

The Evolution of Loyalty Intentions

The drivers of customer loyalty intentions are dynamic. What remains unclear is how these intentions evolve through the introduction and growth phases of a life cycle. Using a longitudinal study of cellular phone customers, the authors demonstrate that loyalty intentions are a function of perceived value early in the life cycle. Over time, more affective attitudes toward the brand and the relationship with the company come to mediate the effects of value on intentions. The results suggest that from the introduction to the growth stage of a life cycle, managers must adapt from improving value per se to measuring and managing relationships and brands directly.

Providing customers with perceived value or customer satisfaction is widely recognized as a means of improving loyalty intentions (Fornell et al. 1996; Zeithaml, Berry, and Parasuraman 1996) and actual retention (Bolton 1998; Bolton and Lemon 1999; Mittal and Kamakura 2001). However, research demonstrates that these relationships are potentially complex and dynamic and that the drivers of intentions change and evolve over time (Mittal, Kumar, and Tsiros 1999; Slotegraaf and Inman 2004). Such research focuses on relatively mature product or service categories, such as automobiles and credit cards. What remains unclear is how the drivers of intentions evolve for a new-to-market offering.

A better understanding of these dynamics is essential for researchers and managers alike. It enables researchers to focus on the most important predictors of performance while helping managers design marketing programs that effectively adapt to customers through the diffusion process. This article builds on dynamic marketing models in two important ways: First, we explore the drivers of intentions for a panel of loyal customers who purchased and used a new-to-market offering—specifically, a new-generation cellular phone technology—through the introduction and growth phases of a life cycle. Second, we incorporate two particular attitudes that have not been studied previously in this line of research: the affective commitment toward maintaining a relationship with the company (Fullerton 2003; Garbarino and Johnson 1999; Verhoef 2003) and brand equity (Keller 1993; Rust, Zeithaml, and Lemon 2000).

We first describe research on the dynamics of loyalty intentions and then develop our conceptual model and hypotheses. Using attitude theory, we argue that perceived value, as an overall evaluation of performance given price or prices paid, has a more direct influence on customers' intentions early in a life cycle when customers are gathering

information, forming opinions about brands and relationships, and trying to reduce risk (Heilman, Bowman, and Wright 2000). Over time, attitudes toward the brand and relationship should come to mediate the effect of value on intentions (Oliver 1999). We test our model on a panel of cellular phone customers who were loyal to a particular brand over a four-year period that coincided with the introduction and growth phases of the life cycle. The results illustrate how loyalty intentions evolve from being purely value based early in the diffusion process to being brand and relationship based as the market evolves. The study has important implications for managers who are charged with allocating resources to improve product benefits, brand perceptions, and customer relationships over time.

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The vast majority of work relating perceived performance to intentions has been cross-sectional. However, recent research has suggested that intention drivers vary considerably over time. Mittal, Kumar, and Tsiros (1999) compare the drivers of perceived performance and subsequent loyalty intentions for new vehicle owners 3 to 4 months after purchase and again 21 months later. They find that service satisfaction has a greater impact on intentions early in the relationship, whereas product satisfaction has a greater impact later in the relationship. In a subsequent study, Mittal, Katrichis, and Kumar (2001) examine the drivers of customer satisfaction for people who owned a credit card for less than a year versus more than a year. They find that the weight customers place on different performance attributes shifts on the basis of their tenure with a firm. Again, in an automotive context, Slotegraaf and Inman (2004) study changes in the effects of resolvable attributes (attributes that can be fixed or repaired under warranty, such as a faulty part) versus irresolvable attributes (attributes that cannot be fixed or changed regardless of the warranty, such as size or gas mileage). They find that resolvable attributes have greater influence on satisfaction over time, whereas irresolvable attributes have less influence.

These studies reinforce the need for a dynamic perspective. Yet the settings for these studies involve relatively mature product categories (e.g., automobiles, credit cards). Logically, loyalty intentions should be particularly dynamic for a new-to-market offering. Theory suggests a specific dynamic for such offerings, for which more affective-based

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attitudes come to mediate the effects of performance perceptions on intentions over time. Following traditional attitude models (Bagozzi and Warshaw 1990), we expect that the degree of mediation from perceived value, to brand and relationship attitudes, to intentions varies systematically as the market evolves. As the customers' experience with a particular offering grows over time, attitudes toward brands and relationships should become stronger, more "top of mind" or accessible, persistent, resistant to change, and likely to guide intentions and subsequent behavior (Fazio, Powell, and Williams 1989; Priester et al. 2004).

We use customers' overall perceived value to capture perceptions of performance. As we noted previously, two important attitude-type constructs have emerged in the literature as possible mediators of the value-intentions relationship. The first is affective commitment (Morgan and Hunt 1994; Verhoef 2003), or the factors that create stickiness in a relationship. This commitment is affected directly by the degree of personal interaction between a customer and a company and how the company manages the customer's account over time (Bendapudi and Leone 2002). The second is brand equity, which is influenced by factors such as repeated performance and satisfaction (Keller 1993; Selnes 1993), word of mouth or the "buzz" about the brand (Rosen 2000), the degree of identification with the brand, and its relevance to a customer's situation (Aaker 2004; Keller 2003).

