The Power of Corporate Spirit –

Corporate Culture as a Driver of Collaboration

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Abstract

Collaboration is one way for organizations to stay competitive. It is therefore crucial to understand the factors that support the decision to engage in collaboration. Besides hard (economic) factors, behavioural aspects are important in any (potential) interaction. At organizational level corporate culture is an important behavioural characteristic. Yet, its impact on the collaboration propensity of an organization lacks empirical evidence. Based on a survey among German organizations, conducted for this purpose, corporate culture is found to have a significant impact on the likelihood to collaborate. Especially, having a professional and flexible attitude, and knowing how to deal with unfamiliar situations, enhances the likelihood to engage in collaboration.

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1 Introduction

Collaboration is one way for organizations to stay competitive (Rycroft 2007). Over the last decades, this has led to a growing share of collaborating organizations (Crescenzi et al. 2017). Literature names besides market, industry and technology factors, especially organizational characteristics as important aspects for the collaboration decision (Tether 2002; de Faria et al. 2010). One fundamental organizational characteristic is 'corporate culture' (Barney 1986). It determines amongst others the employees' behaviour and their attitude towards collaboration (Hofstede et al. 2010; Beugelsdijk et al. 2006). Empirical evidence on how this impacts the collaboration likelihood of the organization is however still missing.

Studies investigating the connection between collaboration and corporate culture, focus on its impact on collaboration performance (Mamillo 2015), relationship skills (Beugelsdijk et al. 2006) or satisfaction with international joint ventures (Pothukuchi et al. 2002). They find significant effects that differ according to the dimensions of corporate culture being analysed (Beugelsdijk et al. 2006). There are however no investigations of how corporate culture impacts the first step of whether to engage in collaboration or not.

The present paper takes a first step in closing this research gap. It draws on own data, based on a survey of 302 German organizations. Thereby, it differentiates between six different corporate culture dimensions (Hofstede et al. 2010). The results provide evidence that an organization with a professional and flexible attitude, where employees feel comfortable even in unfamiliar situations, enhances the likelihood to engage into collaboration. In comparison, being rather closed and serious in daily work has a negative impact on the collaboration propensity. With these results the present paper underlines the importance of corporate culture for collaboration even before engaging in it.

The remainder of the paper is organized as follows. Section two presents the theoretical framework, introducing the concept of culture as an important, often underrated organizational characteristic. Hypotheses are derived for the impact of corporate culture on the likelihood to engage in collaboration. Subsequently, the empirical and statistical methods are described in section three. In section four the results are presented and discussed, while section five concludes.

2 Theoretical Framework and Hypotheses

2.1 Inter-organizational Collaboration Decision

There are a variety of factors impacting the likelihood to collaborate. To start with, there is the overall collaboration goal (having a strategic or scientific focus) (Hagedoorn 1993). The goal

is closely connected to the resources the organization can provide itself and those it has to seek outside. Based on these aspects, the collaboration partner is chosen. Normally, organizations collaborate horizontally (for example with competitors) if similar resources are needed. For complementary resources vertical partners, hence, for example along the value creating chain, are selected (Miotti, Sachwald 2003).

Various aspects influence this collaboration decision, including market, industrial, technologic, and organizational characteristics. The latter can be roughly subdivided into background and behavioural characteristics (Tether 2002). Background characteristics are amongst others organization size (Fritsch, Lukas 2001) and age (Combs, Ketchen 1999) and the affiliation to a company group (Kleinknecht, Reijnen 1992). Moreover, the composition of the organizations' employees (gender (Abramo et al. 2013), age (Bogers et al. 2018) and nationality (Schneider et al. 2019) distribution) and the job mobility (Cantner, Graf 2006) are important factors. Besides, there are rather intangible aspects, such as daily working routines (including for example the frequency of teamwork) as well as general organization-typical attitudes, values and practices (Hofstede et al. 2010). These can be summed up under the term of corporate culture, which is unique for every organization (Beugelsdijk et al. 2006).

2.2 Corporate Culture and its Operationalization

Literature offers a variety of definitions for the concept of corporate culture[1], stemming from the combination of different organizational (like International Business or Management) and cultural (like anthropology or ethnoscience) theories (Barney 1986; Smircich 1983). Pettigrew (1979) sees corporate culture as an orientation framework of shared beliefs, that are lived and reinforced through language and rituals. In comparison, Schein (1984) describes corporate culture to be constituted by different levels (invisible basic assumptions, tangible values, intersubjectively perceptible behaviour). Similarly, Denison et al. (2004) developed a model of four dimensions connected to effectiveness: mission, consistency, adaptability and involvement. Finally, Quinn, Rohrbaugh (1983) derived theoretically the Competing Values Framework, which consists of three value dimensions, namely means-ends, control-flexibility and internal-external.

