VALUE DIMENSIONS: CORE VALUES ASSESSMENT IN A SYSTEMIC APPROACH TO MANAGEMENT

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Abstract: While the world has changed dramatically over the past decade, management theory has only partially adapted to this change. But what could a new management approach capable of handling the challenges companies are facing today look like? To answer this question a new management approach based on a company's core values is presented. To operationalize the new approach, a seven level development scheme is introduced and its individual value dimensions empirically verified. The results of the empirical verification permit the conclusion that the introduced model and its seven levels can be populated with specific value-related attributes and therefore can be used to measure and describe the core values of companies.

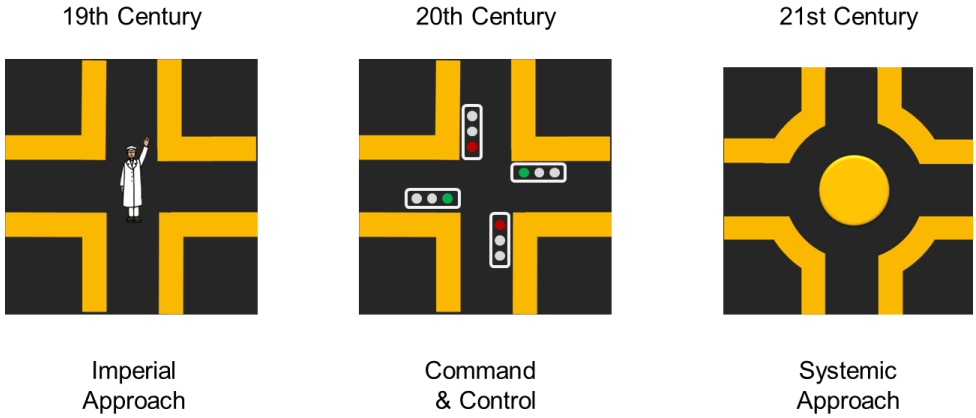
Keywords: SYSTEMIC MANAGEMENT APPROACH, CORE VALUES, VALUE DIMENSIONS

1 CENTRAL QUESTION

The entrepreneurial context has changed fundamentally over the past few years, driven by increases in integration of industries and the IT revolution. Markets have become more dynamic, transactions are becoming increasingly complex. There is a steadily increasing rivalry for resources, relentless global competition and executives and employees likewise are searching for meaning and orientation.
While the world has changed dramatically, management theory has only partially adapted to these changes within the last 50 years. Our thinking is still dominated by historical management figures like Frederick W. Taylor, Alfred P. Sloan, W. Edwards Deming or Peter Drucker. Without any doubt these architects of "modern" management have laid the foundation for our current prosperity. In order to understand why these management approaches still dominating today's practise need to be questioned (Hamel, 2007) an analogy may be helpful:
As mobility increased in the 19th century, police officers were assigned to controlling traffic on intersections. They had full authority to regulate the traffic. In the same way managers in the late 19th century were managing their companies. We call this approach "imperial" because no deviating behaviour or opposition was tolerated. At the beginning of the 20th century traffic again increased dramatically, so police officers were no longer efficient and reliable in fulfilling this position and too many of them would have been required for the approach to still be cost effective. As a result police officers were replaced by traffic lights. In a similar way, at the beginning of the 20th century companies have introduced techniques and tools as a means of retaining control of ever growing industrial organisations. To this day companies are managed in this technomorphic way. This approach is called "command and control". Besides the many advantages of this approach, there are also serious disadvantages. The main

disadvantage is that employees managed by this approach quit thinking for themselves. If they see a green traffic light, they go, if they see a red one, they stop. As a result, organizations experience a lack of insight as well as an inability to adapt quickly when confronted with the complexity and dynamics of today's markets.
Today, at every level of a business enterprise, we need executives and employees with greater capacity for innovation and self-management, i.e. with a higher level of independence, self-reliance and initiative. A new management approach is required. So what could it look like? You probably already guessed. In traffic control it is the roundabout, a systemic-cybernetic approach enabling participants to self-direct and self-organize. Everyone is required to constantly observe the environment and all the other actors in it, to draw the right conclusions, make the right decisions and adjust their activities dynamically according to the changes in the system.

