Balancing Autonomy and Cooperation: Organizational Structures in the 21st Century

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Abstract

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Balancing Autonomy and Cooperation: Organizational Structures in the 21st Century

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Summary: Despite the numerous reorganizations across Europe in the past years, business management research hasn’t really concerned itself with organizational structures. In this study, hypotheses on current organizational structures are established and tested in an empirical field study of the 300 largest companies in Germany, Austria and Switzerland. The results show that the optimal organizational form is contingent on the company size, the degree of diversification and the environmental dynamics. In general, a return to simple and balanced structures, which enable the realization of horizontal synergies without reducing divisions’ autonomy too severely, is perceived.
1. Introduction

In the past few years the business press has reported on massive reorganizations in leading companies across Europe. Reorganizations have notably been frequent in the recession-plagued German-speaking part of Europe. While restructuring is at the very top of the managerial agenda, business management research hasn’t really concerned itself with organizational structures during the last ten years (Zaugg 2003).

Research findings from the 70s are still prevalent in the current literature on organizational structures. Based on the groundbreaking work of Chandler (1962) and Williamson (1975), the multidivisional structure (M-form) is generally regarded as the most efficient organizational form for large and diversified companies. Two contradictory research streams attempted to challenge this hypothesis in the late 80s and early 90s. Scholars from the field of strategy research showed that, under certain conditions, a more centralized divisional structure can be superior to the classic M-form (Gupta/Gorindarajan 1986; Hill 1988; Hill et al. 1992, Hoskisson et al 1993). Scholars from the organizational literature, on the other hand, called for extreme decentralization and only loosely coupled organizational structures, termed the N-form (i.e. Prahalad/Doz 1987; Bartlett/Ghosal 1993; Hedlund 1994; Handy 1996).

Which of these - partly contradictory - theoretical ideas have become established in recent reorganizations across Europe? How are organizations, especially in the German-speaking region, structured at the beginning of the 21st century? Does the choice of a specific structure influence an organization’s success?

Unfortunately, the few empirical research efforts regarding the German-speaking region only supply limited answers to these questions. The majority of investigations are dated (e.g. Thanheiser 1976; Cable/Dirrheimer 1983; Bühner 1985; Mellewigt 1995), even the most current empirical study is based on data prior to 1993 (Whittington/Mayer 2000). Moreover, most of the studies employ very few, rather unspecific, categories for the framing of organizations. In addition, the studies to date are limited to selected industries (e.g. Whittington/Mayer 2000), few organizations (e.g. Cable/Dirrheimer 1983) or single organizational forms (e.g. Bühner 1985; Mellewigt 1995). Consequently, the available studies supply only very limited insights into the current structuring of the German organizational landscape.
The purpose of this study is therefore based on a review of the existing literature in order to establish hypotheses on the present organizational structures in German-speaking countries. Moreover, the most relevant situational influence factors are analyzed, as well as the organizational structure’s significance for corporate success. All the hypotheses have been tested in an empirical field study of the 300 largest companies in Germany, Austria and Switzerland. The findings are compared to earlier studies and major trends are discussed.

2. Literature review

2.1. The Classic Structure Types

Since Chandler’s influential work *Strategy and Structure* (1962), the multidivisional structure (or M-form) is considered the most efficient and preferred organizational form for large organizations with a variety of products or market segments (*Williamson* 1970, 134; *Gooderham/Ulset* 2002, 117). The central feature of the multidivisional structure is the allocation of the operational decisions to partially autonomous divisions, while simultaneously the strategic and financial control is situated at the headquarters (*Williamson* 1971, 353). Top management is thereby freed from operational tasks and can fully concentrate on the strategic management of the organization. The divisions compete with one another for scarce resources, and an internal capital market arises (*Williamson* 1970, 143). The efficiency benefit is explained through the obviously smaller transaction costs. The allocation of operational decisions to divisions lessens top management’s information and co-ordination needs, while the central control simultaneously limits division heads’ opportunistic dealings (*Williamson* 1970, 134).

Williamson regards at least one alternative structure type as efficient under certain conditions: the functional structure (or U-form). In small organizations with a limited product range, the functional structure allows a wide specialization and enables the benefits of economies of scale and the effects of learning (*Williamson* 1975, 133). The established hierarchy and the specialization according to function ranges (e.g. sales, production, and management) define clear responsibilities. With organizations’ increasing size and diversification, the functional structure quickly reaches its limits. The top management is overburdened with increased complexity (*Chandler* 1962, 299); co-ordination and control
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problems occur (Williamson 1970, 132). The organization must convert to a multidivisional structure to continue to function effectively.

Besides the two previously mentioned organizational forms (M- and U-forms), the literature also describes various other structure types. The holding structure (or H-form) is of particular significance, because within it autonomous divisions are kept together by a central unit, which restricts itself to financial control. Consequently, the divisions are largely self-sufficient regarding their strategic and operational decisions. Williamson (1970) criticizes the lack of central strategic control as the holding structure’s weakness. The top management is regarded as weak and directionless because the headquarters lacks the necessary strategic and operational expertise. The top management is also relatively powerless against the heads of divisions (Thanheiser 1972; Chandler 1990). According to Williamson (Williamson/Bhargava 1972; see also Weir 1995), all other possible mixtures (which he described as the “X-form”) result in a negative effect on company profits. An important example of such a mixed form between divisional and functional structures is the matrix organization (Galbraith 1973; Bartlett/Ghosal 1993, 1995). Figure 1 summarizes the different structure types discussed in this study.

