Cycles and Diamonds: How Management Consultants Diverge and Converge in Organization Design Processes

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Divergence and convergence are both important elements of organizational design processes. This is often stated in the normative design literature, but it has hardly been studied empirically. How do designers of organizations diverge and converge in practice? Do they first develop alternatives and then choose the best one? Do they go through one or more successive cycles? And what makes them choose a certain route? In an in-depth study of management consulting, we identified five different routes for diverging and converging in practice: one route for simple situations and four routes for complex situations. These routes differ in their sequence of activities, in their use of alternative solutions, and in their focus on content or on politics. It is shown that most design processes appear diamond-shaped, with a divergent and a convergent side, but that these diamonds are often coloured or even fake, especially in socio-politically complex situations. Pseudo-divergence, i.e., the process of apparent divergence in public, is widespread.

Introduction

Designing and redesigning organizational structures, systems and processes is a core activity of managers and management consultants and a focal point of management research (Simon, 1945; Thompson, 1967; Khandwalla, 1977; Romme, 2003; van Aken, 2004; Dunbar & Starbuck, 2006). Although the management literature has concentrated on the content of the design, the process of designing is gaining attention (Weick, 1993; Yoo, Boland & Lyytinen, 2006). The quality of a design and its success after implementation are to a large extent dependent on the quality of the design process. Organizational designing is not just the proper assembly of the right blueprint design in a specific situation, but a creative and open-ended process, in which the form and functions of a design are being wrought (Schön, 1983; Yokoyama, 1992; Akin, 1994).

According to the design literature, design processes should be divergent processes (Cross, 2000; Boland & Collopy, 2004). Creative designers do not quickly jump to solutions, but explore alternative options in a quest for the best possible design. They develop several options and keep the design situation open, 'fluid' or 'liquid' for some time, because, if designers reduce options too quickly, they miss opportunities for better designs. However, if they keep the situation open too long, they will drown in the complexity and never reach an end (Schön, 1987). At a certain point, crystallization and the reduction of options will be required. Creative design processes require a balance between divergence and convergence (Isaksen & Treffinger, 1985; Ruggiero, 1998; Boland & Collopy, 2004; Kaufman & Sternberg, 2006; Tassoul & Buijs, 2007; Puccio, Murdock & Mance, 2007).

Over the years, many tools and techniques have been developed for both the processes of divergence and convergence (e.g., Osborn, 1953; Gordon, 1969; Zeleny, 1982; Cross, 2000). However, the development of theory about these processes has lagged behind. Most authors just state that both processes are important for designing a good solution to a problem. This paper aims to contribute to the

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knowledge of organization design processes and the development of theory about diverging and converging processes. We assume that there is no 'one best way' to design. Designing is situated action (Suchman, 1987), which means that the course of a design process is influenced by the characteristics of the specific context and by the actual events during the process (Bucciarelli, 1994; Cross, 2000). Thus, it can be expected that variety exists in the ways in which practitioners design organizations, and in the ways in which they diverge and converge in this process. The purposes of this article are to map the variety in ways of working that occur in practice and to explore the conditions under which these approaches occur.

We conducted an empirical study of organizational design practice. In particular, we focused on one group of practitioners: management consultants. Management consultants play a prominent role in organizational design, both as providers of new organizational forms, and as change agents in the implementation of these in organizations (Benders, van den Berg & van Bijsterveld, 1998; Clark & Fincham, 2002; Faust, 2002; Heusinkveld & Benders, 2005). Consultants work on organization designs in different organizations and thus experience the success and failure of their ways of working in different settings, which gives them an opportunity to develop mature approaches for diverse situations (Greiner & Metzger, 1983). Therefore, experienced consultants form a rich source of practical knowledge about organizational designing. The aim of this study is to extract this knowledge, articulating consultants' ways of diverging and converging and exploring the contingencies and conditions they regard as relevant.

