Faculty of Science, Engineering and Computing
SCHOOL OF COMPUTING AND INFORMATION SYSTEMS
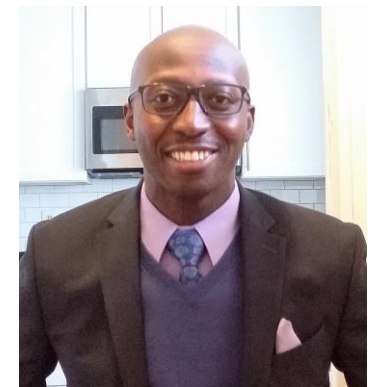
Information Systems MSc Viva
Briefing

Technology Use and Acceptance Framework (TUAF) v2

An extension of UTAUT for LMIC
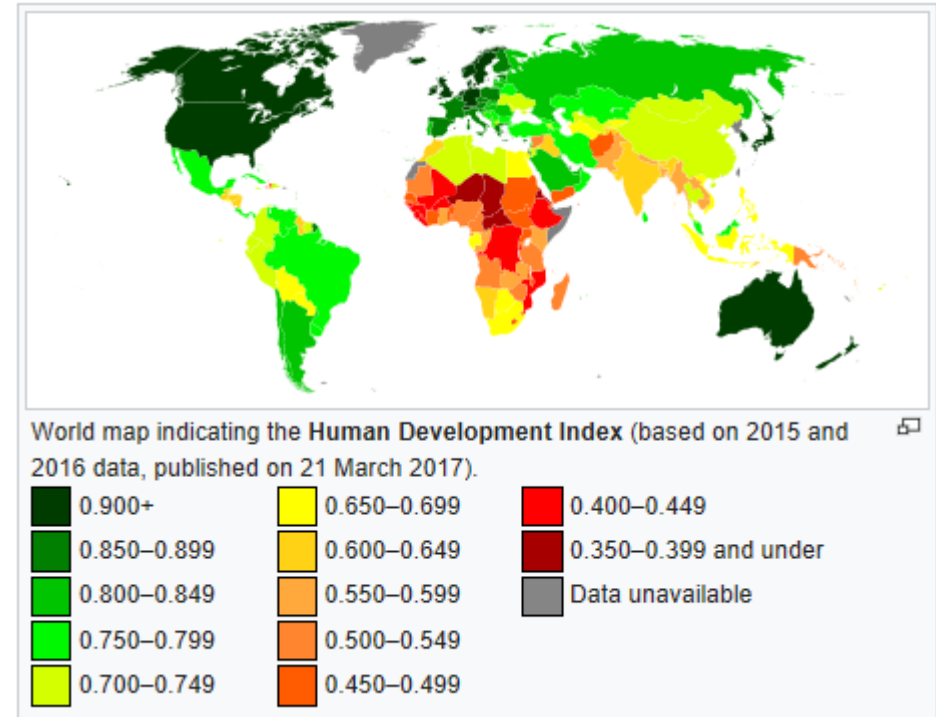Health Information Technology Systems

Isaac Osei
February 2018

Overview

- Introduction and motivation

- Research questions

- Methodology

- Theoretical Framework

- Implications

- Conclusions

Introduction and Motivation

- "Lesser developed countries cannot develop economically and socially without substantial improvements in the health of their people".

- Productivity and performance of healthcare systems in addition to patient outcomes in developing countries.

- LMICs (typically HDI < .650) struggle to achieve the value originally envisioned.

- LMICs and healthcare-specific contextual factors in the research of technology acceptance and utilization.

World map indicating the **Human Development Index** (based on 2015 and 2016 data, published on 21 March 2017).

