An Examination of the Relationships Among IT Capability Intentions, IT Infrastructure Integration and Quality of Care: A Study in U.S. Hospitals

Randy Bradley                    Renee Pratt              Evelyn Thrasher
University of Tennessee          Washington & Lee University Western Kentucky University
rbradley@utk.edu                  prattr@wlu.edu            eveltn.thrasher@wku.edu

Terry Byrd                   Carlos Thomas
Auburn University             Southern University
byrdter@auburn.edu             carlos.thomas@subr.edu

Abstract

This study employs a multiple respondent research technique to assess the efficacy of a framework intended to improve the quality of healthcare provided to patients. We use survey data from 78 matched respondents to answer the question to what extent does IT capability intentions affect a hospital’s ability to detect and reduce clinical errors. We investigate empirically the impact of IT capability intentions and IT infrastructure integration on elements of IT-enabled quality of care. Our findings position IT capability intentions as an antecedent to IT infrastructure integration and suggest IT infrastructure integration is the key component in overcoming a highly fragmented delivery system. The degree of IT infrastructure integration has significant effects on quality of care, in terms of both patient-centric responsiveness and error detection and reduction.

1. Introduction

With the increasing number of new technologies available in healthcare organizations (HCOs), integration and standardization of these technologies has become increasingly more important to the overall effort to achieve better health outcomes for medical patients [1]. The US healthcare industry continues to experience major transformations in its application of IT [2-4]. One of the major forces transforming the application of technology by HCOs is patients’ needs to have more resources electronically, including healthcare information, medical consultation, and instrumentation for diagnosis, monitoring, and treatment of medical conditions [2]. Given that healthcare is the largest single industry worldwide [5], the transformation of organizations in the healthcare industry is expected to be widespread. In the United States, this transformation is due in large part to national public policies related to IT in healthcare, including the Health Insurance Portability and Accountability Act of 1996 (HIPAA), the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009 (as part of the American Recovery and Reinvestment Act (ARRA) of 2009), and the Patient Protection and Affordable Care Act of 2010 (PPACA).

HIPAA requires the healthcare industry to exchange information electronically when carrying out administrative practices (e.g. billing and payment activity related to the provision of medical services) [6]. Furthermore, HIPAA mandates the use of standardized electronic transactions by HCOs when exchanging healthcare information electronically [6]. The law also requires HCOs to adopt privacy, data and medical information security standards to protect personally identifiable health information. The federal mandates brought about by HIPAA place significant burdens on an HCO’s IT unit; specifically, data and system standardization and integration [7]. The burden was further increased by HITECH’s extension and strengthening of the privacy and security provisions previously set forth in HIPAA.

Prior research suggests several factors inhibit HCOs’ ability to provide high quality healthcare – information flow, information quality, and integration of IT infrastructure [8]. Most of the poor quality connected with healthcare is related to a highly fragmented delivery system that lacks even rudimentary clinical information capabilities resulting in inadequate information flows and poorly designed care processes characterized by unnecessary duplication of services, long waiting times, and delays [8, 9]. Additionally, poor information quality is a major contributor to the numerous clinical errors that permeate throughout the health care delivery system [7, 10]. In addition to exposing a lack of IT capability within organizations, HIPAA regulations have created unprecedented demands on IT workers and administrators to design, implement, and manage new
healthcare information systems and implement large-scale IT integration projects [2].

The term HCOs refers to various entities including hospitals, insurance companies, private practices, and outpatient clinics; each of which plays a different role along the health care delivery continuum. We restrict our focus to hospitals and believe it is most appropriate to examine the impact of IT capability intentions on quality of care in hospitals considering their direct role in providing and monitoring care to patients in real-time. As such, the research question guiding our study is as follows, to what degree, if any, does a hospital’s IT capability intentions influence quality of care?

