



DOES THE BANKING INFORMATION SYSTEM AFFECT CUSTOMER SATISFACTION AND LOYALTY?

Defi Insani Saibil

State Islamic University of Sunan Kalijaga
defi.saibil@uin-suka.ac.id

ABSTRACT

This research examines customer satisfaction and loyalty in Islamic banking in the use of internet banking. The research was conducted based on the increase in e-banking users in Islamic banking in Indonesia. E-banking is one of the banking information system services needed today. The research method was carried out using the method of Structural Equation Modeling (SEM) through AMOS and SPSS software. Meanwhile, data collection is carried out through an online survey via a google form. The online survey found 154 respondents of which 27% were from Central Java Province and 47% from the Special Region of Yogyakarta with simple random analysis sample analysis. This study shows that internet banking adoption has a significant effect on customers in Islamic banking, while satisfaction is very large in mediating the relationship between internet banking use and customer loyalty in Islamic banking. Theoretically, this study implies that the banking information system, especially in internet banking, plays an important role in providing service and satisfaction and has a significant effect on customer loyalty.

Keyword: Banking Information System, Islamic Banking, Internet Banking, Satisfaction, Loyalty.

Article History

Received : 15 November 2020
Revised : 30 November 2020
Accepted : 30 November 2020
Available online : 02 December 2020

<https://doi.org/10.14421/EkBis.2020.4.1.1244>

INTRODUCTION

Information systems do not recognize time and space boundaries. Whether we realize it or not, at this time almost everyone is in a circle that requires information systems. A good information system will have an impact on technological advances. The progress of information technology is currently very rapid and the use of the internet is extensive. This is evidenced by the ease of accessing the internet through the media of smartphones, computers, laptops etc. With these media everyone can produce, process, receive and send all forms of communication messages, anytime and anywhere.

Technological advances require companies in almost all fields to play a role in information technology, for example business entrepreneurship (Malik et al., 2020), marketing (Vilaseca-Requena, Torrent-Sellens and Jiménez-Zarco, 2007; Qirici et al., 2014), including banking (Ul Haq & Awan, 2020). Therefore, the bank changed the manual transaction service that previously served to meet the customer directly or the customer came to the bank's branch offices to become a technology-based transaction service. This is done to make it easier for customers to make transactions. For example, services in e-banking such as ATM (Automatic Teller Machine) customers can make cash withdrawals / deposits, transfers, check mutations, and payments. Meanwhile, phone banking / mobile banking and internet banking, customers can access banking transactions such as account balance information, fund transfers, account mutations, purchase and realtime payments (Versteeg & Bouwman, 2006; Yi & Thomas, 2007).

Together with other business entities, banks have also used information system technology for a long time. Almost all Indonesian banks currently provide services in online transactions. The more complex and developing facilities provided by banks to create service facilities, means that banking companies will also have more variety of technologies. This cannot be denied, in every segment of the banking sector, including Islamic banking, which implements technology with the aim of not only making it easier for internal operations in the company, but also in making services to customers easier.

The banking industry has made optimal use of technological growth, by creating various distribution channels to attract technology-savvy customers, increase business prospects, and maintain customer loyalty (A. George & Kumar, 2014). Efforts to attract technology-savvy customers include internet banking. Internet banking is part of electronic banking, where customers can take advantage of various features of banking services such as making bill payments and investing (Pikkarainen et al., 2004). In addition to increasing the number of Islamic banking transactions, increasing use of e-banking services by Islamic bank customers can also increase customer satisfaction and loyalty. Website design and services are proven to be able to increase e-banking loyalty, especially at this time. The relationship between e-banking privacy and security and

e-banking loyalty is perfectly tested to be mediated by e-banking satisfaction (Ul Haq & Awan, 2020). From the explanation, authors are interested in conducting research on Islamic banking information systems, especially in internet banking services. Therefore, this study is based on the objective of knowing the level of user satisfaction and loyalty of internet banking facilities in Islamic banking in Indonesia.

