International Society of Service Innovation Professionals					
Title: ISSIP Curriculum Survey Report					
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This report presents the results of an ISSIP-sponsored survey about curricula in service from education providers around the world. The intent of the survey was to discover the extant breadth and depth of service education and the needs for service education in the future.

Demographics of the sample

A survey was distributed to 107 representatives of education in the field of service. 39 of these contacts participated in the survey. Although the response rate is higher than that achieved by most academic research surveys, the sample is somewhat small and exhibits some biases. As Tables 1-3 indicate, most of the respondents are involved in graduate education and are university faculty, which accounts for the preponderance of large organizations (> 1,000 employees, Table 4) in the dataset. Not surprisingly, most of the respondents work in the field of business, engineering and ICT. As Table 5 shows, the United States was the country of the largest source of respondents even though Europe has a reputation for being ahead of the curve in the field of service science.

Organization Type	# responses	% of sample
Graduate School	34	87%
Undergraduate Program	16	41%
Consulting Service	8	21%
Corporate Training and Development	3	8
Vocational Training	2	5
Government Agency	2	5
K – 12 School	0	0
Foundation	0	0

Table 1: The type of organization to which respondents are affiliated

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Professional Role	# responses	% of sample
University Research Faculty	31	79%
University Teaching Faculty	30	77%
Consultant	10	26%
Corporate Trainer	3	8
Vocational Teacher	2	5
Other (please specify):	2	5
Government Official	1	3
K-12 Teacher	0	0

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Background	# responses	% of sample
Business	24	62%
Engineering	16	41%
Information Technology	14	36%
Other:	6	15%
Social Science/Psychology	1	3
Public Service	1	3
Economics	0	0

Table 3: Educational/professional background of respondents

Table 4: The sizes of the organizations of respondents

Size of Organization	# responses	% of sample
> 1,000 employees	25	64%
> 100 and \leq 500 employees	6	15%
< 100 employees	4	10%
> 500 and \leq 1,000 employees	3	8
no answer	1	3

Table 5: Countries in which respondents provide service education

Country	# responses
USA	12
Italy	4
Germany	3
India	3
Japan	3
Belgium	2
China	2
Finland	2
Norway	2
Sweden	2
Austria	1
Brazil	1
Dubai	1
Kazakhstan	1
Malaysia	1
Mexico	1
Singapore	1

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Country	# responses
Spain	1
Switzerland	1
Taiwan	1
Thailand	1
UK	1
Global, several countries	3

Table 5 continued

Educational Programs

The survey asked for the size, in terms of the number of students enrolled per year, of each type of educational program in which the respondents were involved. Table 6 summarizes these responses. Clearly, undergraduate and graduate degree programs are most popular among the respondents. However, consulting services are providing a surprisingly large number of service-education programs. There were no responses for K - 12 education and 1 response for government agencies, but no enrollment data were provided. There was also one response for a program in "social entrepreneurship".

	Graduate Program	Undergrad. Program	Consulting Service	Corporate Training and Development	Vocational Training
Number of programs	27	16	3	3	2
Max # of students/year	6000	14000	5000	150	35
Min # of students/year	5	15	20	50	20
Average # students/year	601	2232	1740	83	28

Table 6: Size distribution of service-related programs (# students per year)

The survey asked for the types of certificated service-related educational programs that respondents provide. Below is a categorized list of these certificate types.

Graduate Programs:

Master of Science in marketing Master's program in services Master's degree of knowledge science Master in Innovation and Research in Informatics, Service Engineering specialty Master in Management, MIS and BI Double Master Degree Software Service Engineering Credit elective classes Manufacturing & production management

<u>Undergraduate Programs:</u> Marketing Engineering

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<u>Vocational Training:</u> Management of Technology Service management & engineering continuous education diploma

<u>Corporate Training and Development:</u> Advanced Certificate Program in Services In-house certification

The survey asked respondents to identify the certifications that they expect to provide in the future. Table 7 summarizes these responses and indicates that master's degree programs will be most popular.

Certificate Type	# responses	% of sample
Master's Degree	22	56%
PhD	16	41%
Bachelor's Degree	11	28%
Other (please specify):	6	15%
Professional Development Certification	5	13%
Vocational Certification	2	5
High School Diploma	2	5

Table 7: Future	e certificate	offerings
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Topic Coverage

The survey asked several questions about the specific topics within the field of service that are considered important by the respondents. Table 8 shows the disciplinary fields that current and future service-related programs pursue. Table 9 shows the relative popularity of industry verticals in current and future service-related educational programs.

