

Socio-Cultural Risks and Uncertainty in the German Mobility Industry: Fostering Enablers of Corporate Agility and Resilience

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ABSTRACT

This paper provides a risk assessment of socio-cultural effects that have significant threats to organizational disruptions in the context of the German mobility industry. From the new ISO standard for Resilience and Security as well as current theory on organizational innovativeness, socio-cultural risks are evaluated according to reported cases. The findings from the literature review are linked to internal and external sociocultural risks. Subsequently, a survey was conducted to collect data from over 200 respondents on the frequencies and consequences of the identified risks. Empirical assessment with help of a mixed-methods analysis via MAXQDA was then generated to compare the different perspectives of mobility providers according to company size. The analysis proceeds with the classification of socio-cultural risks to their defined risk categories and their graphical representation through probability-impact-matrix. The results show that the data scores and the ranking related to internal socio-cultural risks vary substantially and therefore require the highest level of attention, especially in large corporations. Accordingly, important areas regarding the improvement of organizational refractiveness as well as resilience factors are highlighted in greater detail. The findings are significant as they provide an analysis of data gathered from the German mobility industry. Many risk analyses have been widely applied in the automotive industry, yet no studies have been conducted to develop an in-depth portfolio of socio-cultural risks at a scale as large as this paper.

Keywords: change management; culture transformation; organizational innovativeness; MAXQDA; resilience

Introduction

In times of increasing complex business environments and dynamically changing external and internal conditions in the corporate world, companies must respond ever more quickly to customer expectations while remaining agile when it comes to technological advancement in the competitive playing field. Especially the mobility industry is well known for entering a new era, driven by a disruptive change of their existing business models and value chains. The shift towards a model that is mechanically driven to one that is technology driven has increased the risks exposure and vulnerability of the long-established companies even further (Schulze *et al.*, 2015).

Multiple Fortune-500 corporations are stuck in their old mindset while facing the problem of employees not evolving to corporate change or risky effort to avoid extra expenses. Consequently, identifying effective risk management strategies has therefore become one of the most pressing issues during the past several decades (Slovic, 1997).

In fact, taking risks is not a new phenomenon as “doing business require[d] the acceptance of some level of risk within organizations” (Olson and Wu, 2011, p. 401). Nevertheless, an element of risk and its structural complexity is often not taken seriously into consideration. Previous research highlights the ignored role of corporate culture and innovativeness in risky business environments (Bierly et al., 2014). More specifically, setting up a risk culture that explores how social and cultural factors influence the way in which people interpret and make sense of risk is influencing the business performance of a company. Drawing on that current research work, this study explores patterns of innovative behavior that allow firms to build resiliency to mitigate intra-company risks at the firm level of analysis.

Firm innovativeness is viewed as dynamic capability that includes organizational resiliencies such as flexibility, adaptation, and agility, whereas environmental uncertainty and risks are hypothesized as moderators of such a relationship (Lee and Rha, 2016). The research gap of these interfirm antecedents will be empirically analyzed by using a mixed-methods approach. Accordingly, this exploratory study seeks to answer the following research question:

RQ. What are the most important socio-cultural risks within the German mobility industry, and what are suitable risk strategies for enhancing organizational innovativeness?

The remainder of this paper is organized as follows. Section 2 reviews the relevant literature to provide the theoretical background for the study with important research hypotheses. The third section describes the methodologies employed in combination with the study setting and data collection process.

Analyses and results are presented and discussed in the fourth section. Finally, Section 5 concludes the study and discusses practical contributions, limitations, and avenues for future research.

Theoretical background and hypotheses development

2.1 Drivers and types of corporate risks

In today’s fast shifting world, disruptions in the mobility industry arise from the power of new entrants and their adaptive business models to changing customer preferences. Disruptions can be defined as trajectory events that overdrive the capabilities of established corporations, therefore posing a severe risk to the normal operations. Over time this development brings with a profound ambiguity and represents a vulnerable type of change that incumbents or technological leaders are not naturally good at mastering (Christensen, 1997). According to Himsel (2014, p. 7), “we are programmed not to change [...] we are wired to survive, so we hang on to what has worked in the past.” Consequently, the resistance to change is naturally given and most employees feel comfortable in their set routines, mindsets and a culture that suits for them.

