

The nature of organizing design

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Eindhoven Centre for Innovation Studies

**The Nature of Organizing Design:
both like and unlike material object design**

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The Nature of Organization Design: both like and unlike material object design

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Abstract

Organization design is an important issue. Reorganization is a standard managerial intervention to improve performance. However, often the results of reorganization fall short of expectations. The reasons for this may include a misunderstanding of the nature of organization design. Typically organization design is carried out more or less like material object design, like in construction and engineering design, thus negating its social constructionist nature: organization design works quite unlike material object design.

Another reason may be the limited availability of fine grained organization design knowledge. This is a big opportunity for academic research. However, nowadays the issue of organization design does not get much attention in the academic literature. And, as far as it does get attention, the focus tends to be on macro issues, like centralization and formalization. Ideas from material object design can help to complement this type of research with empirical research aiming at more fine grained design knowledge: organization design is much like material object design.

Such empirical research needs a sound theoretical basis, providing an in-depth understanding of the nature and working of organization design and change. This conceptual article aims to contribute to that by inquiring into what one can learn from material object design for organization design, by analyzing the nature of organization design and the similarities and differences with material object design and by exploring the nature of organization design knowledge. It concludes with the presentation of a set of general process models for organization design and planned change.

Key words: organization design; strategizing and organizing; the informal organization; design knowledge; planned change.

Organizing is a key activity for any social species. Organizing a group is creating the conditions for concerted action by that group to realize common objectives. This is done through the creation of a certain stable division of labor and at the same time implementing some co-ordination mechanisms to bring together what has been divided. Furthermore, an effective division of labor implies a thorough learning of the roles and routines associated with that division of labor. Hunting groups of wild dogs, lions or humans may at first be unorganized, but usually, if the members stay together, over time they develop some kind of organization, they learn effective roles and routines. Organized hunting groups are much more successful than unorganized ones.

Organizing can be done in real time mode. For example, on the spur of the moment a leader assigns certain operational roles to certain individuals and possibly also some coordinating roles next to his/her own coordinating role. Or, alternatively, the members of the group use self-organization by assuming certain roles and adapting these to one another over time. Organizing can also be done in design mode. In this article I mean by designing something like “look before you jump”, reflection-before-action, or – in the words of Pisano - learning-before-doing as opposed to learning-by-doing (Pisano, 1994). Similarly, by “organization design in design mode” I mean reflection on the future organization of a group (division of labor, coordination structure, and operational routines) before the actual organizing of that group.

Organizing is a natural activity for mankind. In our days management textbooks regard it as one of the key functions of management, invariably interpreting organizing as organizing in the design mode, see e.g. Stoner and Freeman, 1996; Griffin, 1999; Daft, 2003 (organizing in real time mode probably is subsumed by them under the function “leading”). It is received wisdom that the “right” organization form contributes strongly to performance. Managers, therefore, often use changes in their organization to cope with performance problems. Turbulence, hyper-competition and globalization, and the vastly improved potential of information and communication technologies trigger experiments with various organization forms, including new ones like network organizations, virtual teams and organizations, formal and informal alliances, project-based organizations, etc. (Pettigrew et al., 2003). However, often the sustainable performance improvement and other results of reorganizations tend to fall short of expectations (Starbuck and Nystrom, 1981; Nadler and Tushman, 1988). The reasons for this may include a misunderstanding of the nature of organization design. Typically organization design is carried out following the logic of knowledge intensive material object design, like in engineering or construction design. In these disciplines you make a model of an entity to be realized, hand that model to others, the makers of the new entity, who will realize it *as designed*, after which it is expected to stay operating *as designed*. Material object design is a representation-focused activity; the representation, the model determines the object and through this its performance. Likewise you can make a model of an organizational structure or process – e.g. by drawing an organization chart or a flow diagram – and pass that model on to others to realize it *as designed*. Such a representation-focused approach negates the social constructionist nature (Berger and Luckman, 1966; Searle, 1995) of organization design: organization design is unlike material object design.

Another reason for the limited success of reorganizing may be the limited availability of fine grained, valid organizational design knowledge (Starbuck and Nystrom, 1981). Over the last two centuries material object design has gone through a process of

scientization, resulting in a wealth of research-based, valid design knowledge. As yet the scientization of the field of organization design has had a too limited impact. Organization design in practice tends to use a fairly limited number of well-known, traditional templates, like the functional, the product-oriented and the matrix structure and makes limited use of academic organization literature (Van Aken, 2004). Therefore, the development of a broader and more finely grained solution set for organization design is a big opportunity for research. However, regrettably nowadays the issue of organization design and design knowledge does not get much attention in academic research. Where it does get attention, research tends to be largely descriptive, focusing more on analysis than on design, and discussing predominantly macro-issues like formalization, standardization and centralization. However important, this gives too little guidance for actual organization design in practice.

Good empirical research, aiming at the development of valid, fine grained design knowledge for organization design, could well lead to a (further) scientization of organization design in practice, just as sound research has led to a scientization of engineering and construction design. However, it is the thesis of this article that such efforts need a sound theoretical basis to better understand the nature and working of organization design and change than present approaches do. The development of that theoretical basis can be informed by material object design, but should at the same time go beyond the logic of material object design. This conceptual article aims to contribute to that theoretical basis by inquiring into what we can learn from material object design for organization design, by analyzing the nature of organization design and the similarities and differences with material object design and by exploring the nature of design knowledge, some of which may be cast in the form of field-tested and grounded solution concepts. It concludes with the presentation of a set of nested general process models for organization design and planned change to summarize the various concepts given here and to relate them to one another.

The ontology of organization design

This quest for a further development of the theoretical basis for organization design is driven by a desire to understand its ontology. Two examples from reorganization processes in which I have been involved in a consulting role, may illustrate this desire. The first is the reorganization of a repair shipyard from a functional organization to a product oriented one with self-managing groups to decrease throughput time and costs (De Waard, 1999). The second one is the reorganization of a Dutch psychiatric hospital from a set of semi-independent clusters to a kind of matrix organization in order to develop more customized and integrated treatment processes (Van Aken and Bagchus, 1997). Like is often the case, the members of these organizations attached a very high importance to organization charts, boxes arranged in levels and connected with lines, and the discussions on changes in these charts were very intense indeed. For the members of the organization, the levels and boxes depicted the same objective reality as the drawings of their buildings, which they used to assign rooms to the various people (but the importance of the former was much higher: the fight for a certain box in the chart was much more intense, than for a room with a view). They reified the organizational

structure, as depicted in the organization chart, treated it as if it were a physical reality (Silverman, 1970). It were not only the engineers and the technicians of the shipyard, who transferred unconsciously the objective, physical reality, represented by the technical drawings of their ships, to the essentially immaterial social reality, represented by the organization chart. Also the psychiatrists, used to question the thoughts and feelings of their patients, and probing the unconscious behind these thoughts and feelings, did not question the nature of the reality, represented by the charts. Like the engineers, they allowed the levels and boundaries of their boxes to direct and constrain their social behavior, just like floors and walls direct and constrain their physical movements.

Everybody knew, of course, that the “real” organization, that very complex social system, encompassed much more than could be depicted by organization charts, but everybody believed – including me – that you could change that complex system on the basis of a rearrangement of the boxes and a change of their labels. A belief, supported by everyday management practice: organization change may have its problems, but it is done time and again.

Of course, every model has per definition its limitations, so making a very simple model of a very complex social system is nothing special. But what is special indeed, is that you can create, or recreate such a complex system on the basis of such simple models. That begs questions like what is exactly modeled in an organization chart, through what mechanisms does it direct and constrain behavior, and above all, through what mechanisms does a redesign of that simple model change and recreate that complex social system. In short, how does organization design really *work*?

Understanding the workings of organization design should also entail an understanding of the roles of the various parties in the process. Theory tends to focus on the roles of the change agents - managers, staff members, strategy consultants, OD-consultants - less on the roles of the members of the organization to be reorganized. Typically, both in practice and in management textbooks, they are supposed to play rather passive roles, following orders and maybe showing some resistance to change. But organizational performance is realized by these people, not (directly) by the change agents. Therefore, in reality they might play a more active, but possibly less visible role in organization design. So, I became interested in the realities behind the organization chart and behind the official, visible actions of change agents in organization design. I became interested in a language, a set of concepts that would help to further understand these realities. This further understanding might help to improve the practice of reorganizing, but might also support academic research on the processes of organization design and change, and through this support the further development of valid and useful organization design knowledge.

Material object design

As the development of a theoretical basis for organization design can be informed by knowledge intensive material object design, like engineering and construction design, I will discuss in the next section some aspects of material object design, and, on this basis, in the subsequent section the interpretation of organization design that will be used in this article.

The scientization of material object design: from evolutionary to research-based design

Designing is maybe not as old as organizing, but material object designing probably is as old as modern man. Hand-held rock tools and primitive dwellings may have been designed, i.e. the makers of such objects may have reflected on the functions, materials, shapes and other aspects of the object to be made, before the actual physical work started. Naturally, the first specimens of a certain type of important object were designed from scratch, but in the long run the designing of next specimens tended to be largely based on traditional, dominant designs, passed on from generation to generation, verbally or implicitly via realized specimens of the designs. From time to time some incremental improvements were incorporated in these traditional designs. Through such processes important material objects have been developed over time, like specific types of farmhouses, farm carts, ships, guns, and fortifications, and instruments like the scythe and the violin. In the design literature this gradual development of dominant designs is called *evolutionary design* (Jones, 1980; French, 1994).

In ancient times objects were generally designed by their makers themselves, but a crucial development in designing was the separation of the designing of an object from its realization. The designer made some representation of the object to be made, usually in the form of drawings, and passed that representation on to others – like a workshop, a building contractor – to realize the design. This allowed a professionalization of designing through the training and specialization of designers and in the last centuries through the development of valid, specialized knowledge on the properties and behavior of objects on the basis of systematic research. The enormous technological progress, especially since the Industrial Revolution, is driven by this accumulation of knowledge, both by the natural and by the engineering sciences and by the training of professional designers, i.e. in this case engineers, to use this knowledge.

