Intangible resources: a categorial system of knowledge and other intangible assets

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Abstract

Purpose – There are several strands that cope with particular intangible resources, such as intangible assets, intellectual, human, and organisational capital, data and information, knowledge and capabilities. However, until now there have been no attempts to define and identify all intangible resources systematically in one framework. The purpose of this paper is to show how an exhaustive and exclusive categorial system of all intangible resources can be generated.

Design/methodology/approach – Following the idea of comparative analyses by grounded theory, it will be referred to relevant approaches which can be defined in academic literature. It is investigated how types of intangible resources, that share common attributes, can be grouped together, which categories emerge, and how these categories can be defined. This gradually leads to the creation of the whole categorial system based on empirical inductionism. At the same time, the categorial system is created based on logical deductionism. Having defined intangible resources as the objects of reasoning and by which leading principles will be looked at, the class of intangible resources will be broken down into categories or sub-classes with the help of precisely formulated attributes.

Findings – Generation of a comprehensive, consistent, and complete categorial system of all possible types of intangible assets.

Research limitations/implications – Solely a theoretical paper. Although empirical examples are provided it might be interesting to demonstrate the application of this categorial system.

Practical implications – With such a categorial system we are in the position to identify and locate the uncountable number of "real world" types of intangible resources more precisely and efficiently.

Originality/value – With such an attempt it may become clearer how to cope with different types of intangible resources, how to gather, create, use, share and develop them more appropriately.

Keywords Resource management, Intangible assets, Knowledge management

Paper type Conceptual paper

Introduction

Since the early 1990s at the latest practitioners as well as academics have "realized that knowledge was perhaps the critical resource, rather than land, machines, or capital ..." (Earl, 2001, p. 215). In business, management, and organisation studies there are several strands trying to identify, understand and manage knowledge and other intangible assets, such as[1]:

- intangible assets from a financial accounting perspective (IAS 38, 2003; FASB, 2001a, b, 2003);
- intellectual, human and organisational capital in performance measurement and performance management approaches (Diefenbach and Vordank, 2004; Neely, 2002; Kaplan and Norton, 2001a, b; Sveiby, 1998; Edvinsson and Malone, 1997; Kaplan and Norton, 1992; Sveiby and Lloyd, 1987);

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- data, information and (explicit) knowledge in the fields of ICT (information and communication technologies);
- value drivers and capabilities of organisations addressed by resource-based view (Grant, 1991; Barney, 1991; Prahalad and Hamel, 1990; Wernerfelt, 1984);
- knowledge being investigated by different schools of knowledge management (Holsapple and Joshi, 2002, p. 52-5; Chua, 2002; Alavi and Leidner, 2001, pp. 109-13; Staples *et al.*, 2001, pp. 9-10; Teece, 1998; Demarest, 1997; Zander and Kogut, 1995, p. 79; Nonaka and Takeuchi, 1995; Nonaka, 1994; Bohn, 1994, p. 63; Collis, 1994, pp. 144-5; Nonaka, 1991; Itami and Roehl, 1987); and
- human, social and cultural capital in some sociological concepts (Bourdieu, 1983; Granovetter, 1973).

These different approaches and perspectives contribute much to our understanding of how people, networks, organisations, economies, and societies depend on, and deal with, "intangibles resources" (in the following this term is meant and used as a general term for all intangibles mentioned above). The strands are conceptualised for different purposes and have their specific strengths and limits. However, perhaps because of the number of these strands and their different focal points one question arises almost automatically: What exactly "are" intangible resources?

In some strands there are serious attempts to define and identify specific intangible resources as precisely as possible (for example, in financial accounting or performance measurement). In contrast, other approaches provide very general or many different definitions (e.g. knowledge management)[2]. Or they do not provide precise definitions at all and deliver only anecdotal evidence (resource-based view). The provision of several examples – as interesting and helpful this might be for gaining (new) insights – is not sufficient for a systematic investigation into the problem of identification, management and development of intangible resources. The more examples are provided, the less clear become the object(s) of reasoning. Much more, the strands mentioned relate to each other very little, if any. And since all strands concentrate only on some specific intangible resources further questions occur immediately, such as: How can one clearly differentiate between different types or categories of intangible resources? Do they create a consistent and comprehensive system of intangible resources? And if so, how can one develop such a system of intangible resources systematically?

