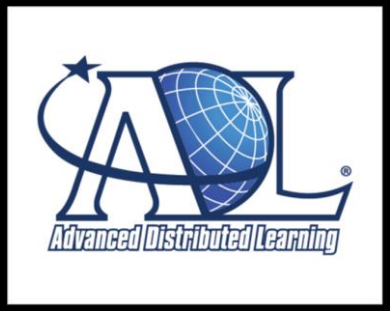


The Total Learning Architecture (TLA): Learning Across Applications

P. Shane Gallagher, PhD

Learning Scientist

ADL/Institute for Defense Analysis

2017 Human Systems Conference Achieving the Third Offset: Maximizing Human-Machine Symbiosis

March 8, 2017

www.ADLnet.gov

OUSD(P&R)

Asst. Secretary of Defense (Readiness)

Deputy Asst. Secretary of Defense (Force Education & Training)

Advanced Distributed Learning

Mandated via Congress, OSTP, and EO in 1990s

To conduct R&D on learning science and technology

To improve distributed learning across government

Activities

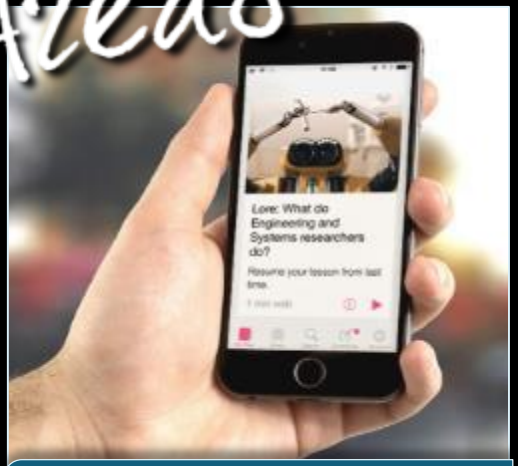
Vision: Help craft the vision for future learning science and technology

Outreach: Help bridge the research-practice gap

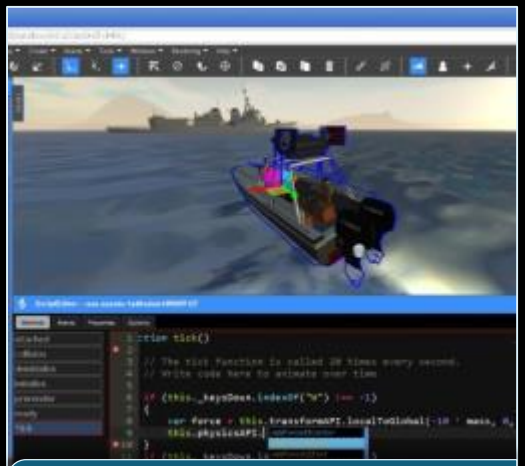
Innovation: Mature learning ideas and technologies

Research Areas

e-Learning



m-Learning



Web-based VWs / Simulations

Learner Modeling / Analytics

Learning Theory

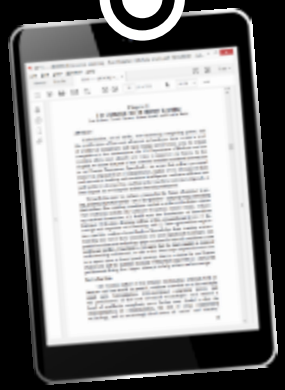
Interoperability infrastructure

Building the Future

Total Learning Architecture

TLA

The Total Learning Architecture is a collection of **specifications** for accessing and making use of **learning-related data**.