Perceived Value

Perceived value is a customer's overall evaluation of what he or she receives compared with what he or she gives up or pays (Bolton and Drew 1991). Similar constructs in the marketing literature include payment equity (Bolton and Lemon 1999), distributive equity or fairness (Olsen and Johnson 2003), and reciprocity (Bagozzi 1975). Following the work of Bolton and Lemon (1999), we conceptualize perceived value as a broad construct that encompasses perceptions of quality given price and inputs versus outputs relative to the competition. We do not include overall customer satisfaction in our study. Empirically, however, perceived value and customer satisfaction are closely related constructs in the literature (Bolton and Lemon 1999; Fornell et al. 1996). Moreover, when customers are in an information-gathering or problem-solving mode, as should be the case in the early stages of a life cycle, value or equity perceptions are more relevant (Olsen and Johnson 2003).

Affective Commitment

Research on relationship commitment distinguishes between affective commitment and calculative commitment (Bendapudi and Berry 1997; Hansen, Sandvik, and Selnes 2003; Johnson et al. 2001). Our focus is on affective commitment, which is a "hotter" or more emotional factor related to the degree to which a customer identifies and is personally involved with a company and the resulting degree of trust and commitment (Bendapudi and Berry 1997; Garbarino and Johnson 1999; Morgan and Hunt 1994). Similar constructs used to describe exchange relationships include friendship, rapport, and trust (Fullerton 2003). Initially developed to explain employee commitment

to organizations or work groups, the concept applies to consumption relationships as well (Gruen, Summers, and Acito 2000). In a recent study of financial services, Verhoef (2003) demonstrates direct effects of affective commitment on actual behavior, both relationship maintenance (retention) and relationship development (share of a customer's business). Although both perceived value or payment equity and customer satisfaction were positive antecedents of affective commitment, they did not directly affect behavior.

Calculative commitment, also called continuance commitment (Fullerton 2003), captures the "colder" or more rational, economic-based dependence on product benefits that is due to a lack of choice or switching costs that make it difficult to change suppliers (Anderson and Weitz 1992; Dwyer, Schurr, and Oh 1987). The company survey we use in this study contains only measures of affective commitment. However, we expect that some significant calculative commitment or switching costs exist and influence behavior, including the cost of the cellular phone itself and the inability of customers to transfer their numbers from phone to phone (Gustafsson, Johnson, and Roos 2005).

Brand Equity

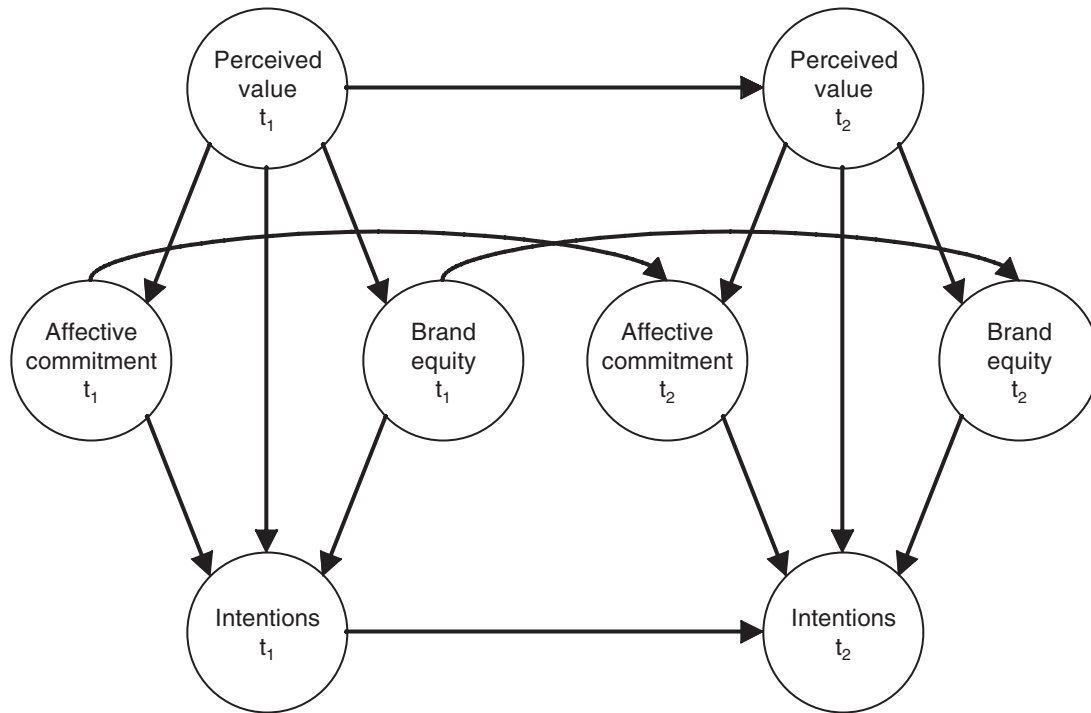
Brand equity is defined as "the differential effect of brand knowledge on consumer response to the marketing of a brand" (Keller 1993, p. 8). Central to this definition is the concept of differential effect. When loyalty intentions are explained, this is the effect that brands have beyond the rest of the value proposition. In our conceptual model, which we describe subsequently, the two major non-brand-related effects are overall perceived value (products and services received for price or prices paid) and affective commitment, or the strength of the relationship with a company. Research shows that brand equity has a direct effect on intentions and mediates the effects of quality and satisfaction on intentions to various degrees (Selnes 1993).

