Embedding Values into Digital Artifacts

The Case of App Development in the Energy Sector

The shift in focus from physical products to digital artifacts requires that designers understand and create new ways to embody values and experiences in the user experience.

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Overview: The shift toward digital offerings poses challenges for companies that are adapting their development process from creating physical products to new digital artifacts. The ways in which companies design physical products and their interaction with customers is not effective in the digital domain. This article outlines how Sorgenia, a fast-growing utility company in Italy, conceptualized and designed the mobile app its consumers use to access its services. The classical dimensions of the user experience (aesthetic, emotional, and symbolic) need to be layered and coordinated throughout the customer's interaction with the app to make the underlying values emerge progressively.

In doing so, customers can be guided to comprehend a digital artifact fully, overcoming the interpretive barriers caused by the lack of physicality.

Design, intended as the art of making sense of things (Krippendorff 1989), is the sum of the strategic processes and mindset that shape the language of products and services (Dell'Era et al. 2011). Through designing artifacts' tangible and intangible characteristics a company can propose value to customers and enable customers to understand what the artifact stands for (Gibson 1979; Kaptelinin 2014). Increasingly, design gets included in the managerial and innovation discourse to gain and nurture competitive advantage by differentiating a company's offering from its competitors (Kolko 2015). Companies need to have a clear vision and a set of values to embed into their products or services through design. For physical artifacts, a company embeds values into a product's physical characteristics: shape, form, color, material used (Dell'Era et al. 2011). Digital artifacts, however, lack the full spectrum of physical characteristics, and the ways in which values can be embodied within them is still underexplored (Piccoli 2016).

We argue that digital artifacts can convey corporate values. To investigate this issue, we adopt a framework using the three dimensions of a product experience: the aesthetic, emotional, and symbolic values (Verganti 2009). These three dimensions, organized in a layered experience, are also applicable to digital artifacts. We examine Sorgenia, Italy's leading energy provider, which operates in a sector characterized by a commoditized service with limited experiential elements. Sorgenia redesigned its mobile app by incorporating the values of sustainability, sharing, freedom, and simplicity. The company aimed to reduce customer churn and increase loyalty. With our study, we aim to provide companies with the knowledge to differentiate their digital offerings by providing new values to customers. This knowledge is especially critical in a competitive business landscape where digital artifacts are increasingly crucial and the commoditization of industries is more prevalent.

Literature Review

In defining their offerings, companies must consider the fact that customers will often use their products without any guidance. Products need to be sufficiently self-explanatory to allow customers to use them correctly. Products possess a "product language" that establishes continuous communication with the user (Dell'Era et al. 2011). Design is the sum of activities that companies can leverage to innovate an offering by modifying what the artifacts communicate to customers (Verganti 2009). By adopting a design perspective, companies can see value as the inner meaning that customers give to an offering, rather than the monetary assessment of the offering's price or benefit-to-price ratio (Verganti 2009). The design thinking process (Brown 2008) is the most appropriate way for companies to embody innovative values into a new offering (Dell'Era et al. 2020) because it allows designers to empathize with users, tackle the issues of defining a new experience, and ideate and combine multiple solutions to create a new and

meaningful solution. Making values emerge from an artifact-human interaction is difficult due to the multilevel nature of the experience, which consists of three layers (Figure 1):

- the *aesthetic experience* that arises at the superficial level of the physical five senses;

- the *emotional experience* that is triggered at the deeper level of feelings and emotions; and

- the *symbolic experience* that engages users at the deepest level of the cognitive reflections and interpretations.

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Aesthetic Experience: Design Affordances

The word "aesthetic" comes from the Greek verb aisthánomai, which means "to perceive, take notice of, understand," (Merriam Webster, 2021), and it has inspired many studies on the design approaches used to embed company's values into the physical experience of using a product. Gibson (1966) coined the term "affordance" to denote the reciprocal relationships between environmental objects and an organism's intrinsic physical features. An object ''offers what it does because it is what it is'' (Gibson 1979, p. 130). With its introduction into the design community, affordance has become a theory related to enhancing a product's visibility and usability (Norman 1988). Affordances are related to perception and usability, such as how a product gives cues regarding how it can be used. In a digital environment, the cues lose some of their effectiveness due to the intangible nature of the product/service offered, which can make it difficult to design effective cues. Affordances communicate usability rationally and superficially, and have no or limited impact on delivering other types of messages such as meanings (Krippendorff 1989).

