Organisational culture as the mechanism for internationalizing innovation platforms

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Abstract

Aalto University Design Factory (ADF) is a passion-based co-creation platform, which aims to change the paradigm of industry collaboration in universities. Simultaneously the ability to respond to innovation challenges of globalized industries creates a demand to develop an international network on innovation platforms. Therefore, in the light of the theory that supports culture as means of achieving change objectives, this study explores the key factors for creating a global network and to establish the parameters to help it succeed. This case study of ADF indicates that its culture is focused on platform thinking providing a conceptual and physical operational environment for a diverse range of stakeholders. Based on the findings Design Factory culture can be characterized as one to embrace diversity. This suggests the culture could lend itself to be used as a governing mechanism as it can act as an umbrella culture for the global network, in which local factories develop their own identities.

Keywords: internationalization, innovation, organisational culture, global network, education,

1. Introduction

Aalto University Design Factory (ADF) is a passion-based co-creation platform for learning, research and application of product design in Aalto University (Aalto). In other words, ADF is a space that is available to any Aalto lecturer to develop their pedagogical approach to a more student-centric and passionate learning culture. It is a co-creation platform that encourages the bringing together of students and industry to solve real-life challenges. ADF is therefore often described as a space and the ways of working that are associated with it. The core of the activity is in product design and innovation, which strongly shapes and guides the ways of working. In practice, the actors that co-create the atmosphere come from interdisciplinary masters' level product design courses and the product innovation -focused interdisciplinary Aaltonaut minor program for bachelor students. Therefore, the aim of ADF as an innovation platform is to support the processes undertaken by students and industry.

In the four years of its existence the Design Factory (DF) concept has changed from a pilot project within Aalto into a Design Factory Global Network (DFGN) of five DFs, which all operate with slightly different models. While the demand to respond to innovation challenges of increasingly globalized industries inspire the development of an international network of co-

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creation platforms, several studies [1] establish the fact that many international collaborations in both private and public sectors fail to produce the expected outcomes. There is an interest to investigate how the platform that facilitates the university-industry collaboration can be transferred into the international contexts. This case study into ADF aims to create conversation around the issues of internationalising any innovation platforms in response to the globalizing industry needs.

The definition of ADF often remains vague as it is referred to more as an atmosphere than a space, which is difficult to quantify. This study will use organisational culture as means of explaining what is meant when referring to the atmosphere and ways of working of ADF, aiming to develop a new definition to what ADF is. Furthermore, it is attempted to establish, in this context of organisational culture, what the key issues are in relation to DF having developed into a global network. While the internationalisation of DF has been initiated by demand, it is important to identify what could be appropriate governing mechanisms for such a network. While the context specificity of the investigation will limit the generalizability of the findings, the study hopes to create an understanding of the interrelationship of the local organisation and the ability of its features, in this case the culture, to act as an appropriate governing mechanism for an international network.

1.1. Background

ADF is a passion-based co-creation platform for learning, research and application of product design. The description itself indicates the emphasis that is placed on the soft elements of the platform, the ways of working and the atmosphere. The founder of ADF, professor Ekman describes ADF as: "The holy trinity [of ADF] is: The flagship of Aalto's interdisciplinary passion-based co-creation culture, a platform for industry-university co-creation, and a temple of experimental problem-based learning for better learning outcomes." [2] In practice ADF is a space that welcome teachers to bring together interdisciplinary students and industry, as well as research to experiment with new student-centric learning methods and industry collaboration through problem-based learning. ADF offers the facilities, pedagogical support and experimental atmosphere to any Aalto teacher and since 2009 it has hosted roughly 60 courses for 1500 students. Since opening ADF has hosted ten research teams, which conduct applied research in collaboration with industry partners. ADF rents out office space for small companies, and in addition larger corporations have annual collaboration agreements with ADF. The physical space of over 3000 m² in the Otaniemi campus serves as a key component in the concept. It provides flexible spaces for anything from events for several hundred people to creative teamwork, machine and electronics shops as well as individual quiet study. At the heart of the ADF is a big communal kitchen and café, Kafis.