Recent research has begun to address the issue of transformation, leadership, and culture as main drivers for typical internal and external corporate risks (Durach et al., 2017). Corporate risks may be classified using various methods and considering four contextual factors, such as company-related events, technology breakdowns, network risk, and other external uncontrollable events, i.e. environmental, political, social, or exchange rate risks (Harvard Business Press, 2008; Bak, 2018). These

developments have forced companies to change and adapt their way of doing business in order to maintain the competitiveness. In that regard, it is supposed that internal business risks have a higher likelihood of occurrence in comparison to external risks since the majority of the latter are predominantly exceptional (e.g. technological changes and product-lifecycle), and internal risks cannot be regarded as exceptional events (*Thun and Hoenig, 2011*). Consequently, it is presumed that external business risks such as political-legal factors or customer satisfaction will have a higher impact factor, accompanied by grave consequences. It should be added, that risk culture is a cross-disciplinary issue made up by a number of socio-ecological disciplines, e.g. from sociology, psychology, through to management theory (*Gorzeń-Mitka, 2015*). On average, an evolution of an organizational culture usually takes about five years. In this context, scholarly work has revealed that there are cultural variations in sensitivity to social rejection classified by dimensions as individualism and collectivism and cultural self-construals (*Sato et al., 2014; Hofstede, 1980*). Accordingly, East

Asian cultures are characterized by high levels of collectivism, with the maintenance of good social relations and usually have a stronger sense of belongingness to social relationships. In contrast, Western cultures emphasize high individualism, where the self is defined as an entity without concerns about damaging the relationships to others or situations. The level of people's sensitivity to social rejection is less affected in societies high in relational mobility, such as Western cultures (*Sato et al., 2014*). A national culture, thus, may influence the values and commitment of companies and their individuals, therefore impedes the effectiveness of a company's operational practices. Accordingly, the following hypotheses are formulated:

H1. Corporations within the mobility industry are regarded as being susceptible in terms of cultural risks.

H2. With regard to a socio-cultural perspective: External risks have a greater impact on corporations than internal risks, whereas internal risks have a higher likelihood of occurrence.

2.2 Strategy selection for corporate risk management

Firm innovativeness represents an important multidimensional concept that refers to openness and capacity building within organizations. This managerial competence can be used to prosper in dynamic business settings and is often linked to a variety of strategic dimensions, e.g. creativity, openness to change, future orientation, risk-taking and proactiveness (*Shoham et al., 2012; Ruvio et al., 2014*). It represents a valuable resource and is particularly relevant for leveraging the organizational climate. However, it is very difficult to prevent risky situations; that is why such events must be detected, analyzed, and specifically managed. In general, risk management can be defined as the identification and analysis of risks as well as their control (*Thun and Hoenig, 2011*). A risk analysis typically measures more than just financial effects and is often characterized by a wide cross-company orientation. Likewise, enhancing organizational innovativeness could be viewed as a desired outcome of specific socio-cultural risk assessment, which is positively associated with firm performance indicators (*Gölgeci and Ponomarov, 2015*).

The key element in this phase is the selection of the appropriate risk strategy in accordance with corporate and market requirements. Assessing the risk of the probability factor and impact level would be relevant for incumbents to better be able to detect risks and, thus, answer disruptive threats with a resilient and innovative corporation (*Wieland, 2013*). In order to compensate the gap, this literature review provides a sound basis with three interrelated

risk strategies managing a corporate culture through agility, visibility, and resilience. Different scholars have shown that organizational culture has multiple dimensions stimulating employees' innovative behavior (*Tushman and O'Reilly, 1997*). The result is a theory development at the intersection of risk management, innovativeness and culture. Nonetheless, empirical support for this area is still missing.

Research on agility is mainly focused on reactive concepts that help to overcome vulnerability of not anticipated events (*Durach et al., 2017*). It is defined as an ability "to adapt or respond in a speedy manner" (*Wieland, 2013, p. 653*). Implementing a corporate culture that is risk-agile ensures that employees are prepared with the necessary skills in order to keep pace with innovation and growth opportunities. Moreover, it contains an element of ambidexterity by facilitating flexible and rapid operational processes for exploitation and exploration as a main driver for innovativeness (*Lee and Rha, 2016*). Creativity, leadership and risk taking behaviors are the underlying elements of adhocracy culture. Those dynamic capabilities help to create critical knowledge for innovation through organizational learning within organizations by getting the people involved in the change to participate in making it.

The visibility of socio-cultural risks within corporations has the power to reduce complexity and uncertainty by capturing stable and rapid decision-making processes. Moreover, it becomes easier to restructure existing assets and resources along hierarchical structures through transparent communication. This adaptability represents a key element of resilient organizations that combines the proactive concept of robustness with the reactive concept of agility (*Durach et al., 2017*). It is considered as a system's ability to return to a new stable situation after an accidental event. Corporate resilience can be accelerated through flexibility, visibility, collaboration, and security; therefore facilitating better ambidexterity (*Lee and Rha, 2016*). In short, organizational innovativeness could help corporations to react to disruptive events more resilient by restoring the system that constitutes their value offerings. Thus, the following hypotheses are proposed:

H3. The development of a resilient organizational culture needs a strong internal focus on risks, regardless of company size.

