THE COMPETITIVE IMPACT OF INFORMATION TECHNOLOGY: THE DIFFERENTIAL EFFECT OF CUSTOMER SERVICE SYSTEMS ON ORGANIZATIONAL PERFORMANCE

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Abstract

This article focuses on the strategic potential of Information Technology in the context of customer service delivery. Despite polarizing arguments on the subject and cyclical attacks from disillusioned practitioners, academic research has yet to clearly demonstrate that information systems initiatives can lead to sustained superior performance.

Our work is set in the context of customer service provision and it is grounded theoretically in the IT-dependent strategic initiative perspective. Our results show that adding an incremental IT-enabled customer service channel to a customer service systems portfolio leads to improved perceptions of customer service speed and, as a consequence, of customer service evaluations. Moreover, this effect is not constant, but it is dependent on contextual organizational characteristics of the implementing firm.

Finally, our work provides strong evidence in support of the IT-dependent strategic initiative perspective and the notion that, even when the technology at the heart of the initiative is not overly complex or expensive, such IT-dependent strategic initiatives can be a source of sustained competitive advantage.

1. Introduction

The competitive value of Information Technology is a topic of continued interest in both the academic Information Systems literature (Melville et al., 2004; Wade, 2001; Piccoli, Ives, 2005) and amongst practicing managers

(Carr, 2003; McFarlan, Nolan, 2003). Despite the continued attention, academic research has yet to provide undisputable evidence that *IT does Matter*. While theorist have provided cogent argumentations in support of the manner in which IT-dependent strategic initiatives lead to sustained improvements on the competitive position of an organization (Piccoli, Ives, 2005), systematic empirical validation of this notion is still sparse.

The failure of rigorous work in this area is at the heart of the cyclically recurrence of attacks on the role of IT as a competitive weapon. The most recent of such attacks was produced in the form of a cleverly titled, if poorly supported, article (Carr, 2003). The main thesis of such article was that IT, while critically important to the firm's success, has lost its ability to be of strategic importance and value because it has now become a ubiquitous resource available to all organizations. Thus, once a firm deploys new IT any competitive advantage that it is able to attain will be short lived since competitors will quickly deploy the same technology and level the playing field.

Despite the troublesome lack of clear understanding about the manner in which new IT enable sustained improvements in a firm's competitive position, many managers intuitively understand that new technologies allows for the creation and appropriation of significant value (Brandeburger, Stuart, 1996). With the emergence of the service sector, now accounting for an estimated 75% of the US economy (Horn, 2005), an area of increasing opportunity for the deployment of IT is customer service. Such growing attention toward the creation of value through IT-enabled customer service processes has lead to calls for the emergence of a cohesive service science.

The purpose of this paper is three-fold. We seek to contribute to the theoretical debate on the competitive value of Information Technology by directly testing the proposition that IT-dependent strategic initiatives engender sustained competitive advantage. We test the notion that such effect on competitive advantage is not uniform across organizations, but it depends on the fit between the IT-dependent strategic initiative and the firm's characteristics and positioning. Support for this notion would question the myopic view that IT is a strategic commodity. Finally, by contextualizing our study in the emerging IT-enabled customer service literature, we contribute to our understanding of the role of IT and Customer Service Systems (Lui and Piccoli, forthcoming) in customer service delivery. Specifically, with our dataset we are able to test the impact of an incremental service delivery channel on proximal outcome (speed of service) and distal outcomes (customer service).

The paper is organized as follows. In the next section we produce the theoretical frame of reference for our investigation, followed by hypotheses development. We then discuss the methodology and our results. We conclude with implications for research and practice, as well as directions for future research.

2. Theoretical framework

Research on the competitive value of Information Technology has a long tradition in the information systems discipline (Melville et al., 2004). Yet, the practitioner literature cyclically falls out of love with the strategic potential of the technology resource (Dearden, 1972; Carr, 2003). While these challenges could be dismissed purely on the grounds of lack of methodological and theoretical rigor (McFarlan, Nolan, 2003), it is a fact that they are often quite influential and that academic research has yet to provide conclusive arguments against them. There have been recent attempts in this direction using industry-level data (e.g., McAfee, Brynjolfsson, 2008) but there is very little firm-level evidence to demonstrate the sustainability of IT-enabled competitive advantage. Firm-level data is necessary because, as an applied discipline, information systems must be able to not only demonstrate the competitive value of IT, but also explain the process by which such competitive impact unfolds.

