Why Do We Keep Using a Process Modelling Technique?

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- Queensland University of Technology -

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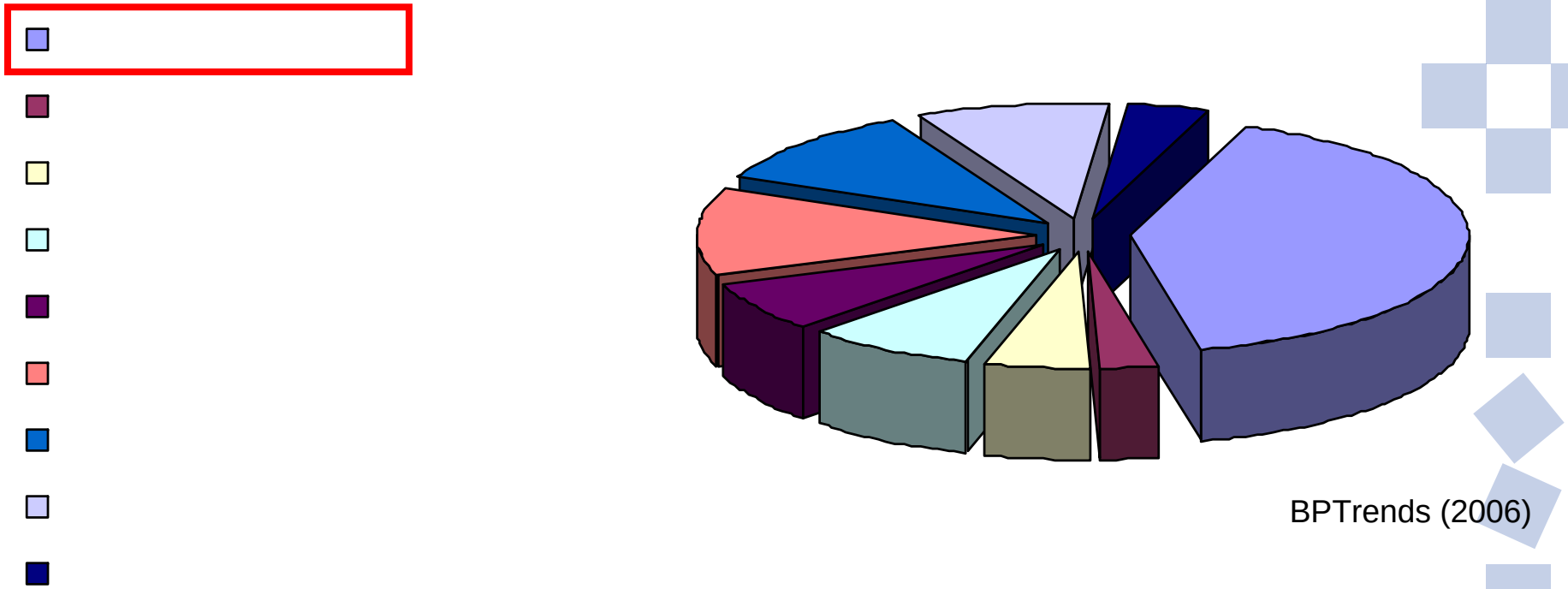
Agenda for Today

- What is process modeling and what is continuance - and why does it matter?
- Model construction and empirical test
- Antecedents of continuance
- Conclusions & discussion

