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Keeping the User in the Cloud: A Cognitive Social Capital Antecedent to Use Continuance and Service Commitment

Completed Research Paper

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Abstract

Online services are characterized by a separation between service initiation, execution and consumption. This separation presents a problem for retaining users because users with high intention to continue online service use are not necessarily committed to the provider of that service. We use a cognitive social capital explanation to unify two literature streams of use continuance and service commitment. We apply our research model to 245 cloud storage users. We find a significant relationship between mutual understanding, use continuance and relationship commitment. Implications for online service providers are offered.

Keywords: cloud services, social capital, service commitment

Introduction

The online services market is highly competitive, and retaining customers is a problem for these firms. While face-to-face services are typically inseparable (Bardhan et al. 2010), in that service production and consumption is contemporaneous (Keh and Pang 2010), online services feature a distance between users and service providers (Schumann et al. 2012). Entrepreneurs must hence develop their online services without rich and in-depth user contact (Iivari 2009), making it harder to ascertain user requirements (Kujala 2003): to this end, Iivari et al. (2010, p. 110) argue, “while it is becoming more and more difficult to know who the users are, and further to identify, contact, sample, involve and represent them, it is vital to understand users when developing new IT applications and services”.

This separation undermines user retention because a user’s intention to continue using a service does not guarantee loyalty to the service *provider* (Seiders et al. 2005). Users may switch their attitudinal loyalty to another provider while still using the current system in the hope of finding something superior (Yang and Peterson 2004). For example, users who pay a subscription for service use, as is common, may develop attitudinal disloyalty while partway through a subscription: they wish to switch, but cannot because of ongoing subscription terms. Similarly, a user that trusts and is committed to a provider may not find their services to be useful (Gruen et al. 2000). In this vein, Gartner (2011, p. 2) advises, “evaluate each service on its own merits: make no assumptions based on who is offering it”.

On one hand, we know that a user’s perception of system usefulness results in stronger intentions to continue system use. However, we also know that trust between the user and the provider strengthens relationship commitment. Yet, the user’s intention to continue using the system is not necessarily related to provider commitment. In order to enhance system continuance and provider commitment, we need to identify a shared explanation for these two phenomena.

Our solution to this problem is to unite these two streams of literature through a common lens of social capital. We theorize that a social capital perspective provides a fabric through which to build both ongoing system use and a durable relationship with the service provider. Our study makes two contributions to knowledge. First, online service firms need to understand this relationship because services that exist wholly online may appear very distant to users, who cannot easily verify service performance. Where a “temporary” trust devoid of social cues may suit one-off transactions (Meyerson et al. 1996), ongoing transactions may require greater social and personal investment (Ashleigh and Nandhakumar 2007). We contribute a framework through which this social investment can be understood. Second, there has been little prior research into continuance intentions of cloud service use. While cloud services are popular, they are also subject to ongoing scientific and practical concerns over unclear business models, intellectual property, data security and privacy violations (Grobauer et al. 2011; Weinhardt et al. 2009). Our study contributes by shining light onto user demand for these cloud storage service models.

This paper proceeds as follows. The paper first discusses the theoretical framework, including the three literature streams of use continuance, relationship commitment and cognitive social capital. It then explains the research model and hypotheses, the research method, data gathering procedures and analysis. Finally, implications and conclusions are offered.

Theoretical Framework

As described below, our framework is built on three streams of literature, being use continuance, relationship commitment and cognitive social capital.

Use Continuance

Use continuance describes an intention to maintain system use into the future. Continued use provides some insight into habitual use effects that can result from an effective system-to-user fit (Limayem and Cheung 2008). Use continuance is integral to understanding long-term system viability (Chiu et al. 2009) and the adaptation processes that occur as users acclimate to their new abilities (Beaudry and Pinsonneault 2005). Use continuance is predicted by perceptions of system usefulness, the user’s belief that the system adequately addresses their requirements (Gorla et al. 2010). A system that is deemed useful is more likely to be used: when a user perceives that a system meets their requirements and satisfies their needs, they prefer to continue using that system in order to experience the positive outcomes of need-satisfaction (Au et al. 2008; Bhattacharjee 2001).

