

6.0 Discussion and Conclusion

6.1 Introduction

This study explores the shared ATM network, related processes, performance relationship and its supporting factors. The study draws the concepts from the contingency theory to enable to examine the multivariate nature of the relationship among shared ATM network, supporting factors and performance. The use of the concepts from the contingency theory allows utilizing, an integrative approach instead of content or process approaches currently employed in this kind of research.

Based on an extensive literature review, sixteen hypotheses with regard to the shared ATM network related processes, performance relationship and its supporting factors were developed. The results of the analyses of these hypotheses are discussed in detail in this chapter. The next section describes the theoretical contributions and managerial implications of the study. The chapter then presents the limitations of the study and guidelines for future research.

6.2 Discussion



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In this section, the results of the analyses are discussed in more depth. Possible explanations and implications are considered. The discussion is grouped based on the hypotheses related to the IT department, Marketing department, operation department, and credibility of shared ATM network and banks financial and strategic performances. As noted in Chapter V, while two hypotheses are not supported, the other fourteen are supported

6.2.1 Hypotheses related to the IT department

The current study has found that all of external environment factors namely “Technological change”, “Innovative culture”, and “Resource availability”, considered in the study influence “credibility of the formulated shared ATM network” as hypothesized same level of significance. All three influence on the credibility of shared ATM network with significant level of 0.1 %.

It is hypothesized in H1 that “technological change” negatively affects “credibility of the formulated shared ATM network”. The study has strongly confirm this with a standardized structural path coefficient (γ) of -0.56 with t -value of -6.85 ($p < .05$),

indicating a significant relationship. The other two H2 innovative culture and H3 resource availability are positively hypothesized against credibility of shared ATM network; this is also strongly supported in the study.

In conclusion, the results of the study confirm the notion of the influence of the IT department on the credibility of shared ATM network. Therefore it can be concluded that higher the technological change lesser the performance of shared ATM network, similarly higher the resource availability and innovative culture higher the performance of shared ATM network.

6.2.2 Hypotheses related to the Marketing Department

As hypothesized in the study, the presence of “innovative culture” in the marketing department of a particular bank increases significantly “marketing manager’s involvement” in the shared ATM marketing strategy making (H4a: $\gamma = 0.71$; $t = 12.50$; $p < 0.001$), and “operations flexibility” of operations department (H4b: $\gamma = 0.46$; $t = 9.15$; $p < 0.001$). The high values of γ s and t s indicate that “innovative culture” strongly and positively determines the extent of “marketing managers’ involvement” in the shared ATM marketing strategy making and “operations flexibility” of operations department.

The finding of the current study also indicates that “top management support” enhances “credibility of the shared ATM network” (H5a: $\gamma = 0.34$; $t = 6.31$; $p < 0.01$). This finding confirms the assumption that “top management support” represents managerial and resource commitments and the willingness of top management to provide a clear guidance by discussing the strategic key issues. In this regard, the “top management support” may also eliminate interdepartmental conflicts. Therefore in conclusion presence of “top management support” increases the credibility of the shared ATM network.

It is interesting to note that “top management support” was found to have no significant influences on “operations department commitment” (H5b: $\gamma = 0.07$; $t = 0.82$; $p < 0.10$). The absence of significant relationship among “top management support” and “operations department commitment” as found in this study could be attributed to the alleged (as found through informal discussion with the managers)

“unfair” practices of top management who most often are the owners of the company. Without prior notice and clear reasons, very often the top management deviates from the agreed strategic decisions and take arbitrary decision to their own interests. Such arbitrary decisions upset middle managers, leading to a decline in their commitment to the implementation of the decisions.

The results show that “analytical competence” of the managers enhances “manager’s involvement” in the shared ATM marketing strategy formulation (H6a: $\gamma = 0.67$; $t = 12.43$; $p < 0.01$). This shows that the analytical capability is a requirement for marketing managers to be able to involve effectively in the strategy making. This finding is consistent with Chan and Dandurand (1998) who stated that as marketing tools, the analytical techniques can help marketing managers to communicate with their superior or other functional managers, to investigate their business environments, and to make strategic and tactical decisions. “Analytical competence” was also found to positively affect “marketing manager’s autonomy” (H6b: $\gamma = 0.63$; $t = 12.38$; $p > 0.001$), indicating that the more competence the managers have, the more autonomy they will get.



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The study also found that “involvement of marketing manager” in shared ATM marketing strategy making significantly enhances “credibility of the formulated shared ATM network” (H7a: $\beta = 0.44$; $t = 8.6$; and $p < 0.001$). The study strongly supports that “marketing manager’s involvement” in the shared ATM marketing strategy making generates “operations departments staff commitment” to the shared ATM network operations (H7b: $\beta = 0.77$; $t = 12.86$; and $p < 0.001$). This reveals that involvement of the managers in the strategy making provides operations department a clear strategic guidance and comprehensive understanding of the formulated shared ATM marketing strategy and organization’s objective, which in turn creates their commitment to the shared ATM network operations.

In conclusion, a proper marketing strategy for the shared ATM network will strengthen the all processes of a shared ATM network.

6.2.3 Hypothesis Related to the Credibility of shared ATM network

The current study posits that the “credibility of shared ATM network” improves the “effectiveness of the evaluation and control” conducted by operations department. The

result of the study strongly supports this hypothesis ($H_8: \gamma = 0.48; t = 9.63 / < 0.001$). Therefore it can be noted that a credible shared ATM network is realistic, accurate, specified, consistent, complete, and it is possible to implement, because it provides a clear guidance to those involved in the implementation, monitoring and control in performing the task.

