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Consumer acceptance of service bundles: An empirical investigation in the context of broadband triple play

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ABSTRACT

Although offering bundled services promises firms potential synergies in supply and increased revenues, the realized benefits of such a strategy are highly contingent on consumer acceptance of the bundles. Borrowing from TAM, Information Integration Theory, and the customer value concept, we developed a comprehensive model for consumer acceptance of service bundles, which is divided into four general construct types: service characteristics, usefulness/ease of use, attitude, and behavioral intention. Twelve hypotheses were derived and empirically tested in the context of broadband triple play, the bundled offering of broadband Internet access, Internet telephony, and Internet TV. Based on questionnaire responses from 214 study participants and using PLS for analysis, we found overall support for our research model. We concluded by discussing the academic and managerial value of our research, both in terms of advanced knowledge of service bundle acceptance and the adoption of triple play.

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1. Introduction

Service bundling, the practice of combining multiple services at a set price, has become a popular strategy. In all types of industries, companies that traditionally offered stand-alone services have been changing their strategy to one that provides service bundles; for example, most travel agencies now offer flights, rental cars, accommodations, and events bundled into a one-price vacation, while banks bundle checking accounts with credit cards and APR reduction on personal loans. Given its wide use, it is not surprising that research on bundling has been increasing. Several aspects have been investigated, including the optimality of bundling [e.g., 20], firms' pricing of bundles, and the best way to present bundle price.

Little, however, has been done to examine what factors other than price cause consumers to accept a new bundle of services. It has been noted that consumer behavior analyses have primarily dealt with economic issues and have mostly ignored the psychological ramifications of bundling [2]. We believe that the price-based approach (used alone) is inadequate for studying multi-service bundling: it neglects the subjective nature of the consumer decision process in evaluating bundles.

Therefore, we took a different perspective. We suggested that introducing a bundle to the marketplace presents the consumer with a new menu of choices at new prices. In addition, the bundle often provides certain uses that isolated products cannot. Thus, bundles can be thought of as new offerings and therefore can be considered innovations—defined as something that is new because it is different from existing forms. Also, since bundling often requires several adaptations of the services, managers frequently approach service bundling from a new product development perspective [19]. This view thus treats the choice to use a bundle as akin to an innovation adoption decision. Such an approach is particularly suitable when studying bundles involving a service that is new to the market, especially when companies decide to introduce their new services as part of a bundle.

In our empirical study, we focused on the bundle of broadband “triple play.” Technological advances have given telecommunications service providers a way to offer a full array of Internet services [22], which they often combine into one bundled package. Triple play has emerged as a term in the business press that describes such offerings; it denotes the bundling of three broadband services: Internet access, Internet telephone, and Internet television [17]. Triple play is rapidly becoming established in the United States, Europe, and Japan, as evidenced by a wide range of offerings or announcements (e.g., by AT&T, Comcast, Deutsche Telekom, British Telecom, and NTT). An ever-increasing number of market participants feel compelled to present such a package. The innovative way of offering the services is fundamentally reshaping the competitive

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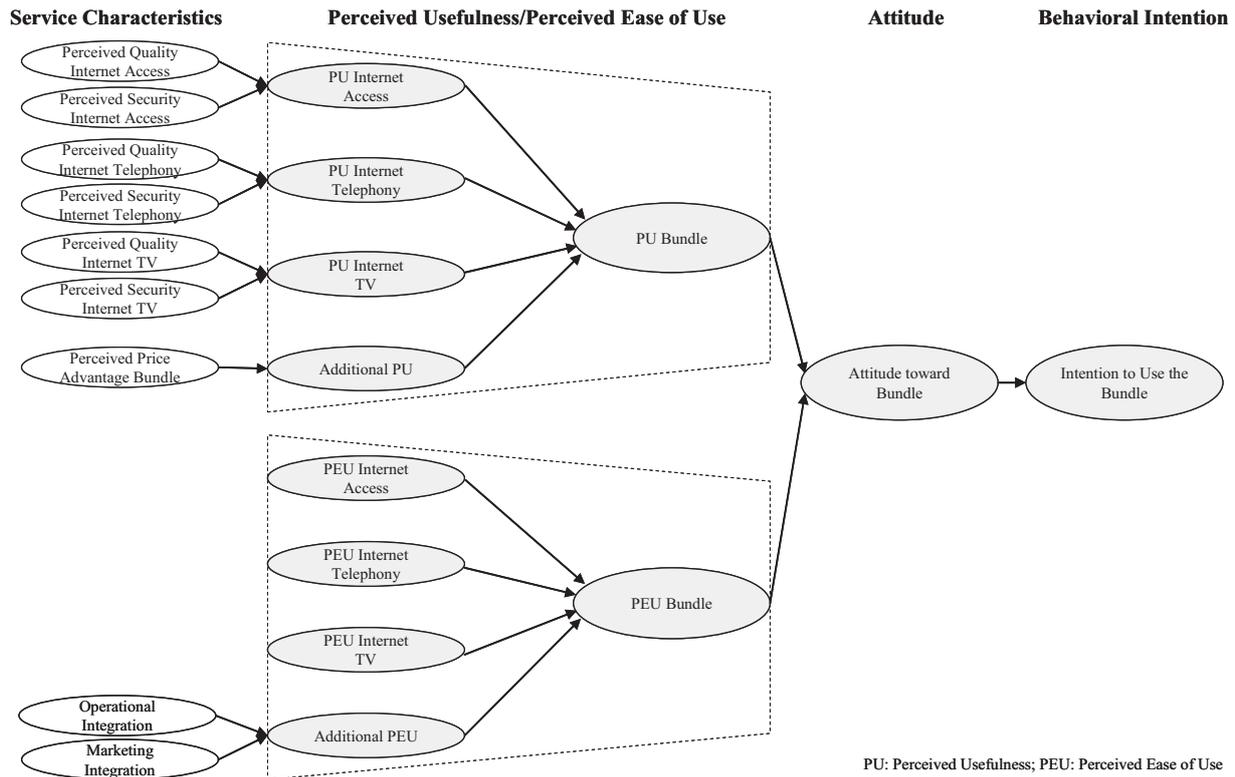