LITERATURE REVIEW

Banking Information System

Banking information system is a financial data processing system and electronic banking services using computers, telecommunications and other electronic means. The use of information systems in banking functions to increase effectiveness and efficiency in the implementation of duties and services to the public. The application of the information system is carried out on the network used to support information technology systems or applications. Information systems are an important part of the information structure in various financial institutions. This is due to the information system as a comprehensive financial reporting and control system that is not limited to routine functions which include the maintenance of a financial institution. Thus, the operational mechanisms and systems in these financial institutions are operational

In carrying out its activities, Islamic banking collaborates with the information technology sector to build a sharia banking information system by creating a special application that can simplify all transaction processes in Islamic banking. A good application must meet several important and interrelated requirements, namely product operation, product revision, product transition, (Zachman, 1999). This has become something very relative when it is said that an application of Islamic banking technology is good or better than other applications.

E-Banking dan Internet Banking

E-banking is part of the banking information system which can also be said to be a bank service and product directly to customers through interactive electronic communication facilities. E-banking is a system that allows bank customers, both corporate and individual customers, to access accounts, conduct business transactions, or obtain information on bank products and services via public or private networks, including the internet. Customers can access e-banking via electronic media such as computers / PCs, laptops, smartphones and ATMs. As for e-banking that has been implemented by Islamic banks, one of which is internet banking.

Internet banking has advantages for producers and consumers who like time and lower costs (DeYoung et al., 2007) and increase mass customization marketing, and transaction communications, to maintain loyalty and attract consumers (Mols, 2000). This is because internet banking offers facilities to customers that allow them to make transactions via the internet using computers / laptops and smartphones.

Furst et al state internet banking is the use of the internet as a long-distance delivery channel for banking services, including services, such as opening an account or transferring funds between different accounts, as well as banking services, such as payment / bill information, which allows customers to make bill payments on a website provided by the bank (Furst et al., 1998). Using service features that can be used on internet banking in the form of bank service / product information, account balance information, transfer transactions between accounts, bill payments (credit cards, PDAM, electricity, telephone and e-commerce), purchases (vouchers, pulses and tickets) , and bank transfers. Internet banking has the advantage of the convenience of transactions by displaying menus and complete information on computer / laptop and smartphone screens.

Satisfaction and Loyalty

The advancement of a competitive information system was welcomed by banking customers. However, the quality of internet banking services alone cannot build a good relationship between banks and customers. Service quality has a stronger relationship with results, when service cannot be separated from customer satisfaction and loyalty (Black et al., 2014). This situation has led many banks to increase their promotional activities and develop internet banking technology to improve customer relationships. Thus, customer satisfaction and customer loyalty are important factors in creating stronger relationships (Dahlstrom et al., 2014)

Customer satisfaction is conceptualized based on the order, from time to time determined regularly. User satisfaction means the extent to which users think that emotional use is optimal (Rust & Oliver, 1994). Satisfaction depends on the variables that occur due to repeated transactions referred to as cumulative results or total satisfaction (Shankar et al., 2003). In the context of internet banking service quality, satisfaction is user satisfaction with transactions or experiences in previous transactions with certain banks (Anderson & Srinivasan, 2003).

Internet banking can enable customers to be more flexible without any difficulty because they can access banking products and services 24 hours / day. Internet banking, which can be accessed at any time, is expected to increase consumer (customer) loyalty. Loyalty to consumers, especially those concerned with keeping consumers online by helping to answer questions and problems with online banking. Many customers are satisfied with this. With a safer internet

banking facility and a long-term relationship that will exist between the bank and the customer, loyalty will eventually be created (Al-alak, 2014).

Several previous studies have stated that there is a significant relationship between internet banking and customer satisfaction and loyalty (Amin, 2016). Meanwhile, according to Aghdaie et al customer loyalty and satisfaction increase when the quality of the information system is extraordinary in the banking industry (Aghdaie et al., 2015). Musiime and Ramadhan also found that there is a relationship that is directly proportional to customer loyalty and internet banking (Musiime & Ramadhan, 2011).

H1: internet banking has a significant effect on satisfaction

H2: internet banking has a significant effect on consumer loyalty

H3: satisfaction has a significant effect on customer loyalty

H4: Mediating satisfaction fulfills the relationship between internet banking and consumer loyalty.