Developing a useful system requires a good understanding of user requirements. In this way, system designers can focus system features towards user needs, thereby narrowing the gap between user and designer thinking. When the user’s needs are understood, the resulting system is more likely to address those needs, yielding a more useful system (Iivari et al. 2010; Yi et al. 2006). In prior work, for example, when a user understands a developer’s abilities and constraints, they are more likely to be satisfied with the development process and the resulting system (Tan 1994; Vlaar et al. 2008), and can better appreciate development efforts. In this use continuance context, perceived usefulness arises from both a developer’s understanding of user needs, and a user’s understanding of the provider’s constraints. This mutual understanding hence bridges the ‘semantic gap’ between users and system developers (Cavaye 1995) and allows participants in the development process to translate requirements into useful system features (Gefen and Ridings 2003).

Figure 1 illustrates these three concepts: mutual understanding leads to perceptions of system usefulness because the system more faithfully meets the user’s requirements. In turn, usefulness leads to use continuance intentions.

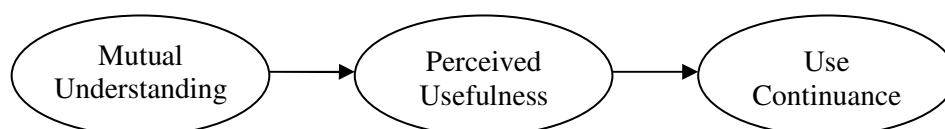


Figure 1 Mutual Understanding, Perceived Usefulness and Continuance Intention

Trust-commitment

Prior relationship marketing literature argues that trust and commitment form the two main pillars of exchange relationships (Garbarino and Johnson 1999; Morgan and Hunt 1994) together allowing partners to interdependently build long-term, reliable relations (Sirdeshmukh et al. 2002). The parties want these relations to persist so as to benefit from the positive outcomes of committed relationships, such as loyalty, future purchases, and understanding of market conditions (Sanchez-Franco et al. 2009).

Commitment engenders a sense of relationship durability, allowing both parties to invest in their future, divulge and resolve sensitivities, and overcome transaction barriers (Gruen et al. 2000). It describes “a desire to develop a stable relationship, a willingness to make short-term sacrifices to maintain the relationship, and a confidence in the stability of the relationship” (Anderson and Weitz 1992, p. 19). Commitment strengthens the relationship by allowing parties to agree on joint terms the future (Anderson and Weitz 1992).

Trust represents a perceived reliability, dependability and honesty of another entity (Mayer et al. 1995). Trust is seen as vital to good relationships by assisting one party to depend on another (McKnight et al. 1998) because they are confident that the other’s actions and intentions are reliable and honest (Pennington et al. 2003).

The root foundation of trust-commitment is mutual understanding. Mutual agreements allow relationships to form by clarifying the parties’ compatibilities, affinities and joint attitudes (Gallivan and Depledge 2003; Widén-Wulff and Ginman 2004). This mutuality is especially important when parties cannot easily monitor each other’s activities (Kelly and Noonan 2008). When parties experience a mutual understanding, they develop trust beliefs, thereby allowing social relationships to develop.

Figure 2 illustrates these three concepts: mutual understanding builds trust which, in turn, builds relationship commitment.

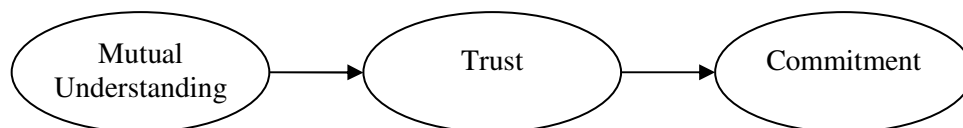


Figure 2 Mutual Understanding, Trust and Relationship Commitment

Cognitive Social Capital

Social capital reflects a cooperation between actors (Durlauf 2002) based on collectivities of social understanding and agreement. Social capital consists of an agreed social structure which facilitates interaction within those structures (Coleman 1988) which produces a relationship fabric that can be used for future social transactions (Adler and Kwon 2002). Prior conceptualisations of social capital emphasize a *shared approach* to understanding and interaction (Portes 1998). This mutuality leads to a more harmonious alignment of interests (Inkpen and Tsang 2005; Tsai and Ghoshal 1998), emphasizing the common mental context of behavioral relationship norms (Nahapiet and Ghoshal 1998).

