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Creativity on demand

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Abstract
The purpose of this paper is to analyze how designers perceive that managerial structures affect creativity and efficiency in the design work. The findings indicate that the designers think their creativity is enhanced rather than hindered when each step of the design process has a standardized purpose of what should be achieved.

Keywords: practice, organizational creativity, process, industrial design

Introduction

Creativity is often perceived as something desirable yet indefinable. Being *creative on demand* is therefore implied to be a challenge; 'creative individuals' are thought to take initiative when they are not restricted by i.e. formal rules for communication [1], they are likewise believed to require an absence of constraints [2].
At the same time, there are organizations making a business out of selling creativity. Design consultancy firms are hired in the fuzzy front-end of development work to assist with innovativeness, customer understanding and/or process facilitation through visualizations [3]. The front-end of development work consists of screening for ideas, ideation (idea generation) and concept development [4]. Industrial designers are trained in creative thinking, innovativeness and interpretation of consumer needs [5], and are therefore fit to take on fuzzy-front end commissions.
The impact from organizational structures on individuals' creative freedom has been studied previously [6, 7]. Different principles of bureaucracy seem to have varying influence on individuals' creativity; planning, order and role clarity positively influence creativity whilst control and centralized decision-making is negatively correlated with individuals' creativity [1].
In this paper, the perspective is turned upside down. Anchored in an in-depth, comparative case study the paper explores the possibilities and challenges of organizing work processes within the boundaries of organizational creativity. The objective is to describe how industrial designers and engineering designers organize and manage their work in order to enhance and facilitate creativity. To fulfill this purpose the aim has been to answer the following research questions:

- How do designers perceive creativity?
- How do designers perceive the role of formalized processes in design work?
- How do designers perceive organizational structures?

Theoretical framework

Organizational creativity

The concept of creativity is used in several ways [7]; referring to people having a multitude of ideas and original way of thinking (different/new thoughts); referring to people that interpret

and perceive the world in unusual ways (different/new perceptions); or referring to the output, i.e. to people that make a lasting change for the culture in some way (different/new translation).

Creativity is assumed to be dependent on emersion of novel ideas, i.e. how these ideas come into existence [8]. Consequently, 'the idea' is a core concept when discussing creativity. Most ideas have no clear origin; they cannot be traced to a single person or situation [9, 10]. Ideas with similar traits seem to emerge concurrently in different groups or environments, which imply that they are somehow transferred or that something universal triggers certain ideas [10]. Creative results are a combination of many idea sources, and do not stem from one individual's mind. As group members continuously interpret the ongoing experience, they connect the individual ideas and experiences so that the demands of the emerging situation is redefined and resolved [11].

Although much research has emphasized the individuals' creative processes, many creatively active individuals acknowledge the collective nature of creativity [11]. Research on creative collaborations imply that creative solutions may appear when teams collaborate and combine their knowledge [9]. By viewing creativity as a social process, rather than a spark of genius on the individual level, knowledge about how creative results comes about could be expanded [12]. As complex issues are approached, several competencies might need to combine their creativity in order to define and solve a problem. Organizations may therefore benefit from collective creativity [11].

Collective creativity is achieved when a group of individuals interact in such a way that they trigger ideas, interpretations and discoveries in one another that neither individual could have accomplished alone [11]. Groups working together enable discussions and the challenging of assumptions through suggestions and comparisons. By collaborating the individuals may trigger one another to new heights [9, 13]. Collective creativity is thus more than the sum of the individuals' creative skills [2].

Structures for organizing

'Organizing' is an ongoing process during which individuals interact and react to others' behavior with further actions [14]. As such 'organizing' can be seen as a specific type of social interaction in which humans collectively approach a task or handle a problem. Structures and processes are complementary phenomenon to one another; both are needed in organizations [15]. From an organizational perspective formalized processes and structures are important since they are ways of creating predictability and reducing variation [16].

