IT, Cost-benefit and productivity

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Benefits of IT???

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Take one example – a new system for patient records at a large hospital.

What are the benefits of a new IT-system?

Are there different kind of benefits?

Let us try to analyse this!

“benefit structure”
Cost-benefit analysis

Requires:
- Define costs?
- How to measure costs?
- Define benefit?
- Measure benefit?

Cost-benefit analysis

- Cost-benefit analysis is a term that refers to a formal discipline used to help appraise, or assess, the case for a project or proposal.
- The process involves, whether explicitly or implicitly, weighing the total expected costs against the total expected benefits of one or more actions in order to choose the best or most profitable option. The formal process is often referred to as CBA, or Cost-Benefit analysis.

The “Peng model”

- A method for evaluating and controlling the benefit of IT in an organisation
- Has been applied a lot (in Sweden)
- Is it a good or bad method???
PENG

Preparation
- 1. Purpose – goal?
- 2. Insight
- 3. Specify object
- 4. Describe object

Performing
- 5. Identify benefit effects
- 6. Structure benefit effects
- 7. Define values to effects
- 8. Calculate costs for benefit

Quality assurance
- 9. Validation and risk analysis
- 10. Calculate net benefit and specify responsibilities for reaching the goals

PENG evaluates benefits and costs

Benefits
- Direct benefits
- Indirect benefits
- Not evaluated benefits

Costs for benefit

PENG - example

A new system for patient administration – identify benefits...
- Saved working time 19 400 h/year
- ->Personnel costs = - 40.5 MSEK
- Saved document costs = - 2.5 MSEK
- Less tests = - 7 MSEK
- Benefit = 50 MSEK/year
**PENG - example**

**E-recipe**
- Stockholm county has analysed the benefit of introducing e-recipes.
- The benefits are high for those physicians who write the recipes.
- The Pharmacies can handle the recipes more efficiently.
- The patients can get their medicines faster, safer and with more flexibility.
- The total benefit is calculated to be 135 MSEK.

**Critique???

**Balanced Scorecard**
- The **Balanced Scorecard** (BSC) is a performance management tool which began as a concept for measuring whether the smaller-scale operational activities of a company are aligned with its larger-scale objectives in terms of vision and strategy.
- By focusing not only on financial outcomes but also on the operational, marketing and developmental inputs to these, the Balanced Scorecard helps provide a more comprehensive view of a business, which in turn helps organizations act in their best long-term interests.

**BSC**
- Implementing Balanced Scorecards typically includes four processes:
  1. Translating the vision into operational goals;
  2. Communicating the vision and link it to individual performance;
  3. Business planning;
  4. Feedback and learning, and adjusting the strategy accordingly.

- The Balanced Scorecard is a framework, or what can be best characterized as a “strategic management system” that claims to incorporate all quantitative and abstract measures of true importance to the enterprise. According to Kaplan and Norton, “The Balanced Scorecard provides managers with the instrumentation they need to navigate to future competitive success.”
The grouping of performance measures in general categories (perspectives) is seen to aid in the gathering and selection of the appropriate performance measures for the enterprise. Four general perspectives have been proposed by the Balanced Scorecard:
- Financial Perspective
- Customer Perspective
- Internal process Perspective
- Innovation & Learning Perspective

Can be used for planning and evaluating introduction of IT and information systems in an organisation?
- Yes, this has been tried!
- Successful??

The productivity paradox (also known as the Solow paradox) is the theory that computers have contributed negligibly to productivity, and is often summarized as: "You can see the computer age everywhere but in the productivity statistics."

The paradox has been defined as the "discrepancy between measures of investment in information technology and measures of output at the national level."

It was widely believed that office automation was boosting labour productivity (or total factor productivity). However, the growth accounts didn't seem to confirm the idea.
P-paradox


Besides a great number of case studies, econometric analysis of data from ca. 400 big US companies points out that:

- IT systems may improve the economic performance of companies, if and only if their implementation goes hand in hand with decentralisation, object-oriented reorganisation of work and investment in human capital,
- companies decentralising their organisational structures achieve higher productivity in using IT systems than those who invest in IT only,
- the expenses for organisational renewal and training are a multiple of the expenses for hard- and software, e.g. four times higher in case of implementing ERP (Enterprise resource planning – Affärsystem) systems.

When do IT give benefits?

- It is only when you reach organisational changes that IT contribute to positive changes. Don’t “Pave Over Old Cow Paths”.
- E.g.:
  - Decentralization, new work processes, new competencies, cooperation, communication, overview, local planning, follow up, evaluation, quality assurance ...
When benefit....

- Introducing IT without changing other important aspects of an organisation will/can only create new (expansive) problems:
  - Usability problems
  - Bad work environment, health problems
  - Inefficient development and deployment (införande)

Calculating costs?

- Cost/benefit analysis requires an estimation of costs?
- Which costs?
- How to calculate/estimate in advance?
- How to evaluate it afterwards?
- To answer this: take a (advanced) course in business economics.

Costs, some problems

- Which different types of costs exist?
  - Direct
  - Indirect
- Life time costs
- Methods: Investment analysis
- Case studies....
- "Nobody has control over the IT-costs"
- E.g.:
  - http://www.idg.se/2.1085/1.176646
References, sources

- See the links (course home page) to different sources of information!

Assignment (No 3)

Cost-benefit analysis, productivity and IT

- Write a paper about one specific aspect of the cost-benefit problem area. If possible, find a case to analyse. There are many cases described in reports, newspapers etc. The problem is that the reports available seldom (never) tell the whole truth.....

Assignment examples

There are different aspects that can be studied:

- The problem to define and specify benefits. There exist different methods for this.
  - One example: the PENG model
  - How can BSC be used?
- The productivity paradox – when can we reach benefits using IT?
  - Macro-level (national or sector level)
  - Micro-level (e.g one organisation)
- Calculation of costs, definition, methods, evaluation?? Methods, experiences, problems?
Assignment report

- The report should reflect the work (one work week per group member)
- Write a proper scientific report (even if it is short)
- Background, problem, theory, method, activities, results, evaluation, discussion, references...
- The report can be handed in as paper or electronically (see specifications)
- Collect all your assignment reports in a folder!