Between 1985 and 1987 the Institute for Research on Intercultural Cooperation (IRIC) conducted a cross-organizational study, leading to the definition of six dimensions of practices, which differ significantly between organizations (in the same nation): *process versus results oriented, employee versus job oriented, parochial versus professional, open versus closed*

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[1] For an overview of possible measures see for instance Sackmann (2010) or Ashkanasy et al. (2010).

system, loose versus tight control and *normative versus pragmatic*. These results proposed a shift in the paradigm: While before it was argued that corporate culture is based on values, this new point of view postulated that corporate culture is based on perceived practices (Hofstede et al. 1990; Hofstede et al. 2010). These practices are more superficial and hence recognizable for everybody, while values are embedded in one's subconscious and hence difficult to observe. This makes corporate culture clearly distinguishable from other culture level: For example, corporate culture on the one hand, is mainly based on practices, which employees have to learn when entering an organization. On the other hand, regional culture is for the most part composed of values, adopted since childhood (Hofstede et al. 2010; Chatman, Jehn 1994; Hofstede 1989). This clear distinction is especially helpful in empirical investigations.

There are as well critical voices when referring to corporate culture, as different units and tasks lead to the emergence of various subcultures. Consequently, there might not be the complete homogeneity that is assumed for corporate culture (e.g. Smircich 1983; Hatch 1993). Still, as there are certain generalizable aspects about national culture, there are as well certain aspects about corporate culture that occur throughout all subcultures of an organization (Hofstede et al. 2010; Howard 1998; Denison, Mishra 1995). In the following, the dimensions of corporate culture, as defined by Hofstede et al. (2010), will be described (Hofstede 1989; Hofstede et al. 1990; Hofstede et al. 2010; Hofstede 1998):

a) The first dimension of corporate culture is *process versus results orientation*. In an organization tending to *process orientation*, the employees are risk-avoiding, stick to the rules in any situation, only put minimum effort into their work and have very monotonous days. In comparison, in a *results oriented* environment, every day brings new challenges, employees work with maximal effort while feeling comfortable in unfamiliar situations.

b) *Employee versus job orientation* is the second dimension. Focusing on the employee signifies that organizations care about the personal wellbeing of their employees. In such an environment, important decisions are mostly taken by committees or groups. In contrast, organizations with an emphasize on *job orientation* are only interested in employees' work, irrespective of their personal situation. In these settings decisions are normally made top-down.

c) The third dimension is called *parochial versus professional*. In a *parochial* environment, the employees identify with their organization and rely on the organization's foresighted behaviour. Furthermore, the job applicant's personal background is considered in the hiring process. In contrast, a *professional* focus emphasizes the employee's job-relevant competences. Employees in such an environment normally look far ahead for themselves and only identify with their work (not with the organization), separating their personal live strictly from their work life.

d) The fourth dimension, called *open versus closed system*, refers to the openness of the system. Employees (and the organization as a whole) in an *open system* are normally open to colleagues, partners from outside the organization and newcomers. In comparison, employees in a rather *closed* setting are reserved and have a low tendency to share knowledge with anyone inside or outside the organization.

e) The fifth dimension, *loose versus tight control*, is on the one hand characterized by a rather *loose* structure where employees have *loose* time schedules, are not very cost-conscious and take the job not too seriously. On the other hand, a *tight* system comprises a formal environment, where employees are time- and money-conscious and where work is taken very seriously.

f) Finally, the dimension *normative versus pragmatic* offers as well two extremes. One extreme represents a very *normative* organization with a focus on correctly following the rules and high standards in business ethics. The other extreme suggests a very *pragmatic* organization, which is mostly market driven and which is able to react and meet the customers' needs, as results are more important than correct procedures.

Since the concept of corporate culture has been adopted in organizational studies, scholars have been investigating its impact on different economic factors. Among the ones mostly studied are innovation (e.g. Feldman 1988; Brettel et al. 2015) and its success (Naranjo-Valencia et al. 2017) or on the overall economic performance (e.g. Calori, Sarnin 1991; Sørensen 2002). The numerous analysis hint that corporate culture is an important factor in economic development of organizations. It has moreover been identified as a source of competitive advantage (e.g. Barney 1986; Chan et al. 2004). As mentioned before, the decision to collaborate is conditioned amongst other things by intangible organization characteristics. These comprise as well the aspects of corporate culture. Yet, literature does not provide evidence on how corporate culture impacts the collaboration decision.

2.3 Collaboration Decision and Corporate Culture

Studies investigating the connection between collaboration and corporate culture, focus on the collaboration process itself, its outcome or the performance of international joint ventures (e.g. Mamillo 2015; Beugelsdijk et al. 2006; Pothukuchi et al. 2002). Thereby they skip the first step of a collaborative activity: the decision of whether to engage in a collaboration at all. Moreover, some of these studies employ a range of dimensions to proxy corporate culture, some even drawn from different concepts (e.g. Beugelsdijk et al. 2006; Berson et al. 2008; Tellis et al. 2009; Christensen, Gordon 1999). However, combining single cultural dimensions from different concepts gives the impression to construct a rather subjective version of corporate culture as each concept per se claims to cover all corporate culture aspects. Others again use composite indicators, which hence lack evidence not only for single concepts but as well for

the effect of single dimensions (Beugelsdijk et al. 2009; Ozorhon et al. 2008). The present study aims to avoid these shortcomings. It investigates the impact of corporate culture on the collaboration decision by using just one cultural concept (Hofstede et al. 2010) and considering the dimensions of corporate culture separately. Due to a lack of previous studies investigating this impact, the above-mentioned studies (connecting corporate culture to other collaboration aspects) have to be considered for the derivation of the hypotheses. For each of the six dimensions of the corporate culture concept of Hofstede et al. (2010) one hypothesis will be formulated.