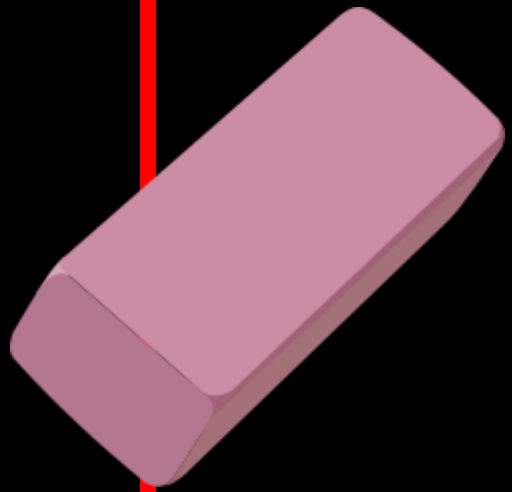


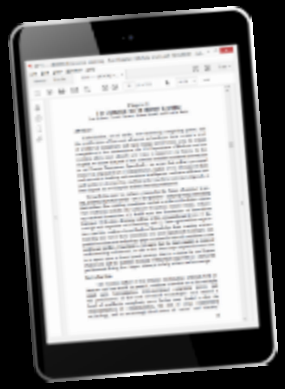
e-book

LMS

Mobile

VR Simulation



