



# Approaches to EHR usability



Healthcare  
Human Factors  
University Health Network

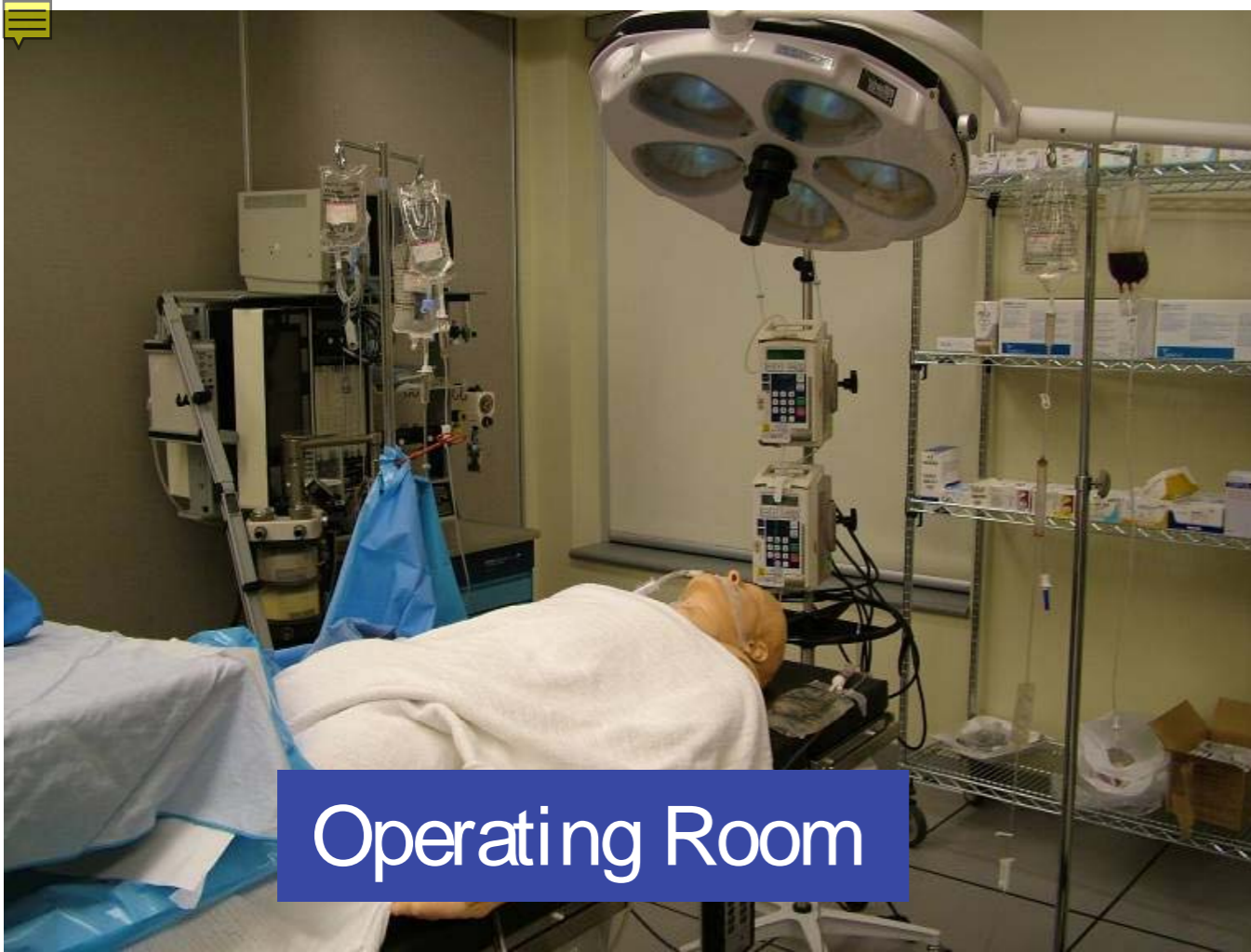
Anjum Chagpar

access to over 15 000 healthcare providers  
and  
over 1 million out-patients visits





QuickTime™ and a decompressor are needed to see this picture.



