DeThinkingService
ReThinkingDesign

Visual*tiles*

Communication tools for (service) design

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Summary

Taking into account the importance of visualization within service design discipline due both to the limited visual appearance of services and to the heterogeneous group of figures involved in their conception and construction, this research paper proposes an investigation of the representation paths that could help the comprehension and use of visualization during the design process (1). This research topic has been studied from a design perspective and from a design culture background, in order to provide a contribution to the service discipline in the broad sense.

The analysis of the representations in terms of level of iconicity (abstract vs. realistic) and relation with time (synchronic vs. diachronic) brings to the identification of four main visual archetypes (maps, flows, images and narratives) described with reference to their own different purposes, features and languages.
The result is a deep reflection on the existing visual tools, pointing out the opportunities that could be further investigated with respect to their use in supporting service design and design processes in general. Moreover the analysis helps in eliciting some thoughts concerning crucial points, such as the communication of the service aesthetic, that haven't yet been solved but regarding what the visualization could play a fundamental role.

The background of this paper is represented by a research thesis (2) further developed with the aim to sediment some knowledge around the topic of tools used in service design. Several case studies were taken into analysis, in parallel with the examination of the existing literacy and the interviews with both academic and non-academic experts (3).
Although the analysis comes from a design perspective and is permeated with our design culture, the ambition of this work is to become a resource for the multiplicity of subjects that are part of the service field. Thinking at the design community, the purpose of the research is the improvement of the actual practices and the development of new tools for a more effective use of visualization; thinking at the other professionals, this paper provides a useful systematization, leading to a more conscious use of the tools that support -or could support- their work.

Why thinking of service visualization

Services are performances supplied by complex systems -made of people, artefacts and organization- that have very limited visual evidence (4).
This lack of *iconogenia* (5) emerged as one of the most critical issues since the raising of service design as a discipline, in the communication around the services to the final user as well as in all the phases of the design process.

As for product design, once the functional complexity of products has grown, the need of representing the product in use, its performance and the user experience brought to look for new visualisation tools and methods. The design process in all application fields has become a complex activity involving a growing number of stakeholders, experts, competences, as well as involving users. (6)

Visualization has thus taken on an even more crucial role: as it could make the ideas more tangible, complexity more readable and alternatives shareable, it applies quite well to support the communication between all the actors involved, the development of the process itself and its outcomes.

Planning and producing the communication of the services' complex and intangibles aspects to the mainly undifferentiated group of both interlocutors and users requires a deep understanding of the existing visualization tools and of the opportunities given by representation.

The web resource Service Design Tools (7) is conceived as a contribution to the service design discipline in this direction. It aims to sediment the existing knowledge around the topic of tools used in the design practice, collected and classified according to variables that are relevant in terms of communication purposes and choices, such as: the design activities they support, the kind of representation they produce, the recipients they address and the contents they can convey. Taken the main steps of a generic design process as a ground, the proposed taxonomy tries to address the visualisation needs for service representation and development at each process phase, from concept generation to practical implementation.

The identification of two basic parameters (iconicity and time), and the related opposite polarities (abstract-real and synchronic-diachronic) allows to group, comment and describe all the representation types of a design process. This interpretation represents a critical key guiding the comprehension and use of visualization within service design discipline.

All the mentioned tools are also quoted in the Service Design Tools website, where descriptions, case studies with images and bibliographical references are collected for each one of them.

Representation types

To start the discussion about the representation of complex intangible objects like services, in the following we point out the basic notational principles we have identified as the main variables concerning visualization: the *level of iconicity* and the *relation with time*.

When talking about the *level of iconicity* (8) the focus is the coherence between the representation of an object and the real appearance of the object itself. A pictogram, for instance, is further from reality than a photographic picture.

On one side we are in front of abstract forms of representation, as symbols and diagrams are: their visual synthesis is often based on a symbolic language or a codified set of signs and is mainly used for technical aspects and notational purposes. On the other side the representation is a realistic replication of the original object: all the photographic and cinematographic techniques have this high level of iconicity, as well as the most accurate prototypes and the simulations of experiences in action.

