

HSE Goes to Services

Teaching and Research of Service Science at HSE

February 28, 2007

Timo Saarinen
Ari P.J. Vepsäläinen
Dept. of Business Technology

*Nordic Service Science Summit,
IBM Helsinki*



Background for Service Research

Ari P.J. Vepsäläinen

- Information Processing Lab, HUT
- Intelligent Systems Laboratory, The Robotics Institute, Carnegie Mellon University
 - knowledge-based scheduling systems
- Dept. of Ops and Info Management, The Wharton School, University of Pennsylvania
 - economic efficiency of corporate culture
 - electronic delivery channels for financial services
- Research connections in the U.S. and Europe
- Consultancy at HM&V Research Oy
 - Impact of information technology on service strategies
 - Expert Systems implementations
 - Customer-Oriented Expert Systems
 - Public Services and Information Technology
 - Knowledge-based systems applications for customer service
 - Transition to deregulated telecommunication services (Sonera)
- Ten managerial books on Service strategies, Process management, Capability-based competition, Purchasing, eCommerce, Distribution and Logistics in the future

Service Research at the HSE

- Professor of Logistics 1991- (first in Finland)
 - start as professor of Information Systems and Mgmt Science 1989-91
 - build up the M.Sc. Program in Logistics (from a few students up to 30–50 students annual enrollment, 3rd largest at HSE in 2005)
 - over 200 Master's theses since 1992, funding by industry, high quality
 - new professorships – Technology Management, Retailing, and eCommerce
 - interdisciplinary advising of doctoral students (one Ph.D. per year)
- Major research initiatives
 - joint research projects electronic markets, BPR, eCommerce, eBusiness models, surveys in supply networks, purchasing in the public sector
 - projects in intermodal transportation, technology in logistics services, lead time reduction in process industries, reference architectures
- Experiences at HSE
 - hard time to obtain external funding – new discipline
 - lack of resources (professor, assistant professor, lecturer and assistant)

The Service Phenomenon..

..in Practice

Business Process Redesign
 Service (sub)contracting
 Partnerships & Alliances
 Outsourcing
 Brand Community
 One Source
 Outsourcing
 E-Business
 Order Fulfilment
 Service procurement
 Vendor Management
 Global Sourcing
 Network organizations
 Standardization & Customation
 Service Encounter & Experience
 Reference Architecture

..in Theory

Service Marketing, Operations, and Management
Operations Research and Management Science
Industrial & Systems Engineering, Control Theory
Information Sciences and Systems Engineering
Management of Technology and Innovation
Computer Science, Distributed AI, CSCW
Computational Organization Theory
Computer Aided Market Engineering
Social and Cognitive Science
Economics & Jurisprudence
Management of Information Systems
Game Theory and Mechanism Design Theory
Business Informatics and Document Engineering
Business Anthropology and Learning Organizations
Decision Science and Knowledge Management
Human Capital Management & Incentive Engineering
Quality, Six Sigma, Statistics, Process Optimization
Organization Science, Complexity Management Theory

Multiple Facets

Service Science

The Core

Our View to Services Management

- **Definition:** Service is Work Done for Someone
 - Product vs. Service – a Mute Question
(until IBM sponsors studies in "Product Science")
 - rather, Service is an Arrangement for Coordinating Production and Consumption
 - Service is the application of specialized competencies (knowledge and skills) through deeds, processes, and performances for the benefit of another entity or the entity itself (Vargo & Lusch 2004)
 - Institutional Alignment for mutual value and market power
- Case in Point – Service Delivery within ICT-enabled Channels
 - Transactions for Real-Time Business – beyond Self-Service
 - Facilitate also Relationship-based Services and Experience Business