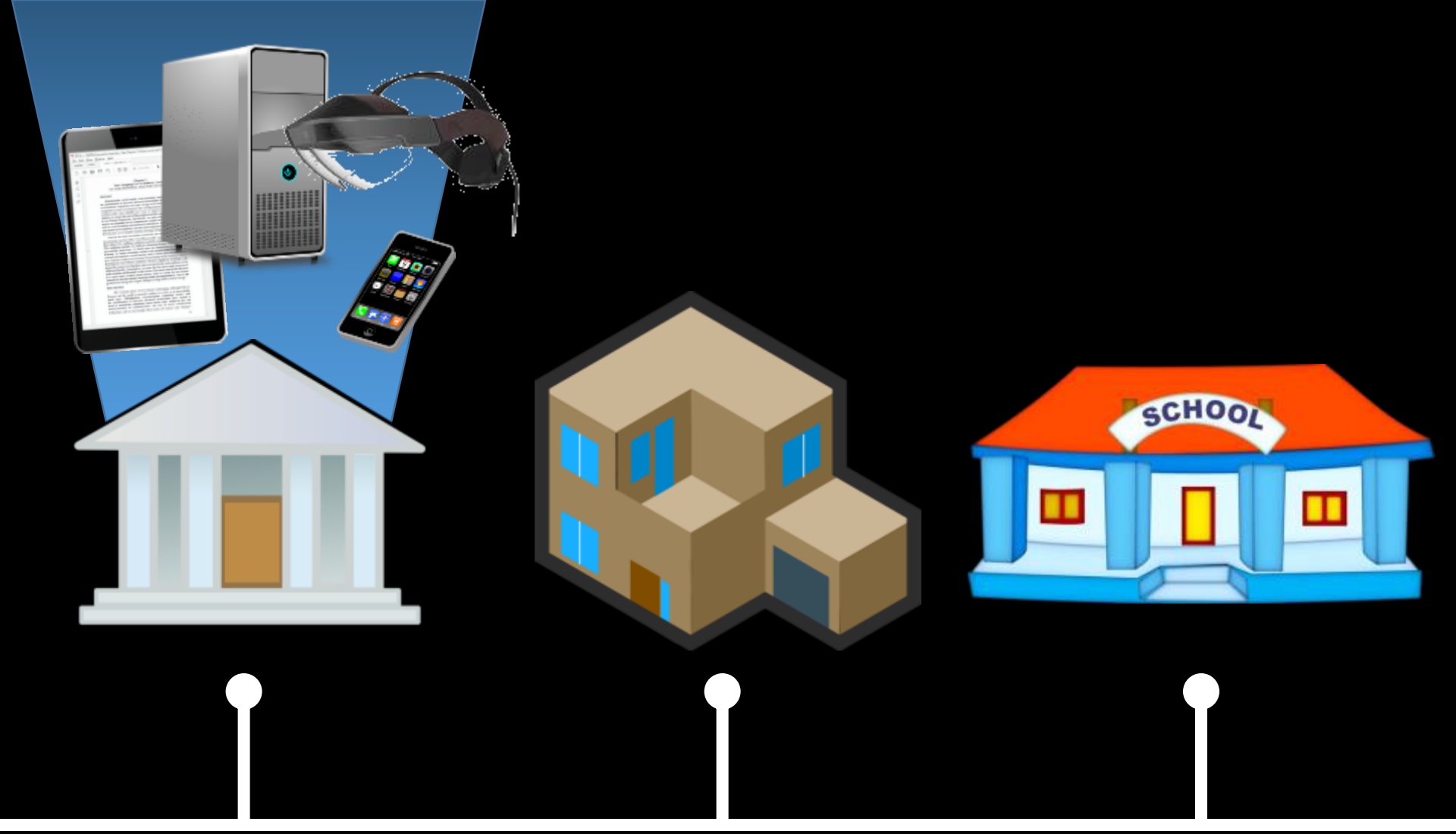


e-book

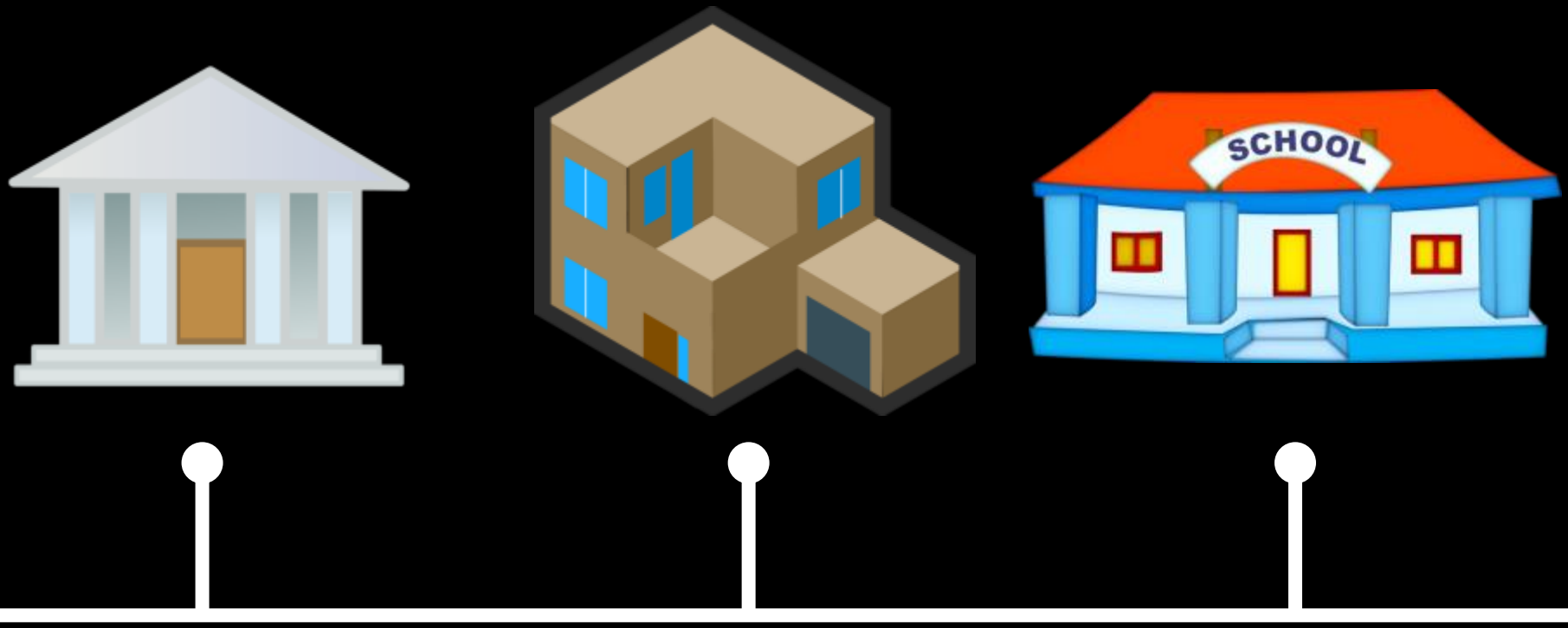
LMS

Mobile

VR Simulation


SCHOOL

What kind of data?