ABSTRACT ———————————————————————— **REALISTIC**
iconicity
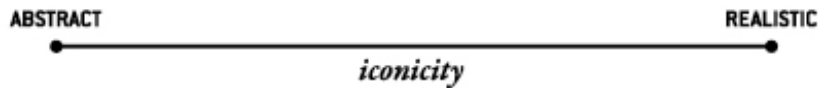
During the design process, designers continuously shift from abstract and synthetic to realistic visualizations and vice versa according to the different needs, choosing among alternatives with experience and practice, but it's possible to reveal some recurring criteria.

The level of detail in the representation has a relation with the progressive development of the idea: in early stages of the project it's more alike to keep the appropriate level of abstractness, to represent the idea and the concept behind, to avoid misleading messages (solutions like) and leave space enough for imagination to work (9).

The abstract and synthetic representations can support the description of systems, relations and processes. Their visualizations are simplified in the early stages of the design process and become more articulated then, together with the progressive refinement of the idea itself. At first they are oriented to the exploration and sharing of the possible alternative solutions, later on they become important tools for the specification of every functionalities and relations involved in the service implementation and delivery.
Also the realistic representations can be used throughout the different design stages with appropriate languages and levels of details. Initially images and narratives could be helpful for supporting the critical analysis of the state of the art as well as for working on ideas and sharing projections about the experience and its atmosphere, afterwards they could offer an advanced envision of the service idea and the opportunity to test some of its features and collect feedbacks.

The relation with the time value is the other aspect to be examined in order to have a complete understanding of the way in which we use visualization tools as support for the project development, sharing and implementation.

Time turns up as an inner quality of any kind of experience, process or interaction, becoming an essential parameter also for the service description. The representations can give an instantaneous picture of the service –synchronic– or can either visualize the sequence of actions and stages that compose the service experience –diachronic–. In the first case the path of reading is included in the representation itself: the meaning can be found in the links among the elements that constitute the whole representation. In the second case the meaning emerges from the sequence: the attention is in the narration, as a tool for projecting the reader in living an experience or even impersonating the user.

SYNCHRONIC ———————————————————————— **DIACHRONIC**
time
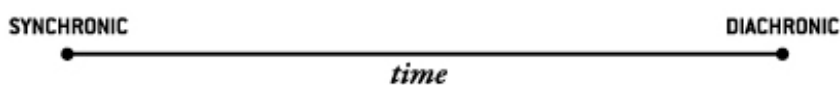
The intersection between the two axis represented by time and iconicity defines the representation fields: the following graph shows the wide spectrum of possibilities generated

by the two axes. All the visual representations can be potentially located in these fields – just a few of them representing the extremes.
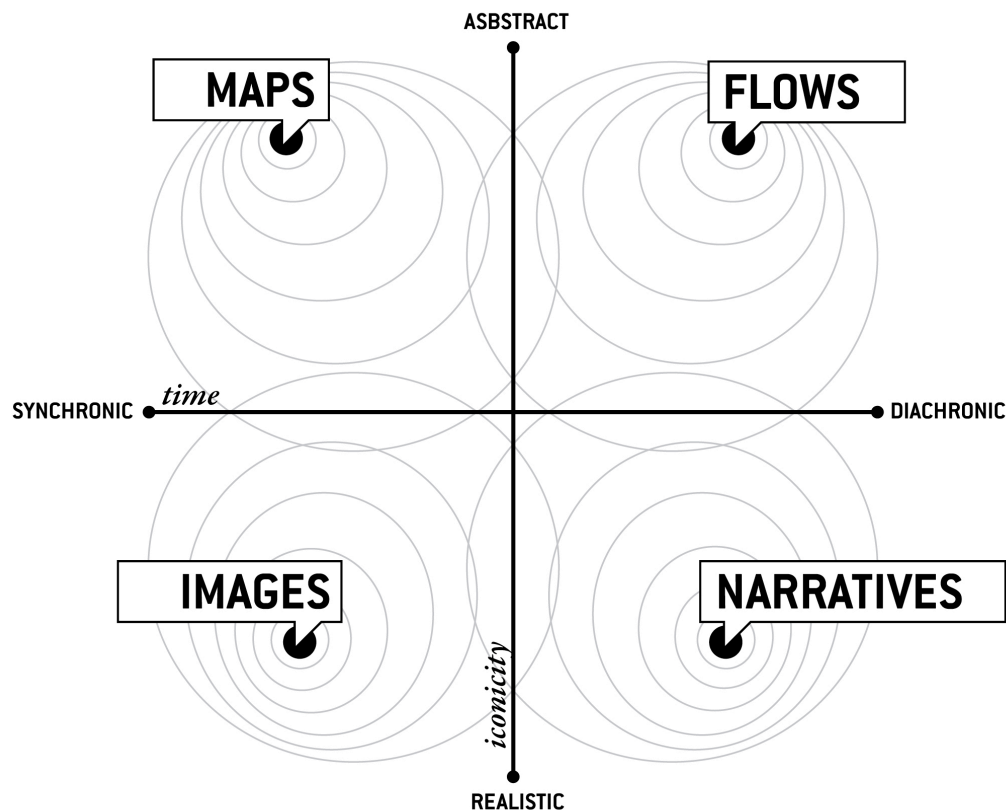
In the area of the abstract visualizations the maps and the flows emerge as two main directions: the maps are one shot –synchronic– representation while the flows are based on oriented sequences –diachronic–.
In terms of realistic visualizations we identified images and narratives as important models for giving the perception of the atmosphere or either of the experience, considering the synthetic power of images and the potential of narratives.