Furhermore, formal structures and processes are officially stated rules for how something is organized [17]. On an organizational level much of the standardization and structuring does not result in written rules, but rather informal norms or methods for how things should be done [16]. Rules streamline decision-making and are hence useful for coordination and cooperation efforts. Directives are explicit rules, which *must* be followed. A social norm, on the contrary, is implicit and with unknown origin. Social norms are often culturally bound and are as such self-evident to people with the same cultural background [16].

In organization theory, there is a classical tension between bureaucracy and creativity [18]. While formalization and standardized work procedures are depicted as enhancing predictability and resource efficiency, it is usually assumed to hamper the creation of new ideas, reduce creativity, exploration, and organizational innovation [1, 2]. Mainstream theory concludes that hierarchical and formalized structures best fit an organization with routinized technology acting in a stable environment, while organizations characterized by non-routine work and dynamic environment require less formalization and more ad-hoc coordination mechanisms, cf. [17]. These theories are primarily based on studies of large industrial organizations, but are they valid for small, creative design companies?

Methodology

The basis for the article is a comparative, case study exploring the organizing of creativity at two successful design consultancy firms; one specializing in service design, one specializing in product development. Following an abductive approach the empirical explorations have been iterated with studies of related theoretical fields in order to arrive at the core aspects of the studied phenomenon [19]. As common in qualitative case studies, the data collection has combined different materials and methods, such as; archives, interviews and participatory observations of formal and informal meetings [20].

Research design

The main source for empirical insights has been participatory observations and interviews inspired by ethnography [21]. The study had an insider-outsider design [22]. One of the researchers spent three days a week at each of the companies, during a total of six months, hence becoming the insider, while the other two authors supervised and tutored her during the process, applying an outsiders' perspective on the organizations. During data collection, the inside researcher was granted full access to the premises during office hours. She had a personal desk in the open-plan offices and full-access during office-hours. The researcher was both invited to attend certain meetings and had the possibility to join meetings, seminars and workshops at her own initiative. The observations were documented by taking notes, audio-recording, as well as taking photographs.

In addition, semi-structured interviews were undertaken with respondents at the respective companies at the ends of the data collection periods. Doing observations before the interviews brings about the advantage that the researcher is familiar with the language, expressions and organizational culture during the interviews. Therefore the interview questions can be formulated in a language closer to the respondents' vocabularies [23].

The interviews have been undertaken with employees and managers at different positions, in order to cover as many views as possible. The ones that were not included did either not have time to participate or did not engage directly in the companies' core businesses of doing design projects. The collection of empirical material is summarized in Table 1.

Table 1 The research design for collecting empirical data.

	The Service Design Firm	**The Product Development Firm**
How?	Longitudinal case study inspired by ethnography	
	3,5 months	3 months
a) Interviews	Approximately 10 semi-structured interviews, an average of 1½ hour/interview	Approximately 3 semi-structured iews, an average of 1½ hour/interview
b) Observations	Three days per week; 15 individuals employed in the organization were continuously studied, o a well as external parties, commissioners & end-consumers.	Three days per week; 13 individuals ed in the organization were continuo ed.
c) Meetings	Approx 10 internal meetings (á 2hours), 3 external meetings with commissioners (á 2hours), 4 seminars (á 2hours), 8 end-consumer interviews (á 30 minutes), and 8 workshops (half or whole day)	Approximately 15 internal meetings (s).
d) Documentation	Project related documentation, project related mail correspondence, work process descriptions and documents describing the company	
f) Other	Partaking in informal meetings, lunches, house-warming party, coffee breaks etc.	

Empirical setting

The selection of case companies was based on the intention to study two "successful" design consultancy firms, in order to grasp the best practice of designers. The selection was based on a few criteria. Firstly, the companies should have existed for more that three years; assuming that it is difficult to establish whether a younger organization is economically successful or even sustainable. Secondly, that the organizations should have at least five employees; assuming that a smaller company barely needs to coordinate its activities by formalized processes. The selected companies are summarized in Table 2.

The Service Design Firm can be considered successful due to several reasons, but primarily however, it is considered to be the leading service design firm in Sweden. The Product Development Firm is also successful in many ways. Most importantly however, it has been nominated to, and won, several design awards.