Unfortunately, by now there has been no serious attempt to define and identify all intangible resources systematically. Irrespective, or better because of numerous approaches there is still no clarity about a general definition of intangibles and criteria for an identification of different types (Gröjer, 2001, p. 698). Therefore, the idea of this paper is to try to formulate a comprehensive and detailed categorial system of intangible resources that will enable us to identify as well as differentiate between different types of intangible resources systematically and precisely.

This might be helpful in a number of ways. Classifications are a "heuristic device", a "help construction" for interpretation and understanding (Gröjer, 2001, p. 696). To cope with issues (here: types of intangible resources) not only on the basis of anecdotal evidence but as systematically as possible helps us to see better what they have in common and where they differ (Bowker and Star, 2002, p. 232). Such a map or framework "facilitates [our] understanding of the world through simplification"

(Gröjer, 2001, p. 698). And it is not "merely" about a theoretical understanding. There are practical implications, too. Ill-defined terms lead to a poor understanding of reality and, hence, bad decisions and poorer outcomes. In contrast, precise terms and clear identification of the objects of reasoning can contribute to a better understanding, perhaps even to a better managing of our personal, organisational, and societal affairs (Bohn, 1994, p. 71).

The following section provides a description of the methodological basis for approaching the problem. In the third section a general definition of intangible resources will be provided and it will be demonstrated by which leading principles this class of objects of reasoning can be identified and described. In the fourth section different types of intangible resources, which share common attributes, will be gradually grouped together to categories. In addition, general definitions of these categories will be provided and it will be shown how they differ. The fifth section provides an overview of the complete categorial system followed by a short conclusion.

Methodology

In order to develop such a categorial system and its categories in this paper, two, quite different approaches will be used at the same time.

Following the ideas of comparative analysis and empirical inductionism of grounded theory (Glaser and Strauss, 1967, particularly pp. 23-4, 31-43) it will be referred to some of the strands and approaches mentioned above (mainly financial accounting, performance measurement, ICT, knowledge management, sociological concepts of intangibles). In the sense of substantial theory it will be described which intangible resources have been identified so far[3], how types of intangible resources, which share common attributes, can be grouped together, how categories can be built on existing definitions and identifications and, in doing so, which categories emerge. This gradually leads to the creation of the complete categorial system of intangible resources[4].

At the same time, the categorial system will be created on the basis of logical deductionism[5]. Having defined intangible resources as the objects of reasoning (and by which leading principles it will be looked at them), the class of intangible resources will be broken down into categories or sub-classes with the help of precisely formulated attributes (Gröjer, 2001, p. 699) and, hence, it will be differentiated between categories or types of intangible resources.

The inductive approach provides empirical evidence a priori, the logico-deductive approach guarantees that the system is exhaustive, exclusive, complete and consistent. Much more, both approaches lead to the same result.

Definition of intangible resources and a leading principle for the categorial system

At first one needs to have an idea about the object of reasoning. What does the term "resources" mean or could mean? In economics and business studies there are other terms such as capital, assets, goods, or commodities. These terms usually have a very specific, narrow market-oriented meaning – which is too little to capture the whole breadth and depth of intangibles. This can also be the case with the term "resources" but, fortunately, there are attempts to define them more generally. For example, De Gregori (1987, p. 1241) defines resources as "usable and serviceable to human

beings". Obviously, this is an anthropocentric view which is still quite common and dominant in economic reasoning[6]. But he provides an even wider definition of resources which shall be followed here; they are defined as a "functional relationship" (De Gregori, 1987, p. 1243). I think this defines the very basic idea of resources in a most general sense; it describes a relation, it is a relational term. In this sense, "resource" means anything that is or could be entirely or partly of some use for something else – whatever these "things" are and however the use and ends are defined and interpreted.

One also needs an idea about what the term "intangible" means. For this, it shall be followed classical logic, a dichotomous view of the world in the sense that there are either intangible or tangible objects[7]. Hence, one characteristic of intangible objects is that they are immaterial, i.e. of non-physical existence; it is the idea, not the paper on which it is written. It is the algorithm ("software") and not the CD on which it is stored. Intangible objects are not matter or a thing one can touch literally. They do not have spatial measures or weight. Therefore, immateriality or non-physical existence can be seen as a first criterion of demarcation.

Second, all intangible objects are renewable after they have been used. However, there are some tangible or material resources that have the same characteristic (mainly the so-called "renewable" tangible resources, i.e. plants, trees, ecosystems or working animals). So, whereas the ability to regenerate is also a criterion of all intangible objects, it is not a criterion of demarcation between intangible and tangible resources.