Maps

As abstract and synchronic representations aimed at giving a systemic and overall view, maps are mainly used for describing the structure that lies behind the service, for representing the actors and the devices involved, for articulating the offering and for eliciting the connections between all those objects according to the existing relations, hierarchies and exchanges.

The *system map* for example puts together in the space of the visualization all the elements that participate to the service delivery: the organization and the staff working in the back and in the front office, the stakeholders, the providers, the users, the devices, the infrastructures and the artefacts. The map shows how all those elements are connected, making the fluxes – of information, values, money, etc. – visible.

Maps can be rough sketches such as the *mind maps* –drawings facilitating the elicitation of ideas-, dynamic graphs such as the *affinity diagrams*– significant aggregations of thoughts-, or

either accurate representations such as the *service ecologies* -detailed descriptions of the system of actors involved-.

Exploring the techniques coming from the world of information visualization could lead to a more conscious use of this kind of tools and a deeper knowledge around the graphical languages and codes that help in organizing information into meaningful forms. (10).
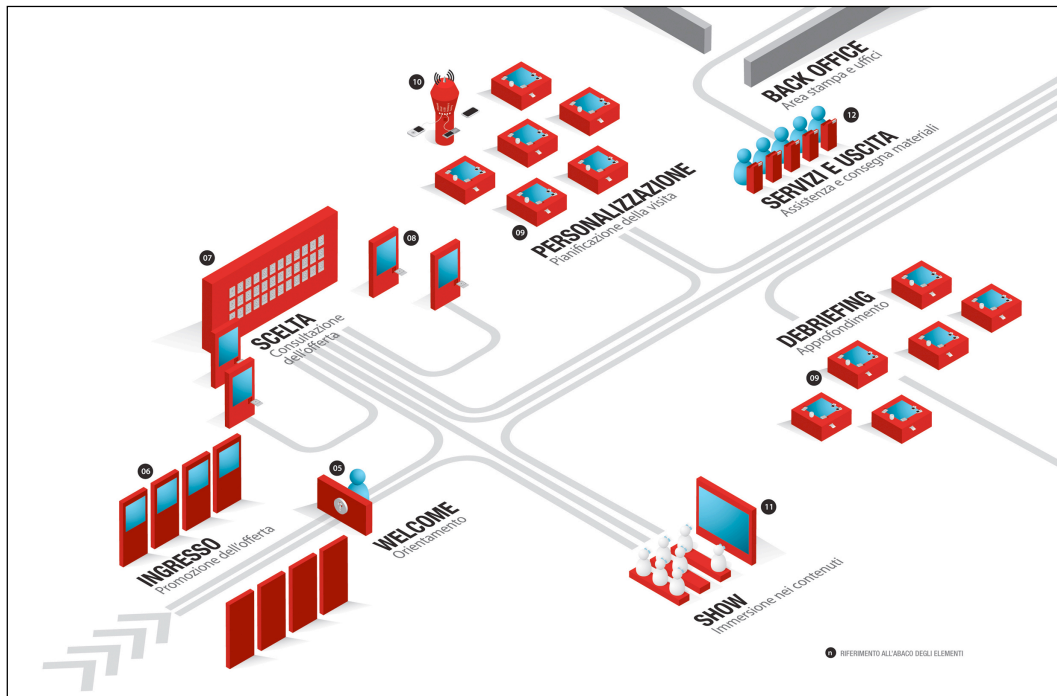
Representation of the service system and functionalities, project *Porta d'accesso a Roma Archeologica*. DARC, Domus Academy Research & Consulting for Camera di Commercio di Roma, 2007