The DF concept has attracted interested abroad, and ADF or its alumni have helped set up multiple DFs around the world. Aalto-Tongji Design Factory (ATDF) was opened in May 2010 in Shanghai, China; Swinburne Design Factory (SDF) was launched in November 2011 in Swinburne University of Technology in Melbourne, Australia; Duoc Design Factory (DDF) was opened in November 2012 in Duoc UC in Santiago, Chile, and the most recent member to the network is IdeaSquare@CERN in Geneva; Switzerland. The goal for the consequent DFGN is for the factories to be independently developed for each factory to fit the local context, but to have the support of previous experiences of the network in developing interdisciplinary platforms. Further, the international network seeks to create realistic sustainable collaboration opportunities

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that extend beyond student exchange and collaboration between individual researchers, by building a common ground for collaboration on a platform level.

2. Literature review

First, the theory of organisational culture is reviewed to create an understanding of what constitutes as the lens, which is used to explore what DF is. Secondly, as the main goal of the paper is to explore the internationalisation of such a concept, it is necessary to review the theoretical implications of organisational culture in the international context.

2.1. Organisational culture

Organisational culture has been widely used to explain organisational behaviour [3]. Furthermore, as work and the way employees do it is governed, directed and tempered by the organisation's culture, it has been seen as the cure for a majority of organisational ills [4]. In fact, as culture guides the actions of an organisation's members without the detailed instructions or long meetings, and it reduces the level of ambiguity and misunderstandings between functions and departments; ultimately a strong culture provides the common context and purpose for the organisation [5]. Schein is one of the most notable professors to refine the concept of organisational culture, defining it in terms of a dynamic model of how culture is learned, passed on and changed:

> *"Organisational culture is the pattern of basic assumptions that a given group has invented, discovered, or developed in learning to cope with its problems of external adaptation and internal integration, and that have worked well enough to be considered valid, and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems."* [6]

Schein [7] emphasises that organisational culture is not the overt behaviour or the visible artefacts that one might observe, but rather the assumptions that lie behind the values of the organisation and which determine the behaviour patterns and the visible artefacts. According to him, organisational culture can be analysed using three different levels. The topmost level appearing on the surface is '*visible artefacts*', which includes technology, art, and visible and audible behaviour patterns. These are the visible organisational structures and processes, which can be encountered and easily observed in the organisation, but will be hard to decipher. The second level is '*values*' and espoused beliefs of how an organisation should work. Values are usually formed either so that they are organisational solutions that have helped solve problems in the past, or they have come from the founder of the organisation. The deepest level of organisational culture is '*basic assumptions*' which enables us to understand a group's values and overt behaviour more completely. Underlying basic assumptions are unconscious but determine how group members perceive, think and feel. The assumptions make up the culture; the upper two levels are representations or manifestations of it. [6] Others add a layer to Schein's model; between the artefacts and the values are the *'norms'*. These unwritten rules of behaviour determine how members should behave in particular situations. [8] The theoretical framework illustrated in Figure 1 developed for this study combines the perspectives as a four-layered model including norms. Norms can visibly manifest the accepted pattern of behaviour in a very efficient manner and therefore it should be included when analysing a platform, which has a strong emphasis on ways of working.