The scientization of material object designing caused a transition from the craftsman like evolutionary design mode to a research-based one. Evolutionary designing implies that a new design is largely copied from previous ones, thus incorporating numerous *implicit design decisions*, choices made by previous generations of designers for reasons, in the mean time disappeared in the mists of time. Research-based designing, on the other hand, is making design choices on the basis of synthesizing and subsequently evaluating various alternative solutions for design problems on the basis of design knowledge produced by systematic research. The scientization of material object design also produced valid design knowledge, enabling performance evaluation of design alternatives in the *immaterial domain of designing*, the domain of drawings, charts and texts, as opposed to the much more time and resources consuming traditional testing of performance by trial and error of design alternatives in the *material domain of realizing*.

A design as a model of an entity to be realized

Organization design can be informed by the approaches in material object design, as in construction design and in engineering design. There is an extensive literature on material object design in architecture and in the various engineering disciplines, like *Architectural*

Design Management, the Journal of Engineering Design, Research in Engineering Design, and there are also more discipline-independent academic journals like *Design Studies, Design Management Review*, and *Design Issues*. A review of some of this literature is given by Evbuonwan, Sivaloganathan and Jebb (1996) and in Van Aken (2005a). I will now explore what we may learn from these approaches for the benefit of organization design.

There are many good definitions for the term ‘design’. A useful one for the present article is: *a design is a model of an object to be realized, made as an instruction for the next step in the creation process*. That next step can be further detailing of the design and ultimately actual realization by a building contractor or an engineering works. Material object designing is making that representation; it is a representation-focused process.

Designing is done on the basis of a program of requirements, a specification of the functions the new object has to fulfill and the required performance on each of these functions. Designing is the process of conversion of specifications into a design. After designing, the object is to be realized by others. Typically these makers of material objects take and get fairly little *realization freedom*: the object is largely realized as designed.

A model of an existing entity, be it a natural system or an object, is by definition a reduction of reality: certain elements and aspects of the entity to be modeled are incorporated in the model, the rest is left out, the choice of what is to be incorporated in the model depending on the intended use of that model. Compared to the model, the real entity has infinite *hidden properties*, present in reality but invisible in the model¹. So a model of a real entity is by definition incomplete. On the other hand, a good design, a model of an entity to be realized, *as a design* is complete, it is necessary and sufficient. The model is necessary to realize the design, but it should also be sufficient, i.e. it should contain sufficient information for the people of the next step to perform that step *as intended by the designer*. Once the designed object has been realized one might make a model of it and that model might be quite similar to the original design. But, of course, compared to that model, the *realized* object has again many hidden properties.

This brings us to the cornerstone of design theory, the *principle of minimal specification*: a designer should at least and preferably only specify in his/her design what the people, who are to realize it, need to know in order to realize it as intended by the designer. For instance, designers of machines make detailed drawings of their machines and their components, but they might not specify the finishing and color of the casing of the machine, either because they feel that that is unimportant, or because they trust that the people of the engineering works will solve that issue adequately, or because they know that their company has a fixed and acceptable policy on this. In architectural and engineering design the issue of minimal specification is not very important: designers quickly learn not to under specify their designs and over specification does not do much harm. And in material object design the hidden properties are expected to have only a negligible impact on the performance of the realized object. On the other hand, as we will see, in organization design the hidden properties do have a strong impact on eventual performance, and the minimal specification of designs *is* important.

The minimum specification of a design is a design decision by the designers, based on the specificity of their intentions and on their expectations with respect to the understanding and expertise of the prospective makers of the designed object. They may

specify less if their intentions are not very specific, more related to the broad functionality of the object than with various workmanship details. And they may specify less if they trust that the makers will understand their intentions easily (for instance because of a long working relationship with them), and if they trust their expertise.

The design process

Material object design processes may be informal, but nowadays the more important designs tend to be produced through more formal processes. Fig 1 gives a general model of a more formal material object design and realization process. It is applicable for architectural and engineering design, like the design process for an office building, a ship or a new type of car or DVD-drive.

The process has a fuzzy front end in which participants may enter and leave the process at unpredictable times, while their ideas, initiatives and material and immaterial interests may remain for quite some time undefined or underdeveloped (much as in the garbage-can decision model of Cohen, March and Olson, 1972). Many of such processes fizzle out, but some produce a sufficiently powerful *coalition of change agents* who define a perceived and justified need for a new object. The coalition is ‘sufficiently powerful’ if it is able to mobilize the resources needed for the design and realization of the new object. For them the need is ‘justified’ if they see this need as sufficiently

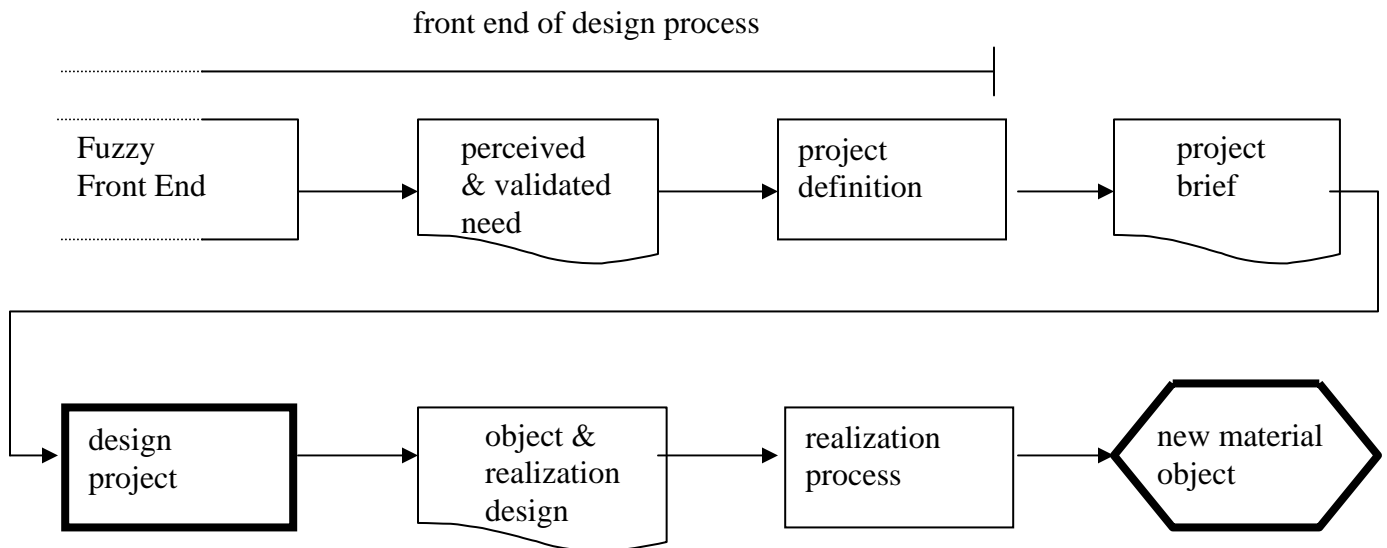


Fig 1. A general model of a material object design and realization process (based on Van Aken, 2005a)

worthwhile to invest the required resources. The term ‘perceived’ is used, because, naturally, it is not the need itself that is input to the design project but its perception: often the further validation and specification of this need is an important issue in the subsequent process. For an incremental design process, like next year’s model of a DVD-drive, the front end is, of course, much less fuzzy than for example the design of a large office building.

On the basis of the perceived and justified need a project definition step is started, resulting in a project brief. This project brief gives the specifications of the object to be designed, a justification for the project (e.g. in the form of a business plan), a definition of the resources needed for the designing, together with their funding and a project plan. Often the specifications in the project brief are already the result of design decisions on the properties of the design. For instance, the perceived need may be for a more fuel efficient car, whereupon the specifications may contain a minimum mileage per gallon for the car to be designed. Then the actual design project is started, resulting in an object-design (the representation of the object to be realized) and a realization-design (a plan for the building or manufacturing of the object). Finally a realization process will produce the object. (The subsequent use of the object, its maintenance and eventual disposal, fall outside the scope of this design and realization process model).

Research-based design knowledge

While designing senior designers use their *repertoire of general design* knowledge (Schön, 1983). In this article, I define design knowledge simply as knowledge that can be used to produce designs. The *general* design knowledge in the repertoire of senior designers is compiled by them over the years through formal education and through practical learning and on the job training. This includes both descriptive and prescriptive knowledge. Following a distinction made by Pelz (1978), one may say that descriptive knowledge is largely to be used in a conceptual way, i.e. for general enlightenment on the issues in question, while prescriptive knowledge is largely to be used in an instrumental way, i.e. in a more specific and direct way to solve design problems. This article is to develop conceptual organization design knowledge, but its aim is to support the development of general prescriptive design knowledge.

Once a designer has got a specific design assignment, he/she will start to collect *specific* design knowledge, to be used for this specific assignment.

Professional designing in construction and engineering is research-based designing, designing on the basis of the knowledge produced by systematic research on the properties and behavior of materials and objects. Some research results are used in a conceptual way, others – the prescriptive design knowledge – in an instrumental way.

Prescriptive design knowledge follows the logic of the *technological rule* (Bunge, 1967): if you want to achieve Y in situation Z, then do (something like) X. A technological rule can be seen as a *design proposition*. The core of the rule is the X, the *general solution concept* for a type of field problem mentioned above. That can be an action, a series of actions or the use of some construction. The remainder of the rule is a kind of user instruction, linking the solution concept with the field problem, including indications and contra-indications. The *logical structure* of the rule is as given above; the actual *form* can be a report, a set of drawings or a whole book. For instance, in civil

engineering various types of bridges can be seen as solution concepts, in mechanical engineering various types of gearboxes.

There are algorithmic technological rules, which can be used as *instructions* and which in principle guarantee a good outcome: just do X and you will get Y. And you have heuristic technological rules, which are to be used as design exemplars, of which a specific variant must be designed. If you want to get Y (in setting Z), then do something like X, design a specific variant of X. The rule does not guarantee success, but supports the development of a successful action or system.

The most powerful solution concept is the field-tested and grounded one (Van Aken, 2004; 2005b): it is tested by research in its intended field of application, so its advantages and disadvantages are known, and it is grounded in theory, i.e. it is known why, respectively through what mechanisms, the realized object produces its performance. In engineering natural laws and mathematics are powerful means to establish the grounding of a technological rule.

Research-based design is variant design

Research-based design is *variant design*, i.e. the new design is an adaptation of one or more already existing specific designs or already available general solution concepts that are used as *design exemplars* for the new design. That variant designing uses the design knowledge produced by research done on the properties and behavior of objects, created on the basis of these previous designs. The importance of the general solution concept is due to its use in variant designing.