METHODOLOGY

This research was conducted using the Structural Equation Modeling (SEM) method processed through AMOS and SPSS software. SEM contains methods based on multivariate statistics including path analysis, confirmatory analysis (CFA), constructs, structural models of latent variables and variants of multiple regression analysis (Hair et al., 2014; Jöreskog, 1969; Tanaka, 1993). This research was conducted by utilizing an online survey via google forms. The sample of this study was 154 respondents (see table 1), the majority of respondents came from Central Java Province and Yogyakarta Special Region. The samples were analyzed using simple random sampling method:

Table 1
Respondent Frequency

	Frequency	Amount	Percentage
Gender	Male	81	53%
	Female	73	47%
Province	DI Yogyakarta	61	40%
	Jawa Barat	25	16%
	Jawa Tengah	42	27%
	Jawa Timur dan Bengkulu	16	10%
	DKI Jakarta dan Banten	10	6%
Bank Used	Bank Syariah Mandiri	105	68%
	BNI Syariah	21	14%
	BRI Syariah	15	10%
	Bank Muamalat	13	8%

Source: Data processed, 2020

RESULT

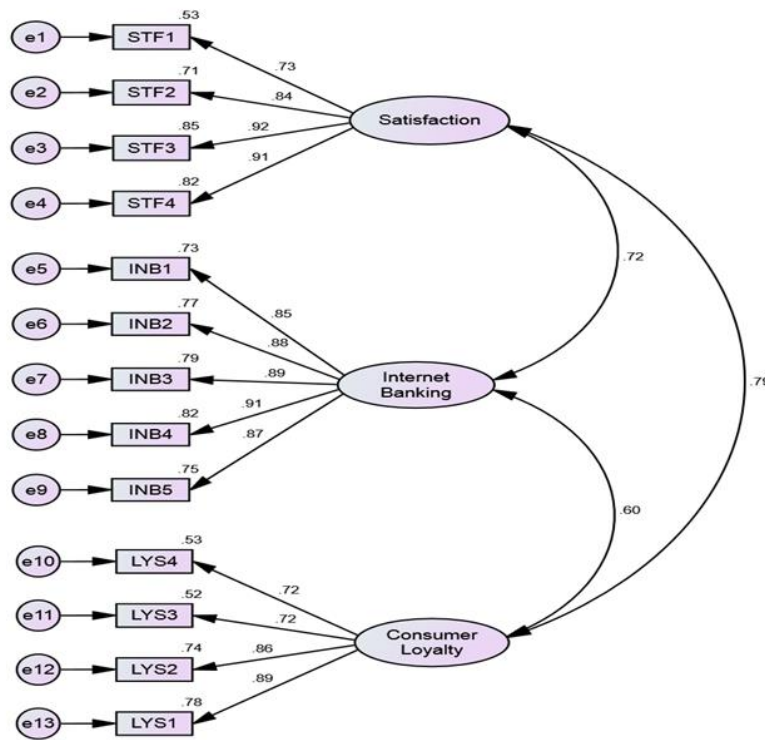
The first test is a reliability and validity test; the reliability test analysis uses the Cronbach’s alpha test (CA = > 0.70) and composite reliability (CR = > 0.50), while the validity analysis used the AVE value (AVE = > 0.50) (Nunnally and Bernstein, 1994; Jonker and Pennink, 2009; Hair et al., 2010). Result output shows (see table 2, 3 and 4), consumer loyalty variable shows reliable and valid (CA = 0.873, CR = 0.947, and AVE = 0.642), satisfaction variable shows reliable and valid (CA = 0.909, CR = 0.960, and AVE = 0.728) and internet banking variables show reliable and valid (CA = 0.943, CR = 0.961, and AVE = 0.783). Furthermore, the analysis of data normality used skewness and kurtosis values with a cut off value range of ± 2 (D. George & Mallery, 2010). Statistical results show that the values for skewness and kurtosis are in the recommended ranges (see table 5).

