



AN EXPLORATION OF COMPANY PERSONAS TO SUPPORT CUSTOMIZED DFS IMPLEMENTATION

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Abstract

The increasing discussion on DfS implementation in companies has shifted the focus to effectiveness of the implementation process. Literature shows that there are certain barriers and challenges that impede the success of such efforts. This paper tries to explore whether companies – similar to product users – have certain personas that play a determining role in the implementation process. The paper draws its theoretical foundation from academic literature on human persona in user-centred design and DfS and from environmental management system literature on company characteristics. This is supplemented by insights from interviews with a case company trying to identify dimensions of a company persona in a DfS implementation context. These results are used to propose an initial framework to define persona of a company.

Keywords: Design for X (DfX), Ecodesign, Persona, Case study, Human behaviour in design

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1 INTRODUCTION

Design for sustainability (DfS) implementation in companies has been receiving increased attention in academic literature in recent years. Various authors have proposed tools, methods and approaches to streamline and guide the DfS implementation process in companies. However, a review of these tools and methods points towards low level of usage (Bey et al., 2013) of these in industries. Further, studies also identify major barriers and challenges to DfS implementation in companies (Baumann et al., 2002; Boks, 2006; Stevels, 2007; Dangelico, 2015). More recent papers on the topic also observe the same trend in DfS challenges (Pigosso et al., 2013; Ramani et al., 2010). Some of these papers stress upon the need to consider the human side aspects in organisations implementing DfS strategies and undertaking DfS projects (Boks, 2006; Verhulst and Boks, 2012; Brones, 2017).

Further, studies also argue that success of sustainability implementation in companies varies based on the context and capabilities of the company. These include factual aspects, such as size, industry branch, geographic location, and history of the company. In addition, DfS implementation may be affected by a multitude of factors existing within and beyond the company boundary. These could include for example the place in the hierarchy of the supply chain, which affects the potential to collaborate and negotiate up and down the supply chain and with other partners such as knowledge organisations. This will affect access to both human, financial and physical resources. Further, organisational culture may also affect DfS implementation project. The internal factors could include the way DfS is communicated, empowerment and involvement, resistance to change, the commitment towards sustainability, differences in expectations from the project outcome by different departments and stakeholders involved, the prioritisation of DfS projects within the overall company portfolio, overall strategy and long term vision of the top management etc. The maturity level related to experience with dealing with DfS implementation will also determine how this is best done in practice (Pigosso et al., 2013). The existence of a wide variety of contexts makes it likely that successful DfS implementation will have to take this into account, and that prescribing 'off the shelf' approaches that do not take into account the variety of contexts will essentially be meaningless. It is attractive to draw parallels with user centred design approaches that focus on understanding the customer (or end-user) in order to offer a commercially attractive value proposition. With DfS implementation strategies being the value proposition, the companies are the customers (or end-users) that will need to be understood well in order to offer an DfS implementation strategy that is attractive to use.

These observations lead to the proposition that companies, as product users, will possess non-factual characteristics that distinguish them from others; but at the same time, there will be companies that operate in similar contexts. If we assume this, it is interesting to attempt to identify what characteristics may be relevant to distinguish, what dimensions will they entail, and if they can be measured in a meaningful way. This is the starting point of this explorative paper, where the aim is to gain insight in the feasibility of constructing 'company personas' that will facilitate DFS implementation. A company persona is tentatively defined as characteristics of the company in functional, organisational, business strength and value chain dimensions that distinguish the company or corporate from the rest, or enables it to be grouped with other similar companies.

To inform this process, we have taken insights from existing literature on personas and explored how these can contribute to such a discussion. Additionally, some existing literature has tried to identify the different contextual aspects of DfS implementation in companies and how it may impact the success or failure of the DfS project. This includes the change management perspective for eco-design implementation in companies (Verhulst and Boks, 2012), an exploration of regional characteristics of organisations and its impact on DfS (Ali et al., 2016), and the maturity level and preparedness of the companies in terms of sustainability implementation (Pigosso et al., 2013). This paper is an attempt to take these discussions on the role of human side factors of organisations in DfS implementation further. The authors approach the case by presenting academic view points and insights from industrial interviews on how identifying and defining the "persona" of an organisation may help us better develop tools, methods and approaches. The data presented in this paper is primarily based on academic literature on personas in design and organisational theories.