Emotional Experience: Sensorial and Memorable Elements

Emotion is defined as "a conscious mental reaction (such as anger or fear) subjectively experienced as a strong feeling, usually directed toward a specific object, and typically accompanied by physiological and behavioral changes in the body" (Merriam Webster, 2021). An emotion results from the process of interpreting events or interactions with products/services. Emotions help to establish our position in relation to the surrounding environment, pulling us toward certain people, objects, actions, and ideas, while pushing us away from others (Frijda 2016). This fundamental principle can be applied to emotion experienced in a situation that threatens basic survival needs or to subtle emotion experienced in response to human-product interaction. Pleasant emotions pull us to products that are (or promise to be) beneficial, whereas unpleasant emotions will push us from those that are (or promise to be) detrimental to our well-being. Desmet and Hekkert (2007) refer to emotional experience during product interaction as the source of those affective phenomena towards the product.

Symbolic Experience: A Focus on Meaning

Products embody values in constructed meanings (Kazmierczak 2003) that need to be deconstructed and interpreted by the users through their experiences. Values are embodied into signs (attributes) such as color, shapes, materials, or anything that the user comes in contact with that may be a messenger of the artifacts' meaning. Krippendorff (1989) suggests signs are strictly related to the form of a product: topology (color, material), mereology (continuity, interruptions), and morphology (reflection). A user always interprets a sign, even unconsciously, triggering the perception of new values. Designers can guide the perception of values by carefully designing all the signs and interactions that compose a product/service system (Artusi and Bellini 2020).

The aesthetic, symbolic, and emotional aspects of the experience define the boundaries of the product-user relationship: how to use the product (the why), the product's meaning (the how), and the associated experience (the what). In the physical domain, those experiences are elicited by tangible characteristics and how customers interpret them. In the digital space, the characteristics may be less tangible. In particular, the digital domain might be characterized by longer time needed to understand the artifact's values, since there are no physical characteristics visible from the beginning. Thus, we aim at verifying this hypothesis by exploring the role of the digital technologies in stating the how, what, and why dimensions of the interaction through a case study in the energy sector.

Case Study

We considered the single in-depth case study the most appropriate methodological approach to understand how the user experience unfolds in a digital domain (Yin 2013). We selected an in-depth qualitative approach to provide evidence about the process that allowed the designers to translate the experiences into a tangible artifact using various data sources.

We developed this research with Sorgenia, one of Italy's leading players in the energy market for electricity and natural gas. While competition is growing among energy providers, the energy industry struggles to find new ways to make consumers (users) perceive energy as a valuable asset rather than as a price-driven commodity. A need exists to redesign the touchpoints of interaction with the users to convey the new values. Founded in 1999, Sorgenia now has more than 300,000 customers and is the first non-incumbent energy company that operates in the market in a fully digital way. The company has more than 30 percent of the total online subscriptions in the energy industry. Since 2017, Sorgenia's customer base has quintupled, and 22 percent of its whole base is in the 18–35 age group.

To remain relevant in an increasingly competitive scenario, Sorgenia's leadership team defined a set of new organizational values based on four core values: freedom, simplicity, sharing, and sustainability. The company conceived *MySorgenia* app as one of the main strategic projects to transmit these new values to customers digitally. This case study focuses on the strategic and design choices the company's project team made to embody these new organizational values within the new mobile application.

Based on the design thinking methodology (Brown 2008), the company adopted a human-centered approach to innovation to creatively develop a new desirable solution that would meet user needs and business objectives. The design thinking methodology aligned perfectly with the project's experiential nature, as the project team aimed to design the elements of the web mobile app in an integrated manner that takes into account a human perspective. The company's process had four main steps (Table 1) (see "Sorgenia's 4-stage Design Process" on page xx).

