



RISKS IN ERP PROJECT - case study of IS/ICT management capability maturity level and risk assessment

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Background

- ERP projects are often considered risky and expensive
- ERP has in many cases a strong influence on company's operations – and company operations to ERP choice
- ERP systems utilized by smaller companies are more often Commercial-Off-The-Shelf (COTS) type of software
- Goal in the ERP project is to select a software that fulfills the company needs – business needs
- Companies have various management capability maturities and this affects ERP project



Goal of our study

- How to identify and assess ERP project risks and what is the effect of IS/ICT capability maturity level to ERP project risks?
- We compared generic risk lists and our own risk identification and assessment methods
 - No generic risk list as a basis in our study
 - We tried to find out company specific ERP risks
 - We compared our own risk list and assessment generic list (Sumner 2004) and searched differences
- Is there a possibility to miss some critical risks if you use generic risk lists?



IS/ICT management capability maturity level

- Renken (2004) mentions seven IS/ICT capability maturity indicators
 - IS/ICT applications i.e. how they are utilized (3)
 - Business-IT relationship i.e. inter-organizational relationship (5)
 - IS/ICT strategy alignment, meaning if IT strategy exists and whether it is aligned with business strategy (4)
 - IS/ICT user profile i.e. the IT skills of the personnel of a company (3)
 - IS/ICT managerial paradigm i.e. focus of ICT management (4)
 - IS/ICT governance i.e. if a predefined IT management process exists and how well it is established (5)
 - IS/ICT organization i.e. IT organization form and IT management level (4)
- Each indicator has three to five maturity stages, these are mentioned in the list



ERP Risk theory

- Taylor (2005) studied ERP project managers at suppliers side
- Amoako-Gyampah (2004) presented ERP implementation factors from managerial and end-user perspectives
- Huang et al. (2004) presented a framework for risk assessment in ERP project
- Tatsiopoulos et al. (2003) stresses the strategic nature of ERP implementation especially in the early phase
- Wright&Wright (2002) bring up the importance of risks in ERP implementation as also Sumner (2000)
- Zafiropoulos et al. (2005) created an application for risk management in ERP project
- Yang et al. (2006) applied the ideology of FMEA in ERP project
- Sumner (2004) made a risk list of IS & ERP risks



ERP Risk theory

- Risk list of Sumner (2004)
- ERP risks - IS risks = ERP specific risks
- In Sumners research project managers were interviewed
- Companies were all from Fortune 500 list
- We used the list of Sumner to compare our method and generic ERP risk list

Risk category	Risk factor
Organizational fit	Failure to redesign business process Failure to follow an enterprise-wide design, which supports data integration
Skill mix	Insufficient training and re-skilling Insufficient internal expertise Lack of business analysts with business and technology knowledge Failure to mix internal and external expertise effectively Lack of ability to recruit and retain qualified ERP systems developers
Management structure and strategy	Lack of senior management support Lack of proper management control structure Lack of a champion Ineffective communications
Software systems design	Failure to adhere to standardized specifications which the software supports Lack of integration
User involvement and training	Insufficient training of end-users Ineffective communications Lack of full-time commitment of customers to project management and project activities Lack of sensitivity to user resistance Failure to emphasize reporting
Technology planning/integration	Inability to avoid technological bottlenecks Attempting to build bridges to legacy applications



Research method

- Risk analysis was part of ERP system requirements analysis (C-CEI-method, Vilpola et al. 2007)
- About risk study method
 - List was made in close interaction with company representatives
 - Iterative method
 - Risk assessment in co-operation with employees
 - Risks in three phases selection, implementation and maintenance & development