Operating Room



Patient Ward



Home



Helicopter





# HF Informed Procurement

Metrics		System 1	System 2
	Scenario Performance Index**	62%	85%
	Scenario Completion Time*	20.5 min	16 min
	Number of Usability Issues	13	1
13		8	
	Perceived ease of use, satisfaction and patient safety**	3.5 out of 7	5.2 out of 7
	System Preference**	2 out of 29 users	21 out of 29 users

Critical priority- directly jeopardizes patient safety, high likelihood of occurrence

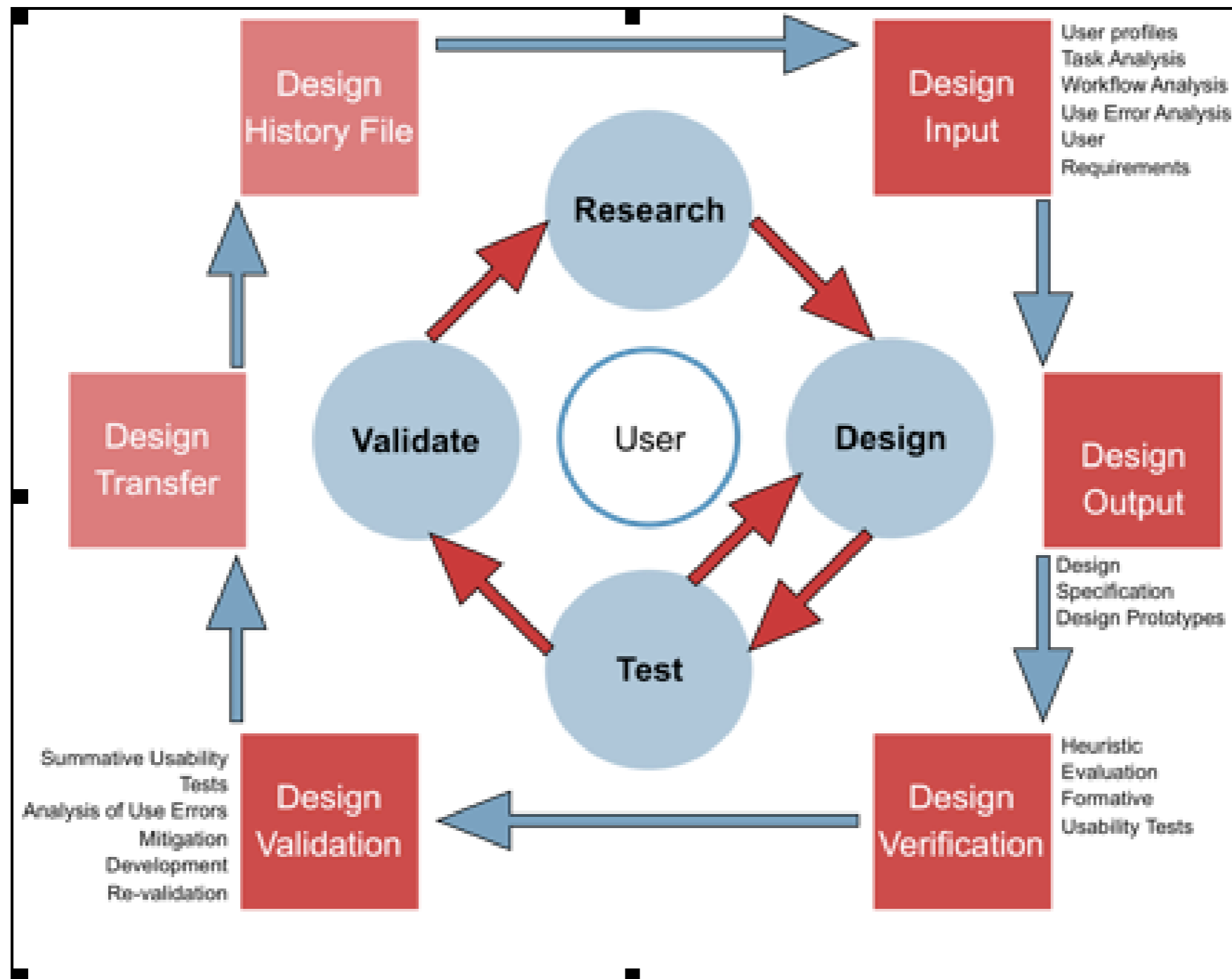
High priority- impacts efficiency with possible patient safety implications, medium likelihood of occurrence