In engineering designing one can make a distinction between incremental and radical designing (see e.g. Green, Gavin and Aiman-Smith, 1995, and McDermott and O'Connor, 2002). In incremental designing the design is a limited adaptation of a certain general solution concept or a given specific design exemplar. For example, one designs a new TV-set, using last year's version as a specific design exemplar. In radical designing one parts with the design exemplars of the past and tries to design something radically new. However, the difference between incremental and radical design is a matter of degree: almost all designing is at least to some extent variant designing.

In fact, much of the training of engineers (and of construction designers in building) consists of a training in variant designing: learning what general solution concepts there are for the various types of design problems in the discipline in question and learning to predict the behavior of realized objects on the basis of the known properties of these solution concepts in order to assess the extent to which the realized object will satisfy the specifications. In other words, the training of engineers is for a significant part aimed on learning the use of prescriptive design knowledge. An example of this type of knowledge is "Hütte", the well-known, wide ranging collection of solution concepts in engineering design, together with an array of methods (almost all of a mathematical nature) to predict the behavior and performance of objects realized on the basis of these solution concepts (Czichos, 2000). Of course, in radical designing there is less knowledge available for the evaluation of alternative designs in the domain of designing than for incremental designing; in radical design, designers may be forced by this paucity of valid design knowledge to evaluate their designs by trial and error in the material domain of realizing.

The use of research-based prescriptive design knowledge

The actual application of a solution concept demands creativity but also considerable expertise. Technological rules are not developed for use by laypersons but by well-trained professionals. These professionals need a thorough understanding of the rule with its indications and contra-indications *and* a thorough understanding of the specific design assignment at hand and they need the skills to translate the general to the specific.

After a thorough analysis of the specific demands of a new design assignment, the core process of designing consists of synthesis-evaluation iterations: a solution for the design problem (or sub-problem) is synthesized, whereupon one evaluates in the immaterial world of designing to what extent that solution will satisfy the specifications for the object. If the proposed solution is unsatisfactory, a new or adapted solution is synthesized and again evaluated. In research-based design this synthesis may consist of choosing from the literature a fitting solution concept (or a combination of solution concepts) out of a range of possible solution concepts, using the research-based analysis of the advantages and disadvantages given for each of these solution concepts for various settings. Then a specific variant of the chosen solution concept is designed, based - among other things - on the grounding of that solution concept, an understanding of the mechanisms producing the performance of the object.

In many cases engineers can *calculate* (within certain limits of accuracy) the performance of the object to be realized. Therefore, all engineers get a strong training in (engineering) mathematics. As we have seen above, in engineering design, “Hütte” gives for its many solution concepts also methods to calculate the performance of the objects realized on the basis of these solution concepts. But in cases in which such calculations are not possible, one may use “case-based reasoning”(see e.g. Leake, 1996; Watson, 1997; Bergman, Breen, Goker, Manago and Wess, 1999): to evaluate the performance of a not yet realized object, one searches for similar, already realized and well-documented cases and predicts the performance of the new object on the basis of a comparison of this new one with these other cases. In fact it is reasoning on the basis of analogies, the potential and dangers of which are well discussed in Gavetti, G., Levinthal, D. and Rivkin, J.W. (2005). In organization design a mathematical evaluation of the future performance of a new organization design will seldom be possible, but well-documented empirical research on organizations can produce design knowledge to be used to predict performance on the basis of case-based reasoning.

So many design assignments in construction or engineering design boil down to the choice of an appropriate solution concept (or combination of solution concepts), and the use of creativity and expertise in the designing a specific variant for it for the specific design assignment in question. As we will see, organization designing is usually also variant designing, but now on the basis of a more limited set of solution concepts.

Organization design

Unlike French, German and Dutch, English does not distinguish between the noun “design” and the verb “design”. This can produce confusion with respect to “organization

design”. Where there might be confusion, I will use as far as possible the word “designing” when the verb is meant.

A common interpretation of the noun variant is the overall shape or form of the organization. Daft and Lewin(1990, p3) use a definition of organization design which includes the organization’s formal architecture, culture, strategy and employment relationships. Lewin and Stephens conclude a discussion on organization design with: “In sum, organization design is any macro property of the organization” (Lewin and Stephens, 1994, p187). However, in this article I will use an interpretation, based on design theory: an organization design is a representation of an organization to be realized, made as input for the subsequent planned change process. In the following I will give a straightforward elaboration of this interpretation. Later various aspects of it will be discussed in more detail.

Organization design as organizing in design mode

An organization is an extremely complex social system. One may ask whether such a system can be realized as designed, and – if so – how that might be done. If organization designing is regarded as a representation focused activity, like in material object designing, it is indeed impossible. It is not possible to make a model of an organization in all its relevant formal and informal aspects and have that model subsequently realized as designed. However, if one regards organization designing as learning focused activity, as I do here, it is possible to make an adequate representation of an organization and have that organization subsequently realized, more or less in accordance with the intentions of the designers (what is meant with “adequate” will be discussed later). As Weick (1979) says, not organization (i.e. the representation, the model), but organizing (i.e. the learning for performance process) should be key.

So, in this article I mean with the term “designing”, “realizable designing”. Anybody can make a model of a not yet existing entity, like a child can design a flying skyscraper by making a drawing of a tall building with wings. Making a realizable design is making a model of an entity to be realized in the well-grounded expectation that it can be realized as designed. By organization design I mean making a model of an organization to be realized in the well-grounded expectation that it can be realized (more or less) as designed by the subsequent change process. That also means that realizable organization design implies that organization design and planned change are closely linked, be it sequentially in time or in a more simultaneous mode, as we will see.

As in material object design one designs for a certain purpose. In organization design the purpose can be seen as creating the organizational conditions for producing organizational performance on a number of relevant performance indicators, like profit, product quality, customer satisfaction or throughput time of operations. Performance is not produced by structure but by processes, so organization design aims at the creation, directly or indirectly, of effective and preferably efficient organizational processes.

Any design assignment needs a program of requirements, a specification of the requirements the entity to be realized has to fulfill. Similarly, for organization design you need specifications. Usually you have some general ones, like the manageability and the efficiency of the new organization, and the fit with the context. But there are also a number of important more specific ones. Typically, an organization design and change

effort is triggered by a new strategy to take on an opportunity or to solve problems with the present one. So an important specific specification is that the new organization should create the conditions to realize the new strategy or to solve the problem. Organizing is intricately linked to strategizing (see also Pettigrew et al., 2003, on this). This can be sequentially in time, like in Chandler's saying "structure follows strategy" (Chandler, 1962), or in a more alternating mode, as in Quinn's logical incrementalism (Quinn, 1980).

Typically organization design is focused on the creation of a new organization structure. As said above, organizing is about the creation of a system of stable (new) roles and routines to realize common (new) objectives. Therefore, I define *organization structure as the combination of role structure and routine structure*, in more technical terms position structure (something like departmental structure, see below) and process structure. The position structure reflects the division of labor within the organization and both the position structure and the process structure have coordination mechanisms embedded in them, needed to bring again together what has been divided ².

So, in this article I see organization design as organizing in design mode, linked with strategizing with a focus on the creation of organizational structure, the combination of position structure and process structure.

Evolutionary design versus research-based organization design

In ancient times organizing typically was done in real time mode, resulting through experimenting and learning in organization forms that became through subsequent copying traditional dominant forms. Sometimes organizing was done in design mode, aimed at the creation of a new organizational form, like the large-scale reorganization of the Roman Army by Marius (ca. 100 BC), resulting in a new organization form which again was copied – with all its implicit design decisions – for many centuries by his successors.

Like in material object design, this can be seen as evolutionary organization design. However, while the scientization of engineering resulted in research-based design, the scientization of the field of organization and management did so to a much lesser extent. The scientization of our field was, together with other fields in business, triggered by the influential Ford and Carnegie Foundation reports on American Business Schools (Gordon and Howell, 1959; Pierson and Others, 1959). The subsequent changes have produced academically well-respected research, but the impact of that research on managerial practice, including on organization design, has been very limited (Starbuck and Nystrom, 1981; Beyer and Trice, 1982; Miner, 1984; Daft and Lewin, 1990; Hambrick, 1994; Mowday, 1997; Huff, 2000; Van Aken, 2004, 2005b). One reason for this sad state of affairs may be the self-centered orientation of the field (Starbuck, 2003). Another that practically all academic research results in descriptive knowledge (see e.g. Starbuck and Nystrom, 1981, who give a vivid description of the difficulties in inducing academics to produce prescriptive knowledge). The reasons for this may include the idea that *all* academic research should be aimed at the well-known triad of description, explanation and prediction (see e.g. Nagel, 1979; Emory, 1985), and thus not to design and prescription (Van Aken, 2004).

While descriptive knowledge does have its value in organization design, prescriptive design knowledge has more potential for impact on practice (Van Aken 2004, 2005b). As will be discussed, there is already an impressive array of research results on organizations. But, if the scientization of our field is to have more impact on practice, research should also provide, like in material object design, a broad range of field-tested and grounded solution concepts for a variety of organization design issues and it should provide the knowledge needed to evaluate alternative organization designs in the domain of designing. As it is, present day organization design in practice can not yet be seen as research-based design like the case is in construction and engineering design.

Research on organization design

Academic organization research has produced much valid knowledge, but in the context of this article, the primary question is how that knowledge can support actual organization design.

Research on organizational structure

Typically the focus of an organization design process is the creation of a new or adapted organization structure. Organization structure, usually interpreted as position structure, has been the subject of much research in the past, the results now belonging to the basic knowledge of the field. In a reaction to the efforts of the classical writers, aimed at finding the best way to organize, this research aimed to explain overall structure, or some aspects of structure, in terms of one or more independent variables. For instance, the work by Burns and Stalker (1961), discussing the advantages and disadvantages of mechanistic versus organistic structures in dependence of the turbulence of the environment. Or the work by Woodward (1965) on the influence of technology on the overall structure, later expanded by Perrow (1967,1970). Then there is the work by Katz and Kahn (1966) on the impact of the environment of the organization on its structure. Other work aimed to explain certain important overall characteristics of the organization, like specialization, standardization and formalization, in terms of variables like age and size of the organization (see e.g. Pugh and Hickson, 1976). One should also mention Mintzberg's work on configurations, giving an important typology of organizations (Mintzberg, 1979). Also his ideas on coordination modes are important for organization design. Within the scope of this article another important result was the distinction between the formal organization, consciously designed, and the informal organization, emerging naturally, as in any social group values, norms and expectations emerge naturally (Blau and Scott, 1962).

