



Research Center  
Finance & Information Management



Project Group  
Business & Information  
Systems Engineering

## BISE's Responsibility in Service Research

by

Hans Ulrich Buhl

December 2009

in: Business & Information Systems Engineering, 1, 6, 2009, p. 405-407

WI-908

University of Augsburg, D-86135 Augsburg  
Visitors: Universitätsstr. 12, 86159 Augsburg  
Phone: +49 821 598-4801 (Fax: -4899)

University of Bayreuth, D-95440 Bayreuth  
Visitors: Wittelsbacherring 10, 95444 Bayreuth  
Phone: +49 921 55-4710 (Fax: -844710)



Universität  
Augsburg  
University



UNIVERSITÄT  
BAYREUTH



# BISE's Responsibility in Service Research

DOI 10.1007/s12599-009-0077-9

## The Authors

### Prof. Dr. Hans Ulrich Buhl

University of Augsburg  
FIM Research Center Finance  
& Information Management,  
Department of Information Systems  
Engineering & Financial Management  
Universitätsstraße 12  
86159 Augsburg  
Germany  
hans-ulrich.buhl@wiwi.  
uni-augsburg.de

### Prof. Dr. Christof Weinhardt

University of Karlsruhe  
Institut of Information Systems  
and Management (IISM)  
Kaiserstraße 1  
76131 Karlsruhe  
Germany  
weinhardt@iism.uni-karlsruhe.de

This article is also available in German in print and via <http://www.wirtschaftsinformatik.de> Buhl HU, Weinhardt C (2009) Die Aufgabe der Wirtschaftsinformatik in der Dienstleistungsforschung. WIRTSCHAFTSINFORMATIK. doi: 10.1007/11576-009-0199-1.

As confirmed in many statistics, the services sector is both the largest and the fastest growing economic sector in almost all industrial nations. Thus, for example in Germany the share of value creation is almost 70 % and the proportion of employees amounts to nearly 60 % – in the U.S. it already constitutes 70 % (Maglio et al. 2006, p. 82). IT-based or information-intensive services – as they are already partly explored in Business and Information Systems Engineering (BISE) – make a substantial contribution to the overall size and growth. Therefore, it is not surprising that branches of existing disciplines (e. g. physics or mechanical engineering) and new groups (e. g. under the name of “service science” or “service science, management, and engineering”) aim at analyzing service-oriented research questions in an holistic way (Satzger 2008).

In this context, the following issues arise for BISE: Is services research relevant for BISE? If so, what role can and should BISE play within the upcoming service research community?

To answer this question, we first need to clarify the service concept as it is by no means used in a consistent manner. Thus, a business- and an IT-oriented understanding can be distinguished among others (Buhl et al. 2008, p. 60). Services conforming to the first understanding are characterized e. g. by intangibility, simultaneous production and consumption (uno-actu-principle), and integration of service consumers as external factor. Services in the sense of the IT-oriented understanding are software artifacts offering defined functionality. Services are usually characterized as self-describing, platform-independent, composable, standards-based, and occasionally as loosely coupled and location-transparent.

Now, where can BISE make a contribution? In the following, we examine hybrid value creation as an example of the business-oriented understanding as well as the development of web services as an example of the IT-oriented understanding.

- While in the so-called industrial nations the share of industry companies was almost stable for a long time, the percentage of services offered together with physical products increased. Thus, for example in the commercial environment, companies no longer sell “the copier” or “the printer”, but offer “copying” and “printing” as product-service combinations, including financing, maintenance, disposal, etc. This trend extends to highly complex technical products (e. g. in the medical field) and entire large-scale plants (e. g. for energy production). In this sense, the concept of services now reaches into almost every industry. This shows that the design of services no longer is an issue only for traditional service providers (such as the often quoted hairdresser or the hotel and catering company), but also and particularly for the manufacturing industry. The proper design of such a hybrid value creation requires the knowledge of various scientific disciplines. The BISE community can make a contribution here by supporting service provision, for instance with regard to the planning and coordination of distributed service staff (see focus issue 3/2008).
- With the rapid diffusion of the Internet, the provision of corresponding services is increasingly important and using services becomes almost natural. For instance, Google Maps has replaced street atlases almost entirely and not only German companies are fighting hard for the residual market shares in the navigation business. But also other providers offer their services “twenty-four-seven” and around the globe – some for free at first glance, others with genuine registration and fees. In return, there are also services that we take for granted, click on them without deeper thinking, and use for the support of countless daily transactions. This emphasizes the importance of service interaction, for which Google is a good example. There, it is about the orchestration of an auction ser-

vice with billing and payment services from other providers. A bad design can quickly cause the failure of the business model.

