Lecture Week 6

• (1) information technology economics
• (2) presentations set 1
• (3) presentations set 2

Information Technology Economics

• “economics is economics” as some wise person probably once said

• IT economics is primarily economics rather than IT
  – there are just a few idiosyncratic issues that we will look at here
    • basically this is a gloss on the economics and accountancy knowledge you already have
an endemic issue (also key, also critical)

- I fiddled here choosing between words like “fundamental” and “endemic” and “critical” and “difficult.”
- endemic because it recurs repeatedly as if it is a new problem
  - it is that a lot of IT expenditure has “infrastructural” characteristics, a problem plaguing many privatised industries in particular
  - it has no obvious benefits beyond being a kind of cross between “necessary” and “desirable”
  - it is just very difficult to justify on its own terms and hence can be shelved more or less indefinitely (see California power supply literature for an exemplar)

Costs and Benefits

- IT and IT-related costs can be measured though many organizations are not particularly rigorous in doing so
  - enterprise system initiatives for example
- monitoring and calculating benefits is far more difficult and many organizations simply don’t bother
  - IT is essentially a costs-driven function

Rigorous Costing

- benefits have been “the” area of theoretical interest
- costs issues that tend to be marginalized or ignored
  - staff-related costs (retraining etc.)
  - costs of consequent inefficiencies (“exception” overheads)
  - training/retraining costs
  - deskilling costs
  - conversion costs
IT as a Cost Centre

- some organizations do attempt to get right on top of IT (ICT) economics, and there are always theoretical developments in this area
- the fundamental problem is one of determining whether there is a causal relationship between IT investment and organizational performance
  - IT roles are best conceptualized as infrastructural
  - numerous studies have produced ambiguous results (at best)
  - in practice, interrelationships are the critical issue

Formal Processes

- the extent to which organizations rely on formal processes to manage IT economics will vary from company to company
- formal processes include
  - preparation of business cases to support IT investment proposals
  - cost/benefit analyses before and after implementation
  - internal IT charging processes (service level agreements (SLAs))
  - preparation of IT unit operating accounts and balance sheets
  - contracts with external suppliers (outsourcing arrangements)

Levels of Analysis

- there can be several levels of complexity in relation to IT economics
- issues can arise at
  - the organizational level (the portfolio level)
  - the functional level (ie - concerning IT effectiveness in functional terms)
  - the single project (application) level
IT Funding

- the bulk of IT funding in organizations is “spoken for” in advance
  - almost all the literature is more concerned with discretionary funding for new initiatives and this can be a little misleading
  - in a yearly budget, most funds are committed in advance to operating costs, outsourcing arrangements, scheduled upgrades and the like

IT Operating Costs

- general infrastructure
  - hardware (servers etc.)
  - power
  - network
- operational business systems
  - extensions and upgrades
  - processing costs
- support
  - network planning and management
  - desktop
  - end user
  - user training
  - staff training

Strategic IT Costs

- strategic IT investments involve the allocation of discretionary funds
  - complicated by the fact that most IT expenditure is current not capital
- investing in IT requires a strategic justification
Types of Benefit

- **tangible:**
  - you can “see” the improvement (eg - better communications)

- **intangible:**
  - “abstract” benefits (eg - internet presence to avoid a competitive deficit)

- **monitorable**
  - the benefits can be quantified (eg - increased rate of transaction throughput)

- **non-monitorable**
  - the benefits can’t be measured (eg - better communications)

  *essentially a standard-grade 2*2 matrix*

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the Problem for Practice

- cost-benefit calculations are all very well but
  - the costs are mostly concrete, and the benefits are mostly soft
  - justifications are more and more on the grounds of strategic necessity, with the implication of improved efficiency

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Strategic Dependencies - a Small Example

- most of the theory in this area deals with benefits rather than the full range of implications
- but the way IT industry arrangements are changing has meant that some investments have other strategic implications
  - MYOB and Quicken have tied access to new tax tables (freely available from the Tax Office) to costly annual software upgrades
  - *The Age, August 10*
Efficiency vs Effectiveness

- early IT investments on grounds of efficiency
- a shift during the late 1970s-early 1990s to effectiveness
- since then a shift back to efficiency (ERP systems etc.)
  - “e-” investments initially experimental, then necessary

“Effectiveness” Concepts

- improved customer service
- gaining competitive advantage
- more timely management information
- supporting core business functions
- avoiding competitive disadvantage
- improved management information
- improved product quality
- improved internal communications
- change through innovation
- improved external communications
- job enhancement for employees
  - Robson 1997, quoting a 1991 survey

NB - these all look “real” enough yet the benefits are impossible to quantify in most cases

The IT Business Plan

- the IT business plan is now usually a component of the total business plan
- IT has limited opportunities to influence that outcome
  - IT area are in large part constrained to do what the rest of the organization wants them to do (alignment)
  - flexibility is possible in relation mainly to areas that are clearly IT responsibilities (eg - the computing/network infrastructure)
Long-Term Investment

- long-term investments are very difficult to justify in the IT context
  - many IT initiatives still do require a long time-frame
    - developing an e-business stream
    - installing an ERP package
    - restructuring supply chains
  - the longer the timeframe, the more speculative are the benefits claimed: as a consequence (eg)
    - it is still common for many e-business initiatives to be seriously under-funded

“Short-termism”

- theorists have tended to blame managers for excessively short-term perspectives
- there are a number of rational concerns which encourage managers to think that way however
  - doubts about the benefits
  - fears about the costs
  - doubts about the timeframe
  - concerns with environmental/technology change
  - orientation to the length of their contracts

A Fundamental IT Problem

- many strategic IT investments (eg. - really getting on top of the technical requirements for e-business) are difficult to justify in their own terms
  - the real benefits are deferred until the application that exploits the capability can be built and implemented
“Ripple-on” Effects

- two key concepts introduced by Parker & Benson to deal with this but they have never taken off in any general sense
  - value linking
  - value acceleration

Value Linking

- synergy effects from two overlapping initiatives
- an IT application may be designed to exploit changes made by a previous (or parallel) application
  - value linking takes these effects into account
- the careful planning of a sequence of activities will generate benefits over and above those achievable if the projects are run independently

Value Acceleration

- value acceleration is recognised when a particular activity creates a stronger base for subsequent activities
- eg - the creation of improved technology infrastructure may:
  - reduce the costs of many or all subsequent projects
  - provide a facility enabling the organization to implement business strategies not otherwise possible
Downstream Projects

• the Catch-22 is that managers proposing “downstream” initiatives do not see why they should have anything to do with the costs and benefits of past activities... i.e.
  – they should not have their cost allocation increased by previously sunk costs
  – they should not have the value of their proposal “eroded” through the allocation of benefits to other activities (either already completed or in progress)

Summary

• IT economics is a sunset of organizational economics

• the aim here has been just to highlight a few of the more interesting questions that have been raised by IT
  – as is generally the case, most organizations seem to be pretty pragmatic about the issues
  – it is arguable however that there is room for quite a bit of theoretical and practical progress to be made