics and opportunities (Rüegg-Stürm and Grand, 2019). For the purposes of this research project, the SGMM framework is superimposed on key elements of three management issues: structuring forces, processes, and development modes.

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Structuring forces encompasses four areas: governance, strategy, structure, and culture. They give orientation, meaning, and structure to a company and form the basis for effective and reliable cooperation within the company. The strategy articulates the company's competitive position, how it differentiates itself and in what direction it wants to develop in the long-term (Rüegg-Stürm and Grand, 2019). Following Porter (2008), the five forces that shape industry competition are threat of new entrants, threat of substitute products or services, bargaining power of buyers, bargaining power of suppliers and rivalry among existing competitors. Because strategy is indispensable for the sustainability of a car dealership, it is the focus of this study.

With regard to *processes*, the study focuses on selected business and support processes. Business processes include the primary value creation of the company. The special focus is on the core processes that help the company to achieve strategic differentiation. Core processes contribute to a company's perceived superior value creation compared to competitors (Rüegg-Stürm and Grand, 2019). For car dealerships, these are the core processes in the three operational areas of sales, after sales and parts & accessories. The processes of financial management must not be overlooked as finances are a scarce resource and therefore crucial for the development opportunities of the company. If financial processes are viewed from the perspective of capital procurement and liquidity management, they are considered as support processes (Rüegg-Stürm and Grand, 2019).

Development modes includes the further development of organizational value creation from the interaction of optimization and renewal to the further development of the company. Successful development requires stability and change in equal measure. In other words, companies need to both appreciate traditions and break new ground (Rüegg-Stürm and Grand, 2019). In that sense, decision makers must make a conscious effort to deal with their past behavior and use the lessons learned to make improvements. For car dealerships, this aspect is of particular relevance due to the current disruptive changes in the market.

Based on the theoretical framework of the SGMM and the research question, five hypotheses were formulated focusing on three phases, namely pre-Corona (December 2019), the Lockdown (March to May 2020), and post-Lockdown (May 2020). The hypotheses support to answer the research question in a structured way.

Hypothesis 1: *"The majority of car dealerships have a clearly defined overall strategy, according to their assessment."* With regard to the SGMM, the strategy aspect is of fundamental importance: The focus of strategic efforts is on the establishment and further development of the conditions for success for a long-term sustainable value creation of a company (Rüegg-Stürm and Grand, 2019). It is, therefore, of central importance for the decision-makers to have defined a well-founded overall strategy for their car dealership. Following Porter (1996), 'strategy is the creation of a unique and valuable position, involving a different set of activities' (p.8). A clear strategy is fundamental for tomorrow's competitive advantages (Porter 1996; 1985; Hamel and Prahalad, 1994; 1990). This aspect becomes even more relevant as it is assumed that the number of car dealerships in Switzerland will decrease by 20-30% within the next five years – and the number of dealerships forced to close down will increase even further due to the COVID-19 pandemic (Huber-Strasser, 2020).

Hypothesis 2: *"Securing financial sustainability was not the most important task during the Lockdown for the majority of car dealerships, according to their assessment."* In

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principle, sufficient liquidity is a prerequisite for the survival of a company. Knowing that during the COVID-19 pandemic there was government financial support for car dealerships (EFD, 2020), it was assumed that the survivability of most car dealerships was from a short-view perspective secured. The examination of the financial situation is important, because a shortage of financial assets and resources in SMEs often limited the capability to plan for unexpected crises. (LiPuma *et al.*, 2013)

Hypothesis 3: *"The majority of decision-makers in car dealerships focused on strategic tasks during the Lockdown, according to their assessment."* A consistent approach to strategic tasks helps car dealerships to determine the direction value creation should take in the future in the face of a complex situation and the concrete measures that should be taken to achieve this (Rüegg-Stürm and Grand, 2019). Especially in the current situation, a combination of disruptive changes in the automotive industry and the COVID-19 pandemic, decision-makers must tackle strategic tasks. Wilson (2016) stated, that the absence of proper crisis management strategies in SMEs is a problem because without a recovery plan an unexpected disaster could linger and cause additional damage.

Hypothesis 4: *"The majority of car dealerships would have chosen different approaches in the past to be better prepared for the future if they had known the challenges, they would face due to the COVID-19 pandemic, according to their assessment."* Based on the *development modes* in the SGMM (Rüegg-Stürm and Grand, 2019), decision-makers gain valuable insights by consciously and constructively dealing with the past in order to be better equipped to deal with current challenges.

Hypothesis 5: *"The COVID 19 pandemic has had a negative impact on the sustainability of car dealerships for the majority of car dealerships, according to their assessment."* This hypothesis is based on two aspects: On the one side a significant drop of new vehicle sales (Schmidt *et al.*, 2020) and a declining number of car dealerships are expected (Silberg, 2019). On the other side uncertainty about the future market development (e.g., due to new forms of mobility, electric mobility, or online sales by NSCs) let us assume such a connection.

3. Methodology

In this section, we first explain our quantitative research methodology, characterize the population, the sample, and the data collection method. Thereafter we describe the collected data and how the data were prepared for the analysis. Finally, we explain the data analysis methods.

In this study, we apply survey research as our research methodology. This involves using a survey to collect data, prepare and analyze the data and draw conclusions about the phenomenon of interest (Fowler, 2014). Survey research has widely been used in similar studies (e.g. Adelekan, 2020; Santos and Marques, 2019; Arora and Mail, 2018; Vicente *et al.*, 2018).

The population in this study is the 5,200 Swiss car dealerships (AGVS, 2021). No detailed figures on the size and structures of Swiss car dealerships were available at the time of the study. What is known, however, is that the 4,000 car dealerships organized in the Swiss Association of the Automotive Industry (AGVS) have about 39,000 employees (AGVS, 2021). This corresponds to an average of around 10 employees per dealership.

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To obtain a sample, a written survey was conducted among decision-makers in car dealerships in three regions of Switzerland in which the main official languages German, French, and Italian are spoken.[4] The three language regions were surveyed separately because previous studies in various fields have shown significant differences between the regions in many areas (Suter *et al.,* 2018; Wyss and Keel, 2010; Müller *et al.,* 2007; Freitag, 2004). A total number of 4,820 car dealerships in Switzerland (93% of the population) were contacted by e-mail. These e-mail addresses, corresponding to all available e-mail addresses, were taken from the AGVS website (AGVS, 2020b) as well as from other available sources such as the website of AutoScout24[5]. The initial recruitment email was sent out on 23 May 2020, followed by a reminder on 3 June 2020, and the survey was completed on 10 June 2020. A total of 313 car dealerships took part in the survey, 261 of which sent in fully completed questionnaires. In order to assess the quality of the responses, the time required to complete the questionnaire was analyzed. Two questionnaires were excluded because they had been completed in under two minutes, resulting in a number of 259 car dealerships in the final sample. Table 1 shows the number of emails sent per language region and the number of responses corresponding to the sample used for the data analysis. It also shows the number of car dealerships in the sample by size language region and number of brands. The overall response quote is 5.4%. Noticeable differences in response rates by language region cannot be identified. In addition, the small and medium sized car dealerships predominate in the sample which correspondents to the distribution found in the AGVS members containing a major part of all Swiss car dealerships.

Table 1: Key data on data collection and response

Language	Mailings	Response	Response quote	Size (employees)	Quantity car dealerships		Type	Quantity car dealerships	
German	3,648	201	5.5%	Small (1-10)	83	41.3%	Exclusive	74	36.8%
				Medium (11-30)	69	34.3%	Multi-brand dealer	106	52.7%
				Large (31+)	49	24.4%	No statement possible	21	10.4%
French	966	47	4.9%	Small (1-10)	32	68.1%	Exclusive	11	23.4%
				Medium (11-30)	11	23.4%	Multi-brand dealer	27	57.4%
				Large (31+)	4	8.5%	No statement possible	9	19.1%
Italian	206	11	5.3%	Small (1-10)	5	45.5%	Exclusive	3	27.3%
				Medium (11-30)	2	18.2%	Multi-brand dealer	8	72.7%
				Large (31+)	4	36.4%	No statement possible	0	0.0%
Total	4,820	259	5.4%	Small (1-10)	120	46.3%	Exclusive	88	34.0%
				Medium (11-30)	82	31.7%	Multi-brand dealer	141	54.4%
				Large (31+)	57	22.0%	No statement possible	30	11.6%

Source: Authors

The structured online questionnaire was created using the LimeSurvey[6] software. A Likert scale ranging from 1 to 10 was chosen for the questions in the questionnaire (Brace, 2018). The questions were organized into a total of four groups. The first three questionnaire sections contain questions about the three phases mentioned earlier: (1) looking back to December 2019, i.e., the period before the lockdown, (2) the period during the lockdown from March to May 2020, and (3) the period after the end of the

[4] As of 2018, the official national languages are distributed as follows: 62.6% German, 22.9% French, and 8.2% Italian. Romansh, the fourth official national language, was not included in the survey as only 0.5% of the population speaks Romansh. The remaining 5.8% are other languages spoken in Switzerland (FDFA, 2020).

[5] AutoScout24 (www.autoscout24.ch) is the leading online marketplace in Switzerland for buying and selling cars and commercial vehicles.

[6] https://www.limesurvey.org

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lockdown starting in May 2020. The fourth section contains statistical information about the car dealerships such as size by number of employees and the dealer type regarding the number of brands represented.

For data analysis, we used the original Likert scale responses from the survey. For the questions on how the car dealerships rate the quality of their strategy (Q01) and the sustainability of their business (Q02 and Q17), additional total values were calculated. For this, the values of the individual assessments were added together, with all sub-aspects having the same weighting factor of 1. To be able to form four analogous classes, the minimum values of the individual classes were multiplied by a factor of 3 (for three sub-aspects) or 6 (for six sub-aspects). To provide more clarity for graphical representations (bar charts in this study), the Likert-scale responses were aggregated into four classes (1-3, 4-6, 7-9, 10). For presentation in the bar charts and in the appendix, the names of questions were abbreviated. Therefore, each question was coded with six digits: The first three digits stand for the question, the fourth digit for a separator, and the final two digits for the items asked in each question.