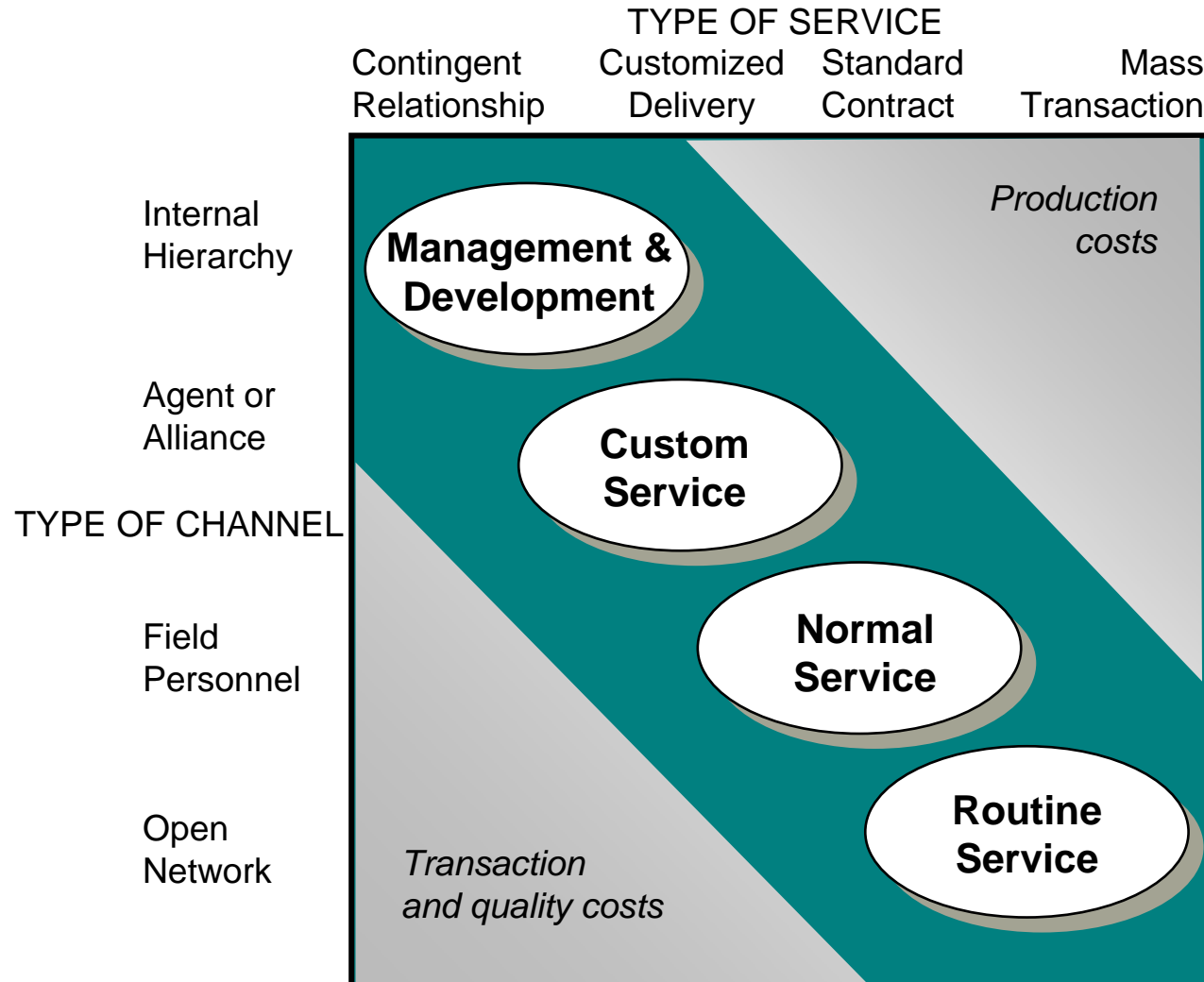
Background for Institutional Analysis

- Principal-agent models – the employment relationship
 - the secretary's choice (Simon 1950s)
 - team theory, contract theory
 - mathematical and empirical theories of agency relationships
- Transaction Cost Economics – the boundaries of firm
 - the limits of organization, bounded rationality
 - loss of control in organizations, Markets and hierarchies (Williamson 1975)
- Other approaches to institutional strategies
 - property rights
 - resource-based view
 - evolutionary view and routines
- Institutional theory – the sociological view
 - How organizations adopt similar structures and behavior