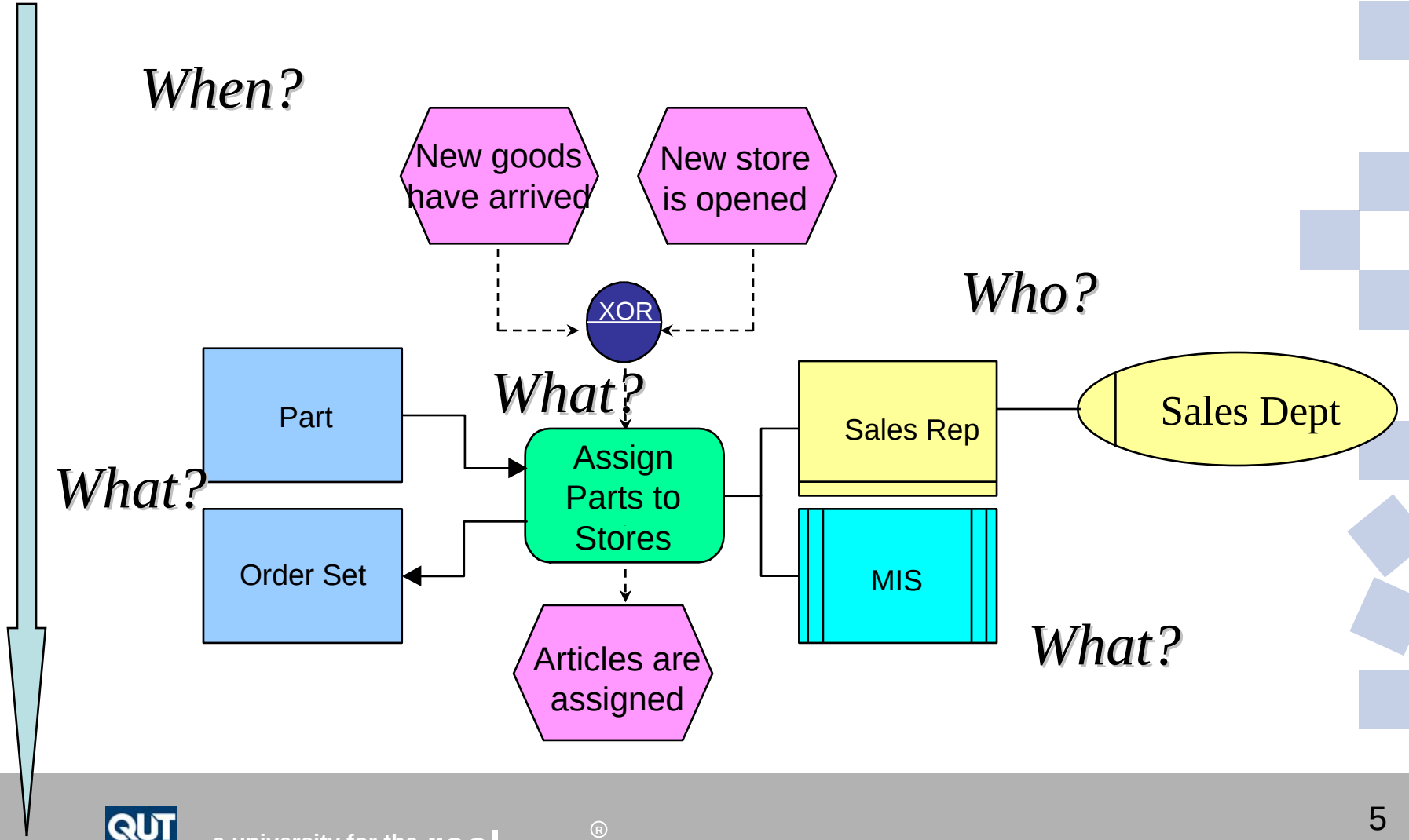
What is Continuance of Process Modeling Techniques?

Time Investment in BPM Projects



BPTrends (2006)

