UCD: Influenced by an Organizational Culture and Its Maturity

Lara da Costa Brito[(✉)] and Maria Manuela Rupp Quaresma[(✉)]

Pontífce Universidade Católica do Rio de Janeiro, Rio de Janeiro, RJ, Brazil
larbrito@hotmail.com, mquaresma@puc-rio.br

Abstract. This article proposes to discuss how user-centered design practices (UCD) can be influenced by certain organizational characteristics such as organizational culture and corporate maturity of user-centered design processes. Organizational culture exerts a strong power in all sectors of a company, either in the transmission of values, behaviors or habits and, in particular, the adoption of new practices and methodologies also do not escape from this rule and appear to be under the control of this culture which selects and designates what can and cannot be promoted within the corporation. In addition to corporate culture, the level of corporate maturity is also a determining factor on the implementation of successful processes and without adequate and mature understanding, can affect as a consequence, the results and quality of a products and services, thus compromising the sales, user's satisfaction, and for last, the market positioning.

Keywords: User-centered design · User-centered design process
Organizational culture · Corporate maturity

1 Introduction

Currently, companies have increased their concern with user satisfaction motivated mainly by market competition. In general, the user has gained a meaning related to the profit and as an investment is gradually becoming a key element in the development of projects, becoming a competitive differential.

The use of the term UX has been established in the corporate dictionary as synonymous of success to create attractive products and services, even if there is no consensus or certainty of its meaning. User-focused methodologies are currently one of the most researched practices in both the academic and corporate domains, making it of the utmost importance for project development. Everything looks perfect, but how are companies doing this job? Does organizational culture allow users to effectively participate in the contribution of their own experience? And as for the maturity of the business, is it enough to deal with methods and techniques with the goal of creating products and services that satisfy users?

This paper aims to discuss how user-centered design practices can be directly or indirectly affected by the organizational culture and the corporate maturity of the design process.

2   UCD Practices in Organizations

2.1   Understanding UCD

Much is said about how design practices can help in the sale and retention of products and services, capturing and winning the interest of users. According to Courage and Baxter (2005, p. 8), thanks to market pressure and usability awareness, many companies link UCD processes to the life cycles of their products. However, a closer look shows that there are still gaps to be filled in the application of these practices that involve UCD design methodologies within companies.

Initially, it is needs to be a clear understanding of what involves user-centered design in the corporate environment and this includes the proper discernment among the various terms used to designate these activities. The term "user-centered design" is still misused today. Although it is considered a multidisciplinary design approach, some people refer to human-centered design of products and services as user experience, but according to Goodwin (2011, p. 5) this term is presumptuous; it is possible to design all aspects of the environment to encourage a great user experience, but as each one brings their own attitudes, behaviors and perceptions to any situation, no designer can determine exactly what the experience has.

In addition to the mistaken use of user-centered design, the terms usability, human-computer interaction, and user experience are mistaken for synonyms and misunder-standings. Lowdermilk (2013, p. 6) clarifies that differences from definitions: usability, also referred to as human factors, is the study of how humans relate to any product. Man-computer interaction is rooted in usability, but focuses on how humans relate to computing products. User-centered design has emerged from human-computer interaction and is a software design methodology for developers and designers where their practice ensures the application of good usability. With regard to the term user experience, so widely used these days, it is used to summarize the entire experience of a software product or service. It not only covers features, but also how engaging and enjoyable is the use of an application.

2.2   Adoption of UCD Practices

Understanding and implementing UCD should be an important practice in organizations to achieve the goal of designing products and services for their end users. However, Schaffer (2004, p. 16) reminds us the real question that companies often ask themselves: "Will people be converted?" For most organizations, it's an advantage if people love their projects, but making the sale happen will make the company's executives happier. For corporations, of course sales are an expected outcome, but in order to achieve this goal, they need to be aware of a number of factors, including the final quality of what they produce, which should be usable and meet the user's needs. It would seem obvious to think this way, but for some organizations this logic may not exactly match reality.