To answer our research question, we address four key issues believed to be integrally linked to providing high quality healthcare [7] – (1) healthcare safety, (2) customized and patient-centered practices, (3) timely responsiveness and (4) efficient services. Therefore, this study examines the impact of IT capability intentions on IT integration and its impact on quality of care through patient-centric responsiveness. Our underlying research model is depicted in Figure 1. Table 1 provides a summary description of each construct in the model. Appendices A and B contain the items used to measure the constructs and the item cross loadings, respectively.

![Figure 1: Research model](image)

### Table 1: Description of model constructs

<table>
<thead>
<tr>
<th>Construct</th>
<th>Description</th>
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<tbody>
<tr>
<td>IT Capability Intention</td>
<td>The purpose for and expectation of a set of IT resources that are available to hospitals and useful in enabling the accomplishment of their strategic goals [11, 12].</td>
</tr>
<tr>
<td>IT Infrastructure Integration</td>
<td>The ability of IT infrastructure elements and services to be interconnected, interoperate, and share data with other elements regardless of their locale and IT platform [13, 14].</td>
</tr>
<tr>
<td>Patient-Centric Responsiveness</td>
<td>The ability to provide timely care and services that are responsive to individual patient and provider needs [7, 15-17].</td>
</tr>
<tr>
<td>Error Detection and Reduction</td>
<td>The ability to detect and reduce clinical errors [18, 19].</td>
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### 2. Literature Review

#### 2.1 Quality of Health Care

##### 2.1.1 Error detection and reduction

A major challenge in healthcare is reducing and detecting clinical errors. Hospitals primarily determine the prevalence of errors during hospitalization through studies of adverse events, such as misdiagnosis, mortality, etc. [20]. Because patients are vulnerable to clinical errors when they receive care, clinical errors continue to be a major quality concern among clinicians. Clinical errors are a threat to higher quality of healthcare delivery and their prevention is an important objective in healthcare organizations [21, 22]. Therefore, consistent with the work of other scholars, we define quality of care relative to a hospital’s ability to detect and reduce clinical errors [18, 19].

The prevalence of clinical errors in hospitals is well documented [22-26]. The frequency of clinical errors in the healthcare industry has resulted in a substantial amount of harmful consequences for hospitals [27]. As such, many efforts are under way to evaluate and address clinical errors, including the use of healthcare IT (HIT) to mitigate clinical errors.

##### 2.1.2 Patient-centric responsiveness

Another element of quality of care is patient-centric responsiveness [7]. In this study, we define patient-centric responsiveness as an organizational competency that allows a hospital to react quickly to changing legislation, patient’s needs and demands, as well as the needs and demands of those responsible for providing the care and/or making decisions regarding the care patients receive (e.g. clinicians). Responsive hospitals are able to adapt quickly to changing environmental conditions [28, 29]. Garrett et al. [29, p.783] contend that: “rapid adaptation can be critical when those conditions reflect tremendous ambiguity and uncertainty,” as is often the case in high-velocity, dynamic environments such as hospitals. Products and services with relatively short life cycles often characterize organizations that operate in high-velocity environments [30]. When there is a shift or major change in the internal and/or external environment, it can dramatically affect the way and speed at which clinicians are able to deliver care. As a result,
organizations that compete in a high-velocity environment or industry must adopt short planning horizons and develop environmental scanning mechanisms that detect shifts in trends or practices that provide opportunities for new products and services [31].

There is growing evidence that the use of HIT improves quality of care [32, 33]. Further, the findings of other studies provide evidence that the use of HIT, such as computerized provider order entry (CPOE) and clinical decision support systems (DSS), can reduce clinical errors [27, 34-37]. Nevertheless, the pace of change is steadily increasing in hospitals and business risk is compounded by rigid IT infrastructures [38, 39]. Yet, the impact of IT infrastructure integration on quality of care, specifically error detection and reduction and patient-centric responsiveness, has been virtually neglected in the literature. Because the degree to which HIT affects quality of care is likely dependent upon the level of integration among IT infrastructure components, investigating the integration of IT infrastructure in hospitals is warranted as a potential antecedent to quality of care.