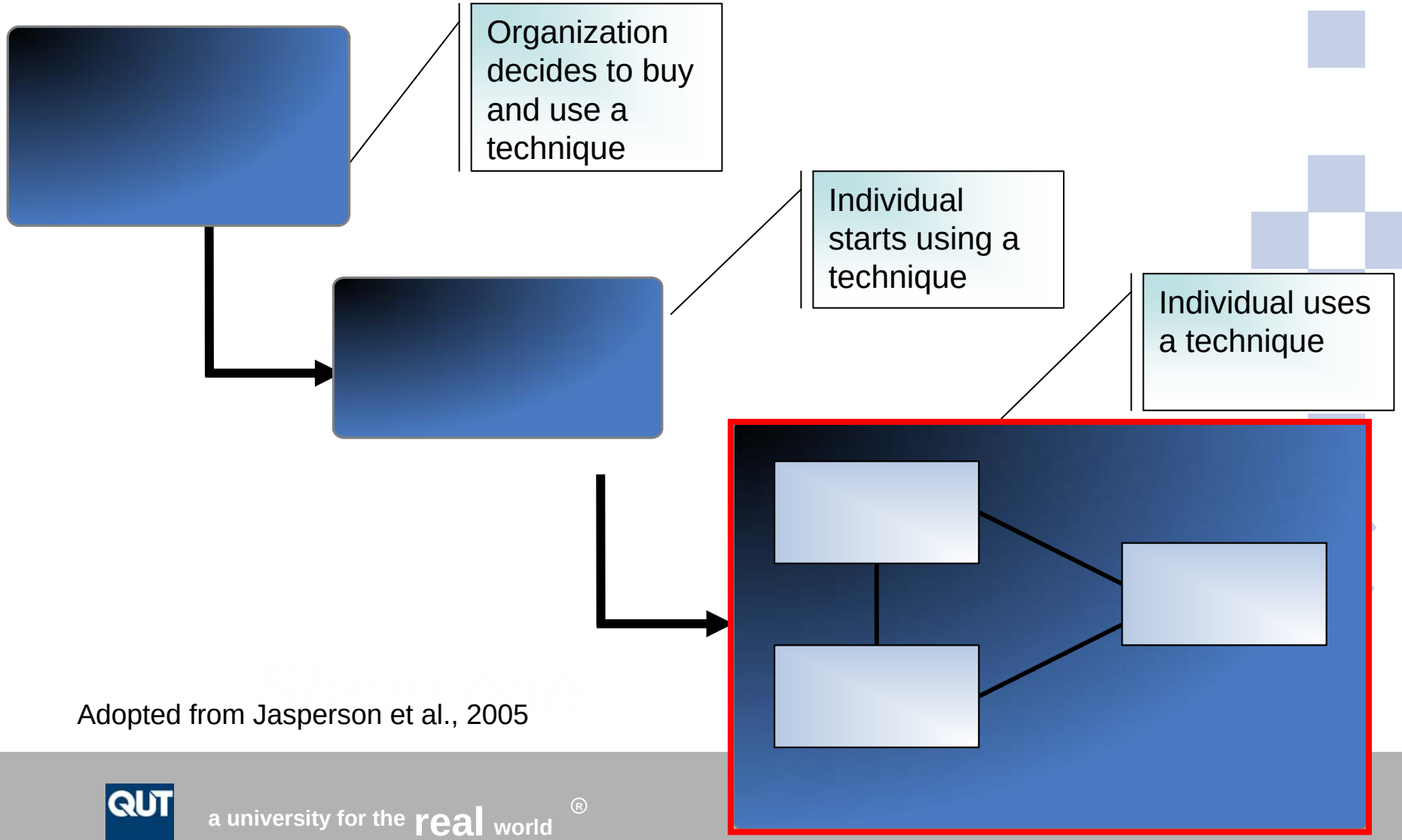
What is process modelling?



Research Problem

- IS community experiences extensive proliferation of process modelling techniques (Hommes, 1999; Sinur, 2004)
- Available techniques differ quite considerably in their features, e.g., representational capabilities (Rosemann et al., 2006), workflow support (van der Aalst et al., 2003), syntactical properties (Verbeek et al., 2007) or correctness and ease of use (Batra et al., 1990).
- Some process modelling techniques achieve high levels of adoption in modelling practice while others remain predominantly as ‘a study object’.
- The findings from current research provide only little explanation of actual success, adoption, acceptance or continued usage patterns
- Accordingly, the imperative of this research is
  - **to develop an understanding of the continued use of process modeling techniques by individual modelers.**