For Courage and Baxter (2005, p. 8), if the company does not adopt a design process, you have a major problem on your hands and performing some activities with users will

not be helpful. You will need to employ a change management strategy to affect the structure, processes, and culture of your organization and these is far from easy job.

Generally, the adoption of methodologies will depend in particular on diverse organizational characteristics such as culture, process maturity, size and hierarchical structure:

- Organizational culture: its role is to determine how design methods and techniques are to be seen and valued in a company and its influence will be directly linked to promoting the evolution of the UCD design process through corporate maturity.
- Corporate maturity of the process: it is fundamental that the company is aware of the current level of maturity with respect to user-centered design processes and thus be able to generate action plans for its evolution in the maturity scale facing the market.
- Size: the size of the company will influence in the introduction of design methodologies and processes, and the larger the company size, the greater the complexity in the implementation of the process.
- Hierarchical structure: like the size of the company, the type of organizational hierarchy will also influence the introduction of new processes. In the case of a hierarchy with a horizontal structure, the methodological changes will be accepted and absorbed with greater ease, as opposed to the vertical structure, which will be subject to complications.

2.3   The Value of Design

For some companies, design methodologies may still have a basic vision within an organization. One of the reasons why organizations have given little importance to design methodologies, according to Mozota (1998), is the lack of understanding of their comprehensiveness. It is often seen as a resource of support rather than as a process. Goodwin (2011, p. 698) complements saying that becoming an organization that truly values design requires changes in structures, processes, and the attitudes and behavioral norms that constitute corporate culture. For Best (2009, p. 54), one of the biggest challenges for design in general is to measure its value. Success measures are easier to measure in qualitative terms (such as improved brand image, increased organizational learning and better communication) than in quantitative terms (profits, units sold, increased market share). In addition, the benefits of design methods and techniques usually reveal themselves over time, not instantly.

In order to clarify to business managers and designers the value that design as a discipline can bring to a company, Mozota (2006) proposes a value model as a differentiating, integrating, transforming and business element for a company:

- Design as differentiator: design as competitive advantage in the market through brand equity, customer loyalty and price or customer orientation.
- Design as an integrator: design as a resource that improves the development of new products, processes (market time, building teams that use data visualization skills); design as a process that favors product architecture, user-oriented innovation models, and project management.

- Design as transformer: design as a resource to create new business opportunities; to improve the company's ability to cope with change.
- Design as good business: design as sales increase; brand value; better Market Share, return on investment (ROI) and design as a resource for society in general.

Through this value model, we can see that design activities can be valued in a variety of ways, but understanding their meaning for a company is a crucial factor in determining these activities, as well as management activities.

3   Corporate Culture

3.1   The Culture Matters

Culture is an important bond between individuals and organizations. It is established through a group with common interests. When it is possible to align individual and organizational behaviors, common visions and values are created and help establish a culture where employees are allowed to aggregate values at all levels. To maintain employees motivation and commitment in fulfilling organizational purposes, Best (2009, p. 86), comments that even if the company has internal structures in place to manage processes and obtain goods and services for the market, companies are significantly dependent on the organization's culture.

For Schein (2009, p. 19) culture matters because it is a powerful, tacit set of forces that determine both our individual and collective behavior, ways of perceiving, thought patterns, and values. Organizational culture in particular matters because cultural elements determine strategy, goals, and modes of operating.

Culture connects and directs all individuals in a company to the same values and therefore has great responsibilities when it comes to spread their visions and goals. But to delivering visions, goals and objectives according to Best (2009, p. 86), requires the coordination and commitment of resources, processes and people, both horizontally and vertically, across the organization.

Culture is capable of controlling and designating practices and processes. Hartson and Pyla (2012, p. 62) comment that sometimes, organizations selects processes it will use based on its own tradition and culture, including how they operated in the past. In addition, certain types of organizations have their culture so deeply built that it determines the types of projects they can undertake.