The definition of a graphical set of elements –a sort of visual abacus or library– could be really helpful: the defined elements could be arranged and rearranged according to the specific needs, giving a homogeneous appearance to all the abstract forms of representation used for a project, reducing the time spent in drawing maps and flows and increasing their readability for any recipient, once he has learnt the visual codes the first time.

Nevertheless, these graphical elements can't leave aside the specificity of the single project they are used for: we are not aiming at the creation of any universal language, being aware of the risk that also abstract visualizations have in losing information and the relation with the specific context and subjects.

Flows

Flows are abstract representations with an explicit orientation that determines the reading path. In the service design practice their importance is due to the need of facilitating the visualization of the process, of the steps of the interaction and of the phases of the experience.

The well-known example of service flow is the *blueprint*, the oriented diagram that describes step by step the process of interaction between the user, the front line and the back office. The blueprint, born as an engineering and strongly operational tool aimed at the service

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implementation and maintenance, has preserved its technical language and its potentially endless degree of detail.

The service blueprint is able to provide a complete and detailed description of all the steps composing the interaction: this makes the representation good for the technicians who have to build the service but doesn't support other activities such as, for instance, sharing synthetic information and ideas about the process of delivery, that would require a simplification of the complexity according to what is recognized as prominent.

Similar kinds of flows are increasingly used to provide schematic descriptions of the experience in order to facilitate the dialogue with the stakeholders and the development of the idea within the design team. Those tools often merge some features of the technical flows (like the blueprint) with some features typical of the storyboards –integrated small pieces of illustrations for example- in order to improve their readability and extend their communication capability.

The *customer journey maps* follow exactly this direction giving more emphasis to the service touchpoints and using them to structure the representation. The focus is on the physical devices and on the generated fluxes of information to convey the description of the whole process and experience phases. This kind of synthesis could also become an input for other phases, for example for all the situations that require a sharing of the service delivery process, not just between designers and stakeholders but also between stakeholders and service providers, or service staff and users.
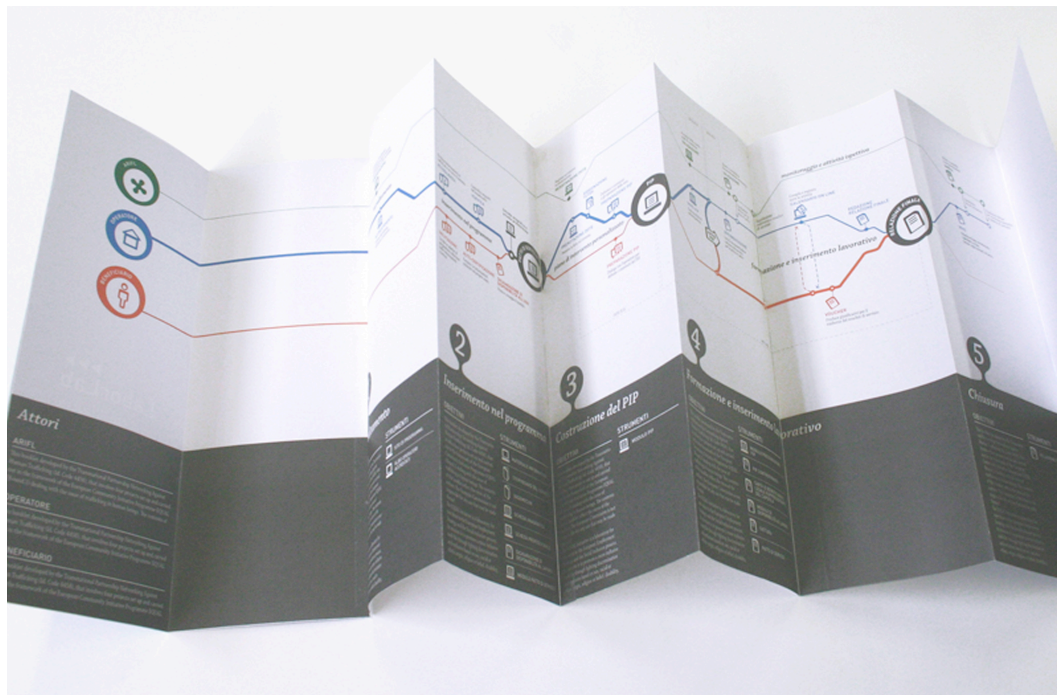
Interaction flow describing the process of delivery of the service *LaborLab*.
DARC, Domus Academy Research & Consulting, for ARIFL Regione Lombardia, 2007.