Beugelsdijk et al. (2006) investigate in their study the impact of corporate culture on relationship skills. These are defined as the organizations ability to cultivate relationships and manage communication with partners. Corporate culture is proxied with several dimensions from different concepts, among which the three dimensions of the Hofstede concept: *process versus results orientation*, *employee versus job orientation* and *open versus closed system*. In their estimations they find a negative impact of *results orientation* on the existence of relationship skills. They argue that only pointing at results, organizations might lack the ability and motivation to cultivate long-term relationships. For the decision of whether to engage in collaboration, however, other – core – characteristics of the this dimension are important: Following Hofstede et al. (2010), the side of *results orientation* is especially characterized by employees feeling comfortable in unfamiliar situations, putting in every task the maximal effort and confront constantly new challenges. When engaging in collaboration, different risks, like the unpredictable behaviour of the partner, can occur. Consequently, organizations have to be open to and able to deal with unknown situations and always strive to get the maximum out of every situation (Miotti, Sachwald 2003; Ponds et al. 2007; Combs, Ketchen 1999).

    H1 Organizations being rather *results* than *process oriented* are more likely to collaborate.

For the dimension of *employee versus job orientation* Beugelsdijk et al. (2006) find no significant impact on relationship skills. However, Hofstede et al. (2010) describe the side of *employee orientation* as a "concern for people" (Hofstede et al. 2010, p. 356). This notion can be connected to the reciprocity concept of Bammer (2008), concerning the fairness of partner treatment, being a prerequisite for a functioning relationship. Moreover, putting the human being before the task might point as well to the fact that interpersonal trust is seen as an important feature in the organization. This attitude can be helpful for engaging in collaboration, as trust rises the commitment and the willingness to exchange knowledge (e.g. Dodgson 1993; McEvily, Zaheer 2006; Plewa 2009).

    H2 Organizations being rather *employee* than *job oriented* are more likely to collaborate.

The next dimension postulates a *parochial versus professional* tendency. The *professional* side includes that employees think and act long-sightedly and plan far ahead (Hofstede et al.

2010). Collaborations are long-term investments, which can also signify that benefits might take some time (Combs, Ketchen 1999). Accordingly, the *professional* side can be seen as favourable for collaborative engagement, as it incorporates the long-term perspective. Moreover, skilled employees are at the core of collaboration motivation, hence having well trained and specialized employees (those hired due to their qualifications and not due to sympathy) is helpful to engage in collaborations (Tether 2002; Hofstede et al. 2010).

H3 Organizations being rather *professional* than *parochial oriented* are more likely to collaborate.

Beugelsdijk et al. (2006) find no significant relationship of orientation towards an *open system* with relationship skills. However, as Hofstede (1989) states, this dimension can be seen as a mirror of the style of (internal and external) communication. At the same time in the literature it is widely acknowledged that an effective communication is crucial for effective inter-organizational learning, knowledge exchange and collaboration (Cummings 1984; Knoben, Oerlemans 2006; Miotti, Sachwald 2003; Boschma 2005; Mora-Valentin et al. 2004). Moreover, openness towards external partners and the environment in general is itself said to foster the likelihood to engage in collaboration (Anzola-Román et al. 2019; Mamillo 2015).

H4 Organizations having a rather *open* than *closed system* are more likely to collaborate.

Environments that have to cope frequently with unpredictable situations, which can be transferred to the unknown course and outcome of a collaboration (Barkema et al. 1997), have shown to be rather *loosely* structured (Hofstede et al. 1990). Moreover, the degree of internal structuring can be seen as being negatively correlated to the degree of flexibility and adaptability. These features are however important to be able to react to environmental changes that might require for example an adjustment in strategy to lead the collaboration to success (Okamuro 2007; Denison 1984; Santoro, Gopalakrishnan 2000).

H5 Organizations being rather *loosely* than *tightly controlled* are more likely to collaborate.

Hofstede et al. (2010) compare the dimension of *normative versus pragmatic* with the degree of customer orientation. They define the pragmatic side to be market driven, while the compelling urge to follow set rules (which might not be possible in a collaboration) is assigned to the normative tendency. Smirnova et al. (2011) investigate different aspects of market orientation, finding a positive impact on the development of relationship skills. This could hint that a pragmatic working organization is more likely to engage in collaboration. Moreover, being less rule-bound is normally associated with a greater flexibility, which is as well beneficial for collaborative activities (Hofstede 1989; Okamuro 2007).

H6 Organizations being rather *pragmatic* than *normative* organized are more likely to collaborate.

3 Data and Methodology

Empirical data on the above-described dimensions of corporate culture is rare and often incomplete (for example offers information on single dimensions only) (e.g. Beugelsdijk et al. 2006; Pothukuchi et al. 2002; Ozorhon et al. 2008). Moreover, there is no database offering or collecting appropriate data for these dimensions on for example regional or national level. Accordingly, to be able to discuss the derived hypotheses, a survey has been conducted, presented in the following.