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In the attempt to simplify culture into a framework, many definitions describe only one common culture, failing to capture both the complexities and opportunities associated with the reality. Cultural pluralism is as a fundamental aspect of an organisation and seeks to understand the interaction between the sub-cultures of the organisation that have been developed, like culture in general, through the shared group experiences in the organisation. [3] At the core of the issue are the differences in interpretations of meanings between people that can stem from a variety of factors, for example differences in gender, departments and occupational groups or due to differentiation of work tasks, departments, and hierarchical levels [9].
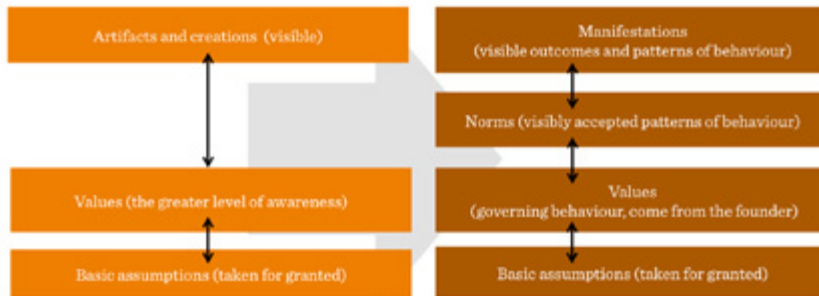

Figure 1 Modified theoretical framework: from three to four layers of culture [6,8]

To explain the diversity of different groupings and identities in organisations Martin's model [10] proposes that different organisations and the configurations of cultures in the organisations can be classified in three different ways. Integration i.e. the single culture organisation is not likely to exist as most cultures exhibit only some organisation-wide cultural consensus and consistency. Differentiation refers to multiple cultures, and fragmentation to several ambiguous cultures that are uncertain and difficult to comprehend. These two definitions imply there is an existence of multiple cultures and subcultures in addition to the dominant culture. Culture can be defined as a very group specific concept so that sub-cultures are perfectly possible while they may or may not be in conflict with each other [6]. Strongly conflicting cultures are likely to lead to the inexistence of an overall corporate culture, but common corporate experiences can facilitate a strong corporate culture on top of various subcultures [6].

2.2. Organisational cultures in the international context

Cultural compatibility should be at the forefront in international mergers and acquisitions [11] to allow for successful integration of two organisations. Cultural differences and the consequent value and behaviour differences are considered to create tension and misunderstandings [12], which then negatively influence communication, cooperation, commitment and conflict resolution [13], as well as the interpretation and responses to strategic and management issues. This leads to compounding difficulties in the mergers [14]. Organisational culture determines the management practices, thus differences in these practices represent conflicting expectations and incompatible organisational processes [13] resulting in adverse impacts. It could be tempting to try to resolve the challenges of international networks by coordinating through system-wide standard operating rules and procedures [15]. However, transmissions of organisational routines between different cultural environments are unlikely to succeed unless the guiding philosophy is supported by those who are expected to implement these routines in the foreign subsidiary [16],

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implying that when dealing with cultures, change management at the level of norms is futile unless same set of basic assumptions are adopted.

It is suggested that the real challenge for multinationals is to develop mechanisms that encourage mixed voices and messages, and support a diversity of perspectives through the role of managers [17]. This implies that a successful adoption of practices, which can balance home and host country cultures is ideal. It has been argued that it is possible to use a strong corporate culture as a 'glue' to keep the network unified by decentralising power and enabling subsidiaries to become more autonomous [24]. If managers are socialised into the culture, it shapes their perspectives and behaviour making the culture a governance mechanism [18]. Ultimately, the motive behind cultural change or control is to ensure appropriate work behaviours, but furthermore simultaneous devolution of responsibility and autonomy down the line is possible [18].

3.   Methods

The paper is based on a thesis commissioned by ADF [19]. As the context of the DF is highly relevant to the concept and the process of its internationalisation, the use of case study method was most appropriate. Empirical data was collected by conducting two sets of semi-structured interviews; the analysis for the first phase was done using the inductive approach. In the first phase five people central to the development of ADF but from diverse backgrounds were interviewed. As ADF brings together research, students and businesses, it was considered venerable to include participants from all of these groups. However, as the experience students have is strongly guided by the course they attend, it was considered more valid to use a greater body of data from students, therefore using transcriptions from previous interviews shared by DF researchers. This included altogether nine interviews with students and four with start-up companies. Due to the fact that after the first phase of interviews the theoretical framework was narrowed down to organisational culture the methodology was slightly refined to include elements from methods for studying organisational culture [6]. As this direction of cultural investigation was the result of the findings instead of being a predetermined intention, it was not possible to fully engage in a cultural investigation.