Images

Realistic representations of a concept can be provided by the use of images, taking photograph of the most immaterial and emotional aspects of the service.
The evocative potential of images is really helpful to make imagination work, recall

atmospheres and project themselves in future or possible situations.
Images are able to fix some intangibles aspects -such as the perception of the service inside a group of people- that are very difficult to be described by words.

One of the most evocative uses of the images is given by the *moodboards*: representations that collect several visual references in a composition of pictures and materials proposing an atmosphere by giving the generic perception of it. Moodboards allow for example to imagine and describe the aesthetic of a service in terms of visual appearance and sensations that are generated from a mixed number of mainly intangible elements.

Another example is provided by what we call a *service image*, a unique picture that is able to give in one shot an immediate idea of the main features of a service concept. The service images are aimed at supporting the dialogue with the stakeholders, bringing them envision the service, but also at supporting the discussion around concepts, facilitating the elicitation of the prominent aspects of every ideas and the comparison between them.

The envisioning could be supported by images recalling general atmospheres and projections as well as by images describing punctual elements, as the service had already existed. This technique is called *evidencing* and is mainly used in the advanced stages of the design process. Evidencing means creating images that explore the way a proposed design innovation will feel and work through its touchpoints. The realism of these images, that show the service evidences as they were existed, has the capability to put the audience directly in front of the solution, observing it from a different and more external point of view.

The *tomorrow headlines* and the *posters* -based on the evidencing model- are fictional articles or advertising images published on magazines or journals that could be composed by projecting themselves in the future and trying to understand what kind of impact the service will have on the society. This brings the designers ask themselves how the service will be presented to the potential users and what reactions it will determine; the images allow then to share this thoughts with the whole team or with the other stakeholders.

Image representing the concept *Phone Battle* for a new service aimed at the comparison inside consumer electronics stores. The idea was developed during the workshop *V-tail*, lead by DARC, Domus Academy Research & Consulting, for the Master in Interaction Design of Domus Academy, 2009

Narratives

Narratives are diachronic representations based on a strong realism: their meaning is given by the sequence of the proposed images more than by each single frame. Narratives are mainly used for the representation of the user experience, which needs realism –it's difficult to visualize the experience in an abstract way- and that requires a temporal construction. The narratives comprehend all the visual storytelling techniques, from the illustrated storyboards to the cinematographic simulations.

The *storyboarding* techniques support the design process in all its phases, assuming different configurations, languages and points of view according to the specific purposes and recipients. Quick and sketched storyboards are used in the problem setting and first ideas generation in order to facilitate the sharing of thoughts and the participation within the design team. Those first drawings could generate illustrated sequences useful for presenting the concept to the organization and then could become more and more detailed together with the refinement of the idea. Accurate storyboards are also the basis for the development of interaction scripts, if required, and finally they could become a significant tool for the communication with the service staff and final users. Storyboards –designed with the appropriate visual language- could explain pieces of complex processes in a quick and effective way, facilitating the relation between operators and users and so the comprehension and interaction with the service itself.