3.1 Survey Design and Descriptives

While an abundance of general data on German organizations exists, empirical data on corporate culture aspects and especially on the six dimensions of corporate culture described before has not been collected yet. Hence, an online-survey was conducted to gather primary data of corporate culture of German organizations. With the help of online available membership lists of all 453 German industrial clusters[2], all 409 economic development agencies, 20 trade associations and all 97 chambers of industry and commerce, 44,598 organizations were contacted directly via email and requested to participate in the survey. Additionally, all German industrial clusters, all trade associations, all chambers of industry and commerce and a number of the economic development agencies were called and asked for support to distribute the link to the survey via their newsletters and mailing lists. This way, from May till September 2020, in total 686 questionnaires were completed, out of which 213 had to be omitted from the dataset due to missing information. Another 171 were excluded, based on the following theoretical arguments: Questionnaires having been completed by organizations that were younger than two years, as corporate culture needs some time to settle its basic patterns (Schein 1983); questionnaires from organizations with less than five or more than 7.000 full-time employees, as size influences corporate culture (Zeng, Luo 2013; Connell 2001); questionnaires filled by organizations counting 50 % or more foreign employees, as a disproportional strong impact of the national culture was expected (national culture impacts the values of the individual, which besides organizational practices impact the way an individual shares knowledge) (e.g. Hofstede et al. 2010; Pauleen et al. 2007). This left 302 observations for computation.

The basic questionnaire consisted of 30 questions (plus additional questions visible for respondents with particular answers). Thematically the questionnaire was subdivided into six parts. The first part collected basic data on the organization and the second comprised

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[2] As listed on the Clusterplattform (www.clusterplattform.de), provided by the Federal Ministry for Economic Affairs and Energy and the Federal Ministry of Education and Research (Bundesministerium für Wirtschaft und Energie 2021).

questions about the demographics and constellation of the employees. While the third one gathered information about internal working habits, the fourth section was about collaboration, the fifth about corporate culture and the last one provided the opportunity for feedback.

The questionnaires were mainly answered by organization members in leading positions (59 % general managers, 21 % department managers, 9 % project leaders and 11 % general employees), who on average have been part of the organization for 14.3 years. Both pieces of information can be taken as a quality index for the answers, as leading and long-time organization members are expected to know their organization's practices.

Table 1 Different Industries of the Organizations in the Survey (N=302, own representation).

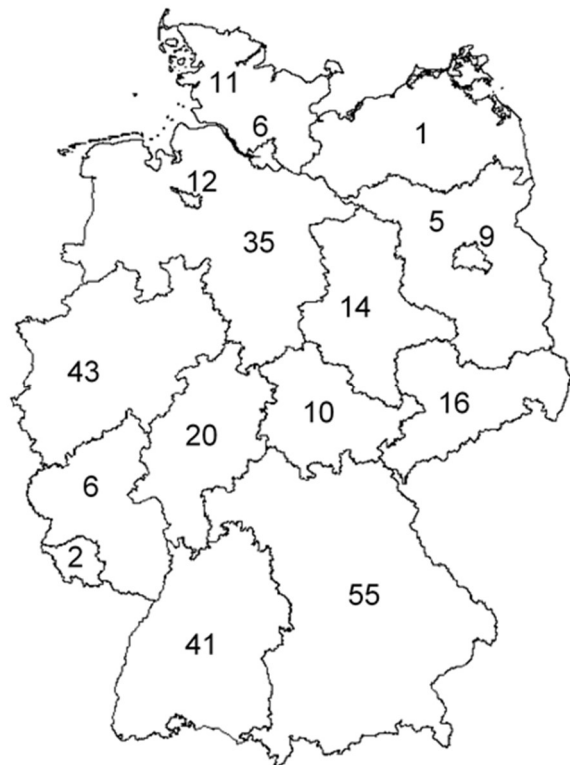| Industry	Number
Agriculture	5
Construction	8
Education	6
Energy	3
Entertainment	2
Finance&Insurance	9
Health	4
IT	49
Manufacturing	74
Public Administration	17
R&D; Consulting	65
Real Estate	2
Tourism	3
Trade	29
Traffic	10
Waste Disposal	11
Other	5

Figure 1 Distribution of the Organizations in the Survey per Land in Germany (N=302, own representation).

Most questionnaires were completed by firms (in total 243), 30 by political institutions or network managements and 26 by scientific organizations (leaving 3 for the category 'others').[3] Looking at the responses clustered by industries according to the German classification of industries (WZ 2008) (Statistisches Bundesamt 2007) (see Table 1) the category "Manufacturing" is the strongest one with 74 completed questionnaires. The second largest is the category "R&D; Consulting" with 65 questionnaires, which however is a very broad category. Other strong categories are "IT" (49 questionnaires) and "Trade" (29 questionnaires). While all German Länder are represented in the dataset (see Figure 1), it is obvious that the regions in the north-east have the smallest number of filled questionnaires. On one hand, all

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[3] The present paper always uses the general term 'organization' when referring to all categories.