On the basis of the prepared data, statistical analyses were performed. Correlation analyses were conducted to examine the relationships between each two responses. Statistical tests for group comparisons were used to examine differences in responses between different groups such as language region and the size of car dealerships. Statistical correlations between two ordinally scaled response variables were investigated using Spearman's rank correlation analysis, where Spearman's rho can assume values between -1 and 1 (Hollander *et al.,* 2014). Non-parametric statistical tests using the statistical software R were performed to investigate the differences in the responses by language region (“G”, “F”, “I”) and number of employees (“Small (1-10)”, “Medium (11-30)”, “Large (31+)”) (Team, 2019). In order to test whether the central tendencies of several independent groups differ from each other in a statistically significant way, a Kruskal-Wallis test was performed for each group comparison of the ordinally scaled response variables (Kruskal and Wallis, 1952). Additionally, Dunn tests (post-hoc tests) were performed to determine which groups differed significantly (Dinno, 2015; Ogle *et al.,* 2020). For group comparisons of the response variables with two (“Yes”, “No”) values, pairwise comparisons were performed using the exact Fisher test for count data (Hervé, 2020; Agresti, 1992). For all group comparisons, the p-values were adjusted for multiple comparisons using the Bonferroni correction (Abdi, 2007). To accept or reject the hypotheses, we compared the p-value of each correlation and test respectively, to a predetermined significance level of 0.05. If the p-value was lower than this significance level, we considered the results statistically significant rejecting the null hypothesis of no linear relationship between the variables (in case of correlation analysis) and no differences in central tendencies (in case of a group comparison) respectively.

Regarding the group comparisons, it should be noted that for the Italian-speaking part of Switzerland, which yielded eleven answers, relatively few observations (i.e., number of car dealerships) were available for statistical analysis, despite the fact that the response rate of 5.3% was close to the overall average of 5.4%. The reason for the low absolute number of responses was the smaller number of car dealerships compared to the other language regions due to the size of Italian-speaking Switzerland. The results of the statistical tests with observations from the Italian-speaking part of Switzerland should

therefore be interpreted with some caution. For the group comparison by car dealership size, there were at least 30 observations per group.

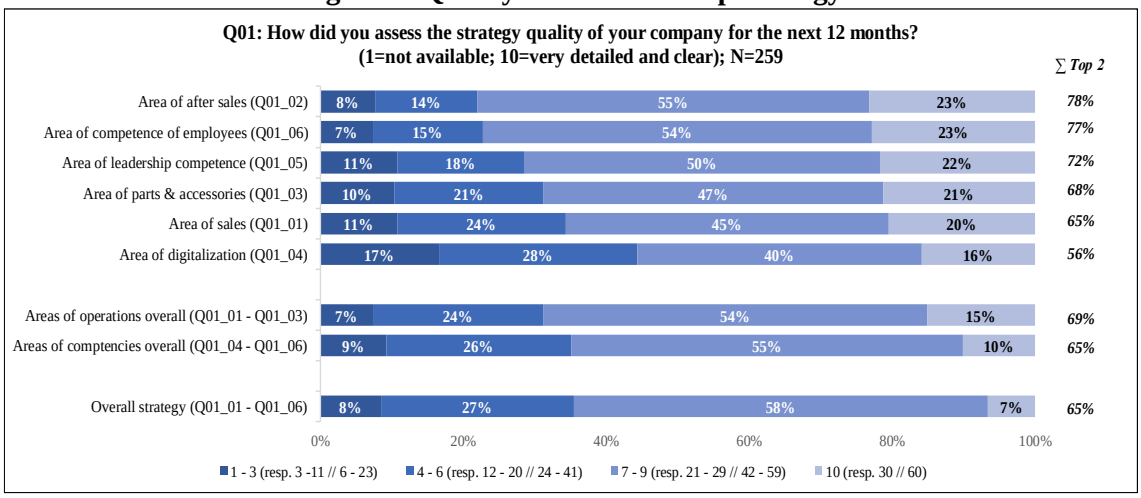
4. Results and Discussion

In the following, the main results of the data evaluation for the three relevant times, namely pre-Corona (December 2019), the Lockdown (March to May 2020), and post-Lockdown (May 2020), are summarized and discussed.

4.1 Initial Situation in December 2019

For the purposes of this study, it was assumed that the quality of the strategy a car dealership follows has a major influence on its sustainability (Ermschel, 2021; Block, 2019; Reindl, 2017). In order to be able to draw conclusions from the car dealerships' assessment of their strategy, the issue was divided into six individual aspects (see Figure 2). With regard to the core processes, three key business areas were of interest: sales, after sales, and parts & accessories. To implement a strategy successfully, however, a company must not only consider the operative aspects but also its corresponding competencies in terms of knowledge, skills, and attitude (Block, 2019). This is why the survey also asked about the car dealerships' leadership skills and the professional skills of their employees in addition to their digitalization competence, a key factor in the sustainable success of a company (Hoffmann *et al.*, 2019; Meunzel *et al.*, 2017).

Figure 2: Quality of car dealership strategy



Source: Authors

After sales strategy received the highest rating: 78% of the car dealerships surveyed believe that their after sales quality is high. A possible explanation for this is that many components for the development of an effective after sales strategy are already in place: Compared to sales, a high level of customer flow is guaranteed solely based on service intervals or service and warranty packages offered by NSCs. In car sales, however, the situation is completely different: Volume pressure from NSCs or existing overcapacities make it more challenging for a car dealership to develop a promising sales strategy (Block, 2019; Hecker *et al.*, 2017).

The professional competence of employees in terms of a strategy received the second-highest rating. One possible reason for this is that the surveyed companies generally

assumed that the achievement of targets in terms of volume, profitability, and customer satisfaction is proof of high employee competence. The fact that leadership competence was rated as less significant compared to employee competence is striking. One possible explanation for this are the continuously increasing demands of internal and external stakeholders in terms of quality and quantity (Block, 2019). However, there is a statistical correlation between leadership competence and quality of overall strategy (rho=0.8087, p-value=0.0000) and between leadership competence and sustainability of the car dealership (rho=0.4305, p-value=0.0000). This result is in line with the finding from Antonacopoulou and Sheaffer (2014), that management competence regarding the development of strategies to manage crises correlate with to failure to plan adequately.

The result concerning the rating of the quality of the strategy for parts & accessories compared to after sales and sales may be due to two aspects: Firstly, sales of parts and accessories are largely determined by the frequency of car owners' visits to the dealership for service. In other words, the parts & accessories strategy is a sub-strategy of the general after sales strategy (Seilz, 2018). Secondly, the accessories sector must be given greater consideration if existing potential is to be exploited (Hecker *et al.*, 2017; Reindl, 2017).

The comparatively pessimistic assessment by the car dealerships of the quality of their sales strategy is surprising. Possible explanations for this are declining margins (FIGAS, 2019), customers switching to electromobility (Knoedler *et al.,* 2019), or challenges arising from the increasing importance of online sales (Kelkar, 2020).

One possible explanation for companies' critical assessment of the quality of their digitalization strategy may be that in car dealerships digitalization is still in its infancy compared to other industries. Due to a lack of digital integration, there is still much room for improvement concerning the collection and structured use of vehicle data (Teppe, 2020).

When looking at the aggregated areas "operations" and "competence", it becomes apparent that there is a statistical correlation between them (rho=0.6451, p-value=0.0000). Also, the strategy with regard to operations was attributed a comparatively higher quality. This result is mainly the result of the low priority given to digitalization.

Something similar can be observed with regard to competence: Again, the quality of their strategy in this area was rated as lower by the small car dealerships than by the medium-sized (z-value=-3.839; p=0.0000; see *appendix,* line 14) and large car dealerships (z-value=-3.565; p=0.0011; see *appendix* line 15). In addition, a statistically relevant difference was found to exist between German-speaking and French-speaking Switzerland (z-value=2.793; p=0.0157; see *appendix,* line 14). However, dealerships in the German-speaking region rated the overall quality of their strategy more highly than those in the French-speaking region.

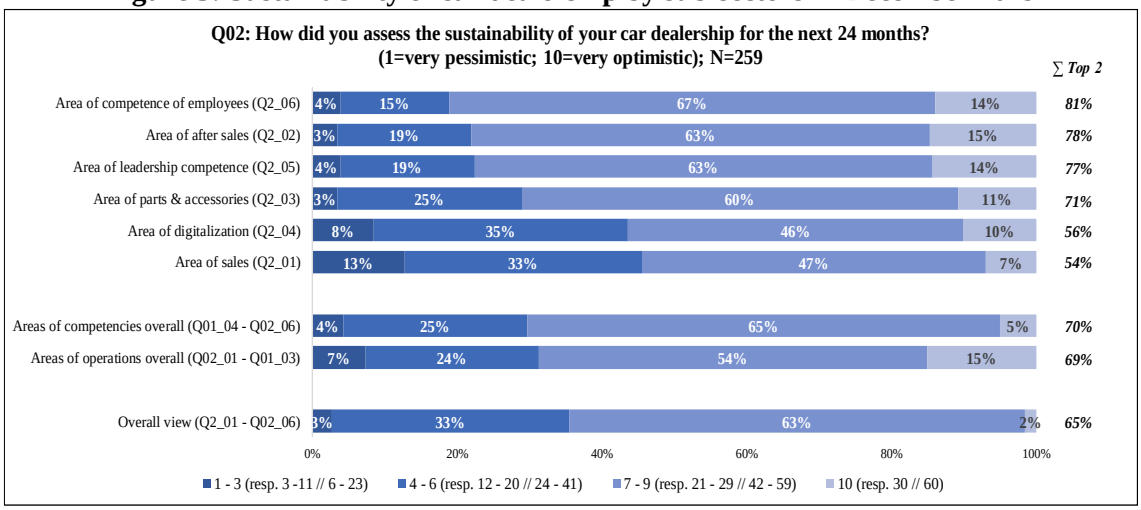
When asked about their overall strategy, 65% of the car dealerships surveyed attested it a high quality. With regard to the linguistic regions, there was only a statistically significant difference between German-speaking and French-speaking Switzerland (z-value=2.655; p=0.0238; see *appendix,* line 16): In the German-speaking region, the car dealerships rated the overall quality of their strategy as higher. Differences can also be seen with regard to the size classes: The small car dealerships rated the overall quality of their strategy as lower compared to the medium-sized (z-value=-4.471; p=0.0000; see

appendix, line 16) and large car dealerships (z-value=-4.483; p=0.0000; see *appendix*, line 17). A possible explanation for this is that the focus of many small car dealerships is mainly on their long-term regular customers, so they do not see any need to adapt their strategy.