While the storyboarding is more oriented to the description of the experience in terms of process of interaction, there are also tools that try to answer the need of representing the experience in terms of perception, performances, behaviours and feelings: the most intangible sides of the experience that are very difficult to be described apart from their existence.
Filming the interaction with models could generate these kind of narratives, but the creation of models itself is quite difficult when the object is a service, and also re-enacting a situation that doesn't exist is not so simple. It could require a large amount of time and money other then specific resources like actors.

Low-cost examples that allow showing some features of the user experience and verifying some aspects of the interaction are based on the use of prototypes together with acting techniques as role-playing.

Working in this direction, the *experience prototype* consists in a simulation of the experience that foresees some of its performances through the use of some specific touch-points – mock-up or low-fidelities models- and possible customer journeys.

The *service prototype* is an interesting tool because is one of the closest to reality: the interaction with the service is observed and recorded reproducing the place, situation and condition in which the service will actually take place. The difference between this kind of simulation and all the others is the attention paid to the external factors that could interfere with the service delivery, factors that have a great impact on the user experience. The service prototype could be simulated also with projections on the wall, creating the fictitious situation in which some characters act pieces of the service experience.
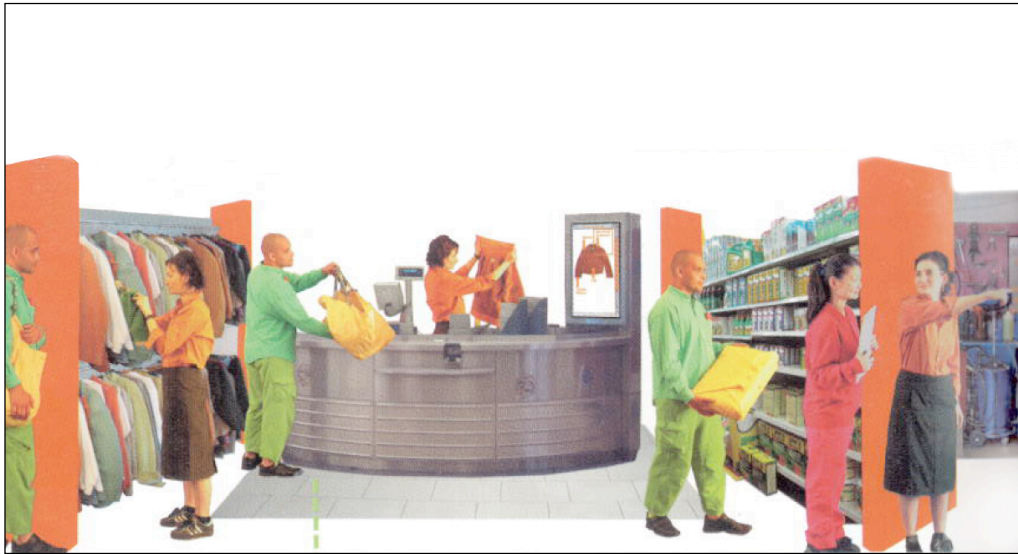
Sustainable everyday project: representation of "The Handyman shop" scenario, Ezio Manzini and François Jégou, 2003

Conclusions

The mix of techniques and visualization tools that are used in the actual service design practice is mainly focused on the need of representing and managing the complexity of the elements composing the service systems and processes.

This is why the design and creation phases require both abstract representations –as maps and flows– supporting the description of that complexity as well as realistic representations – as images and narratives– giving visibility to other equally intangible and fundamental aspects such as the atmosphere and the experience.

Our exploration underlines the importance of balancing between the different techniques according to the specific phases and purposes, but also leads to reflect on some unsolved aspects that are crucial for the service design and implementation.