The Service Design Firm executed its contracts as in-house projects; all consultancy work was undertaken in the firm's own facilities and the firm was in charge of the project planning, management and execution. The Product Development Firm on the other hand executed its contracts either as in-house projects or as staffing projects. The in-house projects were undertaken in a similar manner to those of the Service Design Firm: the consultants were based in the company's facilities and work with their commissions from there. During the Staffing Projects the consultants mostly worked in projects managed by the clients in the clients' facilities.

Table 2 The empirical setting.

	The Service Design Firm	**The Product Development Firm**
Year of establishment	1998	2004
Number of employees	~15	~30
Employee education	Industrial design	Engineering & industrial design
Why successful?	• Increasing annual turnover • Continuously recruiting • Generally considered among designers as leading in its field in Sweden	• Increasing annual turnover • Continuously recruiting • Nominated to and won several design awards
Contracts executed as	In-house projects	In-house projects or Staffing projects

Empirical findings

Design consultancy firms sell the act of design and development of solutions to their clients. This type of consultancy takes on fuzzy front-end projects with defined time limits and resource constraints. The designer does not initially know what the end design should be but rather what it should do. Designing services is about adapting service processes to fit with the end-users' needs and wants, through creative solutions. Designing products is about shaping and building physical forms to merge technical constraints with user-needs.

Organizing at the Service Design Firm

Industrial designers mainly populated the studied organization and the service design practice hence resembled industrial design processes to a large extent. However, the process for work execution was not formally defined in a written document. The service design consultancy firm was initiating efforts to formalize their work procedures and to structure their organization.

The starting point for the standardization work was an insight amongst one of the senior service designers that the design projects diverged in planning, budget, control and follow-up even for similar contents. With that insight she compared and compiled documentation about expected and actual timescale, budget, output etc from a number of projects. The result was a realization that the project planning need to be more streamlined in the sense that projects with similar budgets, resources & time constraints should produce comparable outputs.
Another output from the comparison of projects was a realization in the organization that not only the project management but also the actual work processes might need to be formalized. As such one of the design directors and one of the service designers started to perform interviews with the project leaders in order to gather all diverging ways of carrying out the design process steps. According to the design director the goal was to compile a process description of each step that rather defines the purpose with each step and how it may be undertaken than to prescribe rules of must-do practice.
The distribution of responsibilities was unclear to both employees and managers in the service design consultancy firm. There were few formal positions or titles with defined work tasks. The confusion of responsibilities and work tasks was both found in the organizational structure as well as in the singular projects. Both the employees and managers perceived the confusion as problematic for several reasons. First of all, the employees expressed a want to be able to be differentiated as more experienced (seniors), when new designers are hired. Secondly, there were some confusion concerning responsibilities for resource allocation, client contact during project execution and project deliveries between the managers. During the course of the study the company started to structure the organization by adding more titles, and formalizing responsibilities connected to different positions.
The employees embraced the formalization efforts. A reason given was that they then could focus their creative efforts on the content of the projects rather than reinventing the design process for each new undertaking. Furthermore new employees were thought to adopt the work procedures more quickly with a formalized design process at hand.
The design director claimed that neither he, nor the other service designers, are especially creative. Creativity was talked about as having radically new ideas. The newness of ideas was not considered as a goal or a must, but merely as a possible means to an end. Their ambition is that the final service designs should be supported by their clients' end-users, being radically new or not. What they do acknowledge is that the final service solutions often can be seen as creative outputs, which is then due to the team effort.

Organizing at The Product Development Firm

The product design firm was initially established with a goal to offer an alternative way of how design and development consultants undertake product design commissions. The two founders had learnt from their own experience that business orientation often gets lost on the way during project execution and that consultants often solve the "wrong" problem. Therefore they developed their own product development model and founded the company based on that.
This organization has a standardized project management model that specifies how the design and development projects should be undertaken. Both employees and managers view this process description as a guideline rather than prescribing formal rules. This means that the project group is allowed to settle on a somewhat different version of the process, if the assignment demands it.
Several managers described having a formalized process as a necessity; partly in order to show clients what they are buying, but also as a means of securing that the "right" information would be collected, so that the correct problem (that the client wants them to solve) could be solved. Including creative work was seen as a necessary part of the projects'