Fig. 1. Our conceptual model.

landscape. Paul Reynolds, chief executive of British Telecom's wholesale operations, noted at the 21 Century World Broadband Forum in London that "The future became inevitable the day we learned how to fully digitise our industry. Digitised voice, data and video can now be combined, changed, merged and manipulated on a single digital platform."

The telecommunication providers' aim is both to attain synergies in supply and to encourage subscribers to stay with a single service provider, and opening up new revenue-generation potential. However, while the triple play comes with the promise of increased profits, it also comes with risk. If not accepted by consumers, it may increase customer churn and ultimately drop profits. Since many telecommunication corporations have made fundamental investments in their efforts to increase their product range and implement triple play bundling, a profound understanding of the factors influencing consumers' decision to accept triple play offers is highly relevant.

We developed a model of the antecedents to consumer acceptance of service bundles. Focusing on the service bundle of broadband triple play, we built on the Technology Acceptance Model (TAM) to explain innovation use and derive key drivers of Internet service bundle acceptance. We applied Information Integration Theory (IIT) to explain the superadditive effects in consumers' assessment of bundled services which cause the value of the bundle to be greater than the sum of the values of its parts. Our results provide managers with important factors on which to focus the companies' efforts to increase the acceptance of Internet service bundles.

2. Our conceptual model

2.1. Research framework

A number of models have been advanced to explain innovation usage. Among them, TAM has evolved as a frequently used theory,

recently applied to the consumer context [18] and the adoption of Internet services [3].

According to TAM, consumers' attitudes toward the triple play bundle are determined by their perception of its usefulness and ease of use, which in turn are influenced by specific characteristics of the services. Moreover, the behavioral intention to use the bundle is affected by the attitude toward the bundle (see Fig. 1).

2.2. Perceived usefulness and perceived ease of use of Internet service bundles

The question of how buyers' perceptions of usefulness and ease of use are formed when they evaluate a bundle has received little research attention. We followed Gaeth et al. [4] and approached the process of consumers judging service bundles by adapting Information Integration Theory (IIT), which aims to explain the process of integrating information to form an overall judgment.

According to IIT, individuals form evaluations as they receive, interpret, and integrate information. The theory suggests that, when multiple cues exist, a consumer's judgment will be based on the weighted sum of the contribution of each cue. The weights represent the relevance of an individual cue for the individual. For example, if two cues are deemed equally relevant, they are given equal weight; however, if one cue is deemed more relevant, it is assigned a greater weight than the other.

We proposed that consumers form separate subjective evaluations about the value and ease use of each of the services in a bundle. They then integrate all the service values to form an overall impression of the bundle [8]. In our model, this is reflected by conceptualizing perceived usefulness and perceived ease of use of the Internet service bundle as formative second-order factors. Based on this, estimates can be made of the relative contribution of the single services in consumers' evaluation of the entire bundle. The weights attributed to the individual cues are represented by the coefficients of the paths connecting the first-order dimensions

Table 1
Hypotheses of the study.