H4. Ceteris paribus, socio-cultural risk assessment has a significant positive relationship with organizational innovativeness.

Methodology

3.1 Measurement procedure and research design

This cross-sectional study employed qualitative and quantitative methods within one specific industry. The choice fell on the German mobility industry as it is characterized by volatile market conditions and changing customer demands. The purpose of this paper is the mixed-methods evaluation of the discussed issues of sociocultural risks with the aim to give some insights on this topic from a practitioner's point of view. The study involved qualitative annual reports or strategic plans from different industry participants as well as a survey on the identified risks assessment, which contained multiple items. This two-way analysis will proceed deductively by existing theory from the literature review and will be first examined by the qualitative content analysis (*Bryman and Bell, 2011; Mayring, 2015*). In a second step, the applied method of quantitative data collection and analysis procedure using a standardized survey, follows the highly structured deduction approach by moving

from theory to data and contributes to the development of a socio-cultural risk maturity benchmark. Therefore, propositions derived from the theoretical part are tested and approved through the final stage of work, where the conceptual framework is cross-checked and combined with new practical results through inductive and qualitative conclusions. Information about respondents' profile of data collection, variables and data analysis methods is described in the following paragraphs.

3.2 Qualitative data collection and sample

In general, risk assessments can be conducted via qualitative, semi-quantitative and quantitative ways. In this paper, the choice fell on the probability-impact-matrix, which is one of the most commonly used qualitative methods for risk assessments (Thun and Hoenig, 2011). The analysis was conducted using MAXQDA Analytics Pro version 18.0.1. The database was gathered from different sustainable value reports and annual reports of the automotive industry (e.g. *BMW Group, 2017; VW Group, 2017 incl. Audi, 2017*), as well as middle and long-term strategic plans from other mobility service providers (e.g. *BlaBlaCar, 2017; Deutsche Bahn, 2017; Lufthansa Group, 2017; Uber, 2017*). All data usually have a descriptive nature and do not include a specific quantification of risk, resulting in a broad risk portfolio. Documents were coded in qualitative data analysis software MAXQDA, key concepts were mapped, and analysis memos were written to elucidate key themes. Subsequently, a codebook was developed through an iterative process of document review and revision of codes and coded text. As a result, the analysis proceeds with the classification and interdependencies of risk categories, illustrated in the code-co-occurrence model from Chapter 4. The frequency of the overlaps is depicted within the code-relations-browser by the size of the square nodes in a chart, which is one commonly used visual tool of MAXQDA. In a further step, it will be possible to improve the risk profile by a quantitative measurement. The items concerning socio-cultural risks are used to create factors presenting a statistical construct for the particular subject matter as described in the following paragraph.

3.3 Quantitative data collection and sample

A convenience sample of mobility providers in Germany was selected from a corporate industry list that include various types of business models (e.g. automotive manufacturers, mobility service providers). The strategy of this "fact finding" study is formulated as a survey methodology. The structured questionnaire included a total of 2 core (with 10 sub-dimension) and four control items that were mainly generated from the extensive literature review and the above-described qualitative analysis. Survey data should therefore rather be regarded as a set of values that depict relationships among the derived variables. It was created bilingual through the online tool "SoSci Survey", mainly with closed-ended questions. A meaningful interpretation of data needs high-quality instruments "that are reliable, valid, and that reflect the beliefs and attitudes of the target population" (Hinkin and Holtom, 2009, p. 451).

Due to this fact, a pre-test was administered to a convenience evaluation sample of 10 potential respondents who were excluded from the final sample, in order to assess the content validity and other unpredictable problems related to field work (e.g. timing, comprehension). After making some minor corrections, it was confirmed that all of the items were understandable, and respondents filled out the questionnaires successfully. All answers were collected more or less simultaneously over a two-month period from November to the end of December 2018, resulting in a final sample of completed

questionnaires of about 218 and non-response item was not a problem. In this case, only two cases had to be excluded from the sample. The questionnaire uses 5-point Likert scale, ranging from one denoted as strongly disagree to five denoted as strongly agree. Respondents should work for an organization within the German mobility industry independent of size or location and should occupy different positions in their companies both at management and employee level, e.g. Consultant, Coordinator, Advisor, or Specialist. These people were identified as capable and knowledgeable enough to represent their companies in order to complete the survey. All quantitative data were analyzed using MAXQDA statistical software program “Stats” version 18.1.1.