To sum up, Hypothesis 1, according to which the majority of car dealerships have a clearly defined overall strategy according to their assessment, is validated.

Next, we focused on how the car dealerships assessed their sustainability as of the end of December 2019 (see Figure 3), a time, therefore, when COVID-19 was not yet perceived as a threat. This made it possible to show how the companies' assessment of their sustainability had changed by the end of May 2020 and thus enabled us to validate Hypothesis 5 and answer the research question in due course.

Figure 3: Sustainability of car dealership by sub-sectors in December 2019



Source: Authors

Compared to the strategy, sales were again rated considerably more pessimistically at 54%. There is a direct correlation between the assessment of strategy quality and the sustainability with regard to sales (rho=0.4391, p-value=0.0000). An important reason for this may be that numerous NSCs are planning to focus increasingly on selling new and used cars online, thus competing directly with traditional car dealerships (Rutschmann, 2020).

Small car dealerships assessed their sustainability with regard to sales less favorably than medium-sized car dealerships (z-value=-2.751; p=0.0178; see *appendix*, line 18). Possible reasons for this are increasingly restrictive requirements on the part of importers, volume pressure, or the increasing complexity of the online/offline customer journey (Silberg, 2019), which is particularly challenging for small car dealerships. The capital base is normally smaller with a smaller car dealership (Block, 2019).

There is a direct correlation between the overall assessment of strategy quality and sustainability (rho=0.5096, p-value=0.0000). Compared to how the strategy quality was rated, competence was rated more highly than operations with regard to sustainability. This is due, in particular, to the significantly more pessimistic assessment of operations, especially the sustainability of sales.

As was the case with assessing the strategy, the overall assessment of sustainability was more pessimistic than the assessment of individual aspects. Here too, there is a

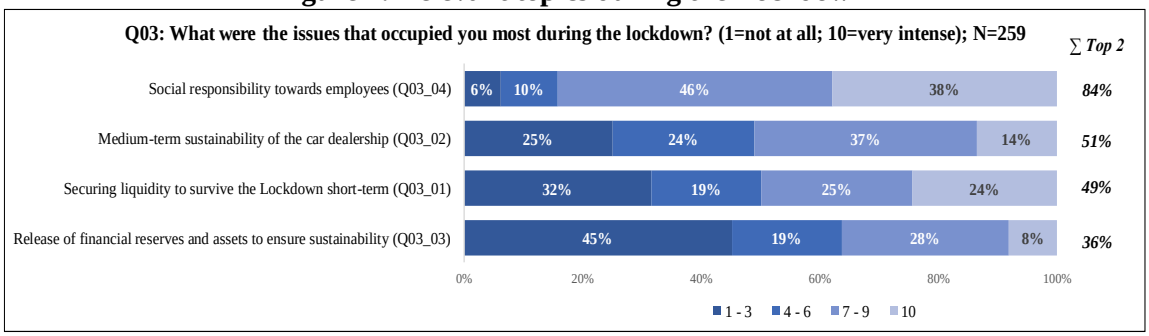
statistically significant difference between car dealerships in German- and French-speaking Switzerland (z-value=2.930; p=0.0102; see *appendix*, line 27), with the car dealerships in the German-speaking part being more optimistic about their sustainability than those in the French-speaking part. Differences can also be seen in terms of size: The small car dealerships rated their sustainability as lower than the medium-sized (z-value=-3.558; p=0.0011; see *appendix*, line 27) and large ones (z-value=-2.591; p=0.0287; see *appendix*, line 28). A possible reason for this is that, increasingly, the overall requirements of importers are becoming a burden for small car dealerships.

4.2 Lockdown from March to May 2020

On 16 March 2020, the situation for car dealerships in Switzerland changed fundamentally: In an extraordinary meeting of the Swiss Federal Council, it was decided to further tighten measures to protect the population. For the automotive industry this meant, among other things, that only body shops were allowed to remain open, in strict compliance with the distancing and hygiene recommendations of the Federal Office of Public Health (TFC, 2020a). Car dealerships had to close their showrooms until further notice, and they remained closed until 11 May 2020, after which they had to introduce a strict protection policy.

The first question of interest were the concerns of car dealerships and how they dealt with selected topics (see Figure 4).

Figure 4: Relevant topics during the Lockdown



Source: Authors

The dominant topic for 84% of the car dealerships was their social responsibility towards their employees. One possible explanation for this is that the employees were confronted with a completely different situation from one day to the next and had to deal with many uncertainties and open questions. Management focus on the employees is in line with the results from Moos (2013), who posited, that people are especially susceptible to outside influences like unstable work environments. Furthermore, he reported predominant emotions including anger, fear, and guilt emerged during crises. In addition, Doern (2016) states, that the stress experienced by employees due to uncertainty leads to a loss of focus and a decline of performance.

All other issues that revolved around the liquidity situation were given a much lower priority. Two aspects in particular may have contributed to this: According to a model calculation, a medium-sized car dealership suffered an estimated 40% monthly loss of sales in terms of after sales and 90% in terms of sales during the Lockdown, resulting in a liquidity loss of CHF 65,000 (Kohli, 2020). In accordance with an ordinance approved by the Swiss Federal Council on 26 March 2020, SMEs could apply for a COVID-19 loan

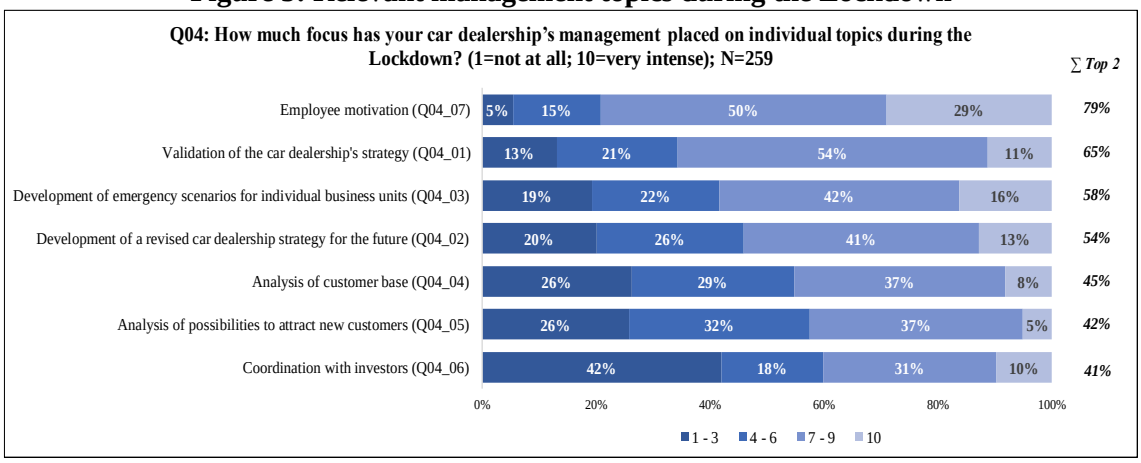
in the amount of 10% of their annual sales up to a total of CHF 500,000 to bridge liquidation bottlenecks (EFD, 2020). On 3 April 2020, the Federal Council decided to increase the amount earmarked for liquidity assistance to CHF 40 billion (TFC, 2020b). Similar support was also granted in other European countries (Latham and Watkins, 2020). This high volume has also to be regarded under consideration of the fact, that a OECD study estimates the decline in enterprise profits due to the COVID-19 shock to range between 40% and 50% of business-as-usual profits and will cause the value of equity to decline. Around 7-9% of otherwise viable enterprises would become distressed, i.e., the book value of their equity becomes negative (Demmou *et al.*, 2021).

This eased the liquidity problem of many car dealerships for the time being. In addition, the car dealerships were able to reduce costs as the results on issues relating to so-called "Kurzarbeit"[7] and staffing levels show: 74% of the car dealerships announced Kurzarbeit, enabling them to benefit from state funding.

If we consider the answers to the questions related to the car dealerships' financial situation compared to the question concerning their social responsibility towards their employees and the effect of governmental forms of support, Hypothesis 2 is validated: The majority of the car dealerships did not consider the securing of financial viability a priority, according to their assessment. As a result, the car dealerships in Switzerland are comparatively much better off in terms of liquidity than SMEs in other countries (Bartik *et al.*, 2020).

In a next step, it was investigated how much focus the car dealerships' managements, in particular, placed on individual topics during the Lockdown (see Figure 5).

Figure 5: Relevant management topics during the Lockdown



Source: Authors

For 79% of managers, the most important task was to keep employee motivation high. This assessment is in line with the answers to Question 3 and can be understood from several perspectives: The sudden Lockdown requiring employees to work from home, the lack of direct contact with employees on site, and employees worrying about job security are just a few of the challenges that managers had to face. This result is in line with Wilson (2016), who states, that management must comprehend human characteristics to address employee concerns during a crisis in addition to focusing on the day-to-day operations that increase revenue.

[7] *"Kurzarbeit"*: Short-time working mechanism allowing employees to work at a lower percentage while their employer pays a lower salary supplemented by unemployment insurance.