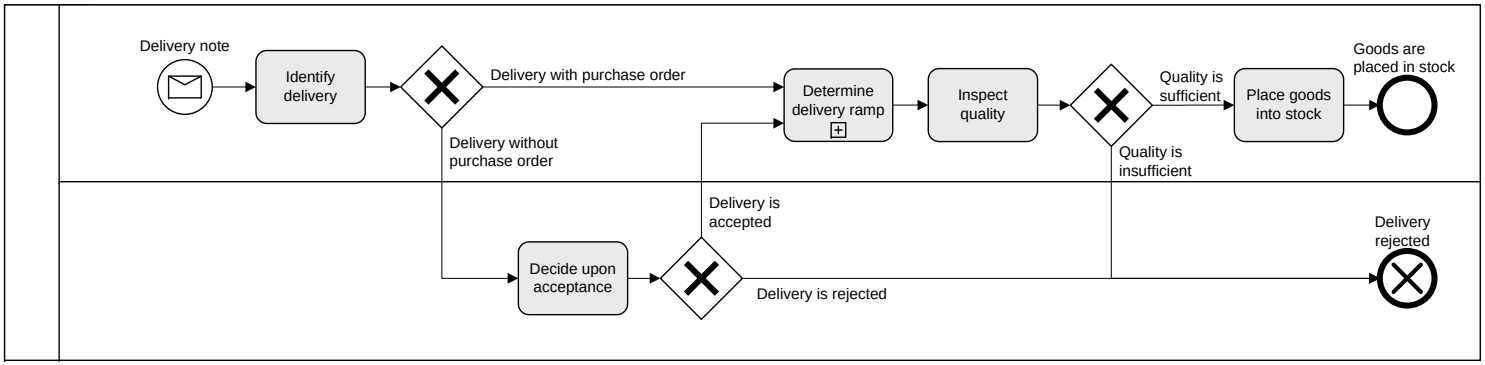
Post-Adoption Behaviour



Adopted from Jasperson et al., 2005

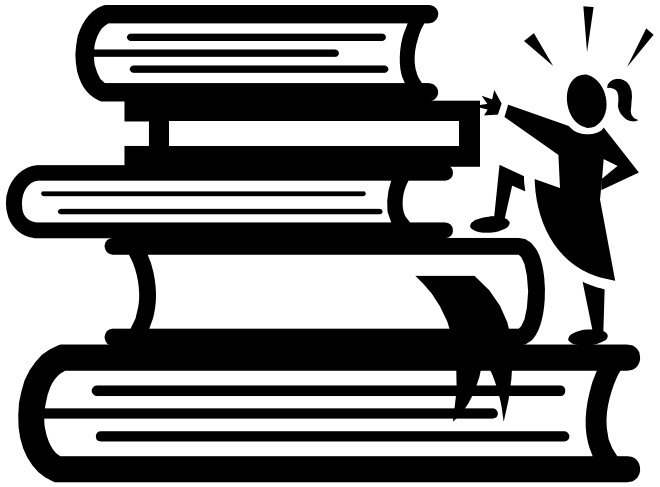
An interesting Unit of Analysis

- Business Process Modeling Notation (BPMN)



- Developed by BPMI.org, OMG standardization in 2007
- Receives significant amounts of scholarly and industry attention (e.g., BPMI.org, 2007; Recker et al., 2006)
- Where is the increased popularity of BPMN stemming from? Is BPMN actually “better” than other techniques?

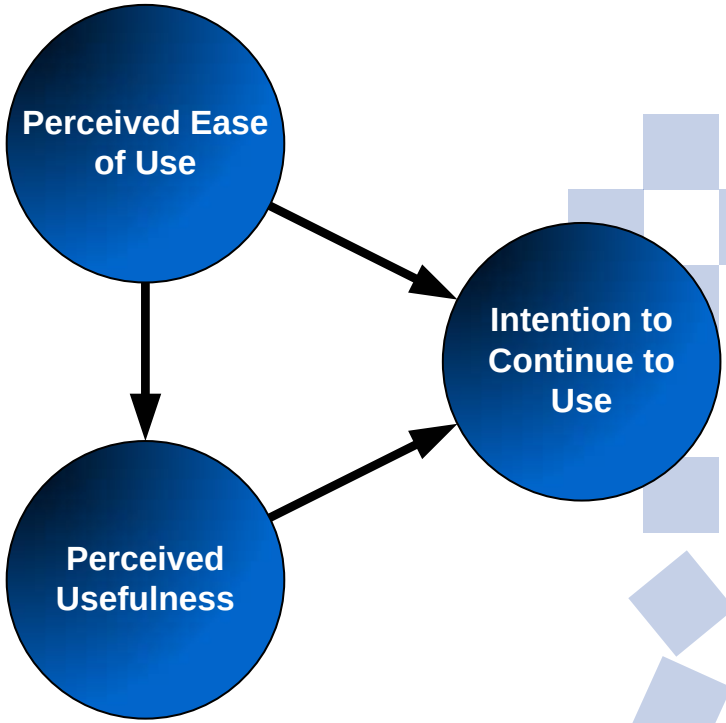
Theories of IS Continuance



Theoretical Foundations (1)

- **Technology Acceptance Model**

- A widely accepted, extensively tested model to represent the determinants of users' adoption and usage decisions across a variety of IS phenomena
- Premise:
  - users will choose to accept (and use) an artifact if it is useful and easy to use.