Information Systems theorists have recently called for a shift away from the traditional focus on IT investments, to a more holistic view on IT-dependent strategic initiatives – defined as «identifiable competitive moves that depend on the use of IT to be enacted, and are designed to lead to sustained improvements in a firm's competitive position» (Piccoli, Ives, 2005:748). Beyond compelling theoretical arguments, there is mounting empirical evidence demonstrating that Information Technology investments pay off only when they are coupled with other resources (Bharadwaj, 2000; Duliba et al., 2001; Dehning, Stratopoulos, 2003; Santhanam, Hartono, 2003). In other words, when seeking to evaluate the role of IT in creating and appropriating economic value, we need to look for *IT-dependent strategic initiative effects*, rather than *IT investments effects*. Thus, we take the IT-dependent strategic initiative construct as the point of departure of our theorizing.

2.1. Self-service as IT-dependent strategic initiative

The role of Information Technology as an enabler of superior customer service has a long tradition in the Information Systems literature (e.g., Ives, Learmonth, 1984; Piccoli et al., 2001). But the increasing importance of customer service as a mean of competitive differentiation has produced renewed impetus for research in this area (Sawy, Bowles, 1997; Ray et al., 2005; Brohman et al., 2003; Chesbrough, Spohrer 2006).

We define Customer Service Systems (CSS) as the collection of information systems that provide supplementary customer services to fulfill customer needs (Piccoli et al., 2004). CSS are increasingly implemented as the core technology that enables IT-dependent strategic initiatives. Examples of CSS abound in the service industry, ranging from personalized web sites that greet returning customers, to self-service kiosks enabling airline passengers to choose their seat, to business intelligence initiatives that identify the optimal marketing communication mix for different customer segments.

2.2. Incremental IT-enabled Customer Service Channels and Performance

Service is «a change in the condition of a person, or a good belonging to some economic entity, brought about as a result of the activity of some other economic entity with the approval of the first person or economic entity» (Hill 1977:318). Thus, customer service is the process by which an organization seeks to improve its patron's economic position. In other words, through its customer service processes the firm seeks to generate customer value – customers perceptions of the difference between benefits received and the cost of obtaining such benefits (Woodruff, 1997; Han and Han, 2001) – so that they perceive a positive status change toward satisfaction of their needs.

IT-enabled customer service systems are introduced in organizations to efficiently produce customer value. A popular class of CSS is self-service technology. Self-service systems enable technology-generated customer contact by delivering fully automated service without any human employee involvement (Froehle, Roth, 2004), thus customers independently fulfilling their needs. Consider the example of Airline check-in kiosks. The kiosks provide value for those customers who feel that the kiosk enabled them to obtain the

service they are seeking (e.g., air transportation) more quickly, with less stress waiting in line, with superior ability to identify and choose a seat of their liking, and so on.

Previous work in this area has shown that self-service can increase service speed, provides customers with more control (Lee, Allaway, 2002), and, when it provides users with access to services at convenient time and location will have a positive effect on their satisfaction (Meuter et al., 2000; Bitner, 2001; Yen, 2005).

In this paper we extend the work on self-service CSS by evaluating the effect of an incremental service delivery channel on the performance of the firm's overall customer service process. While people who are technology-ready (Parasuraman, 2000) will choose to use new technologies for accomplishing goals in obtaining services, people whose thinking is more influenced by emotion (Epstein, 1994) tend to experience more difficulties in navigating the interface associated with a self-service technology as they do not perform well when the interaction is logical and sequential. A high need for personal interaction will also lead to decreased interest in learning how self-service technologies work and increased effort needed when confronted with such technology-enabled service delivery channels (Meuter et al., 2005). More specifically, we theorize that the addition of an IT-enabled self-service channel enables customer self-selection. That is, those individuals who feel comfortable self-serving will choose the incremental channel, while the remaining customers will continue to use the traditional channel.

If the firm's impetus for the addition of the incremental channel is customer service improvements, rather than efficiency through labor reductions, the average patron's customer value will improve. Those individuals who are comfortable with the self-service channel (i.e., perceive it as a low cost channel) and value its functionality, will choose to self-serve. Conversely, those who perceive IT-enabled self-service to be cumbersome or difficult (i.e., a high cost) or appreciate personal interaction as a valued aspect of the service encounter (Curran, Meuter, 2005) will continue to employ traditional service methods but, unencumbered by the portion of the customer base that is now self-serving, will receive faster assistance and, potentially, higher quality help (e.g., more personalization by attendants who experience shorter lines). The complementarity of the personal service and IT-enabled self-service channel accommodate this need.