1.1 The Persona in literature

The origin of the persona as a research topic is widely found in user centred design literature, where the user becomes the main focus of the design process. Persona as a technique for designers was introduced by Alan Cooper in 90's in his book titled, *"The inmates are running the asylum"*. In the book, Cooper observes that designers often have unclear or vague ideas of the end user of the product and are most often driven by user scenarios similar to the designer himself/herself. To overcome this shortcoming, Cooper suggests the "goal-directed-design", where multiple user centred research methods such as interviews, ethnographies etc. are combined with market research, user requirements and goals to better define the user and his/her needs (Cooper, 1999).

For this paper, personas are defined as user classes fleshed out into "user archetypes", that gives the required precision to the design activity of the designer. The popular support for personas come from its advantage over scenarios due to close proximity to the reality of the design goal and the engaging nature of personas (Grudin and Pruitt, 2002). Personas help design teams in thinking about users during the design process, make efficient design decisions without inappropriate generalization, and facilitate communicating about users to various stakeholders (Matthews et al., 2012).

Outside design literature, extensive discussion on personas and the various dimensions of it can be found in software development literature as well. Rönkkö et al., (2004) observe that personas also bring social and political aspects into focus. The following chapters in this paper tries to identify the different dimensions of persona as discussed in literature and how it can potentially contribute to identifying organisational persona.

1.2 Organisational style and theories

Literature on company or corporate personas as an overarching concept is limited, and appears to be mainly oriented towards the company's image in the view of customers. In this case, corporate identity, company associations or company profile are the preferred terms of use. Literature, mostly in the branding and marketing domain, distinguishes ways to describe different types of corporate identity can be distinguished (including actual, communicated, conceived, ideal, and desired corporate identity (Balmer and Greyser, 2002), and that customers may have company associations related to for example organisational effectiveness and social performance, which may be linked to corporate ability and corporate social responsibility (Brown and Dacin, 1997). But in our present discussion on how to define company personas, we feel that corporate identity, company associations or company profile is one of many aspects making up a company persona, rather than a synonym for it, and should be understood as identity, association or profile in the eyes of the customer. We are however searching for a persona that describes the company, or even departments within it, in terms that are useful for the researcher (or consultant for that matter) in recommending approaches for successfully implementing projects or operations, in this case in the context of Design for Sustainability.

Elements of a company persona, in the context that we choose to see it, obviously relate to "company culture" or "organisational culture". These will be in particularly relevant in the context of successful implementation of Design for Sustainability, and are addressed separately in this paper. Literature on these topics do provide further granulations of what culture is made up of, but also this literature does not list these elements of culture next to, or in addition to, characteristics of the company that describe aspects not related to culture. This is why a grounded research approach to conceptualise such descriptions appears to be most relevant in the present case.

2 RESEARCH METHOD

This paper aims to take an explorative approach towards finding an operational description of a 'company persona'. It does so by attempting to identify the different aspects and characteristics that may be relevant to describe a company persona. The focus of our work is on aspects and characteristics that are relevant within the context of sustainability implementation. The overall research process is divided into three stages as illustrated in the figure below.

