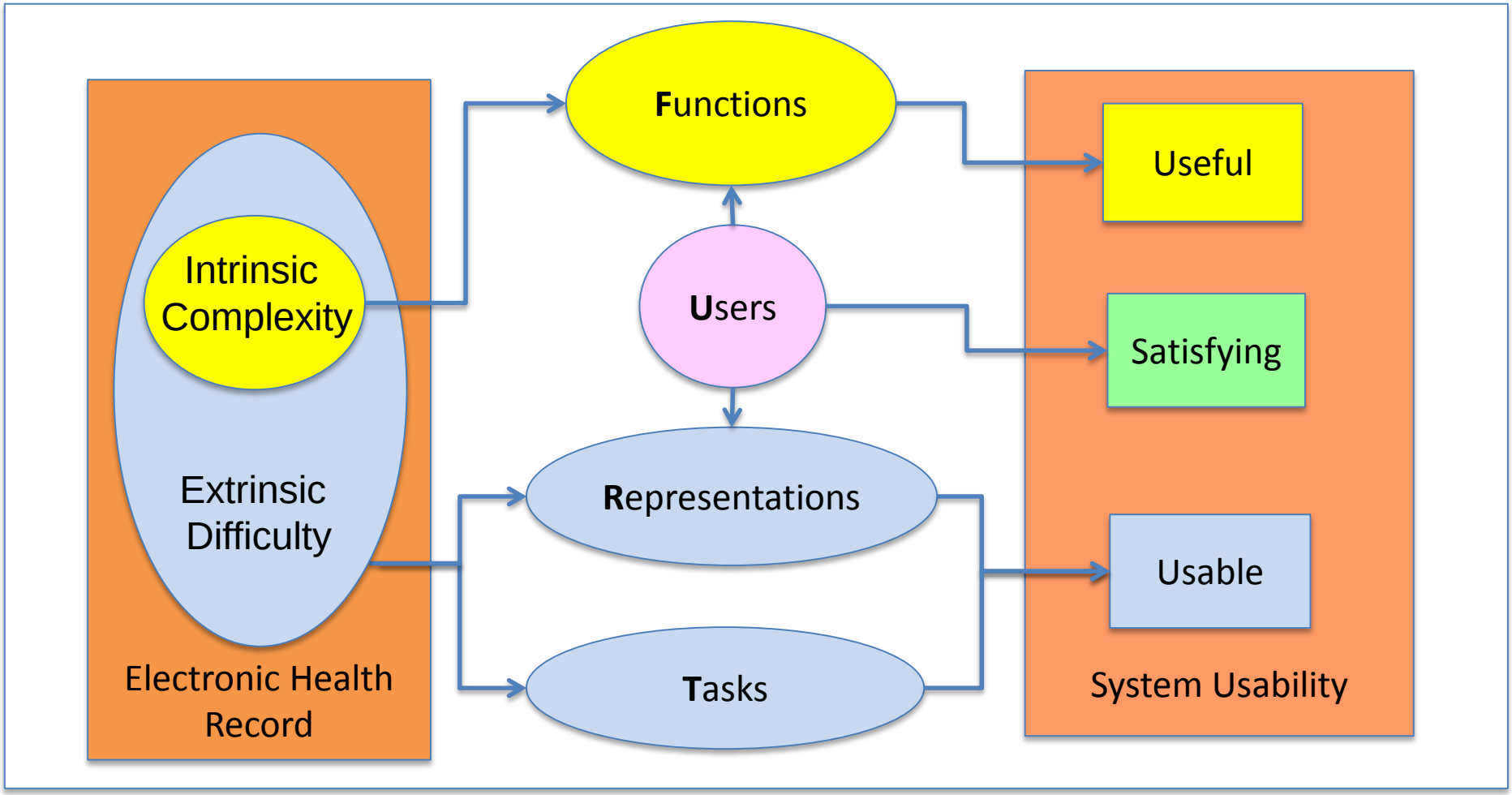
UTHealth™
The University of Texas
Health Science Center at Houston