3.2   Culture and UCD Practices

Organizational culture should play a fundamental role so that the design practices and process are not impaired in the development of its stages. Often investment in UCD practices is not understood by companies. The same happens with design professionals who do not know how to justify the value of their own work. According to Best (2009, p. 12), design and business have distinct cultures: their own beliefs, values, and assumptions about how they measure success and what matters to them. This can sometimes create a "clash of cultures." It becomes a powerful advantage if there is an understanding

of the challenges and opportunities pertaining to different corporate cultures. If the UCD practices are devalued by the professionals and the organization, the design process is devalued as a whole. It is necessary to have responsibility and make clear the difference between the design practices and the business practices.

For Lund (2011, p. 238), companies must have the structure to manage their processes and offer products and services to customers and end users. But to meet the demand, companies will depend on the organizational culture to sustain their strategic objectives. Organizational culture should encourage employees to add value at all levels. Through the opinion of the authors, we see how this culture should be responsible for disseminating the value of its internal processes and demonstrate the strategic importance to satisfy the needs of the end user in their daily tasks. Organizational culture, therefore, determines how design should be viewed and valued in a company, helping to promote or directly harm its evolution as a process through corporate maturity in user experience.

In order to build products and services that meet the user's needs it's important to create efforts such as discipline and knowledge. In this sense companies have a fundamental role and the company will always have the choice of being able to support the methods and techniques employed in UCD and design process or will may also hamper the entire process and its development and execution stages by producing a product or service that is not capable of being used.

Just as the company can do a lot to support and assist the design process, it can also hinder the process in its development stages by producing a product or service unsuitable for use.

3.3 Organizational and Culture Change

The challenge of implementing UCD practices in an organization is much more challenging for a professional than working on their own skills or a team project. For Goodwin (2011, p. 697) change is more challenging and more personally frustrating than any other sort of design problem but designers have a very important differential to handle organizational changes: human-centered problem solving. This special ability allows maintain persisting and being focus on practices and approaches that will bring results by medium or long term. Goodwin explains that to integrate a project with design practices and processes can take at least three years, and that's in a small company with strong executive commitment. In larger companies where leaders have mixed feelings, efforts to integrate design could take five or ten years and may still fail along the way if there is insufficient commitment or vigilance regarding cultural change.

While there are companies that do not understand the potential of UCD practices, others state that they consider users, but they don't necessarily get well succeed. While there are professionals struggling for change in the company's vision, it is still need to consider how practices are developed. According to Lund (2011, pp. 227–228), although organizations claim that they are focused on their customers, they make the mistake of providing what they want rather than what they really need. Design based on an understanding of the scenario becomes much more useful and is based on a deep understanding of the user. For this to happen it is necessary to value design and, above all, to change the process and organizational culture.

To have an organizational change it is necessary to:

- Understand the business.
- Understand the organizational culture.
- Understand the company's stakeholders.

Understanding is the basic action. Through these factors, it will be possible to integrate the objectives into the user experience planning. Each organization has its own formal processes (and informal processes) and the user experience needs to incorporate its activities into those processes.

In general, companies must have structure to manage their processes and offer products and services to users. But to meet the demand, companies will depend strongly on the organizational culture to sustain strategic objectives. Organizational culture should encourage employees to add value an all levels and help them not to fear change. If a company is not prepared for change, it will become soon obsolete and closed to innovation besides it will fall behind in market competition.

4   Corporate UCD Maturity

4.1   The Need for Maturity

Associated to the influences of an organizational culture in UCD practices, is the corporate maturity that indicates the maturity level of the company in relation to processes of user-centered design.

As a definition maturity is an orderly scale, which combines practices of organizational attitude, technology and management comprising steps towards a totally human-centered approach (Earthy 1998).