2.2 IT Infrastructure Integration

IT infrastructure is considered by many to be a major catalyst for competitive advantage and sustained competitive advantage [40-44]. IT infrastructure typically refers to the physical components, such as computer hardware and software (e.g., operating systems), network and telecommunications technologies, key data, core data-processing applications, and shared IT services, that reside or will reside in the organization [13, 14, 45, 46]. The physical component is also referred to as the technical component of IT infrastructure [41, 45, 47]. Although IT infrastructure can also be expanded to include the human component [13, 43, 48], the technical component is the focus of our study. Therefore, all subsequent references to IT infrastructure pertain to the technical component unless otherwise specified.

An integrated IT infrastructure is arguably one of the most important aspects of managing IT resources. Researchers and practitioners alike have taken note of the potential value of an integrated IT infrastructure [13, 14]. IT infrastructure integration consists of connectivity and compatibility [49]. Connectivity, which has sometimes been referred to as reach [13, 14], is the ability of an element of the IT infrastructure to connect to any other element whether inside or outside of the organizational environment [13, 14]. Compatibility is the ability of the IT infrastructure and IT services to interoperate and share data with other elements of the IT infrastructure regardless of the IT platform [13, 50-52]. Some scholars purport that an integrated IT infrastructure is crucial to the attainment and sustainment of competitive advantage [52]. Furthermore, an integrated IT infrastructure is the cornerstone upon which business activities and IS applications are built. In fact, the growing strategic value of an integrated IT infrastructure is almost undeniable [52].

In an attempt to identify antecedents to IT infrastructure integration, scholars have investigated its relationship to the role of senior IT leadership and strategic information systems planning [15]. However, after extensive research we found no studies that investigated a likely antecedent to IT infrastructure integration—IT capability intentions. Given the view of IT infrastructure as an IT resource, it is plausible that the state of that resource is a function of organizations’ pursuit of specific IT capabilities. Therefore, in this study, we consider IT capability intention as an antecedent to IT infrastructure integration.

2.3 IT Capability Intention

Research on IT capabilities, especially in the context of the resource-based view of the firm (RBV) has enabled researchers and practitioners alike to understand how effective management of technology can lead to improved organizational performance [43]. We define IT capability intent as the degree to which an organization articulates and pursues development of its intended IT capability. IT capability intent can range from situations where the objective is to serve isolated business needs to facilitating organization-wide technology standards in an effort to identify the organization's core processes and the data that drives them.

Wade and Hulland [17] argue that IT capabilities are multidimensional, and the two dimensions examined here—IT management capabilities and IT infrastructure integration—influence organizational assimilation of IT integration in different ways. IT management capabilities may improve assimilation of the technology through improved system planning or implementation [53, 54]. These capabilities allow organizations to more effectively bring IT-related innovations from the decision to adopt the technology through to full organizational assimilation.
3. DEVELOPMENT OF HYPOTHESES

3.1 IT Capability Intention and IT Integration

The IT infrastructure has been called the enabling foundation of shared IT capabilities upon which the entire business depends [55]. IT infrastructure has also been found to be a critical organization capability necessary to fully take advantage of new technologies (Armstrong and Sambamurthy, 1999; Keen, 1991; Weill and Broadbent, 1998). An IT infrastructure is the basis of facilitating capabilities across business units and functional areas [51]. It is the part of the information’s capacity intended to be shared among all departments [13, 14, 45, 56-58].

H1: IT capability intention is positively related to IT infrastructure integration.

IT Integration and Patient-centric Responsiveness

One of the more common capabilities of IT infrastructure integration cited in the IT literature is flexibility [13]. Duncan [13] initially characterized flexibility as the ability of an organization's IT infrastructure to enable it to quickly and adequately respond to innovative moves by its competitors in order to mitigate the competitors initial advantage. Moreover, Duncan asserts that a flexible system enables an organization to respond rapidly and effectively to emergent needs or opportunities. Byrd and Turner [14] later characterized the flexibility as the ability of an organization's IT infrastructure to enable it to rapidly respond to changes in their internal and external environment while providing for future integration without significant cost increases. In accordance with the work of Duncan [13] and Byrd and Turner [59], we posit that IT infrastructure integration will enable an organization to easily, rapidly, and adequately respond to changes in its internal and external environments through the deployment and diffusion of an organization’s IT. The option enabled by an integrated IT infrastructure is the option to implement more complex technologies in the future, such as customer-focused information systems. Thus, we present the following hypothesis:

H2a: IT infrastructure integration is positively related to responsiveness.