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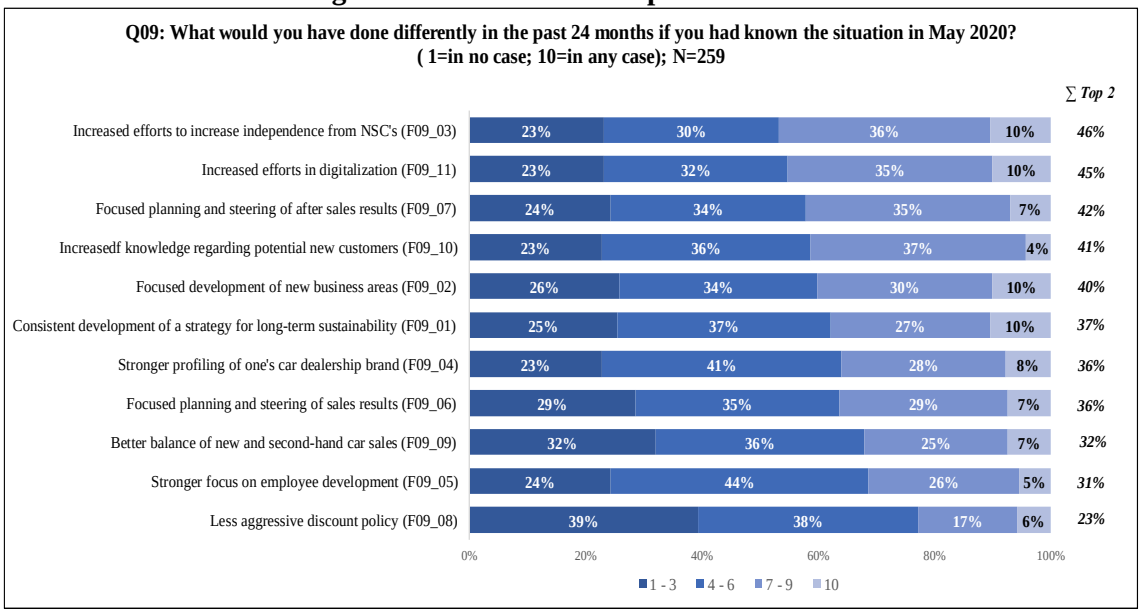
With regard to the priority of the aspects surveyed, it is noticeable that strategic aspects were assigned a higher relevance than operational aspects such as analysis of the customer base or to gain new customers. It becomes apparent that the strategic aspects were often approached from different angles in combination: For example, there is a high statistical correlation between the development of a revised future strategy and the validation of the strategy or the development of emergency scenarios (rho=0.7425; p-value=0.0000 or rho=0.6811, p-value=0.0000). Concerning these three aspects, there are also significant differences depending on the size class: There is a difference between the small and medium-sized car dealerships in the validation of the strategy (z-value=-2.866; p=0.0125; see *appendix*, line 30) and the development of a revised future strategy (z-value=-3.559; p=0.0011; see *appendix*, line 31), and there is a difference between small and medium-sized or large car dealerships concerning the development of emergency scenarios (z-value=-3.458; p=0.0016; see *appendix*, line 32 or z-value=-3.812; p=0.0004; see *appendix*, line 33). With increasing size, these aspects become more relevant.

To sum up, Hypothesis 3, according to which the majority of decision-makers at car dealerships, in their own estimation, focused on strategic tasks during the Lockdown, is validated, according to their assessment.

4.3 Outlook Following the Lockdown

Crises offer a valuable opportunity for companies to consciously reflect on the past in order to gain insights for successfully mastering the current situation. Figure 6 shows what the decision-makers in the dealerships would have done differently in retrospect over the past 24 months if they had known during this time how difficult the situation would be in May 2020.

Figure 6*:* Reflection on the past 24 months



Source: Authors

If one analyzes the surveyed aspects in their entirety, the first thing that stands out is that many car dealerships, in their own estimation, only made limited mistakes in the past. It is, however, interesting to analyze the individual aspects, which show that car dealerships often see the need for action in logically connected areas: From a strategic point of view,

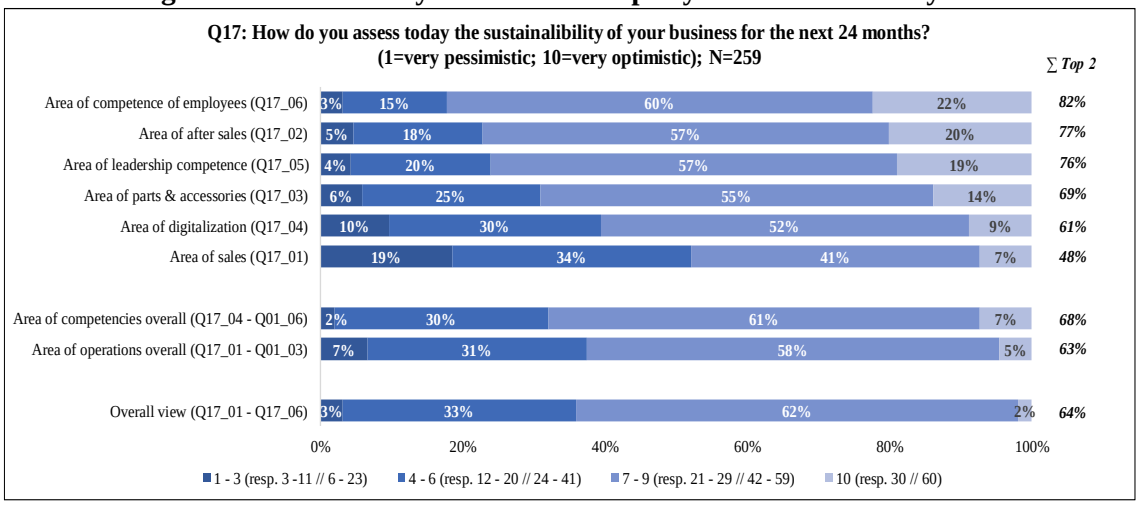
for example, a statistically significant correlation can be seen between efforts to increase independence from NSCs and the stronger profiling of their own brand (rho=0.5411; p=0.0000). With regard to operations, the highest statistically significant correlation between sales planning and control is found in sales and after sales (rho=0.6862; p=0.0000). Both segments require similar ways of thinking and acting from the employees, as well as similar know-how (Block, 2019). Thus, the statistically significant connection between the two aspects of employee development makes perfect sense (rho=0.6205; p=0.0000 and rho=0.64002; p=0.0000).

The group comparison by language region shows that there are statistically significant differences between German- and French-speaking Switzerland in three aspects: with regard to the discount policy (z-value=-2.753; p=0.0177; see *appendix* line 43), the balancing of new and second-hand car sales (z-value=-2.588; p=0.0290; see *appendix* line 44), and employee development (z-value=-2.558; p=0.0316; see *appendix*, line 40). In the French-speaking part of Switzerland, a greater need for action is attributed to these segments. With regard to the size categories, there are statistically significant differences for five aspects. Particularly striking is the difference in sales planning and control in sales between small and medium-sized car dealerships (z-value=-4.118; p=0.0001; see *appendix*, line 41) and between small and large car dealerships (z-value=-4.279; p=0.00001; see *appendix*, line 42). With increasing size, car dealerships give more importance to sales planning and steering, which is understandable, since they must sell more cars.

To sum up, Hypothesis 4, according to which the majority of car dealerships, in their own estimation, recognize their failings of the past, thus preparing them better for the future, is rejected since only limited evidence of this was found. Based on the *development modes* in the SGMM (Rüegg-Stürm and Grand, 2019), valuable insights from the past were thus only gained to a limited extent, which did not enable them to learn from them to overcome future challenges.

Finally, the car dealerships' decision-makers were asked to rate the sustainability of their companies (see Figure 7).

Figure 7: Sustainability of car dealerships by sub-sectors in May 2020



Source: Authors

Compared to the car dealerships' assessments back in December 2019, there were slight changes of between -1% (digitalization) and +1% (employee competence) in the

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competence areas regarding the top two values. It is interesting to note that digitalization competence was rated even lower this time. This shows that decision-makers do not necessarily equate digitalization with the increased use of digital communication media (e.g., Zoom or MS Teams), but define digitalization more broadly.

Compared to the assessments in December 2019, there the operational figures were consistently between -1% (after sales) and -6% (sales) lower. The assessments of the three operating divisions are likely to have been influenced by the revenues generated by the car dealerships during the Lockdown. The group comparison shows statistically significant differences between the language regions for all three sub-areas (see *appendix,* lines 49-53). The estimates are most optimistic in German-speaking Switzerland and most pessimistic in Italian-speaking Switzerland. A possible explanation for this could be the course of the COVID-19 pandemic, which hit the Italian-speaking part of Switzerland comparatively hardest and the German-speaking part the least hard.

In a direct comparison of the assessments of sustainability in December 2019 and May 2020, the overall result is ambivalent: 50% of the car dealerships see the future more optimistically, 43% more skeptically, and 7% see no change. This shows a statistically relevant correlation between the overall assessment of sustainability for the dates December 2019 and May 2020 (rho=0.6487; p=0.0000). With regard to the language regions and the size classes, only a statistically significant difference between German-speaking and Italian-speaking Switzerland can be seen (z-value=2.769; p=0.0169; see *appendix,* line 61). These figures indicate that many car dealerships see an opportunity to reposition themselves in the crisis or to expand their own market position by leveraging existing strengths or cost cutting. Already Gulati *et al.* (2010) indicates, that company's, 'that master the delicate balance between cutting costs to survive today and investing to grow tomorrow' (p. 64) outperform their competitors both during crisis and post-crisis. Investing in digitization is one option for car dealerships following Bessant *et al.* (2015), who indicate, that innovation in crisis management pertains to changing or creating processes, products, or services to increase the likelihood for sustainability.

To sum up, Hypothesis 5, according to which the COVID-19 pandemic will have a negative impact on the sustainability of car dealerships in the majority of cases according to their own assessment, is thus rejected, since the decision-makers' assessments for the two periods, December 2019 and May 2020, are ambivalent.

5. Conclusion

This study was designed to answer the question of whether the COVID-19 pandemic has changed the way decision makers in Swiss car dealerships view the sustainability – in the sense of survivability - of their businesses and, if not, what needs to be done to ensure their sustainability. Three out of five hypotheses were validated: (1) that the majority of car dealerships have a sound overall strategy, (2) that financial issues were not a main concern for car dealerships due to the government support they received, and (3) that decision-makers were primarily concerned with strategic tasks during the lockdown. The hypotheses that had to be rejected, however, were (4) that the car dealerships dealt with their own past behavior in a conscious manner, and (5) that they rate their sustainability more pessimistically due to COVID-19.

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As the results of this study show, the COVID-19 pandemic has been a clear challenge for car dealerships in Switzerland. On the other hand, mobility will remain a vital aspect of every economy in the future and, due to the COVID-19 pandemic, individual traffic is actually predicted to grow in importance in Switzerland (Rohr, 2020). The fact that many car dealerships rated their sustainability more highly in May 2020 than in December 2019 suggests that the COVID-19 pandemic is seen as merely a temporary disruptive factor and that there are certainly opportunities for professionally positioned car dealerships.