The reliability of the new channel also affects the speed and quality of customer service (Zeithaml et al., 2000). However, self-service technologies are prone to failure, particularly in the early stages of an implementation. Because customers come in direct contact with the technology, such failures are very frustrating as there is not employee that can help in service recovery (Bitner et al., 2002). For example, a customer who is using the airline check-in kiosk discussed above will need to get in line to see an agent, when failure occurs. Such breakdowns of service delivery have the highest negative impact when they occur through IT-enabled self-service channels (Meuter et al., 2000; Parasuraman et al., 2005).

Hypotheses #1

We posit that an incremental IT-enabled customer service channel, when reliably operating, leads to improved average customer value perceptions reflected in customer service evaluations.
  Hypothesis 1.1: Usage of the incremental IT-enabled service channel is positively related to service process speed for the average customer.
  Hypothesis 1.2: The reliability of the incremental IT-enabled service channel is positively related to service process speed for the average customer.
  Hypothesis 1.3: Service process speed is positively related to customer service evaluations.

3. The Differential Strategic Impact of Information Technology

The IT-dependent strategic initiative perspective provides a complete approach to evaluating the competitive potential of new technologies because it places them in the organizational context in which they are introduced and deployed. Moreover, it implicitly recognizes that IT «does not contribute to firm performance in isolation, but instead contributes as part of an activity system that fosters the creation and appropriation of economic value» (Piccoli, Ives, 2005:766).

The potential to create response lag to imitation (MacMillan, 1989) with IT-dependent strategic initiatives depends on the characteristics of the technology itself as well as the characteristics of the implementing organization and the value network in which the firm operates (Piccoli, Ives, 2005). It fol-

lows then that, the very same technology will have different effects in different organizations, not only with respect to implementation success and organizational outcomes as previously shown (Orlikowski, Iacono, 2001), but also with regard to competitive positioning.

Demonstrating that IT may have a differential competitive impact in different organizational contexts is in direct contrast to the notion that "IT is a strategic commodity" and a resource that different organizations can utilize to obtain the same results. Early evidence at the industry level of analysis suggests that market turbulence, a measure of industry leadership change, is significantly higher in IT intensity environments (Brynjolffson et al., 2008). This result is due to the fact that IT-enabled process innovations «do not diffuse rapidly or equally across all firms in an industry. Firms that successfully use IT to embed and diffuse innovations grow relatively rapidly at the expense of other firms, leading to winner-take-all dynamics and hence greater concentration» (Brynjolffson et al., 2008:2). In an effort to complement these industry-level results, we seek evidence of intra-industry differences due to firm positioning rather than IT intensity.

Hypotheses #2

We posit that in the context of customer service systems IT is not an undifferentiated commodity that can be employed in the same way by the different organizations vying for competitive advantage. Rather, the same customer service systems in different context will produce different results.

Hypothesis 2.1: Brand is a significant moderator of the relationship between usage of the incremental IT-enabled service channel and service process speed.

Hypothesis 2.2: Brand is a significant moderator of the relationship between the reliability of the incremental IT-enabled service channel and service process speed.

4. IT-dependent Strategic Initiatives and Sustained Competitive Advantage

The IT-dependent strategic initiative perspective indicates that IT can enable sustained competitive advantage when the firm's competitors face high barriers to erosion in replicating the leader's initiative (Piccoli, Ives, 2005). Barriers to erosion represent impediments that make replication of the initiative time consuming and costly (Reed, DeFillippi, 1990; Wernerfelt, 1984), as in the case of the IT resources, complementary resources and IT project barriers, or prevent competitors from ever being able to offer the same value proposition as in the case of the preemption barrier (Piccoli, Ives, 2005).