xAPI

Content

Learner

Meta-Adaptation

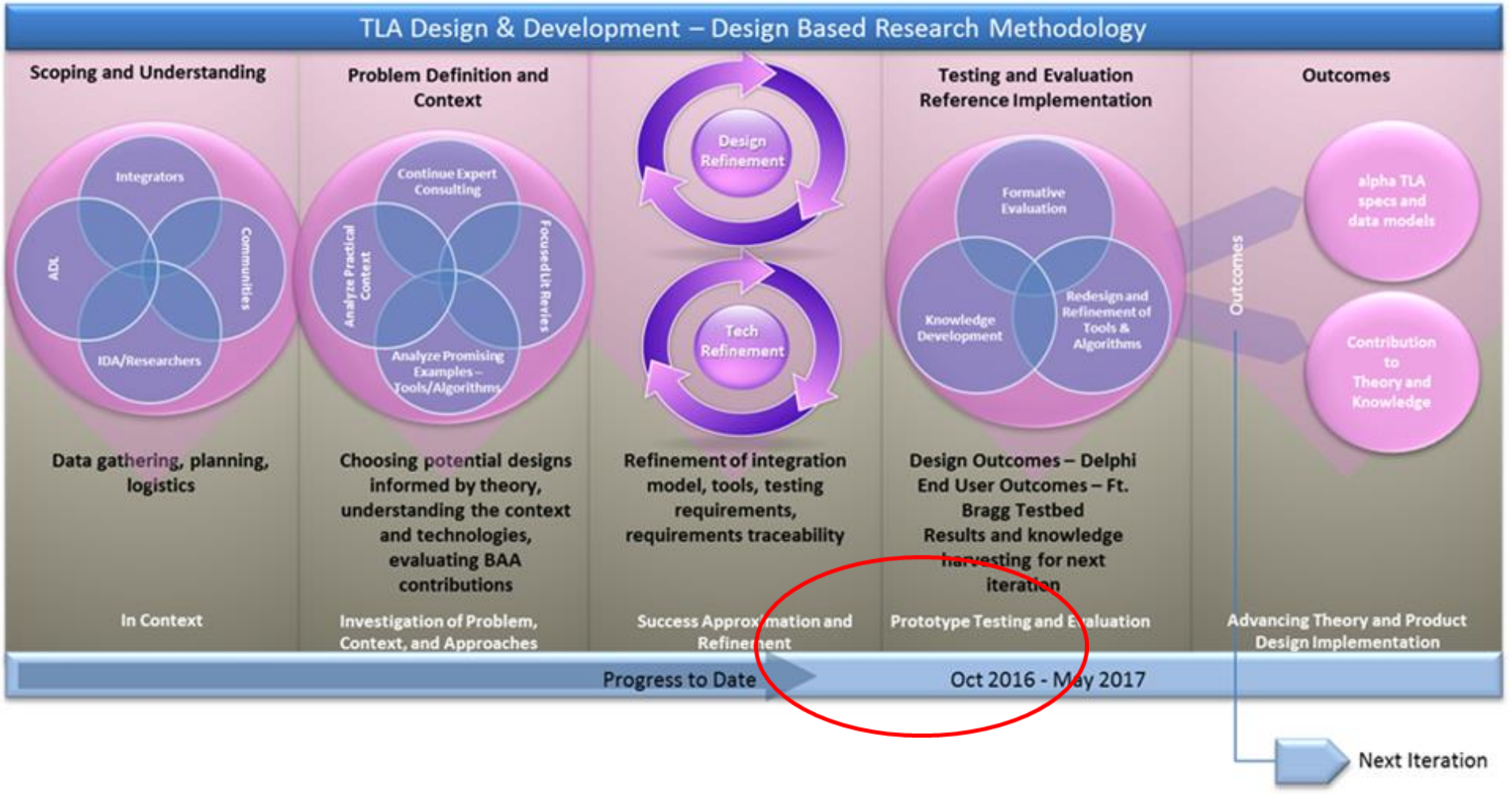
Pedagogy

Context

Competencies


Nice idea...
...BUT!

Design-based Research (DBR) Design



Design-based Research (DBR) Approach

YR 1

Specification analysis - Delphi methods

Round 1: Dec ’16 – March ‘17

- 53 international respondents looking at the initial specifications and providing answers to specific questions on various dimensions
- New questions formulated based on analyzed answers