Construct category	Hypothesis
Attitude	H ₁ There is a positive relationship between perceived usefulness of the bundle and attitude toward the bundle
	H ₂ There is a positive relationship between perceived ease of use of the bundle and attitude toward the bundle
Intention	H ₃ There is a positive relationship between attitude toward the bundle and intention to use the bundle
Service characteristics	H ₄ There is a positive relationship between perceived quality of Internet access and perceived usefulness of Internet access
	H ₅ There is a positive relationship between perceived quality of Internet telephony and perceived usefulness of Internet telephony
	H ₆ There is a positive relationship between perceived quality of Internet TV and perceived usefulness of Internet TV
	H ₇ There is a positive relationship between perceived security of Internet access and perceived usefulness of Internet access
	H ₈ There is a positive relationship between perceived security of Internet telephony and perceived usefulness of Internet telephony
	H ₉ There is a positive relationship between perceived security of Internet TV and perceived usefulness of Internet TV
	H ₁₀ There is a positive relationship between perceived price advantage of the bundle and additional perceived usefulness of the bundle
	H ₁₁ There is a positive relationship between operational integration and additional perceived ease of use of the bundle
	H ₁₂ There is a positive relationship between marketing integration and additional perceived ease of use of the bundle

with the second-order construct. The formative second-order model also accounts for the possibility that consumers' perception of any given service in a bundle is affected by the other services, because the model allows for covariation among the single service evaluations. This is important because evaluations of single products can "spill over" onto evaluations of bundled products.

Some earlier studies on information integration have suggested that an averaging model, in which the component ratings form an overall rating, is a good representation of this multi-cue evaluation process. However, subsequent research has argued that the simple addition model needs to be refined because simultaneous purchase of multiple components in a bundle may result in an *additional* benefit. Gaeth et al. [4] found that there was a superadditive effect in the evaluation of complementary bundled products which caused the evaluation of the product bundle to be greater than the sum of its parts.

We therefore conceptualized perceived usefulness and perceived ease of use of the Internet service bundle as formative, four-dimensional constructs, consisting of the single services Internet access, television, and telephone, as well as additional usefulness/ease of use arising from the bundled offering.

This view is consistent with Gill [6], who found that combining a utilitarian service (such as Internet access) and a hedonic service (such as Internet TV) resulted in an asymmetric additivity effect that generated additional utility.

Bundles can replace several confusing options with a single, simpler alternative, especially when product uncertainty is high and obtaining information on the products is time-consuming [9]. Thus, bundling increases the ease of use by reducing the time and cognitive effort required in making purchase decisions. Specifically, consumers may feel that they buy the proper combination of services, which in turn reduces the perceived effort of use [7]. In a study among customers of 100 firms that use a bundling strategy, Ovans [11] found that bundles had the potential to "simplify consumers' lives," as compared to purchasing isolated products.

2.3. Service characteristics

It is, of course, important to identify critical service characteristics influencing the perceived usefulness and perceived ease of use in our model; to derive the factors that impact a service's perceived usefulness, we considered the customer value approach. The value concept, which has received considerable attention in service research, focuses on the utility that the consumer receives from purchasing a product. It has been argued that the consumer's assessment of value of a product is based on the benefits and sacrifices a customer associates with a supplier's offering. Perceived benefits are typically measured in terms of product quality, while perceived sacrifices include all the costs

and disadvantages the buyer faces, such as the perception of the product price [1] and its perceived risks. In B2C Internet services, security risk or the likelihood of privacy invasion has been found to be a particularly critical concern among consumers. The higher an Internet service scores on security protection, the less the risk that consumers perceive to exist; thus, perceived value will increase.

The perceived usefulness of a service bundle is not composed only of the single bundle components' usefulness. We suggest that this is influenced by the bundle's perceived price advantage. Consumers frequently receive a price discount when purchasing services in a bundle, which consumers perceive as an important benefit that affects the bundle's additional perceived usefulness [16]. Some telecommunications providers offer a 30% reduction on a triple play offering, while the average price reduction is around 10% [13].

Furthermore, consumers find the use of the services in a bundle to be easier if they are integrated in a beneficial way. Two kinds of integration can cause additional ease of use: operational integration (designing, modifying, or selecting services that work better together and optimizing their interface) and marketing integration (unifying customer interfaces for all the services across the entire customer decision-making and buying cycle).

If the components of a bundle perform as a system, they will be perceived as compatible and easier to handle [15]. Harris and Blair found that priming customers with concerns about functional compatibility risk increased the likelihood that they would choose bundles over individual items. Bundles may also reduce the search effort needed to make the purchase. However, if there is little effort to make the bundle perform as a whole, customers are less likely to experience additional ease of use. In the case of triple play, service integration efforts may aim at offering a single installation process for all components, as well as making it possible to use all services on a single platform.

When the customer access to all services is in one module, customers may reduce their transaction cost. For example, customers may benefit from searching only a single location, buying all services from a one-stop-shop provider, getting a single bill, and maintaining a single vendor relationship. In the case of triple play, a single bill for Internet access, television, and telephone may thus enhance the ease of use of the bundle.

The study's structural hypotheses are shown in Table 1.