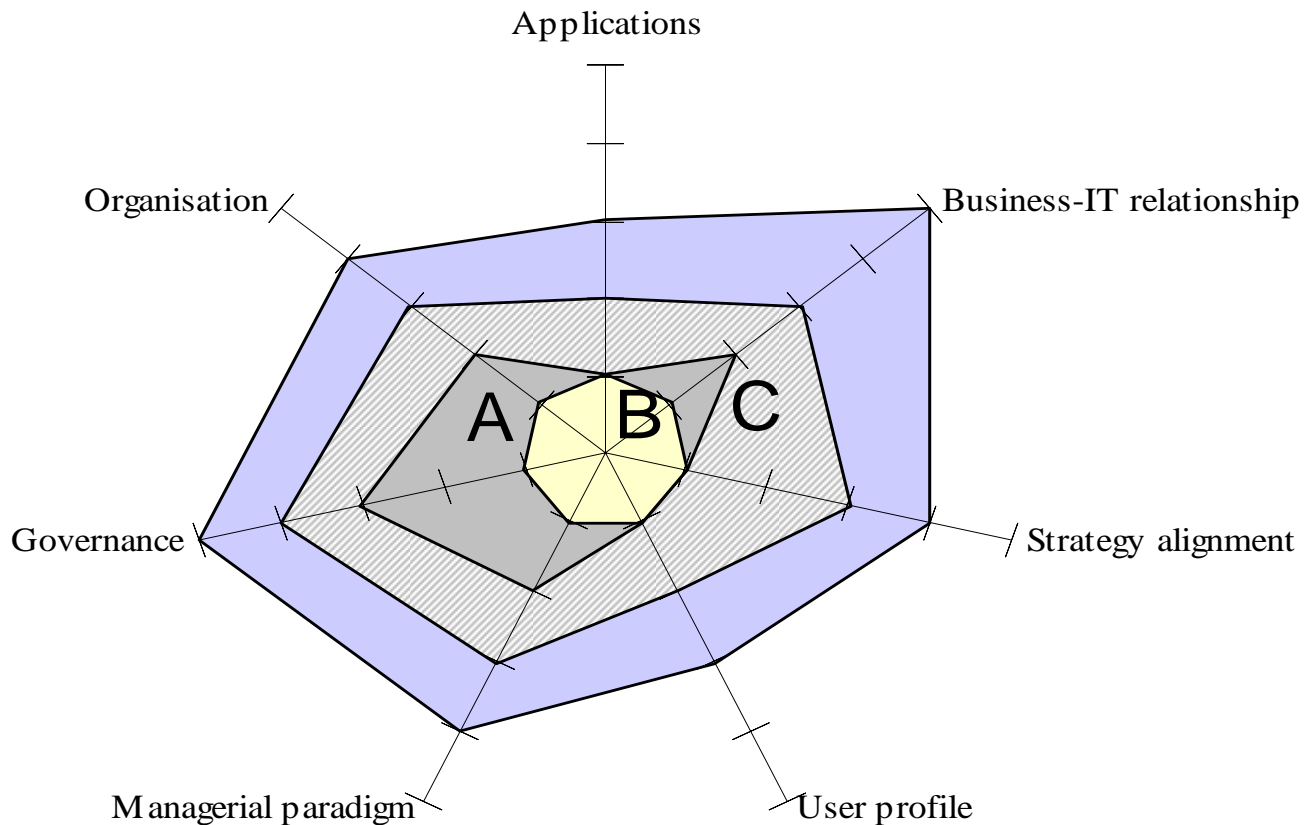


Three case companies

- Firm A: Manufacturer of a complex chemical product
 - Production phases differ and include process production and batch production
 - Approx. 200 employees, committed and performing rather well with MS Excel and paper notebooks + current MRP system
- Firm B: Project oriented company in the field of 'industrial insulation'
 - Installation work at customers site and parts production
 - Under 100 employees, mostly workers on different sites
 - Low usage of computers and significant change resistance
- Firm C: Project oriented company in 'industrial instrumentation'
 - More technically oriented company, more IT systems
 - Many different systems in use, manual information work in updating all systems
 - Firm consists of different business units that have different need for systems



