Outsourced Strategic IT Systems Development Risk

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Outline

- Introduction
- Method
- Risk framework
- Application of Conceptual Risk Framework
- Findings
- Conceptual Outsourced Strategic IT Development Risk Framework
- Future Research
Introduction

- Primary objective
  - Investigate risks from client perspective & strategic IT system development outsourcing
    - most likely to cause failure
    - develop & test framework

- Strategic IT System Development Outsourcing
  - Organization is a client contracting to vendor(s) development of overall or significant part(s) of strategic IT system.
Method

- Define strategic IT
- Review risks from Risk Mgmt. literature (IT development, strategic IT & IT outsourcing)
- Evaluate against project failure cases
- Develop framework
- Conduct case studies to validate

FRAMEWORK OF RISKS
- Associated with client & vendor
- Associated with project
Risk Framework

• Client & vendor
  • organizational environment
  • team
  • users

• Project
  • complexity
  • contract
  • financial
  • legal

• Process
  • scope & requirements
  • planning & control
  • execution
Application of Risk Framework to Documented Failed Outsourced Strategic IT Cases

- **Case 1**: CONFIRM (Travel Reservation System)

- **Case 2**: Delta IS (ERP & warehouse management system)
  - (1994 – 1996) Project bankrupted the company

- **Case 3**: Call center & CRM
  - (2000 – 2006) Project completed after client subsidiary took over
  - Litigation still continues with the original vendor EDS
Case 1 - Confirm travel reservation system

- Joint Venture
  - Budget Rent-a-car, Marriot & Hilton Hotels, AMRIS

- Reservation system - expected to outpace competition in hotel & car-rental industries

- Customised version marketed for profit to other hotel & car-rental companies

- Not $55.7 million but $125 million

- AMRIS sued & 3 partners countersued

- Settled out of court after 2 year’s litigation
Case 1-Confirm travel reservation system

- **large-scale, state-of-the-art system** for three separate industries –
  - travel, hotel & car-rental – a **highly complex task**
- either **failed to develop clear requirements** or **failed to communicate clearly requirements**
- AMRIS alleged client changed approved plan for common reservation system
  - three separate reservation systems.
  - **changes to requirements continued** long into development
- **technical & performance problems** - 60 applications required application-to-application bridging
- **design errors** left database unrecoverable & failure to complete several applications
- developers technically skilled but **significant integration** too overwhelming & demanding to complete within deadline
- **quality assurance & control on project deliverables lacking**
  - bugs were unresolved hopes in later phases
- completed deliverables not verified & AMRIS refused to show or explain status
- **schedules & cost estimation unrealistic** because of amount & complexity of work
Case 1-Confirm travel reservation system

- AMRIS management project assured on time & budget
  - Employees believed schedules unrealistic but forced to comply
  - Those who refused re-assigned, resigned or fired

- AMRIS management acted dishonestly & unethically (vendor’s moral hazard) by:
  - Enticing partners with promises of unrealistically low cost & short schedule, when real requirements not known
  - Misrepresenting financial realities; some financial statements fabricated, costs understated & number of reservations overstated
  - Deliberately concealing important technical & performance problems
    - actual status of project not disclosed in timely manner, creating deeper ethical & financial problems - client partners misled
  - Pressuring employees to revise dates to reflect unrealistic schedules & firing them for being up-front about the problems
  - AMRIS lost many team members during project
    - almost half of the CONFIRM team members were looking for new jobs
Case 1-Confirm travel reservation system

- most serious risks
  - complexity, requirements, planning & control, execution & team
- major execution risk - unresolved deep-rooted technical problems
- impractical deadlines & budget without considering or understanding project scope & resources required
- clients must realize consequences of late requirements changes to scheduled delivery & costs
- "vendor’s moral hazard"
  - expectations that vendor will provide required service & behave in professional manner
  - signs to alert the client
    1. several missed deadlines, yet vendor still assured on-time completion
    2. complex system design
    3. vendor refusal to show or explain status
    4. loss of team members who left project in droves or redeployed elsewhere
- client poor project tracking & oversight
  - how & when to check project progress & intervene critical to project health.
- faulty client authority system
  - ineffective governance structure, & unclear roles & responsibilities
Case 1: CONFIRM Travel Reservation System
Case 2: Delta IS (ERP & warehouse management system)

- FoxMeyer Drug Corp
  - enterprise wide software & warehouse management system
- planned to cost $65 million
  - expected to save $40 million annually; system’s total cost reached $100 million; completed late & saved less than half projected $40 million
- complex
  - integration of client-server R/3,
  - with enterprise-wide financial & logistics software supplied by SAP,
  - with warehouse management system supplied by Pinnacle Automation;
  - client-server hardware supplied by Hewlett-Packard,
  - & vendor appointed systems integrator was Andersen Consulting.
- FoxMeyer filed for bankruptcy 1996
  - most R/3 modules were rolled out to six of 23 warehouses.
- in 1998, bankruptcy trustee sued Andersen Consulting & SAP for $500 million each
  - 6 years later trustee & Accenture settled out of court 2002
  - SAP reached out of court settlement with FoxMeyer 2004
Case 2: Delta IS (ERP & warehouse management system)

