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Ergonomics

Arbeitswissenschaft

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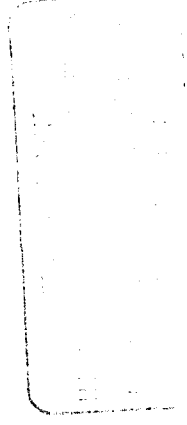
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Social quality in service action.

Using design of service approach to build effective quality of activity system

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Abstract. Use a 10 pt Times New Roman font for the abstract. Put the abstract within margins, 4 cm (1.6 inches), on both the right and left sides. Running texts should be single spaced and justified. These and the following instructions are designed for both author and typist and should be read carefully. If they are not adhered to, it could result in canceling the paper or in sub-optimal reproduction quality. We are looking forward to receiving your paper in the format indicated in the guidelines.

1. Introduction

L'emergere del nuovo paradigma economico *postfordista* legato all'uso della conoscenza come fattore essenziale per la produzione del valore, vede nel *servizio* uno strumento strategico per la creazione di possibilità di relazione e d'azione dei prodotti materiali e immateriali, mentre l'evoluzione delle tecnologie ICT aumentano il campo delle applicazioni possibili.

I prodotti diventano piattaforme fisiche di un *sistema d'azione* più ampio, il servizio, la cui valutazione richiede nuovi modelli concettuali che siano in grado di gestire la complessità operativa e relazionale.

A partire dal paradigma interpretativo della *situatività*¹, questo paper propone la lettura del servizio come un *sistema sociale complesso situato* e applica l'approccio concettuale dell'*Activity Theory* per l'elaborazione di un *modello analitico* che ne guidi la valutazione e l'eventuale riprogettazione.

1.1 Activity theory e servizi: il modello dell'incontro

Il metodo di valutazione di un servizio proposto in questo paper è stato sviluppato a partire da un adattamento dei concetti chiave dell'*Activity Theory* al mondo dei servizi.

Activity Theory is a research framework that focuses on *practice* as the way to understand and argue the unity of consciousness and activity; instead of a real theory, it rather “consists of a set of basic principles which constitute a general conceptual system which can be used as a foundation for more specific theories”² (Bannon, 1997). In particolare l'Activity Theory propone un'*unità di analisi* dell'attività umana, defined as *activity system (AS)*, dove l'attività viene descritta come mediatrice dell'interazione tra un *soggetto-agente* o gruppo, e un *oggetto* (entità fisica o problema), è sempre mediata da *artefatti* (fisici o cognitivi) e avviene

¹ Il servizio, in quanto evento potenziale, acquisisce le caratteristiche di un'attività dotata di scopo che coinvolge diversi attori (umani o artificiali) solo in un contesto interattivo specifico ovvero situato.

² These basic principles of Activity Theory include consciousness, object-orientedness, hierarchical structure of activity, internalisation/externalisation, tool mediation, and development (Kaptelin, 1996)

all'interno di una *comunità* di riferimento caratterizzata da *regole* (formali e/o informali) e da una *divisione del lavoro* (ruoli e compiti).

La scelta di questo research framework ha permesso il trasferimento di alcuni concetti particolarmente interessanti per la lettura e l'analisi di un servizio:

- *Systemic and contextual approach* che favorisce la lettura di ogni elemento del sistema di servizio in un contesto determinato (situato) e in relazione agli altri elementi, in quanto la variazione del singolo può cambiare la percezione e l'esecuzione dell'attività nel suo complesso; l'interpretazione dell'attività stessa cambia ad esempio a seconda che il soggetto selezionato sia il fruitore o l'erogatore del servizio;
- *l'interesse per le interazioni tra sistemi di attività differenti*: l'analisi di un'attività non viene considerata in modo isolato, ma nel suo incontro/confronto con altri sistemi di attività che può dare origine a possibili contraddizioni e favorire processi di adattamento delle comunità coinvolte; il modello base dell'activity theory è quindi formato da almeno due sistemi di attività che interagiscono per raggiungere il proprio obiettivo. L'*azione di fruizione/erogazione* può essere quindi valutata come *momento di incontro/confronto o service encounter*³ tra due sistemi di attività originalmente distinti, quali quelli dell'erogatore e del fruitore;
- *struttura gerarchica dell'attività* (activity/motivs → action/goal → operation/conditions) che permette la lettura della performance complessiva del servizio (attività) scomponendola in singoli encounters (interazioni) e task (operazioni), utilizzando quindi livelli di analisi differenti.