A wide-ranging collection of this type of basic organization science knowledge is given in Nystrom and Starbuck's *Handbook of Organizational Design* (Nystrom and Starbuck, 1981). Its ambitions included the presentation of prescriptive design knowledge, maybe to fulfill a function for organization design like "Hütte"(see above) does for engineering design. However, it proved to be very difficult to induce organization academics to produce prescriptive knowledge (Starbuck and Nystrom, 1981). Looking back, it was almost as if the *Handbook* closed a chapter in the

development of organization science. As if all had been said what could be said on organizational structure and design, the interests of the field largely moved to other subjects.

Generally, in much of the above described literature organizational structure is seen as an objective reality, much like material realities, so not as a social construction (Berger and Luckman, 1966; Gergen, 1992; Searle, 1995). A more interpretative approach to social structure, including organization structure, is used in Giddens' structuration theory (Giddens, 1984), and later expanded by Archer (1995). In this approach social structure operates through the expectations of social actors, emerges through social action and constrains subsequent social action.

Organizational structure research and organization design

Descriptive research on organizational structure can produce important organization design knowledge. Such knowledge can be used conceptually, for a general understanding of organizational issues. The results of descriptive research can also be cast in the form of design propositions, provided that these results also include relevant outcome variables. These design proposition can have the format of "if <situation and outcome>, then <do X>. Such design propositions can be used in a more direct way in organization design.

However, generally these design propositions cannot be used for making actual designs, i.e. models of organizations to be realized. The reason for this is that almost all research on structure is focused on macro-variables like centralization, formalization, standardization or leadership style, and aims to relate such variables with macro situational variables like environmental turbulence and complexity, or the nature of the technology of the organization. One may indeed want to make design choices with respect to macro variables, but in most cases these choices do not lead to actual designs, but to choices on *properties* of designs. Design choices on macro variables do not satisfy the principle of minimal specification: generally they do not give sufficient information for the stakeholders in the new organization to create that new organization. In terms of design theory, macro design decisions rather lead to the specification of some properties of the designs to be made. For instance, the research by Perrow (1967) on the relation between technology and structure can be cast into form of design propositions like "if task variability is high and problem analyzability is ill-defined, then organizational structure should be non routine" (in order to get an effective organization). The choice for a non routine structure is not a choice for a certain specific design, but rather a choice for a certain property of the design to be made, hence should be regarded as a specification for the design.

Research on organization design proper

In the first place one may mention Simon's seminal *The Sciences of the Artificial* (Simon, 1969,1996), discussing the fundamental differences between describing that what is on the one hand and designing that what can be on the other. But literature more specifically aimed at organization design, as meant in this article, is relatively scarce compared to other research streams on organizations. An early book with a design orientation is

Khandwalla (1977), which makes comprehensive use of prior organization research. Illustrative examples of further work on organization design are respectively Galbraith (1973, 1977, 1995) and Burton and Obel (2004). Based on information processing considerations Galbraith discusses many important aspects of organization designs. Especially Galbraith (1995) is interesting, as this book presents a wealth of solution concepts for position structures, like the well-known functional, product, market and geographical structures, but also hybrid structures, front/back structures, distributed structures, virtual ones, and various liaison or integrating roles, together with indications for each and with means to support these position structures, like reward systems and information systems. From an organization design view point a very rich book, it really presents the fine grained organization design theory meant above. However, an important limitation of this theory is that it does not provide much evidence on the basis of field-testing of these solution concepts, nor does it present information on grounding, i.e. answers on the question why these solution concepts produce the intended (and possibly less intended) outcomes. This lack of empirical evidence does not only lead to a possible questioning of the validity of the design knowledge in question, but also makes its application more difficult. The translation from general to specific and the prediction of the performance of the new organization both need rich evidence from the testing of the solution concept in various settings. A somewhat similar book, but more research-based, is the interesting *Strategic Organization Design* by Nadler and Tushman, 1988.

A very different contribution to real organization design theory is the extensive set of technological rules or design propositions, given by Burton and Obel (2004). On the basis of a large database of published research results, they perform the above mentioned translation of descriptive research into design propositions in the format of “if,, then”. For example: “If the organization has a functional or machine bureaucracy configuration, high formalization, high centralization, high organizational complexity, coordination by rules, procedure based incentives and low media richness, then the organization can exploit well” (Burton and Obel, 2004, p.414). This representative example shows the complexity of their design propositions. Therefore, they also provide support for its use by a decision-support tool. The work by Burton and Obel (2004) is strongly research-based. The limitation of their work, however, is the same as the above-mentioned limitation of much of the present organizational research base: focused on macro-variables, so not satisfying the principle of minimal specification and therefore better suited for making specifications than for actual designs. One could also say that their design propositions aim at strategic organization design, i.e. at design decisions on main lines, which has to be followed by more operational organization design, based on more fine grained design knowledge.

Next to such individual work on organization design one should also mention two well developed research streams on actual organization design. In the field of process structure design there is the extensive work on Business Process Reengineering (started by Hammer, 1990; Hammer and Champy, 1993), aimed at eliminating the boundaries of the functional organization in work processes. The second example is the research stream, initiated by the Tavistock Institute on the socio-technical design of work at shop floor level, see e.g. Emery and Trist (1960). This and related work has been carefully surveyed by Van Eijnatten (1993). An example of further development is given by De Sitter, Den Hertog and Dankbaar (1997). The work on socio-technical design theory can be regarded

as an organization design approach, fully in line with the interpretation of organization design in this article: fine grained design theory to support actual organization design and research-based. The limitation of this type of work is that it predominantly aims at organization design at shop floor level; and for some, another limitation is a certain bias towards industrial democracy.

Organization design and planned change

Organization design is just an intellectual exercise, a paper tiger, if not followed by realization. The possibilities and limitations of subsequent realization have to be included in every design effort. In case of organization design, realization occurs typically through planned, or managed change. This is a fairly well-researched subject, first predominantly under the label of Organization Development (see e.g. Bennis, 1966; Bennis, Benne and Chin, 1970; Burke, 1987), later somewhat less value-laden under the label of planned change, see e.g. Tichy (1983) and Carnall (1990). In this article Tichy's approach to the management of significant, or strategic organizational change will be used. According to him this needs interventions in the technical system, as well as in the political and in the cultural system.

Research on planned change is focused on the change part of a reorganization process, and on topics like resistance to change, social well-being, and the roles of change agents and their interventions; it tends to be somewhat less interested in the objectives and content of the changes.

The nature of the organization

There are many good definitions of the concept "organization". The one I will use here is in line with several of them: *an organization is a group of people, cooperating within a system of roles to realize common objectives*. So an organization is not an unstructured horde: there are roles, there is cohesion (a *system* of roles), and there are certain objectives. Note that conscious design and formalization of roles and routines are *not* seen as defining characteristics, as is the case in many other definitions of the organization. This is because often conscious design is not the driving force behind the start and development of organizations, but rather the drive for results by some change agents, combined with the human ability to learn and to cooperate. Neither is formalization necessarily an important factor for every organization. In this article the properties that turn a group of people into an organization are just the system of roles and the common objectives.

At the same time a designed and a natural system

However much we can learn from material object design for organization design, and however important organization design may be for organizational performance, most organizations do not come into being through design like buildings and machines do. They develop over time, starting from humble beginnings (see e.g. Churchill and Lewis,

1983, and Scott and Bruce, 1987, for organization growth models, and Quinn and Cameron, 1983, for a review of growth model literature).

An organization may initially be set-up on the basis of some business idea and that may be considered as a kind of design for a business process. But after its start an organization typically develops naturally through organizing in real time mode on the basis of experimenting and organizational learning and not so much through formal organization design efforts. Over time one learns with what products and services and for what target groups the organization can be successful. Strategy emerges gradually and so does structure. Nevertheless, for many organizations there comes a time that some change agents feel that some design is needed, because of changing circumstances or insights, or because of certain problems or opportunities. After this design and realization phase is over, natural development through experimenting and organizational learning takes over again, at first to make a success of the new strategy and structure, later to adapt these to changing circumstances.

Formal design is almost always redesign, and redesign efforts and planned change are episodes, punctuating periods of natural development. This view can be seen as a (limited) adaptation of the well-known model of Tushman and Romanelli (1985): periods of equilibrium, punctuated by periods of upheaval. The periods of equilibrium however, are not static, the organization still develops naturally, and the periods of upheaval do not need to be very revolutionary: formal design efforts can also have a limited scope.

An organization is, therefore, both a system created through the design by one or more change agents as well as a natural system, developing through processes largely beyond the control of these change agents. This idea builds on the work of Blau and Scott (1962), contrasting the formal and the informal organization, the formal one created through design, the informal one emerging naturally. In this sense the organization is much like a garden is at the same time an object and a natural system. You can do a lot of designing the kind and layout of plants, ponds and paths, you can carry out a lot of work on digging, sowing and planting, but ultimately the “performance” of your garden also depends strongly on factors like soil, sun, temperature, rain and the growing power of your plants. Similarly, you can put a lot of effort into organization design and planned change, but ultimately organizational performance also depends strongly on external factors and natural development.

The role of the hidden properties

We can interpret the interplay between the designed organization and the naturally developed organization, and the interplay between the formal and the informal organization in terms of the design theory, as presented above. Then one can say that the formal system is the designed one and that the informal organization is the total of the “hidden properties” of the organization, present in reality but not in the design, the model of the organization to be realized. This is similar to material object design, where designers do not design objects in their total reality – that is impossible – but only incorporate in their designs what the prospective makers of the object need to know to realize it, and leave all other properties hidden: the principle of minimal specification. The difference is that the hidden properties of a material object are expected to have no or a very limited impact on the eventual performance of the object, while in organization

design the hidden properties, the informal organization, do have a very strong impact on performance (Blau and Scott, 1962; Nadler and Tushman, 1988).

The theory of the hidden properties is also the answer to the challenge that realizable design of such a complex social system as an organization is impossible. Like in material object design, designers do not design organizations in their total complexity, but incorporate in their design only what the makers, the members of the prospective organization, need to know to realize the organization more or less according to the intentions of the designers. All the other complexities of the future organization remain hidden in the design and will emerge naturally after some time as informal organization.