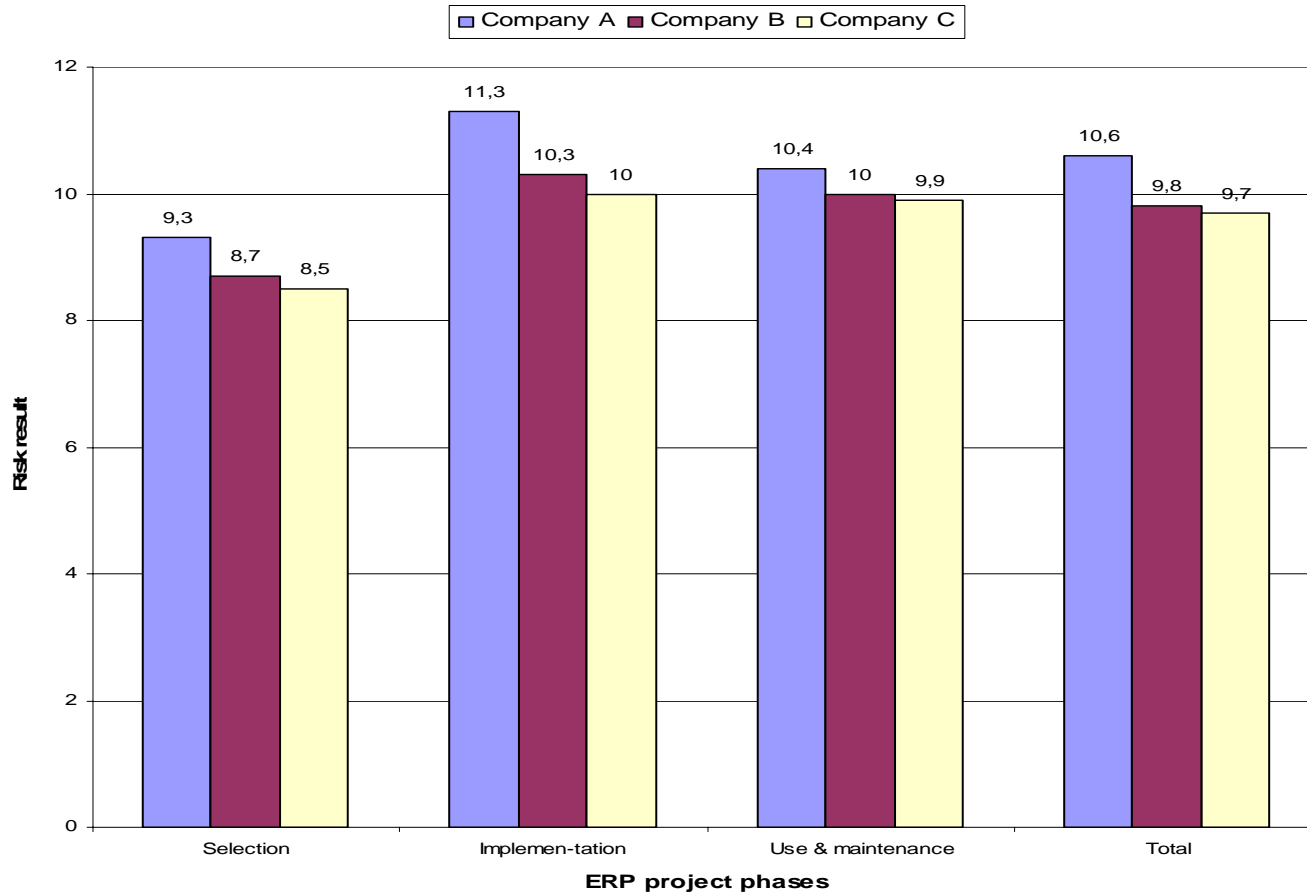
IS/ICT capability maturity radar chart with footprint of companies





Averages of risk product (probability*effect)

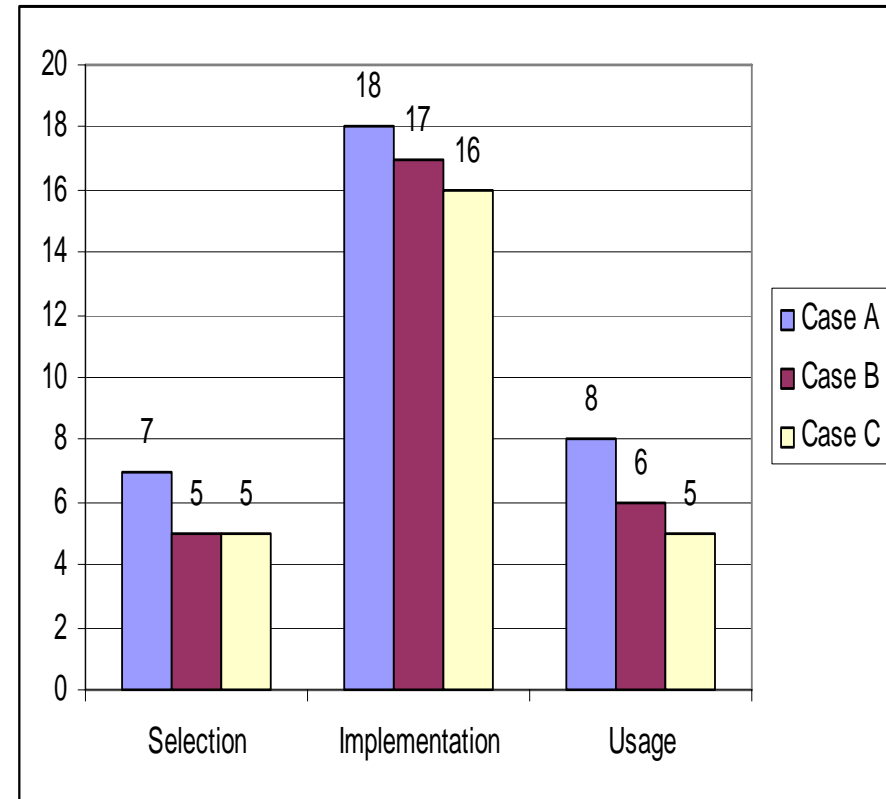
(in our study the scales were from 1 to 5, 1 being low and 5 high → maximum risk product $5 * 5 = 25$)





