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Financial issues

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Financial issues

- † To turn strategy into reality needs investment, and the support of senior management.
- † Therefore we need financial planning, and accounting procedures to measure costs and benefits.



Contents

- † some financial questions
- † spending on IT
- † cost/benefit analysis
- † the rising costs of IS
- † the value of information and systems
- † financial appraisal methods
- † what is used?
- † cost recovery for IS services

Financial issues in managing IS

- † How much are we spending on IS?
How much should we spend?
Why do IS budgets keep rising?
- † What value do we get from IS?
- † How can IS alternatives be prioritized and financed?
- † What are the costs and benefits of projects?
- † How do we account for IS usage?
(Cost recovery.)

Spending on IS

By sector in UK, IS as a % of turnover

| | |
|---------------------|------|
| manufacturing | 2.2% |
| process industries | 5.0% |
| retail | 4.5% |
| finance | 8.0% |
| education, research | 4.1% |
| government | 3.2% |
| average UK | 1.5% |

(approximate figures)

Conclusions?

- † total spend varies widely, 1%-5%
- † but accounting methods vary so comparisons not exact .
e.g where is IT training counted ?
- † higher spend in companies does NOT correlate with success

What is bought?

† UK (approximate figures)

| | |
|--------------------|-----|
| hardware | 20% |
| software, services | 19% |
| supplies | 3% |
| telecomms services | 3% |

| | |
|---------------------|-----|
| IT specialist staff | 27% |
| other | 28% |

† historically a shift from data processing to end user computing

† people costs are about 50%

† future spend mostly on telecommunications & networks, training, consultancy, and applications

IS - an expense or an investment?

† traditional computer management

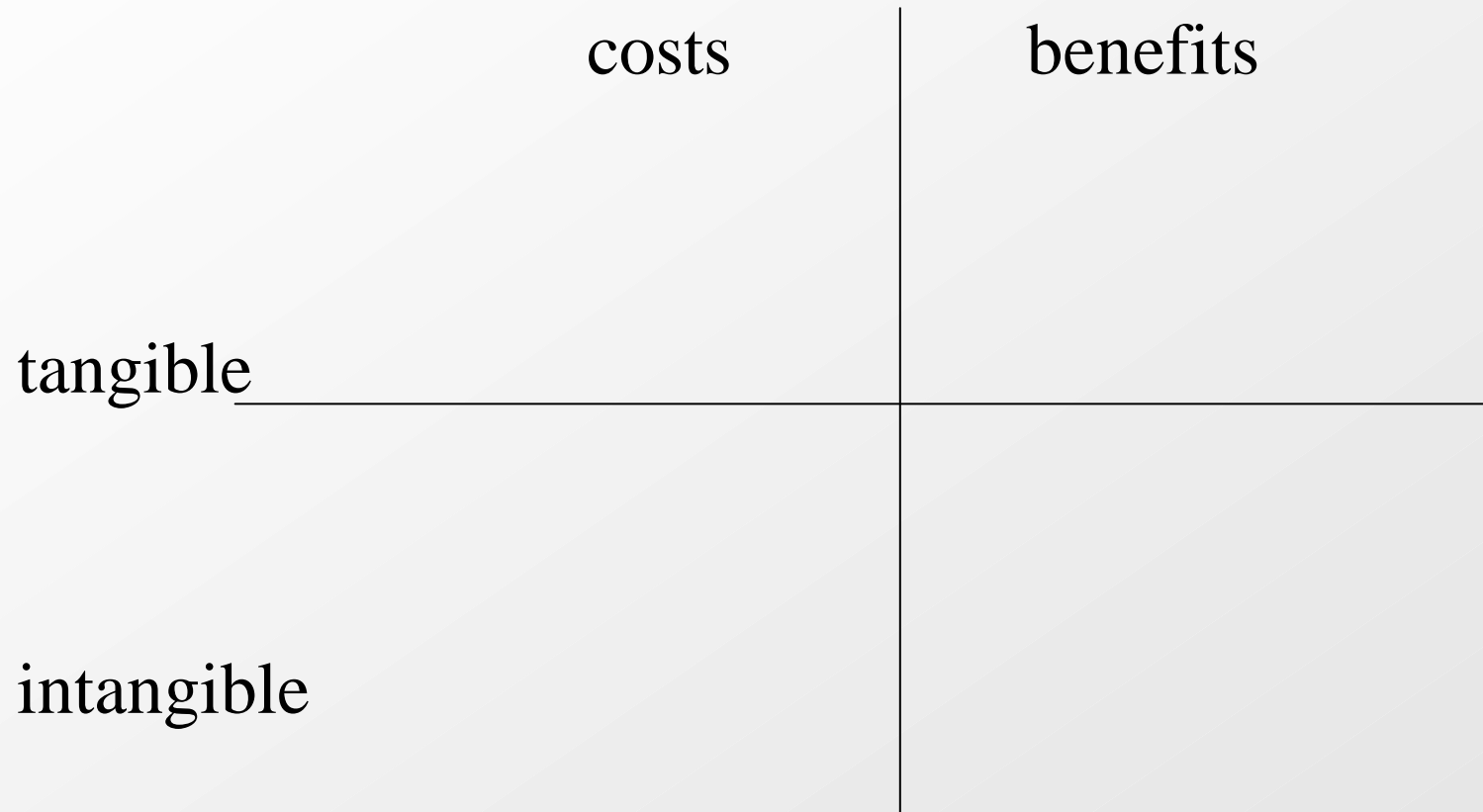
- IT an operating expense
- therefore management means cost reduction for efficiency
- concern with % of revenue