In this article, we first develop a model of the design process, mainly drawing on the generic design literature. In this model, divergence and convergence are captured in 'diamonds' and 'cycles'. The empirical section will subsequently show five different routes in the organization design process: one route for simple situations and four routes for complex situations. The conditions under which these routes are chosen in practice have to do with the sources of complexity and the consultants' relation to the client.

Theoretical Framework

Design processes are often conceptualized as problem-solving processes, starting with a problem and closing with a design that solves the problem in the best way possible (Simon, 1969; Cross, 2000; van Aken, 2004). The problem-solving process consists of four basic steps: the analysis of the problem, the design of a solution, the implementation of the solution and the evaluation of the solution in the light of the original problem (Lipshitz & Bar-Ilan, 1996; van Strien, 1997; van Aken, Berends & van der Bij, 2007). In this study, we focus on the solution design process, which is the core of the design process. In technical disciplines such as mechanical engineering and architecture, the solution design process is often subdivided, for instance into 'conceptual design', 'embodiment design' and 'detail design' stages (Pahl & Beitz, 1996). In social design, this is mostly not the case. However, design models in all disciplines have in common that the step or steps that make up this solution design are subdivided into one or more divergent and convergent sub-steps: the creation of alternatives, and subsequently the choice of the best solution (Roozenburg & Eekels, 1995). In design models, this process of divergence and subsequent convergence is normally pictured as a diamond.

To account for the dynamics of complex design processes, cycles and feedback loops are occasionally added in design models (e.g., Pahl & Beitz, 1996). However, it mostly remains unclear what happens in these cycles and under what circumstances they are or are not repeated. Schön (1983, 1987) has studied how designers act in complex design situations, and has developed a vocabulary to conceptualize these cycles. According to Schön, designers put a 'frame' – a model, a concept or a point of view – on a design situation, which gives a direction for a solution. Designers use this frame as a hypothesis, and follow it through, while exploring and assessing its implications in terms of consequences and necessary conditions. They engage in 'a game with the situation', making moves and listening to the 'back talk' of the situation in order to explore and assess it in one or more cycles. When designers get stuck in a frame, because the consequences prove unfavourable, or because important conditions cannot be fulfilled, they may reframe the situation by putting a different organizing model on it. In Schön's view, designing is a cyclical process. Divergence is not the development of alternative solutions in parallel, and convergence is not the subsequent choice of the best solution. Schön sees designers balancing divergence and convergence continuously in a reflective process. Framing a design situation is a converging activity, reducing the number of options by choosing a specific perspective. Within a frame, the solution design emerges in one or more cycles, in which exploration (divergence) and assessment (convergence)

alternate. When the process is successful, a decision is made to implement a certain design. When it is not successful, an alternative cycle may be entered by framing the problem anew. In a specific design process several loops of exploring and assessing may occur before a final decision is made.

As mentioned above, organizational designing is situated action (Suchman, 1987). The course of a design process and the diverging and converging actions in it depend on contextual characteristics (Bucciarelli, 1994; Amabile, 1996). These characteristics relate to the specificities of the design problem – in particular the complexity and ambiguity of the problem (Rittel, 1972) – and the complexity of the socio-political situation (Schön & Rein, 1994). Simon (1969) and Schön (1983, 1987) hardly pay any attention to the socio-political context of design processes. A reason for this is that they only studied designers who operate within a protected space (Mokyr, 1990), a place in time and space, in which the designers have a mandate to work on a design, relatively safeguarded from the invasion of others who wish to contribute to the outcomes of the design process. In those cases, the socio-political aspects of designing can be bracketed, at least for the time the protected space exists (Visscher & Rip, 2003). In a study of organizational design processes, the socio-political aspects cannot be ignored or bracketed right away. The socio-political aspects of the design process have to be handled and to be aligned to content-related aspects (Law & Callon, 1992). Several studies have shown that the socio-political context often influences the organizational design process and its outcomes (Pfeffer 1978, 1981). In socio-politically complex situations, designers are not free to explore the entire range of solutions, as the options that are incompatible with the interests of the dominant coalition are shut off. Diverging and converging in order to create and choose a design is not just a game for a designer with a design problem (Schön, 1987). It is also the game with the stakeholders in the organization, and with their interests, views and ideas regarding the design and the design process.

