

**MedInfo 2013 panel “Usability”**

# **Measuring EMR Usability and Adoption**

**From individual formative evaluations to  
large-scale summative assessments**

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# Background

- Large public organisations use information systems – and purchase new ones
- The amount of users is typically large
- Tiny issues may turn into major problems
  - E.g. struggling daily 10 min with information systems : 10 users, 100 users, 10000 users
- High usability enables fluent working
- Interest towards
  - understanding current usability-originated challenges
  - defining usability requirements and measuring them in public IT system procurement (comparison, selection)
- How to define and evaluate usability in such situations?

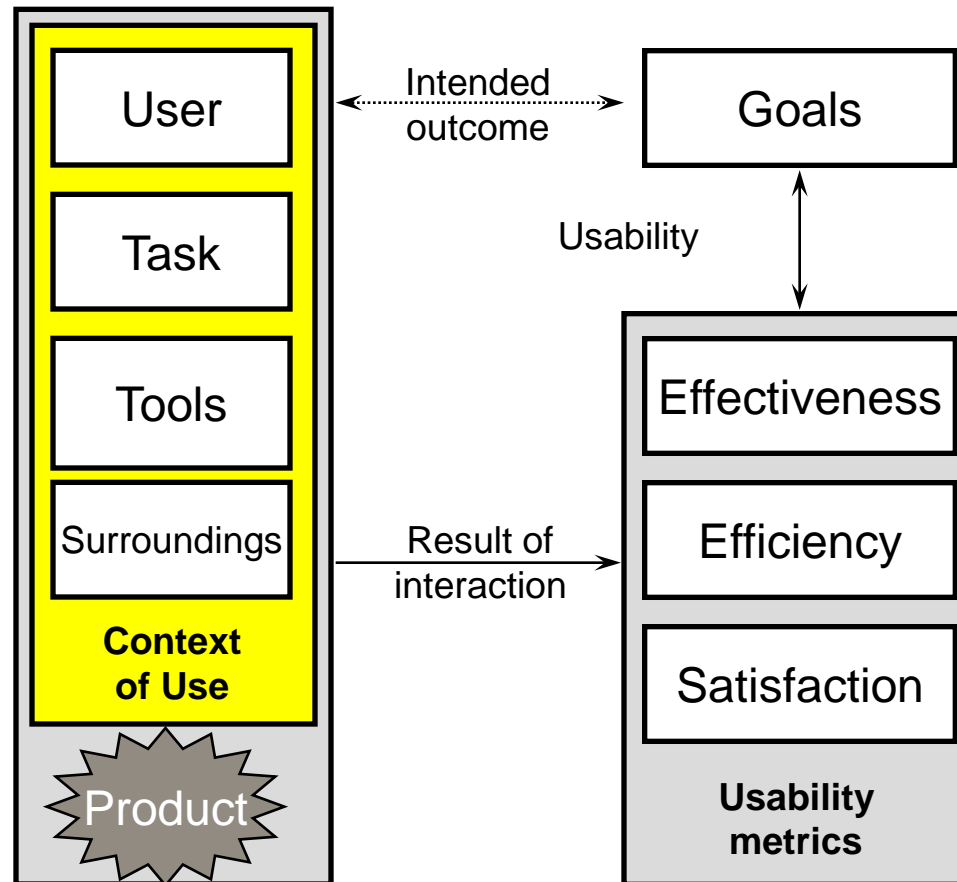
# Usability

”The **extent** to which a product can be used by specified users to achieve specified goals with **effectiveness, efficiency and satisfaction** in a specified context of use”