Consider the case of Lands' End, the online retailer that pioneered mass customized business casual attire through its Lands' End Custom initiative. As the pioneer in its market segment, Lands' End was able to accumulate a substantial information repository of past orders and customer fit patterns – reaching the two million customers within two years from public launch (Piccoli et al., 2003). Such repository became a critical IT resource that Lands' End leveraged in the subsequent years to roll out more garment lines (e.g., dress shirts) as well as fabrics and colors. Superior breadth and selection of the product line strengthened the value proposition of the Lands' End Custom initiative, increasing the competitors' difficulty in eroding the firm's advantage (Piccoli et al., 2003).

Another well known case is the Dell Online initiative. When the Web emerged as a viable retail channel, Dell seized the opportunity to extend its high-velocity direct sale model to consumers – a market segment it had never been able to reach before (Dell online case). As competitors such as Compaq and HP sought to replicate the leader's strategy they found two main constraints. Their long established relationship with the retail distribution channel engendered channel conflict that made it difficult to fully commit to the online channel. Their inability to build computers to order by mimicking Dell's finely tuned high-velocity-production made it impossible to ensure quick delivery of custom made machines. Dell had been able, through strategic focus, its history and perhaps some luck, to erect considerable IT and complementary resource barriers that made it time consuming and costly to effectively replicate its full value proposition – even in the face of attempts to replication.

Despite theoretical arguments and case evidence that supports the IT-dependent strategic initiative perspective, the "IT as a strategic commodity"

argument persists both in the popular press and in academic circles (Mata et al., 1995). A rigorous test of this argument can be set up by evaluating an IT-dependent strategic initiative based on a seemingly simple IT. If the firm's IT-dependent strategic initiative is linked to persistence of a superior competitive position over time, there is compelling evidence to reject the notion that IT is a strategic commodity. This approach has been successfully used in the literature concerned with the competitive role of first mover advantage and switching costs (Makadok, 1998).

Hypotheses #3

We posit that IT-dependent strategic initiatives can lead to sustained improvements in a firm's competitive position. Specifically we propose that the incremental IT-enabled service channel will impact the firm's competitive performance over time both directly and indirectly. The indirect effect is due to the new channel's positive effect on customer service. The direct effect is due to the new channel's positive effect on the firm's efficiency.

  Hypothesis 3.1: Usage of the incremental IT-enabled service channel leads to a position of superior competitive performance that is maintained over time.

  Hypothesis 3.2: The reliability of the incremental IT-enabled service channel leads to a position of superior competitive performance that is maintained over time.

  Hypothesis 3.3: The competitive effect of the incremental IT-enabled service channel is partially mediated by customer service effects.

Fig. 1 - Research Model
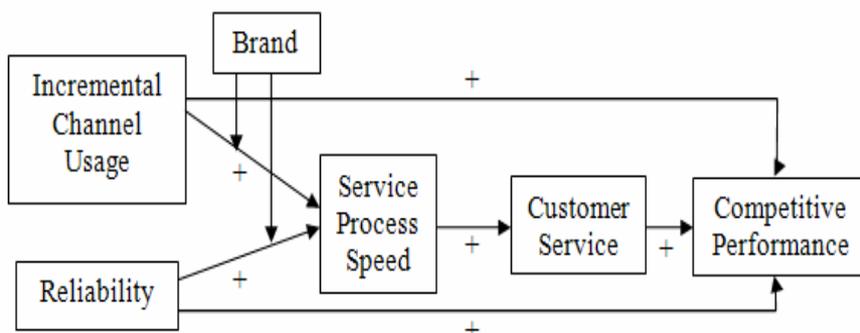
5. Methodology

In this study we use an archival research methodology in the context of IT-enabled customer service. For the time span between January 1st 2006 and December 31st 2007 we obtained monthly check-in transactions at each of the 163 properties of a large international chain. The properties are affiliated with two brands of the chain and are positioned in different segments of the lodging industry. Our dataset contains a total of 1.900 records.

5.1. Measures

We measured usage of the incremental IT-enabled service channel through customer check-in usage (CIU). In a given month we measured CIU as the ratio of check-in through the self-service kiosk and the total number of arrivals. We measured the reliability of the incremental IT-enabled service channel through check-in failure (CIF). In a given month we computed CIF as the ratio of completed check-ins through the self-service kiosk and the total number of attempted kiosk check-ins. We measured service process speed as customers' assessment of check-in process speed (CIPS). We used a one item measure from the firm's standard post-stay customer service evaluation. We measured customer service using a five items scale derived from the firm's post-stay customer service evaluation. The scale included the following items: Overall experience, overall service, overall value, overall accommodation, and overall arrival experience.

