Motivating Health Information Exchange Use as a Formative Construct for Measuring Quality of IT-Enabled Healthcare Delivery

TREO Talk Paper

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Abstract

One of the major headaches in the health care delivery is the phenomenon of patient re-admissions into clinics and hospitals that may not have a history of these re-admitted patients (Bardhan et al. 2015). Additionally, re-diagnosing patients who are primary attendants of other health institutions increases the cost of care to all stakeholders. PricewaterhouseCoopers reported in 2010 that, the US healthcare system spent over $25 billion every year on preventable patient readmissions cost. This and many other burdens on the healthcare delivery system necessitated several moves for standardization of health records and interoperability among health institutions (Kuperman 2011). The advent of HITECH Act in 2009 gave some direction and purpose as to how the industry should proceed in attaining an overarching goal of “meaningful use” – an ideal usage construct specified by HITECH to capture acceptable use of electronic health records (EHR). These electronic records allow for information transfer and easy accessibility of patients records by parties involved in the information exchange.

To this, several health information exchange architectures (e.g. the federated model) have been proposed and used in the industry. The centralized data model is one of the HIE architecture that has been argued as the way to go in making available patient records to a wide region in a timely manner (Wilcox et al. 2006). With an effective health information exchange, it is believed that the cost of re-diagnoses could be well reduced. Especially, when timely information is accessed for efficient health care delivery. Generally, health information exchange embodies the sharing of electronic health records (Downing et al. 2017). HIE is a process that (1) results in inaccessible information, (2) involves individual and collective actors, and (3) is influenced by the architectural strategy, each of which has a bearing on usage” (Vest and Jasperson 2010 p. 302). Thus, the impact of health information sharing cannot be overstated (Ayabakan et al. 2017). Due to the importance of HIE and in keeping with the extant literature of electronic data exchange (EDX), we seek to propose HIE as a technology use variable for measuring data-related healthcare quality. We assume that the context of effective data exchange amongst participating clinics and hospitals in a focal region is vital to the administration of quality and cost-effective healthcare.

We propose a formative measurement model of HIE use as an effective use measure as far as exchanging and leveraging quality health information for cost-effective diagnosis and care. Our context is the use of centralized database architecture and the level of analysis is organization. Based on a critical review of the literature, we propose ‘health technology appropriation’ (use on the physical technology use) and health information use (the use of the information or data) as bifurcated second-order use constructs. This bifurcation is motivated by DeLone and McLean’s (1992, 2003) study on the quest for an IS dependent variable. Additionally, we propose underlying first-order constructs specified formatively to the second order constructs. These are; updating opt-out decisions, decision rationalization, inputting and accessing patient records, health security behaviors and privacy-related behaviors, effective communication and organizational adaptation behaviors. Our goal is to substantially motivate and generate measurement items for all relevant use variables that can formatively predict and capture HIE use. We would rigorously validate these items to produce a robust and a standard scale for measuring an organization’s effective HIE use in improving patient outcomes. We are not aware of a standard scale of any measurement model in the HIE literature for this purpose. Our main research question is: what is the what is the more appropriate measurement model that captures usage in the health information exchange?