Figure 1 (see appendix)

2.2. New cooperative structures
Recently more and more critical voices have been raised in the literature against the multidivisional structure favored by Williamson. A central criticism is that the M-form encourages organizations towards increasing diversification because this structure’s benefits become directly apparent when there is a high degree of diversity (Keats/Hitt 1988; Shleifer/Vishny 1991; Russo 1991). However, increasing diversification, especially into unrelated industry segments, is viewed as negative in the literature (Rumelt 1974; Ravenscraft/Scherer 1987; Hill/Hansen 1991).

The alternative to the classic M-form, the “corrupted” M-form (or CM-form) as Williamson negatively described it, has experienced a certain renaissance. The “corrupted” multidivisional structure is an M-form whereby the central authority, besides having strategic tasks, also has a role to play in operational tasks (Williamson/Bhargava 1972). The clear task division between headquarters (strategic tasks) and divisions (operational tasks) is lessened. Like all mixed forms, this form was initially viewed negatively in the theory (Williamson/Bhargava 1972; Rumelt 1974). Conversely, a variety of more recent studies
describes the CM-form positively as a “cooperative” or “centralized” M-form (Hill 1988; Hill et al. 1992; Hoskisson et al. 1993). Under certain conditions, Hill (1988) regards the cooperative M-form as superior to the classic M-form. Organizations with a restricted degree of diversification could, for instance, profit from economies of scale and scope through the increasing centralization of some operational tasks. The central units furthermore enable the common exploitation of resources and improved knowledge transfer between divisions (Hill 1988). The co-ordination and integration are also substantially simplified through the improved centralization (Eisenmann/Bower 2000, 350).

2.3. New decentralized structures
Another group of authors criticizes the classic multidivisional structure from an opposing perspective. The roots of this perspective lie in the research on social systems’ flexibility and (self-) organization (see Probst 1987; Klimecki et al 1993). The central reasoning of these studies is that owing to the competitive environment’s increasing dynamics and the accelerating changes, brand-new and far more flexible structures than the M-form are inevitable. These new structures are called by various names, e.g. “transnational organization” (Bartlett/Ghosal 1989, 1993, 1995), the “heterarchy” (Hedlund 1986, 1994), the “horizontal organization” (White/Poynter 1990), the “multifocal organization” (Doz 1986; Prahalad/Doz 1987), the “multi-central organization” (Forsgren 1990) and the “internal network organization” (Miles/Snow 1986, 1992). Despite the multitude of concepts (and some differences in detail), these studies point to a variety of common principles: Organizations require flat hierarchies, a high degree of decentralization and horizontal management structures to rapidly react to changes in the environment. The decision competency for both strategic and operational decisions is extensively delegated to the smallest units below the divisions. Together the mentioned principles define a new structural form called the N-Form, which its advocates view as diametrically opposed to the classic M-form (Gooderham/Ulset 2002: 118). These authors expect an overall higher company performance with the N-Form when compared to the traditional M-form (O’Donnell 2000).

2.4. Contingency effects
A variety of authors take a complementary position to the above-mentioned approaches and stress the importance of the external influencing factors in the choice of an organizational structure. From these authors’ point of view there is no universally efficient structure type (Thompson 1967). The structure that is most beneficial for an organization ultimately depends
on a range of situation factors. Three groups of contingency variables can be distinguished in this respect: internal factors, external factors and institutional influencing factors (see Kieser/Kubicek 1992, 199ff).

In the literature, an organization’s size (Pugh et al. 1969) and degree of diversification (Rumelt 1974; Hill/Hoskisson 1987) are particularly regarded as important internal (or organizational) contingency variables. At the same time these are the only two unique influencing factors already taken into consideration by Chandler (1962) and Williamson (1975). Chandler (1962) sees the adaptation of different organizational structures as the direct result of different growth strategies. In small organizations with a single product, a functional structure is recommended, while in larger and more diversified organizations a multidivisional structure would be better. More recent studies contradict these views in that the classic M-form is regarded as only suitable for organizations with a high degree of diversification. Consequently, it is more likely that organizations with a limited degree of diversification will profit from the cooperative M-form (Hill 1988; Hill et al. 1992; Hoskisson et al. 1993).

Apart from strategy and organizational size, the organizational environment is considered the structure’s greatest influence. From this perspective, the proper structure is determined by the degree of environmental dynamics and the market environment’s uncertainty (Burns/Stalker 1961; Lawrence/Lorsch 1967; Galbraith/Nathanson 1978). A high degree of flexibility is essential in highly volatile industries. This flexibility is achieved by an extensively decentralized decision making. The H-form and the M-form, which allow divisions a high measure of operational autonomy, appear better suited to this background than the more centralized CM-form.

Institutionalists emphasize the meaning of cultural influencing factors in the choice of an appropriate organization structure (Cable 1988). Consequently, a country’s institutional conditions define an entire system that has considerably influence on efficient structures (Whitley 1994). Various systems require different structures, because there is no universal superior approach (Hamilton/Biggart 1988). Of special interest is the final conclusion of some of these studies that, on the basis of the ruling institutional conditions, the multidivisional structure is rather inappropriate for Germany. Cable and Dirrheimer (1983, 49) argue that as a result of Germany’s high concentration of share holdings and voting rights as well as boards of directors’ direct control, management is already effectively controlled. In addition, cultural factors (e.g., the traditionally strong role of the entrepreneur) and legal regulations make an introduction of the M-Form difficult (Thanheiser 1976). German organizations are anyway
comparatively less diversified and, consequently, profit less from the multidivisional structure’s advantages (Whitley 1994).