The concern to be "mature" in relation to the user experience stems from a market need for competitive and quality products and services. For Van Tyne (2009), user experience encompasses all aspects of end-user interaction with an organization, its services, and its products. Good user experience is pleasing to customers - it increases adoption, retention, loyalty and, ultimately, revenue. Poor user experience harms customers, drives them to competition, and eventually is no longer a viable source. De Bruin et al. (2005) objectively clarifies that maturity models have been developed to help organizations identify ways to reduce costs, improve quality and reduce process time, thereby providing competitive advantages.

According to Marx et al. (2012), companies evolve on the organizational, strategic and technical aspects. These aspects analyzed together provide:

- Assessment of the current situation.
- Determination of future scenarios.
- Verification of possible and advanced ways that will guide evolution.

The recognition of corporate maturity in relation to the design process is the first step towards an evolution and satisfactory application of the process. Corporate maturity is directly related to how a company treats user-centered design processes.

Design processes in turn define what phases and activities are most appropriate for a project. Each company has a specific maturity level according to the way it understands, develops and applies design methods and techniques. In case there are difficulties or a partial understanding of the design methodologies then it will be an indication that the company is not mature enough to handle all aspects that will involve the future user experience, being less likely to create and develop products and services that meet these needs.

4.2 Steps for Maturity

Understanding the level of maturity of the organization is a first step towards improving the products and services offered to users, allowing the organization to advance to better communicate the user-centered design processes across all areas of the corporation, thus ensuring a more strategic of the corporate user experience.

For Best (2009, p. 78), the strategic direction of the organization, the way it moves from where it is to a desired future position is established through three key questions:

- Where are we now?
- Where do we want to go?
- How did we get there?

The essence of strategy is choosing the best path to follow. Through maturity models it is possible to identify at what level a company is and suggest instructions to reach the next level. For Van Tyne (2009), measuring maturity as well as being able to provide a reference for an organization also provides relative comparison to other organizations. Providing references to a company is important in a way to remain competitive in a growing market and may yield advantage if the company known how to use maturity in your favor.

According to Goodwin (2011, p. 698), the integration of design into a company depends strongly on where it stands today. Most companies start out in a less challenging and comfortable position. In an organization where most employees see the design as cosmetic or something that gets embedded in the end, has a steep (but not impossible) hill to climb toward the maturity of the process.

Once the maturity level is recognized through measurement, companies will have the challenge of transcending the current stage to reach the next stages, thus promoting continuous improvement in the user-centered design process and enhancing the quality of products and services. Earthy (1998), states that the most significant aspect for transition between levels is the culture. Moving from the one level to the next level is a major cultural change.

As a reflection of an increasingly competitive market, companies are gradually maturing the way they see the user. This may be the reflection of a shift in focus from technology to a transformation in business culture. Thompson et al. (2017) points out that organization struggle to create a structure that can consistently deliver good experience. As companies continue to mature, we will see a future change for the entire development process and the market.

5   Discussion

While aware of how much the user-centered design practices and processes can bring as a benefits to the organizations, professionals seem to be waging a great battle against a giant: on the one hand we have a company with its established culture for some time in initial maturity level being resistant to changes, requiring justifications for adopting new processes and methodologies. On the other hand there are professionals who wish to establish a change for an evolution of both the company and the products and services that are developed. To win this battle, many authors bet in the work together with teams, sensitizing managers and integrating with processes from other areas, but even these steps can become an arduous and time-consuming task for a single cell within the a business structure.

Besides a change of culture, which as presented by the authors, is not a simple task to be stimulated, there is the maturity barrier that is nothing more than a reflection, the personified form of the values and beliefs of the company.

In the case of companies with intermediate and higher maturity levels, the problems may not be less complex. At every advanced level, charges will become ever larger to prove the importance of the process in the company. And the culture will not change from day to night, but can become more flexible with the positive results, increasing the awareness of the managers.

There needs to be space for change and not just for technological trends that accompany the market. And changes cause fear by nature because they mean changing what is already known and established. In fact, the ideal would be to change the word "change" to "renewal". Although similar, renewal is more transparent to the real sense of innovation.