Round 2: March –April ‘17

Round 3: TBD

Real system testing using real end users

Reference implementation component development and integration: 2016

Pilot testing with real users:
Feb 2017

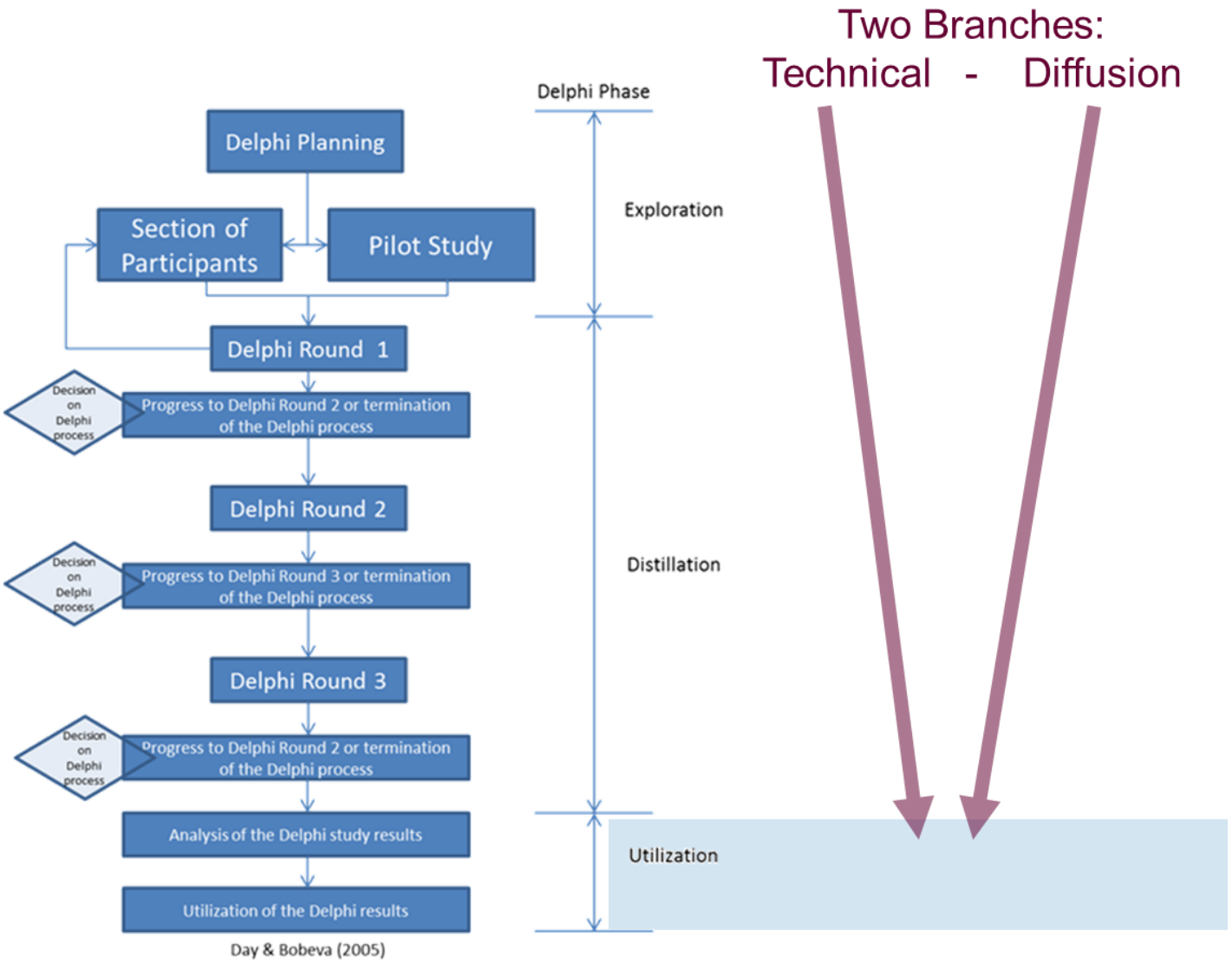
- All tech integration and research procedures tested
- UX design tested for refinements
- Cybersecurity content

End user testing: April 2017

- Ft. Bragg
- Real warfighters
- Week long testing and focus groups
- Technical and performance data captured
- UX and usability data captured