Results

The first research goal was to identify corporate risks comprising an internal as well as external perspective. Before analyzing those typical risks and the corresponding management instruments, main risk drivers and the estimations in terms of corporate vulnerability will be examined. In the following, the seven steps in the basic process of thematic qualitative text analysis according to *Kuckartz* (2018) were rigorously applied. For the creation of a risk maturity benchmark, it is important to identify a conceptual framework, build a suitable data set, and establish an initial codebook as well as an environment for analysis. Text data in English were imported to MAXQDA smoothly, integrating the concepts of Evaluative Qualitative Text Analysis. Through content analysis with inductive category development of 24 corporate reports, a list of current corporate risks was developed that highlights important internal as well as external risks. The lexical search function in MAXQDA facilitated the identification of references to themes across the sources. Consequently, a multi-phase approach of categorizing and coding was applied, resulting in 17,664 initial codes, 15 sub-themes within two main code categories (Fig. 1). Besides the content of codes, frequencies are relevant for the evaluation of the process quality.

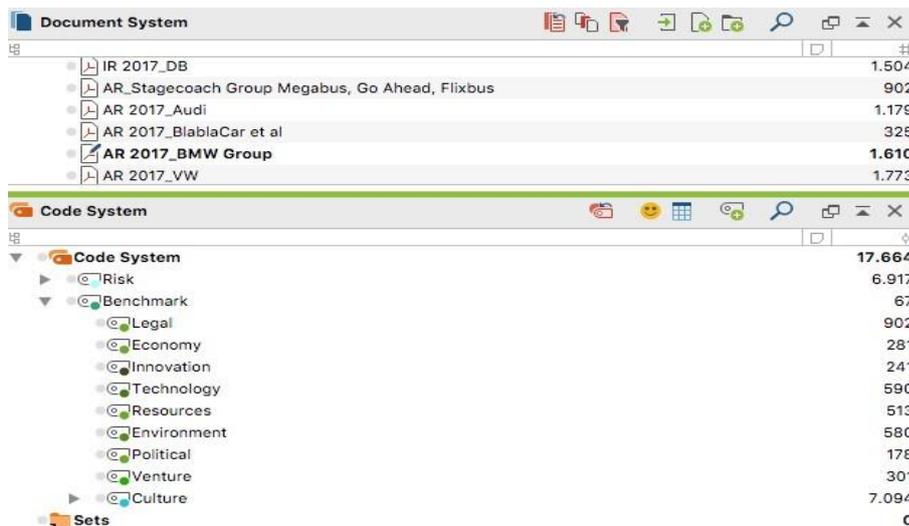


Fig. 1. Coding system based on secondary data with MAXQDA Analytics Pro 2018.

The highest-ranked risk propositions are briefly presented in more detail to exemplify their embodiment in corporations, resulting in a risk maturity benchmark for the mobility industry (Fig. 2).

The codes created on the basis of the secondary data can be systematically analyzed and linked together. In this regard, the code-relations-browser shows how often two main categories were coded in the same paragraph, which therefore greatly contributes to the efficient code integration and optimization in the research project. All main codes were transformed into variables, making cross-tabulations possible.

MAXQDA's code-relations-browser

Code System	Risk	Risk Management	Internal risk	Culture	Management	Corporate Culture	SUM
Risk	1	1	1		1		1.551
Benchmark							0
Legal							0
Economy							0
Innovation							0
Technology							0
Resources							0
Environment							0
Political							0
Venture							0
Culture		1		1		1	615
SUM	518	1.027	6	51	513	51	2.166

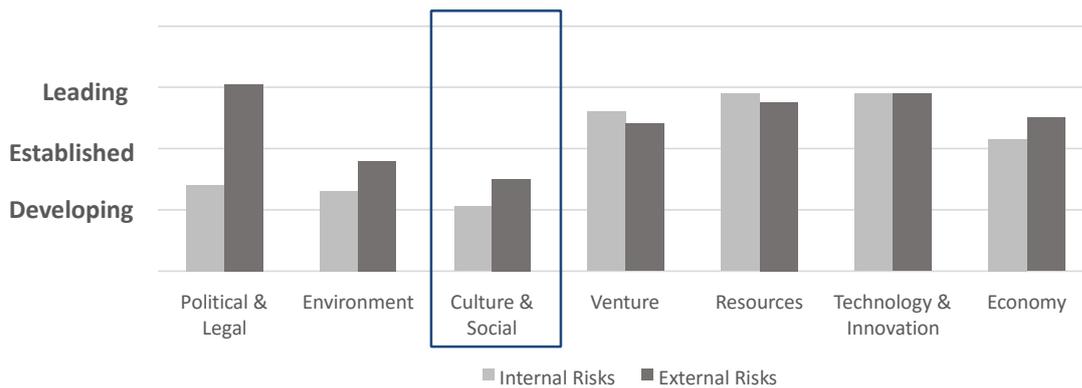


Fig. 2. Internal and external risk maturity benchmark for the mobility industry using code-relations-browser of MAXQDA Analytics Pro.