In summary it can be noted that according to the organizational literature, the multidivisional structure (M-form) has been regarded as superior for a long time, but has recently experienced increasing criticism. More recent studies offer a more differentiated picture (e.g., the contingency efforts), but come to contradictory conclusions. Whereas some authors recommend a stronger centralization (CM-form), others demand a radical decentralization (N-form). Institutional studies also point out that the majority of American and British studies’ insights only have a very limited significance for Germany. Which structural types organizations chose over the past few years, and what effect this choice had on the results, remains an open question. To find more accurate explanations in respect of business practices, we will analyze the results of the available empirical studies in the following section.

3. Empirical studies
Since the 60s, most empirical studies have viewed the multidivisional structure as the dominant organizational form for large organizations in the US and other highly developed countries (Hoskisson et al. 1993; Whittington/Mayer 2000). In the following, we will see that the results of previous studies on distribution according to structural types in Germany should at the very least be queried critically.

3.1. Classification according to structural types
In their examination of the 100 largest German organizations, Whittington and Mayer (2000, 168) found a clear majority preference for the multidivisional structure. Almost 70% of the organizations had been divisionally structured by 1993. Holding structures were responsible for barely 30%, of which slightly more than half was functionally organized. In comparison, the purely functional structure scarcely played a role within large German organizations.

At first sight the results seem to confirm Williamson’s theory that large organizations show a continuous change to the more efficient multidivisional form. However, Whittington and Mayer’s study (2000) reveals some limitations that make the results questionable. The authors employ a rather rough framework for the organizations’ classification. Whereas there are no comparable studies for Germany, the results of their study in respect of the United Kingdom can be compared to other investigations. For both 1983 and 1993, Whittington and
Mayer (2000, 174) arrive at 90% of British organizations with a multidivisional structure. Comparative studies for the same period utilize a more precise classification scheme in following Williamson and Bhargava (1972). These studies show that the most commonly encountered structure type in the United Kingdom was not the multidivisional structure (M-form) but the cooperative divisional structure (CM-form) (Hill 1985, 214; Weir 1995, 29). The scheme Whittington and Mayer (2000) used does not distinguish between various forms of divisional structures. It is therefore highly probable that the study mistakenly (also in respect of the German organizations) identifies a classic M-form dominance. Earlier investigations in Germany also utilized the coarse classification framework implemented by Whittington and Mayer (Thanheiser 1976; Cable/Dirrheimer 1983). Based on these data, only very generic statements can be made regarding the structuring of German organizations.

A further drawback of the available German studies is that only selected parts of the organization landscape were investigated. To date the analyses are limited to the very largest organizations, namely the 50 (Thanheiser 1976; Cable/Dirrheimer 1983) and 100 (Whittington/Mayer 2000) top organizations according to turnover. Other studies showed that such a sample emphasizes the significance of the classic M-form out of all proportions (Hill 1988; Weir 1995, 27). Moreover, most studies are limited to a few industries (Whittington/Mayer 2000) and/or certain forms of organizations (Buehner 1985, Mellewigt 1995). All in all there is a danger that the above-mentioned empirical studies for Germany paint a distorted picture of organizational structuring.

3.2. Structure and organizational success

Empirical studies from the 70s and 80s largely confirm Williamson’s hypothesis (1975) regarding the multidivisional structure’s positive effect on organizational success. Early studies in respect of the US (Armour/Teece 1978; Roberts/Viscione 1981; Teece 1981; Harris 1983; Hoskisson/Galbraith 1985) and the United Kingdom (Steer/Cable 1978; Ezzamel/Hilton 1980; Thompson 1981, 1983; Hill 1985) confirm the M-form’s general superiority compared to alternative structures for large organizations - independent of other contingency variables.

These studies’ relatively uniform impression has, however, been increasingly questioned over the past few years (Hill 1985, 1988; Hoskisson et al 1993). Many of the early studies utilize event methods that compare the organizational profit before and after the introduction of the M-form. In these studies, the profit rose after the introduction of the M-form; however, in the long run the effect of the M-form was no longer significant (i.e.
Armour/Teece 1978; Teece 1981). Newer studies turned away from the event method and utilized improved questionnaires to make explicit conclusions from the available data. The three most current studies from the United Kingdom arrive at a completely different result than earlier studies: A direct relationship between structure and profit was also not found, nor the supposed superiority of the M-form (Hill/Pickering 1986; Ezzamel/Watson 1993; Weir 1995). A variety of studies in respect of the US tested the degree of diversification’s influence on the organization’s optimal structure (Hoskisson 1987; Hill 1988; Bettis/Chen 1990; Hill et al. 1992; Ollinger 1993). Admittedly, all five studies confirm the M-form’s positive effect on the organizational profit for very diversified organizations, but establish this form’s negative (or partly neutral) effect in moderately diversified and rather vertically integrated organizations.