German Länder have been equally treated and invited to participate in the questionnaire. On the other hand, it is as well true that Länder with for example more networks have received more invitations (like in the case of Bavaria) (Bundesministerium für Wirtschaft und Energie 2021).

3.2 Variables and Descriptives

The dependent variable of collaboration likelihood is a dummy variable. It is based on the question, whether the organization collaborates in general with other organizations for R&D, production or development of services, for strategic reason or other purposes. In the present dataset, 225 out of 302 organizations collaborate in general, while 77 do not.

To construct the six explanatory variables for the six corporate culture dimensions, a confirmative factor analysis (CFA) was conducted, expecting six factors. Following literature, for each dimension of corporate culture three items have been included in the questionnaire (Hofstede et al. 1990). Table 2 reports the results of the CFA. The 18 items were expected to load onto the six factors the following way:

   a) Items one to three on the dimension *process versus results oriented*;
   b) Items four to six on *employee versus job oriented*;
   c) Items seven to nine on *parochial versus professional;*
   d) Items ten to twelve on *open versus closed system*;
   e) Items thirteen to fifteen on *loose versus tight control*;
   f) Items sixteen to eighteen on *normative versus pragmatic*.

Yet, in the CFA only four factors loaded as expected, while two items for *employee versus job oriented* loaded together with two items for *parochial versus professional* (see results of CFA, Table 2, Factor 2). Taking a closer look at the meaning of these four items, their thematic overlap becomes obvious: All of them concern the separation of private and professional life (items five and six taking the organization's perspective and items seven and eight taking the employee's perspective). This justifies them loading together. Therefore, for the present analysis, these four items were taken as a new, combined factor, called Professional Orientation II (as opposed to private orientation). Factor 6 (see Table 2) was not included in the analysis, as the items loading together theoretically belong to three different dimensions.

Table 2 Rotated Factor Loadings (pattern matrix) and Unique Variances (blanks represent abs(loading) <.4).

Original dimensions (Hofstede et al. 2001)		Items (Hofstede et al. 1990)	Factor 1 Result Orientation	Factor 2 Professional Orientation II	Factor 3 Closed Orientation	Factor 4 Tight Orientation	Factor 5 Pragmatic Orientation	Factor 6	Uniqueness
process versus result oriented	1	Comfortable in unfamiliar situations	0.8429						0.2733
	2	Each day brings new challenges	0.8072						0.3256
	3	People put in maximal effort	0.6720						0.4307
employee versus job oriented	4	Important decisions made by individuals						-0.4474	0.6144
	5	Organization only interested in work people do		0.7317					0.4156
	6	Little concern for personal problems of employees		0.4021	0.4703				0.4477
parochial versus professional	7	People's private life is their own business		0.6327					0.4537
	8	Job competence is only criterion in hiring people		0.7056					0.3665
	9	Think three years ahead or more						0.7099	0.4652
open versus closed system	10	Only very special people fit in organization			0.6105			0.4288	0.3653
	11	Organization and people closed and secretive			0.6396				0.5020
	12	New employees need more than a year to feel at home			0.6640				0.4619
loose versus tight control	13	Everybody cost-conscious				0.4007			0.4855
	14	Meeting times kept punctually				0.8343			0.2891
	15	Always speak seriously of organization and job				0.5272			0.4322
normative versus pragmatic	16	Pragmatic, not dogmatic in matters of ethics					0.5079		0.4187
	17	Major emphasis on meeting customer needs					0.7299		0.3452
	18	Results more important than procedures					0.8130		0.3086

Based on the presented CFA, for each organization a unique value for each of the five dimensions was predicted (four original dimensions and one new combined dimension). Each dimension has a range from zero to 100, where zero is the side of *process, private II, open, loose* and *normative orientation*, while 100 is the side of re*sult, professional II, closed, tight* and *pragmatic orientation*. As can be seen in Figure 2, for the present dataset, the full value range of every dimension is represented. On average German organizations tend to be rather *result* than *process oriented*, rather *private* than *professional oriented II*, characterized by a

rather *open* than *closed system*, rather *tightly* than *loosely structured* and have a rather *pragmatic* than *normative approach*.[4] In the dataset, the dimension of Result Orientation shows the greatest variance, though mainly being above 50, while Pragmatic Orientation has the lowest variance.
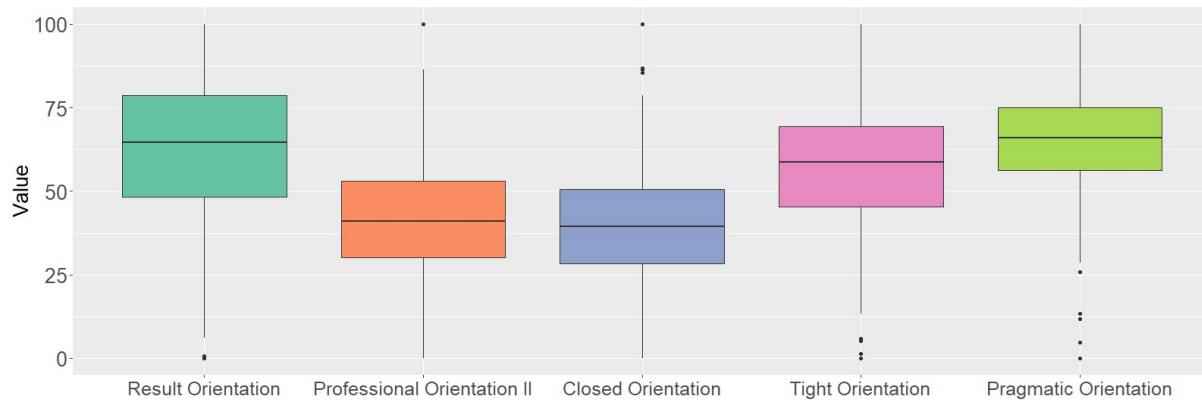

Figure 2 Boxplots for the five corporate culture dimensions (own representation) (N=302).