Particularly relevant to brand equity is the degree of personal identification with a brand and its relevance to a customer's situation (Aaker 2004; Keller 2003). It is this identification or personal "fit" with a brand that helps create the differential effect of brand equity on intentions beyond the effects of performance or relationships per se. Keller (1993) describes two approaches to measuring brand equity: indirectly through brand knowledge (brand awareness and image) and directly through the impact of brand knowledge on customer responses. Our study uses elements of both approaches. We measure brand equity as a latent variable using multiple measures, such as the degree to which the brand fits a customer's personality and lifestyle. We then determine whether the construct explains loyalty intentions beyond the influences of perceived value and affective commitment.

Conceptual Model

Our conceptual model in Figure 1 posits that perceived value builds loyalty intentions both directly and indirectly through the creation of brand equity and affective commitment. The prediction that brand equity has greater influence on intentions over time is consistent with other research on the evolution of brand preferences. Heilman, Bowman, and

FIGURE 1
The Evolution of Loyalty Intentions: Conceptual Model



Wright (2000) examine how brand preferences and responses to marketing activities evolve for customers who are new to established product categories (disposable diapers and towels). They find little evidence of brand loyalty early in customers' experiences, but as customers gather more information and as perceived risk subsides, they buy the brands they prefer.

Our conceptual model is consistent with Rust, Zeithaml, and Lemon's (2000) customer equity model, which includes three categorically different ways to increase customer equity: value equity, brand equity, and retention equity. Value equity is a customer's relatively cognitive perception of value, brand equity includes subjective appraisals of a brand that are not captured by objective performance, and retention equity is that which is gained from relationship-building and retention programs. For example, using data from the airline industry, Rust, Lemon, and Zeithaml (2004) show the projected returns to an organization from investments in various customer equity drivers (e.g., quality, advertising, loyalty programs). Our model is also consistent with the logic that underlies Berry and Parasuraman's (1991) framework for customer retention strategies. Accordingly, early in a relationship, customers are tied to a firm primarily through product or service benefits and financial incentives (perceived value). Stronger relationships grow through personal relationships, social bonds, and customer intimacy.

Temporal Effects and Consumption Systems

Prior studies have demonstrated that the drivers of intentions are dynamic; that is, they vary over time. What these studies do not show is how these drivers evolve as cus-

tomers repeatedly use and experience an offering through the introduction and growth stages of a life cycle. An important factor to consider when modeling this evolution is the existence of temporal or carryover effects from one period to another. Early on, Oliver (1980) demonstrated the time dependence of attitudes and behavioral intentions in a satisfaction model. He showed how attitudes in one period are a function of both customer satisfaction in that period and attitudes in the previous period. In turn, behavioral intentions in a given period are a function of attitudes in that period and prior period intentions. Similarly, Bolton and Drew (1991) find temporal effects for both attitudes and overall quality perceptions.

The time dependence of evaluations, attitudes, and intentions is a central feature of Mittal, Kumar, and Tsikos's (1999) consumption-system approach. They define (p. 89) a consumption system as "a bundle of goods and services that are consumed over time in multiple consumption episodes." Temporal effects in a consumption system are similar to the effects in Oliver's (1980) and Bolton and Drew's (1991) studies, in which perceptions, attitudes, and intentions in one period serve as anchors for the same constructs in subsequent periods. Evaluations of perceived value, brand equity, affective commitment, and loyalty intentions are not constructed anew each period. Rather, they are updated versions of prior evaluations (Helson 1948; Oliver 1980).

Another feature of the consumption-system approach is crossover effects, or the degree to which perceived performance in one part of the system (as with the product) affects behavioral intentions in another part of the system (as with the service) over time. Because our data come from the cellular phone provider and focus on loyalty intentions

to the phone, we focus on capturing temporal effects rather than crossover effects in the consumption-system approach. Our conceptual model incorporates the temporal effects of evaluations of value, brand equity, affective commitment, and loyalty intentions in one period on the same evaluations in a subsequent period. Because the model controls for temporal effects in the system, we gain a better understanding of the influence of perceived value, brands, and relationships on intentions.

Research Hypotheses

To summarize, we predict that perceived value has a more direct effect on intentions early in a life cycle. As the life cycle evolves, more affective attitudes, captured by the brand equity and affective commitment constructs in our model, should have greater influence. Moreover, the brand and relationship constructs should come to mediate the effects of perceived value on intentions. By studying an evolving market, we are in a unique position to gain an understanding of how loyalty drivers grow and change as competition grows.

We state these predictions formally as hypotheses. Our first hypothesis is related to the direct effect of perceived value on intentions over time. We expect that perceived performance has a direct effect on intentions that decreases over time as other factors (i.e., brands and relationships) come to influence intentions.