Three studies have empirically analyzed the relationship between structure and organizational success in Germany (Cable/Dirrheimer 1983; Buehner 1985; Whittington/Mayer 2000). Both early studies found, in contrast to comparable studies in the US and the United Kingdom, that the M-form had a negative effect on the organizational profit during the transformation phase (Cable/Dirrheimer 1983; Buehner 1985). After the subsequent transition to the M-form, as in some American studies (i.e. Armour/Teece 1978; Teece 1981), no effect could any longer be ascertained. The negative result is explained as the result of Germany’s distinctive institutional characteristics that reduce the M-form benefits (Cable/Dirrheimer 1983, 60). Whittington and Mayer’s more recent study too comes to a rather negative result: organizations with a holding structure show a higher profit than divisionally structured organizations, yet the structure’s effect on the organizational profit is not significant (2000, 183).

To sum up one can state that the existing empirical studies have only limited significance with regard to the structuring of German organizations. The rather coarse classification doesn’t really allow deductions regarding an effect on the organizational profit. New insights from different countries, like the increasing significance of alternative divisional structures, cannot be tested with the currently available data.

4. Research Questions and Methodology
4.1. Research hypotheses

The purpose of the empirical research was to achieve a comprehensive analysis of the organizational structures of leading companies in the three German-speaking countries. Central in the research was the testing of numerous substantial hypotheses that will be introduced below. The hypotheses are related to three research steps. In the first step, the analyzed organizations are classified according to the structural types described in the literature (Williamson/Bhargava 1972). The following research hypothesis is derived from the literature (Williamson 1975) and is also supported by existing empirical investigations in respect of the German region (Cable/Dirrheimer 1983; Whittington/Mayer 2000):

**H1a:** *The multidivisional structure (M-form) is the dominant organizational form of the leading organizations in the German-speaking region.*

More recent studies contradict this hypothesis and regard the classic M-form as unsuitable for German organizations on the basis of their different institutional conditions (Cable/Dirrheimer 1983, Whitley 1994). In comparison, German organizations are less diversified and the cooperative M-form (or CM-form) is therefore superior to the classic M-form (Hill 1988, Hill et al 1992, Hoskisson et al 1993). Since it is presumed that in time the most efficient structures prevail (Williamson 1975), the following alternative hypothesis is postulated:

**H1b:** *The cooperative M-form (CM-form) is the dominant organizational form of the leading organizations in the German-speaking region.*

While both above-mentioned hypotheses, in the sense of Williamson, assume a single dominating structure independent of external influencing factors, the significance of possible contingency variables is investigated in the next step. In this regard, the central hypothesis in the contingency literature is decisive (Thompson 1967):

**H2:** *The predominant structure type depends on a series of contingency factors.*

The following hypotheses for the central contingency factors are postulated (Burns/Stalker 1961; Pugh et al 1969; Williamson 1975; Hill 1988; Hoskisson et al 1993):
H2a: **Size** – The functional structure is mainly found in small organizations, in larger organizations multidivisional structures are dominant.

H2b: **Diversification** – In less diversified organizations, the CM-form dominates, on the other hand, the classic M-form dominates in very diversified organizations.

H2c: **Environmental dynamics** - The classic M-form prevails in rather dynamic industries, the CM-form, on the other hand, in rather stable industries.

The third and final step of our research links the organizational structures with the contingency variables regarding the organizational success. The following general hypothesis is derived from the organizational literature (Williamson 1975):

**H3**: Optimally structured organizations are more successful than comparable less efficiently structured organizations.

The dispute in the literature concerns the question of which structures are “optimal” for particular types of organizations. In this study we test four alternative hypotheses in this context in respect of the optimal structuring of organizations (Williamson 1975, Hill 1988). The first hypothesis (H3a) assumes the general superiority of the M-form (or, alternatively, the CM-form); the other three hypotheses (H3b-d) take the influence of contingency variables into account.

**H3a**: Organizations with an M-form (or CM-form) are generally more successful than differently structured organizations.

**H3b**: Organizations with a high degree of diversification are more successful if they are organized according to the multidivisional structure.

**H3c**: Organizations with a limited degree of diversification are more successful if they are organized according to the CM-structure.

**H3d**: Non-differentiated organizations are more successful if they are organized according to the functional structure.
4.2. Outline of the study

The purpose of the empirical research is to test the hypotheses previously derived from the literature in a comparative field study (Kubicek 1975, 57ff). The empirical research comprises the 300 largest listed companies in Germany, Austria and Switzerland (as of January 1, 2003). Methods from primary and secondary data analyses have been combined for this study (see Whittington/Mayer 2000, 16). This combination permits the maximum accuracy and reliability of the data (Friedrichs 1990, 354ff). First of all, in an extensive document analysis, available secondary data are collected from annual reports, press articles, case studies and business databases with regard to the individual organizations. Most of the above-mentioned empirical studies are limited to secondary data sources. More recent studies have, however, shown that a dependable classification into structural types is not possible through just external data (Hill 1988, 75; Hoskisson et al 1993, 279). The available data were consequently checked and supplemented by telephone interviews. Oral questioning was preferred to written questioning to ensure the highest possible response rate (Friedrichs 1990, 237ff; Bortz 1999, 184ff). The data survey was carried out in the period between June 2003 and August 2004 by the Center for Organizational Excellence (CORE) of the Swiss Universities of St.Gallen and Geneva in cooperation with the Droge&Comp consultancy company. Most contacts were employees from a related department like corporate planning, corporate development and corporate organization. In some cases other employees from public relations and/or investor relations were consulted.