All criteria were benchmarked to their status-quo risk potential ranging from “developing” over “established” to “leading” risk maturity. Cultural and social drivers were the most developing criteria and are therefore upcoming risks in the age of disruption. The other fields were rather classified as “established” or “leading” within the mobility branch of industry and are saturated fields within the research perspective. The results indicate that hypothesis *H1* cannot be rejected. Grounded on the results obtained through MAXQDA Analysis Pro, the relationship between main categories and code frequencies can be drawn using MAXQDA’s code-co-occurrence model (Fig. 3). This feature supports the causal modelling, visualizing main hypothesis *H2* for the research process in an intriguing way.

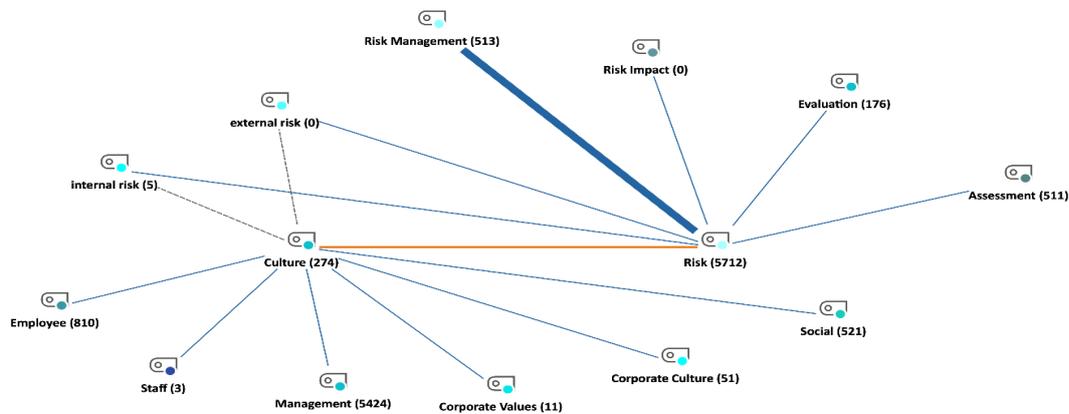


Fig. 3. MAXQDA’s code-co-occurrence model for socio-cultural risks.

In a second step, descriptive statistical survey analyses were conducted using structured questionnaires. Tab. 1 indicates characteristics of the data base focusing on the demographics of the interviewees and their company size in terms of employees.

Number of employees	Number of firms (frequency)	Number of firms (in %)
0 – 49	16	7.3
50 – 249	15	6.9
≥ 250	187	85.8
Total (valid)	218	100.0

Tab. 1. Structure of respondents by number of employees.

First of all, the respondents are asked for their general estimation concerning the vulnerability of their corporation with regard to the corporate culture. The average value of all respondents regard their corporations as being highly vulnerable is 48.79%. In order to give empirical evidence concerning the potential risk a company might be confronted with, the respondents were asked to evaluate ten internal and external socio-cultural risks in regard to their key developments on a 5-point Likert Scale. A meaningful interpretation of data needs high-quality instruments “that are reliable, valid, and that reflect the beliefs and attitudes of the target population” (Hinkin and Holtom, 2009). It is therefore essential to firstly evaluate common research quality indicators. With respect to content-related validity, it can be assumed that the face validity (i.e., the extent to which the items appear relevant, important, and interesting to the respondents) is given, as pre-testing ensured non-response errors and 78 participants responded to the e-mail request for results.

Moreover, majority of respondents (80%) completing the questionnaire within 7 minutes, which results in an appropriate phrasing and readability ease score.

Measuring Chronbach’s Alpha tests the reliability of the factors. Following most researchers, a value of 0.7 is regarded as acceptable, whereas some stated that value of 0.6 as satisfying for newly developed scales (Bryman and Bell, 2011). All created items exceed the threshold of 0.7 and thus fulfill the criteria for good internal consistency.

In particular, Chronbach’s Alpha can be increased by deleting the Corrected Item-Total Correlation with the smallest value (in this case “Talents”, red

marked). Consequently, Chronbach’s Alpha will increase to a total of 0.745, which do not indicate a substantial improvement to the initial value of 0.74 and, thus, the item will be retained. Tab. 2 presents the criteria for reliability through correlation analysis, which can completely be used for further analyses.