H₁: The perceived value of an offering has a direct, positive effect on loyalty intentions that decreases as a market grows.

As part of the mediation argument, we further predict that an offering’s perceived value should build brand equity and affective commitment.

H₂: The perceived value of an offering has a direct, positive effect on brand equity that increases as a market grows.

H₃: The perceived value of an offering has a direct, positive effect on affective commitment that increases as a market grows.

As we argue in H₁, the direct effect of perceived value on loyalty intentions should decrease over time as the brand and relationship constructs grow and come to influence intentions. H₄ and H₅ capture the increase in the effects of brand equity and relationship commitment on loyalty intentions that are consistent with the mediation argument:

H₄: Brand equity has a direct, positive effect on loyalty intentions that increases as a market grows.

H₅: Affective commitment has a direct, positive effect on loyalty intentions that increases as a market grows.

Although not stated as formal hypotheses, consistent with Mittal, Kumar, and Tsiros’s (1999) findings, we expect significant temporal effects in the consumption system. That is, perceived value, brand equity, affective commitment, and loyalty intentions in one period should affect the same construct in a subsequent period. All our predictions are time dependent. As a market continues to mature, the influence of perceived value in relation to brands and relationships should stabilize. As we describe in the next section, because we estimate the model over three periods,

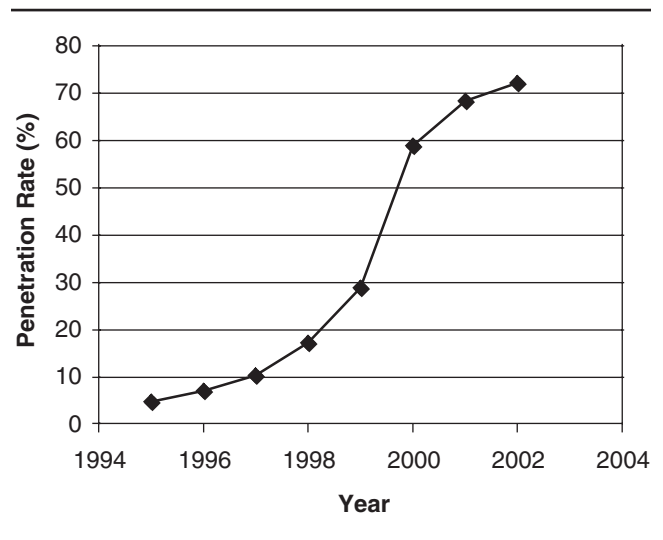
there are a relatively large number of measures, constructs, and relationships involved. Given the possible number of alternative specifications, we do not posit and test any alternative models per se. Rather, we implicitly examine alternative specifications through our analysis of the size and significance of the path coefficients and how they change over time. We also conduct formal tests of mediation among our constructs (Baron and Kenny 1986).

Empirical Study of the Cellular Phone Market

We test the hypotheses using data from a commercial tracking study conducted for a global supplier of mobile communications in the German market. The study was fielded at three points in time that were approximately two years apart: September 1996, August 1998, and October 2000. Figure 2 shows the penetration rate over time for the cellular phone market that was surveyed. The 1996 and 1998 surveys coincide with the introductory and early growth phases of the market. By October 2000, the market had witnessed dramatic growth and an increase in competition.

First-generation cellular phones were simply devices for making calls on a single network. The second-generation cellular phones, which we study here, represent a new-to-market offering in several respects, including the use of multiband technology (users are able to lock into multiple networks), short message system capability, a Web interface, a significantly lighter weight phone, longer battery life, and various service features. Several fundamental changes in the German cellular phone market stimulated the development and diffusion of this new offering. Before 1989, Deutsche Telekom (DT) monopolized the market, which limited market penetration. From 1989 through 1998, there was a stepwise withdrawal of government influence on DT and a reduction in entry barriers for competitors. On August 1, 1996, the market was officially opened for any network provider. By 1998, four major network providers

FIGURE 2
Penetration Rate by Year for Cellular Phones in Germany



(DT, Mannesmann, E-Plus, and Viag Intercom) were collaborating with the cellular phone hardware providers (Nokia, Samsung, Motorola, Siemens, and Sony-Ericsson) to provide product/service offerings. Although the network and hardware providers were interchangeable, our data focus on the hardware provider.

The original 1996 sample included 5486 respondents. The sample size was reduced because of panel mortality to 4234 respondents in 1998 and to 3148 respondents in 2000. Another 248 respondents were removed from the sample because of high levels of missing data and outliers. This left a sample of 2990 respondents with usable responses in each period; each respondent owned a cellular phone and was interviewed in person. Of these customers, 1472 (49%) were loyal to the same brand of phone in all three periods. It is important for our analysis to focus on these brand-loyal customers for two reasons: First, theoretically, our goal is to capture the evolution of loyalty intentions for just such a group. Second, empirically, the carryover effects in the consumption system are more meaningful when the same brand is involved. The market shares of the different brands owned by the sample in each wave are similar to the shares of each brand in the marketplace. Of the 1472 loyal customers, 63% were male (37% were female), 60% had at least one child at home, and 31% had some university education. Of 2990 loyal and nonloyal customers, 68% were male, 48% had a child at home, and 30% had some university education. This indicates that the loyal customer sample includes somewhat more females and at least one child at home. Income and age information is available only by ranges in the survey, but in each case, the distributions were almost identical.