This study adopts Cohen and Prusak’s (2001, p. 4) definition, that social capital “consists of the stock of active connections among people: the **trust, mutual understanding, and shared values** and behaviors that bind the members of human networks and communities and make cooperative action possible” [emphasis added]. The three main components to this definition are shared values, mutual understanding, and trust. Shared values represent a feeling of norms, common aspirations and beliefs, reflecting an understanding that parties have compatible standards of behavior and attitudes towards

social exchange relationships (Paldam and Svendsen 2000). In prior IS research, shared values and language has been seen to strengthen virtual and online community participation (Chiu et al. 2006) and user contributions to electronic communities of practice (Chen and Hung 2010).

Mutual understanding reflects a belief that each party comprehends the needs of the other. In a relationship with mutual understanding, it becomes easier to agree on courses of action because each member feels that their needs and expectations are understood (Paldam and Svendsen 2000). These expectations lead to a form of ‘mutual knowledge’ about the social interaction (Cramton 2001), reinforcing social exchange and embedded culture (Chen and Hung 2010).

The trust component of cognitive social capital again reflects perceptions of benevolence by a relationship partner. Trust describes a perception that the other party is reliable and will not damage the relationship (Mayer et al. 1995). Trust hence confers a sense of dependence among partners, thereby allowing them to form a more solid foundation on which to transact.

Figure 3 illustrates these three concepts: shared values promote mutual understanding. This mutuality leads to trusting behaviors.

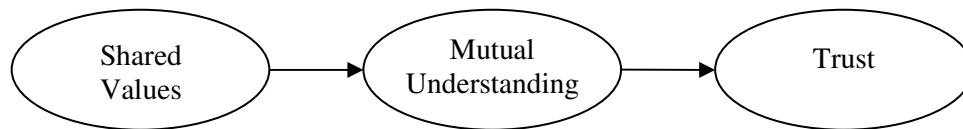


Figure 3 Shared Values, Mutual Understanding and Trust in Cognitive Social Capital

Theoretical Model and Hypothesis Development

Our research model is structured around the intersection of the three streams of literature described so far, being use continuance, relationship commitment and cognitive social capital. We gather our model around the concept of mutual understanding, which features in all three literature bases. In use continuance, mutual understanding reflects the congruence of ideas between users and system providers. It relates to the knowing of user needs, principally by the developers or providers of the system. In relationship commitment, mutual understanding helps exchange partners to trust in the relationship and each other. In cognitive social capital, mutual understanding describes the mental agreements between individuals in a broad social relationship, underpinning the social interaction of any collection of ad hoc social actors.

The relationship commitment and cognitive social capital conceptualizations are compatible because exchange partners are also social actors, interacting within a fabric of social norms. The relationship commitment and use continuance conceptualizations of mutual understanding are compatible in the IS context because users are also engaged in social exchange relationships with the service provider. The use continuance and cognitive social capital conceptualizations of mutual understanding are compatible because system users are social actors, who depend on the service to fulfill its promises and their needs.

Figure 4 shows the final research model.

Shared Values and Mutual Understanding

A perception of shared values leads to perceptions of mutual understanding by building a sense of agreement between the two parties. User perceptions of shared values between parties lead to a perception of commonality and compatibility. Our reasoning for this relationship comes from prior cognitive social capital theory. This is our first hypothesis:

H1. Shared values is positively related to mutual understanding.

Mutual Understanding and Perceived Usefulness

Mutual understanding between the service provider and the user leads to positive perceptions of system usefulness. Perceived usefulness describes a user’s perception that the system meets their requirements. When a user feels that their needs and requirements are met, they are more likely to perceive the resulting system to be useful. This is our second hypothesis:

H2. Mutual understanding is positively related to perceived usefulness.

Perceived Usefulness and Use Continuance Intention

Perceived usefulness leads to intentions of use continuance. Use continuance intention describes a user’s plan to maintain their system use into the future. When a user feels that a system is useful, they are also likely to feel that the system is beneficial. Greater utility compels the user to continue using the system in order to keep obtaining these benefits. This is our third hypothesis:

H3. Perceived usefulness is positively related to use continuance intentions.

