Lecture Week 10

Strategic Information Systems Planning

ERP

Strategy

- art of war
- disposing resources
- impose on competitor the place, time and conditions of fight
- elements of strategic thinking:
  - timeframe - when
  - level of analysis – broad idea, specific project
  - orientation – direction - goal
  - justification - costs and benefits

Organizational Strategic Planning

- the development of appropriate business strategies
- there are various forms and modes of strategic analysis
  - SWOT analyses
  - contingency analyses
  - industry analyses
  - competitor analyses
  - product analyses

Strategic Directions

- organizational strategic directions can relate to:
  - organizational structures
  - inter-organizational relationships
  - product directions
  - marketing concepts
  - technological directions
  - organizational attitude: aggressive/defensive - settled/opportunist etc.
  - costs
  - processes

Hierarchy of Strategies

- organizational strategies (plus visions and missions) - eg
  - to be the industry leader
  - to dominate the Australian market
  - to lead the world in technical innovations
  - to win the America’s Cup (vision statement)
- business strategies
  - to attain a specified market share
  - to reach a specified profit level
  - to achieve specified product objectives
- functional strategies
  - to make the function more effective (efficient?)

Information Technology Strategies

- IT strategies are either functional or enabling strategies
- functional strategies
  - outsourcing
  - architecture-based strategies
  - data warehousing
- enabling strategies (business-oriented strategies)
  - business reengineering (business process redesign)
  - IT for competitive advantage
  - strategic information systems
  - electronic commerce
  - organizational transformation
IT Business-Oriented Strategies

- the three eras of IS
  - data processing and operational efficiency (to mid-1970s)
  - MIS and management effectiveness (to mid-1980s)
  - SIS and improved competitiveness (mid-1980s to now)
- the emphasis on business-oriented strategies is virtually unique to IT as a functional area
  - it is driven by the perception or belief that IT is an intrinsically strategic technology
  - numerous theories emerged which were designed to help organizations make strategic use of IT

ERP Software

ERP (Enterprise Resource Planning)

- ERP - integrated system solutions to standard business process issues
- SAP is the best-known company: US$4B+ pa
- Collectively the major vendors are known as the J-BOPS
  - J.D. Edwards
  - Baan
  - Oracle
  - PeopleSoft
  - SAP

ERP

- an outgrowth of the MRP II (manufacturing requirements planning) packages of the 1970s and 1980s
  - inventory management
  - scheduling system
- ERP packages add software for other functional areas
  - payroll
  - general ledger
  - personnel management
  - sales
  - etc. (in principle everything needed to run a business)

Standardisation - an information systems theme

- the issue of standardisation is a theme running through the IS discipline
- basic question: how far can the standardisation of business processes and business information be taken?
- ERP issues divide around the two alternative perspectives
  - to standardise or not to standardise

The Standardisation of Work

- the total automation is the end-point in a long-standing trend towards the standardisation of work
- much technology is about providing the environmental stability that people crave
  - making the trains run on time
  - having public systems (energy, communications) that work
- all of this provides a tremendous motivation towards standardising and routinising basic functions
### Information Systems

- IS work on the idea of routinising organizational behaviours.
- If a routine or program can be developed, the activity becomes repetitive and reliable.
- The availability of the technology provides an ongoing motive to routinise more and more business processes.
- Philosophical debates centre around what or who is in control - are humans following a technological imperative?

### Organizational Dilemmas

- Standardisation is (of course) the enemy of variety and the enemy of the exception.
- Efficiency drops when exceptions are allowed.
- The organizational problem which arises is: when and where can variety be tolerated?
- Modern organizational dynamics are such as to encourage flexibility and variation (new products, new modes of doing business) - standardised work practices can become a straitjacket.
- In this way ERP dilemmas arise.

### ERP “Incentives”

- Y2K was a bonanza for the J-BOPS - many companies purchased and installed ERP because the packages were Y2K compliant.
- E-commerce and the Internet are the next challenge:
  - Middle managers are comfortable with ERP.
  - Senior managers less so as it is still difficult to pull focused and directly usable information out of the implemented packages.

### ERP Market Prospects

- Current market growth figures of around 37%pa but slowing a little.
- The long-term market for ERP software:
  - SMEs
  - E-commerce
  - ERP environments
- ERP opportunities will continue to arise in the context of mergers and acquisitions.

### ERP

- At the largest companies, ERP deployments take an average of ~23 months.
- The total costs range from $50M to $500M.
- SAP:
  - There are more than 25000 SAP R/3 installations worldwide.
  - The package is available in 24 languages including Japanese.

### ERP Benefits

- Integrated systems (standardised information).
- The reengineering of business practices.
- The reengineering of the corporate culture.
ERP - Functional Areas
• ERP solutions are best adapted to areas of functionality where
  – industry-wide standards are reasonably well-established
  – functional requirements are likely to be stable in the long-term
  – the organization does not have idiosyncratic requirements of its own
• these areas include
  – payroll
  – general ledger
  – financial accounting
  – inventory management

ERP
• factors to consider when adopting ERP are those applicable when acquiring any software
  – total costs (purchase, implementation, training, maintenance, support)
  – the functional fit with organizational processes
  – the level of integration desired/achievable
  – complexity and user friendliness of the system (training)
  – speed of implementation
  – ability to support multiple sites and workstations
  – level of technology dependence
  – upgrades
  – level of customization required
  – level of support required/available
  – availability of reference sites
  – quality of the vendor
  – the effects on the organizational knowledge base