By definition, behavioral loyalty or retention is invariant across our test sample, making intentions the ultimate dependent variable in our model. However, these intentions may not be related to actual behavior (Verhoef 2003). A simple analysis examines whether our intentions are related to behavior. Beginning with our entire sample of 2990 usable responses in Year 1 (1996), we extracted the first principal component from the loyalty intention measures. An analysis of variance reveals that the intentions of the loyal customers in our test sample were indeed higher in the first wave of the survey than were the intentions of those who subsequently switched (principal component values of .043 versus $-.041$; $F = 5.285$, $p < .05$).

There are both advantages and disadvantages associated with using the same sample over time. The important theoretical advantage is that time translates directly into accumulated customer experience, resulting in risk reduction for the brand-loyal customers in our test sample. The disadvantage is that we focus on what may be a very particular customer population, namely, technology upgraders or early adopters who readily embrace new technologies (Parasuraman 2000). Differences observed over time may be due to the loyal sample simply being different from other customers. Arguably, the advantages of using the sample outweigh the disadvantages. First, our theoretical arguments rest on the assumption that customers remain loyal to a particular cellular phone. Second, there is no readily available argument to suggest why the intention drivers would evolve

as predicted simply because this particular sample is involved. However, given the potentially unique nature of the sample, it is important that we focus on relative changes in intention drivers over time.

Survey Measures

The survey measures we used to estimate the conceptual model appear in Table 1. Respondents rated all measures on scales ranging from 1 ("completely disagree") to 7 ("completely agree"). The perceived value measures include the performance received for the price paid, whether the offering was a good deal compared with others in the marketplace, whether the price was fair, and whether the offering was a great value overall. We measured brand equity, affective commitment, and loyalty intentions using five survey measures each. The brand equity measures include whether the brand reflects customers' personal lifestyles, whether the brand fits their personality, and brand identification. The affective commitment measures include customers' commitment to maintaining a relationship with the manufacturer and personal interactions with the manufacturer (provision of feedback, interactive events, and other dialogue with the manufacturer). Finally, the loyalty intentions include repurchase intentions and recommending the cellular phone to others.

Model Specification, Estimation, and Evaluation

We specify all the constructs in the model using reflective indicators from Table 1 (Fornell and Cha 1994). The estimation method should be consistent with the complexity of the model, which in this case involves 12 latent constructs with carryover effects. Bagozzi and Yi (1994) and Fornell and Cha (1994) suggest that partial least squares (PLS) is well suited to the estimation of a complex structural equation model. It integrates aspects of principal components analysis with multiple regression (Wold 1982). When reflective measures are involved, the procedure extracts the first principal component from each subset of measures for the various latent variables and uses these principal components within a system of regression models. The algorithm then adjusts the principal component weights to maximize the predictive power of the model.

Typically, PLS models are evaluated on four key criteria: (1) the reliability of the constructs, (2) the discriminant validity of the constructs, (3) the size and significance of the path coefficients, and (4) the ability of the model to predict, in this case loyalty intentions (Hulland 1999). Regarding construct reliability, the measurement loadings should exceed .707 to ensure that at least half of the variance in the observed variable is shared with the construct. This reliability criterion is referred to as communality or, in the case of the standardized results we report here, average variance extracted (AVE; see Fornell and Larcker 1981). Table 1 reports the AVE from the PLS results for each construct for each of the three periods studied. For all 12 constructs in the model, AVE exceeds the reliability criterion. To evaluate the discriminant validity of the constructs, we examined whether the communalities or AVE measures for any two constructs that are related in the conceptual model exceed their squared correlations (Fornell and Larcker 1981). This

TABLE 1
Model Constructs, Survey Measures, and AVE by Time Period

Construct	Survey Measures	AVE
Perceived value	1. The cell phone is a good level of performance for the money I pay.	$t_1 = .686$
	2. The cell phone is a good deal relative to other offers available in the market.	$t_2 = .741$
	3. The price of my cell phone is more than fair for the performance I receive.	$t_3 = .649$
	4. The cell phone is a great value.	
Brand equity	1. The brand reflects my personal lifestyle.	$t_1 = .688$
	2. The brand and my personality fit.	$t_2 = .655$
	3. I can identify with the brand.	$t_3 = .594$
	4. If the brand were a person, I would like to take him or her out for dinner.	
	5. I would like to wear clothing with the logo of my cell phone brand on it.	
Affective commitment	1. I want to continue my relationship with the cell phone manufacturer.	$t_1 = .634$
	2. The cell phone manufacturer is interested in how I use my cell phone.	$t_2 = .670$
	3. If the cell phone manufacturer were a person, I would like to have him or her as a friend.	$t_3 = .607$
	4. I give feedback about my evaluations of the cell phone regularly.	
	5. Occasionally the cell phone dealer arranges events to show new products.	
Loyalty intentions	1. Next time I will definitely buy this cell phone (or its successor) again.	$t_1 = .650$
	2. If I lose my cell phone I will definitely buy it again.	$t_2 = .640$
	3. If I got any cell phone for free, I would choose my cell phone.	$t_3 = .548$
	4. I recommend my cell phone to other people.	
	5. I talk to other people about my cell phone.	

condition is satisfied in every case (not shown); thus, the discriminant validity of the constructs is also supported.