- many factors traced to beginning of project.
- **unrealistic expectations** of technology & benefits.
  - Reflected in scope, choices of technology & several other top management decisions made later in project.
- **large-scale project** - massive overhaul of computer systems at same time,
  - new warehouse-automation system to handle orders at new warehouse. Two **highly complex functions to be automated**.
- two different vendors SAP R/3 was **relatively new technology; never been used to manage large wholesale distributor**
  - lacked extensive functionalities for high-volume, complex-pricing wholesale distribution
- also, **state-of-the-art warehouse system** - 80% of outgoing orders automatically from shelves
  - high level of automation unlike any other systems at the time
- **real-time integration & significant customization** increased **technical complexity**
- 18-month **schedule unrealistic**, & deadline pushed earlier to **accommodate huge & important five-year contract** worth $1 billion-a-year.
- **technical & performance problems**, inadequate for processing large volumes of transactions; only 10,000 customer orders per night, instead of 420,000
Case 2: Delta IS (ERP & warehouse management system)

- frequent equipment breakdowns, interfacing complexity
- employee change management inadequate
  - experienced workers at older warehouses began leaving
  - unhappy departing workers damaged inventory
- conflicting system requirements contributed to difficulties as well as later requirement changes
- 70 analysts & programmers from Andersen Consulting
  - many lacked technical skills
- SAP lacked experience & expertise with R/3 implementation in wholesale distribution
  - project "training ground" for Andersen’s trainees, & R&D project for SAP”. Both accused of overstated or oversold capabilities
- no indication FoxMeyer had proper structure at high level to govern or oversee project
- lack of in-house personnel with technical skills & knowledge to ensure ERP system & warehouse-automation software would work together
- problems with tracking & monitoring progress.
  - FoxMeyer failed to carefully plan & control project
Case 2: Delta IS (ERP & warehouse management system)

- client & vendors both responsible for failure
- highlights factors in our framework –
  - organizational environment
  - complexity
  - requirements
  - planning & control
  - execution
  - team
  - user
- several other important risks not present in previous case
  - unrealistic expectations of power of technology
    - strategy to use technology to solve all its problems
  - highly ambitious & complex project
  - change in the business environment, with new contract, changed focus part way through
Case 2: Delta IS (ERP & warehouse management system)

- technical errors & system performance problems evident
  - use of new technology
  - high level of technical complexity
  - lack of technically skilled & knowledgeable client personnel to ensure the system works
  - risk of overstated claims by vendors regarding performance of packages & capabilities.
  - negotiation for risk sharing & rewards for early adoption.
  - tactic of using client project as a “training ground” prevented if contract included details of vendors’ staff & if project had been closely supervised & managed by clients.
  - close project tracking & oversight by client lacking.

- poor project planning by client resulted in requirements problems, quality assurance & control, employee change management, reengineering, estimation & governance
Case 2: Delta IS (ERP & warehouse management system)
Case 3 BSkyB

- Call Center & Customer Relationship Management
  - cutting-edge CRM system; respond quickly to fast changing customer demands & also to lead customer service innovation, & maintain customer retention
- EDS system integrator, appointed on time & materials basis
- design, develop, & implement a CRM system built around
  - Sun Microsystems hardware &
  - Chordiant Software’s CRM software
  - with intelligent communications system provided by Lucent Technologies
    - Lucent Technologies responsible for design & installation of advanced communications solution at the two contact centres.
- estimated - 18 months; but with vague requirements unrealistic; 2 years later EDS handed over system integrator responsibilities to BSkyB subsidiary, but stayed on for consultancy support
- 6 months later, EDS pulled out completely & contract ended.
- initial baseline budget of around £48 million but when terminated, £170 million spent on software, systems integration, infrastructure costs, & remodelling of contact centre facilities
- ultimately took six years & cost £265 million.
- BSkyB claimed £709 million October 2008
Case 3 BSkyB

- factors leading to unsuccessful contract beyond disagreements in terms & conditions of contract
- ran into difficulties in initial 12 months.
- large-scale project
- level of integration & technical complexity of significant
  - Chordiant infrastructure with intelligent communications system, new billing system, & multiple legacy systems including sales system, field management system, marketing system & customer database. The Chordiant software was a new technology; software industry's first end-to-end J2EE-standard CRM solution. Also reported to be only CRM platform, able to scale to millions of individual customers, & flexible enough to fit the enterprise.
- some systems successfully implemented by 2002; when contract ended project performing poorly with delays & extra costs
- no specific & clear project goals
  - former managing director says BSkyB made it clear from beginning that it wanted a flexible programme, with service providers adapting to needs along the way
  - acknowledged uncertainty in amount of work & cost involved but, as claimed by EDS, was determined to arrange things in a way that it paid as little as possible
  - BSkyB employed EDS on time-and-materials basis - ambiguities made it difficult to get clear requirements.
  - according to EDS, BSkyB took more than five months to select the system integrator & then took another four months to finalise the contract while producing only a preliminary specification.
Case 3 BSkyB

- Project scope & complexity amplified, **project requirements remained unclear & kept changing**
  - “main problem with this project was that it was wholly unspecified” & Sky's requirements "kept on emerging like handkerchiefs from a magician's sleeve." - a classic case of "scope creep".