Mutual Understanding and Trust

Mutual understanding contributes to trust by establishing a basis of commonality in the relationship (Ireland and Webb 2007). When a partner feels understood, they are also likely to feel that the other party will treat its relationship with mutual respect and consideration. This sense of mutual understanding builds the belief that they can rely on the other party. This is our fourth hypothesis:

H4. Mutual understanding is positively related to trust.

Trust and Commitment

Consistent with prior theory, commitment and trust are positively related. Relationships built upon trust and commitment are more likely to endure, compared to relationships between uncommitted or untrusted parties (Gallivan and Depledge 2003). Trust perceptions between partners confer a sense of goodwill, safety and welfare, leading to the positive affective states that strengthen relationship commitment (Kim et al. 2009). This is our fifth hypothesis:

H5. Trust is positively related to commitment

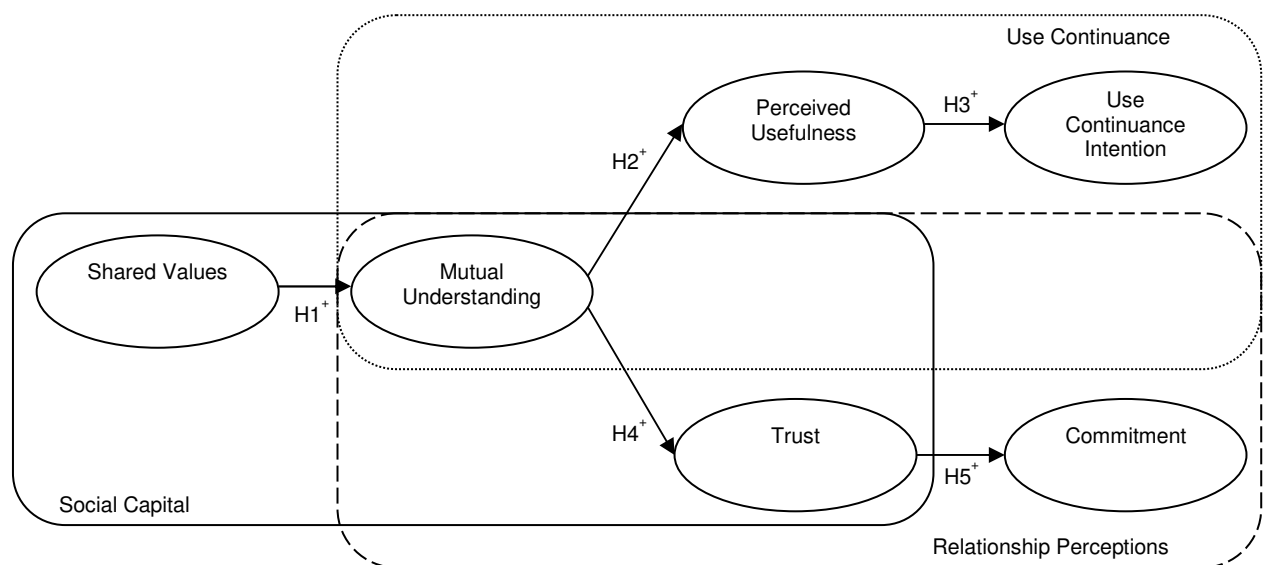


Figure 4 Research Model of Social Capital, Use Continuance and Service Commitment

Research Method and Setting

Cloud storage is an appropriate context through which to examine the role of mutual understanding. First, cloud storage services are a popular component of many ICT devices and applications: organizations and users perceive such services to be a useful way of managing access to documents and data (Goode 2012). Accordingly, spending on “as a service” cloud offerings is forecast to grow to \$258 billion by 2020 (Forrester Research 2011). Second, users may upload highly sensitive material to these services because they rely on the provider to deliver access to data as promised: users must feel that their requirements are being met in order to trust the provider with their personally sensitive data. Third, it is difficult for parties to monitor each other’s progress and activity in this environment. This opacity makes it more important for users to be able to trust and understand each other’s activities. On these grounds, we chose cloud storage services as our research context.