To account for other aspects impacting the likelihood to collaborate, several control variables have been enclosed. First, controls were included for the sector (Political Institution/Network, Science, Economy, Other) and the industries (based on the German classification of industries (WZ 2008) (Statistisches Bundesamt 2007)) (see Table 1). The sector variable proxies for different institutional settings, which again might lead to different ambitions and approaches in collaborations (Brunetta et al. 2020). Additionally, the variable for different industries takes the varying likelihood of industries to engage in collaborations into consideration (Hagedoorn 2002; Weber, Heidenreich 2018).

The number of employees was included to control for the size-effect, among others proxying that on average larger organizations tend to collaborate more (e.g. Fritsch, Lukas 2001; Becker, Dietz 2004). As can be seen in Figure 3, organizations in the dataset have for the largest part up to 30 employees with a mean of 153 employees (extreme values excluded as described above). The next
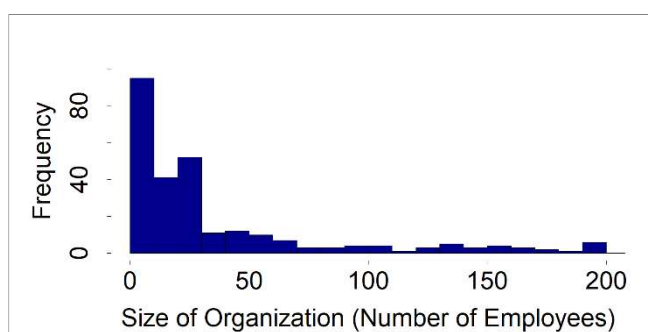

Figure 3 Distribution of Size of the Organizations in the Survey (N=302, own representation).

control is the age of an organization. While acknowledged in general as a proxy for internal resources, the direction of its effect remains unclear. On the one hand, young organizations

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[4] A correlation test revealed that there is no correlation between the five dimensions.

possess less internal resources and are hence in greater need for collaboration. On the other hand, older organizations have had time to build resources, which again might open more possibilities to engage in collaborative activities, as they have more to offer (Combs, Ketchen 1999; Tether 2002).

Being part of a company group has shown to have a positive impact on collaboration likelihood. Three factors especially contribute to this: First, intra-group collaboration is a frequent phenomenon. Second, the knowledge pool of the group might provide knowledge about potential partners. Third, the group prestige might help to win partners for collaborations (e.g. Kleinknecht, Reijnen 1992; Miotti, Sachwald 2003; Tether 2002). Therefore, two variables have been included to proxy for company group affiliation.

Concerning the composition and behaviour of the employees, five control variables were chosen. First, a variable was introduced, taking into account the share of employees with a non-German background, as foreigners are known to impact the collaboration likelihood (Schneider et al. 2019). Moreover, it was controlled for the age and tenure of employees, as older employees and those that have been working longer for the organization might be less open to work with external knowledge (Bogers et al. 2018). Additionally, the latter covers the effect of job mobility. The idea is that newer colleagues might still have close relationships to their former workplace, which might raise the likelihood for a collaboration (Cantner, Graf 2006). The control for more female than male employees in an organization accounts for the higher collaboration propensity of women (Abramo et al. 2013). Finally, the control for the frequency of teamwork inside the organization is seen as a measure of general openness of the employees to collaborate. Table 3 displays basic descriptives on the dummy control variables presented.

Table 3 Basic Information on Dummy Control Variables (own representation).

Variable	No	Yes	NA's
Organization age (<10 years)	269	33	/
Company group	221	80	1
Company group headquarter	263	38	1
Foreign employees	91	211	/
Employee's age (50-64 years)	274	24	4
Employees > 5 years in organization	86	214	2
Sex ratio (more women)	221	71	10
Teamwork (always)	204	97	1

3.3 Model Specification

As the dependent variable is binary (collaboration yes/no), a multiple logistic regression model was chosen to test the hypotheses. Starting with a baseline model (Model 1), including only the control variables, in Model 2 only the explanatory variables for the five corporate culture

dimensions were tested. Model 3 presents the odds ratios of the full model with explanatory and control variables (see Table 4). As the correlation test did not identified interdependencies between the variables for the corporate culture dimensions, they were all included in the same model. The test statistics of the models show a satisfactory model fit with the full model having the best fit and the highest explanatory power (see the AIC and the Pseudo R^2 in Table 4).