Discipline	# responses	% of sample
Service Management	26	67%
Service Science	25	64%
Service Design	21	54%
Service Engineering	20	51%
Service Quality	16	41%
Service Marketing	15	38%
Service Computing	9	23%
Other (please specify):	7	18%

Table 8: Disciplines of current and future programs

Торіс	# responses	% of sample
ICT service	25	64%
Consulting Service & Knowledge-Intensive Service	18	46%
B2B Service	17	44%
Manufacturing Service	15	38%
Transportation & Supply Chain Service	15	38%
Health & Wellness Service	14	36%
B2C Service	14	36%
Educational Service	12	31%
Hospitality, Entertainment, and Tourism	11	28%
Retail Service	10	26%
Energy & Electricity Service	9	23%
G2C Service (Government to Citizen)	9	23%
Financial & Professional Business Service	8	21%
Buildings & Built-Environment Service	7	18%
C2C Service	6	15%
Environmental and Nature's Service	5	13%
Other (please specify):	5	13%
Water & Waste Service	4	10%
Agricultural Service	3	8%
Recreational Service	3	8%
Government (City, State, Nation) Service	3	8%
G2B Service (Government to Business)	3	8%

Table 9: Current and future topic coverage

The survey asked respondents to identify the most significant educational needs in the field of service. These open-ended responses were collated and categorized as shown in Table 10.

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Subject Area	Topic List	# responses
	Service design & innovation	12
Innovation & Design	Process modeling	3
	Service engineering	2
Total Responses = 20	Co-design	1
	Creativity and innovation	1
	Service innovation case studies	1
	Internet of Things	2
	Service innovation using web/mobile/cloud	2
	Technology as driver for new services	2
ICT Group	ICT services	1
Total Responses = 11	ITSM	1
	Packaged application service	1
	Role of technology in service delivery	1
	Service Oriented Architecture	1
	Service management	5
Management Group	Financial planning to introduce new services	3
Total Responses = 11	Business models for services	2
	Virtual business models	1
_	Service science	4
	Operations research/management science	1
Service Science Group	Service models and description languages for service	1
Total Responses = 9	Service simulation, modeling and visualization	1
	Service value networks	1
	Systems thinking	1
	Leadership	1
	Service ethics	1
Strategy Group	Service outsourcing	1
Total Responses = 6	Service-dominant logic	1
	Strategic role of services	1
	Trade in services policy	1
	New service development performance measurement	1
Performance Evaluation	Operational excellence	1
Group	Service innovation evaluation	1
Total Responses = 5	Service productivity	1
	Service quality	1

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Subject Area	Topic List	# responses
	Business transformation to service	1
Servitization Group	Enhancing service value of manufacturers	1
Total Responses = 4	New service concepts for traditional industry	1
	Product-related services	1
Education Group Total Responses = 4	Education	2
	Democratization of education	2
Marketing Group Total Responses = 4	Service marketing	2
	Customer experience	1
	Emotional service blueprint (ref. IBM research)	1
Health Care Group	Health	2

Table 10 continued

Educational Resources

Respondents provided a list of textbooks and other learning materials that they currently use. Three respondents listed self-made materials as a component of their educational resources. The wide variety of published resources is listed in Table 11.

Table 11: Textbooks and other learning materials used

Resource	# responses
Chang, C.M., Service Systems Management and Engineering: Creating	
Bell M Service-Oriented Modeling (SOA): Service Analysis Design and	
Architecture., Wiley	
Berry and Parasuraman, Marketing Services: Competing through Quality, Simon & Schuster	
Bullinger/Scheer, Service Engineering (available only in German)	
Case studies	2
Christensen, Disruptive Innovation, Harvard Business School	2
Currie, Programmable Systems on a Chip	2
d.school, Keio SDM materials	
Chaffey, D., <u>eBusiness & eCommerce management</u> , Manchester Business School	
Fitzsimmons & Fitzsimmons: Service Management (various versions)	4
Frank C. Tung, A Reference Curriculum for Service Engineering, Proceedings of the 2008 IEEE Congress on Services - Part I, Pages 37-40	
Gallouj and Djellal, Handbook of innovation and services	2
Ghiani, Laporte, Musmanno, Introduction to Logistics Systems Planning and Control	
Grönroos, Service Management and Marketing	2
Spohrer et al, Handbook of Service Science	2
Haskell and Hanna, Learning VHDL by example	2
Henry Chesbrough, Open Service Innovation, Jossey-Bass	
http://thisisservicedesignthinking.com/	