We chose a questionnaire survey as the most appropriate and effective data gathering method for this research. The survey is a common data gathering tool in IS research (King and He 2005), especially for studying many factors across diverse respondents (Palvia et al. 2003).

Instrument Construction and Validation

Where possible, we adapted existing survey items from prior research. To measure trust and relationship commitment, we adapted items from service relationship research (Morgan and Hunt 1994; Ulaga and Eggert 2004). We adapted questions about mutual understanding from prior literature on social interaction in service encounters (Price and Arnould 1999). We used well-known indicators of use continuance and perceived usefulness (Bhattacharjee 2001; Limayem and Cheung 2008). The survey was pre-tested on another senior faculty member and three cloud storage service users. We then produced a final version of the instrument. Table 1 shows the constructs and corresponding items.

Table 1 Research Constructs, Questionnaire Items and Literature Sources

Construct	Label	Item	Literature Source
Relationship commitment	RELCOMMIT1	I am not very committed to the relationship with the cloud service. *	(Morgan and Hunt 1994; Ulaga and Eggert 2004)
	RELCOMMIT2	The relationship with the cloud service is very important to my activities.	
	RELCOMMIT3	My relationship with the cloud service is something I really care about.	
Relationship Trust	RELTRUS1	This cloud service is not trustworthy. *	(Morgan and Hunt 1994; Ulaga and Eggert 2004)
	RELTRUS2	This cloud service firm is sincere at all times.	
	RELTRUS3	In our relationship, this cloud service is a firm that I have great confidence in.	
Shared values	SHARVAL1	In general, the cloud service’s opinions and values are a lot like mine.	(Morgan and Hunt 1994; Ulaga and Eggert 2004)
	SHARVAL2	I like and respect the cloud service’s values.	
	SHARVAL3	The cloud service and I share a very similar set of values.	
	SHARVAL4	I don’t share the same values as this cloud storage service. *	
Use Continuance Intention	USECONT1	I intend to continue using this cloud service.	(Bhattacharjee 2001; Limayem and Cheung 2008)
	USECONT2	I want to continue using this cloud service rather than discontinue.	
	USECONT3	I predict I will continue using this cloud service.	
	USECONT4	I do not plan to continue using this cloud	

		service.	
Mutual Understanding	MUTUAL1	I feel that this cloud service understands my needs.	(Price et al. 1995; Price and Arnould 1999)
	MUTUAL2	In general, there is mutual understanding between me and this cloud service.	
	MUTUAL3	This cloud service really knows what I want.	
	MUTUAL4	There is a mutual understanding between this cloud service and I.	
	MUTUAL5	I think both this cloud service and I know what I want in this relationship.	
Perceived Usefulness	PERUSE1	The cloud service is of benefit to me.	(Bhattacharjee 2001; Limayem and Cheung 2008)
	PERUSE2	The advantages of the cloud service outweigh the disadvantages.	
	PERUSE3	Overall, using this cloud service is advantageous.	
* Reverse coded item			

Instrument Administration

The survey was operationalized through a market analysis firm tasked with distributing surveys. As part of the administration process, we used qualifier questions to filter unsuitable respondents. Potential respondents had to first answer a multiple choice question about which online services, if any, they had used in the past month: those who signaled prior cloud storage service use were granted access to the survey. Two sets of control questions were included in order to alleviate inattention bias. We also randomized the order of questions within sections.

Analysis and Hypothesis Testing

We received 283 survey responses. After discarding unusable and incomplete responses, we had 245 useable responses. The possibility of common method bias was assessed using procedures advocated by Podsakoff et al. (2003) and Liang et al. (2007). Prior to data gathering, we attempted to control for common method bias by randomly ordering instrument items. In addition, to triangulate data collection and improve the quality of our survey design, we held cognitive interviews with three cloud storage users. After data collection, we used Harman's (1976) single factor test in a principal CFA of all items in the study. The test revealed nine components with Eigenvalues greater than one. Percentages of variance ranged from 2% to 34% for these components. While common method variance cannot be ruled out, this evidence suggests a low likelihood of common method bias.

Response Demographics

Table 2 illustrates the respondent demographics. Gender was weighted more towards males, with 179 male and 65 female respondents. Approximately half of the respondents had used cloud storage services for more than two years, indicating reasonable service familiarity. About half of the respondents were aged between 20 and 30 years, however there was a reasonable response from older age groups also.