Finally, we measured competitive performance using an independently collected standard industry measure of competitive positioning called RevPAR Index. Revenue Per Available Room, or RevPAR, is the standard measure of revenue in the hotel industry as it simultaneously takes into account the average rate a property is able to charge and its occupancy. RevPAR Index is a measure computed by Smith Travel Research, an industry research firm that evaluates an individual property's RevPAR compared to its competitive set. A RevPAR Index of 100 points indicates that the hotel has an average RevPAR compared to its competitors. Numbers in excess of 100 points indicate superiority. In our study we lagged competitive performance by three months as we expect that the positive effect of any customer service initiative will surface in financial and competitive measurers only when customers repurchase the ho-

tel service. We had the ability to track returning guests and, for the hotels in our study, the average repurchase cycle was 69 days. This result suggested an appropriate lag of three months.

6. Data analysis and results

We used structural equation modeling to evaluate our hypotheses (Fornell, 1982) using a variance-based partial least squares (PLS) method (PLS-Graph version 3). Our choice was due to the fact that PLS is better suited for exploratory research than competing approaches such as LISREL.

We evaluated construct validity for the customer service construct by way of convergent and discriminant validity. We assessed convergent validity by using the loadings, the composite reliability and AVE for a construct. The composite reliability, Average variance extracted (AVE), loadings of the construct customer service are shown in Tab. 1. The loadings for the construct are above the 0.70 guideline and statistically significant at the 0.01 level. The composite reliability for a construct should exceed 0.7 and the AVE should exceed 0.5 (Fornell and Larcker, 1981) and these criteria are satisfied. Discriminant validity was determined to ensure constructs differed from each other. Correlations between items in any two constructs should be lower than the square root of the average variance shared by items within a construct (Fornell and Larcker, 1981). In Tab. 2, the square root of the variance shared between the customer service construct and its items is greater than the correlations between the construct and other constructs in the model, therefore satisfying criteria for discriminant validity.

Tab. 1 - Loadings of Construct Customer Service

Composite Reliability	0.943
AVE	0.768
Loadings	
Overall Experience	0.9384 (t-statistics=179.0022)
Overall Service	0.9092 (t-statistics=104.8504)
Overall Value	0.8611 (t-statistics=79.5577)
Overall Accommodation	0.8524 (t-statistics=66.3130)
Overall Arrival	0.8155 (t-statistics=58.8579)

Tab. 2 - Discriminant Validity Test

	1	2	3	4	5	6	7
Check-in Usage	1.000						
Check-in Failure	-0.096	1.000					
Brand x Check-in Usage	0.269	0.10	1.000				
Brand x Check-in Failure	-0.048	0.105	0.177	1.000			
Check-in Speed	-0.016	-0.065	-0.109	-0.023	1.000		
Customer Service	0.009	-0.053	-0.055	0.006	0.647	0.876	
RevParIndex Lag3	0.135	-0.106	-0.170	-0.078	0.106	0.129	1.000

Fig. 1 provides a graphical representation of the PLS result, showing the path coefficients among the constructs and the R-squares of the dependent constructs. PLS does not generate an overall goodness-of-fit statistics (as with covariance-based SEM), so model validity is evaluated by examining structural paths and R squares of the final dependent construct. Bootstrapping, a nonparametric approach for estimating the precision of the PLS estimates, was performed to test statistical significance of each path coefficient using t-tests (Chin, 1998).

As hypothesized, check-in failure is positively correlated with check-in process speed, with a path coefficient of -0.053 (t=2.248, p>0.01) and check-in process speed is positively related to customer service evaluations, with a path coefficient of 0.647 (t=29.717, p>0.01). Therefore, Hypotheses H1.2 and H1.3 are supported. Against expectations, check-in usage has no significant effects (t = 0.393) on check-in process speed. Hypothesis H1.1 is not supported.

However, the interaction score computed by multiplying brand and check-in usage is positively correlated with check-in process speed, with a path coefficient of -0.106 (t=3.3848, p>0.01). This result suggests a moderating influence of brand on the relationship between check-in usage and check-in process speed. Therefore, Hypothesis H2.1 is supported. The interaction score computed by multiplying brand and check-in failure does not have a significant relationship with check-in process speed (t = 0.058), Hypothesis H2.2 is not supported.