One interpretation of what dealerships may need to do is, that they need to get ready for the post-Corona era. Just waiting and seeing is not a promising approach (Lanzer *et al.*, 2020) to tackle the current challenges facing the automotive industry. With an effective overall strategy within the meaning of the SGMM (Rüegg-Sturm and Grand, 2019) and Porter (1996), many Swiss car dealerships have already laid the foundations for repositioning themselves, setting themselves apart from competitors, and following a long-term development thrust.

In general, there is no one-package-fits-all-solution for handling crisis in business (Ghaderi *et al.*, 2012). Nevertheless, based on the study results, we have recommendations for car dealerships, NSCs, and the government to ensure the sustainability of car dealerships.

Regarding decision makers in car dealerships we have the following seven recommendations for securing sustainability:

(1) They need to develop an understanding for how to professionally analyze the key areas in their own business, understand their own business indicators, understand their customer base and the market. This should be put to paper. In that sense, decision makers must improve their situational awareness of fast industry changes to reduce exposure and minimize risks caused by unplanned disturbances (Wilson, 2016)

(2) They need to spend time developing different assumptions for where the market may be going, not only from a Corona pandemic perspective and the "new normal", but for instance taking the mentioned key challenges – connectivity/digitalization, shared mobility, powertrain electrification, autonomous driving and true customer focus – under consideration. Then they need to rate the assumptions, e.g. from most likely to least likely.

(3) It is only now they are at a point where it is appropriate to develop clear and transparent business objectives, linked to an effective strategy for the future (Block, 2019). A robust and clear product-, market-, marketing-, aftersales-, sales- and customer strategy is required.

(4) They must clearly establish what they need to do differently in the future and hence how the current competence (knowledge, skills, attitude) must change to fill critical gaps (e.g. usage of digitalization tools).

(5) A robust financial plan must be established, financial tracking and regular financial reports provided. The cost structure must be analyzed and optimized to ensure sufficient liquidity irrespectively of temporary financial support from politics and NSCs due to the pandemic.

(6) In general, they must also examine not only the threats but also the opportunities that arise from the current pandemic situations, for instance, with regard to new fields of business or a reorientation of the car dealership business.

(7) Car dealerships must embrace digitalization in order to adapt to changes in market conditions in terms of sales and customer behavior.

NSCs must critically reflect on what forms of support for car dealerships will have lasting success. In doing so, they have to balance the benefit of short-term measures (of a general or financial nature) to ensure the current sustainability of car dealerships, with medium- to long-term measures to ensure an adequate and competent dealer network. At the same time, they need to cooperate with manufacturers to give dealerships the information they need to be more profitable (e.g., by planning by when which vehicles can be available on site).

Politics primarily have a framework-building role to play. The automotive industry needs binding guidelines, like the importance of nationwide individual mobility in the future or CO_2 regulations. In addition, the authorities must continue to monitor whether and to what extent financial support for car dealerships makes sense to enable them to survive until the end of the COVID-19 pandemic. Politics should implement a balanced strategy to phase out emergency support policies: Until now, policy measures protected viable enterprises and avoided the systemic risks posed by a wave of bankruptcies, but at the risk of potentially keeping non-viable (the so-called zombie) firms afloat. (OECD, 2021). In doing so, the funds to be distributed must not be spread too broadly. Instead, they should drive the change process and benefit car dealerships that meet the basic requirements for long-term sustainability. The pure preservation of the system at any price is not the way forward.

Regarding the interaction of the recommendations for car dealerships, NSCs and politics on an abstract level, this results in clear added value: By ensuring the sustainability of car dealerships, jobs are secured, at the same time and fears among employees are reduced. This in turn has a positive effect on society being able to deal more objectively with the current COVID-19 situation and consciously focusing on the post-COVID-19 period. With regard to science, it would be interesting to analyze in a next step, how the level of digitization within car dealerships develop in the next 24 months and what was the influence of COVID-19 regarding speed and acceptance from employees and customers.

In essence, the above-mentioned recommendations for action can also be applied to other industries and SMEs. On the one hand, the principles of the SGMM apply equally to all sectors. On the other hand, most other sectors were also affected by a loss of revenue as a result of the COVID-19 pandemic (Avenir Suisse, 2020; Regiosuisse, 2020), with an estimated 35%, for example, in areas related to tourism (UBS, 2020). Here too, the strategy and the business models must be adapted to the "new normal" and to new technologies.

References

Abdi, H. (2007). Bonferroni and Šidák corrections for multiple comparisons. *Encyclopedia of measurement and statistics, 3,* 103–107.

Adelekan, S. A. (2020). Effect of Strategic Leadership and Strategic Thinking on Firms' Competitive Advantage: Evidence from Fast Moving Consumer Goods Sub-Sector. *European Journal of Applied Business and Management*, *6*(3).

Agresti, A. (1992). A survey of exact inference for contingency tables. *Statistical science*, *7*(1), 131–153.

AGVS. (2020a). *Jeder achte Arbeitsplatz hängt direkt oder indirekt vom Auto ab*. Available at: https://www.agvs-upsa.ch/de/autogewerbe/wirtschaftliche-zahlen

AGVS. (2020b). *Mitgliederverzeichnis*. Available at: https://www.agvs-upsa.ch/de/verband/mitgliederverzeichnis/liste

AGVS. (2021). *Wichtige Zahlen und Fakten zur Autobranche und dem Autogewerbe*. Available at: https://www.agvs-upsa.ch/de/welt-des-autos/kennzahlen

Alves, J. C., Lok, T. C., Luo, Y., & Hao, W. (2020). *Crisis management for small business during the COVID-19 outbreak: Survival, resilience and renewal strategies of firms in Macau*. https://doi.org/10.21203/rs.3.rs-34541/v1

Antonacopoulou, E. P., & Sheaffer, Z. (2014). Learning in crisis: Rethinking the relationship between organizational learning and crisis management. *Journal of Management Inquiry*, *23*(1), 5–21. https://doi.org/10.1177/1056492612472730

Arora, L., & Mail, B. K. S. (2018). Influence of Review Quality, Review Quantity and Review Credibility on Purchase Intention in context of High Involvement Products. *European Journal of Applied Business and Management*, *4*(4).

auto-schweiz. (2020a). *Immatrikulationen von neuen Personenwagen (CH+FL)*. Available at: http://e3.marco.ch/publish/autoschweiz/941_1110/MOFISPW2020_06.pdf

auto-schweiz. (2020b). *Historischer Markteinbruch: Coronakrise gefährdet Auto-Jobs*. Available at: https://www.auto.swiss/aktuell/artikel/historischer-markteinbruch-coronakrise-gefaehrdet-auto-jobs/

Avenir Suisse. (2020). *Welche Branchen können dem Corona-Schock am besten trotzen?* Available at: https://www.avenir-suisse.ch/welche-branchen-corona-schock-wie-gross/

Belak, J., & Duh, M. (2012). Integral management: Key success factors in the MER model. *Acta Polytechnica Hungarica*, *9*(3), 5–26.

Bartik, A. W., Bertrand, M., Cullen, Z., Glaeser, E. L., Luca, M., & Stanton, C. (2020). The impact of COVID-19 on small business outcomes and expectations. *Proceedings of the National Academy of Sciences*, *117*(30), 17656–17666.

Beglaryan, M., & Shakhmuradyan, G. (2020). The impact of COVID-19 on small and medium-sized enterprises in Armenia: Evidence from a labor force survey. *Small Business International Review*, *4*(2), e298. https://doi.org/10.26784/sbir.v4i2.298

Bessant, J., Rush, H., & Trifilova, A. (2015). Crisis-driven innovation: The case of humanitarian innovation. *International journal of innovation management*, *19*(06), 1540014. https://doi.org/10.1142/S1363919615400149

BFS. (2020a). *Statistik der Unternehmensstruktur 2018*. Available at: https://www.bfs.admin.ch/bfs/de/home/statistiken/industrie-dienstleistungen/unternehmen-beschaeftigte.assetdetail.14127225.html

BFS. (2020b). *Strassenfahrzeuge – Bestand, Motorisierungsgrad*. Available at: https://www.bfs.admin.ch/bfs/de/home/statistiken/mobilitaet-verkehr/verkehrsinfrastruktur-fahrzeuge/fahrzeuge/strassenfahrzeuge-bestand-motorisierungsgrad.html

BFS. (2021). *Bruttoinlandsprodukt, lange Serie*. Available at: https://www.bfs.admin.ch/bfs/de/home/statistiken/volkswirtschaft/volkswirtschaftliche-gesamtrechnung/bruttoinlandprodukt.assetdetail.14347493.html

Bieger, T. (2019). *Das Marketingkonzept im St. Galler Management-Modell* (3rd ed.). utb, Stuttgart.

Birkinshaw, J., & Ansari, S. (2015). Understanding management models: Going beyond "what" and "why" to "how" work gets done in organizations. *Foss, JN, & Saebi*, 85–103.

Birkinshaw, J., & Goddard, J. (2009). What is your management model? *MIT Sloan Management Review*, *50*(2), 81.

Block, A. (2019). *Die Quirin-Formel: Die DNA erfolgreicher Autohäuser entschlüsselt*. Springer, München.

Brace, I. (2018). *Questionnaire design: How to plan, structure and write survey material for effective market research* (4th ed.). Kogan Page Publishers, London.

Cepel, M., Gavurová, B., Dvorský, J., & Belas, J. (2020). *The impact of the COVID-19 crisis on the perception of business risk in the SME segment*. *13*, 248–263. https://doi.org/10.14254/2071-8330.2020/13-3/16

Demmou, L., Calligaris, S., Franco, G., Dlugosch, D., McGowan, M. A., & Sakha, S. (2021). *Insolvency and debt overhang following the COVID-19 outbreak: Assessment of risks and policy responses*. https://doi.org/10.1787/18151973

Didier, T., Huneeus, F., Larrain, M., & Schmukler, S. L. (2021). Financing firms in hibernation during the COVID-19 pandemic. *Journal of Financial Stability*, *53*, 100837. https://doi.org/10.1016/j.jfs.2020.100837

Dinno, A. (2015). Nonparametric pairwise multiple comparisons in independent groups using Dunn's test. *The Stata Journal*, *15*(1), 292–300.