Table 2 Respondent Demographic Data

Demographic	Category	n	%
Gender	Male	179	73.1
	Female	65	26.5

Age (years)	less than 20	27	11.0
	20-25	99	40.4
	26-30	62	25.3
	31-35	22	9.0
	36-40	20	8.2
	41 or more	13	5.3
Duration of Use	Less than a month	60	24.5
	Less than a year	68	27.8
	One to two years	38	15.5
	Two to three years	39	15.9
	Three to four years	10	4.1
	Four to five years	27	11.0
	Five years or more	60	24.5

Modeling

The model was specified using Partial Least Squares (PLS) techniques, a common analytical approach in prior literature (Gefen and Straub 2005). PLS evaluates both the quality of item and construct measurement, and the representational relationship between constructs. All latent constructs were modeled reflectively.

Assessing the Measurement Model

Following the procedure outlined by Hair (2006), we assessed the model's psychometric properties by gauging convergent validity, discriminant validity and construct reliability. Item loadings for each construct, calculated using a bootstrapping procedure with 500 iterations, were significant at the .001 level, suggesting acceptable convergent validity. As shown in bold in Table 3, all items load the greatest onto their respective constructs. Table 4 shows the square root of AVE values, which were higher than the correlations for other constructs (Fornell and Larcker 1981). These results yielded acceptable discriminant validity (Gefen and Straub 2005).

Table 3 Item and Construct Cross Loadings

	Shared Values	Mutual Understanding	Relationship Trust	Commitment	Perceived Usefulness	Use Continuance Intention
SHARVAL1	0.84	0.60	0.52	0.51	0.31	0.30
SHARVAL2	0.81	0.67	0.62	0.55	0.37	0.43
SHARVAL3	0.89	0.74	0.61	0.60	0.29	0.35
SHARVAL4	0.75	0.51	0.46	0.46	0.23	0.24
MUTUAL1	0.60	0.85	0.60	0.56	0.36	0.44
MUTUAL2	0.62	0.85	0.56	0.51	0.24	0.31
MUTUAL3	0.60	0.76	0.56	0.51	0.37	0.35
MUTUAL4	0.71	0.81	0.52	0.56	0.25	0.31
MUTUAL5	0.61	0.81	0.54	0.48	0.33	0.41
RELTRUS1	0.58	0.62	0.87	0.51	0.45	0.49
RELTRUS2	0.56	0.51	0.78	0.50	0.29	0.33
RELTRUS3	0.50	0.53	0.80	0.52	0.46	0.43

RELCOMMIT1	0.53	0.54	0.56	0.84	0.40	0.45
RELCOMMIT2	0.49	0.51	0.45	0.83	0.34	0.41
RELCOMMIT4	0.58	0.55	0.55	0.83	0.33	0.38
PERUSE1	0.35	0.38	0.45	0.36	0.80	0.61
PERUSE2	0.28	0.28	0.36	0.35	0.81	0.61
PERUSE3	0.24	0.24	0.37	0.32	0.79	0.53
USECONT1	0.27	0.28	0.43	0.36	0.55	0.83
USECONT2	0.31	0.32	0.39	0.41	0.63	0.81
USECONT3	0.40	0.47	0.48	0.46	0.66	0.89
USECONT4	0.38	0.43	0.48	0.47	0.67	0.90

Table 4 Latent Variable Correlations and Square Root of Average Variance Extracted (AVE)

	Commitment	Mutual Understanding	Perceived Usefulness	Shared Values	Relationship Trust	Use Continuance Intention
Commitment	0.83					
Mutual Understanding	0.64	0.82				
Perceived Usefulness	0.43	0.38	0.80			
Shared Values	0.64	0.77	0.37	0.83		
Relationship Trust	0.63	0.68	0.50	0.67	0.81	
Use Continuance Intention	0.50	0.44	0.74	0.40	0.52	0.86

Table 5 shows the results of the composite reliability and AVE for each construct. Composite reliability exceeded the threshold of 0.7 (Hair et al. 2006). AVE values exceeded the threshold of 0.5 (Anderson and Gerbing 1988). These results revealed acceptable construct reliability.