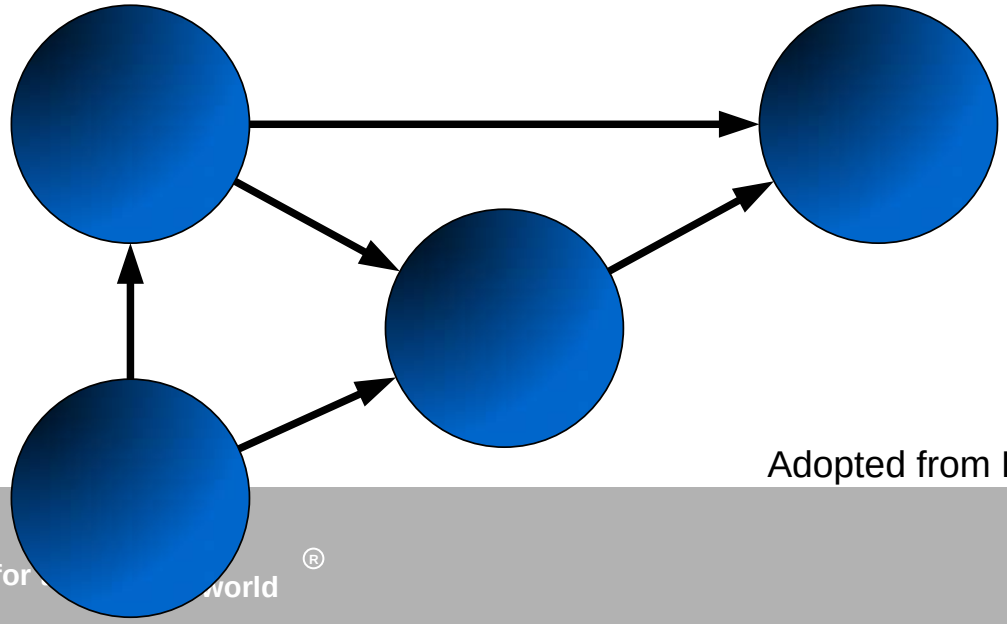


Adopted from Davis et al., 1989

Theoretical Foundations (2)

- **Expectation-Confirmation Theory**

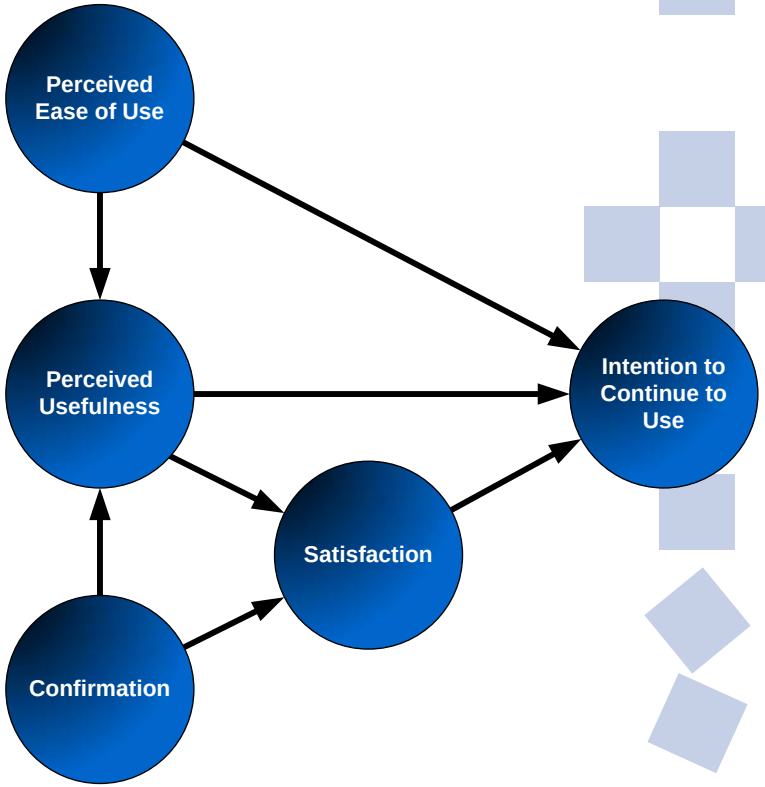
- relatively new theoretical model developed specifically to understand users' continued usage behavior
- Premise:
  - The positive (dis-) confirmation of pre-usage expectations, coupled with perceived performance, leads to post-adoption satisfaction, which in turn determines the formation of the intent to continue using an artifact