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Method

We collected multiple sources of data during a three-year collaboration (Table 2). First, we served as neutral facilitators of the company's innovation process, providing managers with tools to conceptualize the new organizational values. We employed ethnography rounds—a series of daily participation in workshops as facilitators and observers taking notes of anything that happened (LeCompte and Schensul 1999)—to track the collaborative activities that included participating in meetings where managers discussed the new direction to be pursued. During these ethnography rounds, we also conducted interviews. We used the same approach to gather evidence from workshops and design activities as the project team developing the company app. We also conducted 12 semi-structured interviews with the project team members to get deeper insights about the design choices that led to the development of the digital artifact. We then triangulated the data with secondary sources: project reports, internal documentation, magazines, professional and academic publications, and website content. Finally, we leveraged a structured coding approach (Gioia, Corley, and Hamilton 2013) to analyze qualitative evidence about the app development process. We analyzed data to create a model for embedding and transferring value through digital artifacts. Starting with the experience dimensions used to create a physical artifact (aesthetic, emotional, symbolic), we looked for patterns that showed how the project team coordinated these dimensions during the innovation process. Our analysis was iterative, comprising multiple rounds in which we proposed and shared our interpretations to arrive at the final, shared model.

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The analysis focused on following the process that the company took from defining the new values to be embodied within the app, to designing the app's key elements, to the final app prototyping and launch (Figure 2).

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Results

The *MySorgenia* app project is the digital artifact the company created to achieve its business need to provide a coherent and engaging digital touchpoint to a customer base that has grown significantly in the last two years (2020 to 2021). The app's objective is to guide users through the portfolio of services offered and make them feel part of the

Sorgenia community by immersing them in the company's organizational values. The ultimate goal is to reduce customer churn.

The *MySorgenia* app revolves around the homepage as the pivotal element and allows the customer to access every functionality in a few steps. Users can explore the energy supplies section and consumption data; receive discounts by bringing friends to join Sorgenia; and assess their carbon footprint through a questionnaire to improve sustainability in their lifestyle. Rather than merely being the recipient of a transactional service, Sorgenia addresses the customer as a sustainable energy community member, close to the company values of freedom, simplicity, sharing, and sustainability. The company introduced the app in early 2020, and it has been a huge success: the data provided by the company show that downloads have increased by 220 percent and customer churn has declined by 30 percent (Table 3). The data also show that customers like the new app more than the old one, which is shown by the consistent increase in the rating score. The old app used a standard design to simply manage and pay for the utilities, whereas the new app potentially shows a greater appreciation of the embedded values. Also, customers demonstrated an increased level of trust of Sorgenia, which is evidenced by the far higher rate of marketing consent—the rate of users accepting to give their data for marketing purposes—and of read messages, which is the percentage of marketing-related communications that users access. Managers associate these results to the emphasis that the company has put on sustainability and the effectiveness of the app to translate this value into practice. Sorgenia uses several key indicators to measure the effectiveness of the new app.

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Sorgenia achieved its results by carefully designing the three experience levels in a concentric way, creating a path that starts from the aesthetic interface and leads users to the perception of the desired values. We provide an example of the app interfaces, where we link each interface with the value(s) they intend to communicate (Figure 3). The app homepage (the first screen on the left) summarizes all the values.

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The Interplay between Aesthetic, Emotional, and Symbolic Experiences

Sorgenia designed the three levels of the experience to convey its new values to customers. By analyzing how the designers worked, we noticed that embedding values in a digital artifact works differently than for a physical product. Specifically, the three levels of the experience are intertwined, not separate layers, and each level has implications for how the others work (Figure 4).

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Aesthetic Experience: Visual Signaling

Sorgenia paid significant attention to making its app stand out visually compared to its competitors. The app is more fluid and its layout is cleaner and more intuitive—for

example, it uses fewer words and more images. Moreover, Sorgenia orchestrated all the visual elements to capture the attention of its desired target market—customers aged 18–35. Therefore, the development team focused on all the sense-related aspects: colors, tactile feedback, movements, and sounds. In particular, the team selected bright tones as a palette to communicate the freshness of the brand, and the speed and transitions of animations convey a sense of fun and smoothness.