3.2 IT Integration and Quality of Care

Research has shown that an integrated environment is more than just the sum of the individual components [11, 12, 59]. Such an environment requires that standards be put into place to allow electronic communication between the various applications in the environment [15, 59]. Information can then flow seamlessly from one application to another and, organizationally, from one function to another to allow for real-time decision-making.

Integrated environments have proven even more valuable when they are deeply rooted in the business processes of organizations [20]. For instance, consider clinical information technology applications (CITAs), which are believed to reduce costs and improve the safety and quality of healthcare. CITAs are clinical applications that are directly involved or used in the delivery of care to patients. Examples of CITAs include, but are not limited to, CDSS, clinical data repository (CDR), CPOE, physician documentation (PD), nurse order entry (OD), and electronic medication administration record (eMAR). These applications might be stand-alone applications, in which the clinical staff moves data from one to the other, or they may be integrated through an electronic medical record (EMR). Integrating these applications is expected to yield even greater benefits because the integration of the applications enables organizations to overcome the inherent limitations associated with silos. For example, Evans et al. [37] found that the use of CPOE reduced adverse drug events by 75%. Similarly, Bates et al. [35] found that the use of CPOE resulted in a 55% reduction in serious medication errors. A new pharmacy software system implemented by the Department of Defense that integrates and reviews information from all sources prior to prescriptions being filled eliminated over 100,000 adverse drug interactions [26]. Based on these findings, we posit the following:

H2b: IT infrastructure integration is positively related to the detection and reduction of clinical errors.

3.3 Patient-centric Responsiveness and Quality of Care

Research suggests that access to information and its use or lack of use in non-electronic format (e.g., paper) contributes to increased clinical errors [34]. For example, slow response rates, lack of services and timely care in response to individual patient and provider needs are all conditions, which may increase errors such as improper entry of data, substitution errors, duplicate information, and/or information misappropriated to a different patient. Thus, rapid response to individual patient and provider needs is one way to reduce the rate of errors through the use of information systems [60, 61].

Fadlalla and Wickramasinghe [7] suggest that patient-centric responsiveness are key aims to achieving quality of care. The delivery of health care is
a highly interactive, reciprocal process of information exchange between and among patients and health care practitioners. To ensure immediate responsiveness and resolution, different technologies and mechanisms are needed to facilitate the delivery of quality healthcare. For example, Prgomet et al. [62] reported that physician use of mobile handheld devices increased error prevention. Prgomet et al. cited the mobile device’s ability to provide immediate feedback, while the physician was at the patient’s side, as major factor in error prevention. Changes in patient management were higher when physicians used mobile devices. In particular, the physicians used mobile devices to monitor drug interactions by accessing electronic resources. Immediate access to relevant information facilitates quick response by physicians and thus minimizes the likelihood of clinical errors. This ability of the physician to provide patient-specific advice during a consultation is a major contributor to the improvement of quality of care [63] Thus, we present the following hypothesis:

H3: Responsiveness is positively related with the detection and reduction of clinical errors.

4. Research Methods

4.1 Participants and Measurement Instrument

We employed a multiple respondent research technique to collect data on the variables of interest. We used multiple respondents for a couple of reasons. One reason is that prior studies suggest the use of multiple respondents provides for more reliable conclusions and implications than that of single respondents [61, p. 84]. Another reason we thought it necessary to have multiple respondents is "because people function in different roles, at different levels of the hierarchy and, consequently, have differing experiences and perceptions" of the phenomena studied [64]. Third, the use of multiple respondents helps to reduce the chance of method bias.