Adopted from Bhattacharjee, 2001

A Hybrid Model

- ECM and TAM focus on different aspects of user evaluation
  - TAM is more utility-driven
  - ECT is more expectation-driven
- TAM and ECT appear to be conceptually complementary (Kim and Malhotra 2005; SeJoon et al., 2006; Premkumar and Bhattacherjee 2008)
- A hybrid model suggests two determinants of continuance
  - whether users form a positive belief about the actual use of a technique, viz., whether they find it *useful* and *easy to use* in actual process modelling practice, and
  - whether users are able to *confirm* (or disconfirm) initial expectations from the pre-usage phase about a technique.

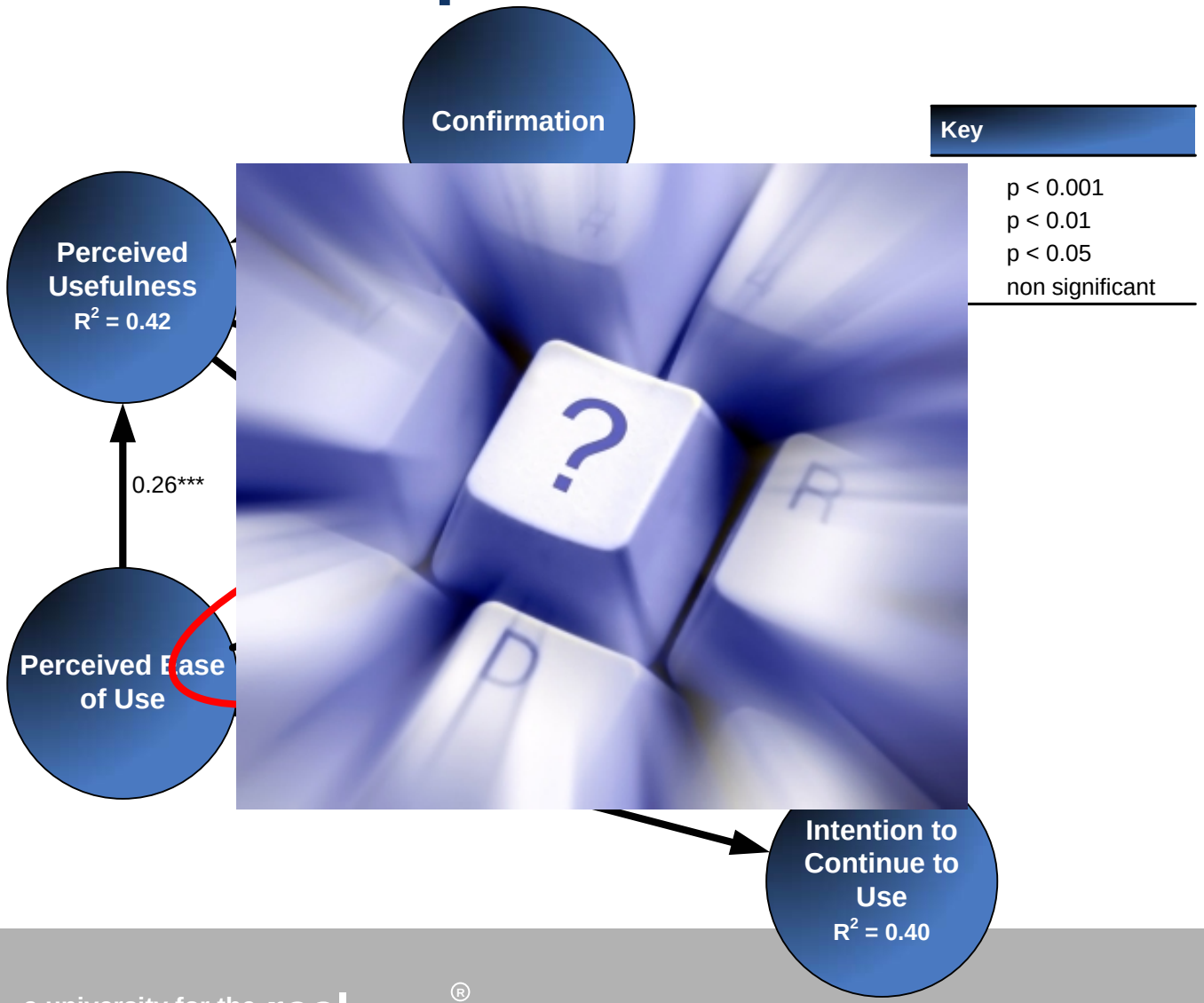


Model Comparison

Fit index	Recommended value	TAM	ECT	Research model
GFI	≥ 0.900	0.956	0.950	0.934
AGFI	≥ 0.900	0.918	0.920	0.902
NFI	≥ 0.900	0.982	0.986	0.984
NNFI	≥ 0.900	0.979	0.986	0.985
CFI	≥ 0.900		0.990	0.988
RMR	≤ 0.050		0.043	0.047
RMSEA	≤ 0.080		0.070	0.070
χ^2 (*df*, *p*)	insignificant	121.181 (*24, 0.00*)	187.307 (*49, 0.00*)	307.129 (*81, 0.00*)
χ^2/ *df*	< 3:1	5.049	3.823	3.792
R^2 for ItU	As high as possible	0.32	0.27	0.40

F test:
Explanatory power of the research model is significantly better than ECT or TAM.