Results

The path coefficients for the overall model appear in Figure 3. To test the statistical significance of the paths and prepare for subsequent formal tests of mediation, we used the measurement weights from the PLS model to operationalize the latent variables and rerun the final regression models. These models completely replicate the PLS results. We use the standard errors from these regressions to test for significance and significant differences in the paths over time. The only nonsignificant path in the overall model is the effect of affective commitment in t_1 on loyalty intentions in t_1 . Given the nature of the hypotheses, the model results are best understood by first examining the significance of paths involving constructs in t_1 and then determining whether the effects in the model change significantly from period to period. These results appear in Table 2.

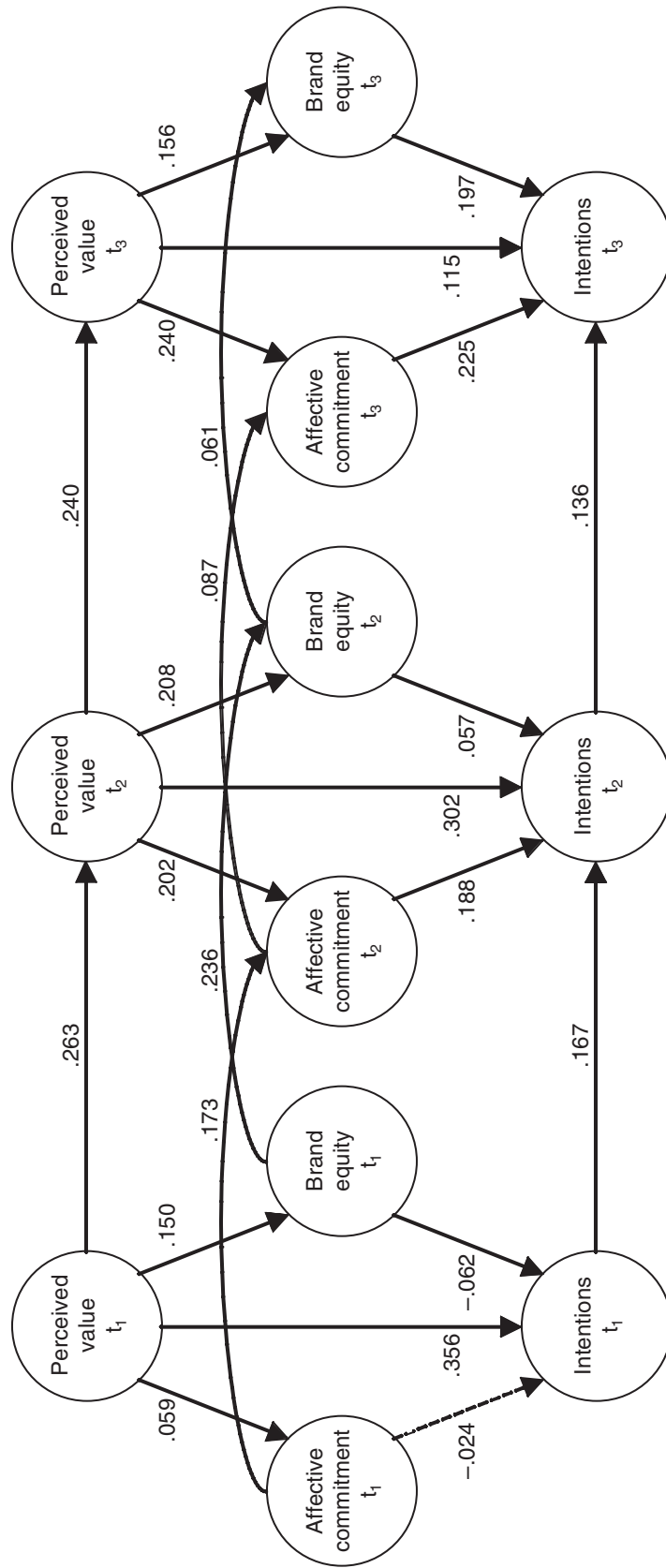
The results for t_1 (early in the diffusion of the cellular phones) show how perceived value has the only significant, positive effect on loyalty intentions. Although this perceived value makes some positive contribution to both affective commitment and brand equity, neither of these constructs makes a *positive* contribution to loyalty intentions. The unexpected results in this first period are that both affective commitment and brand equity have small negative effects on intentions, such that the negative effect of brand equity is significant. Consistent with Mittal, Kumar, and Tsiros's (1999) consumption-systems approach, all four carryover effects from t_1 to t_2 are significant (see Figure 3 and Table 2). The largest carryover effect is for

perceived value (.263), followed by brand equity (.236), affective commitment (.173), and intentions (.167).