The major difference between IT- and business-oriented services is that in the former case not all resources have to be stored at one place. Based on the Internet, their delivery is almost entirely location-independent – both on the supplier's and the customer's side. Services and "sub-services" are composed not only in a location-independent, but also in a temporally-independent way – and this at various levels of granularity. This has enormous implications for the design of appropriate business models (Weinhardt et al. 2009, p. 38). BISE can significantly contribute to make these perform smoothly.

Services are therefore offered increasingly within value creation networks that are extremely dynamically and flexibly made up of providers and users who can communicate and interact with each other locally and completely independently. This goes along with a far more rapid and visible change of the traditional value chain concept. The existence of increasingly lightweight technologies and protocols additionally makes it possible to orchestrate services situationally and flexibly to so-called mashups. Organized in so-called "service value networks", complex services can be provided on demand, which again raises a number of interesting questions. In traditional research one usually assumes that complete information about the quality characteristics of services and the reputation of providers is available. However, especially in the context of service value networks, service providers and users in reality pursue their own interests and behave strategically based on their private information to maximize their individual benefit. These individual objectives are often opposed to overarching objectives, such as maximizing the overall benefit for all parties. Here, BISE is also responsible for the coordination – however, this time on a much more economic level.

Both examples show that BISE can significantly contribute to answering questions in the field of service research. Of course, this cannot be achieved alone, but in conjunction with other disciplines such as business administration and engineering in general, operations research, computer science as well as sociology and psychology. Nevertheless, it is particularly important and opportune with regard to IT-oriented services and the IT-based realization of business-oriented services for BISE to get involved in the service research community to a higher extent. Especially with its inherent strengths, such as interdisciplinarity, pluralism concerning accepted methods, design- and engineering-oriented tradition, strength for innovation, and a focus on relevance, it has great potential in this strategically important and rapidly growing field.

The relevant question is: What should be done in general and from the perspective of BISE in particular in order to both advance current measures that already promote service research as well as to take and sustainably strengthen its own role within the service research community?

1. We need to advance service research internationally within the business sciences and particularly within BISE. We also need to shift the focus in engineering and economics from the primary and secondary economic sectors towards more service research. Here, politics can e. g. further structural innovations and synergetic resource pooling in the form of interdisciplinary research centers acting across departments, faculties, and universities. This is necessary because research has been severely fragmented to sub-sectors and a bundling of existing competencies as well as the exploitation of synergies among the various core topics and methods is essential.
2. In addition, networking with the economy in terms of a closed loop has to be intensified. On the one hand, it is important to comprehensively strengthen the mutual transfer of university knowledge into companies and of practical knowledge and questions into the universities. On the other hand, we have to sustainably promote the application of new service-oriented methods and artifacts in business practice. Technical and economic challenges have to be met jointly. Achievements in research and implementation must be developed by means of coordinated and cross-linked activities.
3. From the perspective of BISE, there should be a focus on IT-based services as well as the resulting value networks, which have not yet been studied exten-

sively from a scientific perspective. Scientific methods bear a very large potential for efficient service design, for example by modeling services and service processes to support their development, planning, and delivery.

4. Moreover, in interdisciplinary service research BISE – given its role as a mediator between business administration and computer science – can contribute to bridging the still existing gap between the disciplinary understandings and to exploiting the resulting potential. Therefore, it is necessary to also advance the profile of BISE chairs and/or courses of study – as already sporadically done – towards service orientation. This conveys the necessary tools to students and sets stronger emphasis on business-oriented services as well as on their IT-based realization – and no longer on physical products (and their production and logistics).

If these initiatives are successful in the medium to long term, we will succeed in spurring service research, to catalyze the economic potentials involved, and to assure an important place for BISE in the interdisciplinary service research community.

Prof. Dr. Hans Ulrich Buhl  
Prof. Dr. Christof Weinhardt

## References

- Buhl HU, Heinrich B, Henneberger M, Krammer A (2008) Service science. *WIRTSCHAFTSINFORMATIK* 50(1):60–65
- Maglio PP, Srinivasan S, Kreulen JT, Spohrer J (2006) Service systems, service scientists, SSME, and innovation. *Communications of the ACM* 49(7):81–85
- Satzger G (2008) Dienstleistungswissenschaft – Anforderungen der Praxis an Dienstleistungsforschung und -lehre. In: Gatermann I, Fleck M (eds) *Technologie und Dienstleistung – Beiträge der 7. Dienstleistungstagung des BMBF*. Frankfurt, pp 187–195
- Weinhardt C, Anandasivam A, Blau B, Stöber J (2009) Business models in the service world. *IEEE IT Professional, Special Issue on Cloud Computing* 11(2):28–33