Table 5 Composite Reliability, Average Variance Extracted (AVE) and R² Values

	AVE	Composite Reliability	R ²	Cronbach Alpha
Commitment	0.69	0.87	0.40	0.78
Mutual Understanding	0.67	0.91	0.59	0.87
Perceived Usefulness	0.64	0.84	0.14	0.72
Shared Values	0.68	0.90		0.85
Relationship Trust	0.66	0.85	0.46	0.74
Use Continuance Intention	0.74	0.92	0.54	0.88

Assessing the Structural Model

We next inspected the path coefficients and R² values for the endogenous predictor variables. Table 6 summarizes the results of hypothesis testing, showing the path coefficients and their t-statistic calculations.

Figure 5 shows the final model results. All paths were significant at the p<.001 threshold.

Table 6 Structural Model Path Coefficients and Hypothesis Results

Hypothesis	Path	Coefficient	t-statistic	Outcome
H1	Shared Values -> Mutual Understanding	0.70	32.24***	Accepted
H2	Mutual Understanding -> Perceived Usefulness	0.38	7.56***	Accepted

H3	Perceived Usefulness -> Use Continuance Intention	0.69	21.39***	Accepted
H4	Mutual Understanding -> Relationship Trust	0.68	22.69***	Accepted
H5	Relationship Trust -> Commitment	0.62	19.26***	Accepted

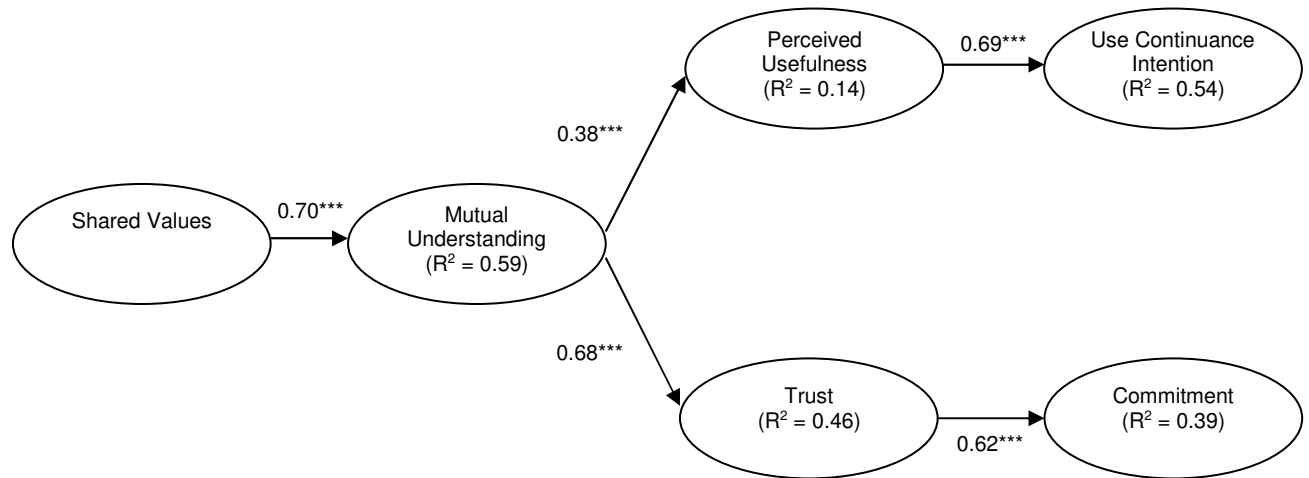


Figure 5 Structural Model of Cognitive Social Capital, Use Continuance Intention and Relationship Commitment

Results

Our model showed good results in predicting use continuance and relationship commitment in the cloud storage context. Mutual understanding appears to be an important predictor of perceived usefulness and trust. First, there was a positive relationship between shared values and mutual understanding ($\beta = 0.70$, $p < .001$) supporting hypothesis H1 that perceptions of equivalent values between the user and the service provider increased perceptions of understanding between parties.

We observed a positive relationship between mutual understanding and perceived usefulness ($\beta = 0.38$, $p < .001$) and Hypothesis H2 was accepted. Our theory was that a mutual understanding between the user and the provider was a good predictor of perceived usefulness, because a better understanding of user needs results in a system that meets those needs. Perceived usefulness arises from understanding user requirements and efficiently implementing these requirements as system features.