- According to BSkyB, EDS **overstated or oversold their capabilities & unrealistically estimated resources required**

- BSkyB claimed EDS said it had resources, proven technology & methodology readily available to deliver solution within a suitable timescale & cost

- BSkyB’s claim on basis of incompetence, & “deceit & negligent misrepresentation” in EDS’ sales presentation & service agreement
  - Alleging fraud only way BSkyB could claim more than liability limit

- EDS denied claim, & attributed overruns to undefined project scope

- Appeared that EDS had **not demonstrated it had ability** to fully manage project & deliver on its promise.
  - EDS admitted that it had failed to deliver several aspects of the contract & was partly responsible for poor specifications later in project
  - An EDS project manager indicated project was in crisis stating **"poor initial customer expectations management as to EDS' delivery capability", "lack of required & requested resources across the programme", & "lack of experienced software developers within the CRM practice with successful track record of large scale integration programmes"**.
Case 3: BSkyB Call Center & CRM
Conceptual Outsourced Strategic IT Development Risk Framework

A1. Client & Vendor

B1. Organizational environment
- Change in organizational management
- Corporate politics with negative effect
- Different geographical locations
- Lack of top executive support
- Organizational restructuring
- Poor cultural fit between client and vendor
- Unstable business and organizational environment that affected the project

B2. Team
- Client IT lacks cooperation
- Client lacks trust
- Client unable to gain information
- Communication problems
- Conflict between client & vendor
- Divergent working styles
- Imperfect commitment
- Lack of experience & expertise with outsourcing
- Lack of experience & expertise with contract management
- Lack of experience & expertise with the project tasks
- Lack of required skills
- Loss of key employees
- Negative attitudes
- Size of team
- Vendor’s moral hazard
- Vendor’s overstated claims
- Conflict between users
- Large number of users (internals or externals) affected
- Lack of participation
- Non-willing users
- Unrealistic expectations

B3. User
Conceptual Outsourced Strategic IT Development Risk Framework

A2. Outsourced Strategic IT Development Project

B5. Complexity
- High level of technical complexity
- Highly complex task being automated
- Many vendors
- One of the largest projects attempted
- Significant integration & customization required
- Too much technological indivisibility
- Use of new technology
- Use of technology that has not been used in prior projects
- Failure to specify appropriate measures
- Failure to specify non-performance penalties
- Not flexible
- Neglect post-outsourcing
- Standard contract in favour of vendor
  - Time-and-materials based

B6. Contract
- Currency exchange fluctuations
- Hidden costs
- Insufficient reserves
- Standard contract in favour of vendor
- Time-and-materials based

B7. Financial
- Inadequate protection of intellectual property
- Privacy & security intrusion
- Socio-political instability
- Trade barriers
- Uncertainty about the legal environment
Conceptual Outsourced Strategic IT Development Risk Framework

- **A2. Outsourced Strategic IT Development Project**
  - **B9. Scope & Requirements**
    - Conflicting requirements
    - Gold plating or over specification
    - Ill-defined project
    - Inadequate requirements
    - Incorrect requirements
    - Unclear requirements
  - **B10. Planning & control**
    - Changing & creeping objectives/scope/requirements
    - Poor audit, quality assurance & control
    - Poor change management
    - Poor project leadership
    - Poor project management
    - Poor project planning
    - Poor systems of authority
    - Poor user expectations management
    - Project progress not monitored closely enough
    - Unrealistic estimation of schedule & required resources
  - **B11. Execution**
    - Incompatible development choices
    - Lack of readiness to implement
    - Logistical complications
    - Noncompliance with specified methodologies
    - Organizational change inadequately addressed
    - Technical/Performance problems
    - Technological discontinuity
    - Wrongly developed components
Findings

- Demonstrates utility & gaps in our framework
- Highlights critical risks in the context of outsourced & strategic IT system development
  - Organizational environment, team, complexity, contract, scope & requirements, planning & control, & execution
  - Underlines the most likely critical risks.
- Demonstrates connections & combinations of risks
  - Single risk will not likely to cause failure
  - Risk early in the project if not dealt with may give rise to certain risk causing an escalation of problems
Future Research

- More evaluation with documented failed outsourced & strategic IT cases
- Conduct additional case studies
  - Input from client organizations
  - Validate risk framework
  - Investigate clients’ strategies & practices to manage critical risks