Table 2
Convergent and Discriminant Validity Test

		Satisfaction	Internet Banking	Consumer Loyalty
Satisfaction		0.853		
Internet Banking		0.716	0.885	
Consumer Loyalty		0.792	0.599	0.801

Latent Variables	Manifest Variables	Loadings	Loading ²	ΣLoading ²	AVE	Square Root AVE
Satisfaction	STF4	0.907	0.822649	2.913834	0.728	0.853
	STF3	0.922	0.850084			
	STF2	0.845	0.714025			
	STF1	0.726	0.527076			
Internet Banking	INB5	0.869	0.755161	3.131877	0.783	0.885
	INB4	0.906	0.820836			
	INB3	0.886	0.784996			
	INB2	0.878	0.770884			
	INB1	0.854	0.729316			
Consumer Loyalty	LYS1	0.886	0.784996	2.567182	0.642	0.801
	LYS2	0.860	0.739600			
	LYS3	0.719	0.516961			
	LYS4	0.725	0.525625			

Source: Data processed, 2020



Source: Data processed, 2020

Figure 1
Confirmatory Factors Analysis

Table 3
Reliability Test

Latent Variables	Manifest Variables	Loadings	Error	Σ Standard Loading ²	Σ Error Loading	CR	CA
Satisfaction	STF4	0.907	0.128	11.560	0.483	0.960	0.909
	STF3	0.922	0.101				
	STF2	0.845	0.114				
	STF1	0.726	0.14				
Internet Banking	INB5	0.869	0.201	19.298	0.783	0.961	0.943
	INB4	0.906	0.154				
	INB3	0.886	0.155				
	INB2	0.878	0.273				
	INB1	0.854	0.291				
Consumer Loyalty	LYS1	0.886	0.261	10.176	0.572	0.947	0.873
	LYS2	0.86	0.152				
	LYS3	0.719	0.074				
	LYS4	0.725	0.085				

Source: Data processed, 2020

. Table 4
Normality Test

	N	Mean		Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error	Statistic	Std. Error
INB1	154	4.22	.070	-.997	.195	.658	.389
INB2	154	4.27	.063	-.934	.195	.886	.389
INB3	154	4.27	.059	-.564	.195	-.581	.389
INB4	154	4.28	.061	-.698	.195	-.287	.389
INB5	154	4.30	.058	-.732	.195	.004	.389
STF1	154	4.31	.060	-.674	.195	-.561	.389
STF2	154	4.42	.059	-1.154	.195	.946	.389
STF3	154	4.47	.057	-1.067	.195	.238	.389
STF4	154	4.43	.056	-.810	.195	-.551	.389
LYS1	154	4.38	.068	-1.265	.195	.808	.389
LYS2	154	4.44	.062	-1.275	.195	1.449	.389
LYS3	154	4.41	.061	-1.117	.195	.619	.389
LYS4	154	4.48	.063	-1.273	.195	1.443	.389

Source: Data processed, 2020

The subsequent is a full model SEM analysis (see figure 2); results of data processing at the full SEM model stage are carried out by conducting a suitability test and a statistical test. Analysis of the results of the confirmatory factor analysis showed $CMIN / DF = 1.678$, $GFI = 0.921$, $AGFI = 0.917$, $CFI = 0.953$, $TLI = 0.96$, $RMSEA = 0.06$. The parameters produced in the analysis can be evaluated to be within the recommended limits (Bentler, 1990; Hair et al., 2010; Hu & Bentler, 1999).

After all assumptions fulfilled, the hypothesis testing is analyzed using the critical ratio (C.R.) and probability (P) values of a causality relationship through the operation of structure equation modeling, using CR value parameters >1.96 and $P < 0.05$ (Hair et al., 2010; Ferdinand, 2002 ; Anwar, Rehman and Shah, 2018). Based on the results of the analysis show (see table 5): internet banking has a positive effect on satisfaction (C.R. = 9.536, $P = 0.001$, H1 supported), internet banking has a no effect on consumer loyalty (C.R. = 0.706, $P = 0.48$, H2 not supported), and satisfaction has a positive effect on consumer loyalty (C.R. = 7.286, $P = 0.001$, H3 supported).