We developed two measurement instruments, Q1 (intended for CIOs and Q2 (intended for IT Managers). Each instrument targeted a different respondent based upon the individual most familiar with the construct(s) of interest. Prior to starting the data collection process, 14 CIOs and three academicians knowledgeable about IT and strategic planning in healthcare organizations reviewed Q1 and Q2 for understandability of the questions being asked, clarity of the questions, consistency of the terminology used in the questions with that used in industry.

4.2 Data Collection

We obtained contact information for individuals identified as CIOs from the HIMSS Analytics Database [65]. We sent a request for participation to a random sample of 1000 CIOs of U.S. hospitals via email. The e-mail included an explanation of the study, its purpose, its anticipated contribution, and a link to the sponsor letter from then HIMSS Analytics CEO, Dave Garets. Links to the web-based surveys were included in the e-mail so that interested participants could complete the surveys at their chosen time and place. We asked CIOs to complete Q1 because they are the most appropriate individuals to answer questions related to IT strategic initiatives and IT-enabled performance. We asked IT managers to complete Q2 because they typically are more inclined to be familiar with and responsible for the day-to-day operations of the IT unit. Since the CIO was our point of contact for each hospital, we asked the CIO to complete Q1 and forward the link for Q2 to the IT Manager (this individual’s contact information was not publicly available). Finally, as an incentive to participate in the study, we offered a complimentary copy of the summarized results of the study to all participants.

Of the 1000 CIOs in the sample, we could not reach 45 of them, and 811 indicated that hospital or healthcare system policy forbade their participation in the study. After two reminders, 168 responses were received (19%). We matched responses from Q1 and Q2 for 78 hospitals. The 78 matched pairs serve as the sample for our study. The responding hospitals, on average, have 822 non-IT FTE, 35 IT FTE, 175 licensed beds, and net operating revenues of $122 million.

We assessed non-response bias by verifying that early and late respondents did not significantly differ in their demographic characteristics and responses on principal constructs. We identified early respondents as those that responded in the first two weeks. All t-tests between the means of the two groups were non-significant (p < .10 level).

5. Data Analysis and Results

5.1 Analysis

We used partial least squares (PLS), a latent structural equation modeling (SEM) technique, to test the hypothesized relationships in our research model. PLS is a second-generation path analysis technique that uses a correlational, principal component-based

1 Although these executives were from different hospitals, their hospitals were part of the same healthcare system.
approach to estimation [64, 66-68]. Prior studies cite PLS cite for its robustness in conducting causal-predictive analysis and its ability to handle deviations from normality [64, 66-68]. We chose PLS because of its robustness in handling deviations from normality, as well as its ability to accommodate sample sizes considered too small for covariance-based SEM packages [69]. We modeled each multi-item construct as reflective of the latent variable [70]. Because our structural model has no more than three structural paths to any one construct, our sample size is well beyond the sample size recommendation of 5 to 10 times the largest number of structural paths to any one construct [71, 72].

5.2 Convergent Validity and Composite Reliability

To assess construct validity, we first assessed convergent validity of each construct. All constructs in our proposed research model demonstrated convergent validity as each construct’s item loadings are significant at $p < .05$ and the items load more heavily on their respective construct than on other constructs. Furthermore, composite reliability estimates for all reflective principal constructs are .83 and higher. The composite reliabilities, descriptive statistics, correlation matrix, and average variance extracted (AVE) of the principal constructs are reported in Table 2.

5.3 Discriminant Validity

We used the measure of average variance extracted (AVE) to assess discriminant validity. All constructs in our model are at or above the recommended threshold of .50 [73-75]. We compared the square root of the AVE of each construct to the inter-construct correlations (see Table 2). The square root of the AVE for each construct was greater than its respective inter-construct correlations. This result indicates that all the constructs in our model are independent of each other, and, therefore, are distinct measures.