Moving from t_1 to t_2 , the effect of perceived value on both affective commitment and brand equity increases. Important to the mediation argument, there is a significant decrease in the direct effect of value on intentions (from .356 to .302) combined with a significant increase in the effect of affective commitment on intentions (from $-.024$ to .188) and brand equity on intentions (from $-.062$ to .057; see Table 2). Consistent with the mediation argument, by t_2 , the more affective attitudes in the model begin to mediate the effects of perceived value on intentions. Again, the carryover effects from t_2 to t_3 are positive and significant, but note the changes that occur. The carryover effects for affective commitment (.087) and brand equity (.061) from t_2 to t_3 are both significantly lower than the same effects from t_1 to t_2 . This suggests that both the commitment and the image constructs are evolving as more competitors enter the market.

By t_3 , perceived value continues to build relationship commitment and brand image, though the impact on brands is lower from t_2 to t_3 . Importantly, the direct effect of perceived value on intentions continues to drop significantly (from .302 to .115), whereas the effects of both affective commitment and brand equity increase (for commitment, from .188 to .225; for brand, from .057 to .197). By t_3 , the effects of affective commitment and brand equity on intentions are each greater than the direct effect of perceived value on intentions. Again, this is consistent with the prediction that more affective attitudes come to mediate the effects of perceived value on intentions as the market evolves. The R^2 for loyalty intentions is .124 for t_1 , .201 for t_2 , and .171 for t_3 . There are several reasons that the vari-

FIGURE 3
PLS Path Coefficients



Notes: The dotted line represents a nonsignificant ($p < .05$) path coefficient.

TABLE 2
Changes in Path Coefficients

Path Coefficient	t ₁	Significant in t ₁	Change from t ₁ to t ₂	Significant Change? (t ₁ to t ₂)	Change from t ₂ to t ₃	Significant Change? (t ₂ to t ₃)
Value → commitment	.059	Yes	.143	Yes	.038	No
Value → brand	.150	Yes	.058	Yes	-.052	Yes
Value → intentions	.356	Yes	-.054	Yes	-.187	Yes
Commitment → intentions	-.024	No	.212	Yes	.037	Yes
Brand → intentions	-.062	Yes	.119	Yes	.140	Yes
Current value → future value	.263	Yes	-.023	No	—	—
Current commitment → future commitment	.173	Yes	-.086	Yes	—	—
Current brand → future brand	.236	Yes	-.175	Yes	—	—
Current intentions → future intentions	.167	Yes	-.031	No	—	—

Notes: Significance is based on $p < .05$.

ance explained in loyalty intention is relatively low. This is a volatile period in the market's evolution, and we examine only the hardware side of the product/service bundle. We also expect that the variance explained increases as the market matures and buyers become loyal to particular phones and network providers.

Additional Analyses and Tests

We conducted three additional tests on the latent variable scores. First, we examined whether there were any systematic changes in the levels of the perceived value, affective commitment, brand equity, or intention constructs using a series of analysis of variance models and time as a three-level factor. Considering the large sample size involved, the differences were minimal. There were no significant differences from year to year for perceived value, affective commitment, or loyalty intentions (cumulative averages of 4.272, 4.231, and 4.257, respectively). The only difference from year to year was for brand equity, which increased significantly from t₁ (4.081) and t₂ (4.125) to t₃ (4.252; $F = 6.908$, $p < .001$). This is consistent with the increased impact of brand equity in the PLS results. Otherwise, the means are stable from period to period.

Second, we examined whether the relationships involving intentions were nonlinear, which could affect the interpretation of our model results. As a check, we used the latent variable scores to estimate linear and possible quadratic and cubic relationships between each of the three drivers of loyalty (perceived value, affective commitment, and brand equity) and loyalty intentions. In all three cases, only the linear relationship is significant; all the relationships in the model are essentially linear. An explanation for this finding is that our study focuses on the early stages of loyalty formation. We suspect that nonlinearities are more likely to occur in more mature markets in which higher levels of trust and commitment have evolved (Mittal and Kamakura 2001).

Third, we used Baron and Kenny's (1986) analysis to test for mediation among our latent constructs. With respect to our conceptual model, there are six separate sets of

regression models used to test for mediation. For each year, we estimate the effect of perceived value on affective commitment (brand equity), the effect of perceived value on intentions, and the effect of affective commitment (brand equity) on intentions. Assuming that all relationships are significant, we then regress both perceived value and affective commitment (brand equity) together on intentions. Mediation is supported if the effect of value on intentions drops significantly. Given the number of equations involved, we summarize the test results here. In t₁, there is no support for mediation involving either affective commitment or brand equity. In t₂, the tests support partial mediation for the relationship from perceived value, to affective commitment, to intentions but not for the relationship from value, to brand equity, to intentions. By t₃, the tests support partial mediation for both sets of relationships. In general, these results are consistent with the PLS analysis.