FIGURE 1



Thus, the new management principles are not about combating complexity or dynamics by piling up ever more static rules and regulation, but instead to redistribute responsibilities so as to convert these challenges into opportunities and ultimately into a sustained competitive advantage in the corporate race. The main focus of a future systemic-cybernetic approach to management will be to establish an organizational and managerial context that empowers members of the organization to exercise self-direction and self-organization practices when performing their organizational roles.
With an increased emphasis on decentralized decision authority there is an increased demand for an integrating element in the organization providing cohesion and focus. This element can be found in a value based corporate culture that establishes the framework for all organizational members through core values. Core values are not defined by top management, but a consolidated set of the values found across the entire organization. This leads to the central question behind this research project: ***How can the inherent core values of a company be systematized?***

2 RESEARCH HYPOTHESIS AND OBJECTIVES

"Clarifying the value system and breathing life into it are the greatest contributions a leader can make." (Peters & Waterman, 1982: p. 291)

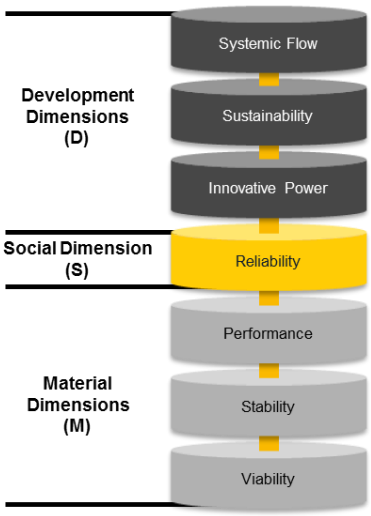
To approach the central question behind this research project a definition of the term "core values" is needed first: Core values are the energetic containers of our efforts and intentions

(Barrett, 2014). They serve members of an organization as a framework in coordinating their activities and reflect the organization's critical success factors.
In empirically determining an organization's values members of the organization are confronted with terms representing values and asked to rank them in varying forms according to their perception of applicability to the context at hand. In finding core values a difficulty lies in making sure that the empirical results reflect the actual operational values, i.e. the organization's actual success factors.
Our hypothesis is that this can be achieved by grouping terms according to a generalized model of success factors. We refer to this classification scheme "Value Dimensions".
By assigning core values to Value Dimensions mismatches in an organization's perception of its core values can be identified and unused potentials in internal and external value communication can be determined.
In this work we assume a specific set of Value Dimensions motivated by literature as well as our own experience. We then populate the Value Dimensions using terms commonly encountered in corporate values discourse. We empirically use the terms in questionnaires structured implicitly according to the Value Dimensions. We then statistically probe the results for properties indicating validity of our classification.

3 METHODOLOGICAL APPROACH

The first step in our research was to develop a model of Value Dimensions enabling us to classify, in a systematic manner, candidate core values. In this context, the Graves Values Model (Graves, 2005) as well as Abraham Maslow's Hierarchy of Needs (Maslow, 1943) were identified as suitable starting points. Consolidating their models with our own empirical experience in conducting organizational values assessments we derived the following Value Dimensions model:

FIGURE 2
Value Dimension Model



An organization's value system covering the Value Dimensions presented in this model can be assumed to guarantee some level of success.
In order to clarify which of the terms related to core values found in discourse can be assigned to which of the dimensions described above, 120 core values were compiled into a list of

adjectives (e.g. innovative, upright, passionate, quality-oriented, competent, down-to-earth). Each term was then intuitively assigned to one of the Value Dimensions in the model.
An anonymized survey involving approximately 150 students at the Nürtigen Geislingen University (NGU) was conducted. In this survey the Value Dimensions were not mentioned, because correspondence between the values and Value Dimensions can not be directly established using statistical methods on survey data. Instead, the study only examined that the grouped adjectives constitute the same dimension. This so called reliability is a precondition for the validity of the dimensions.