Applicando questi principi il servizio può essere quindi descritto come una *attività situata (performance) costituita da diversi momenti di incontro o service encounter, descrivibili come sistemi di azione co-prodotti nell'interazione del fruitore col sistema di erogazione*. The representation of this concept is described through the proposed *encounter model* (see fig. 1).

2. Method

Il metodo di analisi del servizio si sviluppa quindi attorno a due considerazioni chiave: il *momento di incontro/confronto* tra i sistemi di attività, originalmente distinti, del sistema di erogazione e di fruizione, è considerato la fonte di valutazione del servizio stesso; il *service encounter*, dipendendo strettamente dalle condizioni contestuali e dagli attori coinvolti, deve essere valutato nel suo effettivo svolgersi (situato).

Il metodo di analisi prevede quattro fasi principali:

1. *precomprensione del servizio e selezione dei service encounter da analizzare*: al fine di identificare i service encounter critici e gli attori coinvolti nell'azione, è necessaria una precomprensione del servizio in termini di processo progettuale, implementazione, sistema di offerta e di erogazione;
2. *ricostruzione dei sistemi di attività (contesti) degli attori coinvolti*: la ricostruzione dei contesti prevede principalmente una raccolta di materiale documentativo (foto, cartine, organigrammi, procedure, ecc.) e di informazioni attraverso *interviste* agli attori coinvolti direttamente (partecipanti diretti) o indirettamente (es. progettisti del sistema di erogazione) nel service encounter. Le interviste hanno come finalità quella di ricostruire il contesto di riferimento seguendo gli elementi costituenti l'AS;
3. *osservazione ed analisi dell'incontro*: l'analisi dell'incontro avviene mettendo a sistema informazioni provenienti dal racconto dei partecipanti all'azione (punto di vista interno) e

³ Il *service encounter* è un concetto utilizzato nella letteratura di marketing con due accezioni principali: come momento di contatto del cliente con tutti gli elementi dell'impresa di servizi e come relazione personale e diadica che si instaura tra il cliente e il personale di contatto [Orsingher C., 1999, p. 79 e sgg.]

dall'osservazione di chi sta svolgendo la valutazione (punto di vista esterno). Sia l'osservazione che le interviste sono guidate da dei *filtri di analisi* che permettono una lettura incrociata dell'azione focalizzando l'attenzione sugli stessi aspetti del servizio, ma rispettando la visione e il ruolo di chi lo ha vissuto. L'utilità ed efficacia di questi filtri ai fini della valutazione dipende da due fattori: derivano dalla valutazione dei singoli elementi del sistema dell'attività letti in relazione agli altri elementi (ricostruzione sistemica dell'azione); sono filtri speculari (*double-faced filters*) in quanto valutano gli stessi elementi del sistema dell'attività considerando il punto di vista _ a volta complementare o a volte antitetico _del fruitore e dell'erogatore;

4. *messa a sistema delle informazioni e individuazione dei nodi critici*: confrontando e mettendo a sistema i diversi punti di vista confluenti nella lettura dello stesso encounter e le informazioni provenienti dalla comprensione dei sistemi di attività originari, l'osservatore dovrebbe essere in grado di individuare eventuali nodi critici (*contrast* o *contraddizioni*) nel sistema dell'azione dell'incontro e *ricostruire in modo sistemico l'origine del contrasto*, che può essere contingente e/o correlato al confronto col contesto di origine;
5. *sviluppo di linee guida progettuali*: la ricostruzione sistemica dell'origine dei nodi critici rilevati è la base per ricondurre il problema ad alcune *situazioni tipo*, che richiamano a loro volta possibili *direzioni progettuali* da interpretare e applicare sempre in chiave sistemica.

2.1 Experimental set up

A preliminary test of the described method has been applied to two cases of domestic services: Pay per Use (PXU) of Merloni-ENEL⁴ and “More security in your life” of AGAC-Beghelli⁵. In the first case PXU service foresees a washing machine rental that enables the consumer to pay for each washing load and to be continually connected with a contact centre that guarantees remote assistance, diagnosis and consumption control; in the second case AGAC's clients have the possibility to utilise Beghelli products for home security and related assistance services in case of sanitary emergency, technological alarms or intrusion, by paying monthly intallmets.