Aesthetics is the first level the user encounters when interacting with the new app (Norman 1988). Aesthetics directs the user in experiencing the new values in a comfortable, quick, and immediate way, without leveraging cognitive engagement. The core of the aesthetic experience is the tone of voice that guides the company-customer interaction, meaning how the brand's character gets communicated to users through the visual language of the new app. The tone of voice specifically characterizes the service across all three layers of experience and helps guide the user experience toward all aspects of the service.

Extending Krippendorff (1989), for whom design is the way to give meanings to things, we contend that for any digital artifact the visible characteristics constitute the layer through which customers can access the underlying emotions and meanings.

Emotional Experience: Trigger Emotions

Delving deeper into the service experience, Sorgenia's designers made the need to create strong emotional attachment clear. They viewed emotions as the way to transition from a basic and intuitive understanding, raised by the digital environment's aesthetic, to a profound and complex cognitive engagement. In the new app, the emotional experience lies at the intersection between the two layers, and it's based on the customer's unconscious rework of the sensory stimuli. According to Desmet and Hekkert (2007), customers still do not realize why they like or dislike the new service, but the well-designed emotional experience can sustain a high level of engagement.

Sorgenia designed the app-driven emotions to be at the mid-level of the experience, which directs the users toward comprehending the company's new values. For example, the possibility of sharing the energy decisions with a user's family nudges them toward the value of shared responsibility, which is needed to move toward a more sustainable future.

Our research allows us to extend Verganti's framework (2017), which advocates creating new values and meanings as a source of competitive advantage. By analyzing the process that Sorgenia undertook, we can affirm that emotions function as a mid-layer between aesthetic and experience: as customers reported during the prototype phase, their first reaction to the question, "What do you think about this interface?" was linked to emotions. For example, they referred to emotions such as "surprise" or "admiration." Only after their initial reference to their emotions were they able to reflect on what caused them and come to the symbolic experience.

Symbolic Experience: Clear Purpose

The aim of the app redesign is to communicate the company's new values to users. Aesthetics creates an understanding of the intended use, which may help users understand the more utilitarian aspects of the artifact. Similarly, the emotional experience triggers the more unconscious sensemaking processes, which leads the user to experience the artifact's more hedonic and value-related aspects. Elements like color may immediately communicate freshness and sustainability. The fact that friends or families can share utilities unconsciously brings people to experience cohesiveness and sharing.

Since any app design element could trigger an unconscious interpretation linked to different values (Artusi and Bellini 2020), Sorgenia aimed not to design unintended clues. The first focus was to design what the app is not. As a designer on the development team stated, "We carefully looked at competitors' apps to understand what they offer and see how we can differentiate ourselves." For example, all the elements potentially leading to the perception of individual consumption of energy have been carefully designed to communicate a sense of awareness and personal responsibility towards society. The app should help the user to understand the power of a shared effort to decrease the overall carbon footprint. An assessment of the user's own carbon footprint available in a dedicated section of the app enables individual customers to assess their individual responsibility regarding sustainability. Thus, nothing concerning personal gains could have space in the app unless placed within a community context. The symbolic elements reconstructed in the app are the perfect embodiment of the company's values (Kazmierczak 2003).

The three dimensions of the experience need to be orchestrated to progressively bring the customers (users) toward understanding the underlying set of intended values. The three dimensions act as a single set of clues that the users interpret unconsciously in successive steps (Table 4).

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Practical Implications of Designing Digital Artifacts

To achieve such a harmonic combination of the three experience domains and be effective in having the digital artifact embody new values, Sorgenia followed two main guidelines: layering and consistency. A customer's interaction with a digital artifact differs from their interaction with a physical artifact. Layering and consistency are relevant during any stage of developing a digital artifact. These design guidelines are valid across the domains and constitute pillars that designers must always keep in mind to build the digital artifact (Figure 5).