Despite numerous inquiries, it was not possible to obtain comprehensive information on 43 of the organizations. These organizations were consequently excluded from further analysis. The remaining 257 organizations form the basis of the further analysis in this study. Among these there are 164 organizations from Germany, 41 from Austria and 52 from Switzerland. The list comprises organizations from all industries and of all sizes. The representative test, with the aid of a Chi² homogeneity test, indicates no significant differences between the total population and the random sampling in respect of size, type of industry or country of origin. In addition, the random sample covers more than 85% of the organizations in the total population. A highly representative random sample can therefore be assumed.

4.3. Data Survey and Analysis
The 257 remaining organizations were first of all classified (see figure 1) according to the above-described structural types of Williamson and Bhargava (1972). The N-form was excluded since, as in the earlier research by Whittington and Mayer (2000, 182), not a single N-form-structured organization was found. On the basis of the available information, two research team members independently classified the organizations according to the criteria in the literature. In the few cases where disagreement arose, the evaluation was discussed with a third project member and the classification jointly determined. A few organizations that revealed no consistent structural types due to fundamental restructuring during the past three years were excluded from the research.

For the classification of the organizations into size groups, employee numbers were utilized, since these are more relevant for organizational structures than turnover and capital size.

The organizational diversification was described according to the Wrigley’s categorization (1970; see also Channon 1973; Thanheiser 1976, Dess et al 1995), which is also the leading categorization in the literature. The four basic categories are “single” (more than 95% of the turnover in a single business segment), “dominant” (70-95% of the turnover in a single business segment), “related” (no business segment with >70% of the turnover; segments are closely linked) and “unrelated” (no business segment >70% of the turnover; few commonalties). As with the structural types, the classification was done by two independent project members based on data from the primary and secondary analyses.

In the study of environmental dynamics, the influence of industry affiliation was examined. In a first step the individual organizations were classified according to the German stock index’ industry segments. Then the industries were classified into three categories according to the prevailing dynamics (low – average – high). As in earlier investigations (i.e. Fritz 1992; Mellewigt 1995), the classification was done according to various industry experts’ subjective assessment. Objective criteria with which to understand environmental dynamics like, for example, the research and development expenditure, could not be utilized here because they are not applicable to all types of industry (see Mellewigt 1995, 188ff).

As in prior studies, the success of the organization as dependent variable is measured by the organization’s return on assets (e.g. Teece 1981; Hoskisson/Galbraith 1985, Ezzamel/Watson 1993). An average value over three years (2001-2003) was taken for the return on assets to minimize the influence of short-term fluctuations in returns (Robins/Wiersema 1995). Because the returns across industry boundaries are only comparable
to a limited extent, the relative value was used in the comparison of the industry averages (e.g., Weir 1995).

The analysis of the collected data first follows, helped by descriptive statistics’ univariate procedures (Bortz 1999). Absolute and relative frequencies are indicated for the nominal scaled structure and contingency variables. In a subsequent bivariate analysis, the hypotheses on the contingency variables’ influence on the structural choice are tested with a Chi² test (Bortz 1999, 128ff). Finally, the hypotheses regarding the effect of structural types on organizations’ success are evaluated on the basis of the profit data’s metrical measurement scale by means of a t-Test (Bortz 1999, 166ff). The data analysis was performed with the statistical program SPSS for Windows version 11.5.

5. Results of the empirical study

The results of the empirical analysis are presented in three steps. First the univariate analysis’s result of the distribution according to structural types (hypotheses H1a and H1b) will be presented. Thereafter we turn to the bivariate procedure’s results, first presenting the contingency variables’ influence (H2a-c) and thereafter the effect on organizations’ success (H3a-d).

5.1. Classification according to structural types

The dominant structural type in the German-speaking organizational landscape is the cooperative M-form (CM-form). More than half of the analyzed organizations (51.4%) are structured in the sense of a cooperative M-form. On the other hand, only a quarter (25.7%) of the researched organizations follows the classic multidivisional form (M-form). The total share of the multidivisional form is therefore comparable to the results of earlier studies: 77.1% in our study compared to 69.8% in Whittington/Mayer (2000, 168). In contrast to the results of earlier studies (Thanheiser 1976; Cable/Dirrheimer 1983, Whittington/Mayer 2000), this study indicates that only one third of the multidivisional organizations actually possesses a pure M-form structure. Two thirds of these organizations reveal a rather cooperative M-form (CM-form). The results therefore confirm the alternative hypothesis H1b: The cooperative M-form is the dominant organizational form of the leading companies in the German-speaking region. From our expert interviews with the analyzed organizations and from the comparison of individual organizations’ structures with earlier studies, a general trend towards more centralization emerges. Various organizations have abandoned the classic

M-form in favor of an increased centralization and cooperation between units. This trend partly explains the increasing share of the cooperative variation of the M-form.

Apart from the dominant multidivisional structures, the holding structure (H-form) also plays a prominent role in the German-speaking region. With a share of 11.7%, the financial holding takes the third place after both multidivisional forms. It is interesting that in all studies the holding share has been almost constant at 10-15% (Thanheiser 1976; Cable/Dirrheimer 1983; Whittington/Mayer 2000). It thus seems that the holding structure is less subject to trends than other structural types. On the other hand, the strong decrease of the functional structure (U-form) since 1950 continues rapidly: Only 5.8% of the researched organizations show a classic functional organization. Almost just as many organizations (5.4%) deploy a matrix structure, or a comparable multifocal organization (X-form). Figure 2 again summarizes the univariate analysis’s results.