Nr.	Item	Mean	Std.dev. (samp.)	Mean scale w/o item	Std.dev. scale w/o item	Corrected item scale corr.	Alpha w/o item
1	Talents	3.60	1.085	30.50	5.830	0.260	0.745
2	Know-How	3.59	1.038	30.51	5.687	0.425	0.722
3	Corporate Values	3.21	1.070	30.89	5.708	0.386	0.727
4	Fluctuation	3.25	1.143	30.85	5.774	0.288	0.742
5	Strike	2.57	1.305	31.53	5.654	0.323	0.739
6	Leadership Failure	3.68	1.021	30.41	5.620	0.506	0.711
7	Supplier Failure	3.14	1.102	30.95	5.692	0.385	0.727
8	Mega Trends	3.73	1.050	30.36	5.600	0.508	0.710
9	Customer Needs	3.71	1.099	30.39	5.586	0.491	0.712
10	Mobility Behavior	3.62	1.280	30.47	5.438	0.519	0.705

Coefficients: Cronbach's alpha: 0.74, Valid cases: 218, Missing cases: 0 (0.0%), Number of items: 10 **Tab. 2.** Reliability analysis of the questionnaire considering Cronbach’s Alpha.

With help of MAXQDA Stats Spearman’s rank correlation analysis that is usually used for ordinal scale variables such as the 5-point Likert Scale, the strength and direction of association between two ranked variables is measured. Strong significant correlations with $p < 0.05$ are highlighted in dark green. Spearman’s dimensionless quantity (r_s) takes a value in the range -1 to $+1$, whereas a value near to ± 1 represents a perfect monotonic relationship. All absolute values range between r_s of 0.11 and 0.57, indicating a weak to moderate correlation. Especially external risks, such as mobility behavior, customer needs or mega trends, had a strong positive relationship fostering good temporal stability (Tab. 3).

	Talents	Know-How	Corporate Values	Fluctuation	Strike	Leadership Failure	Supplier Failure	Mega Trends	Customer Needs	Mobility Behavior
Talents		0.244 (p=0.0001) N=218	0.202 (p=0.0014) N=218	0.048 (p=0.2388) N=218	0.094 (p=0.0839) N=218	0.170 (p=0.0061) N=218	0.032 (p=0.3206) N=218	0.154 (p=0.0117) N=218	0.027 (p=0.3453) N=218	0.152 (p=0.0125) N=218
Know-How	0.244 (p=0.0001) N=218		0.212 (p=0.0008) N=218	0.308 (p=0.0000) N=218	0.188 (p=0.0027) N=218	0.350 (p=0.0000) N=218	0.157 (p=0.0101) N=218	0.207 (p=0.0010) N=218	0.113 (p=0.0486) N=218	0.144 (p=0.0165) N=218
Corporate Values	0.202 (p=0.0014) N=218	0.212 (p=0.0008) N=218		0.171 (p=0.0058) N=218	0.041 (p=0.2753) N=218	0.275 (p=0.0000) N=218	0.061 (p=0.1844) N=218	0.304 (p=0.0000) N=218	0.343 (p=0.0000) N=218	0.222 (p=0.0005) N=218

Fluctuation	0.048 (p=0.2388) N=218	0.308 (p=0.0000) N=218	0.171 (p=0.0058) N=218		0.276 (p=0.0000) N=218	0.302 (p=0.0000) N=218	0.159 (p=0.0093) N=218	0.015 (p=0.4104) N=218	0.055 (p=0.2080) N=218	0.032 (p=0.3189) N=218
Strike	0.094 (p=0.0839) N=218	0.188 (p=0.0027) N=218	0.041 (p=0.2753) N=218	0.276 (p=0.0000) N=218		0.249 (p=0.0001) N=218	0.313 (p=0.0000) N=218	0.155 (p=0.0110) N=218	0.085 (p=0.1055) N=218	0.239 (p=0.0002) N=218
Leadership Failure	0.170 (p=0.0061) N=218	0.350 (p=0.0000) N=218	0.275 (p=0.0000) N=218	0.302 (p=0.0000) N=218	0.249 (p=0.0001) N=218		0.296 (p=0.0000) N=218	0.216 (p=0.0007) N=218	0.252 (p=0.0001) N=218	0.267 (p=0.0000) N=218
Supplier Failure	0.032 (p=0.3206) N=218	0.157 (p=0.0101) N=218	0.061 (p=0.1844) N=218	0.159 (p=0.0093) N=218	0.313 (p=0.0000) N=218	0.296 (p=0.0000) N=218		0.223 (p=0.0005) N=218	0.313 (p=0.0000) N=218	0.292 (p=0.0000) N=218
Mega Trends	0.154 (p=0.0117) N=218	0.207 (p=0.0010) N=218	0.304 (p=0.0000) N=218	0.015 (p=0.4104) N=218	0.155 (p=0.0110) N=218	0.216 (p=0.0007) N=218	0.223 (p=0.0005) N=218		0.509 (p=0.0000) N=218	0.510 (p=0.0000) N=218
Customer Needs	0.027 (p=0.3453) N=218	0.113 (p=0.0486) N=218	0.343 (p=0.0000) N=218	0.055 (p=0.2080) N=218	0.085 (p=0.1055) N=218	0.252 (p=0.0001) N=218	0.313 (p=0.0000) N=218	0.509 (p=0.0000) N=218		0.575 (p=0.0000) N=218
Mobility Behavior	0.152 (p=0.0125) N=218	0.144 (p=0.0165) N=218	0.222 (p=0.0005) N=218	0.032 (p=0.3189) N=218	0.239 (p=0.0002) N=218	0.267 (p=0.0000) N=218	0.292 (p=0.0000) N=218	0.510 (p=0.0000) N=218	0.575 (p=0.0000) N=218	