Third, intangible resources seem to have the ability to change while they are being used. Again, this is also true for tangible assets. The crucial question is how they change. Classical (material) resources like raw materials or working materials as well as renewable resources decrease, and only decrease, while being used. This is also the case for intangible resources. However, in addition they have the characteristic that their stock can increase while being used. For example, to use knowledge in a conversation and further it as information to another person leads often to the result that the amount (and/or the quality) of knowledge has increased – probably for both parties[8]. This characteristic – a (possible) increase while being used – might be seen as "the" decisive criterion of demarcation against tangible assets.

Taking the general idea and all three criteria together, intangible resources might be defined as follows:

> An intangible resource is everything of immaterial existence, which is used or potentially usable for whatever purpose, which is renewable after use, and which not only decreases, but can remain or increase in quantity and/or quality while being used.

Having defined intangible resources and distinguished them from tangible/material resources, the next step is about to decide from which perspective they shall be investigated. Investigating objects of reasoning always happens under a certain perspective – whether the investigator is aware of it or not. Usually it is preferable that the perspective is made explicit. For this, one needs to formulate a leading principle (Thompson, 1983, p. 336). There are several possibilities to look at intangible resources, to identify and classify them on the basis of a leading principle. One might be the purpose, i.e. for which ends resources are being used or should be used. Another principle could be the way how intangible resource are being treated or should be treated, i.e. how to get, use, store, retrieve, nurture, train and develop them. Or the content could be a principle, i.e. what intangible resources are particularly about.

Another principle could be the location, i.e. where intangible resources are or could be found. The classification of intangible resources developed and suggested in this paper will be based on this leading principle of location. It is not better or worse, more or less important than the others mentioned. And all are equally self-evident. The decision for the principle of location has perhaps a more pragmatic reason. By now, most of the knowledge management and intangible assets approaches have the aspect of location in their very centre. For example, Nonaka's four modes of transformation of tacit and explicit knowledge (internalisation, socialisation, externalisation, combination (Nonaka and Konno, 1998, p. 43) are much about where knowledge is located and how its location changes. In ICT and knowledge management most problems of storage and retrieval or communication are again about where data and information are, how they change their location, and how this can be organised best. Performance can only be measured and managed when it is clear where these capabilities called intellectual, human and/or organisational capital exactly are. Financial accounting and resource-based view are also keen to identify and locate organisational values. In one word: Location of intangible resources matters – possibly because ownership, access to, and transfer of things, i.e. property and trade of commodities, are some of the most basic and important aspects of economics and business.

Of course, as mentioned above, intangible resources are no material objects. It therefore may sound confusing to talk about their "location". Surely, they are not somewhere in a physical or spatial sense. But they do exist in several and different media where they are generated, stored, used or developed – and these media can be located. Hence, one way or one aspect of identifying intangible resources is to look at in what medium they are. Skills, for example, can be only in living beings, working skills (in the sense of producing or making something deliberately in order to use it as a tool over time in different situations) only in human beings, social capital only amongst particular people, intellectual property only ascribed to a legal entity and so forth. However, for some intangible resources it might be quite difficult to identify where they are located. Think about organisational culture, routines or technologies. Nonetheless, in the following it will be demonstrated that all intangible resources can be identified and differentiated into several types under the leading principle of location.

Categories of intangible resources

Under the leading principle of location it shall be now tried to identify different types of intangible resources.

Obviously, some intangible resources can be "in our heads" or belong to us as individuals, such as:

- tacit knowledge based on, and comprising, qualifications, experiences, skills and abilities of an individual;
- individual feelings and values, hopes and objectives;
- personal health, wellbeing and manpower;
- individual competence of assessing, deciding, acting and behaving;
- personality; and
- formal qualifications and degrees (legally protected).

The common specific quality of these intangible resources is that they belong to a particular person – and only to him or her. In this sense, a first attribute for differentiating intangible resources into several categories might be whether an intangible resource is linked to a particular individual. In economics and business studies this category of intangible resources is usually called human capital. Quite often it is meant in a narrow sense as (extended) vocational training and job-related qualifications. In contrast, human capital is understood here in the much broader, sociological sense (Bourdieu, 1983, pp. 185-6) and shall be defined as tacit knowledge and individual competence for managing oneself and for (inter-) acting within or with one's environment.

Individuals often interact with others, i.e. act within social relationships. Hence, some of the types mentioned above, and others, can and do reside in more than one person, for example:

- personal/informal relations, social norms, feelings and traditions between people knowing each other;
- not contractually regulated aspects of formal relations, e.g. trust, commitment, engagement, expectations, obligations ("psychological contract", Coleman, 1988, pp. 95, 102-105);
- social competence (ability for discourse, conflict and cooperation);
- power and reputation based on personal characteristics; and
- personally produced services (legally protected).