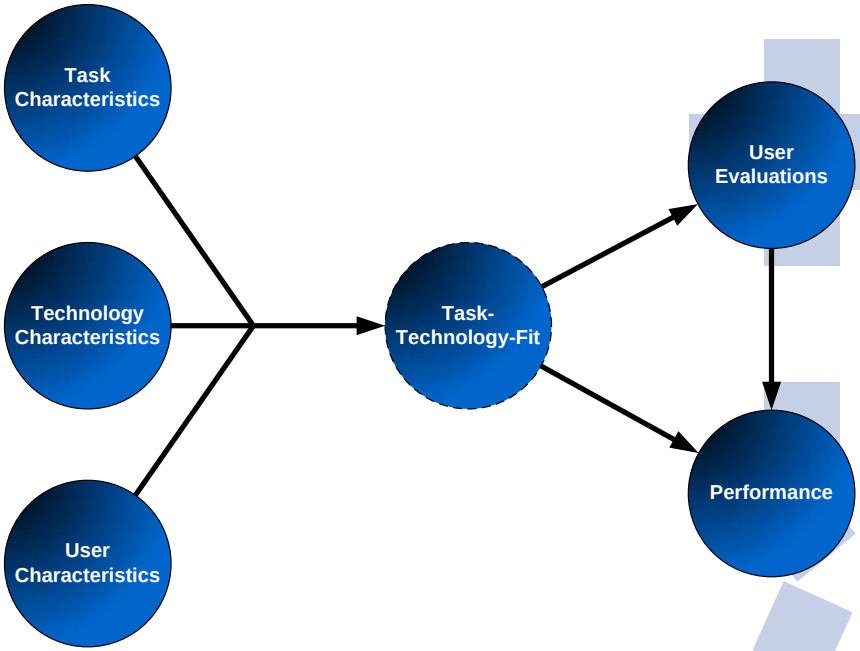
Empirical Test



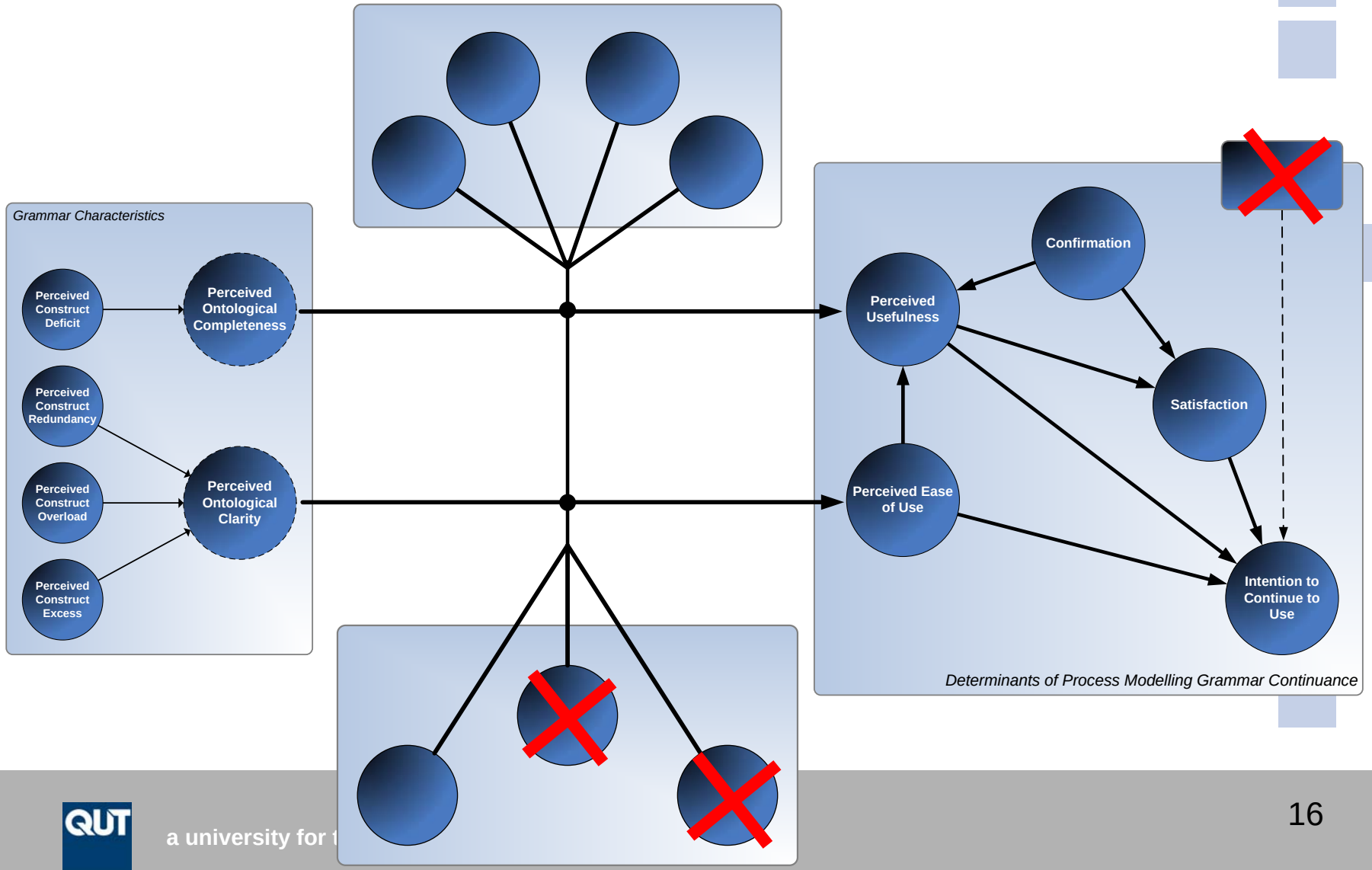
Theoretical Foundations (3)

- **Task-Technology-Fit**

- Theoretical framework for the decision about and after IS use, i.e., as an antecedent to acceptance models and as a key construct between acceptance model and performance impacts.
- Premise:
  - Individual performance and user evaluations will be improved if the **capabilities of the IS** match the **tasks requirements** that the user must perform as well as the user's **individual abilities.**



Overall Research Model



Study Contributions

- **Contributions to Practice**
  - Assists practitioners in the selection and uptake of process modelling techniques
  - Describes relevant factors that catalyse or inhibit modellers' continued acceptance
  - Benefits education domains by eliciting main continuance factors → can be used to derive content for related curricula

- **Contributions to Theory**
  - First reported study that empirically measures continuance of process modelling techniques
  - Test of combination of IS theories, thereby extending scope and boundaries of established models such as TAM, ECT, TTF and BWW

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