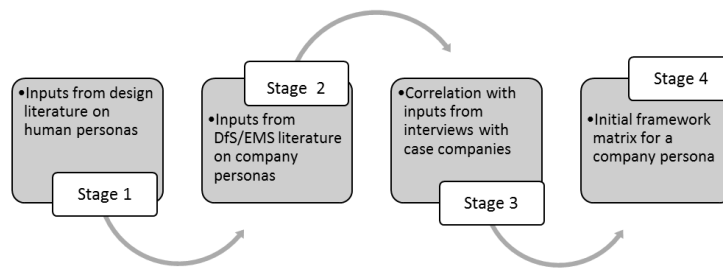


Figure 1. Research method followed

Stage 1 reviews existing literature on personas in order to identify the general characteristics of person mentioned in literature on persona and other user centred design studies. The aim here is not to transfer this to a company context without question, but to explore if elements that are used to describe human personas can also be applicable, in an adapted way or not, to company personas. The second stage explores literature on DfS implementation and Environmental Management Systems (EMS) to identify the different characteristics of a company that may affect sustainability implementation in companies. Based on inputs from the first two stages, the third stage builds on interviews with case companies. In this stage, the interviews were analysed to 1) identify if the identified potential elements of a company persona are possible to 'measure' through an interview, and 2) to analyse if additional elements could be identified to supplement the elements found so far. The final stage builds upon the initial stages to present an initial framework matrix to define the persona of company from a DfS perspective.

3 RESULTS FROM LITERATURE REVIEW

3.1 Stage 1: Inputs from design literature on persona

Existing literature on personas suggests that the primary aim of using personas as part of a design activity is to overcome the risk of developing a generalised solution for users. By using personas, designer attempts to identify and visualise the actual requirements of the users, by defining a fictitious character or entity that would resemble the final target audience or user (Faily and Flechais, 2011). In a design activity, often several personas are developed in parallel to account for different demographics, user requirements, norms and values, etc. Firms with extensive design activity often use the same, extensively described personas across many different design projects. In many cases, these often represent particular contexts of the users, but not too extreme users (Faily and Flechais, 2011; Long, 2009).

Miaskiewicz and Kozar (2011) use the Delphi technique to rank the benefits of using a persona identified from literature. The 1) audience focus- where the end user of the product is the main focus, 2) product requirements prioritisation - on product requirements and ensuring that the right problem is being solved, 3) audience prioritisation - bringing about a focus on the most important audience, and 4) challenge assumptions - that are often incorrect about the users/customers are some of the top benefits identified in that paper. Further, literature also observes that the creation of personas has made communications in design environment easier and more explicit. The efficacy of driving the debate and arriving at design decisions made the technique popular among designers. Political and social characteristics of users remained mostly unaddressed in earlier design cases, and the persona enabled scenarios for recognizing and challenging these characteristics (Chapman et al., 2008; Pruitt and Grudin, 2003; Rönkkö et al., 2004). Using personas helps to create an embodiment of the needs and goals of the users thus providing additional specificity and avoiding the higher level of abstraction in the definition of the user (Blomquist and Arvola, 2002).

Floyd et al. (2008) identify the different kinds, attributes and characteristics of personas based on existing literature and case studies. They categorise the persona technique into seven major kinds, based on the detail of description, intended purpose and what kind of data is sourced to create a persona. The first classic kind of persona identified by Floyd et al. (2008) is the one proposed by Alan Cooper, it relies on in-depth ethnographic research and tries to create as many initial personas as possible (Cooper, 1999). Floyd et al. (2008) further observe that in "Cooperian" style of personas, the initial personas developed to capture the basic understanding of user characteristics are then merged through analysis to arrive at one primary persona for each user kind. These final personas are then maintained throughout the rest of the design process and discarded at the end of the project. Floyd et al. (2008) classify these Cooperian personas into two kinds, Cooperian Initial Personas (CI) and Cooperian Final Personas (CF).

The second type of persona belongs to Pruitt and Grudin, which is characterised by its massive data driven approach, quantitative and qualitative. The personas so developed are then retained even after the project is completed (Floyd et al., 2008; Grudin and Pruitt, 2002). The third kind of persona identified by Floyd et al. (2008) is Sinha personas, which are data driven, primarily quantitative but less comprehensive in comparison to the other kinds (Sinha, 2003). The article further explains three other personas kinds namely ad hoc, user archetypes as personas and marketing personas. The ad hoc persona is derived from intuition and experience of the designer but discarded after the design cycle is complete. The user archetypes are similar to personas, except that they are more generic and cater to a larger group of audiences than personas. It is less precise compared to a persona, thus also qualifies with more general information. Dantin (2005) studies the user archetypes intended for two online platforms, outlining the general public targeted with the service, making it "elastic" (Floyd et al., 2008) and describing several people simultaneously.