At the same time material and immaterial system

Not only is an organization simultaneously both a designed and a natural system, but it is also an immaterial and a material system, a socio-technical system. It can be seen as a material system, consisting of people, supported by physical means like buildings, machines and materials. But its defining characteristic is the system of roles and that is an immaterial system, consisting of the ideas and expectations the various interested parties - inside and outside the organization - have with respect to their own roles and those of others, the various relations between these roles, etc. Through this defining characteristic the organization is in essence a social construction (Berger and Luckmann, 1966; Gergen, 1992; Searle, 1995). This social construction has an amazing power, which is visible through, among other things, the loyalty many employees have towards their organization (which can even be stronger than their "natural" loyalty towards family and clan: if you are not the owner of the organization, it is regarded as corruption to give your dumb nephew a position in your department, even if your family-loyalty may demand it). You can see its power, when the bond between an individual and this social construction is severed at dismissal in the psychological pain this typically causes.

Building on this idea that the organization is at the same time a material and an immaterial system, one can make a distinction between two very different human action systems: the domain of action and the domain of communication. In the domain of action we have the material processes by people and equipment, using material resources resulting in material output and performance. In the domain of communication we have the various communication and knowledge processes, including the communication between the various people inside and outside the organization, and including the communication between change agents and the other members of the organization on designs of strategies and structures. The material processes by people in the domain of action are governed by their thought patterns in the domain of communication. Organization design and change are aimed at the creation of changed material processes in the domain of action. That is done through changing the various thought patterns in the domain of communication by intense communication on the designs for these processes between change agents and the people concerned³.

The nature of organization design

Structure, especially position structure, is a very powerful lever for organizational change. Changes in positions, i.e. in organizational roles, force the holders of these positions to rethink and redesign their work. Typically, the redesign of the organizational structure is the core of a redesign of the organization. The ontology of organizational structure is, however, very different from the ontology of material structures, causing fundamental differences between material object design and organization design.

Structuration, social construction and design

As illustrated by the two examples in the introduction, many people treat the organization structure as an objective reality. However, it should rather be seen as a social construction. Organization structure is a special kind of social structure and according to Giddens and Archer social structure emerges through social action and not primarily through designs on paper (Giddens, 1994; Archer, 1995). For example, in the real estate market the transactions between sellers and buyers are heavily influenced by the social structure of that market, especially by the existing ideas on the prices of similar houses on similar locations. These prices are created by social action, i.e. transactions in the past. As soon as a buyer and a seller make a transaction themselves - their own social action - this social structure changes, either by a re-enforcement of the existing price level or in an upward or downward movement, directing and constraining in a somewhat adapted way subsequent social action.

Social structure operates through the expectations of the various social actors, like the expectations of buyers and sellers in the real estate market on prices. Such an emerging structure needs communication (the market parties are to be informed on prices), but the driving force is social action itself (the actual conclusion of transactions), not communication. So through social action in the domain of action, social structure emerges in the domain of communication.

In the case of organization design and change, the situation is somewhat different. Initially structure is created through intense communication between change agents and the people concerned on a certain design in the domain of communication. In this phase structure does not emerge through interactions in the domain of action, but is socially constructed through interactions in the domain of communication. Nevertheless, the initially created social structure should be reinforced by subsequent social action, i.e. actors should start to act according to their new roles if the new organization structure is to develop its function of directing and constraining social action.

As discussed earlier, organization structure can also emerge or be adapted through the natural processes of experimenting and learning, as opposed to design and planned change. Typically design and planned change are relatively short spells, punctuating long periods of natural development and adaptation. With respect to the natural development of organizational structure, some design may play a role, but the driving force here actually is social action in the material domain of action, like in classical structuration theory.

First and second redesign

Usually organization design is a redesign of an existing structure or process by some change agents. I will call this the first redesign.

This first redesign is often also variant design. The new structure or process is a specific variant for the specific situation of a well-known template or solution concept, like the functional structure or the divisional structure. So the first redesign is both a redesign of the present situation and a redesign of a well-known template.

The output of the first redesign is a design of the formal organization, e.g. in the form of organization charts, flow diagrams and explanatory texts.

In organization design one does not design objects to be made from inanimate materials, or processes to be executed by robots, but structures and processes for which the essential elements are individuals and groups with self organizing and self control faculties. In architectural and engineering design the makers of the object are respectively the building contractors and engineering works. In organization design and change the “makers” of the organization are its stakeholders with their self organizing and self controlling faculties.

Due to this, the first redesign is followed (or accompanied, if it is a participatory process) by a second redesign. This is a redesign, made by the members of the prospective new organization, of the official design made by the change agents (here called the first redesign), in which they redesign their own roles and work processes on the basis of the official design made by the change agents. This second redesign is the initial social construction of new structures, discussed above. It is done through intense communication of the members of the new organization with the change agents and amongst themselves on the official design.

The second redesign is partly a conscious design process, in which the people concerned design the consequences of the overall design for their own roles and processes, and fill in the details, following the overall design but also adapt it where desired because the adaptation gives an improved performance or because the adaptation suits better their own ideas or private interests.

It is also in part a more unconscious process, based upon individual and collective interpretations of the first redesign. They use their existing ideas on organizations and their constituent elements, ideas which can be regarded as socially constructed archetypes for this interpretation (Greenwood and Hinings, 1993). These archetypes include not only conceptions on the nature of the organization itself as a distinct entity or on overall patterns of organizing, but also on distinct elements, like acceptable roles of bosses and subordinates, the meaning of authority and responsibility, the consequences of ownership of the organization, the importance of organizational objectives, etc. Very innovative first redesigns are also interpreted on the basis of these pre-existing organizational archetypes, which constrain innovative organizing and produce a bias towards well-known organizational templates (DiMaggio and Powell, 1983). Examples of the constraining force of traditional organization templates are the intense and ultimately successful outside pressure on respectively Airbus and Shell to change their official structures towards the traditional monolithic form with unity of ownership and command.

From potential to stable new organization

The result of the second redesign is a “*potential organization*”: a group of people with internalized new roles and ideas on new routines. It will be transformed over time into a stable new organization when these people start to operate on the basis of their new roles and routines and learn to achieve performance. As Weick (1979) says, through social action according to your beliefs, those beliefs are “enacted”, become social reality. So social action should create and reinforce the new social structure.

In most planned change processes there is an official start of the new formal organization. For instance: “As of May 1st next, the new department ‘Export Far East’ will start operating. Its responsibilities include, and its officers will be” . After this official start a *learning-for-performance process* starts, in which the people concerned learn to operate in their new roles and develop their new routines by filling in further details, by adjusting them to the developing routines of others and by adapting them on the basis of progressive insight on the outcomes of their new routines. Thus, they learn to realize performance. It is not after the official start, but only after this learning period that you have the full fledged new organization. One might see this learning-for-performance as a kind of organizing in real time mode: organizational arrangements are tested in actual operations and adapted on the basis of increasing insight (but depending on the degree of effective formalization of the official organizing instructions: strong formalization can severely constrain this learning-for-performance).

The time needed to transform the potential organization into a stable new organization depends, of course, on the magnitude of the change. In case of significant, or frame breaking change (Tushman and Romanelli, 1986), it may take quite some time, while for incremental change one may have the stable new organization almost immediately after the official start of the new organization.

In the first redesign the formal organization is designed, through the second redesign the informal organization starts to emerge, but only through actual operations and in the accompanying learning process does the informal organization, the hidden properties of the “real” organization, fully develop. As opposed to material object design, in organization design the hidden properties have an essential impact on eventual performance (Nadler and Tushman, 1988). Therefore the “critical minimal specification” (Morgan, 1987, p101-102), i.e. the issue of what is to be part of the formal design and what is to be left to the self organization of the individuals and groups concerned, is a key design issue. One might also label this issue as the one of formalization: what is designed into the new formal organization and what is left to the discretion, the second redesign of the people concerned. Like in material object design, design decisions on minimal specification depend on the degree to which the change agents trust that the members of the organization will understand their intentions and will be able (and willing) to recreate their organization according to these intentions, and they depend also on the degree to which these intentions are specific.

Because of the second redesign and the learning-for-performance process, change agents have much less control over the realization of their designs than the designers of material objects. The “makers” of an organization take and get much more realization freedom than usually the makers of material objects take and get. This has advantages as well as disadvantages for the change agents.. The advantages include the fact that the

change agents do not have to design everything in detail (as they must do in case of a design of work processes for robots): much can be left to self-control and self-organization. The actions of the change agents can even trigger effective emergent designs and strategies (like in the well-known Mintzberg-scheme – see Mintzberg, 1987 – a realized strategy is usually a combination of a part of the designed strategy and of emergent strategies). The disadvantages include the uncertainties the second redesign introduces and the risk of sub-optimal realization because of possible misunderstanding concerning the background of the new design. They also include the dangers of the unofficial informal organization: with respect to the informal organization one may distinguish the *official* informal organization, congruent with the formal one, supporting it, and having the explicit or implicit authorization of responsible management, and the *unofficial* informal organization, not authorized by management and not congruent with the formal organization. The unofficial informal organization does not necessarily work against the formal organization (like the routines, followed in the company cafeteria), but in fact it can also work against it (as e.g. in systematic shirking).

Less control by the change agents over the development of the informal organization certainly does not mean uncontrollability, as we shall see.

The learning focus of organization design

As previously stated, in material object design one uses a representation focus. This is due to the fact that the representation, the design, practically determines the resulting object and its performance. The makers of the object, the work shop, the factory, the building contractor take and get little realization freedom, and the hidden properties do not have much influence on performance and that performance is the direct property of the object. After a building has been finished, it can directly be occupied and used for lodging. After a machine has been built, it can be switched on and immediately it produces performance.

This is not true for organization design, due to the importance of the second redesign and the realization freedom the “makers” of the new organization take and get, because of the strong impact of the hidden properties (i.e. the informal organization) on performance, and because of the further changes in roles and routines during the learning for performance, the representation, the design of the formal organization, determines the eventual result to a much lesser extent than is the case in material object design. Therefore, organization design and change may rather use a *learning focus*, a focus on the learning of roles and routines that produce performance. In stead of the well-known “unfreeze-change-refreeze” model (Lewin, 1951), one might rather use an “unfreeze-change-learn” model.

This is not to say that the organization design is unimportant. On the contrary, a good official design certainly is a major success factor for the new organization. If one uses a learning focus, however, the design is not seen as the result of the main process step, but rather as an intermediate product, and not as a set of “iron rules” to be followed unquestioning by the members of the organization, but rather as a training tool to support the learning of new roles and routines to realize strategy and performance. Again, not organization, but organizing is the key.

