Strategic IT management - 37E00200

Introduction

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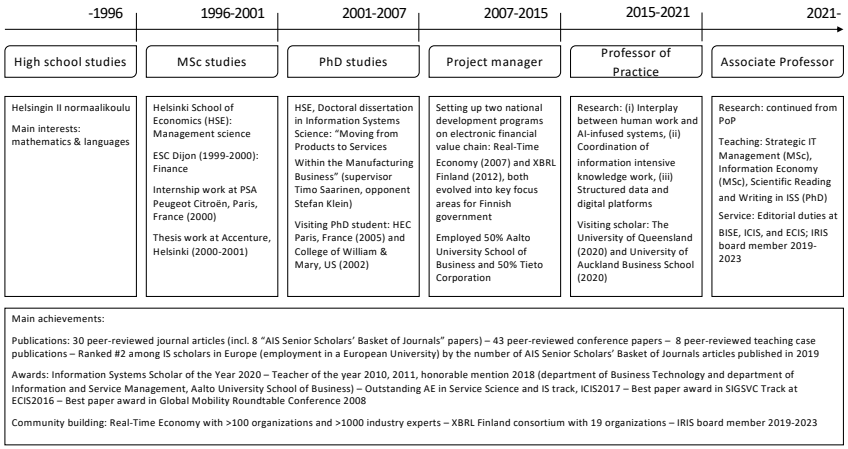
Esko Penttinen



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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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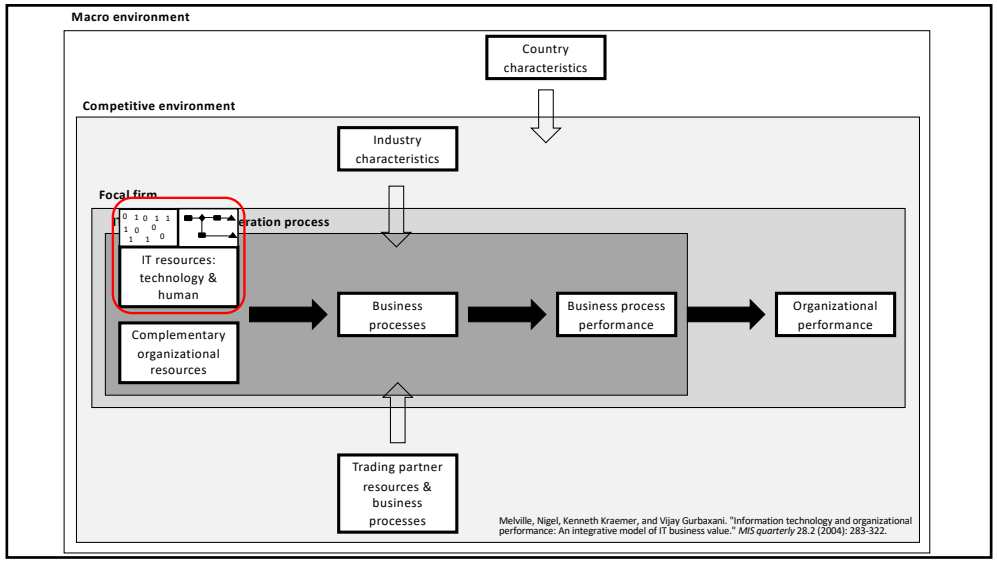

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Sociotechnical approach to information systems

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

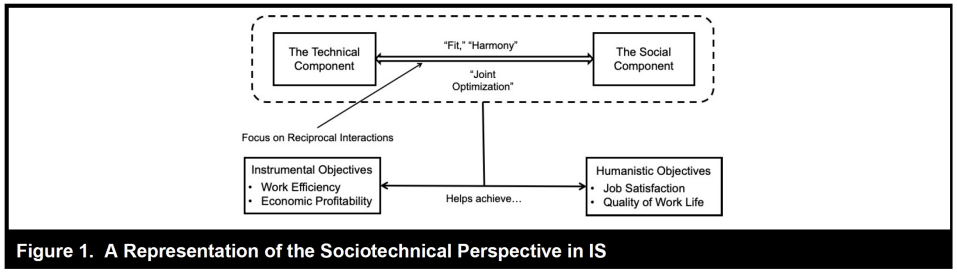

Figure 1. A Representation of the Sociotechnical Perspective in IS

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 ≠ profitability ≠ consumer value ≠ 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 • Business value of IT		Reading: Melville et al. 2004
2. Governance of IT • Technical debt and digital options • Legacy systems • Outsourcing • Virtual organizing	Kluuvin Apteekki case	Readings: Woodard et al. 2013 Rinta-Kahila et al. 2023 Dube & Robey 2008
3. Data-driven decision making – the IT perspective • Data as new oil • Structured data • Information infrastructures	Tieto case	Readings: Grover et al. 2018 Kallinikos et al. 2013
4. Artificial intelligence and skill maintenance • Machine learning-infused systems • Explainability • Deskilling	Nokia case	Readings: Asatiani et al. 2021 Kaplan & Haenlein 2019 Raisch & Krakowski 2021 Rinta-Kahila et al. 2023

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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):
Ali Amaan
Anselmi Aumo
Nataliya Barabash
Nicholas Bergius
Marie Christ
Frans Eurasto
Anton Fagerholm
Tuomo Filatow
Lorenzo Frigerio
Nea Höynälä
Tuomas Willberg

Article 2 (Rinta-Kahila et al. 2023):
Leonie von Bismarck
Emmi Gutvilig
Jarno Halme
Joni Helminen
Helmi Huttunen
Hannu Häikiö
Simon Häußler
Emma Ignatius
Francesco Ingenito
Lena Oettle

Article 3 (Gambal et al. 2022):
Gaja Intorcia
Emilie Jensen
Kim Jokinen
Linda Jokinen
Anniina Jonasson
Konsta Juvani
Szabina Jäkl
Timo Kaiser
Wing Yin Kam

Article 4 (Dube and Robey 2008):
Artturi Kaskimäki
Essi Kivelä
Fabian Klemm
Julita Koski
Tiia Kynsilehto
Milja Laine
Trang Lê Forsell
Leo Lehtinen
Enni Lähde

Article 5 (Grover et al. 2018):
Michele Makiki
Mira Merinen
Tea Mertaniemi
Roger Niggli
Riku Nikama
Onni Nousiainen
Jonatan Nuutinen
Eveliina Ollikainen

Article 6 (Kaplan and Haenlein 2019):
Erick Ortiz Pelaez
Ifrah Osman
Iisa Paananen
Antti Pentikäinen
Sara Pirhonen
Tiia Rantanen
Philip Rentto
Simon Roussel
Rose Rusanen

Article 7 (Asatiani et al. 2021):
Marco Schaaf
Juulia Sillanpää
Saara Soikkeli
Eero Suikkanen
Tuomas Takanen
Katja Talvela
Sini Torasvirta
Xuân Tran
Jenni Tuominen

Article 8 (Rinta-Kahila et al. 2023b):
Vilho Tuomisto
Iiris Varhe
Justus Velmans
Yifan Wang
Annika Winter
Tung Ho Yeung
Wivi Koenkytö

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