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Layering

Perception is an unconscious process that unfolds following different steps: recognizing aesthetics, the experience of new emotions, and the symbolic understanding of the values. However, when designing new digital artifacts, values are the starting point since they are

the elements to be conveyed to customers. The design thinking process that Sorgenia followed allowed the company to build on the values by layering the different experience levels: the empathize and define phases focused on building the symbolic and then the emotional levels; in the ideation and prototyping, the team switched to building the aesthetic level of the experience. Thus, while the customer experience unfolds from the outer to the inner levels of the experience, designers must reason in the opposite way, by designing a strong symbolic engagement and further stratifying it with the emotional and aesthetic levels that guide customers to the full perception of the artifact.

Consistency

All the elements in the app need to be linked to each other and with the values the company aims to convey. Consistency is fundamental to enable customer trust and to facilitate their navigation within the service. The Sorgenia development team focused on embodying the company's set of values of freedom, simplicity, sharing, and sustainability within the digital artifact. The team kept these keywords visible on walls and whiteboards in each stage of the process to remind designers what the aim was. The result is that the company evaluated each design decision that was related to any of the three layers according to its alignment with the set of values. Each part or element in a digital artifact must be designed clearly and with intention; otherwise, customers may misinterpret the digital artifact's values. As Sorgenia's experience shows, values are blended in each element of and interaction with the artifact. For the *MySorgenia* app, freedom and simplicity are the keystones around which each interface has been designed, fostering as a side effect the curious exploration of new content by customers. Users are reminded continuously of sharing and sustainability by the social functions within the app.

Conclusion

Companies can transfer values to customers through digital artifacts. Based on our study of Sorgenia, the Italian energy provider, we propose that two primary guidelines—layering and consistency—enable a smooth orchestration among aesthetic, emotional, and symbolic experiences in digital artifacts, ultimately fostering value transfer. We connect the knowledge from how physical products convey values, and adapt it to the digital domain. Understanding how to embody values in a digital artifact is crucial given increased digitalization and transition from physical to digital assets. Our set of guidelines for managing the different experiences through consistency and layering provides essential information to connect innovation strategy with digital service design activities, which is especially critical when dealing with intangible values (Artusi and Bellini 2020). Companies can use this knowledge as a compass to orient design choices and as a target to check if strategic objectives are fulfilled throughout digital product implementation.

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Table 1.—Data sources

Data Types	Description
Workshops 10 workshops (80 hours)	During the first four workshops, a core team of 24 people helped envision the new values that drove the design of a new family of energy services and the *MySorgenia* app. During the latter six workshops, we observed the project team during the development of the *MySorgenia* app.
Semi-structured Interviews 12 interviews (12 hours)	We interviewed six members from the core team to gain a comprehensive understanding of Sorgenia's new meaning and its underlying organizational values. We interviewed six project team members to collect information concerning the design process and the tools employed during the development of the *MySorgenia* app.
Secondary Data Sources 130 pages	We collected secondary evidence in the form of official documentation concerning Sorgenia's new values, project reports, articles, and content retrieved from the company's website.

Table 2.—Qualitative data structure

Process Phase	Design Tools	Exemplar Quotes	Use of Design Tools in Relation to User Experience Dimensions
Empathize	Empathy Map: Framework visualizing the insights from user experiences (for example, what they feel/say/think/do). Personas: Fictional archetypes based on prior research (interviews, market analysis) representing needs, goals, and behaviors. Customer Journey: Oriented graph showing the user interactions with the main touchpoints constituting the service and pain points/gains faced throughout the experience. User Scenario: Vignettes illustrating users' motivation and barriers to access the service. Metaphor: Tool used to represent a proposed new meaning through	Empathy Map: "The experience doesn't want to reduce the relationship between the customer and Sorgenia to a mere commercial relationship regulated by a contract and service. Energy is not just a bill, but a set of shared values transmitted by the app." Personas: "The 'Easy Rider' is a tech-savvy and curious person. The digital tools are a natural extension of her capabilities. She tends to compare different service options to feel in control." Customer Journey: "One of the main problems consists, in the sense of fragmentation, of accessing different information sources. How can he manage everything simply if he cannot have it all at his fingertips? Metaphor: "I associate the app with a courageous explorer, who goes in search of the new, the unknown. Someone who wants to question himself, both from a design point of view and the user experience."	Symbolic Experience: Understand the shift from current and emerging meaning of the energy service and its touchpoints. Emotional Experience: Investigate the emotional factors (positive and negative) driving users to access the app as-is experience.