The common characteristic of these intangible resources is that they are "between" or shared by people. Moreover, this category of intangible resources also meets the first attribute, i.e. it is particular individuals who share them – and usually know each other directly, have some kind of direct links or relation (Bourdieu, 1983, p. 191; Coleman, 1988, pp. 100-101). Since Granovetter (1973) this category is called social capital. As Gant *et al.* (2002, p. 296) explain, the term social capital refers to "both to the network of relationships that exist among individuals in some group and to the assets that are mobilised through the network of social relationships"[9]. In this sense, a second attribute for differentiation shall be whether or not intangible resources are being shared by two or more individuals who have a personal relationship. If this is the case, intangible resources belong to the category of social capital that can be defined as interpersonal relations and the aspects resulting from such relations for which there is no external reason (e.g. contractual or legal claim, social position).

Furthermore, there can be intangible resources that are being shared by two or more people (second attribute) but are not linked to particular individuals (first attribute). We talk about intangible resources that, so to speak, "do not care about specific individuals", for example:

- language;
- cultural traditions and heritage, national trait;
- corporate culture, working climate, informal rules;
- social norms, values, rules; and
- law (legally protected).

Even if certain people leave the system, or individuals change, the intangible resources remain – because they are deeply embedded in all kind of institutions and routines of this social group or culture. And they are being transferred to new members via many different means of teaching and learning, peer group pressure, positive and negative sanctions and the like. One might even say that they are institutions. With Bourdieu (1983, pp. 186, 189) this category of intangible resources can be called cultural capital. Cultural capital describes official and informal norms, values and rules of a particular community (dyad, family, peer group, organisation, society, nation, people, mankind)[10]. Because of the fact that cultural capital usually is lived and practiced on a more or less daily basis, it is not only embedded in "abstract" institutions but internalised, incorporated in the members of that particular group or society (Bourdieu, 1983, p. 185)[11]. Human, social, and cultural capital mingle within the individual in the processes of socialisation, education and daily actions and interactions with others. It usually expects too much of the average individual to reflect fully on these intangible resources, to clearly differentiate between them and to assess how and why they are or are not, should be or should not be.

However, there is another type of intangible resources which are almost like cultural capital. Examples are:

- role, social position;
- power, status and influence related to a position (definition-, disposition-, and decision-power); and
- rights and duties related to a position.

Like cultural capital they are not linked to a particular individual (first attribute) but located in two or more individuals (second attribute). But there is one crucial difference. In contrast to cultural (and human as well as social) capital they are exclusively identifiable and transferable. Such types of intangible resources I call "statutory capital". This category describes person-independent positions in a social system and the exclusive possibilities and responsibilities arising from or linked to such a position or role. Whoever holds the position gets access to the intangible resources linked to it. It means that an intangible resource can not only be held or even owned by a possessor or owner. The intangible resource is transferable as a specified unit, i.e. its possessor or owner can change.

There are other intangible resources that are transferable, which have the third attribute of transferability:

- data (symbols, signs), information;
- explicit knowledge;
- intellectual property (company's name and logo, trademarks, drawings, formulas, software programmes, copyrights, patents, licenses, quota, internet domains, portals)[12]; and
- contractually regulated aspects of formal relations between parties (rights and duties).

Like statutory capital these types are not linked to a particular individual (first attribute) and transferable (third attribute). But, unlike statutory capital, they are not necessarily linked to any people. Such types of intangible resources can be isolated and

Category	Human capital	Social capital	Cultural capital	Statutory capital	Inform. and legal capital	Embedded capital
Linked to a particular individual	Yes	Yes	No	No	No	No
Located in two or more individuals	No	Yes	Yes	Yes	No	No
Transferability	No	No	No	Yes	Yes	No
Carrier	Individual	Individuals ("interpersonal system")	Society, community ("suprapersonal system")	Role, position	Physical medium, legal entity	Structures, organisations, things
Definition	Tacit knowledge and individual competence for organising oneself and for (inter-)acting within or with one's environment	Interpersonal relations and the aspects resulting from such relations for which there is no external reason (e.g. contractual or legal claim, social position)	Official and informal norms, values and rules of a particular community (dyad, family, peer group, organisation, society, nation, people, mankind)	Statutory capital describes person-independent positions in a social system and exclusive possibilities and responsibilities arising from or linked to such a position or role	Any explicit meaning of something that can be identified and demarcated individually without being necessarily internalised, shared or understood by one or more individuals	Non-separable explicit knowledge embedded either in immaterial structures and processes or material goods ("artefacts").