Figure 2 (see appendix)

5.2. Influence of the contingency variables

Is the choice of a structural type dependent on specific contingency variables? Three central context variables were taken into consideration in this study: size, diversification and environmental dynamics.

Figure 3 shows the distribution according to organizational size. The researched organizations were grouped into four approximately equal-sized classes according to the number of employees: small (less than 1,000 employees), average (1,001-5,000 employees), large (5,001-15,000 employees) and very large (more than 15,001 employees). The classification indicates that in the case of small organizations, the holding structure (H-form) is predominant. The functional form too (U-form) is strongly over-proportionally represented (more than 15% in comparison to a total share of just 6%). In the case of large and very large organizations, however, the holding structure and functional structure no longer play a role. It is clear that here the multidivisional structures are dominant, with a combined 81% at large and more than 93% at very large organizations. The classic M-form plays an important role in the case of average organizations, while in the case of the large and largest ones, the cooperative M-form is the undisputed dominant form. On the whole, the various sizes point to rather sharp differences in the classification according to structural types. The Chi-square test confirms the significant relationship between organizational size and organizational structure ($\chi^2=58.74; \text{DF}=12; p=0.001$). This confirms hypothesis H2a: The functional (as well as the
holding) structure is found mainly at small organizations; at larger ones the multidivisional structures are dominant.

Figure 3 (see appendix)

Besides organizational size, diversification too was paid extensive attention in the literature as an influence on organizational structure. The greater majority of the researched organizations (52.5%) are diversified into related industry segments (“related”). The remaining organizations can be divided into approximate equal groups amongst the remaining categories “dominant” (19.5%), “single” (14.0%) and “unrelated” (14.0%). Illustration 4 indicates the various diversification types’ clear differences in predominant structure type. In the single product organizations, the functional (36.1%) as well as the holding structures (30.6%) are dominant. The holding structure also plays a certain role in the category “dominant” (20%), prevalent in this type of diversification is, however, the cooperative M-form (58%). The cooperative M-form also dominates the category of related diversified organizations (67.4%). Almost just as unchallenged is the dominance of the classic M-form in the area of strongly diversified organizations (63.9%). These results confirm hypothesis H2b to a large extent: At less diversified organizations (“related”), the CM-form dominates, whereas at strongly diversified organizations (“unrelated”) the classic M-form dominates. The Chi-square test confirms the significance of the differences in company structuring in the various diversification classes \(\chi^2=145.90; \text{DF}=12; \text{p}=0.001\).

Figure 4 (see appendix)

As a third and last contingency factor, environmental dynamics was considered as an external variable. First of all the 19 industry types represented in the study were classified, based on insights from expert interviews, into three categories. In six branches (automotive, chemicals, media, pharmaceuticals, software, and technology), environmental dynamics were judged as “high”. In seven other branches (banking, construction, energy & raw materials, retail, food & nutrition, insurance, and healthcare) they were classified as “low”. In the remaining six industries (services, financial services, manufacturing, consumer goods, telecommunication, and transport) they were classified as “average”. Illustration 5 shows that the classic M-form is represented out of all proportion (39.3%) in the segment with higher environmental dynamics. The M-form’s share diminishes strongly with decreasing
environmental dynamics and amounts to only 14% in the segment with low dynamism. The cooperative M-form, on the other hand, is strongly represented in the range of minor and average environmental dynamics (59.7% and 55.4%). At higher environmental dynamics, the share in favor of the classic M-form decreases steeply. These results support the assumptions of hypothesis H2c. The Chi-square test confirms the significance of the structural types differences between different categories of environmental dynamics ($\chi^2=18.72\; DF=8; \; p=0.025$). Conversely, no differences are shown for the holding structure (H-form), which contradicts what is presumed in the literature.

Figure 5 (see appendix)

5.3. Effect on the organizational success

With the aid of a t-Test for independent random samples (Brosius 2002, 459ff), a first analysis checked whether organizations with a traditional M-form (or the alternative CM-form) are generally more successful than differently structured organizations. Figure 6 shows the results of the statistical analysis: Organizations that are structured according to a multidivisional form show no significant higher profit than other organizations. The profit of the M-form organizations is on average almost identical to the profit of the other organizations (mean of -0.04 in comparison to -0.06). On the other hand, if the CM-form structured organizations are compared to the remaining organizations, a higher average profit is revealed (mean of 0.51 against -0.66). However, the t-Test shows that this difference is not statistically significant ($t=1.506\; DF=255; \; p=0.133$). Hypothesis H3a cannot thus be confirmed; the general superiority of the M-form, or the alternative CM-form, is not evident.

Figure 6 (see appendix)

The rejection of the general hypothesis H3a opens the field for a testing of the contingency theory’s more detailed assumptions. The hypothesis that strongly diversified organizations show a higher profit if they are structured according to the M-form (H3b), is first examined. The results of the statistical analysis confirm this hypothesis. Whereas strongly diversified organizations with the M-form show a profitability that on average conforms to the market (mean of -0.12), differently structured comparable organizations reveal a strongly below-average profit (mean of -2.99). The t-Test shows that the difference is statistically significant.
This confirms hypothesis H3b: the M-form offers a clear advantage for strongly diversified organizations.