Doern, R. (2016). Entrepreneurship and crisis management: The experiences of small businesses during the London 2011 riots. *International Small Business Journal*, *34*(3), 276–302. https://doi.org/10.1177/0266242614553863

EFD. (2020). *COVID 19 Überbrückungshilfe*. Available at: https://www.efd.admin.ch/efd/de/home/covid19-ueberbrueckungshilfe/infos.html.

Ermschel, U. (2021). *Die Autohaus-Zukunft: Wir zeigen Ihnen den Weg!* (3rd ed.). Springer, München.

FDFA. (2020). *Language – facts and figures*. Available at: https://www.eda.admin.ch/aboutswitzerland/en/home/gesellschaft/sprachen/die-sprachen---fakten-und-zahlen.html

FIGAS. (2020). *Branchenspiegel des Schweiz Autogewerbes: 5-Jahres-Vergleich 2015-2019*.

Fowler Jr, F. J. (2014). *Survey research methods* (5th ed.). Sage publications, Thousend Oaks, CA.

Freitag, M. (2004). Schweizer Welten des Sozialkapitals. Empirische Untersuchungen zum sozialen Leben in Regionen und Kantonen. *Swiss Political Science Review*, *10*(2), 87–118.

FRS. (2020). *Strasse Schweiz – Vademecum 2020*. Available at: https://www.strasseschweiz.ch/app/uploads/2020/02/vademecum_2020_d.pdf

Ghaderi, Z., Som, A. P. M., & Henderson, J. C. (2012). Tourism crises and island destinations: Experiences in Penang, Malaysia. *Tourism Management Perspectives*, *2*, 79–84. https://doi.org/10.1016/j.tmp.2012.03.006

Graham, I. (2010). Automotive industry: Trends and reflections. *ILO, The Global Economic Crisis Sectoral Coverage WP*, *278*(2010), 1–217. Available at: https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/publication/wcms_161519.pdf

Gulati, R., Nohria, N., & Wohlgezogen, F. (2010). Roaring out of recession. *Harvard Business Review*, *88*(2), 68–76.

Gurtner, S., & Hietschold, N. (2020). *Studie: Auswirkungen der Corona-Krise auf Schweizer KMU*. Available at: https://www.bfh.ch/de/aktuell/medienmitteilungen/2020/studie-corona-krise-kmu/

Hadi, S., & Supardi, S. (2020). Revitalization strategy for small and medium enterprises after Corona virus disease pandemic (covid-19) in Yogyakarta. *J. Xian Univ. Archit. Technol*, *12*, 4068–4076.

Hamel, G., & Prahalad, C. K. (1990). The core competence of the corporation. *Harvard business review*, *68*(3), 79–91.

Hamel, G., & Prahalad, C. K. (1994). Competing for the future. *Harvard business review*, *72*(4), 122–128.

Hecker, F., Hurth, J., & Seeba, H.-G. (2017). *Aftersales in der Automobilwirtschaft* (3rd ed.). München: Springer.

Heidegger, M. (1927). Sein und Zeit, Tübingen. *Max Niemeyer Verlag*, *199317*, 49–50.

Heineke, K., Möller, T., Padhi, A., & Tschiesner, A. (2017). The automotive revolution is speeding up. *McKinsey and Co, New York, NY*.

Hervé, M. (2020). *RVAideMemoire: Testing and Plotting Procedures for Biostatistics (R package version 0.9-75, 2020)*.

Hoffmann, M., Zayer, E., & Strempel, M. (2019). *A Survival Guide for Europe's Car Dealers*. Available at: https://www.bain.com/insights/a-survival-guide-for-europes-car-dealers/

Hollander, M., Wolfe, D. A., & Chicken, E. (2014). *Nonparametric statistical methods* (Bd. 751). John Wiley & Sons, Hoboken, New Jersey, NJ.

Huber-Strasser, A. (2020). *Global Automotive Executive Survey 2020*. Available at: https://automotive-institute.kpmg.de/GAES2020/

ILO. (2020). *COVID-19 and the automotive industry. ILO Sectoral Brief*. Available at: https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/briefingnote/wcms_741343.pdf

Juergensen, J., Guimón, J., & Narula, R. (2020). European SMEs amidst the COVID-19 crisis: Assessing impact and policy responses. *Journal of Industrial and Business Economics*, *47*(3), 499–510. https://doi.org/10.1007/s40812-020-00169-4

Kelkar, O. (2020). *STUDIE ONLINE CAR SALES 2020*. Available at: https://www.mhp.com/de/unternehmen/newsroom-presse/detailseite/article/studie-online-car-sales-2020

Knoedler, D., Wollschlaeger, D., & Stanley, B. (2019). Automotive 2030: Racing toward a digital future. *IBM Institute for Business Value*. Available at: https://www.ibm.com/thought-leadership/institute-business-value/report/auto-2030

Kohli, A. (2020). *Covid-19 – Auswirkungen auf die Erfolgsrechnung*. Available at: https://www.figas.ch/de/publikationen/show/article/covid-19-auswirkungen-auf-die-erfolgsrechnung/

Kraus, S., Clauss, T., Breier, M., Gast, J., Zardini, A., & Tiberius, V. (2020). The economics of COVID-19: Initial empirical evidence on how family firms in five European countries cope with the corona crisis. *International Journal of Entrepreneurial Behavior & Research*, *26*(5), 1067–1092. https://doi.org/10.1108/IJEBR-04-2020-0214

Kruskal, W. H., & Wallis, W. A. (1952). Use of ranks in one-criterion variance analysis. *Journal of the American statistical Association*, *47*(260), 583–621.

Lanzer, F., Sauberschwarz, L., & Weiß, L. (2020). *Erfolgreich durch die Krise: Strategieentwicklung in Zeiten von Finanzkrise bis Corona*. Springer-Verlag, Wiesbaden. https://doi.org/10.1007/978-3-658-30543-7

Latham & Watkins. (2020). *COVID-19: PUBLIC FINANCE SUPPORT (STATE AID) GRANTED TO THE AUTOMOTIVE SECTOR;* Available at: https://www.lw.com/thoughtLeadership/COVID-19-EU-State-Aid-Granted-to-the-Automotive-Sector

Lim, D. S., Morse, E. A., & Yu, N. (2020). The impact of the global crisis on the growth of SMEs: A resource system perspective. *International Small Business Journal*, *38*(6), 492–503. https://doi.org/10.1177/0266242620950159

LiPuma, J. A., Newbert, S. L., & Doh, J. P. (2013). The effect of institutional quality on firm export performance in emerging economies: A contingency model of firm age and size. *Small Business Economics*, *40*(4), 817–841. https://doi.org/10.1007/s11187-011-9395-7

Meunzel, R. M., Schneider, R., & Winkler, D. (2017). *Megatrend Digitalisierung im Automotive Aftersales*. Available at: https://next.autohaus.de/view/65154

Moos, R. (2013). *Coping with life crises: An integrated approach*. Springer Science + Business Media, New York, NY.

Müller, Y., Zaugg, A., Dubois, J., Gallasz-Löwei, O., & Hofmann, A. (2007). *Kulturelle Unterschiede im Beschwerdeverhalten–Ein Vergleich zwischen Deutschschweiz und Romandie*. Available at: http://boris.unibe.ch/58045/1/AB201.pdf

OECD. (2020). *Coronavirus (COVID-19): SME Policy Responses*. Available at: http://oecd.org/coronavirus/policy-responses/coronavirus-covid-19-sme-policy-responses-04440101/

OECD. (2021). *Business dynamism during the COVID-19 pandemic: Which policies for an inclusive recovery?* Available at: http://www.oecd.org/coronavirus/policy-responses/business-dynamism-during-the-covid-19-pandemic-which-policies-for-an-inclusive-recovery-f08af011/

Ogle, D. H., Wheeler, P., & Dinno, A. (2020). *FSA: Fisheries Stock Analysis. R package version 0.8. 30.9000.*

Papadopoulos, T., Baltas, K. N., & Balta, M. E. (2020). The use of digital technologies by small and medium enterprises during COVID-19: Implications for theory and practice. *International Journal of Information Management*, *55*, 102192. https://doi.org/10.1016/j.ijinfomgt.2020.102192

Porter, M. E. (1985). Competitive strategy: Creating and sustaining superior performance. *The free, New York, NY*.

Porter, M.E. (1996). *What is Strategy, Harvard Business Review, November-December*.

Porter, M. E. (2008). The five competitive forces that shape strategy. *Harvard business review*, *86*(1), 78.

Prohorovs, A. (2020). Getting Ready for Recession: How SMEs Prepared for Covid-19 Pandemic and Economic Recession. *Forbes (Latvian edition) No*, *11*, 46–49. http://dx.doi.org/10.2139/ssrn.3596611

Rathore, U., & Khanna, S. (2020). From Slowdown to Lockdown: Effects of the COVID-19 Crisis on Small Firms in India. http://dx.doi.org/10.2139/ssrn.3615339

Regiosuisse. (2020). *Regionalökonomische Auswirkungen von COVID-19*. Available at: https://regiosuisse.ch/node/2957

Reindl, S. (2017). *Autohaus-Management: Effiziente Führung und Steuerung von Autohausbetrieben* (4th ed.). Springer, München.

Rohr, D. (2020). *Mobility after coronavirus crisis – from public to private*. Available at: https://www2.deloitte.com/ch/en/pages/public-sector/articles/mobilitaet-nach-der-corona-krise.html

Rüegg-Stürm, J., & Grand, S. (2019). *Managing in a Complex World: The St. Gallen Management-Model*. utb, Stuttgart.

Rutschmann, D. (2020). *Amag: Online-Autoverkauf erfolgreich gestartet*. Available at: https://www.handelszeitung.ch/bilanz/amag-online-autoverkauf-erfolgreich-gestartet

Santos, J. A., & Marques, J. P. (2019). Innovation strategies in economic crisis context: The case of the cork industry in Portugal. *European Journal of Applied Business and Management*, *5*(4).