Implementing ERP Software
• the organization must be “matched” to the software
• requirements include
  – parameterisation (SAP has ~ 8000 switches to be set as part of the configuration process)
  – training and retraining
  – education
  – process redesign (the physical components need to be brought in line with the package)
  – some level of organizational restructure may (will) be necessary

ERP Implementation - the existing organization
• implementation planning must allow for user resistance as part of a very complex program of training and education
• numerous problems can arise when the package conflicts with the existing culture
  – eg (a farm implements manufacturing company)
  > the previous information flow was slow (there was no great pressure on the supply chain)
  > there was therefore plenty of time to correct errors
  > tight integration meant that errors “rippled through” the company much faster and in practice tended to magnify small and unimportant errors

ERP Implementation Failures
• some major failures
  – Unisource Worldwide Inc (paper products - $788pa) wrote off $168M
  – FoxMeyer Drug Inc (drug distributor - $58) went bankrupt and filed a $500M lawsuit against SAP
  – Dell Computer Corp abandoned a SAP implementation half-way through
  – Dow Chemical spent $500M on SAP R/2 (mainframe-based version) and then scrapped it and started again with SAP R/3
• ERP has been said to stand for “early retirement probably”

Accelerated Roll-out
• ERP vendors are well aware of the implementation issue
• techniques and tools allowing accelerated roll-out are being developed and refined
  – Baan - business templates and wizards
  – J.D. Edwards - templates, wizards & development tools
  – Oracle - preconfigured modules are “bundled”
  – Peoplesoft - tools to allow rapid configuration
  – SAP - "Accelerated Solutions" program
“Vanilla” ERP

- rapid deployment programs come at the cost of functionality
  - “vanilla” ERP refers to the marketing of a stripped-down version of the total package (the company may only achieve 50%-60% of its original objectives)
- cuts down on maintenance, and speeds time to implementation and achievement of benefits
- “if we can function with vanilla, we go with vanilla” (IT director - Microchip Technology Inc.)

Customisation

- customising the ERP package is an alternative strategy - if the ERP system fits better with the previous systems, then implementation will be quicker
- customisation is possible because most ERP systems are modular designs - it is also possible to buy some components and not others
- configuration tables allow modules to be tailored to requirements to a limited extent
- customising the operating software is the next step up in both adaptation and risk

Customisation Risks

- with customisations, purchasers can fall behind in upgrades
- with Peoplesoft, if a company falls two or three releases behind, it loses vendor support
- vendors are aiming to achieve industry-standard best practice with their software (“companies-in-a-box”)
- the aim is to help customers reduce their requirement for customisation

Post-ERP Implementation

- three phases following installation of an ERP package were identified in a Deloitte Consulting survey (~100 firms)
  - the survey showed that, for almost every company surveyed, it was quite a long time before benefits started rolling in

Post-ERP Phases

- 1 3-9 month productivity decline
- 2 6-18 month period involving skills development, structural changes, process integration and add-on technologies
- 3 1-2 years where synergy of people, processes and technology peaks
  - ie - a company has to hang on through purchase, implementation, and the first two post-ERP phases to start achieving benefits - many companies do not appreciate this at day 1!

ERP in the Long-Term

- systems integration
- can an ERP package be an “instant legacy” system?
ERP Integration

- the number of interfaces required increases dramatically as the number of separate systems increases
  - 1 for 2, 3 for 3, 6 for 4 etc.
- middleware vendors providing integrating packages - at the data level or dynamically at the message level (enabling direct data-sharing)

“Best of Breed”

- not all ERP packages are equally good in all functional areas
- the basic choice is between best of breed (which may include internal systems) and ERP
- the price of the “best of breed” option is the traditional one of the interfacing overhead
- the advantages of “best of breed” are:
  - expertise (greater as specialised)
  - time (quicker to implement because more focused)
  - choice (more options at the single system level)

ERP Competition (1)

- there is intense competition in the “midmarket” for smaller firms’ (revenue $2M-$250M) custom
- traditional ERP suppliers are looking to provide “small” solutions to counter the perception their s/w requires radical organizational change
  - the preferred option is to develop less costly prepackaged versions able to be implemented in weeks not months

ERP Competition (2)

- PC-based accounting s/w suppliers in contrast are expanding upmarket (MYOB and others)
  - client/server solutions
  - they are including manufacturing, distribution and other suites with their original accounting packages
- one of their assets is their network of resellers and integration partners - these additional sales channels provide a big advantage over ERP vendors following a direct sales model

Legacy Systems

- the term is used in the sense of something handed down from a previous generation (generations of programming languages, operating systems, hardware etc.)
- legacy systems constitute a problem which highlights a number of other issues discussed throughout the course
  - IT economics
  - IT infrastructure
  - systems provisioning issues
  - outsourcing and ERP as solutions

System Replacement

- system replacement strategies pose some quite intractable problems
  - standard methods for cost-benefit calculations do not help much with the justification for replacement
  - legacy systems are expensive and their replacement is often an unattractive use for spare assets (Y2K)
  - as long as they are around they
    > tie up key operations and support people
    > lock the organization into past behaviour patterns *** (discussion)
    > require a continuing investment in old technology no longer supported by the relevant vendors (an analogy can be drawn with the motor vehicle and spare parts industries)
Maintenance and Support

- providing support for legacy systems is not an attractive IT career option
- maintaining an appropriate skill level is a key requirement for internal or outsourced IT units

References

- Turban, Leidner, McLean, Wetherbe Chapters 7 and 12.