4 EMPIRICAL VERIFICATION

The introduced values model consists of seven dimensions. Each dimension represents an important aspect of a company's success and can be described by several adjectives. The adjectives depict and can be used to detect the company's core values.
The aim of the study is to verify the reliability of the model. In order to meet this target, different methods are applied. Firstly, the Cronbach alpha is calculated for each dimension. This is a measure of the internal consistency of a scale and verifies the interrelation between the dimensions and its adjectives (Bühner, 2006: pp.131). Secondly, a confirmatory factor analysis is performed. The confirmatory factor analysis considers a set of dimensions providing comprehensive verification of the theoretical model (Revelle, 2013). Unfortunately, the entire model includes 123 adjectives in its list of core values – too many for one questionnaire. Thus, the adjectives were divided into three questionnaires. Consequently, the complete model has to be divided into three sub models.
To verify the value-model with its core values and dimensions a survey among students was conducted. Between 152 and 157 students from different courses at Nürtingen Geislingen University (NGU) responded to the three questionnaires. About 100 complete responses were included in the analysis for each dimension. The students were asked to assess Deutsche Bahn (German Railway Company) using different adjectives. The respondents belonged to different semesters of the business and the economics program at the NGU. They were mostly male. The sample is not representative for employees or customers of Deutsche Bahn but then, this was not the objective. However, since Deutsche Bahn provides public transportation services used by most Germans at least occasionally, we can assume that each participant of the study had an opinion about the company. Since our objective is to verify the dimensions of the model, the data can be used for analysis. Separation of the adjectives into three questionnaires reduced response times so that the survey did not demand too much of the participants. The questionnaires were filled in under supervision during different courses.

5 RESULTS OF THE EMPIRICAL STUDY

The results are presented according to the three questionnaires. The first questionnaire includes the adjectives of the dimensions "Viability", "Stability" and "Performance", the second one "Reliability" and "Innovative Power" and the third one "Sustainability" and "Systemic Flow". Initially, each dimension is assessed by using Cronbach alpha and its change when one adjective is removed. Afterwards a confirmatory factor analysis is performed for all dimensions of a questionnaire. Initially, a few indicators for assessing the factor analysis were calculated: The Kaiser - Meyer - Olkin (KMO) criterion is a measure of the adequacy of the data for use in a factor analysis (Litz, 2000: p. 296). A goodness of fit (GOF) measure is also provided. It is the explained share of the overall variance of the model. In addition, every single adjective can be assessed by the measure of adequacy (MSA). Finally, the estimated model coefficients

and their corresponding p-values are presented. The following table contains an excerpt of the results for the Cronbach alpha - the complete tables are in the appendix.

TABLE 1:
Evaluation of single dimensions by Cronbach alpha and change in Cronbach alpha when one adjective is removed

Dimensions and Characteristics			Analysis of Dimensions	
Dim	Nr	Characteristic	Cronbach α	removed α
Stability	B01	authoritarian	0.699	0.700
	B02	down to earth		0.652
	B03	familiar		0.674
	B04	financially stable		0.679
	B05	friendly		0.666
	B06	conservative		0.709
	B07	respectful		0.663
	B08	safe		0.686
	B09	stable		0.675
	B10	traditional		0.679
	B11	independent		0.691
	B12	original		0.683
	B13	economically sound		0.695

TABLE 1 exemplifies the Cronbach alpha analysis. Cronbach alpha for the dimension Stability is 0.669. Cronbach alpha values higher than 0.7 are acceptable and values higher than 0.9 are excellent. Values less than 0.5 are not acceptable. If we were to remove the adjective B06 (conservative), Cronbach alpha would increase to 0.706. To interpret the confirmatory factor analysis an excerpt of the first questionnaire is shown in TABLE 2 - the complete tables are in the appendix as well.