3. Method

3.1. Questionnaire development

Our survey instrument contained two sections. The first section presented items for measuring perceived usefulness and perceived

ease of use, as well as their service-related antecedents. The second section asked for the respondents' attitude and intention to buy a bundle. Whenever possible, existing measures of the constructs were used as the basis for item generation. We used a 5-point Likert scale, with anchors of *Strongly disagree/Strongly agree* (see Appendix A for the items used).

Both perceived usefulness and perceived ease of use were operationalized as formative second-order constructs with four dimensions: three referred to the assessment of the individual components of the bundle (Internet access, Internet telephony, and Internet TV), and the fourth reflected the superadditive effect. We used the scales of Gefen et al. [5] and Pavlou [12] for the first-order dimensions perceived usefulness and perceived ease of use of the three individual bundle components but developed new scales for the fourth. Furthermore, measures for perceived quality of the three bundle components were based on Venkatesh and Davis [21], while items for measuring perceived security were based on Loiacono et al. [10]. Moreover, we developed new measurement scales for perceived price advantage of the bundle, operational integration, and marketing integration. Finally, the measures for attitude and behavioral intentions were adapted from Pavlou.

3.2. Sample

Our sample consisted of 214 students enrolled in three large German universities. We considered university students to be an appropriate sampling frame for three reasons: first, their role as innovators in adopting new technologies; second, their familiarity with computers and the Internet; and third, their use in theory testing and building [e.g., 14]. We explained the purpose of the study to the students and provided them with basic background about broadband triple play.

3.3. Estimation approach

To test our model, we used PLS, which places minimal restrictions on sample size and residual distributions. Second-order factors were approximated in PLS using the hierarchical component model, in which the higher order factors are created using the indicators of the lower order factors. This approach is particularly appropriate when the number of indicators for each of the first-order dimensions of a second-order construct are approximately equal. We used PLS Graph 3.0, in which statistical significance was assessed using the bootstrap routine with 500 subsamples.

4. Results

4.1. Reliability and validity of the measures

Appendix A includes descriptive statistics, factor loadings, *t*-values, composite reliabilities (CR), average variance extracted (AVE), and Cronbach's alpha. For individual measurement loadings on constructs, the >0.7 and significance criteria for strong loadings were met for all items. Composite reliabilities of the scales exceeded the benchmark of 0.7, and the AVE values were greater than the cutoff of 0.5. Finally, Cronbach's alpha, which was examined for each construct, exceeded the common 0.7 threshold. Together, these results were indicative of high reliability and internal consistency.

To ensure that the constructs were distinct entities, discriminant validity was tested by examining the correlation between constructs, which should be lower than the square root of the AVE for each construct. Discriminant validity was satisfied in all cases, as shown in Table 2.

Table 2
Correlation matrix and discriminant validity.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Perceived usefulness – Internet access	0.82																		
Perceived usefulness – Internet telephony	0.32	0.84																	
Perceived usefulness – Internet TV	0.07	0.14	0.85																
Additional perceived usefulness	0.45	0.25	0.30	0.88															
Perceived ease of use – Internet access	0.23	0.37	0.08	0.23	0.87														
Perceived ease of use – Internet telephony	0.15	0.21	0.27	0.23	0.44	0.88													
Perceived ease of use – Internet TV	0.09	0.05	0.21	0.45	0.16	0.07	0.90												
Additional perceived ease of use	0.51	0.24	-0.02	0.09	0.37	0.19	0.24	0.89											
Perceived quality – Internet access	0.20	0.17	0.08	-0.03	0.17	0.14	0.15	0.05	0.85										
Perceived quality – Internet telephony	0.32	0.36	0.07	0.05	0.29	0.39	0.25	0.09	0.23	0.89									
Perceived quality – Internet TV	0.23	0.23	0.18	0.02	0.14	0.23	0.15	0.11	0.08	0.63	0.94								
Perceived security – Internet telephony	0.06	0.17	0.48	0.21	0.17	0.19	0.32	0.16	0.00	0.12	0.18	0.84							
Perceived security – Internet TV	0.13	0.21	0.35	0.15	0.09	0.24	0.21	0.13	0.04	0.45	0.20	0.46	0.94						
Perceived price advantage of bundle	0.14	0.21	0.37	0.57	0.11	0.16	0.33	0.31	0.01	0.15	0.11	0.01	0.23	0.94					
Operational integration	0.08	0.16	0.35	0.48	0.23	0.19	0.41	0.57	0.04	0.07	0.16	0.19	0.26	0.12	0.91				
Marketing integration	0.07	0.13	0.30	0.44	0.18	0.20	0.34	0.52	0.06	0.11	0.18	0.16	0.23	0.14	0.43	0.90			
Attitude toward bundle	0.18	0.16	0.26	0.47	0.24	0.16	0.30	0.42	0.14	0.12	0.15	0.17	0.17	0.08	0.39	0.52	0.93		
Intention to use the bundle	0.00	0.08	0.18	0.34	0.00	0.04	0.07	0.34	0.04	-0.01	0.05	0.07	0.04	0.18	0.30	0.32	0.25	0.95	

Bold numbers on the diagonal show square roots of the AVE; numbers below the diagonal show the correlations.