4 Results and Discussion

Table 4 presents the odds ratios of the regression analysis on the likelihood to engage in collaboration. Not all of the control variables have significant results, which does change throughout the models. Nevertheless, those control variables having significant results, meet the expectations. Being part of a company group raises very significantly the odds of an organization to engage in collaborative activities. This might either stem from more frequent collaboration between organizations of the same company group or the positive impact of having the prestige of a company group at hand to draw on for potential partners (Miotti, Sachwald 2003; Tether 2002). The age group of 50-64 years old employees has as expected a significant and negative impact on the likelihood to engage in collaboration. Older employees are less likely than younger employees to work with external knowledge (Bogers et al. 2018). Finally, belonging to the economic sector (rather than being a political institution or a network) has a positive and significant impact.

To start with, the supposition that corporate culture impacts the likelihood to collaborate is confirmed. All corporate culture dimensions have a significant impact. Corporate culture should hence be seen as an organizational feature important for the collaboration decision. Moreover, the results show that three dimensions have a positive impact, while two have a negative one. This underlines that the different dimensions of corporate culture should be considered separately.

The dimension of Result Orientation has the strongest and very significant positive impact on the likelihood to collaborate, thereby confirming hypothesis 1. If employees give their best every day, feel comfortable in unfamiliar situations and constantly face new challenges, they might be able to cope with collaboration-connected risks as well (Hofstede et al. 1990; Miotti, Sachwald 2003). At this point the distribution of the values has to be considered. As shown in Figure 2, the dataset covers the full value range for Result Orientation. However, the majority of the observations display a score over 50, hence being rather *result oriented*. This signifies that the positive impact of Result Orientation in general (beyond the investigated dataset) is even stronger.

Table 4 Logistic Estimation Results (Odds ratios).

Collaboration yes/no	1 Model	2 Model	3 Model
Result Orientation		1.022***	1.024***
		(0.006)	(0.008)
Professional Orientation II		1.016*	1.021**
		(0.008)	(0.010)
Closed Orientation		0.990	0.981*
		(0.008)	(0.010)
Tight Orientation		0.980**	0.982*
		(0.008)	(0.010)
Pragmatic Orientation		0.997	1.022*
		(0.009)	(0.013)
Organization size	1.000		1.000
	(0.0003)		(0.0003)
Organization age (<10 years)	1.557		1.317
	(0.927)		(0.848)
Company group	3.624**		3.561**
	(1.939)		(1.986)
Company group headquarter	1.086		1.321
	(0.777)		(0.991)
Foreign employees	1.156		1.357
	(0.410)		(0.504)
Employees' age (50-64 years)	0.290**		0.247**
	(0.158)		(0.138)
Employees > 5 years in organization	1.218		1.204
	(0.485)		(0.518)
Sex ratio (more women)	1.265		1.163
	(0.506)		(0.492)
Teamwork (always)	1.478		1.305
	(0.522)		(0.507)
Sector	*included*		*included*
Industry	*included*		*included*
Pseudo R² (McFadden)	0.20	0.07	0.26
AIC	322.447	331.011	312.543
Hosmer and Lemeshow test	X-squared = 1.7529 df = 8 p-value = 0.9877	X-squared = 7.2828 df = 8 p-value = 0.5064	X-squared = 3.0563 df = 8 p-value = 0.9308
N	286	302	286

Annotations: Significance codes: '' p < 0.10, '**' p < 0.05, '***' p < 0.01. Standard errors in parentheses.*

The dimension of Pragmatic Orientation has the second strongest, significant and positive impact, which confirms hypothesis 6. The argumentation is that a certain adaptability to the market and customer needs as well as a focus on good results instead of correctly followed rules at any price raise the likelihood to engage in collaboration (Hofstede et al. 2010). Additionally, the greater flexibility, associated with the Pragmatic Orientation, is an advantage for collaboration (Okamuro 2007). Like for the dimension of Result Orientation, the value distribution in the dataset has to be considered. Though covering the full value range, the

majority of the values is clearly over 50 (see Figure 2). German organizations are hence rather *pragmatically* oriented. This implies that the effect is even stronger than the odds ratios propose, as it is already expressed clearly within a dataset already having an inclination towards Pragmatic Orientation.

Professional Orientation II is the third dimension with a very significant and positive impact. As described in section 3.2, this dimension is a combination of four items, normally loading onto two different factors (dimensions). Both original dimensions concern the way how private and professional life are separated (or not). Results indicate that a *professional* focus increases the probability to engage in collaboration. For the organizational side this signifies that the organization cares about the professional employee and less about the private person. In comparison, employees do not derive their identity from the organization but clearly separate private and business life and feel that they are hired based on their competences and not on sympathy (Hofstede et al. 2010). These results partly contradict hypothesis 2 while confirming hypothesis 3. Hypothesis 2 argues that organizations displaying a caring attitude towards their own employees (*employee oriented*) will act as fair and trustworthy partners in inter-organizational collaborations. However, for collaborations with external partners, it is even more important to show that employees are able to fulfil the entrusted tasks, underlining the importance of the completion of the job (Dodgson 1993) (*job orientation*). The argumentation behind hypothesis 3 is that organizations hire predominantly based on skills and not personalities and that employees strongly identify with their job. Both factors point at an organization having highly skilled employees, raising the likelihood to collaborate (Tether 2002).