Both cases represent how ICT supports the introduction of new services that bring relevant changes to family life human activity. Their analysis has followed the described steps considering the main encounters where problems of *activity change* and *learning process* could emerge more easily.

Table 1: Synthesis of the analytical process

1. Preliminary analysis	Encounters selection	Identification of involved subjects	2. Context analysis: interviews (AS)	3. Encounters analysis*: interviews (analytical filters)
-Project Manager's Pay per Use (PXU) description	<i>Installation of PXU</i>	- Installer - User (who signs the contract)	- Installers' descriptions of assistance centre AS; -Users' descriptions of family AS concerning washing;	-installers' views of installation process; -users' view of installation and learning process (critical episodes);
	<i>Use of PXU</i>	- user - contact centre - design team	- project manager's description of design process and of contact centre AS.	- Project Manager and Head of Digital Application view of user's practice.

⁴ Merloni is a multinational household appliances producer, while ENEL is the Italian national energy supplier.

⁵ AGAC is the energy supplier of Reggio Emilia province, Beghelli is a leading industry in the security sector.

-Project Manager's "More security in your life" description	<i>Sales visit</i>	- sales representative - user (who signs the contract) - user - contact centres - design team	- sales people's descriptions of sales team AS; - users' description of family AS concerning home security; - project manager's description of design process and of contact centre AS.	- sales people's views of sales visit; - users' view of sales visit and of learning process (critical episodes)
	<i>Use</i>			

* no direct observation has been conducted because of problems with users' privacy.

3. Results

Once collected, the information has been analysed putting together the ones regarding the same elements of activity system, making a comparison between the original contexts and the actual service encounter and between the different points of view. From the interpretation of both cases data some *similar critical nodes* emerge, that could be related to the following analytical filters: user level of change *vs* supplier foreseen support to change, user's level of adaptation (to service rules) *vs* supplier level of flexibility (to user's necessities), user's level of learning *vs* supplier's adequacy of communication, level of system transparency *vs* level of system usability.

In PXU case users seem to perceive the main *change* in the way they can interact with the machine, as a sort of new *language* they have to learn: digital display with selection through menus, sliding inscriptions and introduction of functionalities as credit charge, messages and promotions. From the supplier point of view, the *support to change* is somehow related to the use of an existing model of interaction, the one of mobile phones, that should facilitate the comprehension of machine new functionalities. This ibrid solution (washing machine + mobile) can arouse some contradictions: washing activity, unlike mobile's use, has a limitation in terms of space and time (house and actual use of machine) that not always fits the way and time messages and promotions are sent. From the supplier side there is still a sort of *lack of flexibility* in terms of capacity to fit user actual practice.

This kind of limitations depends partially from a technology limitation and partially to a restrict design focus on the machine interface. One possible design direction could therefore be a *widening of perspective* that includes the overall washing activity system in the design object, to be translated in terms of interaction modes, functionalities and usability of the overall service system.

In AGAC case users don't perceive the security service as a big *change* in their day life as it's seen as just a matter of remembering to turn the alarm on and off. Anyway it's when the user forgets to turn off or bumps into the control box and the alarma starts, that some critical nodes can emerge. The *learning* process is based on the explanation of sales person and installer during the system configuration, but there's a feeling of the high potentialities and complexity of the system that should need a gradual learning process. The interaction with the system in case of real or false alarm is something happening few times and without preparation; this means that there's no real graduality and that the reaction of users happens often under pression of panic. There's sometimes a difficulty to turn it off in case of false alarm or a vague idea of what is going on beyond the physical interface of the centralina.

Possible design directions could be in terms of empowering the *service system flexibility* as a gradual adaptation of the system to users real capacities of reaction, space configuration, learning process and comprehension of security procedures.

These considerations derive from a partial application of the analytical method that could reduce the reliability of the exposed results. The lack of a direct observation of service encounter can mislead the interpretation of information while the use of perceptions coming from different points of view and their interpretation in a systemic way supports the analysis

of services, using criteria different from the common ones of efficiency or satisfaction. The described method proposes an analytical approach that looks at the quality of services as a social dimension, as the result of the intertwining of the activity elements.

Possible limitations of the method itself derive from the necessity of looking at the complex social system, trying to “control” it. This way the method sometimes can reveal some *rigidity* and can reduce the potentiality of context’s richness or the necessary flexibility to adapt it to different cases.

A great potentiality lays instead in its simplification and evolution within a complete service design methodology, where service design consequently becomes the *design of activity systems*.

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