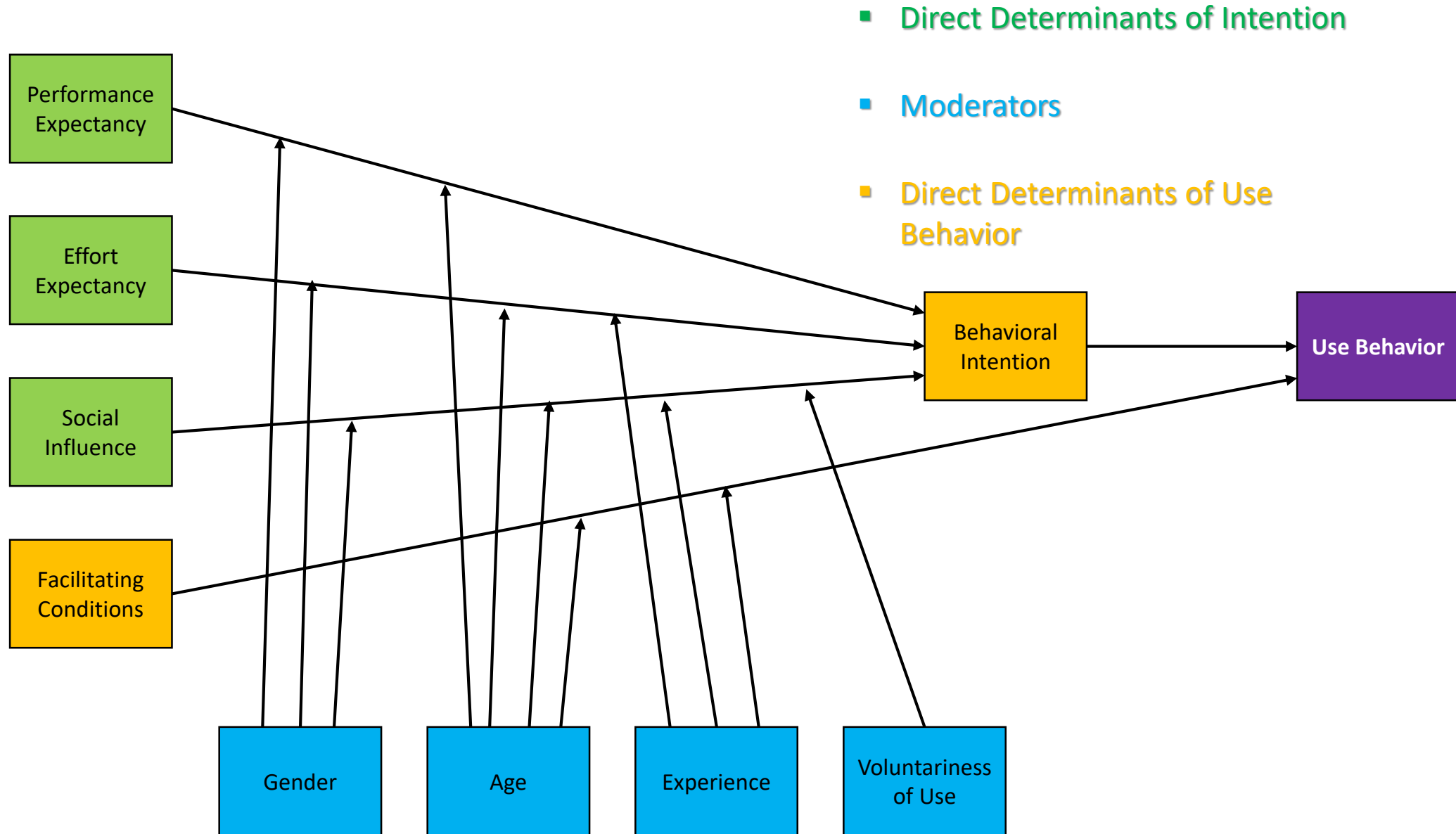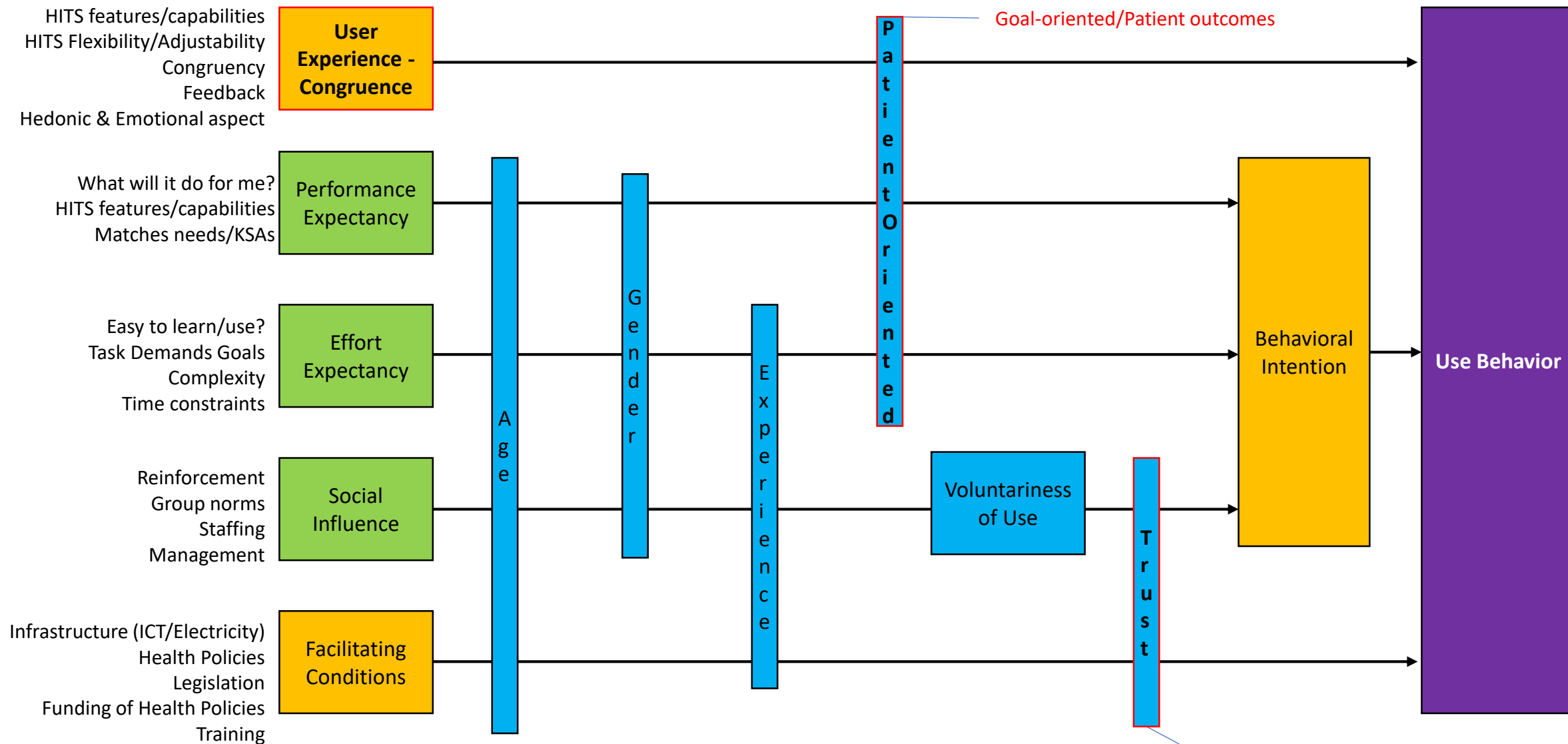|		
0.900+	0.650–0.699	0.400–0.449
0.850–0.899	0.600–0.649	0.350–0.399 and under
0.800–0.849	0.550–0.599	Data unavailable
0.750–0.799	0.500–0.549	
0.700–0.749	0.450–0.499	