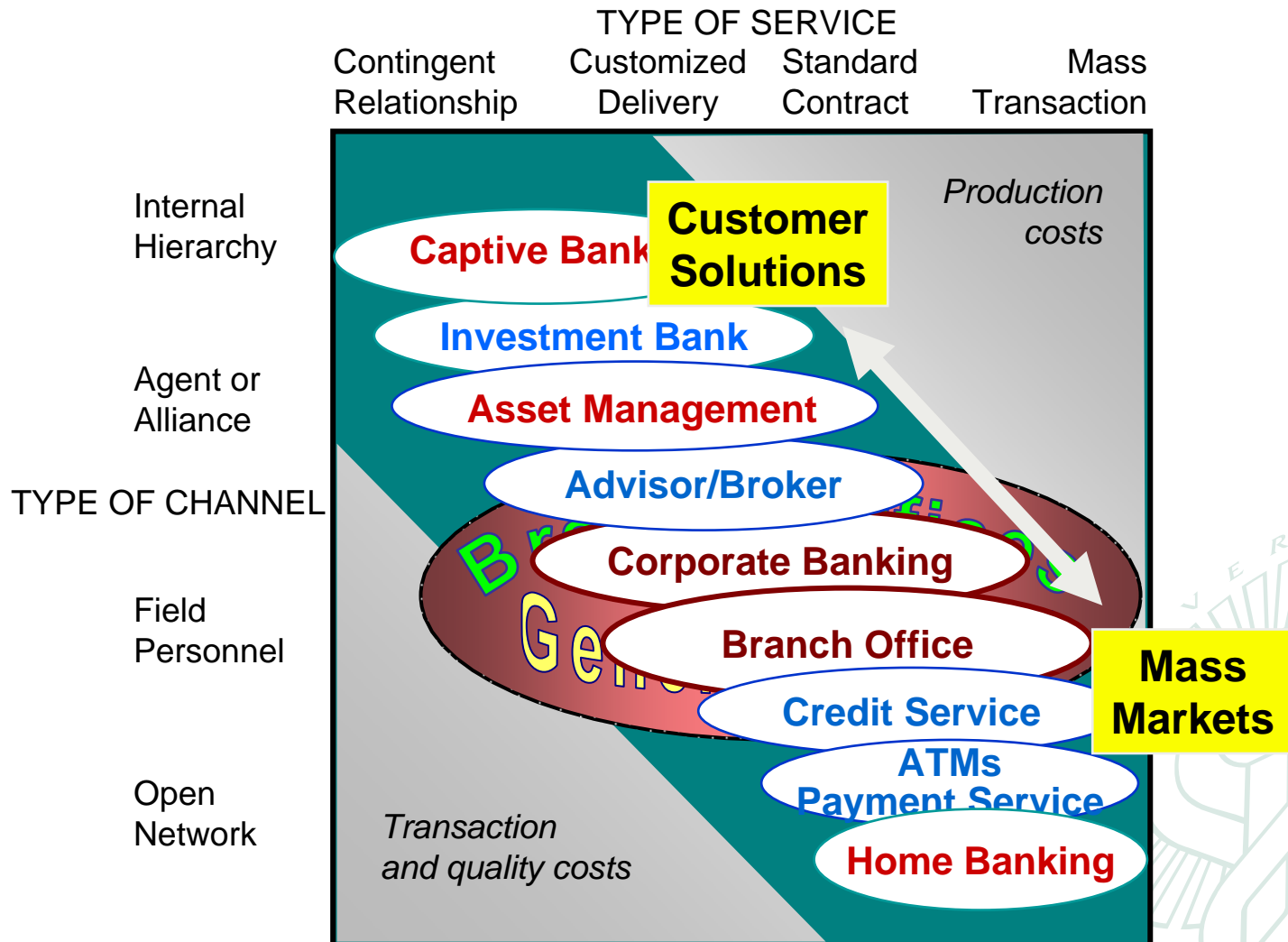
Institutional Modelling of Service Channels and Strategies