Figure 1 gives a model of the design process. The model shows two different routes for the design process, acting upon a design problem and situated within the socio-political context. In the middle, the classical route is pictured as a 'diamond', with a diverging side, alternative creation, and a converging side, choice of the best solution. In the cycle, the model shows the solution design process as proposed by Schön (1983, 1987): framing, exploring, assessing and deciding. The arrows in the model show the course of action, with iterations between exploring and assessing. The possible decision to reframe is shown with a dotted line.

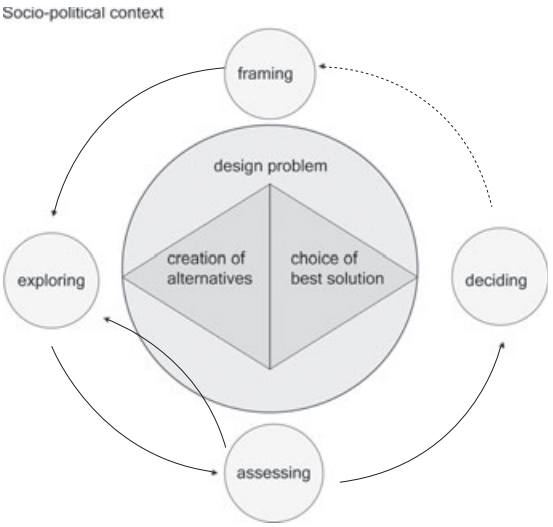

Figure 1. Model of the Organization Design Process

The aim of our empirical study is to describe with this model the organizational solution design process, as performed by management consultants. Which routes do they take? Do they first develop alternatives and then choose the best one? Do they go through one or more successive cycles to solve the problem? And which factors, related to the design problem and the socio-political situation, make them take a certain route and pursue a certain balance between divergence and convergence?

Research Design

To reconstruct how management consultants design, a research instrument has been created in which a series of in-depth interviews with experienced consultants has a central place. To explore what management consultants do, how they do it, and for which reasons, in-depth interviews are appropriate means (Kvale, 1996), but a potential drawback is that they might not reconstruct what designers really do and think. They rely on retrospective accounts of the designers involved, which may be coloured and biased. Particularly when the interviewees give rationalized reconstructions of their experiences – which is an actual risk with management consultants, who are used to selling their ways of working to clients with rational methods (Werr, Stjernberg & Docherty, 1997) – this would be a fatal flaw of

Table 1. Interviewed Consultants and Studied Projects

Consultant	Consulting firm	Project
B	National	Structure for two merging newspaper publishers
C	National	Strategy design for a university
E	Self-employed	Cultural and structural change for an engineering company
F	Big national	Structure and processes for a insurance company
G	Big international	Corporate structure for a consulting agency
I	National	Structure for two merged educational institutes
J	Big national	Processes for a project development department
K	Self-employed	Structure and processes for a health-care organization
L	Big national	Business plan for a new service for a trade union
M	National	Structure and processes for a charity
N	National	Partner-system for a professional organization
O	Big International	Strategy for a textile company
P	Big international	Corporate structure for a medium-sized multinational
Q	Self-employed	Structure for a railroad maintenance organization
R	National	Strategy, structure, and staffing for a health-care organization
S	Big national	Structure for a consulting agency
T	Self-employed	Top-structure for an educational institute
U	Big international	Administrative processes for a government agency
V	National	Management team structure for a government agency
Y	Big national	Top-structure for an educational institute
W	National	Cultural and structural change for a wholesaler

the design. The created interview instrument tries to minimize this risk.