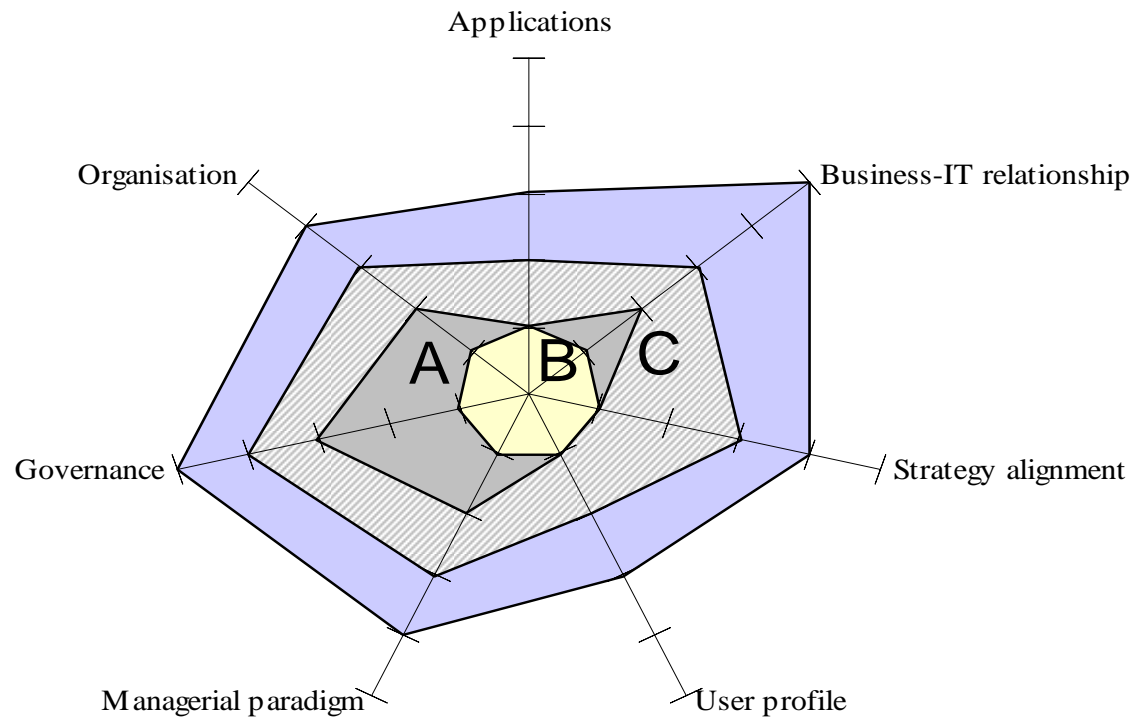
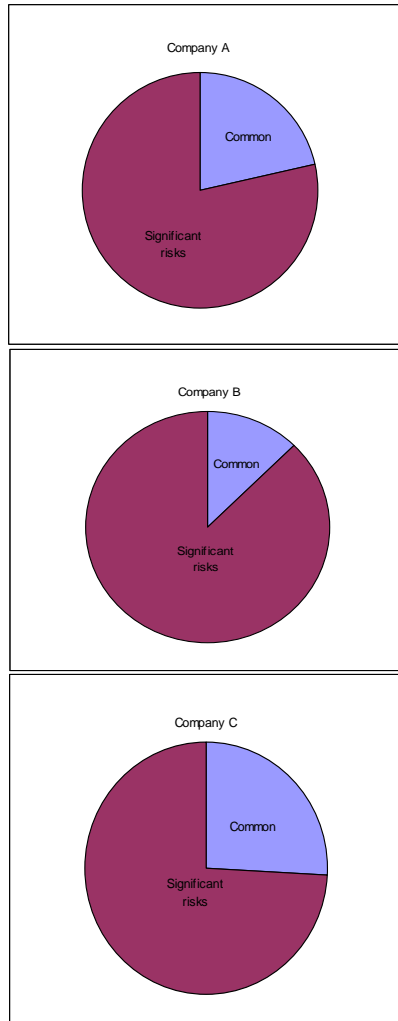
Results

- Risk product ≥ 12
- Sumner and our risk list \rightarrow 8 common risk
 - Failure to redesign business processes
 - Failure to follow an enterprise-wide design which supports data integration
 - Lack of senior management support
 - Lack of management control structure
 - Lack of integration
 - Insufficient training of end users
 - Lack of full-time commitment of customers to project management and project activities
 - Attempting to build bridges to legacy applications





Analysis of common risks in cases





Conclusions

- When using common risk lists some significant risks may be forgotten
- Common risk lists are usually based on studies in large companies
- In pies presented the firms estimated these risks as significant and only a small part of them were in common list
- Companies with lower management capability maturity levels had more company specific risks → these might have problems with common risk lists