

## The Tar Pit



„No scene from prehistory is quite so vivid as that of the mortal struggles of great beasts in the tar pit.

Large-system programming has over the past decade been such a tar pit“

[Frederick P. Brooks. jr; *The mythical man-month*, Addison-Wesley, 1972]

## The Good News

- **Many jobs** available under labels such as systems analyst, database administrator, applications programmer, information officer,...
- List of employers offering such jobs includes **management consulting companies** -- who sell consulting, **development and maintenance services** -- and large organizations such as **banks**, utilities, **telephone companies**, **government departments**,... who run and depend on information services.
- Most IT jobs are with small companies -- the majority of the software companies are in application development or other information system-related areas.

[**John Mylopoulos**, *Information Systems Analysis and Design*, 1997]

## The need for Systems Analysis: (1)

### The age of innocence:

- Once upon a time, the information processes in an organization were simple and small - easy to handle with one or two people.
- As the organization grew, it took on additional tasks and had to handle information about more people or things important to the organization, for example, statistical data on production and sales, design data, financial data etc.
- As the organization grew, the information workers within the organization learned their information management tasks (classification, reference) well enough to add on more complex tasks.
- As the organization grew, it split into subunits to facilitate management, but this often acted as a barrier to information flow. Still, there was one organizational information system.
- As the organization evolved, so did its organizational information system, but this evolution was not documented.

## The need for Systems Analysis: (2)

### Fall from Eden:

- People who knew the existing organizational information system retired or took employment elsewhere.
- The external environment for the organization was constantly changing, affecting differently different units in the organization. Suddenly the organization's information system was no longer integrated.
- The external environment changed sufficiently so that the techniques used for managing and processing the information were no longer efficient.
- Suddenly, there was no one person who knew exactly what the information processes in the organization were all about.
- Documentation as to what the processes were was completely out of date or non-existent.
- The information was available but it was in the heads of many employees.
- The organization needed to respond to the external environment, e.g., its customers, in new ways because the environment had changed.

## The Bad News

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- 30% of large software projects are cancelled before completion.
- 50% of software projects are overbudget by more than 200%.
- The majority of completed projects deliver 60% or less of prescribed functionality.
- Many delivered information systems are under-used because they don't meet user needs and/or expectations.
- Legacy systems are a serious and growing bottleneck to organizational evolution.

## Murphy's Law

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**If something can go wrong it will.**

- Things are more complex as they seem.
- Things take longer than expected.
- Things cost more than expected.

Note also the corollar:

**Murphy was an optimist.**

... applies directly to software development!

To make things get ~~worse~~ <sup>better</sup>, we need software-engineers!