Interview Instrument

The interviews started from the interviewees' concrete actions and proceeded to the underlying reasons by inviting them to motivate, explain, judge or justify these actions. Were the interviews to focus directly on their general approach, then there would be a risk that interviewees report 'textbook methods' or methods from their brochures, which may be different from what they actually do in practice (Carspecken & Cordeiro, 1995; Kvale, 1996). The interviews were centred around organizational design projects, which were selected on the basis of three criteria. First, the project should be recent, to ensure that the interviewee could remember the details. Second, the project should be typical for the work of the consultant, to guarantee that the interviewee had experience with this kind of project. And third, the interviewee should consider his course of action in this project as good and productive. This does not necessarily mean that the project was a success, which is hard to measure and not unambiguously attributable to the work of the consultant, but it does mean that the interviewee, given his professional standards, regarded his way of working to be good practice. Table 1 gives an overview of the consultants interviewed and their organization design projects. The interviewees were asked to tell what they did in these projects, starting with fairly open questions, and they were gradually lead along the focal issues of this study. To complement the interview data and to check the factual data about the cases, project-related documents, such as plans of approach, PowerPoint presentations and consulting reports were studied.

Sample

For the selection of interviewees, a purposive sampling strategy (Johnson, 1990) was followed. Two main considerations played a role. First, we concentrated on experienced consultants who had obtained a good reputation in the field (Glückler & Armbrüster, 2003), for we assumed that these consultants had developed mature approaches for designing organizations. The second consideration for selecting interviewees was to choose consultants from different working areas and consulting firms, in order to cover the heterogeneity in the domain. To identify consultants with a good reputation, a survey was done among the members of the Dutch association of manage-

ment consultants (the Ooa) and the council of management consultancies (the ROA), the two management consulting institutes in the Netherlands. Our assumption was that in management consulting, although it is not a full profession (Visscher, 2006), fellow practitioners are able to judge each other's competence to some extent. In this survey, respondents were asked to nominate consultants they considered to be very good, in their own field of expertise and in general. Interviewees were selected predominantly on the number of nominations they received. In addition, a spread in working area and consulting firm also played a role. As a result, a group of 27 consultants was selected, of which 24 consultants were actually willing to co-operate, and 21 were actually willing to discuss concrete projects extensively. This group contained self-employed consultants, consultants from large and medium-sized national firms, as well as consultants from large international firms. They had different educational backgrounds and different sectors and branches in which they worked. Some of them were all-round consultants, while others had specialized in HRM, strategy consulting, quality management or the administrative organization.

Data Analysis

The interviews were taped and transcribed, and to make a further step in the analysis of the data, memos were created and transcripts were coded (Miles & Huberman, 1994). The main descriptive codes could be derived from the theoretical model, presented in Figure 1. The further analysis was done by going back and forth between the data and the framework (Glaser & Strauss, 1967). This analysis was aimed at two issues. First, patterns were sought in the ways in which consultants design solutions and balance divergence and convergence in this process. This resulted in five pattern codes (Miles & Huberman, 1994) – 'shortcut', 'design lab', 'pure diamond', 'coloured diamond' and 'false diamond' – with which the interview data was classified anew. Second, for each pattern the relevant conditions and arguments, as articulated by consultants in the interviews, were collected. The factors considered most important by the consultants were clustered and framed as different dimensions of complexity.

Results of the Empirical Study

Since consultants are hired by a client, they almost never start a design process from scratch. Clients articulate a question, in terms of a problem to be solved or a solution to be implemented. With this question as a starting point, an interactive process between client and consultant evolves, normally during the intake procedure, from which a framing of the design situation is a result. When hired, consultants start exploring the situation with this frame in hand. They use it to further explore and assess both the design problems in the organization, and the solution ideas that are already present in the organization. Several reasons have been given by the interviewed consultants for this early exploration of solutions. First, the early exploration enables them to anticipate the reception of the future designs. Furthermore, it gives them opportunities for steering and manipulation, especially when they know more than the individual members of the organization. Second, an inventory of solutions helps to assess the ability of the members of the organization to come up with good solutions and to identify blindspots in the imagination of the members of the organization. This dual exploration and assessment of the problem and solution space, early in the process, appears to be a generic element of consultants' design projects. After this, different routes occur in the solution design process.