Research questions

- To what extent does extant academic literature on Technology Acceptance address the usage of HITS in LMICs?

- What are the challenges and barriers to technology acceptance in a LMIC healthcare setting?

- Using existing models and frameworks, can a framework be developed to more accurately predict HITS use given the unique circumstances in a LMIC?

Methodology

- Desk research
- Systematic collection and review of the data from online:
  - Academic journal articles, Scholarly reports
  - Academic Books
  - Published theses
  - Government reports
  - NGO studies
- Keyword list
- Search Engines and Databases
  - Google Scholar, iCat.kingston.ac.uk, IEEE Xplore Digital Library, Google, British Library EThOS, British Library
- Thematic Analysis and Synthesis of Qualitative Data

Unified Theory of Acceptance and Use of Technology (UTAUT) – Venkatesh et al, 2003

HITS features/capabilities
HITS Flexibility/Adjustability
Congruency
Feedback
Hedonic & Emotional aspect

User Experience - Congruence

Goal-oriented/Patient outcomes

What will it do for me?
HITS features/capabilities
Matches needs/KSAs

Performance Expectancy

Easy to learn/use?
Task Demands Goals
Complexity
Time constraints

Effort Expectancy

Reinforcement
Group norms
Staffing
Management

Social Influence

Infrastructure (ICT/Electricity)
Health Policies
Legislation
Funding of Health Policies
Training