- Service classification based on type of contract and delivery channel
 - the type of service contract depends on level of uncertainty, frequency of transactions, and length of relationship
 - the type of service channel depends on the number and roles of organizations involved, asset specificity of and the access conditions, such as information systems used, of the parties to the channel
 - matching of services to the channels based on the trade-off between production costs and transaction costs
- Early references:
 - Vepsäläinen A.P.J. and Apte U. (1987) "The Impact of Information Technology on Financial Services Delivery," Dept. of Decision Sciences, working paper #12-01-87, U. of Penn.
 - Vepsäläinen A.P.J. and Mäkelin M. (1987) "Service-Oriented Systems and the Economics of Organizational Transactions", The Report of the 10th IRIS Seminar
 - Apte U.M. and Vepsäläinen A.P.J. (1993) "High Tech or High Touch? Efficient Channel Strategies for Delivering Financial Services", *Journal of Strategic Information Systems*, Vol. 2, No. 1, March 1993, pp. 39-54.
 - Tinnilä M. and Vepsäläinen A.P.J. (1995) "A Model for Strategic Repositioning of Service Processes", *Intl Journal of Service Industry Management*, Vol. 6, No. 4, pp. 57-80

The Institutional Model of Service Channels & Strategies



Example of the Divergence of Services - Banking



Collaboration

- Research carried out in close collaboration with industrial and commercial companies and government agencies
- Joint research projects, often funded by the public agencies and managed through LTT Research Ltd
- Majority of MSc theses have been commissioned by companies
- International research and industrial collaboration provided by the Community of European Management Schools (CEMS)
 - 17 major Business Schools in Europe
 - joint doctoral seminars,
 - MIM program, joint course Management of Global Supply Chains
 - research projects with CEMS partners (50 major European companies)
- Large network of US universities

Research Projects

- SYSCORE – Coordination of Supply Chains
 - Five companies, Tekes, 2005
- Development of Public & Government Procurement
 - Several projects, LTT Research Ltd., major cities and ministries, 2003-2005
- RUBIC - Research on Unified Business Information Community,
 - Technology Industries and Finnish Centre for Information Society, 2003-2004
- From Supply Chains to Networks
 - Accenture, SAP Finland and LTT Research Ltd, 2002-2003
- PoCoFlow – Speed of Supply Chain in Metal Industry
 - Outokumpu and Tekes, 2000-2001
- eLogs I, II and III - Logistics of Electronic Commerce
 - Electronic Commerce Institute, LTT Research Ltd, 1998-2002
- IMservIT - Intermodal Services and Information Technology
 - KETJU program, Tekes and MiTC, 1998-2000

Dissertations in Logistics

Supply Chain Operations

- On the Role of Information Systems in Organizational Integration: Observations and a Proposal for an Integrative Framework (2007)
- Information Systems in Buyer-Supplier Collaboration (2007)
- Preconditions of Successful Supply Chain Relationships – Integrated Processes and Differentiated Services (2006)
- Industrial Benchmarks: From World Class to Best in Class – Experiences from Finnish Manufacturing at Plant Level (2006)
- Priority Scheduling Revisited – Dominant Rules, Open Protocols, and Integrated Order Management (2005)
- Evolving Logistic Roles of Steel Distributors (2003)
- Assessment and Coordination of Manufacturing Capabilities (1993)