A first route is the shortcut. According to the interviewees, such a route may occur in situations that are considered relatively simple, both in content and in the socio-political context. In such a case, further exploration and the generation of alternative solutions may be skipped, in order to speed up the process and save costs for the client. In only one case did the consultant actually take this shortcut route. The client had already developed a clear vision of the organizational design he wanted, and to gain time in the process the consultant and client made a shortcut and introduced this solution directly to the key figures of the organization for further discussion and elaboration. In terms of our model of the design process, this was a linear design process of framing, exploring, assessing and deciding, a quick convergence without further exploration or alternative generation. Designing in this route only entails the checking, elaboration and implementation of a solution proposed by the client.

Although many interviewed consultants checked the possibilities for taking a shortcut, they generally considered it possible only in exceptional, simple situations. In almost all cases, the situation was thought to be too complex for a shortcut. In the interviews, consultants gave several indications for complexity, both related to the content of the design and to the socio-political situation. Content-

Table 2. Typical Routes in Complex Organization Design Processes

	One solution	**Multiple solutions**
Focus on content	Design lab	Pure diamond
Focus on politics	False diamond	Coloured diamond

related complexity has to do with the difficulty and uniqueness of the problem, the number of levels, the variety of facets, and the size and diversity of the organization concerned. One consultant described a complex situation as a plate of spaghetti: everything is related to everything else, and if you pull one end, everything moves. Examples of complex situations are the restructuring of a large maintenance organization with many different processes and locations, or the integral redesign of the strategy and structure of a large academic organization. Socio-political complexity, on the other hand, has to do with the number of key figures or stakeholders involved, their differences in opinions, perspectives and interests, and the presence of conflicts and lack of trust among them. In socio-political complex situations, a shortcut is considered unwise. A consultant said:

> [W]hen the situation is laden with conflict, the client is part of the problematique, and the suggestions you make about the content land in a complex field of opinions, interests and perspectives. When such is the case, I will definitely not presume to know what is the best approach. I cannot do that, nor do I want to. [Consultant T]

In design situations that were considered complex in content or politics, different routes were taken by the interviewed consultants. These routes can be classified in two dimensions. The first dimension is the focus of the design process. This focus can be on the content of the design, in which case the prime concern of the consultant is to reduce the content-related complexity of the situation and to create the best design possible. On the other hand, the focus can be on politics, which means that the prime concern of the consultant is to cope with the socio-political complexity of the situation. The second dimension differentiates between a route where consultants develop one best solution, and a route where several, competing alternatives are created. With these dimensions, a matrix can be constructed, as shown in Table 2. It contains four typical routes in the solution design process, which we have named: 'design lab', the 'pure diamond', the 'coloured diamond' and the 'false diamond'. These routes will be elaborated in the following.

Design Lab

In the 'design lab' route, which occurred in three cases, consultants create an ideal design, the best design possible in line with the formulated functionalities, and take this design subsequently to the client organization for discussion and decision making. These designs are created in a laboratory setting, by the consultants on their own or with some colleagues, but with little input from the client. It is a process of exploration, assessment and further exploration, until the best possible design is achieved. A consultant pictured the process as follows:

> I do it on my own and don't have to take the people I am working for into account. [. . .] It is laboratory work, here a jar, there a jar, mixing, stirring, and see what you get. [. . .] Professionally, designing is just fun to do; in the sense of 'if I were in charge there, and not burdened by the past, then this is how it should be'. [Consultant J]

The interviewed consultants acknowledged that the design that will actually be realized is not this ideal design, but a compromise that is also based on the traditions of the organization and the capacities of the people involved. Consultant P emphasized that, nevertheless, it is important to start from an ideal picture, because the closer you can get to this ideal picture the better. And besides, an ideal picture shows the clients the consequences of the functionalities they formulate – if you want to achieve this, then that is the best form to do it – and thus improves the thinking about the functionalities of the design.