	something familiar (for example, object, movie title, song title). Motivation Drivers: List of emotional factors driving the user to access and use the service.	Motivation Drivers: "I would like the user to perceive the engagement intended as commitment, fun, and curiosity, relief for simplicity."	
Define	Opportunity Map: Analytical map identifying the areas of improvement to innovate a product/service.	Opportunity Map: "The app wants to embody the values of Sorgenia. First, the **sustainability** that is expressed in different moments and contents: the carbon footprint, the greeners' loyalty platform, the synthesis of consumption with the CO_2 saved."	Symbolic Experience: Translate the organizational pillars into values perceived as meaningful by the user by interacting with the digital artifact. Emotional Experience: Map the factors that can trigger the user emotional involvement by using the new digital artifact.
Ideate	User Stories: Short descriptions of the interactions between the user and the touchpoint. Metaphor: (see definition under Empathize) Motivation Drivers: (see definition under Empathize)	User Stories: "The app needs to be **aesthetically different** from our competitors through refinement in **colors**, **fonts**, **position** of the **elements** themselves, **easy** to **navigate**. We can translate the sense of curiosity into the **scrolling movement** to discover **new** content." Motivation Drivers: "I would like the user to perceive the **sense of belonging** to values and	Symbolic Experience: Embody the symbolic value of the digital artifact into a tangible representation. Emotional Experience: Devise the emotional response to be elicited in the user through the interactions with the digital artefact.

		desire to be an **active part** of it in the **community**.”	Aesthetic Experience: Define the visual language and symbols to convey the underlying meaning of the digital artifact.
Prototype and Test	Visual Moodboards: Collection of visual materials evoking a certain style or concept (for example, metaphorical images, app graphical elements). User Flow Diagrams: Flowchart displaying the complete path a user takes when using a product. A tree of all the interactions from the entry point to the end represents the app architecture. Interactive Mock-ups: Prototype of an app showing its visual-design details and its basic functionalities. Feedback Form: Visual template to gather feedback from users during testing sessions (for example, emotions and feelings, friendliness of use of the app).	User Flow Diagrams: “This is a ‘**social app**’ for two aspects: the **linguistic** one and the ‘**mechanics**’ of navigation. On the one hand, the copy is very friendly, the access to the sections is also done through direct questions. Then, navigation across sections are allowed by **gestures** typical of the social world, such as the swipe up, typical of Instagram.” Interactive Mock-ups: “We consolidated the app logic by **multiple tests**. The app is innovative compared to others on the market because it does not have a menu but is built on an **organic navigation flow** starting from a single-entry point, the homepage.” Feedback Form: “Users well appreciated the **visual language** of the app. **Bright colors** and visual elements conveyed a sense of **freshness** to the experience.”	Symbolic Experience: Translate the symbolic value of the digital artifact into a concrete set of elements. Emotional Experience: Map and validate emotional triggers to in relation to specific interactions. Aesthetic Experience: Assess the perception of the visual language and symbols in the light of the user responses.

Table 3.—KPIs for the new app's performances

KPI	Performance (as compared to the previous version of the app)	Notes
Downloads	+220%	Yearly based
Rating (IOS)	+51%	Average rating on the platform
Rating (Android)	+38%	Average rating on the platform
Customer churn	–30%	Rate of users that stop using the app (annual based)
Marketing consent	+50%	Rate of users that agree receiving communications from the company
Rate of messages reading	+40%	Rate of messages from the company read by users

Table 4.—Roles of the different experience domains

Experience Domain	Objective
Superficial: aesthetic	Create understanding of what the digital artifact stands for
Mid-level: emotional	Triggering the unconscious perceptive system, enacting the sensemaking processes
Deep level: symbolic	Disclose the inner values

Figure titles

Figure 1.—The three levels of user experience with a physical artifact

Figure 2.—The process being studied

Figure 3.—Sorgenia values translated into the app interfaces

Figure 4.—Different kinds of experiences used to embed values into a digital artifact

Figure 5—Orchestrating the three experience domains to communicate values through a digital artifact

Text Box: Sorgenia's 4-stage Design Process

The process to create the *MySorgenia* app comprised four steps: empathize, define, ideate, and prototype and test.