Dissertations in Logistics

Services and Logistics

- Redesign of Transfer Capabilities – Studies in Container Shipping Services (2005)
- Redesign of Public Sector Organizations and Operating Processes (1998)
- Managerial Views on Distribution Systems - Heuristic Justification of Centralization and Postponement (1998)
- The Substitution of Letter Mail in Targeted Communication (1998)
- Division of Service and Business Processes (1997)
- Airline Performance and Costs - An Analysis of Performance Measurement and Cost Reduction in Major Airlines (1995)
- Transformation Beyond Skill - A Process of New Capabilities Development in a Trading Company (1994)

The Systems Group 1965- Collaboration with Top Companies

- Jahnukainen M. and Vepsäläinen A.P.J. (eds.) (1992) ***Joining the Global Race - Redesign of Business Processes and Logistic Capabilities, Experiences of Finnish Engineering-Intensive Companies***, HSE Publications D-162, 162 p.
- Jahnukainen M. and Vepsäläinen A.P.J. (eds.) (1998) ***Process Management Works - If Only Implemented, Reassuring Experiences of Global, Technology-Intensive Companies from a Finnish Perspective***, Systems Group Publication A-10, Helsinki, 245 p.
- Kemppainen K. and Vepsäläinen A.P.J. (2003) “Web Breeds Services Apart – But How to Get Them Right?”, Chapter 6 in Reponen, T. (ed.) ***IT Enabled Global Customer Service***, Idea Group Publishing, Hershey, USA, pp. 104-123.

Research Interests

- **Configuration of service networks**
 - Organization of delivery services
 - Creation of expert support
- **Restructuring of business processes and supply chains**
 - Channels for persuasion, ordering, delivery and financing
 - Transition from products to services:
 - New business models and development of new competencies for global infrastructures
- **Ubiquitous processes**
 - In marketing;
 - persuasion, loyalty, usability, as a service
 - In decision making;
 - negotiating, collaborative information search, group decision making as a service
- **Institutional basis for service delivery**
 - Service platforms and standards
 - Institutional mechanisms for trust
 - Evolving standards and economies of scale

Structure of Studies at the HSE

M.Sc. in Information and Service Management:

Integration of Service Science into Logistics and Information Systems
Strong analytical orientation
Efficient Organization of Service Delivery

B.Sc. in Business Technology :

Logistics and Service economy
Information systems
Management technology

HSE mandatory studies in business administration:

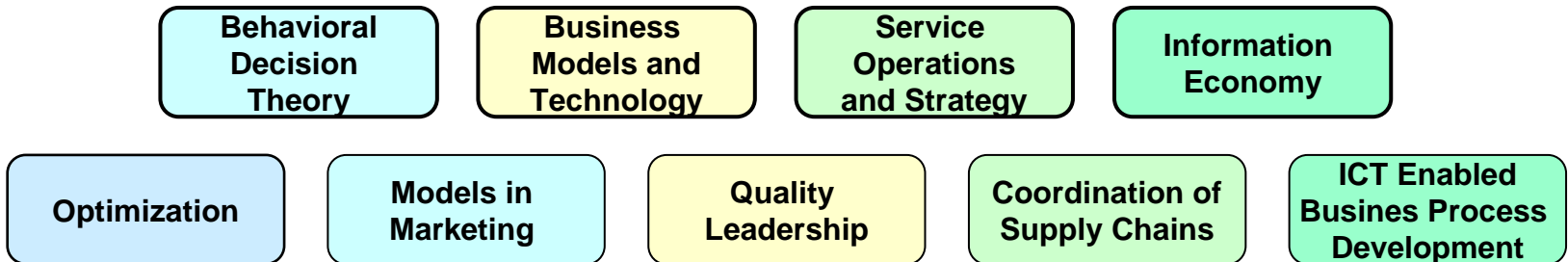
Marketing, Accounting, Organization and management, Business law,
Communication skills, Project management, Foreign languages,
Mathematics and statistics