Pure Diamond

In the 'pure diamond' route, consultants develop several competing solutions for the design problem, mostly in co-operation with the client, and then choose the best one. We call this the pure diamond, because this is the

process of divergence and convergence as described in the classic design models in the literature. This route occurred in four cases. Consultants organized creative sessions with people from the organization, in which they generated alternative solutions, and facilitated the subsequent choice process.

The main argument the interviewed consultants gave for choosing this route was that they thought, on the basis of their initial inventory of solution ideas in the organization, that certain ways of thinking hindered the people in the organization in coming up with good designs. Consultant W, for instance, discovered that almost all solutions proposed in his client's organization had to do with the expansion of marketing and cost-cutting on logistics. Apparently, the people in that organization were blind to other kinds of solutions, in particular to solutions that involved the improvement of logistics. In another case, consultant T encountered a politicized situation in which the people in the organization were used to being manipulated to one solution. Thinking in alternatives was something new to them. The purpose of these creative sessions was not only to create better solutions, but also to enhance the design competencies of the people in the organization and to free them from the limitations of their local practices. The sessions were meant to enable them to come up with more creative, more challenging, more effective, or otherwise different solutions than they used to. A consultant phrased it as follows:

> When I think about directions of strategic growth for companies, I want to give them more than just some nice ideas for products for the next year. Actually, I want to give them a kind of conceptual framework that will help them for a number of years, and make them think about fundamental customer-needs and the types of products that go with them. [Consultant O]

Coloured Diamond

The 'coloured diamond' consists of a diverging and a converging stage, just like the pure diamond, but it is coloured in the sense that the solution space is not blank and open, but shaded by the preferences and interests of the people in the organization. This route occurred in 11 projects, which had in common that they concerned socio-politically complex situations, such as recently merged organizations and professional bureaucracies. In this route, the construction of alternatives is not part of a diverging movement, but part of a converging movement. It is a kind of pseudo-divergence, because it seems as if consultants are developing alternative solutions for the problem, while in fact, they are reducing the number of alternative solutions they have uncovered in their early exploration of the situation. In these cases, alternatives serve as intermediate products, meant to reduce, abstract or systematize the ideas among the people in the organization. They are constructed to facilitate the making of choices in the design. New solutions may be a part of these alternatives, but then to complement, contrast or synthesize existing solutions. Alternatives are vehicles to make the relevant dilemmas and choices visible within the global design that the client and key figures are already heading towards. A consultant phrased this use of alternatives as follows:

> I formulate those alternatives in such a way that they provide different solutions for the model they are already heading towards. [. . .] That is a basic principle for much consulting work, 'free choice', to provide them with some valid choices in the line of action they had already chosen. Not just any choices, but choices that are really relevant, ones that ask for a thorough consideration of your wishes and intentions, and that entail a clear direction as you choose them. [. . .] So that is the principle: take the path that they are already heading down and split it into different options, in such a way that those options reflect the dilemmas of their choices, so that a clear solution eventually emerges from it. [Consultant I]

Consultants in this route try to make all alternatives competing, not to steer the clients beforehand in one direction, and to create free choice for them. In consultant I's project, which was about the construction of a new structure for seven merging organizations, he said that real commitment of the participants, based on their own conviction, was more important than the precise alternative that was chosen. The prime concern of the consultants is to come to a design that meets the basic functional requirements and is accepted by the key figures in the organization, rather than to come to the best solution to the problem.

False Diamond

In two cases, a 'false diamond' route occurred. In this route, a single solution is created in one or more cycles of exploration and assessment by the consultant, but a process of alternative construction and choice is performed in order to steer the political process within the organization towards this best solution. For the people in the organization the design process

seemed diamond-shaped, with a diverging and a converging phase, but this diamond was fake, used to manipulate rather than to offer free choice between competing alternatives.