† information management

- information is a corporate resource, needing capital investment
- investment to achieve business goals, for effectiveness
- maximize benefits - benefits appraisal

† in future ... knowledge management ?

Cost/benefit analysis



Do benefits exceed costs?

Problems with cost/benefit analysis

- † costs are tangible and intangible
- † costs are hard to forecast - there are often 'hidden' costs, intangible costs
- † benefits are often mostly intangible, difficult to give a \$ value
- † costs & benefits of a new IS are incurred over time, so financial appraisal methods are needed
- † what group/budget gets the costs and benefits?
does I.S. bear the cost of others' benefits?

Tangible costs


Tangible (visible) costs are initial investment

- † hardware
- † software
- † installation
- † environment, infrastructure, office costs
- † running costs: power, printers, subscriptions
- † maintenance, support staff
- † security: physical, logical
- † networking, a share of total network cost

Hidden (intangible) costs

- † there is an automatic, permanent commitment to use and maintain the IS - ‘operations and maintenance’
- † as new projects generate new budget commitments, the budget available for new projects declines, *or* total IS budget increases
- † limited resources: projects compete for funding, so an opportunity cost of unfunded projects
- † training
- † organizational change costs

Benefits checklist

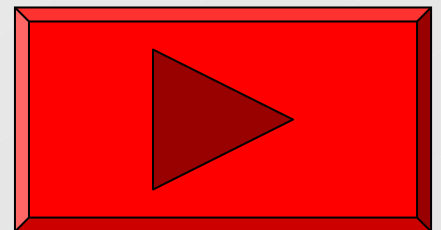
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- † efficiency - cost savings such as reduced staff costs, error rates, inventory (most tangible)
 - † effectiveness - operational improvements such as faster processing and retrieval of information, simpler procedures,
effectiveness - better Return on Investment
 - † strategic - business growth.
improved effectiveness and quality, such as better planning, improved customer relations, better management attitudes, better decisions, improved market share (least intangible)

Quantifying tangible benefits

- † break down new IS effects on work
- † for each part, identify changes to processes
- † determine current costs of process
- † determine indirect costs
- † determine costs after the new IS
- † determine future new costs without the IS
- † find the difference in costs between the work without and with the new IS, to give the saved or added cost

Intangible benefits

- † Accounting for at least 30% of value, the most valuable intangibles are:



The value of information

- † what is the value of the intangible benefits?
is there value for money?
- † many (82%, 60%) of UK projects do not deliver business benefits
- † white collar productivity has not increased much with better IS
- † improved functional efficiency is not the same as improved value (in business effectiveness)

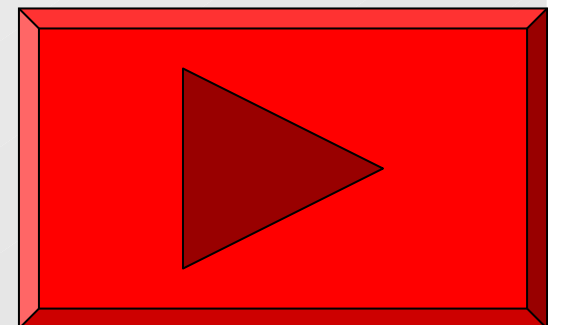
Attributes of information

that contribute to its value:

† time

† content

† form



Expected value of information

net expected value of new information

=

expected business gain possible with it
minus

expected business gain possible without it

don't forget opportunity cost

Expected business gain

expected business gain

=

\$ value of gain

x

probability of that gain

don't forget uncertainty

Six classes of value (benefits)

(Parker & Benson 1988)

1. Return on Investment - traditional criterion
2. strategic match - supporting the business strategy
3. competitive advantage - increased market share
4. management information support - for critical success factors
5. competitive response - catch-up or leap-frog
6. strategic IS architecture - necessary investment for subsequent strategic applications

Example methods for appraisal

1. must do - no methods needed
2. assess financial impact
 - Financial Appraisal methods:
NPV, IRR, payback period, RoI
3. assess value
 - Return on Management
4. causal logic
 - Information Economics
5. act of faith
 - Strategic Contribution Assessment



An example

| YEAR | COST | BENEFIT |
|------|--------|---------|
| 1 | 20,000 | 7000 |
| 2 | | 7000 |
| 3 | | 7000 |
| 4 | | 7000 |
| 5 | | 7000 |

2. Return on Investment

- † assuming an initial cost and an annual benefit,
return on investment =
annual benefit / initial investment
- † e.g. 20,000 investment in year 1 gives 7000
benefit thereafter:
 $7000/20000 = 0.35 = 35\%$ per annum
- † this is 'gross' Return on Investment, ignoring
depreciation of investment

2. Payback period

- † the amount of time (years or months) required for the cumulative cash benefits to equal the initial investment

i.e. the time taken for cumulative net benefit to equal zero
- † better projects have faster payback, if there is a equal annual income then $\text{payback period} = \frac{\text{initial investment}}{\text{annual benefit}}$
- † In the example, 20,000 investment in year 1 yields 7000 each year,
 $\text{payback period} = 2.9 \text{ years (2 years 10months)}$

2. Net Present Value

- † NPV is the difference between total income and total expenditure, discounted for the cost of capital
- † the value of cash declines over years due to inflation and opportunity cost, at a 'discount rate'. Present value takes the discount rate into account.
- † spreadsheets have an NPV function to calculate present value of a cash flow.
- † IRR is similar - NPV 'in reverse'

Another example

| year | costs | P.V. | benefit | P.V. |
|---------------|------------|------------------|-------------------|--------------|
| 1 | 175 | 175.0 | 0 | 0.0 |
| 2 | 98 | 87.5 | 35 | 31.2 |
| 3 | | | 120 | 95.7 |
| 4 | | | 125 | 89.0 |
| 5 | | | 135 | 85.8 |
| 6 | | | 140 | 79.4 |
| 7 | | | 141 | 71.4 |
| totals | 273 | | 696 | |
| | | Net = 423 | | |
| totals | | 262.5 | | 452.5 |
| | | | NPV= 190.0 | |

discount rate = 0.12
 IRR = 0.332 (gives a NPV= 0)

2. Financial Appraisal methods

- † payback and RoI are simple, good for cost saving projects with short periods; commonest methods used
- † longer periods should discount cash flows with NPV or IRR, but the discount rate and project period are arbitrary, set by management
- † all ignore soft, intangible benefits, such as strategic benefits
- † risks are not included - risk analysis is needed if significant unknowns, such as technical viability

3. Return on Management

(Strassman 1985)

- † for effectiveness gains it is management, not capital, that generate IS value
- † $\text{RoM} = \frac{\text{management value added}}{\text{management cost}}$
- † management value is business value added minus the operations and management costs
- † it isolates the productivity of management
- † especially good for Services, with little capital
- † but it is difficult to estimate these values in advance, for appraisal for funding

4. Information Economics

- † IE extends RoI to include intangibles in appraisal
- † it assesses positive and negative effects for
 - the business: RoI, strategic match, competitive advantage, management information, competitive response and organizational risk
 - IT: architecture, technical uncertainty, definitional uncertainty, infrastructure risk
- † each is scored and a weighted average is calculated
- † it spans technical & business sides

5. Strategic contribution assessment

- † 'act of faith' justification - the purpose and impact of change is important, not the amount of change
- † qualitative assessment of intangible benefits only, for the match to business strategy
 - e.g. a new cost control system will strongly match a low cost business strategy
- † but difficult to choose between two projects both supporting one strategy

What is actually used?