TABLE 2:
Excerpt of the evaluation of three dimensions by a confirmatory factor analysis

Dimensions and Characteristics			Joint Analysis of all Dimensions			
Dim	Nr	Characteristic	KMO / GOF	MSA	Estimate	p-Value
Viability	…	…	0.654 / 0.577	…	…	…
	A06	tough		0.488	0,3117	0,0629
Stability	B01	authoritarian		0,583	0,1224	0,3740
	B02	down to earth		0,678	0,5409	0,0001
	B03	familiar		0,690	0,4700	0,0005
	B04	financially stable		0,395	0,3108	0,0230
	B05	friendly		0,546	0,5590	0,0000
	B06	conservative		0,394	0,0918	0,5050
	B07	respectful		0,749	0,5629	0,0000
	B08	safe		0,535	0,1996	0,1460
	B09	stable		0,647	0,3222	0,0183
	B10	traditional		0,587	0,2332	0,0892
	B11	independent		0,675	0,2327	0,0897
	B12	original		0,510	0,2068	0,1320
	B13	economically sound		0,669	0,3339	0,0144
Perfor-mance	C01	assessing		0,598	0,1658	0,0748
	…	…		…	…	…

The dimensions Viability, Stability and Performance have a KMO of 0.654. Values of KMO (and MSA) less than 0.5 are inacceptable. Values higher than 0.7 are middling and values

higher than 0.9 are outstanding. (Eckey et al., 2002: p. 20). The GOF value (0.577) is rather low but still acceptable. Good values are higher than 0.7. Again we recognise that B06 (conservative) has a very low MSA value and thus, does not really fit into the dimension Stability. The estimated coefficient (Estimate) is the loading and can be interpreted as a weight for the importance of an adjective in relation to the dimension. Finally, the p-value is the probability that the null hypothesis (no relation) is true. Again B06 has a poor p-value and is not significant at all.
The "tools" to interpret the tables in the appendix are now available. Thus, the dimensions can be interpreted.

Questionnaire I: Viability, Stability and Performance

Cronbach alpha for the dimension Viability is rather poor (0.489). Compared with that, the dimension Stability is acceptable (0.699) and the dimension Performance is good (0.84). The confirmatory factor analysis confirms these results. Especially in the dimension Viability a few adjectives have to be removed or replaced (A01, A03 and A06). The dimension Stability has weaknesses as well (B01, B06 and B12). In the dimension Performance only two adjectives are critical (C02 and C13). In summary, the first three dimensions include some weaknesses, especially in the dimension Viability. Nevertheless, the results indicate that the construct of adjectives and dimension is useful. Only a few adjustments are necessary to obtain a meaningful scale to measure the material dimensions by the suggested adjectives.

Questionnaire II: Reliability and Innovative Power

Cronbach alphas for these dimensions are very good: The dimension Reliability has a value of 0.909 and the Innovative Power a value of 0.870. The confirmatory factor analysis validates these results. Only one of 37 adjectives of this sub model has a rather poor p-value. It is the adjective D10 (clear) in the dimension Innovative Power. The KMO (0.805) and the MSA values are mainly good or very good. The GOF of 0.624 is acceptable but not very good. In summary, these two dimensions provide a really good result. It is possible to use a subset of the adjectives for each dimension for an assessment.

Questionnaire III: Sustainability and Systemic Flow

These dimensions provide good results as well. We obtain a Cronbach alpha of 0.907 for Sustainability and 0.903 for Systemic flow. Again only one adjective should be removed in the dimension Sustainability: E15 – environmentally aware. The KMO and the MSA values are at least satisfactory. Only the GOF value of 0.527 seems a little low. Nevertheless, these results confirm the model and can be seen as an indication for the meaningfulness of the approach.

6 SUMMARY AND CONCLUSIONS

The empirical study provided very good evidence for the value-model. Firstly, it was possible to enhance the selection of the core values (adjectives) for the model. This, in turn, will improve the classification and assessment of companies in the future. Secondly, the results lead to further considerations for model development: The core values should also be investigated in a cultural context, e.g. applied to regions or countries. An international study will be developed to this end.