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Table 11 continued	
Resource	# responses
Cattaneo et al, International Trade in Services: New Trends and	
Opportunities for Developing Countries, World Bank	
ISO 20000	
ITIL	2
ITSM (IT Service Management)	
Johnston/Clark: Service Operations Management	
Journal articles	6
Berry, L., Discovering the Soul of Service	
Lovelock, Service marketing	
Managing the Challenges of WTO Participation	
Most materials published by The Lisbon Council, Brussels	
Nonaka, Managing flow (Knowledge science)	
Palmer, A., Principles of services marketing, McGraw-Hill	
Papazoglou, M., Web Services & SOA: Principles and Technology, Pearson.	
Parasuraman and Colby, Techno-Ready Marketing	
Murphy,W. Ed., <u>Service Science</u>	2
SSME handbook	
SSME PAPERS	
Teboul, J., Service is front stage : positioning services for value advantage, Palgrave Macmillan	
Teruyasu M., Knowledge Service Management, ToyoKeizaiShinpo	
Tidd & Hull, Service Innovation	
Turban et al, Decision Support and Business Intelligence Systems	
Zeithaml, Parasuraman and Berry, Delivering Quality Service: Balancing Customer Perceptions and Expectations	

Table 11 continued

Suggestions

Finally, as this survey was investigative in nature, respondents were invited to provide any additional information that would help us understand the demand for and challenges of education in service. Below, in no particular order are these responses.

- 1. As I am working in a B-School, we need the Service education curriculum which gives the empirical view through case studies. Also, the education should be able to put "Business" as the center theme with science and engineering aspects to improvise the quality and revenue.
- 2. Think you should look to industry to understand the demand it is huge.
- 3. In terms of SSME, there are few materials for Service Science education. It is a challenge to give the scope and knowledge of Service Science.

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- 4. Why have companies (like IBM, Cisco, Hewlett Packard, and others), which pursue service businesses, not yet set up financial support programs (e.g., faculty research grants, scholarships, summer internships) to actively hire graduate service professionals and promote service education on a national scale?
- 5. For your further investigation, I think you need to collect items of service unprofessional education from the curriculum in each service education course.
- I work in a large university, I do not know all of its departments and their activities; my answers are only related to the departments I know. I point out two major challenges I observed in my context (Northern Italy):

- companies do not explicitly ask universities for the right competencies and (mix of) disciplines; in the best case they ask for more interdisciplinarity (which means nothing to the ears of the university administrators) and they groan for the lack of STEM degree holders (which pushes universities to increased specialization, not to establish service science curricula).

- universities are still organized in such a way that investments are made only on what already exists, not to develop new projects, new ideas, new curricula. Interdisciplinarity is still very hard to promote from inside the university.

In my opinion OR/MS, which is intrinsically interdisciplinary, should be very effective if it were used as a bridge to connect different competencies and skills, both in research and in education.

- 7. We need to create common languages which various education-based service researchers could use. For example, "model" could be different based on disciplines, math model, concept model or the other. The other point is the difference between consultant approach and research approach. The consultant approach is very useful to solve a problem, but they are not generic enough to apply various other problems. On the other hand, research approach is abstract, and is proving the concept generally. For service science, we take research approach as much as possible.
- 8. Need more service modeling software, such as process design, queuing system, demand management, process flow testing.
- In question 6 (number of students), we are now starting a master specialization in "Service Engineering", so, the number of students has not yet reached a stable number. In the last question, we use basically articles as references.
- 10. Identify key policy areas that influence trade in services. This would include for example telecommunications policy, protection of intellectual property rights, competition policy, and trade policies that influence the availability of hardware and software in the local economy.
- 11. In Mexico there are no official graduate and undergraduate programs addressing SSME except one in Monterrey Tech. We need financial resources for 1-year training via postdocs or academic visits, and after this it will be possible to create graduate programs. SSME is an unknown topic in Mexico.
- 12. This is to promote Online Engineering as service: The model solution of Online Engineering is motivated by: (1) the search for Cost Effective and "Democratic" Online Engineering; (2) the definition of Global Engineering Solution. The approach is based on Disruptive Education, defined by Christensen, the author of disruptive innovation and disruptive

technologies concepts. The technology under study is derived from the Internet of Things (IOT) defined as a Web of Objects (Rao). The Web of Objects (WOO) is a superset of the Internet of Things which enables worldwide interaction among objects without human intervention as well as the Internet, a classic medium facilitating communication among people. The promoted Online Engineering platform, called WOO3©, is a triple WOO based model and ecosystem (WOO3©) which includes: (1) IOT based eLearning; (2) IOT based subject matters; and (3) IOT based online engineering. The platform includes an Orthogonal Model Curriculum, one of many possible, which emphasizes: (1) the education roadmap "From the State of the Mind to the State of the World"; (2) the accreditation roadmap "From Introduction Through Certification Towards Accreditation." Special attention is paid to the concept of the Home Laboratory.

13. How do we use ICT for affordability, scalability and inclusivity in emerging economies?