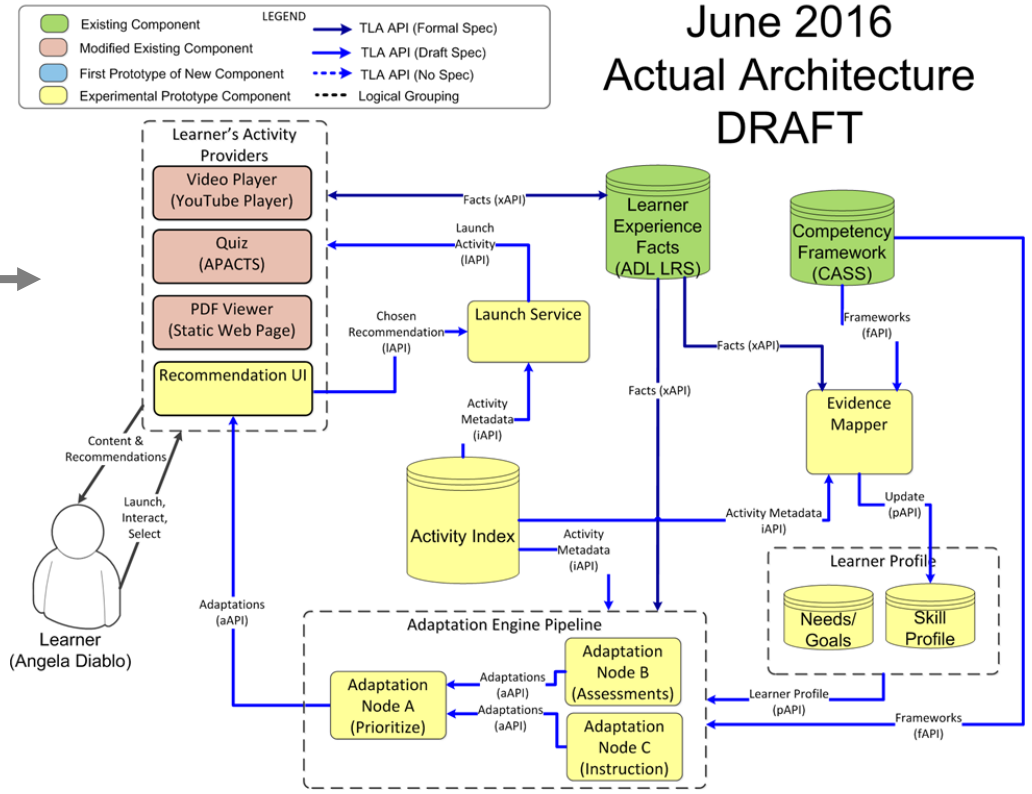
Implications for design changes in YR2

Delphi Methodology



53 Delphi participants

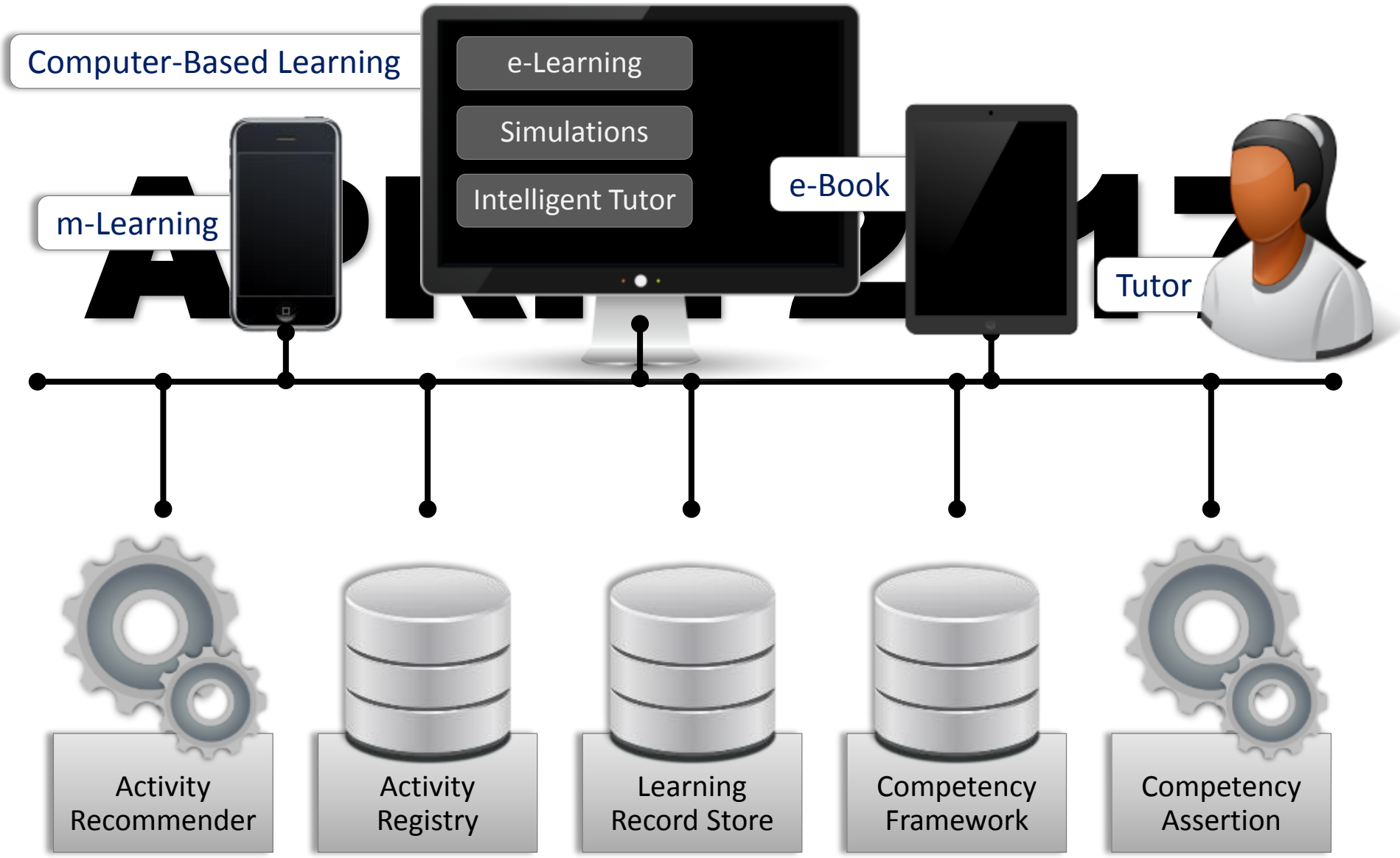
React to:



About:

- Ability to implement
- Clarity
- Complexity
- And many other aspects

Reference Implementation System Description and Testing


Computer-Based Learning
e-Learning
Simulations
Intelligent Tutor
m-Learning
e-Book
Tutor
Activity Recommender
Activity Registry
Learning Record Store
Competency Framework
Competency Assertion

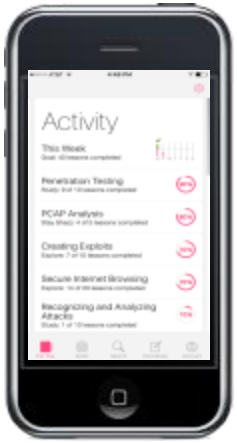
ARES
Serious Game

Cyber-Scorpion
Simulation

Sero!
Concept Maps

Moodle
Courseware

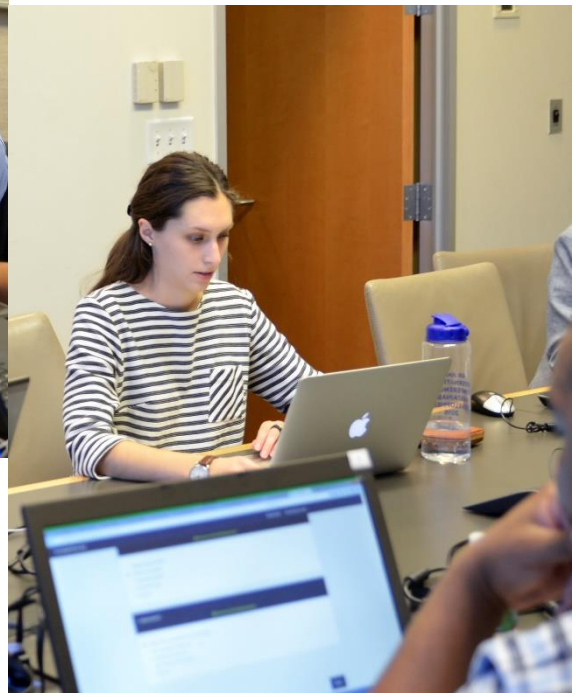
GIFT
Intelligent Tutor



PERLS
Micro-learning

Actionable Databook

Pilot Testing at IDA Facilities Feb 21-23



Rough timeline for the next 5 years

Project kick-off

Formation of Technical Advisory Board (TAB)

Kick-off Delphi testing

v0.1 TLA spec

DBR Test #1

Pilot Test @IDA

Delphi data collection

Operational Test @ Ft. Bragg

Design Meeting

iFest with TLA “plugfest”

DBR Test #2

Second operational test Data collection @Ft. Bragg

Design Meeting

Personalized pathways across applications

V1.0 TLA spec

Marketplace

Commercial marketplace emerging around specifications

Best Practice Documents

Hardening

Transition

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