Since the focus of this paper is on company personas and how it may facilitate improved DfS implementation in companies, the authors believe that a mix of inputs from user archetypes, experience and qualitative data will contribute to the purpose of this paper. The characteristics of these personas are further enlisted in the following sections.

3.1.1 What does a persona entail?

Faily and Flechais (2011) identify three main steps in creating a persona, firstly, summarising the proposition by identifying the thematic propositions that the persona shall address. Secondly, enumerating and explaining the characteristics identified for the persona. Finally, creating detailed narratives of the persona characteristics and other supporting narratives.

Considering these principles while reviewing the persona case studies in literature, we could identify a predominant number of examples from the software field that tend to define the characteristic of the user being targeted. Rönkkö et al. (2004) identify certain characteristics for a case company where persona as a design technique was used but failed to overcome the design challenge. These characteristics include the demographics of the company, the field of work, their expertise in the field, years of experience, department structure etc. The article however notes that the persona technique failed because it did not take into account the external environment of the company, stakeholders outside the company. Matthews et al. (2012) observe that despite its limitation, this shows the power of persona as technique in bringing out the "some irreconcilable differences between various design stakeholders". The authors believe that while defining the company persona, explained in detail in the following sections, it should include characteristics both external and internal to the company for successful implementation of DfS.

Further, Cooper (1999) notes that each human persona has a work environment, socio-economic dimension and demographic dimension of culture, ethnicity or race to it. Pruitt and Grudin (2003) further elaborates on these by looking into a set of dimensions in the case example, this include goals, fears and aspirations of the user, market size and influence, knowledge, skills and abilities, communication, views and opinions, attitude towards the solution/product etc. Thus, the literature review was able to highlight a number of characteristics that can potentially be transferred from human persona to define the "company persona" terminology. These characteristics are illustrated in Figure 2.



Figure 2. Identified potential dimensions of a company persona - an illustration

3.2 Stage 2: Insights on company persona from DfS and EMS literature

In order to support the discussion on "company persona" in the context of DfS implementation, it was imperative to look into the relevant literature on DfS implementation in companies that discuss the

"softer-side" of companies. In one of the earlier works on the "soft-side" of DfS, Boks (2006) mentions a set of characteristics that companies need to emphasise during the implementation stage. This include communication structure, need of cooperation between companies, alignment of needs and expectations between proponents and executors, establishment of market demand for DfS products etc.

More recent works on DfS implementation also highlight similar requirements for companies, such as top management commitment, empowerment of employees and better change management facilitation (Doppelt, 2003; Verhulst and Boks, 2012). Dealing with 7 "sustainability blunders" in companies, Doppelt (2003) suggest that companies need to restructure their strategies, their way of organising sustainability strategy team and ensuring alignment in the vision and activities of the team as a first step to create a sustainable enterprise. Further, studying the role of resistance against sustainability and internal communications in sustainable design implementation in companies, Verhulst and Boks (2012) highlight the need for different communication styles that will inform, support and involve the employees of the company.

Further, studying the different existing DfS tools and their usage in the industries, researchers observe that these tools are seldom used due to certain barriers in the companies. These include the lack of overview of the knowledge capacity within the company, insufficient resources and commitment from management and absence of clear environmental information (Bey et al., 2013). Further, lack of integration of DfS and corporate strategy (Pigosso et al., 2013), difficulties in defining and planning the activities for DfS implementation, challenges in prioritizing the eco design practices in companies (Boks and Stevels, 2007) etc. also add to these barriers. Researchers who studied the external environment of the company and the role of stakeholders from a sustainability implementation perspective identify the need of stakeholder involvement and management of the stakeholder relationship both internally and externally (Aschehoug et al., 2012; Bocken et al., 2014).