1. Do the visualization tools effectively communicate the service?

None of the existing tools really matches the need of representing what a service is into a synthetic and unique view (such as the sketch of any tangible products does). Service images partially works when service evidences are tangible enough to give the idea of the overall experience (the service place plays the most important role); simulation techniques, such as fake advertising or so, partially work as service description even when the service is totally intangible (like a financial service). Similar techniques –to be inspired by communication tools of services to clients and from advertisings– should be further investigated in order to merge the lack of *iconogenia* of the service also within the design process and the implementation of the idea.

2. The aesthetics dimension of the service experience is represented?

Most of the visualization tools used for service design are actually focused on time dimension and oriented to the representation of the interaction between the system and the user. This demonstrates once again the relevance of the user experience into the overall service design issue and also proofs the strict interconnection between two disciplines - service and interaction design - in terms of methods and tools.

From the point of view of the representation, what the narratives are still really missing is the aesthetic dimension of the interaction, if any. Are these representation tools effective for showing the qualitative aspects of the experience such as attractiveness, atmosphere, soft qualities? Is it possible to make the aesthetic of the specific service visible?

On the other side, certain kinds of images and static representations - such as *advertising, posters* and *moodboards* − are able to bring the aesthetic dimension of the experience by simulating the visual identity and tangible evidences of the service.

3. Is it possible to visualize and represent human behaviours?

Person to person interactions are still the most uncertain element in any service design and management. The *scripts* guiding the front-office personnel are good examples of design tools for managing the relationship but they are usually linked to managerial culture and still far from experimenting visual languages.

Filming techniques are sometimes useful into grapping the behavioural aspects of the interaction, they are used into training programs but they are not suitable for supporting the interaction in real time.

Investigating the potentiality of visualization for representing the behaviours of both front-line personnel and user can make a point towards the identification of original visualization tools for service design.

(1)
The service design community has revealed an increasing interest around the topic of visualization and similar explorations have been done in the last years, see for example the work of structuring the existing methods done by Fabian Segelström: Segelström F. & Holmlid, S., *Visualization as tools for research: Service designers on visualizations*, Nordes, Nordic Design Research Conference, 2009.

(2)
Design della comunicazione e design dei servizi. Il progetto della comunicazione per la fase di implementazione (Communication Design and Service Design. Implementing services through communication artefacts), thesis by Roberta Tassi, tutors Paolo Ciuccarelli and Elena Pacenti, Politecnico di Milano, 2008.

(3)
Subjects interviewed: Ezio Manzini (Politecnico di Milano), Nicola Morelli (Aalborg University), Stefan Moritz (Aegis Media), Sean Miller (Live|Work) and Toke Barter (Radarstation).

(4)
In her Phd thesis "Designing service interactions" (1998), Elena Pacenti refers to Prof. Butera and De Michelis definitions of services as "activities that people perform for the benefit, the satisfaction and utility of other people", as well as considering the relational aspects of the performance as the unique characteristics of all services.
F. Butera, introduzione a, D. Barassi, *La service idea*, Sole 24 Ore, Milan, 1988; De Michelis, G., *Le Istituzioni pubbliche di fronte al servizio: uno sguardo radicale*, Documento, 1996

(5)

As lack of iconogenia we mean the weak predisposition to representation. For a deeper understading of these concepts refer to: Anceschi, G., "Choreographia universalis" in *L'oggetto della raffigurazione*, ETAS Libri, Milano, 1992

(6)

"We live, it seems, in an age in which the long-standing and pleasingly crisp distinctions between what constitutes a "product" and what a "service" are beginning to break down. Even in the early days of this evolutionary shift, we can already see that the implications for both individual designers and the profession of design as a whole are likely to be deep and lasting."
Adam Greenfield, *On the Ground Running: Lessons from Experience Design*, posted the 27th June 2007 on http://speedbird.wordpress.com

(7)
Service Design Tools (http://www.servicedesigntools.org) is the result of the research activity done by Roberta Tassi during her graduation thesis in Industrial Design, further developed within the framework of the cooperation between DensityDesign research group at INDACO Department - Politecnico di Milano- and DARC, Domus Academy Research & Consulting. The website is an open and dynamic collection of tools used in design processes that deal with services or other complex systems.

(8)
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