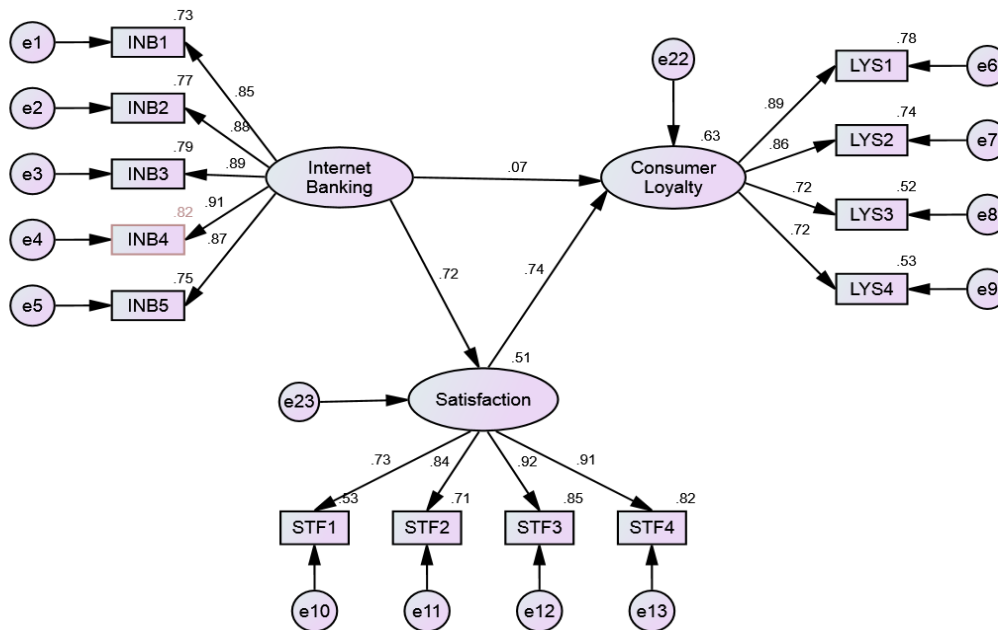
Variable internet banking on consumer loyalty (through satisfaction). The regression shows the direct effect on internet banking to consumer loyalty is insignificant ($\beta = 0.066$, and $p = > 0.05$), while the value of the direct effect of internet banking to consumer loyalty shows significant ($\beta = 0.533$, and $p = >$

0.01). This shows that satisfaction has fully mediates the relationship between internet banking and consumer loyalty (H4 supported).

Table 5
Standardized Regression Weights

			Estimate	S.E.	C.R.	P	Label
Satisfaction	<---	Internet_Banking	0.717	0.075	9.536	0.001	par_11
Consumer_Loyalty	<---	Internet_Banking	0.079	0.112	0.706	0.48	par_12
Consumer_Loyalty	<---	Satisfaction	0.888	0.122	7.286	0.001	par_13
			Direct Effect	p	Indirect Effect	p	Result
Loyalty <--- Internet Banking (Through Satisfaction)			0.066	0.57	0.533	0.001	Fully Mediated

Source: Data processed, 2020



Source: Data processed, 2020

Figure 2
Full Model Analysis

CONCLUSION

Based on the results of the research that has been done, it can be concluded that internet banking adoption has a significant effect on customer satisfaction in Islamic banking, while satisfaction plays a very large role in mediating the relationship between customer internet banking use and customer loyalty in Islamic banking. However, empirically internet banking does not have a direct

effect on consumer loyalty of Islamic banking in Indonesia. Theoretically, this study supports previous research which considers that the higher the level of convenience in information technology in terms of customer service, the higher the satisfaction of using e-service consumers will be. Internet banking is in a position to create a positive response to the creation of e-banking services for consumers, internet banking service providers must pay attention to innovative indicators to create awareness about participatory services in the business world, as well as the adoption of new Internet banking technologies. In addition, internet banking plays an important role in representing the various needs of client and corporate satisfaction, in the right preferences.