Step #1: Empathize

1. The team listened to customer calls to call centers, analyzed support requests, and mapped the navigation flow across the app's sections to gain an empathetic understanding of user needs. The project team used design tools like empathy maps and personas to identify the motivation drivers and the frustrations underlying the users' willingness to use Sorgenia's app. An empathy map is a canvas where insights are clustered according to what the user thinks, feels, does, or says about a specific experience. Personas are fictional characters created to represent different user types that could use the service.

2. The team developed customer journey maps to identify the pain points hampering the as-is experience. The collected insights served as a baseline to envision different scenarios connected to different personas.

3. For each user-scenario, the project team associated a metaphor and a list of motivation drivers to represent the symbolic and emotional aspects of the app. In the app, the "parent on the go" persona was associated with a Swiss knife, a tool to manage a bundle of services through a single channel, fostering security, simplicity, and a sense of control. The "easy rider" persona focused on a sense of awareness, participation, and smartness, using the app as a "surfboard" to discover new services and initiatives.

Step #2: Define

1. The design team synthesized all the data gathered to identify the core areas of intervention to be addressed during the app development.

2. The design team leveraged the opportunity map to screen ideas illustrating potential app features according to a set of key criteria: the level of innovation; service (adding basic features like retrieving the energy bill); content (integrating additional features like transferring money among peers); and model (proposing new features like connecting with energy plants in the territory).

3. The design team screened the features according the user's level of emotional involvement: the first level oriented to control and security; the second to personal recognition; the third to participation; and the latter to self-affirmation. While developing the opportunity map, the project team highlighted the connection between each area of intervention and the organizational values through color-coding.

Step #3: Ideate

1. The team generated a series of ideas to create new user experiences for the customer. The team evaluated different alternatives in terms of feasibility, desirability for the customer, and viability for the business.

2. The project team represented the selected ones through some short user stories (such as vignettes representing the main user interactions with the app) that highlighted their symbolic and emotional value. For every user story, the team developed a representative title, a metaphor, and a list of emotional drivers. The project team used the vignettes to start reflecting on the app's aesthetic elements, such as its look and feel and graphic elements.

3. The team conceived the value of *simplicity* as must haves for all the interactions within the *MySorgenia* app. The team also focused on embedding some sharing mechanisms within the app—they operationalized this aim by adding the possibility of sharing any decision taken in the app with a list of peers selected by the user.

4. The team linked the value of *sustainability* to the concept of the app as a platform to activate different kinds of users in some key initiatives.

Prototype and Test

1. The project team discussed all the user stories and used them to develop a series of prototypes providing different navigation trees, menus, and labels to identify what the user considered the most understandable solution. For each user flow diagram depicting the architecture of the app interfaces, the team highlighted the emotional responses that they would expect from the user during the testing phase.

2. The team also created a mood board (collages of images) representing key concepts related to the app's symbolic value. The team used these materials to develop the look and feel of the graphical elements, to guarantee a connection among the previous dimensions and the aesthetic aspect of the app.

3. The final stages of prototyping and testing were deeply intertwined as the project team observed about 30 users interacting with the app's key functionalities. During the iterations, the team gathered user feedback and perceptions using a form it had purposefully developed. First, testers described the overall experience through a metaphor (such as an object, the title of a song), then through a series of keywords describing their feelings during the interactions. Then, the team asked the users to provide their feedback about the visual elements of the app and the different functionalities.

4. The team used all these materials to check if there was a mismatch between what the user perceived and the project team's expectations and to inform the refinement of the prototypes according to users' needs.

Teasers:

Designers can guide the perception of values by carefully designing all the signs and interactions that compose a product/service system.

Sorgenia addresses the customer as a sustainable energy community member, close to the company values of freedom, simplicity, sharing, and sustainability.

Layering and consistency are relevant during any stage of developing a digital artifact.