In the second stage all interviews were expert interviews, where the interviewees represented their position and expert background. Interviewees included five people, two who have worked as project managers at ATDF, the founder of ADF, the vice president of knowledge and networks in Aalto University in charge of the internationalisation of the university and finally an expert within Aalto who has experienced the adoption of some DF principles elsewhere in Aalto. The inclusion of the latter was considered prudent for triangulation purposes. The second set of interviews were analysed in two parts. The first part was done deductively following the logic of cultural research to test the earlier findings. The second part was analysed using abductive reasoning. This abductive approach results from the interplay of the deductive and the inductive approaches [20] analysis moving iteratively between theory and data. All interviews were recorded with the permission of the interviewees and transcribed from the tapes to eliminate loss of relevant information. Triangulation was used to reduce the likelihood of misinterpretation [21] and so secondary data was employed including the interview data collected by the ADF research staff, as well as written documents such as annual reports, project reports and meeting minutes.

4. Results
4.1. Community in the heart of the culture of ADF

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It is evident that ADF is seen as concept that consists of three elements. Firstly, it is a community of people, and a space that tells the story of as well as forms the ways of working of such a community. Second, it is an atmosphere and a way of doing things, i.e. the organisational culture. Finally, it was recognised that what ADF is, is tied into its role within the university. Therefore, what ADF is can be summarised in three points: 1) The internal context of the concrete elements of community members and space, 2) The DF culture, 3) The external context of its role within Aalto. The following sections will explain this result, focusing on organisational culture. Based on the interviews, culture can be identified as the overarching concept, which comprises of the vast majority of the issues discussed in the interviews and which is interlinked with the more tangible elements and goals of ADF.

The theoretical framework used to analyse ADF is a layered approach to organisational culture. ADF culture is mapped by surfacing the basic assumptions as well as values based on the empirical data. Norms are often described as the unwritten rules of behaviour, but at ADF, due to the years of pedagogical experimentation and an analytical approach to behaviour, many of these rules are not in fact unwritten but explicitly communicated to others. Moreover, being a change agent within the university has forced ADF to use the norms to guide behaviour and to introduce new ways of working. The manifestations and norms that arose from the data have been plotted into Figure 2 as well as the analysis of values and assumptions.

INTERNAL CONTEXT	DF CULTURE				EXTERNAL CONTEXT
	MANIFESTATIONS				
	Support	Continuous	Interdisciplinary	Space	
	Low hierarchy	development	stakeholders	Pace	
	Learning	Wicked problems	Coffee & food	Hands-on-doing	
	Openness	Problem-based learning	Information sharing	Blurring boundaries of	
	Identity creation	Passion	New knowledge	work and free-time	
Community members	Lack of bureaucracy	Positive atmosphere	Serendipity	Prototyping	Branding Aalto
			Communal spaces		
	NORMS				
	Trust	Leaving comfort zones	Creating interactions	Experimentation	
	Freedom	Curiosity	Proactivity	Failing	
	Openness	Inspiration	Working together	Fun	
Space	Responsibility		Interdisciplinary		Project and change agent
	Low hierarchy		Co-creation		
	Positive attitude		Information sharing		
	Accepting		Open Innovation		
	incompleteness		Access		
	VALUES				
	User centricity & platform thinking	Inspiring motivation and hunger for learning	Community	Creativity of process	
	ASSUMPTIONS				
	All people have potential	Passion enables better learning & Innovation	Co-creation improves outcomes		

Figure 2 Research results plotted into the figure to depict culture and context

Based on purely the frequency of times community as topic surfaced in the interviews, it can be argued that it is the cornerstone of ADF. The characteristics that manifest clearly in the community, and build what was suggested as the right atmosphere, are the diversity and interdisciplinary backgrounds of people, the variety of stakeholders and the extended network i.e. the network of people associated with ADF. On their own however, they did not seem sufficient,

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but it was considered that the key elements are the activities: the collaboration created and the sharing of information between these partners. The aspects that facilitate all this, the accessibility, positive atmosphere and the proactive creation of interactions with breakfasts, coffee breaks and so on were seen critical.