REFERENCES

- Aghdaie, S. F. A., Karimi, R., & Abasaltian, A. (2015). The Evaluation of Effect Electronic Banking in Customer Satisfaction and Loyalty. *International Journal of Marketing Studies*, 7(2).
- Al-alak, B. A. (2014). Impact of marketing activities on relationship quality in the Malaysian banking sector. *Journal of Retailing and Consumer Services*, 21(3), 347–356.
- Amin, M. (2016). Internet banking service quality and its implication on e-customer satisfaction and e-customer loyalty. *International Journal of Bank Marketing*, 34(3), 280–306.
- Anderson, R. E., & Srinivasan, S. S. (2003). E-Satisfaction and E-Loyalty: A Contingency Framework. *Psychology and Marketing*, 20(2), 123–138.
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107(2), 238–246.
- Black, H. G., Childers, C. Y., & Vincent, L. H. (2014). Service characteristics' impact on key service quality relationships: a meta-analysis. *Journal of Services Marketing*, 28(4), 276–291.
- Dahlstrom, R., Nygaard, A., Kimasheva, M., & Ulvnes, A. M. (2014). How to recover trust in the banking industry? A game theory approach to empirical analyses of bank and corporate customer relationships. *International Journal of Bank Marketing*, 32(4), 268–278.
- DeYoung, R., Lang, W. W., & Nolle, D. L. (2007). How the Internet affects output and performance at community banks. *Journal of Banking and Finance*, 31(4), 1033–1060.
- Furst, K., Nolle, D. E., & Robertson, D. (1998). Internet Technological Innovation in Banking and Payments: Industry Trends and Implications for Banks. *Quarterly Journal, Office of the Comptroller of the Currency*, 17(4), 25–30.
- George, A., & Kumar, G. S. G. (2014). Impact of service quality dimensions in internet banking on customer satisfaction. *Decision*, 41(1), 73–85.

- George, D., & Mallery, P. (2010). *SPSS for Windows Step by Step: A Simple Guide and Reference 17.0 Update* (10th Editi). Pearson.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate Data Analysis. In *Vectors* (p. 816).
- Hair, J. F., Hult, T., Ringle, C., & Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Thousand Oaks, CA: Sage Publications, Inc.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55.
- Jonker, J., & Pennink, B. (2009). *The Essence of Research Methodology*. Springer Berlin Heidelberg.
- Jöreskog, K. G. (1969). A general approach to confirmatory maximum likelihood factor analysis. *Psychometrika*, 34(2), 183–202.
- Malik, S. A., Akhtar, F., Raziq, M. M., & Ahmad, M. (2020). Measuring service quality perceptions of customers in the hotel industry of Pakistan. *Total Quality Management and Business Excellence*, 31(3–4), 263–278.
- Mols, N. P. (2000). The Internet and services marketing - The case of Danish retail banking. *Internet Research*, 10(1), 7–18.
- Musiime, A., & Ramadhan, M. (2011). Internet banking, consumer adoption and customer satisfaction. *African Journal of Marketing Management*, 3(10), 261–269.
- Nunnally, C. J., & Bernstein, H. I. (1994). *Psychometric Theory*. McGraw-Hill.
- Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., & Pahnla, S. (2004). Consumer acceptance of online banking: An extension of the technology acceptance model. *Internet Research*, 14(3), 224–235.
- QIRICI, E., THEODHORI, O., & ELMAZI, L. (2014). E- Marketing and Ict-Supported Tourist Destination Management. Implications for Tourism Industry in Global Recession. *International Journal of Management Cases*, 13(3), 152–158.
- Rust, R. T., & Oliver, R. W. (1994). Notes and comments: The death of advertising. *Journal of Advertising*, 23(4), 71–77.
- Shankar, V., Smith, A. K., & Rangaswamy, A. (2003). Customer satisfaction and loyalty in online and offline environments. *International Journal of Research in Marketing*, 20(2), 153–175.
- Tanaka, J. (1993). *Multifaceted Conceptions of Fit in Structural Equation Models*. Sage Focus Editions.
- Ul Haq, I., & Awan, T. M. (2020). Impact of e-banking service quality on e-loyalty in pandemic times through interplay of e-satisfaction. *Vilakshan – XIMB Journal of Management, ahead-of-print*(ahead-of-print).

Does The Banking Information System Affect Customer Satisfaction and Loyalty?

- Versteeg, G., & Bouwman, H. (2006). Business architecture: A new paradigm to relate business strategy to ICT. *Information Systems Frontiers*, 8(2), 91–102.
- Vilaseca-Requena, J., Torrent-Sellens, J., & Jiménez-Zarco, A. I. (2007). ICT use in marketing as innovation success factor: Enhancing cooperation in new product development processes. *European Journal of Innovation Management*, 10(2), 268–288.
- Yi, L., & Thomas, H. R. (2007). A review of research on the environmental impact of e-business and ICT. *Environment International*, 33(6), 841–849.
- Zachman, J. A. (1999). Framework for information systems architecture. *IBM Systems Journal*, 38(2), 454–470.