This route was chosen in highly politicized situations. Consultant Y, for instance, encountered a contentious situation – a continuous row in a university department – where he thought that only one alternative could solve the problem. He designed six alternative solutions, of which five were systematized versions of ideas that came out of the inventory round; one was created by himself as the best and only real solution. The first five alternatives were thought counterproductive or harmful to some of the people involved. Y proposed them, not to be chosen, but to make visible their negative implications to the people involved, and to strengthen the position of the solution seen by himself as the only way out. To narrow down the number of alternatives, he conducted a multi-criteria analysis with the people in the organization, but that was only meant to rationalize the choice for his preferred option for the others. The plusses behind this option and the minuses behind the others were part of his plea.

Manipulation in the convergence process is inherent to this route, although not always as extreme as in the case described above. A consultant framed it as education rather than manipulation. He said:

> People need [alternatives] to be able to choose [. . .]. The order is very important. You should build up the understanding with the people. The favourite alternatives come last, because then you can incorporate all ingredients of the earlier ones. That is didactic. [Consultant C]

If consultants only proposed their favourite option, without mentioning alternatives and without doing a multi-criteria analysis, the participants would probably refuse to believe that this solution is best and would stick to their own preferences. Pseudo-divergence performed by the consultants enables them to reach a good solution in heavily politicized situations.

Discussion and Conclusion

The purpose of this study was to enhance our understanding of organizational design processes. In particular, we investigated how management consultants diverge and converge in design processes, and which reasons they give for choosing one way of working rather than another? We have identified five different routes: the shortcut, the design lab, the pure diamond, the coloured diamond and the false diamond. The shortcut, entailing quick convergence, is considered unwise in the design literature (Roozenburg & Eekels, 1995; Leonard-Barton & Swap, 1999; Cross, 2000). This route is not often chosen, at least not in the projects discussed in our study, but often considered. A shortcut is chosen for reasons of efficiency, to keep momentum and to prevent the design process from slowing down and losing the commitment of the people in the organization. A shortcut is possible in situations that are relatively simple in content and politics. There should be consensus about the problem and the general solution among the key figures, and this solution should seem doable and satisficing (Simon, 1969), which means that it meets the minimal requirements of solving the problem.

The 'design lab' route best reflects the design process as described by Schön (1983, 1987). In this route, designers have been given a protected space (Mokyr, 1990), in which they can develop a design in a 'game with the problem situation'. Divergence and convergence alternate in this process. Convergence in the sense of choosing from alternatives hardly has a place in it. The route reflects the design attitude advocated by Boland and Collopy: 'it is difficult to design a good alternative, but once you have developed a truly great one, the decision about which alternative to select becomes trivial' (Boland & Collopy, 2004, p. 4). This route is chosen in situations that are simple in politics, to be able to install a temporal protected space for the designer, and relatively complex in content – too complex for the client, but not too complex for the consultant. Under these conditions, a consultant can perform a role as expert (Kubr, 1996) in the design process.

The other three routes all entail the development and subsequent reduction of alternatives. Seen from a distance, they all appear to be the diamond-shaped design processes from the textbooks (Roozenburg and Eekels, 1995; Cross, 2000), but when looked at more closely, big differences in purpose and shape become visible. The creation and choosing of alternatives is a public performance, orchestrated and facilitated by the consultants, and with different roles for the client. In the pure diamond route, the consultant's main role is to facilitate and stimulate the divergent and convergent thinking of the client. The design process then has a double purpose: creating a new design and enhancing the design competencies of the client organization. There may be several reasons for choosing a facilitating role rather than an expert role (Kubr, 1996), but especially this second purpose – the improvement of

design competencies – was mentioned by the consultants as a reason to choose the pure diamond route rather than the design lab.

In socio-politically complex situations, with many powerful stakeholders, many differences in opinion, perspective and interest, and with the presence of actual or potential conflicts, a pure diamond route would not work. In such a situation the exploration of the solution space would be contaminated and only lead to solutions that reflect vested interests (Pfeffer, 1978). Choosing an alternative would be seen as favouring some and discriminating against others. In these situations, the coloured diamond or the false diamond routes occur. In these routes, the divergence is in fact pseudo-divergence. In the coloured diamond, alternatives are created to systematize a convergent process of choosing between design options that are already present in the organization. In the false diamond route, pseudo-divergence entails making explicit the bad alternatives that have support in the organization, but which should not be chosen. These diamonds are part of the public performance of the consultants, but do not reflect their backstage activities (Buchanan & Boddy, 1992). Backstage, consultants explore and assess solution ideas and try to systematize them with one or more frames. Frontstage, they use the outcome of this process for their public performance. The purpose of diverging is not to find better designs, or to improve design competencies, but to enable a process of actual or apparent choice in politicized situations.