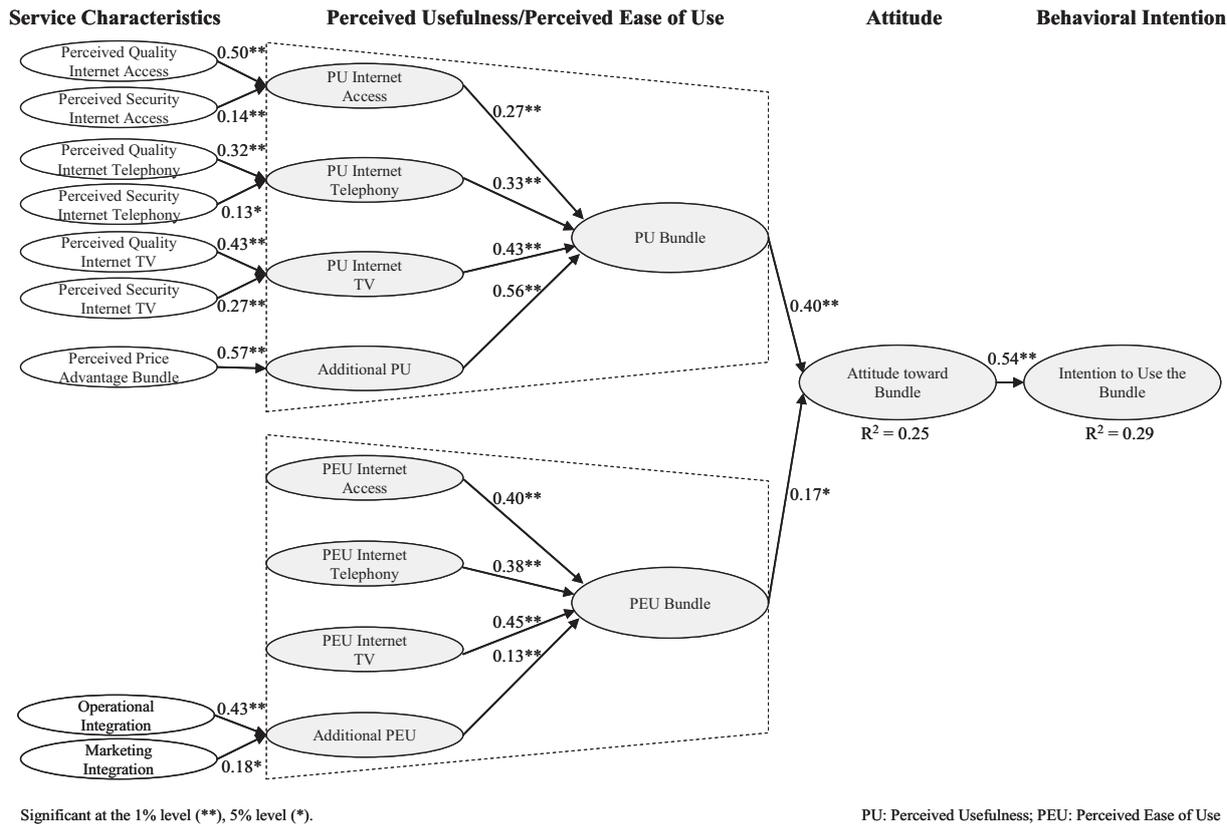


Fig. 2. Results for the conceptual model.

4.2. Structural model

Fig. 2 shows the estimates obtained from the PLS path analysis. Before assessing the inter-construct relationships, we looked at the measurement properties of the second-order constructs, perceived usefulness of the bundle and perceived ease of use of the bundle. The estimates indicated that all pathways between the first- and second-order constructs were highly significant; thus, they confirmed the proposed multidimensional conceptualizations of perceived usefulness and perceived ease of use of the bundle. Looking at the path coefficients of the single dimensions (which represented the weights attributed to the individual cues), we found that the additional perceived usefulness that was due to the bundled nature of the offering and the perceived ease of use of Internet TV were the most important facets of the two second-order constructs.