The informal organization

As stated before,, the informal organization plays an important role in the realization of organizational performance. What *is* the informal organization exactly, and is it not something like that other difficult to grasp concept, organizational culture? Maybe even more importantly, if it cannot be designed and if it is at the same time important for performance, how is one to achieve organizational performance through organization design?

The ontology of the formal and informal organization

From a design viewpoint one should be clear about the ontology of the formal and the informal organization. Ontologically the organization chart *is* not the formal organization, but just one of the possible representations of it. The formal organization *is* the present stable system of roles plus the stable system of routines to the extent that these are actually played and executed by the organization members in conformity with official organization instructions, like organization charts and flow diagrams. For instance, a man employed as a sales engineer by a computer company, normally acts according to a certain role, specified in an organization chart and a function description; often he has also been given a whole book, describing company rules and procedures. To the extent that his acting is adequately described by formal organizing instructions (which may also include verbal organizational instructions from authorized persons), this acting *is* ontologically the formal organization. Of course, much of his actual acting is not adequately described in these instructions, but the result of experimenting and learning based on his interpretations of these instructions, on his own ideas and preferences, and on things learned from other members of the organization. That part of his acting, then, can be regarded as the informal organization. As I have said, part of this informal organization is congruent with the formal one and it supports it. A part of the informal organizations is, however, is not congruent; this is the unofficial informal organization.

Above the organization was defined as a group of people, cooperating in a system of roles to realize common objectives. With respect to the formal and informal organization one might see this system of roles as a kind of palimpsest: for the observer the formal roles are clearly readable, but they are written across difficult to read official informal roles, while the observer can also vaguely discern traces of the unofficial informal roles.

The informal organization and organizational culture

The organization design specifies the formal organization. The informal organization consists of the infinite set of hidden properties of the organization, not present in the design. So the informal organization is a kind of container concept, containing every organizational property not in the formal organization.

It has much in common with another concept, organizational culture. Both culture and the informal organization develop - to a large extent - naturally within a group through the interactions among the group members and through what they learn from their interactions with their environment. However, both concepts are not the same. The only difference between a formal and an informal property of an organization is whether it is

represented in formal organization instructions or not, so the informal organization really is a container concept. Therefore, both the formal and the informal organization can contain elements of organizational culture. There are many definitions of organizational culture (see e.g. the seven definitions, cited from the literature by Hatch, 1997, p205), but in most definitions collective values and norms are key elements. Collective values and norms certainly are important in the informal organization, but they can also be part of the formal one. Descriptions of the formal organization may contain values like customer orientation, cost consciousness, or social responsibility; or norms like “do as you promise”. These values and norms can be explications of existing ones (possibly introduced by the founders of the organization, often the case with organizations with a “strong” culture), or they can be introduced in the organization description to change existing ones. In either case, to the extent that the organization members actually act accordingly, these values and norms are part of the formal organization.

The development of the informal organization

The informal organization is developed, alongside with the formal organization, through the second redesign and during the learning for performance after the start of the new organization. That development is largely spontaneous, driven by individual and collective interpretations of the organization design – the first redesign - and by interactions between the stakeholders of the organization.

Like the first redesign of a formal organization structure is a redesign of an existing one, the development of a “new” informal organization literally involves a *reformation* of an existing one, and that is an important source of (largely unconscious) resistance to change.

The second redesign and the learning for performance are partly spontaneous processes, so partly beyond the control of change agents. But these processes are also influenced by interventions from change agents. These interventions are to act upon the resistance to change and to foster the development of a strong official informal organization, congruent with and supportive of the formal organization. This is not (and by definition cannot be) a design of the (official) informal organization, but is rather a *conditioning* of the development of that informal organization.

Following Tichy (1983), a successful organization change needs technical, as well as political and cultural interventions. The technical interventions (like reports, presentations and informative meetings) should give the members insight, not only in the contents of the designs, but also on their background. The political interventions should solve possible conflicts over elements of the design and should empower the people concerned to elaborate the new design according to their insights and empower them to commit certain resources (like personnel, a financial budget) for that. The cultural interventions should develop the necessary commitment to achieve the common objectives. It is through the creation of this *combination of insight, empowerment and commitment* that the change agents can foster the development of a strong official informal organization, needed to achieve the intended performance.

The organization design proper

The preceding discussion has been fairly general. In order to discuss organization designing in a more specific way, I will now sketch the possible content of an organization design. This will also provide a basis for a further definition of the earlier mentioned fine grained design knowledge to be used to support the making of such designs.

Organization design issues

First I will give some examples of organizational design issues in practice. Take, for instance, the redesign of a purchasing department of a mid-sized electronics firm, triggered by the management conclusion that there is more potential for the purchasing of high quality, low priced components in the Far East, than presently is realized. Management and possible other change agents are faced with questions, like the following.

- Should we just appoint a new purchasing manager and leave the reorganizing of the department to him/her or should we start a reorganization project at company level to get a more integral perspective?
- If we choose the latter option, should we implement a geographical orientation for the first level ordering of purchasing positions instead of the present product orientation (based on type of components)?
- If so, how should we then coordinate component type issues? Use a product orientation for the next level organization, or use component type technical advisers to the geographically organized purchasers, or use a matrix-organization along geographical lines and component type lines?
- How do we organize the timing of the deliveries in accordance to the ever changing product plans (more difficult if we purchase more in far away countries)? Do the purchasers do that themselves, or should they have assistants for that task or should it be done by a planning office, close to the production departments?
- How do we organize the interface of purchasing with product development, where presently our engineers tend to choose the components with the highest technical performance, instead of with the highest price/performance ratio?

Another example is the introduction of account management in a sales department to liaison with the largest customers, triggered by complaints from such customers that they are not served well enough by the company. That intention creates questions like the following.

- What should be the role of the account managers and what their authority; should they, for example, be able give orders to the service department to give priority to work for their accounts over other duties of the service department?
- Should they be made responsible for the level of sales to their accounts?
- How much of the present sales costs may be spent on account management (or how many people can reasonably be assigned to account management).
- How big should a customer be to be served by account managers?

It is on this level of detail that actual organization designs are made and, as will be discussed, it is on this level of detail that general design knowledge may support designing.

Specifications: strategy and general organizational properties

Organization design and change is undertaken to create organizational conditions for performance. This means the learning of effective roles and routines by the people concerned on the basis of a design of such roles and routines, and possibly also the development of means to support the effective execution of these roles and routines. With “roles and routines”, I mean operational roles and routines as well as managerial ones.

Sound material object design is done on the basis of specifications and the same applies to organization design. Specifications for organization design essentially specify the intended performance and the chosen properties of the organization to realize that performance.

Typically an organization design and change effort is triggered by problems or opportunities, i.e. by problems like in the account management example, or by (new) opportunities like in the purchasing example. So a key specification is that the new roles and routines should solve the problem or take on the opportunity. However, the primary specification for organization design is that the organization should be able to realize strategy, the present one or a new one. Strategy will (at least) specify the domain of the organization (products/services and target groups), its ambitions and its business formula. From the business formula one can derive the (key) capabilities, needed to realize the ambitions, so the specifications for the design include the requirement that the (new) organization should possess (or be able to develop) these capabilities.

Next to these important situation-specific specifications, there are also more general ones, like the requirement that the new organization should be manageable (for instance, the classic demands of the unbroken chain of command and of unity of command follows from a manageability requirement), that it should be efficient and should create an acceptable (or better) quality of working life. Possibly, the most important requirement is that the new organization should fit its situation (and that is a requirement, which has been extensively researched in the past, see e.g. Burton and Obel, 2004, who develop their design proposition on the basis of a number of fit-demands).

Like in material object designing the determination of good specifications is a key success factor for organization designing. Typically the core of that design is the formal organization structure, as said made up of the combination of position structure and process structure.

Roles: the design of the position structure

The basic element of the position structure is the individual role or, more specifically, position. I use for this concept the definition by Luhmann (1976, p100): a *position* is a system of expectations with the following three properties

- the position must be filled by a person
- the position must carry out a program

- the position has a certain place – position – in the overall communication structure of the organization.

These expectations refer to the expectations of all stakeholders of the position in question. Naturally the expectations of its holder, but also of his/her boss, colleagues, customers and possibly others as well. The total of these expectations make up the position and it is this total that directs and constrains the behavior of its holder (just as the total of price expectations direct and constrain the conclusion of transactions in the real estate market example, given above). As has been discussed, these role expectations have formal and informal aspects.

A position is a stable element of the organization. If a holder leaves the position, usually another person is appointed to it and the new holder starts operating within the same system of expectations. Typically only after some time is he/she able to put his/her own mark on the position.

A position can be designed, one can make a model, a description of it, but it becomes only a “real” position, i.e. a system of expectations, after the second redesign and subsequent learning discussed above.

A similar set of expectations can be associated with a group of people, like a department or a business-unit. A *compound position* has to be filled by a group of people, has to carry out a certain program and has a position in the overall communication structure.

The design of the position structure is one of the key parts of an organization design, because the position structure conditions coordination and specialization. In large organizations positions are almost always hierarchically structured in a dual sense. In the first place in the classical sense of ranking managerial positions in order of seniority: higher ranking positions having the authority to manage people in lower ranking positions. In the second place hierarchical as defined by Simon (1969, 1996): having a parts-within-parts structure. The programs of the various individual and compound positions are designed in such a way that a “nearly decomposable system” is created, i.e. a set of subsystems with the property that the interdependences within a subsystem are stronger than between subsystems. This set-up makes coordination of the overall program of the organization much easier. Through this hierarchical structure in dual sense, the structure of direct supervision is defined.

The position structure also defines the structure of specialization within the organization through the definition of the programs associated with individual and compound positions. In principle the demands for specialization should be derived from the organization’s strategy, the present one or a redefined one: as said above, from strategy, and especially from the business formula, one can derive the (key) capabilities needed to realize that strategy. In the design of the position structure the responsibilities and resources for these may be allocated to certain (compound) positions.

The formal position structure also conditions the development of an informal position structure, because that formal structure creates groups of interacting and cooperating people. The emerging group structure may create a social-emotional “home” for the group members with its associated group culture, which can strongly support group performance, but can also lead to phenomena like interdepartmental conflict.

Position structure designing can use various well-known templates, or solution concepts, like the functional structure, the divisional structure and the matrix structure.

