

Strategic IT management - 37E00200

Introduction

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Esko Penttinen

-1996	1996-2001	2001-2007	2007-2015	2015-2021	2021-
High school studies	MSc studies	PhD studies	Project manager	Professor of Practice	Associate Professor
Helsingin II normaalkoulu Main interests: mathematics & languages	Helsinki School of Economics (HSE): Management science ESC Dijon (1999-2000): Finance Internship work at PSA Peugeot Citroën, Paris, France (2000) Thesis work at Accenture, Helsinki (2000-2001)	HSE, Doctoral dissertation in Information Systems Science: "Moving from Products to Services Within the Manufacturing Business" (supervisor Timo Saarinen, opponent Stefan Klein) Visiting PhD student: HEC Paris, France (2005) and College of William & Mary, US (2002)	Setting up two national development programs on electronic financial value chain: Real Time Economy (2007) and XBRL Finland (2012), both evolved into key focus areas for Finnish government Employed 50% Aalto University School of Business and 50% Tieto Corporation	Research: (i) Interplay between human work and AI-infused systems, (ii) Coordination of information intensive knowledge work, (iii) Structured data and digital platforms Visiting scholar: The University of Queensland (2020) and University of Auckland Business School (2020)	Research: continued from PoP Teaching: Strategic IT Management (MSc), Information Economy (MSc), Scientific Reading and Writing in ISS (PhD) Service: Editorial duties at BISE, ICIS, and ECIS; IRIS board member 2019-2023
Main achievements: Publications: 30 peer-reviewed journal articles (incl. 8 "AIS Senior Scholars' Basket of Journals" papers) – 43 peer-reviewed conference papers – 8 peer-reviewed teaching case publications – Ranked #2 among IS scholars in Europe (employment in a European University) by the number of AIS Senior Scholars' Basket of Journals articles published in 2019 Awards: Information Systems Scholar of the Year 2020 – Teacher of the year 2010, 2011, honorable mention 2018 (department of Business Technology and department of Information and Service Management, Aalto University School of Business) – Outstanding AE in Service Science and IS track, ICIS2017 – Best paper award in SIGSVC Track at ECIS2016 – Best paper award in Global Mobility Roundtable Conference 2008 Community building: Real-Time Economy with >100 organizations and >1000 industry experts – XBRL Finland consortium with 19 organizations – IRIS board member 2019-2023					

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Turn to your partner and discuss

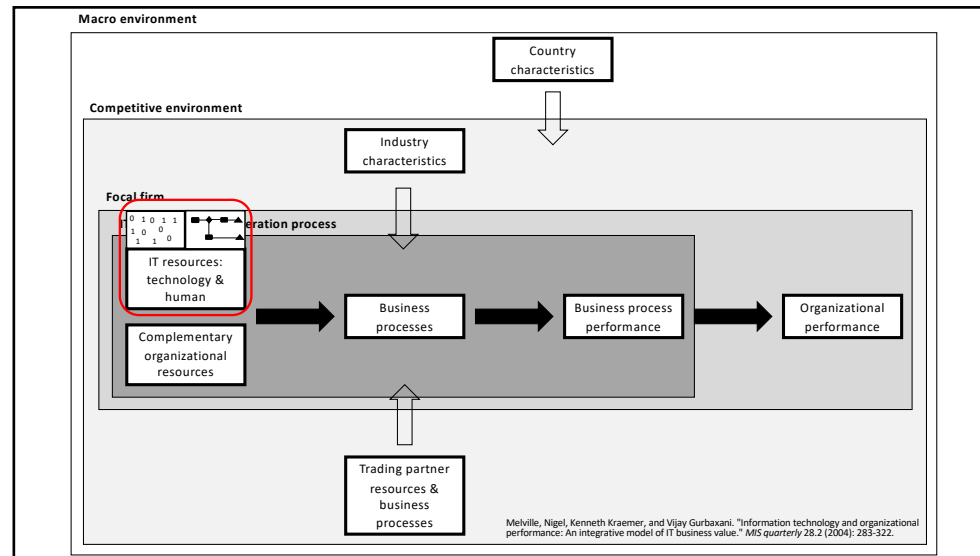
- What comes to your mind when we say "strategic management of IT?"
- What is the role of IS and IT in organizations?
 - As a resource, is it different from human capital or heavy machinery?
 - For all companies, IS/IT essential in business process redesign; for some companies, IS/IT is the core (e.g., digital platforms)
- Importance of IS/IT varies in different industries
 - Information work (such as accounting)
 - Industrial work, mechanisation