Closed Orientation is one of the two dimensions having a significant and negative impact on the likelihood to collaborate. This implies that if an organization is rather *closed* than *open* towards newcomers and externals and has a rather limited and channelled communication, the odds of collaborating decrease. This confirms hypothesis 4, arguing that the way of communication is connected to the way employees share their knowledge, which is essential in a partnership (Hofstede et al. 2010; Miotti, Sachwald 2003). Here again the distribution of the values in the dataset should be considered (see Figure 2). The majority of the values for Closed Orientation is under 50 (rather open), implying that the effect is even stronger than expressed through the present dataset.

Finally, the dimension Tight Orientation has as well a significant and negative impact on the probability to engage in collaborative activities. This confirms hypothesis 5, which is based on the argumentation that an organization with very strict rules and a rather serious atmosphere lessens the likelihood to engage in collaboration. Consequently, being rather flexibly organized and fostering a rather casual atmosphere is positively associated with the likelihood to engage in collaboration (Hofstede et al. 1990; Santoro, Gopalakrishnan 2000).

To put it in a nutshell, besides revealing that there is a general impact of corporate culture on the likelihood to engage in collaboration, the results disclose which organizational practices exactly foster collaboration engagement:

Organizations more likely to collaborate are on average characterized by the following qualities:
- expect tasks to be fulfilled without delay;
- are mainly interested in employee's work;
- hire based on competence and not sympathy;
- welcome newcomers from different backgrounds;
- foster an open communication (inside and outside the firm);
- are flexibly organized;
- support a casual and relaxed atmosphere;
- put good results before always following set procedures.

Organizations more likely to collaborate have employees disposing on average the following characteristics:
- put maximal effort in their tasks;
- feel comfortable in unfamiliar situations;
- are used to facing challenges;
- think far ahead;
- separate their private life from work;
- identify rather with their work and not with their organization;
- are open-minded.

5 Concluding Remarks

The present paper investigates the impact of corporate culture on the likelihood to collaborate. It thereby enlarges the list of organizational characteristics important for the decision to engage in collaboration. By applying the concept of corporate culture by Hofstede et al. (2010), the present study moreover offers the possibility to investigate in a detailed manner how different dimensions of corporate culture impact the collaboration decision. To approach the raised question, a survey was conducted, leading to a sample of 302 German organizations from economy and academia. Besides general organizational characteristics, information on collaboration activities and corporate culture was collected.

The regression analysis provides strong evidence that corporate culture is an important aspect for the collaboration decision. Moreover, the investigation reveals that there is a variety of practices of corporate culture, which should be considered separately. Specifically, the results demonstrate that an open-minded and flexible organization is more likely to collaborate. Additionally, having a rather casual atmosphere, but taking tasks seriously and with a pragmatic attitude, supports the likelihood to collaborate. Employees of these collaboration-

prone organizations are on average highly motivated, deal easily with unfamiliar situations, communicate openly and separate their private from their working lives.

With these new insights, the study contributes to literature especially in three ways. First, corporate culture has not been connected to the likelihood of an organization to collaborate before. Studies rather focus on the impact of corporate culture on the collaboration process itself or its outcome (e.g. Mamillo 2015; Beugelsdijk et al. 2006). Second, the analysis demonstrates, that it is important to investigate corporate culture with a number of variables, as it comprises quite divers aspects, impacting the likelihood to collaborate in different ways. Third, the concept of corporate culture as defined by Hofstede et al. (2010) has not been investigated intensively yet and needs further empirical evidence.

Besides these novel insights, the study comes along with some shortcomings. First of all, participants for the study were found among others with the help of lists from industrial clusters. This could cause some bias as these organizations might be more likely to collaborate than the average German organization. Enlarging the sample and including as well organizations, which are not members in industrial clusters or networks, could shed some light on this potential bias. Another weak point is that corporate culture was approximated based on the answers of just one person per organization. It could be argued that this might rather reflect the personal perception of corporate culture (Sarros et al. 2005; Hofstede et al. 1993). However, the participants were explicitly asked to not give their personal opinion on the items of corporate culture but to report how these are in general lived in their organizations. Moreover, as statistics reveal, respondents were on average long members of the respective organizations and should hence have an idea on how the investigated aspects of corporate culture are manifested in their organizations. Nevertheless, including a number of employees from each organization in the survey could easily erase this limitation.

Finally, the presented results have valuable implications for policy makers trying to foster collaboration. Besides rising the awareness for the impact of corporate culture, they could support organizations in overcoming aspects of corporate culture, that represent an obstacle for collaboration. For example, very closed organizations could work on their restricted communication and missing flexibility in structure and processes. This approach is by no means impossible, as corporate culture mainly consists of learned practices and can hence be changed or influenced more easily than for example values of national culture (Hofstede et al. 2010; Brown et al. 1989). Improving aspects important for collaboration at this early stage of the process could hence prevent organizations from engaging in collaboration when they are not perfectly set for this step. Furthermore, this could reduce the collaborative failure rate and with this preserve organizational resources.

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