Like in material object design, the sound application of these solution concepts needs expertise, both of the general (the range of feasible solution concepts) and of the specific (the demands of the specific situation).

Routines: the design of the process structure

As noted earlier, the objective of organization design is to create the organizational conditions for work processes that create performance as defined by strategizing. Nevertheless, change agents may limit their organization design to the design of the position structure, leaving it to the self organization of the people in the various (compound) positions to design their work processes themselves. In theoretical terms: they use the position structure as their minimal specification, leaving all the rest of the designing to the self-organization of the people concerned.

The process structure is made up of the *operational process* structure and the *administrative process* structure. The latter may consist of systems like planning and scheduling systems, budget systems, incentive systems and other human resource management systems.

Operational process design may follow similar specialization principles as in position structure design. At shop floor level one may use design exemplars like a process structure, a product structure, a cellular structure or a fixed position structure.

Embedded in the position structure is the structure of direct supervision, the first of Mintzberg's (1979) coordination mechanisms. Likewise his other coordination mechanisms may be embedded in the process structure. Standardization of work is – if used in the organization – embedded in the operational process structure, standardization of skills in the human resource management system, standardization of output in planning and budget systems⁴.

Position and process structure are closely linked: actions and sub-processes in the process structure are to be executed by the holders of specified positions. The place, the 'position', of these positions in the overall position structure strongly influences their functioning, both because of the expertise certain positions bring and the (political) interests associated with positions. For instance, it can make a big difference whether the sales plans to be used in production planning are drafted by someone from the sales department or by someone from the central planning department.

Support for effective roles and routines

Next to the design of the position structure and the process structure, one can also design various means to support effective action within these structures, like information systems and systems to select and reward the holders of positions; or the ways to develop or acquire the capabilities needed. The management style, fitting the new organization, is also of influence, even if though that is difficult to change by design if you are not free to appoint new managers. Of course, as discussed above, elements of organizational culture have effect; although that is even more difficult to change by design than management style is.

So depending on design decisions on the minimal specification of the new organization, the actual organization design, the representation of the organization to be

realized through planned change, can range from a succinct description of the new position structure (e.g. by an organization chart with explanation), via a full design of the organization structure (position structure plus process structure, e.g. in the form of flow charts), to a thick description of the new organization, including structure and various means to support the functioning of that structure.

The change plan

Next to the design of the formal position and process structure, and the possible support for these structures, the change agents also should make a change plan, giving the sequence of interventions, which should lead to a realization of the redesign, and the people assigned to do these interventions. A discussion of this change plan falls outside the scope of this article, but it entails more, of course, than just explaining the design to the interested parties. Typically organization change needs interventions in the technical system, as well as in the political and cultural system (Tichy, 1983), leading to the above mentioned combination of insight, empowerment and commitment, needed to realize the new organization and to achieve the intended performance.

As already said, organizational change doesn't stop after the change of the formal organization. At that point in time one only has the potential organization, which is now to turn into a real organization by the subsequent process of learning for performance. This process of learning and adapting doesn't stop either when the situation of "equilibrium" is reached after the "upheaval" of the redesign process (to use the words of the Tushman and Romanelli, 1985, model). Organization design and organization change can be seen as alternating processes, where change follows design, but design on the basis of new learning may again follow change (like in Quinn's, 1980, logical incrementalism strategy design and change alternate).

Research-based organization design knowledge

Organization design in practice can largely be characterized as craftsman like evolutionary design: like the violin and the scythe, traditional organizational templates like the functional organization, the line-staff organization and the matrix-organization have been developed over time in practice by trial and error and passed down to next generations without much formal empirical research. It is a big challenge for academic research to contribute to a (further) scientization of organization design in practice by developing fine grained, valid design knowledge.

Organization designing is much like material object designing. In material object designing a design should satisfy the principle of minimal specification, i.e. the design should provide the makers in question with sufficient information to enable them to realize the object according to the intentions of the designers. Likewise an organization design should provide the members of the new organization with sufficient information to enable them to recreate their organization (more or less) according to the intentions of the change agents. So the design should not only give the results of design decisions on macro variables like centralization and formalization, but also on the various details of the position and process structure. This means that research-based designing does not

only need valid design information on macro variables, but also ranges of solution concepts (tested and grounded) for these structures. The rich evidence from field-testing in various settings should enable the designers to adapt the solution concepts to their specific situation and to predict the resulting performance through case-based reasoning in the immaterial domain of designing. The transition from evolutionary organization design to research-based design would mean that change agents would have at their disposal a repertoire of valid, research-based design knowledge, like is the case in material object designing. For instance, the design issues in the purchasing and account management examples, given above, are to be solved on the basis of in-depth situation specific knowledge, but preferably also on the basis of valid, general design knowledge, developed through field research on alternative general organization solution concepts, as well as on solution concepts for position and process structures for respectively purchasing and account management. The availability of such design knowledge would enable organization design in practice to become more research-based.

However, organization designing is also very different from material object designing. In material object designing the design practically determines the object and its performance. Because of this, general design knowledge can be readily tested through the testing of the resulting objects and often the results of these tests can be formulated in law like mathematical models of the behavior of designed objects. On the other hand, in organization designing there is only a long linked relation between general design knowledge and the performance of the resulting organization: general design knowledge is used to make the first redesign, but this design is subsequently adapted through the second redesign (which may introduce strong distortions in case of poor change management). The following learning for performance phase may introduce further adaptations and, finally, the eventual organizational performance is strongly influenced by environmental conditions (which may also be quite different from the conditions prevalent at the time of designing).

This means that one should be modest with respect to expectations for general organization design knowledge. Therefore, one should not only use a learning approach to organizing itself, as discussed, but also to the development of valid organization design knowledge. For instance, if a researcher has participated in some ten reorganization projects for general hospitals, has executed after each project a careful post mortem, based on reliable data from various sources, and has also made sound cross-case analyses, one may expect that he/she has learned a lot of general insights on such processes which can be shared with others. General organization design knowledge will not come in the form of general laws. In some cases it may come in the form of a quantitative relationship between average performance on certain criteria on the one hand and some specific management interventions or systems on the other. It may also come in the form of the above mentioned solution concepts, tested in the field and grounded, which can be used to design specific variants of these solution concepts and to establish their expected performance through case-based reasoning.

General process models for organization design and planned change

In the preceding discussion I have presented a number of concepts and ideas on organization design and planned change. Now these will be summarized and related to one another in a set of nested general process models.

The organization is at the same time a natural system and a system, created through design and planned change. Periods of natural development are punctuated by episodes of strategic or frame-breaking change, see fig 2.

Planned frame-breaking change can be brought about through an informal process, driven by its internal dynamics and by management interventions, carried through in parallel with their running of the regular business. Usually, the process of planned frame-breaking change, however, is organized as a more formal process. Fig 3 gives a general process model of such a design and planned change process, a more detailed representation of the episodes marked with "C" in fig 2. It is quite similar to the material object design and realization process model of fig 1, but with a significant difference. The latter process has a representation focus: the output of the main process step is a design, a representation. The organization design and planned change has a learning focus: designing (first redesign) and internalizing (second redesign) are taken together

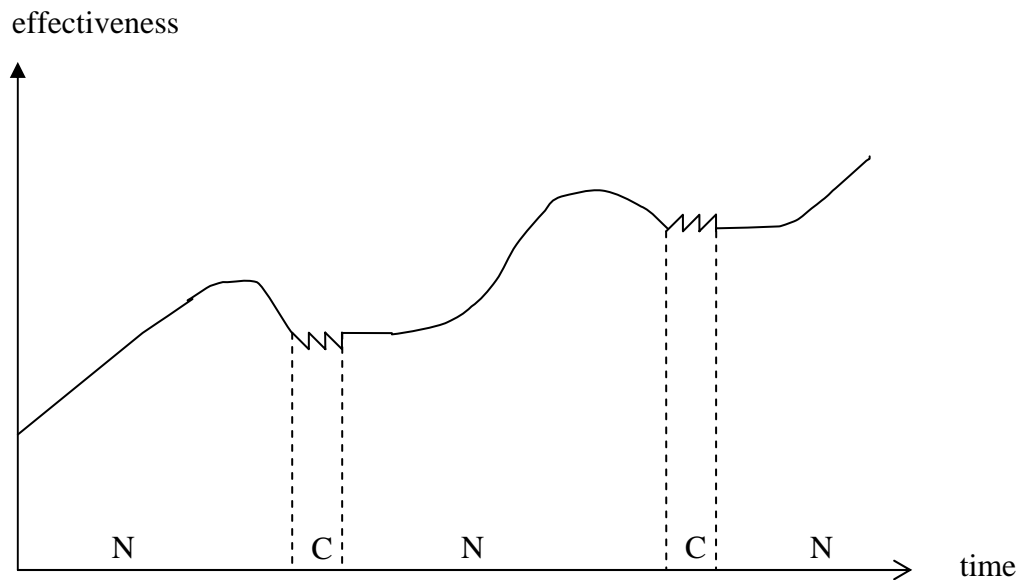


fig 2. The organization as both a natural system and a designed one. Periods of natural development (N) are alternated with brief periods of design and planned change (C), possibly triggered by performance problems, which after a learning period may result in performance again.

and the result of this main process step is not a representation, but a potential organization, which is turned into the new organization through the learning for performance.