- † despite widespread recognition of intangible benefits, financial appraisal methods (especially RoI and PP) still dominate appraisal
- † over half of investments done on financial appraisal only, one third used RoI
- † 75% of companies in UK think investment appraisal methods are adequate
- † 85% believe non-financial benefits are important but only 53% try to quantify them

(see Currie, p.217)

Conclusion - financial appraisal

- † financial appraisal methods (2) encourage short term, low risk projects with small returns
- † no need to quantify some IS projects: experimental projects, and 'must do' projects
- † projects vary in giving competitive impact (effectiveness) and performance improvements (efficiency)
- † these need different balance of technical ✎ business judgment as benefits are tangible ✎ intangible
- † some projects produce both

IT performance measurement is important at three levels - 1

Evaluating IS performance & value -

1. In the whole organization as

† overall % spend

† performance in relation to IT/IS strategy and business objectives

2. IS departments

- † achievement of objectives, financial & not,
- † spending ratios: development/maintenance, hardware/software costs
- † 'function points' (functionality delivered to users) to costs ratio
- † meeting delivery target dates
- † systems maintenance backlogs
- † user satisfaction surveys
- † response times of system and help, down times, mean time between failures

3. Individual projects

- † cost/function points for different methods, tools
- † post-mortem evaluation of project development

Financial issues: Cost recovery

Accounting for IT use:
at what level is cost accounted for?

A continuum from free service to cost/profit
centre.

Service Centre - a free service

- † no charge to users for resources consumed
- † IT not funded from cost recovery
- † IT has non-financial goals
- † encourages experimentation and learning
- † avoids accounting problems & organizational conflicts
- † appropriate for central IT function, core TPS
- † excessive /uneconomic requests/ usage
- † IT function protected from accountability
- † 'brave' funding decisions needed
- † fit into overall management control

advantages

disadvantages

Cost Centre - reclaim costs

- † IT service costs charged to users
- † IT budget are user responsibility too
- † IT funding depends upon cost/benefit analysis but not necessarily cost recovery
- † budgetary responsibility encourages reasonable use
- † simple accounting, suited to cost-centre structure of organization
- † allows controls on IT spending
- † intangible and soft benefits obscured by cost emphasis
- † calculation of charges can lead to conflicts
- † emphasis on charging can deter use of IT facilities

advantages

disadvantages

Profit Centre

- competitive prices

- † services are charged at cost-plus prices, comparable with open market prices, a business within a business, expected to produce a return on capital invested in it.
- † IT function forced to control costs, not pass them on
- † IT function is 'market lead' and if adequate investment given innovation is facilitated
- † IT function may sell services externally as well as internally (as a bureau)
- † IT objectives may conflict with organization objectives
- † problem of agreeing a price for services internally
- † may be undercut by outside providers; cheaper for the buyer but under-uses IT facilities. so increases costs

disadvantages advantages

Hybrid solutions may deliver advantages of all options

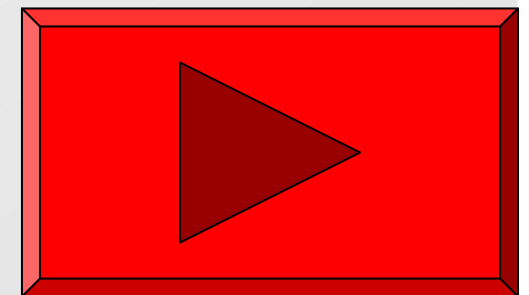
- † some IT services charged, others free
- † routine activity costs strictly controlled while innovative projects funded more freely
- † can have both non-financial (service centre) and financial (cost centre) objectives, for example
 - infrastructure equipment cost-recovered over its lifetime via provision of 'facilities management' at negotiated market prices
 - services provided at market prices in competition
 - innovative projects funded centrally and free to users

Summary

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- † the rising costs of IS
- † the value of information and systems
- † financial appraisal methods
- † what is used?
- † cost recovery for IS services

Intangible benefits

- † Accounting for at least 30% of value, the most valuable intangibles are:
- improved customer service
 - gain competitive advantage
 - timely management info.
 - support core bus. functions
 - avoid competitive disadvantages.
 - change through innovation
 - improve product quality
 - improved internal communications.
 - job enhancement



Attributes of information

that contribute to its value:

† time

timeliness, currency, frequency, time period

† content

accuracy, relevance, completeness, conciseness
scope, performance

† form

clarity, detail, order, presentation, media