Finally, both the path from check-in usage and check-in failure to competitive performance are significant, with path coefficient of 0.101 (t = 8.874, p>0.01) and -0.060 (t = 2.787, p>0.01). At the same time, customer service is

positively related to competitive performance with a path coefficient of 0.113 (t = 4.6058, p>0.01). Combined with the results above, we can show that, while the direct impact of check-in failure on competitive performance is significant, check-in failure also has a significant negative relationship with check-in process speed, which is positively impacting customer service scores. Although check-in usage is not significantly correlated with check-in speed, we can conclude that Hypothesis 3.3 is partially supported. That is, the competitive effect of the incremental IT-enabled service channel is partially mediated by customer service effects.

Fig. 1 - PLS Structural Model Result (n = 1900) (p < 0.01)*
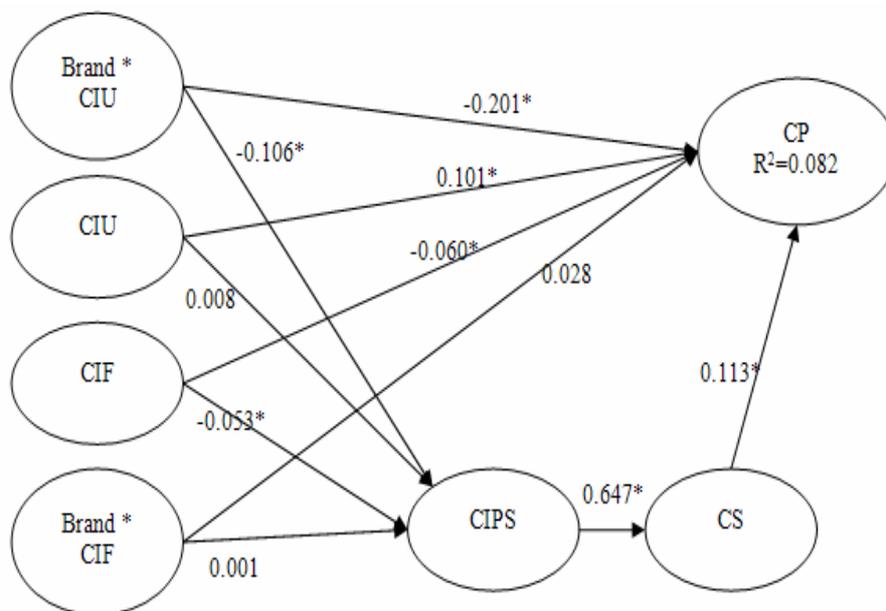
To test Hypothesis 3.1 and Hypothesis 3.2, we performed an additional analysis by creating a set of time indicators (T1, T2, T3, T4, T5, and T6). Using OLS regression we tested the relationship change over time, or lack thereof, between check-in usage/check-in failure and competitive performance. The time indicators were dummy variables indicating whether check-in occurred during July, August and September 2006 (T1), October, November and December 2006 (T2), January, February and March 2007 (T3), April, May and June 2007 (T4), July, August and September 2007 (T5), and Octo-

ber, November and December 2007 (T6). When all the dummy variables are set to zero the check-in record refers to the April, May June 2006 time frame.

We tested the following model:

$$RevParIndexLag3 = \beta_0 + \beta_1 \times CIU + \beta_2 \times CIF + \beta_3 \times T1 + ... + \beta_8 \times T6$$
$$+ \beta_9 \times CIU \times T1 + ... + \beta_{14} \times CIU \times T6$$
$$+ \beta_{15} \times CIF \times T1 + ... + \beta_{20} \times CIF \times T6$$

Since the data is a panel data, the Cochrane-Orcutt estimation method is used to adjust autocorrelated errors in the time series linear regression (Cochrane and Orcutt 1949). The Durbin-Watson statistic shown in Table 3 is a test statistic used to detect the presence of autocorrelation in the residuals from a regression analysis. A value of 2 indicates there appears to be no autocorrelation. The regression results enables us to reject the null hypotheses that the positive relationship between usage of the incremental IT-enabled service channel and the measure of competitive performance (RevPAR Index) changes over time. Thus, we claim support for hypothesis 3.1 and 3.2 (Tab. 3).