Like in (radical) material object design, the start of the process is fuzzy: some stakeholders in the organization, in management positions or not, feel that there are problems or opportunities, warranting frame-breaking change. They try to forge a sufficiently powerful coalition to start a major change process. If successful, that process starts on the basis of perceived and validated reasons for change. That start consists of a process step, during which the design and change project is defined and organized and the specifications for the new organization are determined on the basis of strategizing and problem solving. The model of fig 3 is developed from the perspective of organization design. Therefore this process step is just called “project definition” and is part of the front end of the process. In many change processes in practice, however, this strategizing and problem solving is much more than just the front end of the main process; it is a main process step in its own right. However, the discussion of strategy formation and problem solving falls outside the scope of this article, which focuses on organization design. On the basis of the project brief, which can be an elaborate document, but in practice may be fairly vague, the main process step is started, the design and internalization of the new organization. Fig 4 gives an elaboration of this step. It starts with the design of formal structures, typically the position structure (e.g. in the form of an organization chart with explanations), or position and process structure (organization chart plus flow

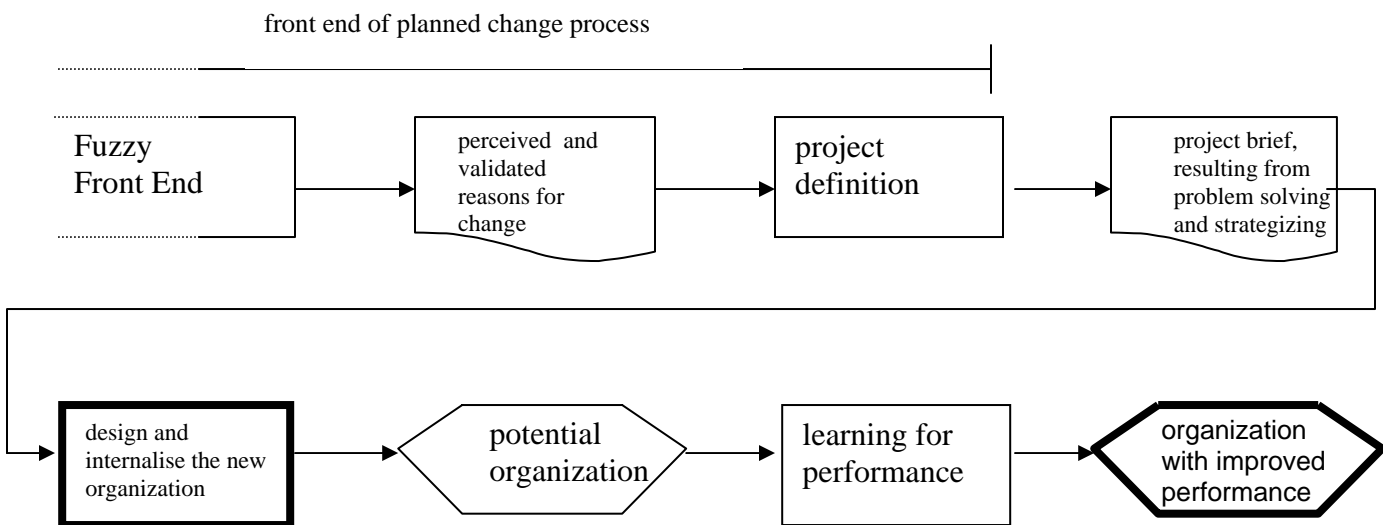


Fig 3. A general process model of organization design and planned change

diagrams), or in a rich description of these structures, including supporting systems and mechanisms, like information systems, reward systems and capabilities development. This first redesign can be research-based if there are research results available on various relevant solution concepts.

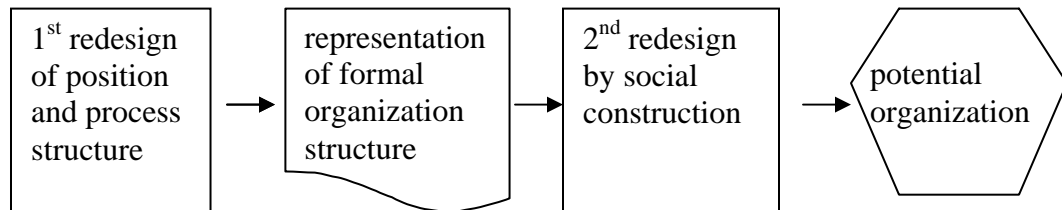


Fig 4. The organizational design and change process

On the basis of the output of the first redesign, the people concerned make their own interpretation of the new organization, the second redesign, producing the potential organization. After the formal start of operating within the new structures, they start to learn their new roles and routines; they start to learn for performance and hence the informal organization starts to develop.

The three process models, given above are general descriptive models. In these models the various boxes represent process steps, not stages. A stage has to be finished before one can proceed to the next stage. This is not the case with a process step. Going through the process, one may want to use iterations and explorations. In an iteration one goes back to a previous step, for instance because developing insight, obtained by working in the present one, shows that one needs more information from a previous one. In an exploration one goes to a forward step to explore the possibilities there. For instance, during problem analysis one might want to explore solution alternatives in order to decide on the direction, framing and level of detail of further analysis.

Of course, organization design processes show a great variety in practice. So, not every process step will be equally important in every case. The claim here is that one can recognize in each actual process the various process steps given here.

Discussion

The aim of this article is to present conceptual design knowledge, to give further insight in the nature and workings of organization design. The discussions have been focused on “normal design” (to paraphrase Kuhn’s “normal science”). There are at least two design settings in which one may want to depart from “normal design”.

The first one is radical organization design, aiming for totally new organization forms. Usually in this case the first redesign is not really a redesign, it is not a redesign of

a known template, because one intends to break away from known templates (as far as that is possible; the dispassionate observer might still call it a redesign, because also an innovative design contains many organizational “archetypes”, like the idea of role, or the idea of an organization as a distinct entity⁵). Furthermore, it may not be a redesign of the present organization structure. If one uses “idealized design” (Ackoff, 1981), one designs an “ideal” organization. It must be viable from a technical, economical and social viewpoint, but it is to be ideal in the sense that one does not take into account the problems of changing the present to the ideal. So idealized design is intentionally not a redesign.

The second case is when one does not have enough design knowledge to predict (to an acceptable degree) the performance of a designed organization. In that case one may want to use a development approach, instead of a design approach. In the latter approach the organization is designed, created through the second redesign and it starts operating as of a certain date. That is a fairly risky approach if there is insufficient knowledge to predict what will happen then. In that case a development approach may be preferable. In material object design, the performance of alternative designs is tested in the immaterial domain of drawings, texts and calculations. That is not possible when there is insufficient design knowledge. Then the object is developed by trial and error through the testing of alternative designs in the material domain of design realization. Likewise, an organization can be developed by trial and error in the material domain of action through pilot implementations and further design on the basis of increasing insight. Quinn’s logical incrementalism is a well known example of a development approach to strategizing and organizing (Quinn, 1980).

Conclusion

Organization design is one of the corner stones of organization science and a key issue in managerial practice

Organization design is much like material object design. A design, also an organization design, should satisfy the principle of minimal specification. It should contain sufficient knowledge for its “makers” to realize the design as intended by the designers. Thus organization design knowledge should not only give design propositions on the general properties of designs, like centralization and formalization, but also more fine grained design propositions, like ranges of field-tested and grounded solution concepts for various design issues. In that case, like in material object design, designers would be able to choose a general solution concept (or a combination of solution concepts) to design a variant for their own specific situation, and they would have sufficient design knowledge to predict the performance of their variant in the immaterial domain of designing. As we have seen, we can learn from material object design, like the distinction between evolutionary and research-based design, the role of the hidden properties of objects, the nature of variant design and the nature of prescriptive design knowledge.

Organization design is, however, very unlike material object design in its working. There are fundamental differences, caused by the immaterial nature of the system to be realized. Effective organization design should not use a representation focus, like in

material object design, but rather a learning focus: the core objective is to learn effective roles and routines to realize common objectives. The concept of the second redesign may put the official design made by the change agents (here called the first redesign) into perspective for all concerned. Recognition of this second redesign gives the members of the prospective organization an active role in organization design. The official first redesign *is* really important, but whatever you put into the official design, it is the second redesign that counts; it is that design that will drive performance. With a representation focus, the base metaphor for organization design easily becomes the building: it is all about levels and boxes. With a learning focus one might develop a more naturalistic approach to organizing with possibly the wild dog hunting pack as base metaphor: create effective roles and routines to catch big game. So there are fundamental differences between material object design and organization design, including the interplay of design and natural development, the role of the second redesign and the subsequent learning for performance, the interplay of the formally designed organization and the official and unofficial informal organization (the hidden properties of the organization) and the importance of the informal organization for performance. Sound formal design of position and process structure is very important, but so are the second redesign and the learning processes connected with it, and that is much more than just giving attention to the process of planned change of the formal organization.

As said, the differences between material object design and organization design should lead to modest expectations for general organization design knowledge. Like in organizing itself, one might also use a learning approach to the development of this type of knowledge. Formal quantitative research may lead to useful insights on the effects of certain management interventions or systems on performance, but the start of developing insight may be more naturalistic and based on the basic question: what did we learn from participating or observing a number of similar reorganization processes.

More than two decades ago Starbuck and Nystrom made a passionate call for organization design: “why the world needs organization design” (Starbuck and Nystrom, 1981). It was a call for research-based design (you don’t need to call for evolutionary organization design, as that is standard management practice as long as standard management exists). Their call was based on the poor performance of many organizations and on the limited availability of good, i.e. research-based prescriptive organization design knowledge. On both counts it seems that the situation has not much improved since then. Rigorous empirical research aimed at developing valid organization design knowledge is more necessary than ever. This article intends to support that by contributing to the development of a theoretical basis for it.

End notes

1. This position is based on the epistemological starting points of *realism*, see e.g. Sayer (1984) and Archer (1995). I follow realism’s contention that there exists a real (material) world, independent from observers and their knowledge. We can develop knowledge of that real world through our senses, even though sensory experiences are concept-laden and are therefore no objective images of the external world. Designs are entities in the immaterial world of communication,

made to enable the production of entities that have a desired performance in the material world.

2. This interpretation of organization structure is not very common in the Anglo-American literature, but is standard in German literature as well as in practice: organization structure is the combination of “Aufbau” (position structure) and “Ablauforganisation” (process structure), see e.g. Kosiol, 1962. On the other hand, the idea is not unknown in the Anglo-American literature, see e.g. Daft and Macintosh (1984) and Greenwood and Hinings (1993).
3. To avoid an unnecessary complication of this discussion on material and immaterial aspects of organizing, I will confine the discussion on organizing to industrial companies, so organizations producing and selling material goods. The discussion on material versus immaterial can be translated to other types of organizations, even to e.g. psychiatric hospitals providing (largely) immaterial services, acting upon immaterial thoughts and feelings, but this will not be done in the present article.
4. To discuss the other two Mintzberg coordination mechanisms: mutual adaptation is strongly influenced by the design decisions on minimal specification (how much to be left to self-control, including mutual adaptation), and standardization of norms is largely embedded in the informal organization and so only to a limited extent amenable to design (see the section on conditioning the development of the informal organization).
5. One can argue that this idea of an organization as a distinct entity, independent of state or family and clan, which originated in the seventeenth century in organizations like the Dutch East India Company, has been one of the driving forces behind the development of Western economic power in the last centuries. Showing strong commitment to such an immaterial entity, overruling family and clan loyalties, is not an important value in every culture

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