P-value: 1-tailed

Tab. 3. Correlation analysis of the items using Spearman’s Rho coefficients.

The first analysis above indicates that there are slight but weighted differences in terms of socio-cultural risks. The fast development of mega trends and involving change of customer needs must be regarded as most critical external risks since they have both, a high probability and a high impact. Union strikes and supplier failure within supply chains system are seen as severe problems but are less likely to occur. The impact of internal risks, in turn, have high values on a very high significance level ($p < 0.05$), revealing a developing propensity in both impact-and-occurrence directions.

Consequently, hypothesis $H2$ is rejected since the impact-occurrence-proportion between internal and external socio-cultural risks is nearly balanced (the mean values and the results of the correlation analysis are shown in Tab. 2 and Tab. 3). The highest probability values are observed with regard to mega trends, customer needs, mobility behavior as well as leadership failure, resulting in a high level of occurrence. Especially external risks are highly correlated, taking the example of mobility behavior and customer needs (Fig. 4).



Fig. 4. Spearman’s Rho correlation analysis of socio-cultural external risks.

This proposition can also be supported by conducting a group analysis with regard to company size (number of employees) through factor analysis (ANOVA). Tab. 4 summarizes the results for the example of leadership failure. In this case, the LeveneTest reveals a non-significant difference ($p > 0.05$) between the groups, stating a generalization of corporate sensitiveness concerning socio-cultural risks. Especially the assessment of internal risks is of high attendance in all corporations, regardless of company size. Accordingly, hypothesis $H3$ cannot be rejected.

Leadership Failure ~ Employees (Factor: Employees)

	Sum of squares	df	Mean square	F	p value	Eta squared
Between groups	12.323	2	6.161	6.166	0.0025	0.054
Within groups	214.838	215	0.999			
Total	227.161	217				
Homogeneity of variance						
Levene	0.742					
p value	0.4775					

Valid cases: 218; Missing cases: 0 (0.0%)

	N	Mean	Std.dev. (pop.)	Std. error	Mean lower b. (95%)	Mean upper b. (95%)	Min.	Max.
0 - 49	16	2.94	1.124	0.281	2.34	3.54	1.0	5.0
50 - 249	15	3.33	1.175	0.303	2.68	3.98	1.0	5.0
≥ 250	187	3.78	0.974	0.071	3.63	3.92	1.0	5.0
Total	218	3.68	1.023	0.069	3.55	3.82	1.0	5.0

Tab. 4. One-way analysis of variance (ANOVA) considering group differences.

Finally, the main goal was to identify the coherence between organizational innovativeness and socio-cultural risk assessment. Risk of failure is an intrinsic aspect of innovation, which helps to guide to decision-making. Consequently, culture is viewed as a matter of improving the innovation capacity of a corporation. Three factors, typically linked to innovativeness, were identified in relationship to socio-cultural risks, such as leadership failure, talent management, and know-how transfer. All corporations, regardless of company size, evaluate these factors as highly developing (Fig. 5), which represents an indicator for the extensive focus on interpersonal and intergroup mobility level in connection to sensitivity to social rejection. There are no statistical differences with regard to the level of significance ($p < 0.05$). These factors are more sustainable and less affected by external environment changes in comparison with the traditional (external) factors. Hence, hypothesis $H4$ cannot be rejected.