The key PLS outputs for the analysis of the structural model were the R^2 values, which provide an indication of the predictive ability of the independent variables, as well as the path coefficients and their statistical significance. Attitude toward the bundle and intention to use the bundle with R^2 values of 0.25 and 0.29, respectively, provided adequate evidence of the predictive ability of the model. Furthermore, the path coefficients revealed that all the links in the model were significant at the 5% level. First, the relationships between perceived usefulness and perceived ease of use of the bundle and the attitude toward bundle were confirmed in this study; that is, perceived usefulness ($b = 0.40, p < 0.01$) and perceived ease of use ($b = 0.17, p < 0.01$) predicted attitude, providing support for H_1 and H_2 . Moreover, in line with H_3 , attitude toward the bundle was an important driver of intention to use the bundle ($b = 0.54, p < 0.01$). We also found significant effects of the analyzed service and bundle characteristics on perceived usefulness and perceived ease of use. Consistent with $H_4, H_5,$ and H_6 , a service's perceived quality had a highly significant

effect on perceived usefulness of Internet access ($b = 0.50, p < 0.01$), Internet telephony ($b = 0.32, p < 0.01$), and Internet TV ($b = 0.43, p < 0.01$). Similarly, perceived security of the service significantly affected perceived usefulness of Internet access ($b = 0.14, p < 0.01$), Internet telephony ($b = 0.13, p < 0.05$), and Internet TV ($b = 0.27, p < 0.01$), in support of $H_7, H_8,$ and H_9 . Moreover, we found a significant positive relationship between the perceived price advantage of the bundle and the additional perceived usefulness of the bundle ($b = 0.57, p < 0.01$), which is in line with H_{10} . Finally, consistent with H_{11} and H_{12} , both integration constructs were significantly related to the additional perceived ease of use of the bundle (operational integration: $b = 0.43, p < 0.01$; marketing integration: $b = 0.18, p < 0.05$). Overall, these results provided broad support for our research model.

4.3. Common method bias

Because we collected data via single source methods with self-reporting scales, testing for common method variance was necessary. First, Harman's one-factor test was employed. Second, we included a latent common method factor in the PLS model this included all of the principal constructs' indicators, and we calculated each indicator's variances. The results indicated that the average substantively explained variance of the indicators was 0.79, while the average method based variance was 0.002. In addition, most method factor loadings (74 out of 86) were not significant. Overall, we therefore concluded that common method bias was not a serious concern.

5. Conclusion

The purpose of our study was to examine factors that determine consumers' decision to accept Internet service bundles. Our results

confirmed the superadditive effects in consumers' assessments of bundled services resulting in additional perceived usefulness and additional ease of use. This underlines that bundling allows companies to provide additional benefits to the customer as a result of the package nature of the bundle. Building on the customer value concept, we found support for a significant impact of perceived quality and perceived risk on the usefulness of each of the bundle components. Moreover, we demonstrated that a perceived price advantage of the bundle was significantly related to the additional usefulness of the bundle.

In our research, we highlighted a variety of constructs that help explain variation in individuals' use of Internet services. Considering these, possibly in addition to more traditional macro-level factors, adds to the analysis of a digital divide between broadband Internet users and non-users.

Although we provided insights into the antecedents to the acceptance of Internet service bundles, our study was limited by the methods employed and its conceptual focus. First, our study was based on a student sample, which is not representative of the population of general users. Second, the study was restricted to Germany. Third, our study was exclusively concerned with the acceptance of the bundle consisting of all three services. Finally, we focused on the consumer perspective. Augmenting our findings

with experiences of suppliers may yield additional insight into service bundle marketing.

Several managerial implications for developing a successful service bundling strategy may be derived from our results. Firms trying to attract customers or encouraging their own customers to purchase bundles may find it helpful to consider the determinants of bundle acceptance highlighted here. In particular, several service characteristics that firms should be able to vary were found to play an important role in increasing the perceived usefulness and ease of use of service bundles. Emphasizing the bundle's price advantage, as well as stressing service quality and reducing risks associated with buying and using the individual services are apparently among the key success factors of effectively promoting service bundles. Moreover, consumers will perceive Internet service bundles as easier to use if they are highly integrated. Accordingly, bundles need to be crafted and offered as services that are a part of an overall system, and the convenience of one-stop shopping and integrated customer support should be emphasized.

Firms striving to realize the desired synergies in supply and additional revenues associated with successfully offering service bundles need to take the management of these bundles seriously and approach it holistically from a new product development perspective.

