

# **Designing a “Services Science, Management and Engineering” Discipline and Curriculum**

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## ***Who We Are, and Why We’re Here***

The five of us study innovation, the co-evolution of law and technology, business process and document modeling for service architectures, service optimization, and globalization. UC Berkeley has a strong tradition of interdisciplinary work that encourages us to get together, and whenever we get together, we talk about “services science, management and engineering” (SSME) because that’s the intersection of our diverse academic and industry experiences. At first, our belief in an SSME was almost a matter of faith, but it has become grounded in analysis and we are now convinced that the whole is more than just the sum of our own parts.

We believe that a discipline of SSME is at least as comprehensive as our own perspectives. The theoretical foundations of SSME come from the disciplines of economics, computer science, engineering, law, and organizational sociology, each of which provides important perspectives on the evolution of the information and services economy. But SSME would be merely theoretical without the pragmatics provided by business strategy and operations, information technology, accounting and finance, and user-centered design, each of which contributes insight about the services lifecycle from design to implementation to deployment.

Nevertheless, the key question is “can we get there from here” and to answer that we needed a much clearer understanding of where “here” and “there” are. It was reasonably straightforward to determine where “here” is – we can inventory our own professional disciplines, competencies, and courses. Starting with our own, we considered existing courses at Berkeley that touched on the services economy or the services lifecycle and quickly identified a dozen that were very relevant. A score more had some peripheral relevance.

To help us figure out where “there” might be, we began by sitting in on each other’s courses. We then read each other’s new books and gave guest lectures in each other’s courses, and we’re now planning to teach courses together. But while these activities are

important pre-requisites, by themselves they aren't going to lead to the creation of a new SSME discipline.

### ***Principles for Designing a Discipline***

But how does one design a new discipline? We have been trying to design one in a principled and theoretically motivated way. We want to create a model of SSME discipline that we then can use to generate a coherent curriculum of courses and that we can use to assess other courses and curricula.

The design of this discipline must be inclusive. So instead of beginning with one of our existing courses that touched on some aspects of services, we have started from the beginning and tried to identify the key concepts, themes, and challenges that a SSME discipline should encompass. This approach prevents us from biasing our work toward or away from one approach or another, making all the foundation disciplines equal partners without devolving to some least common denominator.

So for example, we can ask how economics, engineering, law, and organizational sociology deal with the macro theme of how firms change over time and the mechanisms by which they seek innovation and advantage. We can compare and contrast how each of these disciplines evaluates the success of adaptations and how what they learn is encoded in new mechanisms or organizational forms.

At a more micro or lifecycle level, we can ask how finance, business strategy, business operations, information technology, and user-centered design answer questions about why and how business services combine, standardize, and evolve. We can compare and contrast what it means to evaluate and optimize a service from these different perspectives.

Our efforts to identify the cross-cutting issues and questions that span the foundation disciplines of SSME have been intellectually provocative and promising. Moreover, they are forcing us to confront the semantic challenge of harmonizing the conceptual and linguistic categories of each discipline so that we can frame things in ways that all of us can accept and understand.

### ***Pragmatics for Designing a Curriculum***

But while we are adamant in not wanting to create a SSME discipline as a “Chinese menu” rebranding of existing courses, it is hard work to start from a clean slate. We just can't abandon what we have now, and even if we wanted to, there isn't sufficient institutional support for us to do so.

So the foundation for SSME at UC Berkeley will consist of two new required courses. The first, “The Information and Services Economy,” will introduce the macro historical and evolutionary perspectives of economics, law, and organizational sociology. The second, “Information and Business Architecture,” will complement this more theoretical course with a more micro and pragmatic one focused on the services lifecycle, and emphasizing the disciplines of information technology, computer science, operations

research, business strategy, accounting and finance, and user-centered design. We will revise our existing courses as SSME electives that build on the two new core courses.

We would like to imagine that faculty who currently teach courses with more peripheral relevance to services science would revise their courses too, but we believe it is more realistic for a centralized curriculum development effort to create materials targeted for these secondary courses and offer them as topics that can be incorporated with less effort.

We expect to publish the syllabi for the two new courses and our plans for a SSME curriculum at UC Berkeley in the summer of 2006. We will teach the two new core courses for the first time in the 2006-2007 academic year.