Tab. 3 - Regression Results

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Durbin-Watson
1	0.162	0.026	0.020	23.721	2.000

Model	Unstandardized Coefficients		Standardized Coefficients	t-value	Significance Level
	B	Std. Error	Beta		
Constant	123.871	2.155		57.471	0.000
CIU	0.847	0.339	0.102	2.498	0.013
CIF	-0.119	0.051	-0.082	-2.310	0.021
T1	-2.116	3.041	-0.030	-0.696	0.487
T2	-3.057	3.132	-0.043	-0.976	0.329
T3	2.501	3.013	0.035	0.830	0.407
T5	0.472	2.995	0.007	0.158	0.875
T5	-0.709	2.963	-0.010	-0.239	0.811
T6	-2.805	2.974	-0.039	-0.943	0.346
CIU.T1	-0.054	0.451	-0.004	-0.120	0.905
CIU.T2	0.497	0.476	0.035	1.044	0.297
CIU.T3	0.534	0.551	0.029	0.969	0.332
CIU.T4	0.556	0.566	0.029	0.982	0.326
CIU.T5	-0.344	0.588	-0.016	-0.585	0.559
CIU.T6	0.978	0.726	0.034	1.347	0.178
CIF.T1	0.058	0.082	0.024	0.705	0.481
CIF.T2	0.069	0.104	0.021	0.666	0.506
CIF.T3	-0.058	0.091	-0.019	-0.632	0.527
CIF.T4	-0.013	0.090	0.004	-0.146	0.884
CIF.T5	0.099	0.085	0.037	1.172	0.241
CIF.T6	0.150	0.084	0.056	1.787	0.074

7. Discussion

Our results bring comfort to those who believe in the potential of information technology and information systems to provide enduring competitive advantage to adopting organizations. The IT-dependent strategic initiative perspective (Piccoli, Ives, 2005) lays out the foundation for identifying the conditions that foster sustained advantage, but little empirical evidence had been marshaled to date to support it. In this paper we provide such evidence drawing on a dataset of monthly hotel check-in transaction over a period of two years.

We find support for the majority of our propositions. Specifically, as expected, we find that failure to successfully complete a customer service transaction using an IT-enabled service delivery channel has a negative impact on customer service perceptions, due to an increased expenditure of time needed to complete the service process. Contrary to our expectations we find that actual usage of the incremental service delivery channel does not lead to improved process speed and customer service evaluations. This unexpected result can be explained in light of our findings relative to the effect of brand (hypotheses 2.1 and 2.2). This test was designed to evaluate the moderating role of organizational context, as captured by the hotel brand, on the relationship between usage of the incremental delivery channel and process speed. This effect is significant, demonstrating how the fit between the organizational context and the IT-dependent strategic initiative plays a significant role. This result then suggests that IT is not a strategic commodity; rather IT has the potential to significantly impact performance when its use is aligned with the context in which it is introduced. Given the significant brand-usage interaction, the interpretation of the main effect attributable to the usage of the incremental service delivery channel loses meaning.

Conversely, we did not find support for the notion that lack of reliable operations of the IT-enabled service delivery channel has a significant interaction with brand. In other words, our findings indicate that a reliable operation of self-service technology is a necessity, a satisfier, regardless of the context in which the technology is used. This result is important as it challenges our expectations, and provides immediate practical significance. Practitioners seeking to introduce self-service systems must pay close attention to reliable system's operations.

Finally, our results unequivocally show that IT-dependent strategic initiatives have the potential to lead to sustained improvements in the firm's com-

petitive position. We find support for hypotheses 3.1, 3.2 and 3.3, indicating that usage and reliable operations of an incremental IT-enabled service channel have both a direct and an indirect impact on competitive performance. Moreover, such impact holds steady over a period of two years, even in the face of proliferating similar initiatives in the marketplace. This result is in direct contrast with the notion that IT, being easily replicable, cannot be a lever for sustained competitive advantage. Conversely, our data supports the IT-dependent strategic initiative perspective lending credence to the notion that research should focus more and more on a holistic view of the role of IT investments as part of strategic initiatives, rather than in isolation. Our results are particularly powerful since we focused on an initiative, check-in kiosks, that does not require overwhelming investment dollars. In other words, the competing explanation that competitors do not have the ability to expend the capital to replicate the initiative, is not tenable. Rather, our results show that, even in the face of the relentless decline in IT costs and its increasing computational power, significant opportunity still exist to reap long lasting benefits from innovative IT use, at least in the realm of customer service systems.

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