Appendix A. Scale items and reliability and validity indices

				Mean/S.D.	Loading/ t-value
Perceived usefulness – Internet access		CR = 0.91	AVE = 0.68	$\alpha = 0.88$	
1a	Broadband Internet access is useful for surfing the Internet				4.31/0.84
1b	I think broadband Internet access is valuable to me				4.22/0.95
1c	Broadband Internet access enhances my effectiveness in using the Internet				4.08/0.93
1d	Broadband Internet access enables me to use Internet applications (e.g., emailing, online-shopping) faster				4.22/0.93
1e	Overall, I find broadband Internet access useful				4.28/0.88
Perceived usefulness – Internet telephony		CR = 0.92	AVE = 0.71	$\alpha = 0.90$	
2a	Broadband Internet telephony is useful for communicating with others				3.67/1.02
2b	Broadband Internet telephony can enhance communication				3.36/1.10
2c	I think broadband Internet telephony is valuable to me				3.54/1.00
2d	Using broadband Internet telephony will be advantageous				3.71/0.92
2e	Overall, I find broadband Internet telephony useful				3.59/0.93
Perceived usefulness – Internet TV		CR = 0.93	AVE = 0.73	$\alpha = 0.91$	
3a	Broadband Internet TV is a useful form of entertainment				3.16/1.02
3b	Using broadband Internet TV will be advantageous				3.25/0.96
3c	I think broadband Internet TV is valuable to me				3.19/0.96
3d	Broadband Internet TV enhances my consumption of films				3.11/1.02
3e	Overall, I find broadband Internet TV useful				3.12/1.01
Additional perceived usefulness		CR = 0.94	AVE = 0.77	$\alpha = 0.92$	
4a	Overall, using the broadband bundle can result in an additional benefit compared to obtaining stand-alone services				3.06/1.06
4b	Compared to stand-alone services, I think the broadband bundle enables me to use the Internet in a better way				3.02/1.04
4c	Obtaining the broadband bundle can be beneficial compared to obtaining stand-alone services				3.14/1.04
4d	I think using the broadband bundle can be advantageous compared to using stand-alone services				3.03/1.06
4e	The broadband bundle is a more effective way to use the Internet compared to stand-alone services				3.02/1.07
Perceived ease of use – Internet access		CR = 0.96	AVE = 0.75	$\alpha = 0.95$	
5a	I find broadband Internet access easy to use				3.88/1.05
5b	Learning to use broadband Internet access is easy				3.92/0.97
5c	The usage of broadband Internet access does not require a lot of practice				3.73/1.00
5d	Instructions for using broadband Internet access will be hard to follow				3.56/1.05
5e	It is easy to use broadband Internet access				3.75/0.98
5f	Using broadband Internet access does not require a lot of mental effort				3.87/0.94
5g	The usage of broadband Internet access is clear and understandable				3.61/1.05
Perceived ease of use – Internet telephony		CR = 0.96	AVE = 0.78	$\alpha = 0.95$	
6a	I find broadband Internet telephony easy to use				3.22/0.99
6b	The usage of broadband Internet telephony does not require a lot of practice				3.27/0.96
6c	Learning to use broadband Internet telephony is easy				3.36/0.94
6d	The usage of broadband Internet telephony is clear and understandable				3.36/0.98

Appendix A (Continued)