Facilitating Conditions

Age **Gender** **Experience** **Patient Oriented**

Voluntariness of Use

Trust

Behavioral Intention

Use Behavior

Ethics/Corruption

Technology Use and Acceptance Framework (TUAF) v1 –
An extension of UTAUT for a LMIC
Health Information Technology Systems
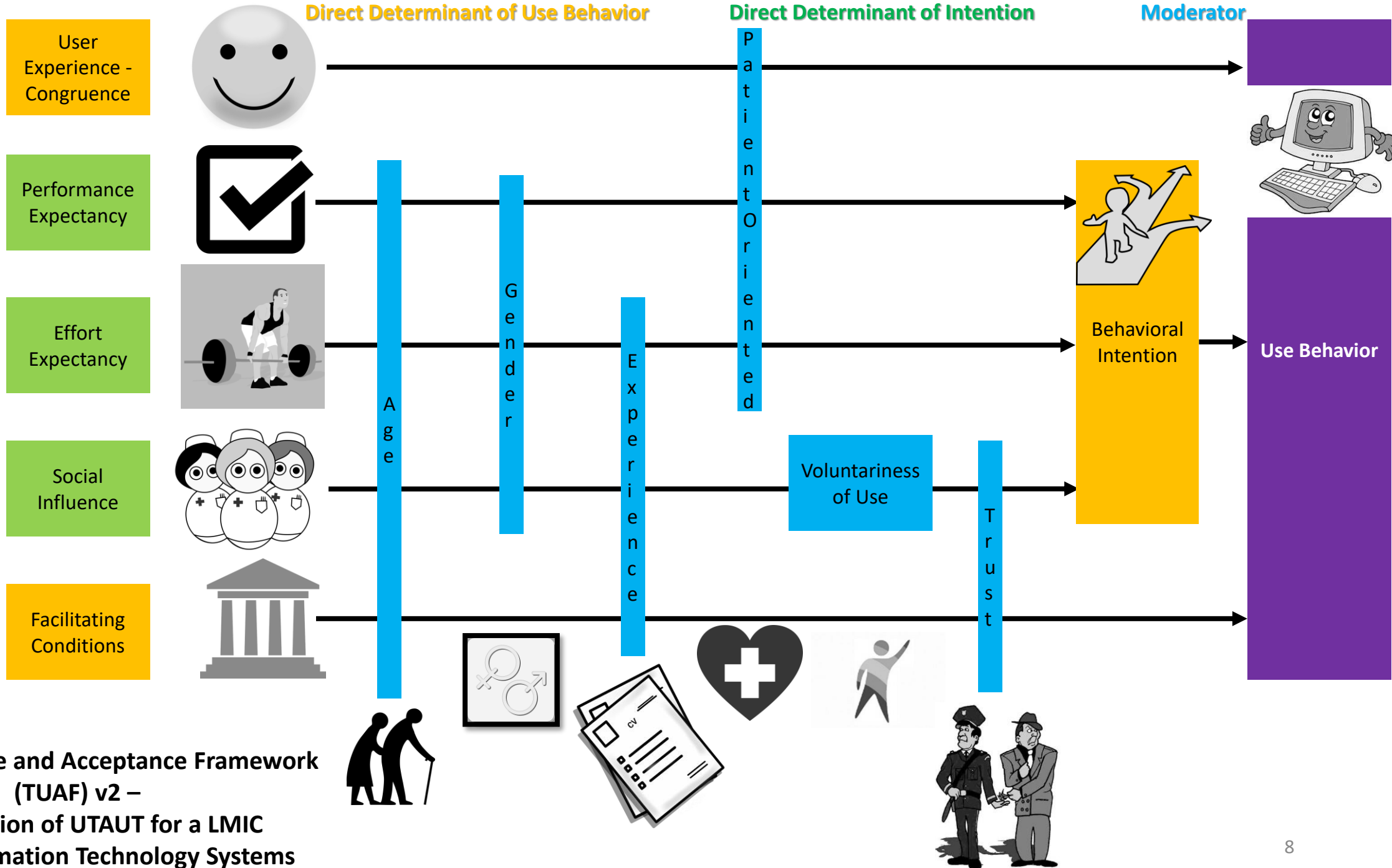
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Direct Determinant of Use Behavior   **Direct Determinant of Intention**   **Moderator**

User Experience - Congruence

Performance Expectancy

Effort Expectancy

Social Influence

Facilitating Conditions

Age

Gender

Experience

Patient Oriented

Voluntariness of Use

Trust

Behavioral Intention

Use Behavior

**Technology Use and Acceptance Framework (TUAF) v2 –
An extension of UTAUT for a LMIC
Health Information Technology Systems**

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Implications

- Future research into adoption/acceptance and robust utilization HITS in the LMIC environment.

- Helps to assess the acceptance and utilisation of HITS in LMICs.

- Software and IS developer and designers should make changes.

- Needed government and Health organisation reforms.

- Hospital administrators should ensure their facility practices and policies are conducive and accommodating HITS.

Conclusions

- Void of HITS acceptance in LMICs research

- TUAF contributes to the body of knowledge in the area

- Challenges and barriers to HITS acceptance in a LMIC
  - Unreliable electricity and weak information technology infrastructure
  - Lack of healthcare worker KSAs (*knowledge, skills, and abilities*)
  - Lack of Trust and User Experience Design and context congruency

- As an extension of UTAUT for use of HITS in LMICs, TUAF proposes "User Experience" as a new determinant; "Patient Oriented" and "Trust" as new moderating factors.

THANK YOU

Back Up

Future Work

- TUAF must be verified and validated in a longitudinal study.
- Future research should attempt to identify other pertinent factors that can help broaden the applicability of TUAF in other technology use settings and contexts.
- Future study may show that there is a difference in between public and private sector use of HITS.
- A sensitivity analysis of the determinants and moderating factors could be done to understand the different impacts and weights.
- TUAF was based on data as of Jan 2018; the study should be revised and updated in 3 to 5 years time.