It seems, that what it all comes down to is that ADF is or hosts a community, and operates as some sort of a platform, which enables the interaction between the community members. The 'raison d'être' being serendipitous activity across silos, which can eventually lead to the creation of new knowledge. This platform thinking of an environment that creates the common ground for different stakeholders was emphasised in the conversations regarding the extended network rather than the core staff of ADF.

4.2. Culture that facilitates diversity

As DF is a platform, which hosts many different stakeholders, the likelihood of subcultures increases. In fact, each community member residing at DF is encouraged to also retain their own professional identity to enhance an interdisciplinary environment that enforces these subcultural identities of designers, engineers, business people, researchers, teachers, students and so on. This brings us back to Martin's model of fragmentation in organisational culture [10]. Following her theory, it becomes evident that in the community and the extended network there are individuals with varying levels of understanding of and commitment to the DF ways of working (staff, community and extended network). This is further diversified by the professional and educational backgrounds and other factors that can create informal groupings such as nationality. This situation can be described with a modification of Martin's models for fragmentation and differentiation [10] as described in Figure 3:
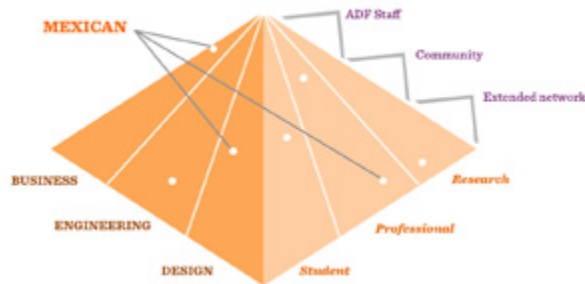

Figure 3 Subcultures in ADF [10]

The organisational culture described in this study is best characterised as the managerial culture of the founder and staff of ADF. The topmost layer of the pyramid illustrates that all staff members have different roles and come from different background in terms of disciplines. The middle level is the community of people who frequently come to ADF. Other people falling into this layer of level of understating can be the staff of the companies located at there. The last level of understanding is the extended network related to ADF, including for example visitors. Schein's definition of culture is related to how culture is learned, passed on and changed [6]. For all the subcultures visualized across the layers the process of socialisation is different, varying from a 9-month induction though course work to infrequent shared experiences over a longer

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period of time. Some are not yet sufficiently socialised and the culture does not manifest in their behaviour without facilitation. All people in all levels bring along with them their own background and discipline, they all experience ADF in slightly different ways, but they can all be part of the community that is facilitated by the platform whose norms are defined by the culture.