5.4 Control Variables

The control variables used in this study were non-IT FTE, IT FTE, number of staffed beds, and profit status of the organization. The non-IT FTE and staffed beds variables were chosen as proxies for the size of the organization. The IT FTE variable was chosen as a proxy for the size of the IT unit. Additionally, the profit status variable was chosen to account for differences in profit motives among organizations. These variables have been used consistently in prior studies related to IT strategic planning and implementation and healthcare informatics [76]. The effects of all control variables on the latent variables in the research model were tested. We found none of the effects to be significant; therefore, the control variables are not included in the research model.

5.5 Results of Hypothesis Testing

We analyzed the research model with SmartPLS (2.0 M3) [77], a path modeling tool that is well-cited for highly complex predictive path models [78]. We used the bootstrap resampling technique with 200 samples to estimate the significance of the path coefficients. The PLS path coefficients for our proposed research model are shown in Figure 2. In accordance with prior studies, the effects of all control variables on the latent variables in the research model were tested, and since we found none of the effects to be significant they are not included in Figure 2.

First, IT capability intention has a significant and positive effect on both IT infrastructure integration ($\beta=0.36, p < 0.001$), thereby supporting H1. Second, IT infrastructure integration has a significant and positive effect on both patient-centric responsiveness ($\beta=0.28, p < 0.001$) and error detection and reduction ($\beta=0.39, p < 0.001$), thus supporting H2a and H2b, respectively. Moreover, patient-centric responsiveness has a significant and positive effect on error detection and reduction ($\beta=0.29, p < 0.001$).
<table>
<thead>
<tr>
<th>Construct</th>
<th>Composite Reliability (no. of items)</th>
<th>AVE</th>
<th>Mean</th>
<th>S.D.</th>
<th>ITCAP</th>
<th>INTG</th>
<th>RSP</th>
<th>EDR</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Capability Intention (ITCAP)</td>
<td>.87 (4)</td>
<td>.63</td>
<td>5.25</td>
<td>1.31</td>
<td>.79</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT Infrastructure Integration (INTG)</td>
<td>.83 (5)</td>
<td>.50</td>
<td>4.72</td>
<td>1.09</td>
<td>.37</td>
<td>.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsiveness (RSP)</td>
<td>.91 (4)</td>
<td>.73</td>
<td>4.77</td>
<td>1.15</td>
<td>.23</td>
<td>.30</td>
<td>.85</td>
<td></td>
</tr>
<tr>
<td>Error Detection and Reduction (EDR)</td>
<td>.91 (2)</td>
<td>.82</td>
<td>5.27</td>
<td>1.10</td>
<td>.15</td>
<td>.49</td>
<td>.40</td>
<td>.91</td>
</tr>
</tbody>
</table>

*Notes:* The bold numbers on the leading diagonal are the square root of the AVE.
Because responses to a couple of our related variables (i.e., patient-centric responsiveness and error detection and reduction) in the research model were provided by a single respondent, we conducted two tests to assess the extent of method bias. First, we performed Harman’s one-factor test by including all indicators in a principal components factor analysis [79, 80] and examining the unrotated factor solution to determine the number of factors that are necessary to account for the variance in the items. Using Harman’s test, evidence for common method bias exists if either a single factor emerges or if one general factor accounts for the majority of the covariance among the items [80]. The factor analysis did not reveal a single factor nor did any one factor account for the majority of the covariance among the items. Second, we examined correlations between our variables. Our correlation matrix (see Table 2) does not indicate any highly correlated factors (the highest correlation, $r = .49$, is between two factors whose responses came from different respondents), whereas evidence of common method bias would have resulted in extremely high correlations ($r > .90$) [71]. In summary, these tests suggest that method bias does not account for the study’s results.

6. Discussion and Implications

Investments in HIT are becoming increasingly critical due to recent federal healthcare reform legislation, the need for timely and effective information, and the perpetual need for increased quality of patient care. Yet, simultaneously, healthcare administrators are facing increasing scrutiny of their investment decisions at a time when healthcare costs and medical errors are at record levels [32]. Thus, for researchers and practitioners alike, it is imperative to identify and empirically support those IT investments that can bring about the greatest degrees of positive change. Currently, the IT literature is void of empirical evidence of the value of HIT integration; thus, the current study provides much needed evidence of the positive outcomes that can be achieved through proper HIT integration.