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Learning outcomes

- Learn about frameworks and models to analyze technology-triggered organizational change
 - Grasping the so-called "socio-technical approach" to information systems
- Discover the multifaceted nature of artificial intelligence
 - Seeing beyond the hype of organizational AI
- Understand the importance of digital infrastructures as important antecedents to data analytics
 - Harnessing the benefits of structured data
- Be better prepared for MSc thesis work
 - Reading academic articles containing seminal theoretical frameworks

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Sociotechnical approach to information systems

- Instrumental and humanistic outcomes of IS use
- Reciprocal interaction between humans and machines

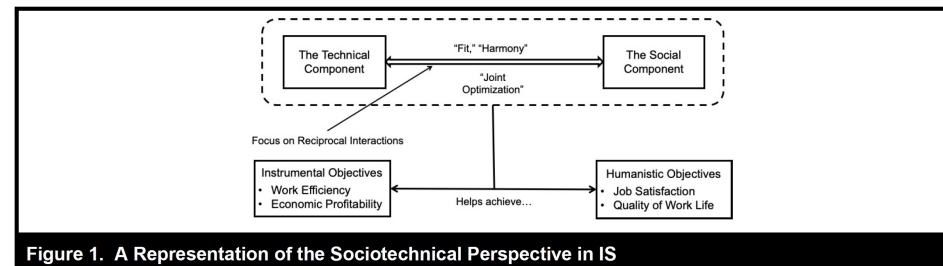


Figure 1. A Representation of the Sociotechnical Perspective in IS

Sarker, Suprateek, et al. "The sociotechnical axis of cohesion for the IS discipline: Its historical legacy and its continued relevance." *Mis Quarterly* 43.3 (2019): 695-720.

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Value of IT

- **Manifold components of IT value**
 - Productivity (have IT investments increased productivity?)
 - Profitability (has IT affected business profitability?)
 - Consumer value (what is the added value to consumer?)
 - Employee value (has IT improved job satisfaction?)
- **Connection between these factors?**
 - Are they mutually exclusive aims?

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Productivity, profitability, consumer value, employee value

- **Productivity = output/input**
 - Physical or technical measurement
 - Seen in production
- **Profitability = revenue – costs**
 - Economic measure
- **Consumer value = willingness to pay - price**
 - Describes well-being
 - Assessed through priorities and valuations
- **Employee value = gains - effort**
 - Describes well-being
 - Assessed through priorities and valuations

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Relationships between IT value components?

- Productivity \neq profitability \neq consumer value \neq employee value
- IT may be increasing productivity and consumer surplus but not necessarily leading to supranormal business profits (Hitt & Brynjolfsson 1996)
- Examples:
 - E-invoicing
 - E-banking

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Why is assessment of value of IT harder than some years ago?

- 40 years ago
 - Automation of manual, limited activities (in manufacturing, for example)
 - Benefits of limited and operational character
 - Costs structural and limited ones
 - Centralized development and administration
- Today
 - Automation already done in many businesses
 - Business Process Redesign: hard to assess benefits
 - Many benefits at the side of better marketing and customer service

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Productivity

- Productivity in economics refers to measures of output from production processes, per unit of input. Labor productivity, for example, is typically measured as a ratio of output per labor-hour, an input.
- Context of IT
 - Input: dollars spent on computers (IT investments)
 - Output: dollar output per hour
- Example from the context of financial administration
 - Input: hours of labor (FTE)
 - Output: number of processed invoices

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The productivity paradox

- In 1987, the MIT professor and nobel economist Robert Solow said: “We see the computer age everywhere except in the productivity statistics”
- Productivity paradox = discrepancy between the measures of investment in IT and measures of output at the national level

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Explanations for the productivity paradox

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Explanations for the productivity paradox

- Mismeasurement of outputs and inputs
- Lags due to learning and adjustment
- Redistribution of profits
- Mismanagement of information and technology

- Brynjolfsson 1993

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Efficiency and effectiveness

- Effectiveness
 - Meeting process objectives, delivering the required outputs and outcomes
 - “Doing the right thing”
- Efficiency
 - Minimizing resources or time needed to complete a process
 - “Doing the thing right”

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Themes of our course

- | | | |
|---|-----------------------|--|
| 1. Introduction | | Reading:
Melville et al. 2004 |
| <ul style="list-style-type: none"> • Business value of IT | | |
| 2. Governance of IT | | Readings:
Woodard et al. 2013
Rinta-Kahila et al. 2023 |
| <ul style="list-style-type: none"> • Technical debt and digital options • Legacy systems • Outsourcing • Virtual organizing | Kluuvin Apteekki case | Dube & Robey 2008 |
| 3. Data-driven decision making – the IT perspective | | Readings:
Grover et al. 2018
Kallinikos et al. 2013 |
| <ul style="list-style-type: none"> • Data as new oil • Structured data • Information infrastructures | Tieto case | |
| 4. Artificial intelligence and skill maintenance | | Readings:
Asatiani et al. 2021
Kaplan & Haenlein 2019
Raisch & Krakowski 2021
Rinta-Kahila et al. 2023 |
| <ul style="list-style-type: none"> • Machine learning-infused systems • Explainability • Deskillling | Nokia case | |