To some extent, the results of this study may be peculiar to management consulting. Unlike managers, consultants are temporary visitors in the organization where they design. They lack the formal power in the organization to make decisions, and do not have an immediate mandate to design. This makes a shortcut route hard to execute. In most situations, no protected space can be created for the entire design process. Clients see themselves as qualified to contribute to the design, even when they hire 'the best consultants in the country'. Moreover, problems of implementation can be foreseen when a design is created in seclusion (Mintzberg, 1990). Therefore, consultants very rarely do a design process alone in a design lab route and mostly require participation of at least the client, but often also from other people in the organization (Sturdy, 1997). Consultants' contributions to the design process are often reactions to and anticipations of what is done and thought by their clients and the people in client organizations (Fincham, 1999). The double purpose of the pure diamond route and separation between backstage work and frontstage performance in the coloured and false diamond routes should also be seen in the light of this focus on the client. For other designers such as architects and industrial engineers, on which much of the design and problem-solving literature is based, interaction with the client and commitment of the decision makers is also important, but their relation is different. Architects and engineers are more successful in their claim that they possess expertise and talents that their clients lack, and they have more possibilities to implement their designs without the full co-operation of the future users. This gives them opportunities to create 'signature designs' (Akin, 1994), unique designs with the name of the designer attached to it. For consultants who design organizations, even for the best, the resulting design is always a collaborative product. Besides, consultants see the design process predominantly in the light of an organizational change process (cf. van Aken, Berends & van der Bij, 2007). Creating 'signature designs' is hardly ever their purpose. They may sacrifice better designs when they see that these would not have enough support in the implementation, or even when pursuing these better designs would result in a loss of momentum in the change process. Particularly in the coloured diamond route, they go for satisficing designs rather than for the best designs, not because of bounded rationality (Simon, 1969), but because of their concerns with commitment and implementation.

The process of organizational designing has received relatively little attention in the literature. This article contributes to the development of theory – in particular about the divergent and convergent activities in the design process – by presenting a model, by elaborating five different routes for the design process, and by identifying conditions under which these routes occur. For further development of theory on this subject, at least two lines of research can be identified. A first line of research is aimed at the further exploration of design processes in practice. This study has focused on management consulting, but as stated above, routes may occur differently in situations where managers make a design. In addition, design processes in which both consultants and managers play a role also need to be studied from the client's perspective. In the current study, the point of view of the consultant was chosen, and the interaction with the client was pictured from this position. A study of divergence and convergence from a client perspective can enrich the routes that have been found, complement the consultants' view of backstage work and public performance, and specify the clients' reasons for choosing

different routes, with more or less input from a consultant.

A second line of research focuses on the effectiveness of the different routes in the design process. The consultants that were selected for this study were very experienced consultants, who were considered by their colleagues to be among the best in the field. Therefore, we have assumed that their course of action is not flawed by inexperience or ignorance and that their ways of working may stand as an example for other practitioners in the same profession. However, to support a normative claim, more systematic research is necessary. Research with a more controlled variety in design situations and with objective measures for the quality of the resulting design will be required to state more precisely how different ways of diverging and converging work in different contexts. In this line of research, pseudo-divergence also deserves special attention. Good pseudo-divergence seems to be a skilful accomplishment rather than a trick of a consultant to get new ideas for free in an organization. Designers enter a solution space that is not empty, but filled with ideas that are partly implicit, ill-structured and potentially filled with conflict. Framing such a space well, in fruitful alternatives, with new contrasts and complementarities, is an important process. It is a process of creative converging, which appears to be just as important for organization design as diverging.

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