Literature from Environmental Management Systems (EMS) identifies certain characteristics of companies for successful implementation of EMS systems, namely;

- Organisational culture supporting sustainability focus (Daily and Huang, 2001; Linnenluecke and Griffiths, 2010).
- Training and skill sets for understanding sustainability issues and EMS systems (Daily and Huang, 2001; Sarkis et al., 2010).
- Recognition for team work and rewards culture in organisations for sustainability initiatives (Daily and Huang, 2001).
- Effective communication flow between employees and the top management (Madsen and Ulhøi, 2001).

Reading these desired company characteristics for successful DfS/EMS implementation along with characteristics of human persona identified from literature in Stage 1, confirms the idea that it is interesting from an academic standpoint to explore, identify and attempt to define a company persona from a DfS perspective.

3.3 Stage 3: Insights from interviews

A third 'source of inspiration' has been in the form of interviews with a case company. These interviews were done in the context of a broader research project, but are used here to identify characteristics of a company persona that can be observed in a real case DfS implementation project. The case company A operates in the Fast Moving Consumer Goods (FMCG) sector and is an industry leader in some of its product categories. A total of 8 semi structured interviews were carried out with employees who have responsibilities related to sustainability. This included people from both top management, project managers and product developers/designers in 2 major business units of the company (referred in the Table 1 as BU X and BU Y).

The interview questions focused on the nature of DfS implementation in the company and how different organisational characteristics identified from the literature and also discussed earlier in the paper influenced the implementation process. The second half of each interview tried to identify and frame the persona of the company using an organigram outlining the functional style of the company and the various dimensions of it. A final part of the interview tried to elaborate on characteristics of company persona that were not identified from literature, if any.

The major themes discussed in the interviews and the observations relevant to the topic of this paper is summarised in table

Table 1. Insights from the case company interview

Sl.	Theme	Quotes	Key elements for persona definition
1.	DfS implementation style	<p>"We have a stage gate model that is quite uniform to a large extent, but since we are a decentralized company, we do not have a formalized manner for eco-design implementation. But we have guidelines and an agency as an internal consultancy with best practices, guidelines etc. But this a model we suggest and it is up-to companies to select and apply the guideline" (CSR Operational Manager - Top management)</p> <p>"we don't have any tools or standardized formula when it comes to DfS. We are not there yet, and I want us to be there. We have started that discussion on what should be our main setup."(R&D Head - BU Y)</p>	Level of formalised manner for DfS implementation
2.	Top management	<p>"I would wish if the top management would be a bit more concerned about sustainability and...yeah the...future of our business" (Product developer - BU Y)</p> <p>"it doesn't matter if the CEO is motivated (sustainability issues), if the management team under him does not have that commitment.."</p>	Extent of top management commitment
3.	Communication	<p>"the communication with R&D is actually very good, as we have project teams, and there are representatives from all the departments in the project team" (Procurement manager - BU X)</p> <p>"we are very used to working with each other, so we adjust our technical language so other department people can understand" (Project manager - BU Y)</p>	Existing communication style in the company
4.	Culture in the organisation	<p>"when listening to companies that are doing really good in sustainability, they have a purpose on why they are doing it. But we don't have it in our culture, we have a vision. But that does not have sustainability in it. We are missing that part in our culture and that should come from top management. We have an attitude that we need to do the job and get money for our stakeholder" (HSE - Top management)</p>	Level of culture promoting sustainability
5.	Organisational structure	<p>"we are quite hierarchical and everything takes time. So for example when we need to have a sustainability strategy, we will need a budget and it takes may be 4 months before we get to know if we will have the money or not. So it is very bureaucratic..." (Product developer - BU X)</p>	Organisational structure existing within the company
6.	Use of tools and methods	<p>"we don't have tools or any methods for DfS as of now, and that is probably something we should have wanted by now..." (Product developer- BU X)</p> <p>"We are making use of tie-ups and partnership with university B for developing better sustainability solutions in our products, as we lack the complete internal expertise right now" (Product developer - BU Y)</p>	Level of DfS tool usage, skill set and knowledge on sustainability
7.	Empowerment and Decision making	<p>"we are reliant on the top management for most important decisions, so we are driven by finance department and the top management. So we don't have so much decision making in this case." (Product developer - BU Y)</p> <p>"if we would have our sustainability strategy as part of our business strategy, then that is something we would like very much to have. Because then it makes it very much easier to take decisions, which is good for environment or social conditions. And now it becomes a fight between departments before we try to do it" (Project Manager - BU Y)</p>	Level of empowerment and decision making power to employees
8.	Market position in company	<p>"we have pressure from our customers to be more sustainable, but our market share is quite high which makes that the pressure from the customer is not that strong enough" (Project manager - BU Y)</p> <p>"we have a strong sustainability focus in our raw material procurement, however, it is difficult to ensure that the suppliers comply with requirements, as we are a small procurer by their scale in some products. This restricts our power" (CSR Operational Manager - Top management)</p>	Level of market dominance and hierarchy in the supply chain, related to power to change status quo