(*continued*)

Table I.
The categorial system of intangible resources based on three attributes

Table I.

Category	Human capital	Social capital	Cultural capital	Statutory capital	Inform. and legal capital	Embedded capital
Types of resources	Tacit knowledge based on and comprising qualifications, experiences, skills and abilities Individual feelings and values, hopes and objectives Personal health, wellbeing and manpower Individual competence of assessing, deciding, acting and behaving Personality Formal qualifications and degrees (legally protected)	Personal/informal relations, social norms, feelings and traditions between people knowing each other Not contractually regulated aspects of formal relations, e.g. trust, commitment, engagement, expectations, obligations ("psychological contract") Social competence (ability for discourse, conflict and cooperation) Power and reputation based on personal characteristics Personally produced services (legally protected)	Language Cultural traditions and heritage, national trait Corporate culture, working climate, informal rules Social norms, values, rules Law (legally protected)	Role, social position Power, status and influence related to a position (definition, disposition, and decision power) Rights and duties related to a position	Data (symbols, signs), information Explicit knowledge Intellectual property (company's name and logo, trademarks, drawings, formulas, software programmes, copyrights, patents, licenses, quota, internet domains, portals) Contractually regulated aspects of formal relations between parties (rights and duties)	Immaterial infrastructure (hierarchies, government, planning, information, communication, coordination, administration, and controlling structures and processes, channels of procurement and distributions) Organisational knowledge and abilities embedded in technologies and models Routines Knowledge embodied in processed or produced goods ("artefacts")

piled up. They exist on their own – even if there are no people at all. All that is needed is some kind of medium on which they are recorded, e.g. paper, ICT-media or any other physical carrier. Think about Egyptian hieroglyphs written in stone which have lasted for many centuries without anyone knowing their meaning. However, usually people know the meaning of this type of intangible resources – and its value. Such intangible resources I call informational and legal capital. Informational and legal capital can be defined as any explicit meaning of something that can be identified and demarcated individually without being necessarily internalised, shared or understood by one or more individuals.

Finally, there is a sixth type of intangible resources. Besides having the general attributes of intangible resources (immaterial, renewable, ability to increase while being used) they do not meet any of the three special attributes, i.e. they are neither linked to a particular individual or are being shared by more people nor are they transferable. I call them embedded capital. Examples are (Demarest, 1997, p. 378):

- immaterial infrastructure (hierarchies, government, planning, information, communication, coordination, administration, and controlling structures and processes, channels of procurement and distributions);
- organisational knowledge and abilities embedded in technologies and models;
- routines; and
- knowledge embodied in processed or produced goods ("artefacts").

Embedded capital might be defined as non-separable explicit knowledge embedded either in immaterial structures and processes or material goods ("artefacts")[13].

The complete categorial system

In the previous section different categories of intangible resources were identified and described. Table I "The categorial system of intangible resources based on three attributes" provides an overview of the complete categorial system, i.e. all six categories of intangible resources, their attributes, definitions and empirical examples.

The proof that the categorial system covers all possible types of intangible resources is given by a logico-deductive approach. The differentiation between categories took place with the help of three attributes – "linked to a particular individual"; "located in two or more individuals"; and "transferability". Following Aristotle's or traditional logic, that an object either has or does not have an attribute (Bowker and Star, 2002, p. 62), the combination of three attributes leads to eight

Linked to a particular individual	Yes	Yes	Yes	Yes	No	No	No	No
Located in two or more individuals	Yes	Yes	No	No	Yes	Yes	No	No
Transferability	Yes	No	Yes	No	Yes	No	Yes	No
Category	None	Social capital	None	Human capital	Statutorial capital	Cultural capital	Informat. and legal capital	Embedded capital

Table II. Logico-deductive classification of intangible resources based on three attributes

categories. However, two combinations are logically not possible (first and third columns of the eight categories shown in Table II). If something is linked to a particular individual, by definition, and its nature it cannot be transferable at the same time. Table II provides an overview of all logical combination of the three attributes.

Basing the categorial system on classical logic and dividing the sub-classes logically according to clearly formulated attributes guarantees that all intangible resources are being included and, therefore, that the system is complete[14]. The categorial system is exhaustive, i.e. "all objects of the universe of discourse can be classified", and exclusive, i.e. "no object can belong to more than one class" (both Gröjer, 2001, p. 703)[15].