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Appendix 1:
Dimensions Viability, Stability and Performance

Dimensions and Characteristics			Analysis of dimensions		Joint Analysis of all Dimensions			
Dim	Nr	Characteristic	Cronbach	removed	KMO / GOF	MSA	Estimate	p-Value
Viability	A01	attacking	0. 489	0.467	0.654 / 0.577	0.452	-0,0046	0,9780
	A02	determined		0.333		0.469	0,3807	0,0218
	A03	sacrificing		0.527		0.357	-0,0133	0,9380
	A04	robust		0.465		0.680	0,6457	0,0001
	A05	tactical		0.392		0.747	0,6113	0,0002
	A06	tough		0.452		0.488	0,3117	0,0629
Stability	B01	authoritarian	0.699	0.700		0,583	0,1224	0,3740
	B02	down to earth		0.652		0,678	0,5409	0,0001
	B03	familiar		0.674		0,690	0,4700	0,0005
	B04	financially stable		0.679		0,395	0,3108	0,0230
	B05	friendly		0.666		0,546	0,5590	0,0000
	B06	conservative		0.709		0,394	0,0918	0,5050
	B07	respectful		0.663		0,749	0,5629	0,0000
	B08	safe		0.686		0,535	0,1996	0,1460
	B09	stable		0.675		0,647	0,3222	0,0183
	B10	traditional		0.679		0,587	0,2332	0,0892
	B11	independent		0.691		0,675	0,2327	0,0897
	B12	original		0.683		0,510	0,2068	0,1320
	B13	economically sound		0.695		0,669	0,3339	0,0144
Performance	C01	assessing	0.844	0.844		0,598	0,1658	0,0748
	C02	charismatic		0.846		0,669	0,0826	0,3660
	C03	dynamic		0.847		0,581	0,1610	0,0833
	C04	determinative		0.837		0,613	0,2828	0,0035
	C05	effective		0.832		0,628	0,3884	0,0001
	C06	efficient		0.832		0,782	0,3809	0,0002
	C07	decisive		0.838		0,774	0,2391	0,0121
	C08	profit-based		0.838		0,754	0,2112	0,0252
	C09	diligent		0.835		0,715	0,3510	0,0005
	C10	Hard working		0.834		0,656	0,3767	0,0002
	C11	Individual		0.838		0,682	0,2387	0,0122
	C12	competent		0.834		0,792	0,3880	0,0001
	C13	powerful		0.835		0,860	0,3534	0,0004
	C14	brave		0.845		0,501	0,0954	0,2980
	C15	user-orientated		0.835		0,683	0,3093	0,0016
	C16	profitable		0.831		0,757	0,3317	0,0008
	C17	results-orientated		0.841		0,642	0,2051	0,0294
	C18	confident		0.840		0,624	0,1650	0,0761
	C19	strong		0.834		0,722	0,3038	0,0019
	C20	temperamental		0.841		0,649	0,1708	0,0667
	C21	focused		0.831		0,785	0,3452	0,0005

Appendix 2:
Dimensions Reliability and Innovative Power

Dimensions and Characteristics			Analysis of dimensions		Joint Analysis of all Dimensions			
Dim	Nr	Characteristic	Cronbach	removed	KMO / GOF	MSA	Estimate	p-Value
Reliability	D01	sincere	0.909	0.905	0.805 / 0.624	0.814	0,608	0,0000
	D02	persistent		0.908		0.683	0,401	0,0048
	D03	disciplined		0.901		0.882	0,746	0,0000
	D04	honest		0.906		0.821	0,535	0,0001
	D05	experienced		0.909		0.681	0,337	0,0193
	D06	fair		0.905		0.820	0,581	0,0000
	D07	identity-establishing		0.907		0.806	0,518	0,0002
	D08	integer		0.907		0.802	0,502	0,0003
	D09	cooperative		0.907		0.785	0,452	0,0013
	D10	customer-oriented		0.900		0.812	0,773	0,0000
	D11	loyal		0.903		0.837	0,666	0,0000
	D12	properly		0.905		0.828	0,553	0,0000
	D13	organized		0.904		0.867	0,621	0,0000
	D14	based on partnership		0.908		0.837	0,465	0,0009
	D15	dutiful		0.904		0.854	0,623	0,0000
	D16	serious		0.906		0.824	0,511	0,0002
	D17	transparent		0.909		0.804	0,387	0,0067
	D18	supportive		0.903		0.780	0,672	0,0000
	D19	binding		0.906		0.816	0,518	0,0002
	D20	dependable		0.903		0.781	0,675	0,0000
	D21	reliable		0.903		0.820	0,679	0,0000
Innovative Power	D01	adaptable	0.87	0.864		0.811	0,412	0,0007
	D02	open		0.864		0.847	0,420	0,0005
	D03	progressive		0.861		0.848	0,494	0,0000
	D04	leading		0.876		0.642	0,182	0,1530
	D05	adventurous		0.866		0.674	0,396	0,0012
	D06	impulse giving		0.860		0.736	0,544	0,0000
	D07	impulsive		0.867		0.808	0,376	0,0022
	D08	initiative		0.861		0.761	0,481	0,0001
	D09	innovative		0.857		0.859	0,599	0,0000
	D10	clear		0.873		0.681	0,241	0,0556
	D11	creative		0.860		0.713	0,529	0,0000
	D12	imaginative		0.865		0.683	0,422	0,0005
	D13	visionary		0.855		0.805	0,608	0,0000
	D14	foresighted		0.855		0.892	0,601	0,0000
	D15	competitive		0.863		0.763	0,484	0,0000
	D16	future-oriented		0.854		0.835	0,636	0,0000