4 DISCUSSION

As observed from both the literature and the interview results, we believe that there is sufficient potential for studying the persona of a company and for proposing what entails a company persona. This is of particular interest from a DfS implementation context as the success of a DfS implementation project varies widely based on the company context. Hence, having an understanding of the company context will be important in order to be able to cater for it.

The literature review and interview findings show that there are certain observable company characteristics that play a determining role in DfS implementation. This range from the top management commitment to sustainability to the knowledge base and skill set present in the company. Below, we present an initial framework matrix that groups the company characteristics identified from DfS and EMS literature under broader categories drawn from human persona and user centred design studies.

General Persona Category	Persona Details	Observed from literature	Observed from Interviews
Company background and activities	Goals		X
	Sustainability prioritisation		X
	Resource	X	X
	Overall strategy	X	X
Demographics	Culture	X	X
	Tools/methods usage	X	X
	Push for creativity	X	
	Training/skill set	X	X
Structure	Empowerment	X	X
	Tools/methods development	X	X
	Geographic/Co-location of departments		X
	Communication	X	X
	Participative management style	X	
Market conditions	Market conditions	X	X
	Awareness/customer demand for DfS	X	X
	Position in supply chain	X	X
Political undertones	Commitment/consensus/conflict resolution	X	
	Work distribution/ Fear to change	X	
	Team work/incentives	X	

Figure 3. Stage 4: Initial framework on defining a company persona

These characteristics are then matched towards what could be identified from the literature and what could be identified from the interviews. Such a framework was devised with primarily three aims, firstly, can the human persona be transferred into a company context, secondly, how can the findings from DfS and EMS literature enrich such a categorisation and finally, by providing a cross comparison of the results from literature and interview, can the latter be further enriched to elicit more content from companies to better define the company persona. As observed from the matrix, we could identify certain persona dimensions that were exclusively identified in the literature or the interviews alone. This provides food for thought on contributing to existing literature on DfS implementation and company characteristics.

5 CONCLUSION

The paper presented an overview of how inputs from literature on human persona and desired company characteristics from DfS implementation and EMS literature can help identify possible dimensions of a company persona that will help better cater to the contextual needs of a company during DfS implementation. Results from a case company interview was also discussed to find the correlation between the findings from literature and actual company situation. From the initial framework discussed in the paper, we feel that it is possible to use interviews as a tool to determine what company persona is relevant for a particular company. However, the interview results presented here are not conclusive on its own, as it is based on only one particular company. Hence, the potential future work could include building detailed persona descriptions based on more detailed interviews with more companies. Further

research can also include proposing advisable approaches on DFS implementation to companies based on their determined persona.

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