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Course schedule

Week	Date	Topic	Readings
1	23.10.2023	L1 Introduction, assignments, course content, IT Business value	Melville et al. 2004, MISQ
	25.10.2023	L2 Governance1 - Technical debt and digital options	Woodard et al. 2013
	27.10.2023	L3 Governance2 - Legacy systems	Rinta-Kahila et al. 2023
2	30.10.2023	L4 Governance3 - Outsourcing	Gambal et al. 2022
	1.11.2023	L5 Governance4 - Virtual organizing	Dube & Robey 2008
	3.11.2023	E1 Governance5 - Case Kluuvin Apteekki	Case1: Kluuvin apteekki
3	6.11.2023	L6 Data1 - Information Infrastructures & Data-driven decision making	Grover et al. 2018
	8.11.2023	No class	
	10.11.2023	E2 Data2 - Structured data & E-invoicing	Case2: Tieto
4	13.11.2023	Self-study week - Tieto Negotiations	
	15.11.2023		
	17.11.2023		
5	20.11.2023	L7 Artificial intelligence1 - Introduction	Kaplan & Haenlein 2019
	22.11.2023	L8 Artificial intelligence2 - Explainability	Asatiani et al. 2021
	24.11.2023	E3 Artificial intelligence3 - Case Nokia	Case3: Nokia
6	27.11.2023	L9 Artificial intelligence4 - Skills	Rinta-Kahila et al. 2023b
	29.11.2023	E4 Tieto case presentations	
	1.12.2023	Course synthesis	

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Course evaluation

- **Individual work 60%**
 - Exam (individual) 40%
 - Exam week at the end of Period II
 - Reflection paper (individual) 20%
 - Kluuvin apteekki
 - Dead-line 10.11.2023 at 5 pm
- **Cases (in a case group) 40%**
 - Tieto case 10% + 10% negotiation
 - Dead-line 24.11.2023 at 5 pm
 - Nokia case 20%
 - Dead-line 1.12.2023 at 5 pm
- **Participation to a student panel discussion**
 - Pass/fail

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Case groups

- Please note that on this course, the number of case groups is limited
- This is because we will conduct group negotiations and for doing this in a structured manner, we need to have a fixed number of groups
- You might, therefore, need to accommodate additional students to your case group, and, thus, need to work with students that you do not know

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Student panels

Article 1 (Woodard et al. 2013):	Article 2 (Rinta-Kahila et al. 2023):	Article 3 (Gambal et al. 2022):	Article 4 (Dube and Robey 2008):
Ali Amaan	Leonie von Bismarck	Gaja Intorcía	Artturi Kaskimäki
Anselmi Aumo	Emmi Gutvillig	Emilie Jensen	Essi Kivelä
Nataliya Barabash	Jarno Halme	Kim Jokinen	Fabian Klemm
Nicholas Bergius	Joni Helminen	Linda Jokinen	Julita Koski
Marie Christ	Helmi Huttunen	Anniina Jonasson	Tiia Kynsilehto
Frans Eurasto	Hannu Häikiö	Konsta Juvani	Milja Laine
Anton Fagerholm	Simon Häußler	Szabina Jäkl	Trang Lê Forsell
Tuomo Filatow	Emma Ignatius	Timo Kaiser	Leo Lehtinen
Lorenzo Frigerio	Francesco Ingenito	Wing Yin Kam	Enni Lähde
Nea Höynälä	Lena Oettle		
Tuomas Willberg			
Article 5 (Grover et al. 2018):	Article 6 (Kaplan and Haenlein 2019):	Article 7 (Asatiani et al. 2021):	Article 8 (Rinta-Kahila et al. 2023b):
Michele Makiki	Erick Ortiz Pelaez	Marco Schaaf	Vilho Tuomisto
Mira Merinen	Ifrah Osman	Juulia Sillanpää	Iiris Varhe
Tea Mertaniemi	Iisa Paananen	Saara Soikkeli	Justus Velmans
Roger Niggli	Antti Pentikäinen	Eero Suikkanen	Yifan Wang
Riku Nikama	Sara Pirhonen	Tuomas Takanen	Annika Winter
Onni Nousiainen	Tiia Rantanen	Katja Talvela	Tung Ho Yeung
Jonatan Nuutinen	Philip Rentto	Sini Torasvirta	Wivi Koenkytö
Eveliina Ollikainen	Simon Roussel	Xuân Tran	
	Rose Rusanen	Jenni Tuominen	

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