Appendix 3:
Dimensions Sustainability and Systemic Flow

Dimensions and Characteristics			Analysis of dimensions		Joint Analysis of all Dimensions			
Dim	Nr	Characteristic	Cronbach	removed	KMO / GOF	MSA	Estimate	p-Value
Sustainability	E01	appreciative	0.907	0.900	0.816 / 0.527	0.882	0.670	0.0000
	E02	prudent		0.900		0.866	0.691	0.0000
	E03	emphatic		0.901		0.869	0.680	0.0000
	E04	emotional		0.904		0.836	0.585	0.0000
	E05	integrated		0.902		0.865	0.602	0.0000
	E06	consensus-oriented		0.903		0.792	0.530	0.0001
	E07	willing		0.901		0.781	0.653	0.0000
	E08	cooperative		0.899		0.741	0.685	0.0000
	E09	employee-oriented		0.900		0.872	0.632	0.0000
	E10	compassionate		0.899		0.896	0.698	0.0000
	E11	quality-oriented		0.904		0.804	0.491	0.0004
	E12	social		0.900		0.854	0.664	0.0000
	E13	team-oriented		0.901		0.862	0.592	0.0000
	E14	prudent		0.902		0.796	0.550	0.0001
	E15	environmentally aware		0.913		0.610	0.170	0.2470
	E16	responsible		0.905		0.845	0.470	0.0007
	E17	associate		0.902		0.799	0.581	0.0000
	E18	mediating		0.902		0.804	0.564	0.0000
	E19	appreciative		0.901		0.800	0.620	0.0000
Systemic Flow	F01	adventurous	0.903	0.901		0.692	0.225	0.0028
	F02	exciting		0.900		0.741	0.269	0.0004
	F03	balanced		0.899		0.854	0.267	0.0004
	F04	cool		0.896		0.889	0.358	0.0000
	F05	enthusiastic		0.897		0.834	0.324	0.0000
	F06	flexible		0.900		0.873	0.252	0.0008
	F07	promoting		0.899		0.826	0.254	0.0007
	F08	spiritually free		0.898		0.808	0.294	0.0001
	F09	cheerful		0.898		0.854	0.326	0.0000
	F10	humorous		0.900		0.682	0.278	0.0002
	F11	complex thinking		0.903		0.765	0.152	0.0410
	F12	alive		0.896		0.803	0.342	0.0000
	F13	passionate		0.897		0.885	0.350	0.0000
	F14	curious		0.895		0.880	0.351	0.0000
	F15	positive thinking		0.898		0.787	0.271	0.0003
	F16	meaningful		0.898		0.832	0.278	0.0002
	F17	spontaneous		0.900		0.764	0.238	0.0016
	F18	systemically flowing		0.901		0.788	0.214	0.0043
	F19	interconnected		0.904		0.643	0.127	0.0878
	F20	networked thinking		0.901		0.682	0.213	0.0045
	F21	diverse		0.896		0.880	0.313	0.0000
	F22	knowledge-oriented		0.898		0.807	0.266	0.0004
	F23	confident		0.900		0.738	0.235	0.0018