In order to remain competitive in the market, companies should be more conscious and open to the desire for renewal and should not impose hieratic barriers that hinder the expression of professionals who develop and take direct responsibility for the products and services that are launched in the marketplace. In fact, companies should spontaneously listen to these professionals who want to plant the seed of innovation, increasing as a consequence the sales capacity and quality of the products allied to the company's strategy. This does not mean blindly attending to all the desires of the team, but at least hearing and understanding what is wanted as a final result together with the satisfaction of corporate needs as well as end-users who would participate in the user-centered design process naturally.

6   Conclusion

The organizational culture has the role of transmitting the rules and values to be followed and acts as a scenario of corporate maturity which in turn indicates the understanding and the way in which the UCD design process and practices are treated within the company. If this culture recognizes and supports this process, it will increase relatively the chances of developing and launching products that reach the users' needs, reflecting the sales result.

Many companies believe they are treading the best way to designing products and services based on users' requirements through design practices. But according to Lund (2011, pp. 227–228), while organizations claim they are focused on their clients, they end up making the mistake of providing what they want rather than what they really need. In this case, when the goal of satisfying the user is not achieved, the mistake may be being made by the business culture itself. Add to that the question of maturity in user experience that reflects how the process being employed and also how the company has addressed the strategy to achieve its goals.

Promoting change in organizational culture is also a great mission for design that has a culture very different from the business, provoking a "culture shock". But for this you need to learn to value yourself to change and update the corporate processes and thus ultimately generate changes in the culture to integrate the design processes to the organization.

Companies should be more attentive to use design practices more seriously, valuing their methodologies and processes as a way to guarantee the final quality of a user-centered product or service. In order for this objective to be met, commitment to user satisfaction must be a goal to be achieved not only by the design team, but by the company as a whole.

References

Best, K.: The Fundamentals of Design Management. AVA Academia Publishing, Lausanne (2009)

Courage, C., Baxter, K.: Understanding Your Users: A Practical Guide to User Requirements Methods, Tools, and Techniques. Gulf Professional Publishing, San Francisco (2005)

De Bruin, T., et al.: Understanding the main phases of developing a maturity assessment model (2005)

Earthy, J.: Usability maturity model: human centredness scale. INUSE Deliverable D5. 1.4 s (1998)

Goodwin, K.: Designing for the Digital Age: How to Create Human-Centered Products and Services. Wiley, Hoboken (2011)

Hartson, R., Pyla, P.: The UX Book: Process and Guidelines for Ensuring a Quality User Experience. Elsevier, Boston (2012)

Lowdermilk, T.: User-Centered Design: A Developer's Guide to Building User-Friendly Applications. O'Reilly Media Inc., Sebastopol (2013)

Lund, A.: User Experience Management: Essential Skills for Leading Effective UX Teams. Elsevier, Burlington (2011)

Marx, F., Wortmann, F., Mayer, J.: A maturity model for management control systems. Bus. Inf. Syst. Eng. **4**(4), 193–207 (2012)

Mozota, B.: Structuring strategic design management. Des. Manag. J. **9**(2), 26–31 (1998). Spring

Mozota, B.: The four powers of design: a value model in design management. Des. Manag. Rev. **17**(2), 44–53 (2006)

Schaffer, E.: Institutionalization of Usability: A Step-By-Step Guide. Addison-Wesley Professional, Upper Saddle River (2004)

Schein, H.: The Corporate Culture Survival Guide, vol. 158. Wiley, Hoboken (2009)

Thompson, E., Ray, A., Callinan, L., Ekholm, J., Poitevin, H., Reva, M.: Future of Experience: a gartner theme insight report. Gartner research: strategic analysis report (2017)

Van Tyne, S.: Corporate user-experience maturity model. In: Kurosu, M. (ed.) HCD 2009. LNCS, vol. 5619, pp. 635–639. Springer, Heidelberg (2009). https://doi.org/10.1007/978-3-642-02806-9_74