Results Summary

We summarize our findings in terms of our hypotheses. In support of H₁, we find that perceived value has a positive direct effect on loyalty intentions that decreases over time. In support of H₂, value has positive effects on affective commitment that grow over time. The support for H₃ is mixed. Although the positive effect of value on brand equity grows from t₁ to t₂, it declines again in t₃. In each year, however, the effect is significantly positive. Affective commitment has no significant effect on intentions in t₁, but the effect becomes progressively positive over time. Likewise, brand equity has a small negative effect on intention in t₁, which becomes progressively positive over time. Thus, H₄ and H₅ are partially supported. When we combine the analysis of path coefficients with the formal tests of mediation, there is robust support for the prediction that intentions are predominantly value driven early in a life cycle and are increasingly mediated by attitudes toward the brand and relationship over time. Finally, consistent with Mittal, Kumar, and Tsiros's (1999) consumption-system framework, our results support significant carryover effects from year to year for all our latent variables.

Discussion and Implications

Recent dynamic models in marketing confirm that the drivers of loyalty intentions evolve over time. Yet these studies are limited to relatively mature product and service categories. Our study provides two important contributions to the understanding of the evolution of customer evaluations, attitudes, and intentions. First, we demonstrate how the drivers of intentions evolve for a panel of loyal customers who purchased and used a new-to-market offering, cellular phone technology, through the introduction and growth phases of a life cycle. Second, we demonstrate how two constructs that have not been included in previous studies, affective commitment and brand equity, come to mediate the effects of perceived value on intentions over time.

We find that cognitive perceptions of overall value drive loyalty intentions early in the diffusion process. As the market grows and customer experience accumulates, more affective attitudes toward the relationship and brand come to drive intentions. Our predictions and findings are consistent with attitude theory; performance beliefs have more direct effects on behavioral intentions when experience is low, whereas attitudes come to mediate the effects of performance beliefs on intentions as experience increases. An important theoretical implication is that affective commitment and brand equity are effective ways to operationalize the affect-based mediators of perceived value on intentions.

Our findings both replicate and extend our understanding of consumption systems (Mittal, Kumar and Tsiras 1999). Consistent with previous studies, we find that performance perceptions (perceived value) and intentions in one period serve as anchors for the same perceptions and intentions in subsequent periods. Building on previous studies, we introduce two new constructs to the consumption system, affective commitment and brand equity. One important finding is that both the commitment and the brand equity constructs exhibit significant carryover effects. Another finding is that, when we control for carryover effects, affective commitment and brand equity come to mediate the effects of perceived performance on intentions over time.

The results have important implications for managers who are responsible for improving perceived value and managers who are responsible for building brands and relationships. Early in the introduction and growth of an offering, managers should maintain a focus on improving value. With a focus on value creation, a foundation is laid for building brands and relationships. As a market grows, both brands and relationships become more important. Notably, brands and relationships had small negative impacts on loyalty intentions in the first phase of our study, perhaps because our sample comprised technology upgraders or early adopters. As the market grew to include a variety of competitors, the influence of brands and relationships on intentions became positive and eventually exceeded the direct, positive influence of perceived value.

With respect to relationship commitment, the implication is that the personal relationship between a customer and a company should be measured, nurtured, and managed

effectively (Bendapudi and Leone 2002) through a company's customer relationship management system. For brand equity, the implication is that the degree to which customers identify with a particular brand and find it relevant to their situation should also be measured and managed effectively. Our results provide insight into how much time it takes for brands and relationships to influence intentions. Within a period of two years, affective commitment gains a sizable influence on intentions. Within a period of four years, both commitment and brand equity have direct effects on intentions that exceed the direct effect of perceived value. Note, however, that perceived value continues to influence loyalty through the mediating effects of the brand and relationship.

In other words, managers must recognize how life inside a cellular phone or the technology per se is replaced by life outside the cellular phone over time. Early in the diffusion process, technology determines the product policy of cellular phone manufacturers. As the technology becomes accepted, other forms of differentiation, such as colors and design, become increasingly important. Parallel to this, whether these designs, colors, and associated brand names fit a customer's own personality become critical. Adaptation to this evolution requires shifting from a focus on how a technology serves a need to a focus on other types of marketing expertise, specifically the building of brands and relationships. Several factors should affect this shift. The first factor is customer involvement; the more customers are involved in a particular product category, the more they seek brand and relationship benefits when the product benefits become standard. The second factor is competition; more competitive markets have more players that attempt to differentiate themselves. The third factor is core product standardization; the more inherently homogeneous the product, the more companies must focus on brands and relationships as a source of differentiation.

The most important contribution of this study is that it improves the basic understanding of how perceived value, brands, and relationships come to influence one another and loyalty intentions over the introduction and growth phases of a life cycle. A limitation of our study is that we focus on the cellular phone rather than the entire product/service bundle. An important reason for this is that the survey is from the perspective of the cellular phone manufacturer in an environment in which cellular phone brands and service providers are interchangeable. Another limitation is that our panel is limited to consumers who enter a market early and remain loyal to a particular brand. The results should also be replicated in other contexts before generalizations can emerge. It will be particularly important to follow the category forward as it reaches maturity to help understand how the drivers of both intentions and behavior stabilize. Finally, our measures of relationship commitment focus on affective commitment. Because the market for cellular phones includes significant switching barriers, it is important to include calculative commitment when further testing the model.

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