

Research on designing a service system @ NSF workshop

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1 DESIGN FOCUS

1.1 Service systems

Discussions on a service system are growing in SSMED community. Service is value co-creation interaction that is beneficial changes that result from communication, planning, or other purposeful interactions between distinct entities [1]. The entity can be viewed as a service system entity. A service system is dynamic configurations of resources that include one or more persons, and evolve complex structures and interaction patterns [1]. Designing

service systems including various industrial and service products needs additional knowledge.

Looking at the history of innovation and design since 1950, focus areas of both are shifting from products to service systems. The design focus is shifting from industrial, tangible products to service products focusing on interaction design, and service systems. At the same time, innovation focus is expanding from one particular organization e.g. a closed system to an open system that covers multiple stakeholders. Table 1 shows the summary of these transformations.

Table 1 Innovation and Design focus

		1950 -	1970 -	1980 -	1990 -	2000 -
Innovation focus	Technology (seeds)	Technology push model (Bush 1945, Dosi 1982, Rothwell 1992,1994)	Chain-linked model (Kline and Rosenberg 1986), Gate keeper (Allen 1977)	User innovation (vonHippel 1988)	Mode 1 & Mode 2 (Gibbons, et al. 1994), Service innovation (Sundbo 1994, Edvardsson and Olsson 1996, Gallouj 1998)	Open Innovation (Chesbrough 2003), Service Science, Management, Engineering and Design (2004-)
	Non-technology (needs)	Market pull model (Schmookler 1966, Scherer 1982)				
Design focus		Industrial products (William Morris, Bauhaus, Post modern, IDEO, d.school)				
		Service products (Shostack 1984, Bitner 1992, Merger, 2004), Interaction (Holmlid 2007)				
		Service system (Handbook of Service Science, The Science of Service Systems 2011)				

1.2 Expanding design focus to a service system

As the innovation focus shifts to a service system, the design requires various viewpoints. Service systems are categorized to Class 1 which is a closed system, Class 2 which is an open system, but the purposes of the system are fixed, and Class 3 which is an open system without concrete purposes by synthesis approaches [3].

Service system design includes people interactions, as well as organizations and society level. S3FIRE program introduced three layers, micro-meso-macro [2] as the following:

- The first layer, Micro, expresses a one to one relationship, mainly person-to-person interactions. From business point of views, it shows operational relationship.
- The second layer, Meso, is for an n-to-n relationship, mainly organizational interactions, which shows strategy and collaborative organizational policy.
- The third layer, Macro, is for the social system and policymaking.

2 RESEARCH DESIGNING A SERVICE SYSTEM

Industrial products are developed in a factory and are sold to customers (consumers or companies). On the other hand, service products vary from an almost closed system like ink of a printer, to an open system like on-line auctions. Service systems are not limited to the area of these

products, but include a regional community, such as an open system and meso scope, and a national society. As the result, service system design needs to expand research areas as the following.

		Systems with value sharing condition		
		Class 1	Class 2	Class 3
Scope	Micro: People		Service product	
	Meso: Organization	Industrial product		
	Macro: Social systems	Not typical case		

Figure 1. Expanded research areas by service system design

REFERENCE

- [1] Spohrer, J. C., Maglio, P. P., 2010, Toward a Science of Service Systems: Value and Symbols, In P. P. Maglio, C. A. Kieliszewski, J. C. Spohrer Eds, Handbook of Service Science.
- [2] Sawatani, Y., Arai, T., and Murakami, T., Creating Knowledge Structure for Service Science, 2013, PICMET
- [3] Ueda, K., Takenaka, T., Vancza, J., and Monostori, L., 2009, Value creation and decision-making in sustainable society, CIRP Annuals, Manufacturing Technology 58, pp.681-700