Conclusions

With a categorial system like the one developed above it becomes possible to identify and locate different types of intangible resources more precisely and efficiently. Furthermore, it may become clearer how to cope with different types of intangible resources, how to gather, create, use, share, and develop them more appropriately. Because of all strands mentioned above we have learned that the management of intangible resources is, at least, as important as the management of tangible resources – on an individual, group, organisational, and societal level. But for this, of course, more than only categories is needed. We need more theories – in particular theories which do not only explain the management of intangible resources in a functionalistic or technological manner but address more fundamental problems from a critical and differentiated perspective (Diefenbach, 2003), such as: for which purposes or ends are intangible resources (allegedly) being used or should be used? On which basic assumptions different approaches and suggestions are being based? How should intangible resources be treated, how should they be gathered, used, stored, retrieved, nurtured, trained and developed? And: which and who's interests are being served by this in which manner? These are perhaps some of the more important questions that still need to be answered.

Notes

1. For a systematic overview of the strands mentioned and a discussion of their implications for management and innovation see Diefenbach (2004/5).
2. For example, Alvesson and Kärreman (2001, pp. 997-1000) describe the concept of knowledge as inconsistent, vague, broad, two-faced and unreliable.
3. According to Glaser and Strauss (1967 p. 144) data and empirical evidence do not have to stem necessarily from field work but can be gained, for example, from published research.
4. The whole concept of grounded theory comprises the following steps: 1. gathering data, 2. replication of the facts with comparative evidence, 3. generation of conceptual categories and properties from evidence, 4. hypotheses or generalised relations among the categories and their properties – whereby 3. and 4. are the elements of substantive, finally formal theory (Glaser and Strauss, 1967, pp. 23-4, 32-3, 35-43).
5. For some additional comments on categories, methodological and logical issues of classifying see, for example, Bowker and Star (2002), Gröjer (2001), Carr (1992) and Thompson (1983).
6. It should be mentioned that De Gregori distinguishes between an anthropocentric and an "anthropo-egoistic" view. As he (De Gregori, 1987, p. 1242) explains: "To say that the term

'resources' essentially has no meaning apart from a relationship to human beings does not mean that all things have a right to exist only to the extent that they serve human beings. . . . We can also argue that other living things have rights apart from their service to us."

7. In this paper it is abstracted from problems of physics such as whether light, (wind and sun) energy, electricity, or waves in general as well as other forces either are of material or non-material nature or perhaps represent a third type of being. It is planned to cope with such boundary problems in another paper that concentrates on the identification of all, i.e. tangible and intangible resources and their decisive attributes and differences.
8. Of course, misinformation (e.g. lies, propaganda or some types marketing) can lead to a decrease in knowledge.
9. For a comprehensive overview of different definitions and interpretations of social capital see in particular Nahapiet and Ghoshal (1998, pp. 243-5), also Freitag (2001, pp. 4-7) or Leana and Van Buren (1999, pp. 538, 539).
10. Of course, this neither means that there is one, coherent and consistent (monolithic) set of these norms and rules nor that the people belonging to this society necessarily always follow them or accept them. It is only meant that these values, norms and rules by and large dominate and influence people's opinions and actions to a certain extent.
11. Bourdieu describes a third form of cultural capital that is embedded in goods, pictures, books, instruments or machines. This type of intangible resources will be referred to further down.
12. Some of these count as "intangible assets" from a financial accounting perspective. For precise criteria of their definition and identification as such goods see Diefenbach (2004/5), for the whole state-of-the-art and discussion of intangible assets in financial accounting see IAS 38 (2003); FASB (2001a, b, 2003).
13. Although proponents of resource-based view usually describe their objects of reasoning quite vaguely (e.g. Wernerfelt, 1984; Prahalad and Hamel, 1990; Grant, 1991; Barney, 1991) there seems to be some similarity between embedded capital and organisational value drivers, core capabilities.
14. The completeness of the categorial system does not depend on the number of attributes chosen. It would be complete whether we had picked, e.g. only two or four attributes – which would have led to respectively four or 16 categories. Since one idea of a categorial system is to be sufficiently detailed, and, at the same time, still clear and practicable one might argue that three attributes are sufficiently enough.
15. For other criteria of classificatory principles, such as consistency, necessity, sufficiency, simplicity, and usefulness see Gröjer (2001, pp. 697-704) and Bowker and Star (2002, p. 10-11).

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