Master's Program in **Information and Service Managament**

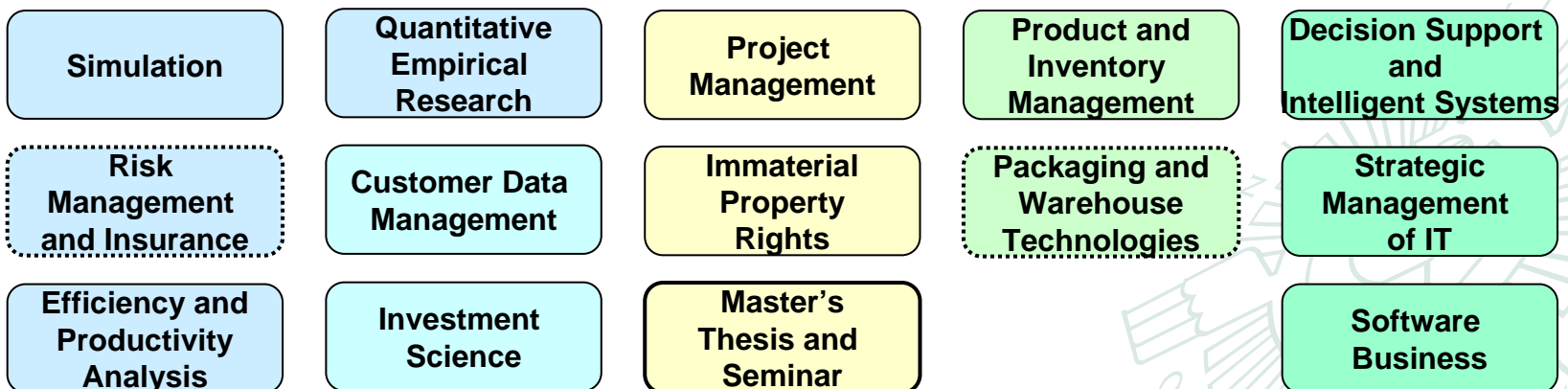
- Integration of Service Science into Logistics and Information Systems
- Strong analytical orientation
- Efficient Organization of Service Delivery
- Main building blocks:
 - Organization of service operations
 - Delivery and logistics services
 - Design and redesign of business processes
 - Design of ICT services and business models
 - Design of Managament support and decision making environments
 - Analyses and management of efficiency and risks

Courses of the M.Sc. Program in Information and Service Management

The Master's level core courses in the Department of Business Technology:



Advanced specialization courses in Business Technology:



Vision and mission

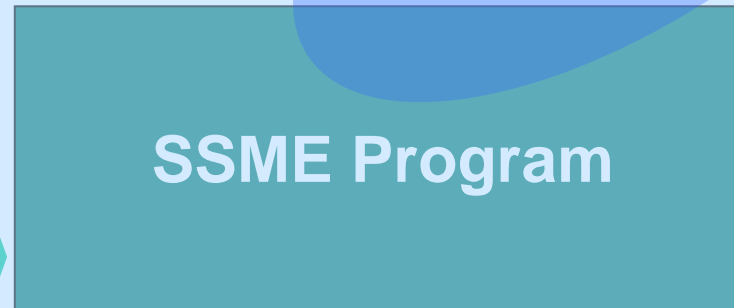
- Vision: HSE is a world-class contributor in research and education of service sciences
- Mission: HSE has high-quality master's and doctoral programs, academic research, applied research and company cooperation in service sciences



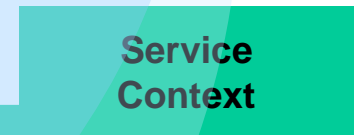
HSE Departments



Transformation



Research programs at HSE



Conclusions: Efficient Organization of Service Delivery

- Services compose the economic institutions by which the new technologies are brought to bear in innovative business processes and networked business models.
- The research in Business Technology has been focused on service development, thereby integrating much of the technical and behavioral issues.
- The goal has been to synthesize the insights gained through decades of studies in services into operational disciplines and technological protocols required for coordination of supply chains and other service networks.
- The major theoretical issue deals with extending transaction cost models and industrial case studies into a scientific framework of service and network management.