A Comprehensive Review and Conceptualization of the Post-Adoptive Behaviors Associated with IT Applications

The Dilemma

- Organizations have made huge investments in information technology (IT) over the last 25 years
- Most intra-organizational work systems are IT-enabled
- Increasingly, inter-organizational industry value chains are becoming IT-enabled

BUT...

- The functional potential of installed, successful IT applications is extremely underutilized
  - Most users operate within narrow ‘feature breadths’
  - Most users apply features at low ‘levels of use’
  - Few users initiate extensions (technological and/or task-related) of the base functionality
The Goals

- Conceptualize the post-adoptive behavior construct (at an individual level of analysis)
- Represent the drivers (both individual and organizational) that influence post-adoptive behavior
- Situate these behaviors within a nomological net to facilitate future research in this domain

Research Question

- What influences users of installed IT applications to continue to learn about, exploit, and extend the functionality built into these technologies?
Shortcomings in Existing Research

- Prior studies ...
  - study IT applications as a whole (i.e., a ‘black box’)
  - employ very simplistic measures of use (e.g., frequency of use or length of use)
  - examine IT application use immediately after adoption or do not control for a user’s prior history of using the focal, or a similar, IT application
- Prior research on post-adoption IT use lacks penetrating, longitudinal studies of how individuals (choose to or are influenced to) learn about, selectively adopt and apply, and then extend an IT application’s feature set

Feature-Centric View of Technology

- An IT application consists of a hierarchy of subsystems
- One view of these subsystems can be (but rarely is) abstracted to the feature level
- A technology’s features are defined as the building blocks or components of the technology
Post-adoptive behavior is the myriad feature adoption decisions, feature use behaviors, and feature extension behaviors made by an individual user after an IT application has been installed, made accessible to the user, and applied by the user within his/her work activities.

Substantive Technology Use Period

*Clearly, individuals working within an organization experience their own individual context and the greater organizational context simultaneously. Here, however, a distinction is made between an individual situated within the context of her/his own history and beliefs and within the larger organizational context to facilitate the conceptualization of post-adoptive behavior.*
Proposition 1: An individual with current favorable cognitions regarding post-adoptive behavior will be more likely to sustain or increase post-adoptive intentions than would an individual lacking such cognitions.

Proposition 2: Individual differences will moderate the relationship between cognitions and post-adoptive intentions.
**Proposition 3:** An individual’s post-adoptive intentions will positively influence the individual’s post-adoptive behaviors.

**Proposition 4:** Post-adoptive behaviors that confirm (disconfirm) prior-held cognitions will reinforce (destabilize) these cognitions.

**Proposition 5:** An individual’s use history will influence the individual’s current post-adoptive behavior.

**Proposition 6:** An individual’s use history will influence the individual’s current post-adoptive intentions.
Proposition 7: When in a state of habitual post-adoptive behavior, an individual’s use history and post-adoptive behaviors will recursively reinforce each other until an intervention(s) prompts reflective cognitive processing related to post-adoptive behavior.
Proposition 8: The greater the gaps in work system outcome expectations, the more likely interventions will be introduced (or emerge) to induce work system changes.

Proposition 9: The greater the likelihood that gaps in work system outcome expectations can be ameliorated through the use of enabling technologies, the more likely interventions will be introduced (or emerge) to induce work system changes.

Proposition 10: The greater the likelihood that individuals attend to an intervention, the more likely the intervention will induce work system changes (and, hence, work system outcomes).

Proposition 11: The greater the salience to individuals of the work system elements likely affected by an intervention, the more likely the intervention will induce work system changes.
Proposition 12: The greater the number of salient interventions introduced during a period of substantive technology use, the more likely it is that work system changes will occur.
The Nature of Post-Adoptive Interventions

Proposition 13: The greater the power of the intervention source in relation to targeted work system elements, the more likely it is that work system changes will occur.

Synthesis of the Two Models

Diagram showing the relationship between intervention source, intervention target, work system outcomes, perceived work system outcomes, desired work system outcomes, work system changes, individual cognitions, post-adoptive intentions, post-adoptive behaviors, and confirmation.
Implications

- **Methodology**
  - Feature Level of Analysis
  - Measuring Post-Adoptive Behavior
  - Measuring Use History

- **Theory**
  - Work System Changes
  - Incentive System Changes
  - Substantive Technology Use Periods
  - Post-Adoptive Interventions
Conclusions

- The post-adoptive use of IT applications has not attracted much attention by either research or practice
  - It is difficult for research as studies must be tightly bound to the IT application (features and evolution), work system (features and evolution), organizational context, and individual use histories.
  - It is difficult for practice as attention and resources are directed toward new IT projects once an application has been installed

BUT …

- The investments to improve the post-adoptive use of IT applications has a huge potential to enable an IT group to significantly improve their host organization's performance
  … in the absence of substantial, new investment