\* Differences between vendor systems significant at  $p < .05$

\*\* Differences between vendor systems significant at  $p < .001$

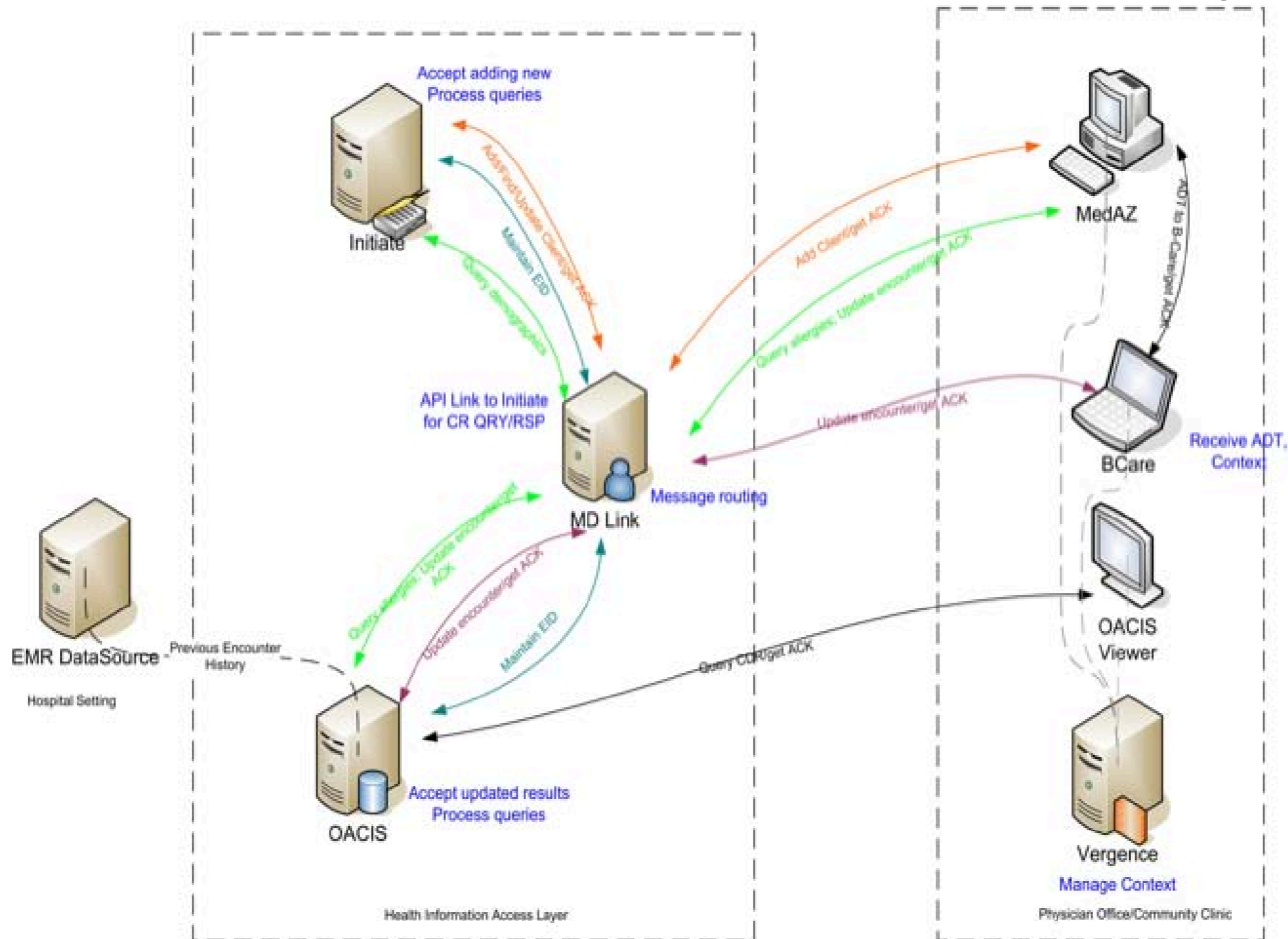


# Human Factors & The FDA





# Solution Usability



To determine how well a given **solution** meets the needs of end users in terms of workflow optimization, ease of use and patient safety