Prior research suggests several factors inhibit HCOs’ ability to provide high quality healthcare – information flow, information quality, and integration of IT infrastructure [8]. Traditional, non-electronic medical records have a demonstrated link to medical errors and poor healthcare quality. The reliance on non-electronic medical information could result in increased response times and limit access to critical data [34, 36]. The dependence on non-electronic medical information can further lead to omission of information, duplication of data, improper data entry, and other clerical errors that can result in medical errors. Our study identified four key issues thought to be integrally linked to providing high quality healthcare, namely healthcare safety, customized and patient-centered practices, timely responsiveness, and efficient services. Our findings suggest that hospitals’ IT capability intentions have a significant effect on the degree of IT infrastructure integration. Likewise, the degree of IT infrastructure integration has significant effects on quality of care, in terms of both patient-centric responsiveness and error detection and reduction. These findings offer valuable insights regarding the ability of IT to provide hospitals with a critical strategic resource. Of particular interest is the need to adequately identify the hospitals’ goals and desires for IT capabilities in order to ensure that the investments in IT resources and integration are best suited to meet those goals. Evidence of the link between IT capability intentions and IT infrastructure integration is lacking in the literature; thus, this study provides much needed empirical evidence of the significance and value of this relationship.

An integrated IT infrastructure is the cornerstone upon which business activities and IS applications are built [81, 82]. It is arguably one of the most important aspects of managing IT resources. A well-planned and well-integrated IT infrastructure will allow for ease of expansion and the inclusion of more complex technologies. A properly integrated IT infrastructure will provide the flexibility needed to respond quickly to changes, innovation, and emergent needs and opportunities, both internal and external to the organization [14]. This can, in turn, lead to increased responsiveness and improvements to quality of care. For example, physicians and others who make patient care decisions will have access to accurate, reliable, and timely information; and because information is standardized across the organization, decision-makers will have access to the same information. Effective IT integration will allow for seamless information flow and real-time decision-making that is more accurate and less prone to error.

IT integration facilitates patient-centric responsiveness by enabling faster interactivity with
both the patient and the information. Patient care involves the reciprocal exchange of information among providers and patients, thus clinical errors can be greatly reduced when this exchange occurs as quickly and smoothly as possible. Time is of the essence in any industry, but it is absolutely critical in the healthcare industry. Thus, the findings of this study provide essential evidence of the need to invest in IT integration that will enhance responsiveness and speed up diagnosis and treatment while ensuring the accuracy of these decisions.

It can be very easy to fall victim to the demands of those entities and agencies external to the organization and to make hasty investment decisions based on the actions of competitors and the pressures caused by regulations, patient-care needs, etc. However, in the longer term, the hospital will be better served to consider these demands along with the goals of the organization in order to make the best investment decisions possible. Beginning with clearly defined goals for IT capabilities and then following that with investments in IT integration will not only address the immediate pressures but will also provide the hospitals a means to achieve sustained competitive advantage.

7. Conclusions

Healthcare administrators are carrying heavy decision-making burdens and must balance the need for higher quality of care, lower costs, and compliance with government regulations. With the multiple new technologies available in HCOs, it is the integration and standardization of these technologies that will help to provide more access to medical information and better quality of care and service to patients. As the current study has demonstrated, healthcare administrators would be well-served to clearly define the goals for IT capabilities within the HCO as a prerequisite for making IT investment decisions. When IT investment decisions are backed by clearly defined objectives, these investments are much more likely to result in more effective IT integration that will, in turn, improve patient-centric responsiveness and quality of care.

8. References


[66] Chin, W., Marcolin, B., and Newsted, P. A Partial Least Squares Latent Variable Modeling Approach for Measuring Interaction Effects: Results from a Monte Carlo