The international DFs are not meant to be identical copies of ADF. The question is to what extent is there then the interest to transfer the DF culture, in order to retain the characteristics critical for the co-creation platform, to enable the international collaboration, but simultaneously to sufficiently adjust to the local context to ensure success. To come back to Schein's original definition of culture, values are merely representations of the assumptions; the deepest level of culture [6]. This implies that changing culture can only happen by changing the assumptions of the culture [17]. Thus, both literature and the empirical findings from DF show that the long-term goal is to change culture at its deepest level. Therefore it is proposed that the international DFs should adopt the three assumptions of the DF concept and the four consequent values. There was a clear consensus that DF is a desirable concept abroad due to the fact that there was interest to change and develop education in the same direction. In addition, the platform is to facilitate interaction and collaboration between universities, and similar ways of working are seen as something that will facilitate this. Lack of shared values was considered as one of the biggest impediments to true collaboration and a shared culture could break down the barriers. Therefore, the model illustrated in Figure 4 is proposed. This model includes the benefits of shared culture, but allows the host institution to shape its own identity of the local DF that stem from assumptions found in the local context. These assumptions can either come from the host university, a subculture of the university or the national culture. As long as these host culture assumptions are not in conflict with the DF assumptions, they are not mutually exclusive.
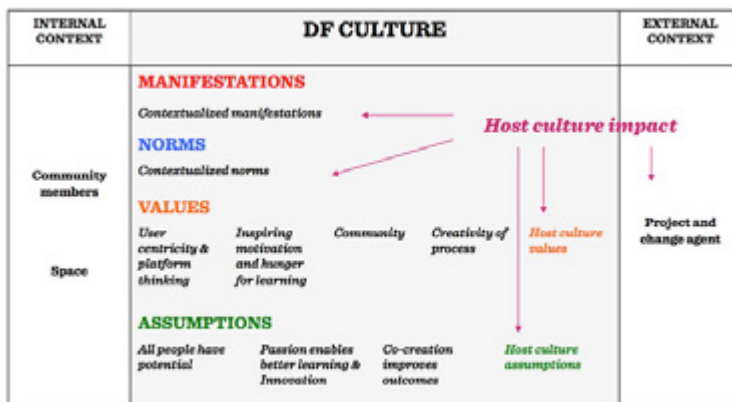

Figure 4 Host culture impact on the DF culture model

5. Discussion
The DF culture is indeed a bit of a paradox: an integrated (management) culture encouraging differentiation. The challenge is how to find the right balance between this and a culture that is common enough to allow for the similar processes that facilitates the university-industry collaboration than in ADF. In the international context the local assumptions shape the overall culture of the local DF. Therefore, in the end what happens is that the local DF, whilst embracing

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the original DF assumptions, becomes a subculture in the DFGN. Based on the evidence from ADF and the theory on culture as means to govern the community, it can be suggested that common culture could be the factor, which enables DFGN to succeed. This is because the common culture binds the members together in a common purpose and legitimate and guide decision-making [4] across national borders. If the international subcultures are complementary to the common culture, then the common culture can act as the organisational glue in the network. There is a need however to look at the process of creating or changing culture. Because of the fragmented structure of the culture as it is, the different environments, continuous introduction of new high level managers from different universities with different agendas, high turnover of students in all universities and so on, the culture is at risk of becoming too differentiated before achieving any common cultural ground, which further enforces the need for strong culture. But both literature [17] and evidence show that culture can act as a governance mechanism abroad, if the managers are well socialised. The collaboration between the two universities across borders becomes more focused on creating collaborative activities. These activities act as the shared experiences, which reinforce the common culture of the network.

Using a four-layered model to map the culture of ADF allows for a comprehensive understanding of what DF is. However the study goes beyond the layered model of organisational culture by investigating the interrelationship of the overall management culture and the numerous subcultures in the context of leveraging culture for internationalisation. Consequently, the outcome of the study is a framework, which can be used as the basis for understanding, developing and internationalising innovation platforms. Mapping out the culture provides confirmation on the fact that the culture of ADF is strongly geared towards encouraging certain processes and attitudes, which support the innovation process. There is room for a variety of manifestations or applications of the DF culture, as it embraces diversity and subcultures. This allows all DFs to have their own identities, but the network is governed by having an overall culture acting as glue. While the context specificity of the study focusing on ADF limits the generalizability of the findings, the research indicates that the type of a culture is highly relevant to the ability to employ organisational culture as a governing mechanism internationally. This discovery can be used not only as a starting point for further research but also in setting up international activities in other contexts. Due to the scope of the research the study was done from an ADF point of view, but especially as the network matures and grows, further studies should be conducted. In addition, now that it has been established that the organisational culture theory can best describe what DF is, an effort should be made to study the culture using the methods best suited for cultural investigations, such as observations as such tools can allow the researcher to fill the layer of manifestations and derive the rest of the layers from the information.

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