SHARPC
NCCD

EHR Usability Toolkit

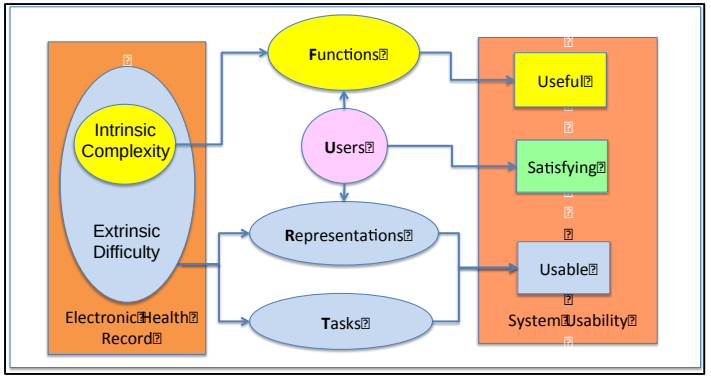
Muhammad F Walji PhD

TURF Framework for EHR Usability



Zhang, J., & Walji, M. F. (2011). TURF: Toward a unified framework of EHR usability. *Journal of Biomedical Informatics*, *44* (6), 1056-1067

Ivory Tower to "Real World"



turf

User-Centered Design

1. Understand User Needs, Workflows and Work Environments
2. Engage Users Early and Often
3. Set User Performance Objectives
4. Design from knowledge of Human Behavior Principles
5. Conduct Usability Test
6. Adapt and Design Iteratively

* NISTIR 7741 Guide to the Processes Approach for Improving the Usability of Electronic Health Records

Market Need: Safety Enhanced Design

1. Documentation of the User Centered Design (UCD) process
2. Summative Testing (Reporting in Common Industry Format (NISTIR 7742)

Applicable to 8 MU Objectives:

Computerized Provider Order Entry	Drug-drug/drug-allergy interaction checks
Medication List	Medication Allergy List
Clinical Decision Support	Clinical information reconciliation
Electronic Prescribing	Electronic Medication Administration Record

Stakeholders with “greatest” need

EHR Vendors with few (or no) expertise in human factors, safety or UCD

- Vendor A: Small three person team that outsources development work
- Vendor B: Medium sized EHR development team (~100 staff)

EHR Implementation Sites

Turf Video

https://www.youtube.com/watch?v=c-XncyPKLzc

TURF: An EHR Usability Assessment Tool

The following is a guest post by Carl Bergman from EHR Selector.

To paraphrase Mark Twain, everyone talks about EHR usability, but no one does anything about it, at least until
Center at Houston's National Center for
veral tools for measuring usability.

a Windows based app, TURF, an acronym for
from ONC's Strategic Health IT Advanced

ser Testing:

- *Tool One. Heuristic Evaluation: Expert Screen Capture and Markup*. This tool takes EHR screen snapshots
markup the screen and document the problem.

For example, you can note if the error is minor, moderate, major or catastrophic. The system has a review function, so others can look at your markup and comment. The system also compiles your edits and can generate various statistics.

"I found TURF to be a versatile, robust tool for EHR usability analysis. Its seeming complexity masks an ability to work in various settings and tackle hosts of problems."

"If you aren't happy with your EHR's interface, TURF gives a remarkable tool to show what's wrong and what you want. Indeed, with some adaptation you could use TURF to analyze almost any program's usability. Not bad for a freebie."

http://www.emrandhipaa.com/emr-and-hipaa/2013/10/22/turf-an-ehr-usability-assessment-

Turf V3 and Beyond

- Analytics for Keystroke Level Data
- Server Version and Data Accessibility
- Training and Tutorials
- Mobile Device Usability
- Sustainability Plan (Software and Services)

SHARPC NCCD

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Thanks to
- ONC
- EHR Vendors
- Beta Testers

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Thank you!

www.TurfUsability.com

www.sharpc.org

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