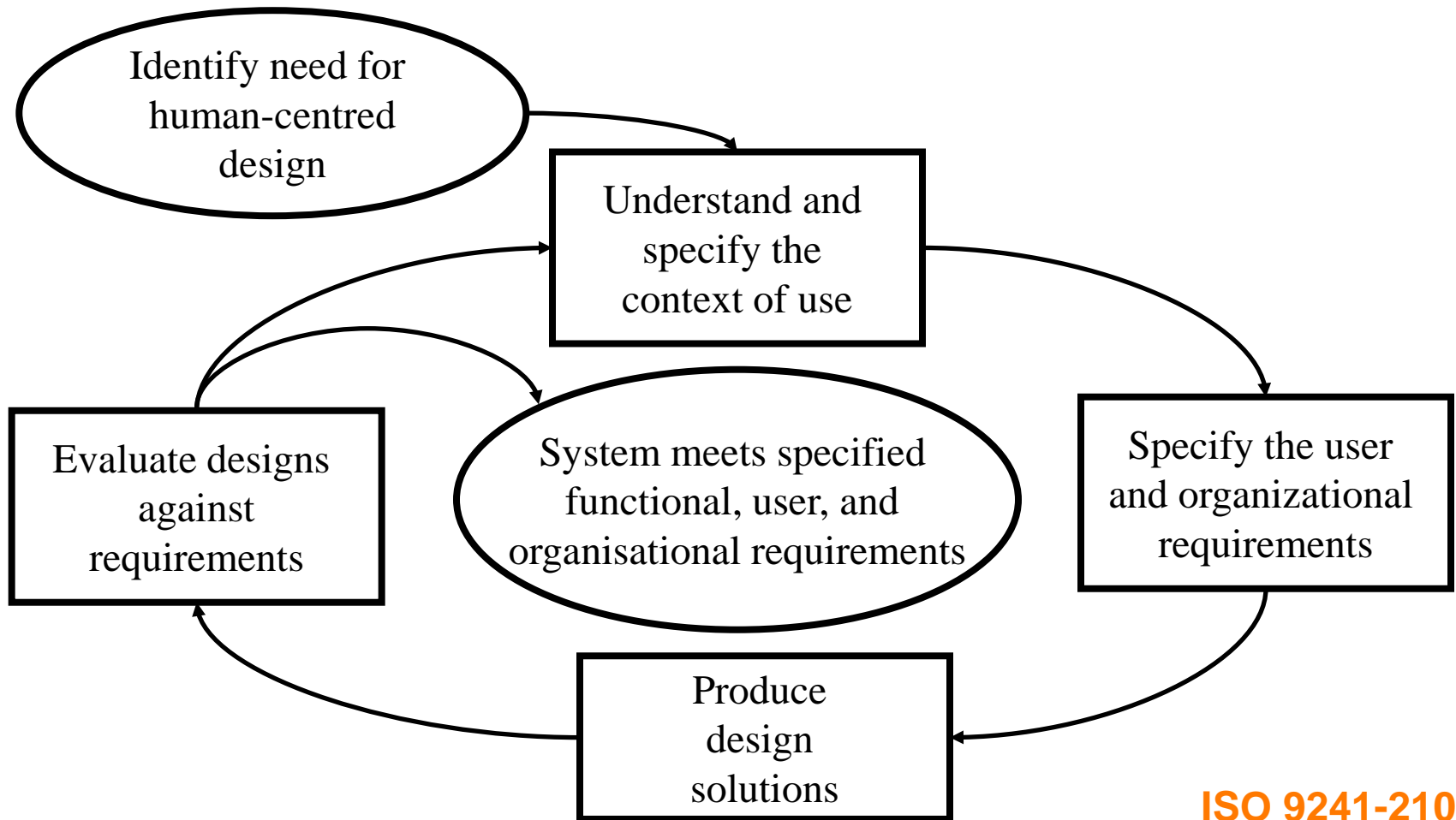
(ISO 9241-11: Ergonomic requirements for office work with visual display terminals (VDTs); Guidance on usability)

ISO TC 159 / SC4

# Usability (ISO 9241-11)



# Human-Centred Design Process



ISO 9241-210

# Usability Evaluation: Formative

For **forming** the system under development



laboratory



field

# Usability Evaluation: Summative

For assessing the level of usability ("extent") of existing systems

QUESTIONNAIRE

	Strongly disagree				Strongly agree
1. I think that I would like to use this system frequently	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5
2. I found the system unnecessarily complex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5
3. I thought the system was easy to use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5
4. I think that I would need the support of a technical person to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# Summative Evaluation of Usability

Questionnaires such as System Usability Scale (SUS) may serve following purposes:

1. Providing a point estimate measure of usability and customer satisfaction
2. Comparing different tasks within the same interface
3. Comparing iterative versions of the same system
4. Comparing competing implementations of a system
5. Competitive assessment of comparable user interfaces
6. Comparing different interface technologies

Bangor et al. (2008) An Empirical Evaluation of the System Usability Scale

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# Evaluating Usability in the Large Scale

- Metrics for usability do exist (ISO 9241-11): effectiveness, efficiency, and satisfaction
- From formative individual system evaluation towards summative system-independent evaluation
- Challenge: How to operationalise usability metrics for comparable large-scale studies?