Is the cooperative M-form for less diversified organizations similarly recommendable? The statistical analysis indicates clear differences here as well: In related areas diversified organizations with the CM-form show a performance above the industry average (mean of 0.82), while differently structured comparable firms conversely show a clearly negative result (mean of -2.01). The t-Test confirms the significance here as well (t=2.646; DF=136; p=0.01): Moderately diversified organizations reveal a higher return if they are structured according to the cooperative M-form (H3c).

The last remaining hypothesis (H3d) examines Williamson’s assumption (1975) that non-diversified organizations perform best if they are structured functionally. Here the results of the statistical analysis are mixed. First, on average, non-diversified organizations show a clearly higher profit if they are organized according to the functional structure (mean of 2.77 against -2.00). However, the very high standard deviation for this value is conspicuous. The relative small sample (N=36) and a large number of extreme values do not allow an unambiguous interpretation. Consequently, the t-Test, in spite of the large differences in mean values, leads to no significant result (t=1.619; DF=34; p=0.12). Hypothesis H3d is accordingly, despite some support, not generally confirmed. Figure 7 summarizes the results of the statistical analysis for the different contingency factors again.

Figure 7 (see appendix)

6. Discussion

The results of this research draw a comprehensive picture of the organizational structuring of the leading companies in the German-speaking economic region at the beginning of the 21st century. The present results enable us to query a series of recommendations from the organizational literature of the last few decades in the light of current organizational reality.

A first important insight of the study is that there is no universally superior organizational form. It rather shows the central significance of situation influence factors: the optimal structure depends on the organizational size, its degree of diversification and the environmental dynamics. Instead of one-sided prescriptive recommendations for a particular organization type, more attention should in future be paid to further research into the consistent correlations between structure, strategy and environment.
The M-form, which is strongly emphasized in the literature, is only recommended for a minority of strongly diversified organizations. Moreover, because these organizations show a smaller profit than less strongly diversified organizations, the one-sided emphasis of the M-form as optimal structuring makes little sense. The majority of organizations in the German-speaking region are diversified to a reasonable extent and profit strongly from a cooperative M-form.

After organizational research’s strong focus on autonomy and decentralized structures (i.e. the N-Form) in the 90s, more research attention should be spent to forms of organizational cooperation and collaboration. Organizations increasingly face the challenge to realize central economies of scale and horizontal synergies without simultaneously limiting the autonomy of divisions too much. The trend towards the simplification of structures is dominant in this respect: Instead of more complex matrix structures, clear divisional structures like the CM-form, which enable a balance between autonomy and centralization, are preferred. In respect of the single organization, the question arises to which degree, and in which areas, cooperation and centralization are advantageous. The challenge to organizational research is to work on recommended actions for a balanced structuring between autonomy and cooperation.
Reference list


### Figure 1  Classification of Structural types

<table>
<thead>
<tr>
<th>Structural types</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperative Multidivisional (CM-form)</td>
<td>Divisional structure without clear separation of strategic and operational tasks: headquarters assumes some functional tasks, besides the strategic ones.</td>
</tr>
<tr>
<td>Multidivisional (M-form)</td>
<td>Divisional structure with clear separation of strategic and operational tasks: headquarters assumes strategic command and the divisions all the functional tasks.</td>
</tr>
<tr>
<td>Holding (H-form)</td>
<td>Divisional structure with the units strongly autonomous: headquarters limits itself to financial control; divisions determine strategic and operational decisions themselves.</td>
</tr>
<tr>
<td>Functional (U-form)</td>
<td>Functional structure with common central decision-making in strategic as well as in operational tasks.</td>
</tr>
<tr>
<td>Matrix / Multifocus (X-Form)</td>
<td>Mixed form of two or more of the above-described structural types: combination of several classification characteristics.</td>
</tr>
<tr>
<td>New Form (N-Form)</td>
<td>High degree of decentralization and horizontal structures: strategic and operational decision-making delegated to small local units.</td>
</tr>
</tbody>
</table>

### Figure 2  Classification according to structural types

<table>
<thead>
<tr>
<th>Distribution according to structural types</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperative M-form (CM)</td>
<td>132</td>
<td>51,4%</td>
</tr>
<tr>
<td>Multidivisional (M)</td>
<td>66</td>
<td>25,7%</td>
</tr>
<tr>
<td>Holding (H)</td>
<td>30</td>
<td>11,7%</td>
</tr>
<tr>
<td>Functional (U)</td>
<td>15</td>
<td>5,8%</td>
</tr>
<tr>
<td>Matrix / Multifocus (X)</td>
<td>14</td>
<td>5,4%</td>
</tr>
<tr>
<td>Total</td>
<td>257</td>
<td>100,0%</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 58,74; \text{DF} = 12; \text{statistical significant relationship (p=0,001)} \]