					Mean/S.D.	Loading/ t-value	
6e	It is easy to apply broadband Internet telephony				3.36/0.96	0.86/33.20	
6f	Using broadband Internet telephony does not require a lot of mental effort				3.32/0.94	0.87/33.62	
6g	Instructions for using broadband Internet telephony will be easy to follow				3.23/0.95	0.83/29.43	
Perceived ease of use – Internet TV					CR = 0.97	AVE = 0.81	$\alpha = 0.96$
7a	I find broadband Internet TV easy to use				3.06/0.99	0.91/61.61	
7b	The usage of broadband Internet TV does not require a lot of practice				3.09/0.87	0.91/54.95	
7c	Learning to use broadband Internet TV is easy				3.12/0.93	0.92/60.67	
7d	The usage of broadband Internet TV is clear and understandable				3.10/0.91	0.91/53.06	
7e	It is easy to apply broadband Internet TV				3.13/0.86	0.90/46.01	
7f	Using broadband Internet TV does not require a lot of mental effort				3.15/0.89	0.90/43.06	
7g	Instructions for using broadband Internet TV will be easy to follow				3.09/0.89	0.84/23.84	
Additional perceived ease of use					CR = 0.94	AVE = 0.80	$\alpha = 0.92$
8a	I find the broadband bundle less complicated to use than stand-alone services				3.04/1.00	0.90/57.45	
8b	Using the broadband bundle requires less mental effort than using stand-alone services				3.17/0.96	0.92/71.79	
8c	The usage of the broadband bundle is less cumbersome than the usage of stand-alone services				3.11/0.93	0.87/25.64	
8d	Using the broadband bundle is easier than using stand-alone services				3.16/0.95	0.89/37.13	
Perceived quality – Internet access					CR = 0.89	AVE = 0.73	$\alpha = 0.82$
9a	The speed of broadband Internet access is high				4.14/0.95	0.86/32.68	
9b	The stability of broadband Internet access is high				3.88/0.98	0.86/40.43	
9c	The quality I expect from broadband Internet access is high				3.88/0.95	0.85/17.90	
Perceived security internet access					CR = 0.94	AVE = 0.79	$\alpha = 0.91$
10a	My usage data (downloads, visited sites, etc.) is secure when I use broadband Internet access				2.86/1.10	0.87/28.20	
10b	My personal information (name, etc.) is secure when I use broadband Internet access				2.85/1.05	0.90/24.05	
10c	My financial information (credit card, etc.) is secure when I use broadband Internet access				2.85/1.11	0.88/19.30	
10d	I feel safe using broadband Internet access				2.89/1.05	0.91/23.19	
Perceived quality – Internet telephony					CR = 0.92	AVE = 0.74	$\alpha = 0.88$
11a	The voice quality of broadband Internet telephony is high				3.15/0.92	0.86/32.13	
11b	The stability of broadband Internet telephony is high				2.99/0.85	0.90/49.70	
11c	I expect no problem with the quality of broadband Internet telephony				3.15/0.90	0.78/15.67	
11d	The quality I expect from broadband Internet telephony is high				3.12/0.89	0.89/32.68	
Perceived security – Internet telephony					CR = 0.96	AVE = 0.89	$\alpha = 0.94$
12a	My usage data (called numbers, etc.) is secure when I use broadband Internet telephony				2.94/0.99	0.95/60.67	
12b	My personal information (name, etc.) is secure when I use broadband Internet telephony				2.92/1.05	0.93/38.72	
12c	I feel safe using broadband Internet telephony				2.89/0.98	0.94/59.71	
Perceived quality – Internet TV					CR = 0.92	AVE = 0.71	$\alpha = 0.90$
13a	I can use broadband Internet TV without much delay				2.91/0.93	0.75/16.52	
13b	The stability of broadband Internet TV is high				2.98/0.84	0.85/35.74	
13c	I expect no problem with the image quality of broadband Internet TV				2.89/0.95	0.86/33.49	
13d	I expect no problem with the sound quality of broadband Internet TV				2.98/0.94	0.86/35.52	
13e	The quality I expect from broadband Internet TV is high				2.89/0.84	0.87/32.15	
Perceived security – Internet TV					CR = 0.96	AVE = 0.88	$\alpha = 0.93$
14a	My personal information (name, etc.) is secure when I use broadband Internet TV				2.75/0.93	0.95/89.98	
14b	My usage data (watched movies, etc.) is secure when I use broadband Internet telephony				2.73/0.92	0.94/67.82	
14c	I feel safe using broadband Internet TV				2.75/0.91	0.92/40.26	
Perceived price advantage of bundle					CR = 0.96	AVE = 0.89	$\alpha = 0.94$
15a	Obtaining broadband Internet access, telephony, and TV in a bundle is cheaper than obtaining stand-alone services				3.14/1.02	0.94/80.86	
15b	It seems the bundled offering of broadband Internet access, telephony, and TV is a better value for the money				3.18/1.03	0.95/62.30	
15c	I think the broadband bundle has a price advantage over the stand-alone services				3.21/1.09	0.95/81.82	
Operational integration					CR = 0.94	AVE = 0.83	$\alpha = 0.90$
16a	I expect a single installation process for all of the broadband bundle's components				3.33/1.03	0.89/37.43	
16b	There will be a single website providing technical information on all of the broadband bundle's components				3.31/1.00	0.90/54.10	
16c	I expect the components of the broadband bundle to be fully integrated and work as a unified system				3.30/1.00	0.90/54.83	
Marketing integration					CR = 0.95	AVE = 0.81	$\alpha = 0.94$
17a	There will be a single contact point responsible for all services within the broadband bundle				3.27/1.00	0.90/49.98	

Appendix A (Continued)

		Mean/S.D.	Loading/ t-value
17b	I expect a "single sign-on" (combined authentication) for all functionalities in the bundle	3.31/0.95	0.91/52.40
17c	I expect to receive a single bill for all three services in the bundle	3.27/1.03	0.87/37.16
17d	A single helpline can help me with customer support issues related to all services in the bundle	3.32/1.03	0.89/33.37
17e	I expect the touchpoints to the Internet Service Provider to be fully integrated when I subscribe to a broadband bundle	3.27/1.01	0.93/61.75
Attitude toward bundle		CR = 0.96	AVE = 0.86
18a	I have a positive attitude toward the broadband bundle	$\alpha = 0.95$	2.93/1.13
18b	Using the broadband bundle is a good idea	2.95/1.12	0.92/49.69
18c	Using the broadband bundle is a wise idea	2.89/1.14	0.95/108.52
18d	Using the broadband bundle is reasonable	2.91/1.18	0.94/57.97
Intention to use the bundle		CR = 0.97	AVE = 0.90
19a	Given the chance, I intend to use the broadband bundle in the near future	$\alpha = 0.96$	2.15/1.21
19b	It is likely that I will use the broadband bundle soon	2.08/1.17	0.94/82.90
19c	Given the chance, I predict that I should use the broadband bundle in the near future	2.08/1.20	0.93/37.33
19d	I intend to use the broadband bundle	2.07/1.22	0.96/125.89
			0.95/90.51

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