



# Basics of evaluation of ICT in Health Care

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## What is evaluation

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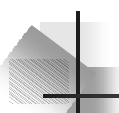
- Measuring one or more aspects of a ICT application in a given context for a certain purpose
- The keywords:
  - Measuring
  - One or more aspects
  - ICT application
  - Given context
  - Certain purpose



## But there is more

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- Design of study
- Organisation of a study
- The reporting of results
- ...



## Why to evaluate

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- There has to be a (scientific) reason to measure
- There is question to be answered
  - Is this technology usable in a clinical environment
- There is a decision to be made
  - Does this application meet the needs of my users so that we should purchase it
  - Is this application cost/effective (if not, forget it, if it is we will use it).



## Why to evaluate

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- When the results of an evaluation aren't used, why evaluate?
- It is just a waste of money!!



## How to start

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- Define the question to be answered or the decision to be made
- But..... Don't do so as an evaluator



## The stakeholders

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- Various people may have an interest in an evaluation study:
  - The decision makers
  - The users
  - The patients
  - The developers
  - Etc



## Stakeholders

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- It is essential to identify ALL stakeholders
- Overlooking a stakeholder may cause havoc in your study



## Commitment

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- Getting commitment from all stakeholders is essential
- Make sure all stakeholders agree on the question(s) to be answered/decisions to be made
  - But not necessarily on the preferred outcome



## Role of evaluator

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- An evaluator is preferably someone not affected by the outcome of the study
- An evaluator should be accepted by all stakeholders
- It is not only doing the evaluation,
  - but also assure that the right question is asked and
  - that potential pitfalls are identified.



## Lifecycle

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- It is essential to understand the lifecycle phase of the ICT application being studied
- A prototype is something different than an operational system



## Lifecycle

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- Conception
- Design
- Development
- Experimental use
- Implementation in clinical practice
- Routine use
- Maintenance



## Perspective of evaluation

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- Technical
- Ergonomic
- Professional
- Social/organisational
- Economic
- Legal



## What question to ask when

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- In each phase of the lifecycle different questions can be asked.
- What to ask from e.g. a professional perspective depends on which phase the ICT application is
- There are no silver bullets.
- Each project requires a reflection on what evaluation is needed in a certain phase.



## Keep the evaluation focussed

- Don't try to be comprehensive and to cover all perspectives
- When a system fails from a technical point of view, there is no need to do a usability study and/or an assessment of the professional aspects
- Tackle the problem in a systematic way
- Make decisions during the evaluation regarding the way to progress



## Method selection

- There are no methods that are suitable in all situations
- One has to have knowledge about available methods
- Look beyond the obvious domains like MI, CS
  - Sociology, psychology, economics has valuable methods as well
- Methods have to be selected and adapted to meet the requirements of a specific study



## Method selection

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- Remember...
  - Avoid re-invention of the wheel, built on the available expertise
  - Don't be ashamed to use a method that has proven its value.
  - Only develop new methods when existing methods are inappropriate



## Formative vs summative

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- Formative evaluations contribute to the design and development of an application (or of its implementation)
- Summative evaluations measure the state of affairs mostly for decision making
- This distinction is not so useful from a quality and/or change management perspective



## Reporting

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- Reporting should be focussed on the question to be answered
- But...
  - The reporting should be objective
  - Biases and limitations of the study should be discussed
  - The in- and external validity of the results should be discussed



## Important preconditions

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- There should be funds available for the study
  - rule of thumb: 10% of the costs should be devoted to evaluation
- The study should be designed, executed and reported without undue pressure from one or more of the stakeholders