### Figure 3  Classification according to organizational size

<table>
<thead>
<tr>
<th>Size of organization</th>
<th>M</th>
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<th>H</th>
<th>U</th>
<th>X</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Small</td>
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<td>12</td>
<td>17</td>
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<td>52</td>
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<td></td>
<td>25,0%</td>
<td>23,1%</td>
<td>32,7%</td>
<td>15,4%</td>
<td>3,8%</td>
<td>100,0%</td>
</tr>
<tr>
<td>Average</td>
<td>23</td>
<td>29</td>
<td>8</td>
<td>3</td>
<td>4</td>
<td>67</td>
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<tr>
<td></td>
<td>34,3%</td>
<td>43,3%</td>
<td>11,9%</td>
<td>4,5%</td>
<td>6,0%</td>
<td>100,0%</td>
</tr>
<tr>
<td>Large</td>
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<td>43</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>16,7%</td>
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<td>6,0%</td>
<td>4,5%</td>
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<tr>
<td>Very large</td>
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<td>1</td>
<td>3</td>
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</tr>
<tr>
<td></td>
<td>26,4%</td>
<td>66,7%</td>
<td>1,4%</td>
<td>1,4%</td>
<td>4,1%</td>
<td>100,0%</td>
</tr>
<tr>
<td>Total</td>
<td>66</td>
<td>132</td>
<td>30</td>
<td>15</td>
<td>14</td>
<td>257</td>
</tr>
</tbody>
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### Figure 4  Classification according to diversification

<table>
<thead>
<tr>
<th>Diversification</th>
<th>M</th>
<th>CM</th>
<th>H</th>
<th>U</th>
<th>X</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Single</td>
<td>3</td>
<td>7</td>
<td>11</td>
<td>13</td>
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<td>36</td>
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<td>8,3%</td>
<td>19,4%</td>
<td>30,6%</td>
<td>36,1%</td>
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<tr>
<td>Dominant</td>
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<td>50</td>
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<tr>
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<td>58,0%</td>
<td>20,0%</td>
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<td>6,0%</td>
<td>100,0%</td>
</tr>
<tr>
<td>Related</td>
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<td>91</td>
<td>2</td>
<td>1</td>
<td>8</td>
<td>135</td>
</tr>
<tr>
<td></td>
<td>24,4%</td>
<td>67,4%</td>
<td>1,5%</td>
<td>0,7%</td>
<td>6,0%</td>
<td>100,0%</td>
</tr>
<tr>
<td>Unrelated</td>
<td>23</td>
<td>5</td>
<td>7</td>
<td>0</td>
<td>1</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>63,9%</td>
<td>13,9%</td>
<td>19,4%</td>
<td>0,0%</td>
<td>2,8%</td>
<td>100,0%</td>
</tr>
<tr>
<td>Total</td>
<td>66</td>
<td>132</td>
<td>30</td>
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<td>14</td>
<td>257</td>
</tr>
</tbody>
</table>

$\chi^2 = 145,90; \text{DF} = 12; \text{statistical significant relationship (p=0,001)}$

### Figure 5  Classification according to environmental dynamics

<table>
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<tr>
<th>Environmental dynamics</th>
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<th>X</th>
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<td>High</td>
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<td>39,3%</td>
<td>39,3%</td>
<td>10,7%</td>
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</tr>
<tr>
<td>Average</td>
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<td>12</td>
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<td>7</td>
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<tr>
<td></td>
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<td>3,1%</td>
<td>6,9%</td>
<td>100,0%</td>
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<tr>
<td>Small</td>
<td>10</td>
<td>43</td>
<td>9</td>
<td>5</td>
<td>5</td>
<td>72</td>
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<td>13,9%</td>
<td>59,7%</td>
<td>12,6%</td>
<td>6,9%</td>
<td>6,9%</td>
<td>100,0%</td>
</tr>
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<td>66</td>
<td>132</td>
<td>30</td>
<td>15</td>
<td>14</td>
<td>257</td>
</tr>
</tbody>
</table>

$\chi^2 = 18,72; \text{DF} = 8; \text{statistical significant relationship (p=0,025)}$

### Figure 6  Effect on the organizational success (1/2)

<table>
<thead>
<tr>
<th>Performance</th>
<th>N</th>
<th>ROA (adj.)</th>
<th>t-value*</th>
<th>DF</th>
<th>2-Tail Sign.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>Std. dev.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM-form</td>
<td>132</td>
<td>0,51</td>
<td>4,269</td>
<td>1,506</td>
<td>255</td>
</tr>
<tr>
<td>Other forms</td>
<td>125</td>
<td>-0,66</td>
<td>7,734</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M-form</td>
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<tr>
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<td>6,289</td>
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</tr>
</tbody>
</table>

* t-Test for heterogeneous variances
**Figure 7  Effect on the organizational success (2/2)**

<table>
<thead>
<tr>
<th>Performance</th>
<th>N</th>
<th>ROA (adj.)</th>
<th>t-value*</th>
<th>DF</th>
<th>2-Tail Sign.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>Std. dev.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unrelated / M-form</td>
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<td>-0,12</td>
<td>2,876</td>
<td>2,634</td>
<td>31</td>
</tr>
<tr>
<td>Unrelated / Other</td>
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<td>-2,99</td>
<td>3,077</td>
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<td></td>
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<tr>
<td>Related / CM-form</td>
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<td>0,82</td>
<td>4,072</td>
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<td>136</td>
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<tr>
<td>Single / U-Form</td>
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<td>9,941</td>
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</tr>
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<td>Single / Other</td>
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<td>-2,00</td>
<td>7,544</td>
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</tbody>
</table>

* t-Test for heterogeneous variances