Schmidt, A., Lio, T., Irwin, B., Mayr, R., Kawahara, E., & Cardoso, A. (2020). *Impact on the Automotive Industry: Navigating the Human and Business Impact of COVID-19*. Available at: https://www.accenture.com/_acnmedia/PDF-121/Accenture-COVID-19-Impact-Automotive-Industry.pdf

Schwaninger, M. (2006). Design for viable organizations: The diagnostic power of the viable system model. *Kybernetes: The International Journal of Systems & Cybernetics*, *35*(7–8), 955–966. https://doi.org/10.1108/03684920610675012

Seghezzi, H. D., Fahrni, F., & Friedli, T. (2013). *Integriertes Qualitätsmanagement: Der St. Galler Ansatz* (4th ed.). Carl Hanser, München

Seilz, B. (2018). *Teile-und Lagermanagement: Da steckt bares Geld drin!* (2nd ed.). Springer, München.

Silberg, G. (2019). *The future of automotive retailing*. Available at: https://advisory.kpmg.us/articles/2019/future-of-automotive-retailing.html

Sturgeon, T. J., & Van Biesebroeck, J. (2009). *Crisis and protection in the automotive industry: A global value chain perspective*. The World Bank.

Suter, L., Waller, G., Bernath, J., Külling, C., Willemse, I., & Süss, D. (2018). *JAMES: Jugend, Aktivitäten, Medien-Erhebung Schweiz*. Available at: https://www.zhaw.ch/storage/psychologie/upload/forschung/medienpsychologie/james/2018/Ergebnisbericht_JAMES_2018.pdf

Team, R. C. (2019). *R: A Language and Environment for Statistical Computing (Version 3.5. 2, R Foundation for Statistical Computing, Vienna, Austria, 2018)*.

Teppe, F. (2020). *Schlüsselhandlungen im AUTOHAUS - Teil 3: Digitalisierung ist Chefsache*. (18), 42–43. Available at: https://www.autohaus.de/nachrichten/autohandel/digitalisierung-ist-chefsache-2662293

TFC. (2020a). *Coronavirus: Federal Council declares 'extraordinary situation' and introduces more stringent measures*. Available at: https://www.admin.ch/gov/en/start/documentation/media-releases.msg-id-Revgiewer78454.html

TFC. (2020b). *Federal Council increases volume of liquidity assistance guarantees to CHF 40 billion*. Available at: https://www.admin.ch/gov/en/start/documentation/media-releases.msg-id-78684.html

Thommen, J.-P. (2002). *Management und Organisation: Konzepte, Instrumente, Umsetzung*. Versus, Zürich.

Trede, S., Seifert, N., & Stricker, A. (2020). *Corona-Studie zur Darstellung der Auswirkungen auf Gebrauchtfahrzeugwerte und Prognosen*. Available at: https://xpxd.de/wp-content/uploads/2020/04/202004_xpxdconsulting_Corona_study

UBS. (2020). *Corona-Krise – Auswirkungen auf Branchen und Regionen*. Available at: https://www.finews.ch/images/news/2020/04/Wirtschaft_Schweiz_de_1491944-1.pdf

Ulrich, H. (1968). *Die Unternehmung als produktives soziales System*. Haupt, Bern

ViaStoria. (n.d.). *Inverkehrssetzung neue PW*. Available at: https://www.strassendaten.ch/variables/D.2.2/0

Vicente, M., Figueiredo, A., & Rodrigues, A. M. (2018). Capabilities and innovation: The moderating effect of environmental turbulence. *European Journal of Applied Business and Management*, *4*(4).

Weidenbach, M., Sadoun, J., & Pölz, P. (2019). *Future of Sales and Aftersales: Impact of current industry trends on OEM revenues and profits unteil 2025*. Available at: https://www2.deloitte.com/de/de/pages/consumer-industrial-products/articles/future-of-automotive-sales-and-aftersales.html

Wilson, D. (2016). *Small Business Crisis Management Strategies*. Available at: https://scholarworks.waldenu.edu/dissertations/2706/

Wyss, V., & Keel, G. (2010). Schweizer Journalismuskulturen im sprachregionalen Vergleich: Eine quantitative Längsschnittuntersuchung zu Strukturmerkmalen und Einstellungen. *Medienkultur im Wandel*, *1*, 245–260.