# Solution Usability

## Approach

- Focus: Areas of intersection or overlap between the front end user interfaces of different vendor applications in a solution

### Checking for:

Consistent behaviours

Common terminology and metaphors

Equivalent help and efficiency tools

Unnecessary redundancies

# Solution Usability

## Findings

- Functions that apply to *local* applications versus the *global* system should be distinct

Information shared across applications (e.g. patient demographics) should be in a consistent location in the application

Single sign-on and context management tools are essential in accelerating and automating frequent actions

Information sharing and automatic data-population across applications improves efficiency

# Challenges

- Generalizability?
- Resource Requirements?
- Focus on Risk vs Usability?
- Comprehensiveness?
- Co-operation a la Interoperability Standards?



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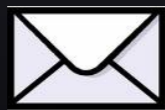
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# Early Software and Hardware Prototypes

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are needed to see this picture.

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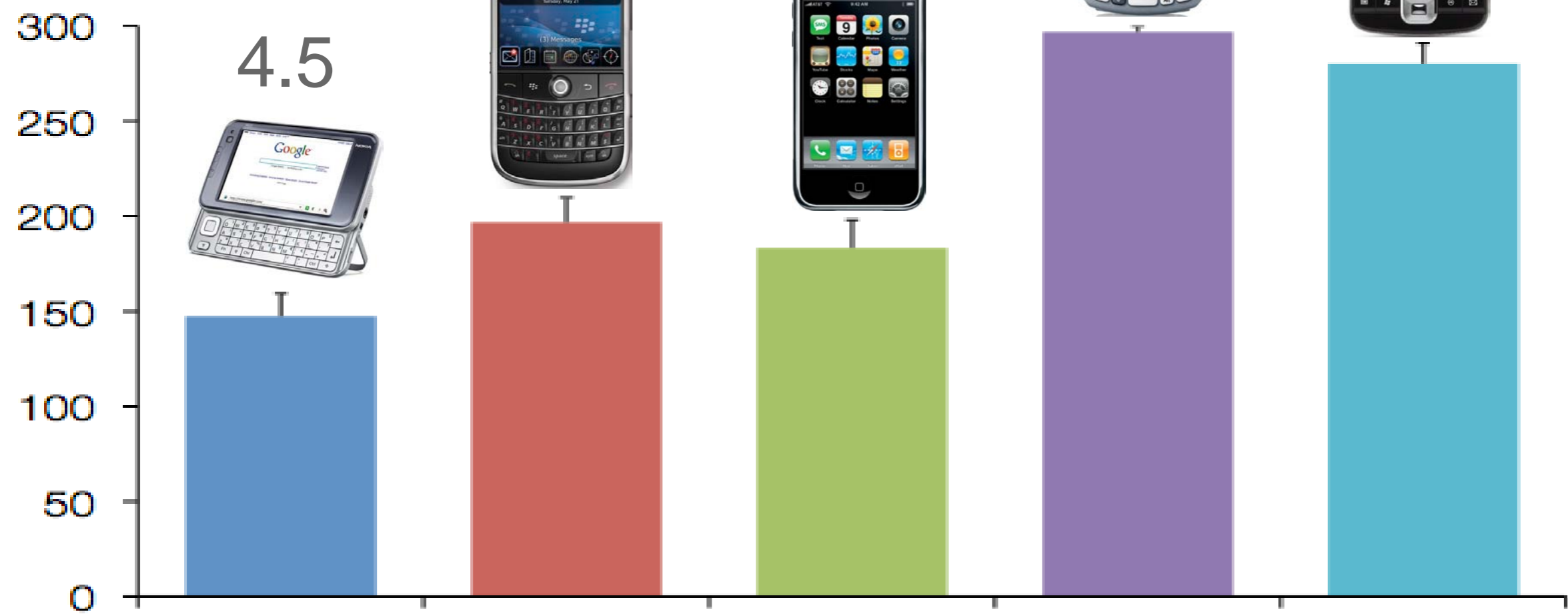
1.8

2.0

4.0

4.1

4.5



Nokia N810

Blackberry Bold

iPhone 3G

Palm Treo 680

HP iPAQ 210



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