Consistent with prior use continuance theory, we observed a strong significant relationship between perceived usefulness and use continuance intention ($\beta = 0.69$, $p < .001$). Therefore, we accepted hypothesis H3 that a more useful system spurs user intentions to continue use, and that if a user gains utility from interacting with the system, then they will want to continue using the system.

We saw a strong positive relationship between mutual understanding and trust ($\beta = 0.68$, $p < .001$), supporting Hypothesis H4. Mutual understanding signals that both parties understand how the other would like to be treated, which provides a foundation for future interaction, reliance and transaction. Stronger mutual understanding leads to more dependable relations between actors, and this dependence in turn breeds trust.

The results showed a positive relationship between trust and commitment ($\beta = 0.62$, $p < .001$) supporting Hypothesis H5 and underscoring the relationship between trust and commitment in prior studies.

Lessons from the Social Capital Perspective

We used a cognitive social capital lens to develop a unified explanation of use continuance and relationship commitment in a services context. The cognitive social capital lens provides a number of useful scientific and practical lessons.

First, with respect to use continuance, prior literature has emphasized the role of social quality indicators as mechanisms for improved social relations. For example, personalised customer messages improve perceptions of individuality in service encounters, and eye contact improves re-patronage in face to face transactions (Bitner et al. 1990). More personalized interaction may also improve online service use. For example, displaying human faces on cloud storage websites may give users a stronger sense of affinity and personal involvement. This argument is consistent with evidence that displaying human visages can alter website interaction (Cyr et al. 2009) and that human avatars can positively influence online shopping use (Qiu and Benbasat 2005). Our study suggests that such social indicators might spur use perceptions and service continuance. These human indicators may also humanize and socialize the online service, thereby reducing user perceptions of deindividuality and distance.

The social capital lens has benefits for perceived usefulness. Users may feel greater personal investment in their use activities, in turn promoting economic and emotional investment (Putnam 1993). If users feel more invested through these social cues, perhaps they will also be a more fertile source of suggestions for innovations and new system features, consistent with Tsai and Ghoshal (1998). Other cues that might reinforce this mutual understanding and strengthen the social fabric include gifts, volunteered resources, and shared rituals (Burt et al. 2000; Dolfma et al. 2009). Shared language and terminology ought also to reinforce mutual understanding (Nahapiet and Ghoshal 1998), supporting commitment and use continuance.

The cognitive social capital lens may also shed light on methods for controlling system misuse. It may be possible to reinforce legitimate use and dissuade illegitimate use by widely advertising the provider's values. This is consistent with evidence that heightened cognitive social capital has been associated with lower crime rates (Brehm and Rahn 1997; Putnam 1993). Building on signals of shared values and mutual understanding, it may be possible to benefit from other results of stronger social capital, such as stronger grassroots community involvement (Brehm and Rahn 1997) and communal problem solving (Inkpen and Tsang 2005).

Conclusions

We have unified two previously separate streams of literature. On one hand, mutual understanding between the user and the service provider leads to a better grasp of user requirements and hence a more useful system. At the same time, trust is an important antecedent to commitment in the relationship marketing literature. To date, however, these two streams have not been merged. We addressed this gap by building a model based on the root importance of shared values and mutual understanding. We surveyed 245 users of cloud storage services, a popular but competitive and highly separable online service context. The model showed that mutual understanding, borne from perceptions of shared values, significantly predicted both perceived usefulness and trust. In turn, each of these constructs predicted use continuance and commitment, respectively.

The study may be subject to several limitations. We restricted our study empirically to the cloud storage service context, which may require a measure of user trust prior to in-depth use. Other online services may not involve trust as heavily, and findings from these services may hence differ. Our study explores perceptions of current cloud service users. Non-users may possess different response characteristics.

Several areas for future work arise from this study. It would be useful to see which activities and signals most effectively stimulate cognitive social capital, and how introducing cognitive social capital cues changes a user community. Firms would benefit from understanding the long-term implications of cognitive social capital markers, which could be a cost-effective strategy for enhancing commitment.

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