Appendix

			Group comparison: Language region car dealership					Group comparison: size class car dealership				
Line	**Question**	**Figure**	**Kruskal-Wallis, df=2**	**Compare**	**Z**	**P.adj**	**Median**	**Kruskal-Wallis, df=2**	**Compare**	**Z**	**P.adj**	**Median**
1	Q01_01	cf. Figure 2	chi-sq. = 5.1567; p = 0.08	G; F	2.231	0.0771	8.0; 7.0	chi-sq. = 33.944; p = 0.00	small; middle	-4.342	0.0000	6.0; 8.0
2	Q01_01	cf. Figure 2	chi-sq. = 5.1567; p = 0.08	G; I	-0.202	1.0000	8.0; 8.0	chi-sq. = 33.944; p = 0.00	small; large	-5.192	0.0000	6.0; 9.0
3	Q01_02	cf. Figure 2	chi-sq. = 1.1200; p = 0.57	G; F	0.995	0.9592	8.0; 8.0	chi-sq. = 15.246; p = 0.00	small; middle	-3.469	0.0016	8.0; 9.0
4	Q01_02	cf. Figure 2	chi-sq. = 1.1200; p = 0.57	G; I	0.457	1.0000	8.0; 8.0	chi-sq. = 15.246; p = 0.00	small; large	-2.925	0.0103	8.0; 9.0
5	Q01_03	cf. Figure 2	chi-sq. = 5.5883; p = 0.06	G; F	2.100	0.1072	8.0; 8.0	chi-sq. = 16.619; p = 0.00	small; middle	-3.559	0.0011	7.0; 8.0
6	Q01_03	cf. Figure 2	chi-sq. = 5.5883; p = 0.06	G; I	1.288	0.5928	8.0; 6.0	chi-sq. = 16.619; p = 0.00	small; large	-3.140	0.0051	7.0; 8.0
7	Q01_04	cf. Figure 2	chi-sq. = 3.1254; p = 0.21	G; F	1.685	0.2761	7.0; 6.0	chi-sq. = 13.438; p = 0.00	small; middle	-3.067	0.0065	5.0; 7.0
8	Q01_04	cf. Figure 2	chi-sq. = 3.1254; p = 0.21	G; I	0.700	1.0000	7.0; 7.0	chi-sq. = 13.438; p = 0.00	small; large	-2.981	0.0086	5.0; 8.0
9	Q01_05	cf. Figure 2	chi-sq. = 16.065; p = 0.00	G; F	3.866	0.0003	8.0; 7.0	chi-sq. = 16.773; p = 0.00	small; middle	-3.416	0.0019	7.0; 8.0
10	Q01_05	cf. Figure 2	chi-sq. = 16.065; p = 0.00	G; I	1.435	0.4540	8.0; 8.0	chi-sq. = 16.773; p = 0.00	small; large	-3.341	0.0025	7.0; 8.0
11	Q01_06	cf. Figure 2	chi-sq. = 3.6711; p = 0.16	G; F	1.829	0.2022	8.0; 8.0	chi-sq. = 10.042; p = 0.01	small; middle	-2.955	0.0094	8.0; 8.0
12	Q01_OP	cf. Figure 2	chi-sq. = 3.9164; p = 0.14	G; F	1.955	0.1517	24.0; 22.0	chi-sq. = 30.241; p = 0.00	small; middle	-4.435	0.0000	21.0; 25.0
13	Q01_OP	cf. Figure 2	chi-sq. = 3.9164; p = 0.14	G; I	0.498	1.0000	24.0; 24.0	chi-sq. = 30.241; p = 0.00	small; large	-4.635	0.0000	21.0; 26.0
14	Q01_CO	cf. Figure 2	chi-sq. = 8.6579; p = 0.01	G; F	2.793	0.0157	23.0; 20.0	chi-sq. = 20.189; p = 0.00	small; middle	-3.839	0.0000	20.5; 24.0
15	Q01_CO	cf. Figure 2	chi-sq. = 8.6579; p = 0.01	G; I	1.198	0.6929	23.0; 21.0	chi-sq. = 20.189; p = 0.00	small; large	-3.565	0.0011	20.5; 24.0
16	Q01_OA	cf. Figure 2	chi-sq. = 7.4138; p = 0.02	G; F	2.655	0.0238	47.0; 43.0	chi-sq. = 29.441; p = 0.00	small; middle	-4.471	0.0000	41.0; 48.0
17	Q01_OA	cf. Figure 2	chi-sq. = 7.4138; p = 0.02	G; I	0.863	1.0000	47.0; 45.0	chi-sq. = 29.441; p = 0.00	small; large	-4.483	0.0000	41.0; 49.0
18	Q02_01	cf. Figure 3	chi-sq. = 3.4838; p = 0.18	G; F	1.843	0.1960	7.0; 6.0	chi-sq. = 7.7770; p = 0.02	small; middle	-2.751	0.0178	6.0; 8.0
19	Q02_02	cf. Figure 3	chi-sq. = 1.1995; p = 0.55	G; F	0.304	1.0000	8.0; 8.0	chi-sq. = 7.8361; p = 0.02	small; middle	-2.691	0.0214	8.0; 8.0
20	Q02_04	cf. Figure 3	chi-sq. = 10.707; p = 0.00	G; F	3.026	0.0074	7.0; 6.0	chi-sq. = 10.135; p = 0.01	small; middle	-2.967	0.0090	6.0; 8.0
21	Q02_05	cf. Figure 3	chi-sq. = 21.625; p = 0.00	G; F	4.182	0.0001	8.0; 7.0	chi-sq. = 17.081; p = 0.00	small; middle	-3.072	0.0064	7.5; 8.0
22	Q02_05	cf. Figure 3	chi-sq. = 21.625; p = 0.00	G; I	2.439	0.0442	8.0; 6.0	chi-sq. = 17.081; p = 0.00	small; large	-3.689	0.0007	7.5; 9.0
23	Q02_06	cf. Figure 3	chi-sq. = 6.8575; p = 0.03	G; F	2.489	0.0385	8.0; 8.0	chi-sq. = 7.2924; p = 0.03	small; middle	-2.400	0.0492	8.0; 8.0
24	Q02_OP	cf. Figure 3	chi-sq. = 3.3330; p = 0.19	G; F	1.478	0.4186	23.0; 21.0	chi-sq. = 9.0435; p = 0.01	small; middle	-2.871	0.0123	21.0; 24.0
25	Q02_CO	cf. Figure 3	chi-sq. = 17.149; p = 0.00	G; F	3.774	0.0005	24.0; 21.0	chi-sq. = 16.958; p = 0.00	small; middle	-3.552	0.0011	21.0; 24.0
26	Q02_CO	cf. Figure 3	chi-sq. = 17.149; p = 0.00	G; I	2.071	0.1150	24.0; 21.0	chi-sq. = 16.958; p = 0.00	small; large	-3.226	0.0038	21.0; 24.0
27	Q02_OA	cf. Figure 3	chi-sq. = 11.065; p = 0.00	G; F	2.930	0.0102	46.0; 42.0	chi-sq. = 14.618; p = 0.00	small; middle	-3.558	0.0011	43.0; 47.0
28	Q02_OA	cf. Figure 3	chi-sq. = 11.065; p = 0.00	G; I	1.858	0.1897	46.0; 39.0	chi-sq. = 14.618; p = 0.00	small; large	-2.591	0.0287	43.0; 46.0
29	Q03_03	cf. Figure 4	chi-sq. = 17.434; p = 0.00	G; F	-4.092	0.0001	3.0; 8.0	chi-sq. = 1.6290; p = 0.44	small; middle	-1.216	0.6714	3.5; 5.0
30	Q04_01	cf. Figure 5	chi-sq. = 1.6363; p = 0.44	G; F	-1.214	0.6746	8.0; 8.0	chi-sq. = 9.3747; p = 0.01	small; middle	-2.866	0.0125	7.0; 8.0
31	Q04_02	cf. Figure 5	chi-sq. = 2.8244; p = 0.24	G; F	-1.679	0.2794	7.0; 8.0	chi-sq. = 12.664; p = 0.00	small; middle	-3.559	0.0011	6.0; 8.0
32	Q04_03	cf. Figure 5	chi-sq. = 1.3664; p = 0.50	G; F	-0.829	1.0000	8.0; 8.0	chi-sq. = 19.504; p = 0.00	small; middle	-3.458	0.0016	6.0; 8.0
33	Q04_03	cf. Figure 5	chi-sq. = 1.3664; p = 0.50	G; I	0.738	1.0000	8.0; 5.0	chi-sq. = 19.504; p = 0.00	small; large	-3.812	0.0004	6.0; 8.0
34	Q04_06	cf. Figure 5	chi-sq. = 7.2411; p = 0.03	G; F	-2.655	0.0238	4.0; 8.0	chi-sq. = 19.351; p = 0.00	small; middle	-3.278	0.0031	3.0; 6.5
35	Q04_06	cf. Figure 5	chi-sq. = 7.2411; p = 0.03	G; I	0.173	1.0000	4.0; 5.0	chi-sq. = 19.351; p = 0.00	small; large	-3.921	0.0003	3.0; 7.0
36	Q04_07	cf. Figure 5	chi-sq. = 0.6707; p = 0.72	G; F	-0.207	1.0000	9.0; 8.0	chi-sq. = 12.336; p = 0.00	small; middle	-3.351	0.0024	8.0; 9.0
38	Q09_01	cf. Figure 6	chi-sq. = 0.7411; p = 0.69	G; F	-0.831	1.0000	5.0; 6.0	chi-sq. = 6.9224; p = 0.03	small; middle	-2.448	0.0430	5.0; 6.0
39	Q09_04	cf. Figure 6	chi-sq. = 3.2084; p = 0.20	G; I	0.925	1.0000	5.0; 5.0	chi-sq. = 7.8834; p = 0.02	small; large	-2.683	0.0219	5.0; 6.0
40	Q09_05	cf. Figure 6	chi-sq. = 8.1201; p = 0.02	G; F	-2.558	0.0316	5.0; 6.0	chi-sq. = 5.2366; p = 0.07	small; middle	-2.100	0.1072	5.0; 5.0
41	Q09_06	cf. Figure 6	chi-sq. = 0.1232; p = 0.94	G; F	-0.112	1.0000	5.0; 5.0	chi-sq. = 25.907; p = 0.00	small; middle	-4.118	0.0001	5.0; 6.0
42	Q09_06	cf. Figure 6	chi-sq. = 0.1232; p = 0.94	G; I	0.320	1.0000	5.0; 5.0	chi-sq. = 25.907; p = 0.00	small; large	-4.279	0.0001	5.0; 6.0
43	Q09_08	cf. Figure 6	chi-sq. = 8.6331; p = 0.01	G; F	-2.753	0.0177	5.0; 5.0	chi-sq. = 2.1271; p = 0.35	small; middle	-0.689	1.0000	5.0; 5.0
44	Q09_09	cf. Figure 6	chi-sq. = 7.0471; p = 0.03	G; F	-2.588	0.0290	5.0; 6.0	chi-sq. = 4.7185; p = 0.09	small; middle	-0.635	1.0000	5.0; 5.0
45	Q09_10	cf. Figure 6	chi-sq. = 4.1901; p = 0.12	G; F	-0.827	1.0000	6.0; 6.0	chi-sq. = 11.738; p = 0.00	small; middle	-2.845	0.0133	5.0; 7.0
46	Q09_10	cf. Figure 6	chi-sq. = 4.1901; p = 0.12	G; I	1.781	0.2247	6.0; 3.0	chi-sq. = 11.738; p = 0.00	small; large	-2.808	0.0149	5.0; 6.0
47	Q09_11	cf. Figure 6	chi-sq. = 0.2476; p = 0.88	G; F	0.398	1.0000	6.0; 6.0	chi-sq. = 24.860; p = 0.00	small; middle	-4.099	0.0001	5.0; 7.0
48	Q09_11	cf. Figure 6	chi-sq. = 0.2476; p = 0.88	G; I	-0.257	1.0000	6.0; 5.0	chi-sq. = 24.860; p = 0.00	small; large	-4.129	0.0001	5.0; 7.0
49	Q17_01	cf. Figure 7	chi-sq. = 6.3704; p = 0.04	G; I	2.487	0.0387	7.0; 5.0	chi-sq. = 7.4882; p = 0.02	small; large	-2.415	0.0472	5.0; 7.0
50	Q17_02	cf. Figure 7	chi-sq. = 9.6917; p = 0.01	G; I	3.108	0.0057	8.0; 6.0	chi-sq. = 5.7782; p = 0.06	small; large	-2.053	0.1203	8.0; 8.0
51	Q17_02	cf. Figure 7	chi-sq. = 9.6917; p = 0.01	F; I	2.634	0.0253	8.0; 6.0	chi-sq. = 5.7782; p = 0.06	middle; large	-0.329	1.0000	8.0; 8.0
52	Q17_03	cf. Figure 7	chi-sq. = 7.6357; p = 0.02	G; I	2.763	0.0172	8.0; 5.0	chi-sq. = 1.0781; p = 0.58	small; large	-0.886	1.0000	8.0; 8.0
53	Q17_03	cf. Figure 7	chi-sq. = 7.6357; p = 0.02	F; I	2.449	0.0430	8.0; 5.0	chi-sq. = 1.0781; p = 0.58	middle; large	-0.140	1.0000	8.0; 8.0
54	Q17_04	cf. Figure 7	chi-sq. = 6.8837; p = 0.03	G; I	1.811	0.2103	7.0; 5.0	chi-sq. = 10.534; p = 0.01	small; large	-2.922	0.0104	7.0; 8.0
55	Q17_OP	cf. Figure 7	chi-sq. = 9.073; p = 0.02	G; I	3.008	0.0079	22.0; 15.0	chi-sq. = 7.5342; p = 0.02	small; large	-2.393	0.0501	21.0; 24.0
56	Q17_OP	cf. Figure 7	chi-sq. = 9.073; p = 0.03	F; I	2.562	0.0312	21.0; 15.0	chi-sq. = 7.5342; p = 0.02	middle; large	-0.473	1.0000	23.0; 24.0
57	Q17_CO	cf. Figure 7	chi-sq. = 12.949; p = 0.00	G; F	3.042	0.0071	24.0; 21.0	chi-sq. = 14.052; p = 0.00	small; middle	-3.146	0.0050	21.0; 24.0
58	Q17_CO	cf. Figure 7	chi-sq. = 12.949; p = 0.00	G; I	2.215	0.0804	24.0; 18.0	chi-sq. = 14.052; p = 0.00	small; large	-3.039	0.0071	21.0; 24.0
59	Q17_OA	cf. Figure 7	chi-sq. = 10.236; p = 0.01	G; F	1.776	0.2272	46.0; 44.0	chi-sq. = 12.788; p = 0.00	small; middle	-2.967	0.0090	42.0; 47.0
60	Q17_OA	cf. Figure 7	chi-sq. = 10.236; p = 0.01	G; I	2.824	0.0142	46.0; 32.0	chi-sq. = 12.788; p = 0.00	small; large	-2.934	0.0101	42.0; 48.0
61	Q17_DIF	cf. Figure 7	chi-sq. = 8.1181; p = 0.02	F; I	2.769	0.0169	1.0; -6.0	chi-sq. = 0.3874; p = 0.82	middle; large	-0.523	1.0000	0.0; 1.0

Only display of statistically significant values for language region and/or size class or for Kruskall-Wallis and/or Dunn test
Column "Figure" indicates in which illustration the respective questions with the corresponding aspects are located
Z-value and p adj. (Bonferroni correction) related to Dunn test
Q01_OP, Q02_OP and Q17_OP are the three combined answer variables from the operational area of questions Q01, Q02 and Q17 respectively
Q01_CO, Q02_CO and Q17_CO are the three combined answer variables from the competence area of questions Q01, Q02 and Q17 respectively
Q01_OA, Q02_OA and Q17_OA are all six combined answer variables of questions Q01, Q02 and Q17 respectively
Q17_DIF is the difference between the overall response variables in Q17 and Q02
Median values: Indication of the median values of the two comparison groups considered