process. Creativity manifests in certain parts of the projects; it could be forecasted and was perceived as real. Creativity was talked about as problem solving within constraints and that creative ideas were favored by restrictions in what could be developed.
The division of responsibility was clear to both employees and managers. It was not only the personal tasks that the employees were aware of; they knew the positions (technical consultant, industrial designer, ...) of others and had a hunch of what (kind of) projects others were working on. The project managers were working closely with both the project members and keept a continuous contact with the consultancy managers.
The project teams contained a mixture of professions and skills, depending on the technical needs of the specific project. The industrial design work was considered to constitute approximately 5-10% or the development work. As such the work force consisted of the same proportion of industrial designers. The project phases related to creativity were executed by both engineering and industrial designers. In other words there is not a direct correlation between creative work phases and the industrial designers' work. A summary of the findings is found in Table 3.

Table 3 The empirical findings.

	The Service Design Firm	**The Product Development Firm**
Creativity is percieved as	• Spontaneous & indiscernible • **Ideas that are new** • Due to collaborations/team efforts • A means to an end-result • Estimated or measured from the output	• Predictable & unmistakable • **Technique for problem-solving** • Used in collaborations/teams • Necessary for achieving a result • Allocated to & perceived in certain process steps
Formalized processes	• Create credibility amongst clients • Direct the employees' energy to the content of the process instead of the project set-up. • Indicate purpose or kind of output with each design step (part of project)	• Create credibility amongst clients • Facilitate identification of the "correct" problems to solve (with creativity) • Define project steps (more than design steps)
Organizational structures	• Does not affect organizational creativity • Differentiate experienced employees	• Is not related to organizational creativity • Differentiate responsibilities • Differentiate skills/professions

Discussion and Conclusions

The Service Design Firm is challenged by fast growth which they avert by formalizing their processes and structuring their organization with given titles and positions. The formalization of processes reduce variation and speed up new employee entrance, whilst the organizational structure and titles help to differentiate the more experienced employees from the new ones. They also claim that less creative energy (new ideas) is wasted on reinventing work processes and information flows when having a model to work by.
The Product Development Firm was established with a formalized project model as the foundation. The model is seen as a guideline and describes a general project undertaking. The aim with the model is partly to incorporate problem identification into the project process, so that the "correct" problem can be solved. Since creativity is seen as a problem-solving activity the model can be claimed to reduce misguided creativity by directing the problem to be solved. Naturally creativity is seen as a crucial ingredient for achieving an output from the process, since the design problems must be solved.
Both cases depict how firms managing organizational creativity and fuzzy front-end projects create organizational structures in order to control activities that have unspecified outputs.

Both organizations considered creativity to be facilitated by constraints on what may be developed or not. Simultaneously they do have different takes on what creativity is. In the Service Design Firm, *creativity* was synonymous to *novel ideas*. The service designers valued user-friendly ideas over novel ones. If something is labeled as *creative*, it refers to the output of the process and is claimed to depend on cooperation. In the Product Development Firm on the other hand, the employees precieved *creativity* as a synonym to *problem-solving*. The clients' contrcts and the technical constraints must be solved during the projects, and hence creativity is seen as neccessary for successful project execution. Creativity was not particularly referred to the output but rather seen as a technique that the project group uses together.
Processes were structured in a broad sense with only a few decision points, and rather defined *why* a step was taken rather than *how to do* the step. This posed context delimitations, which the designers claimed to enhance the possibility of achieving creative outputs. Therefore, we conclude that creativity and formalization of processes can be balanced so that creativity can be sold on demand.

Future research
This article has presented an empirically based research undertaking with the aim of illuminating how industrial and engineering design work is organized. The results indicate that formalization might be advantageous for organizational creativity, so that the employees' energy is directed towards design process contents rather than the process framing. The study would benefit from doing similar studies with other "creative" workers to compare results. Furthermore, expanding the theoretical framework with additional theories on design practice, design management, or the like, could contribute to further insights.

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