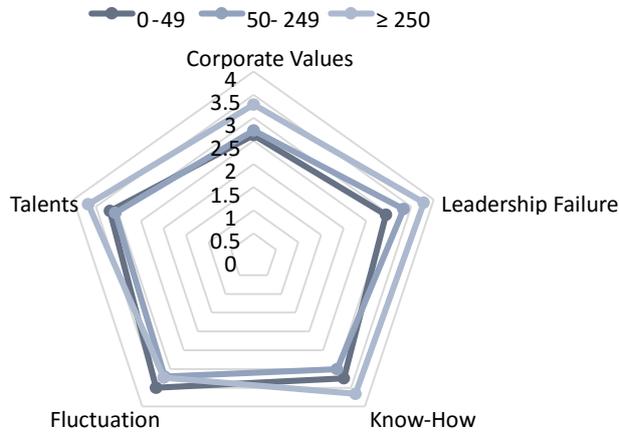


Fig. 5. Internal socio-cultural risks in group differences (number of employees).

Discussion and Conclusions

To the authors’ knowledge, the present study is the first to demonstrate the importance of socio-cultural risk assessment, reporting its connection to organizational innovativeness within the German mobility industry. The questionnaire development process involved an intensive literature search, reviewing the findings from existing research work and highlighting certain gaps in the current state of scholar. Consequently, the most critical socio-cultural risks were identified giving future development trends. The source of firm innovativeness in the present study context is viewed from two important perspectives, namely the corporate culture and its risk-taking capability.

Special efforts must be made to exploit these two resources effectively.

All findings are mainly consistent with the theory. The consistency of the findings, derived using different methodological approaches, suggests some clear messages in terms of the practical implications for risk assessment and management, as well as indicating a direction for further research. It could be argued, however, that sociocultural factors are long-term indicators, which play an important role in volatile business environments. Considering innovative activities even more vigorously and guiding firms’ innovativeness into risk assessments, can help to overcome inertia and reduces uncertainty in adverse and turbulent times. In the future, it becomes more crucial from a managerial perspective to comprehend and actively manage sociocultural factors, respectively bottom-up and top-down. These strategies are likely to affect business continuity, resilience, and even survival of the firms in the long run.

The final results are depicted in summary within the probability-impact-matrix. The combination of probability and impact of internal and external business risks forms a risk graph as shown in Fig. 6, where the top right corner is the high-risk area and the bottom-left indicates the low risk one. The matrix visualizes the risk status from low, field 1-1 to high risk in field 5-5. Also, the need for action from “no immediate action” to “immediate action” required is deposited. Within the matrix, the rhombs illustrate an internal or external risk compound.

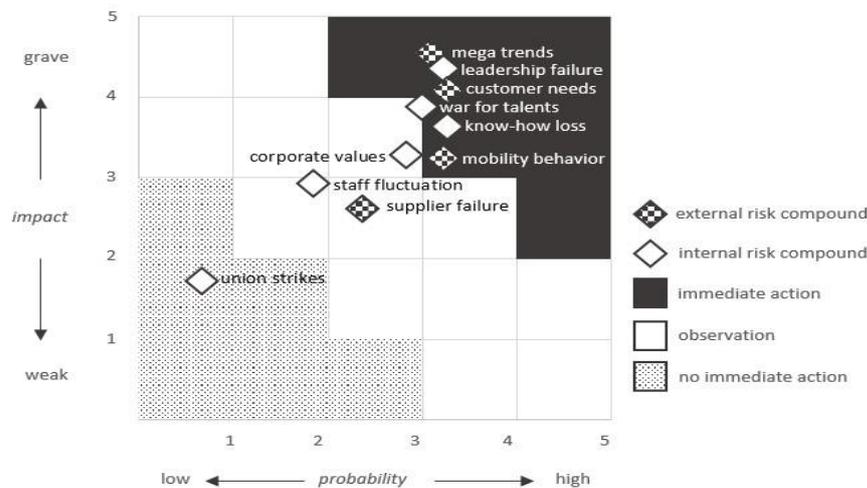


Fig. 6. Social & cultural risks within the probability-impact-matrix.

This study’s approach extends and improves on previous research in two ways. Firstly, it has provided a novel insight into the relationship between internal and external sociocultural risk with regard to probability and impact factors. Nonetheless, this is the first empirical investigation and therefore has inevitable limitations that should be considered when interpreting the results. Foremost, researchers and managers dealing with organizational culture and risk assessment need to be aware of the multiplicity of aspects. It is possible to include more socio-cultural risk factors in future analyses.

Moreover, this study focuses on the German mobility industry exclusively.

Beyond these limitations, this study offers several future research possibilities that could be undertaken. First, further research could transfer the ideas to other sectors, such as the IT branch, to identify more social and cultural differences and to test the generalization of the results. Additionally, the development of a new model of relationship for improving organizational innovativeness could give practical insights for corporations as well as a measurement procedure. These implications could result in better understanding of the effective responses to possible adversities and enablers of organizational innovativeness.

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