As discussed in the earlier sections, the credibility of the formulated shared ATM network is influenced by IT department and marketing department of the respective banks. Although, the technological changes has significant negative effect on the credibility of the shared ATM network, resource availability, innovative culture and all the other hypothesis have significantly positive influence on it.

6.2.4 Hypotheses Related to the Process of operations department

According hypothesis H9 and H10 higher the operations commitment and operations flexibility higher the effectiveness of evaluation and control of the shared ATM network. The study found that “operations department commitment” has no influence on “effectiveness of the evaluation and control” ($\beta = 0.11; t = 0.820; p > .20$). A possible explanation for the lack of influence as found in this study is the “unfair” practices of top management discussed earlier. It appears that such “unfair” practices weaken the influence of the top management support on the operations department commitment on the evaluation and control. Still the operations flexibility positively supports the evaluation and control ($\beta = 0.28; t = 5.11; p < 0.001$) of operations department.

The study shows that “effectiveness of the shared ATM network evaluation and control” strongly and positively affects both the financial and strategic performances. The results show that “effectiveness of the evaluation and control” performed by marketing manager enhances the achievement of both “financial performance” ($\beta = 0.76; t = 12.92; p < 0.001$) and “strategic performance” ($\beta = 0.64; t = 12.63; p < 0.001$). The β s and t values represent a strong effect of the effectiveness of the evaluation and control on financial and strategic performance of respective banks.

6.3 Central bank requirements

Most the well known commercial banks posed at least two of the central banks preliminary requirements. This enables us to say that “Srilankan banking industry is

having basic requirements to merge their ATM networks “. Therefore a visionary leadership or a clear guidance plus a proper knowledge share will help the Srilankan banking industry to setup shared ATM networks.

6.4 Network equilibrium of shared ATM network

Network equilibrium of shared ATM network depends on network externality (k) and number of transactions (t) of the particular ATM network. ATM network sharing effective only if two conditions related to “ t and k ” are matched.

- For each value of the network externality K , two banks will choose to share their ATMs if and only if the proportion of the regular business of depositors done at a bank branch is large enough.
- For a given value of K there is a non-zero value of t at which the benefit of joining the network is maximized. As t rises above this point the benefit monotonically decreases. Therefore t should be in the effective region before agreed to share.

If the above two conditions are properly matched a shared ATM network will be most effective and the benefits to banks in the network will get maximum unbiased benefits. Which is the “win” situation expected by the banks on the shared network.

6.5 Practical example - Sampath Bank/ BOC shared ATM network

The state and private sector banking giants, Bank of Ceylon and Sampath Bank, signed the historic agreement in local banking history to provide wider services to its ATM (Automated Teller Machine) users by sharing their ATM networks.

The new extended BOC - Sampath ATM network comprises over 200 Automated Teller Machines and will be expanded with both banks planning to add more ATMs to the network in the coming future.

Both BOC and Sampath customers are now able to access their primary savings and current accounts through each other’s Automated Teller Machines network. Cash withdrawals and balance inquiry functions would be available for their Accounts through this network. This joined Automated Teller Machine network has been co-branded as LEAP - “Lanka Electronic Access Point”

6.5.1 Advantages of LEAP

Joint partnership is aimed to provide a more efficient and speedier ATM network service. If the ATM of one bank is malfunctioning, the customer has access to the ATM of the other bank. Both banks save costs by it and this cost savings is enjoyed by its customers as well.

Lower interchange fee and considerable coverage increase is the main feature of ATM network sharing of BOC and Sampath banks.

With this pioneering partner bank agreement in place each bank will allow their Automated Teller Machine card holders greater access via extensive branch network by joined synergies at a nominal fee of Rs.15/- service charge per transaction.

Both banks are in the process of improving Automated Teller Machine services further and will shortly install new state of the art Automated Teller Machine Switches and a rapid expansion of the “LEAP” network is expected.

6.5.2 Nature of issues in the LEAP

Though the operations of the LEAP look alright, there are few issues, which have created difficulties to the normal operations of LEAP. With further assessment these issues can be divided in to three categories.

- Technical issues
- Reconciliation issues
- Other operational issues

Actually LEAP issues are pooled into IT and operations departments, according to the study. Since both reconciliation and operational issues come under operations department.

6.5.3 Technical issues

Technical issues are normally at a very minimal stage, since both the banks are having adequate capabilities with regard to normal operations of the shared ATM network. Problems arise when there is a faulty in the network or in the systems.

There are no procedures defined for the corrective actions in the agreement. Therefore some times faults get delayed to resolve. If proper plans and guidance can

be included in to the agreement resolving problems will be much easier and more methodical.

Presence of fault recovery procedures and guidance may help when third party intervention is needed for fault recovery, because cost handling and other assignments can be handled more effectively.

6.5.4 Operational Issues

The major issues arise in this area of the shared ATM network. Though the operational procedures are defined and documented, completeness is not up to the standard therefore resolving some operational matters have become a problem to both banks. These operational issues can be divided into two categories.

- Reconciliation issues
- Other operational issues

6.5.5 Reconciliation issues

Reconciliation is the major problem in the shared ATM network between Sampath and BOC. This has been the reason over the years for the sudden failures to shared ATM networks in Sritanka as well as in the world.

Reconciliation issues arise due to cut over time variations of the two banks. Synchronization of cut over time is quite difficult due to other related and non related operations within the banks. Therefore best option is to introduce strict rules and procedures, so that reconciliation issues will be known to both parties and number of issues will be minimized.

Using an agreed format of reports will be a good option to minimize reconciliation issues. Same report format will ease the tracking and identification of errors. So that corrective actions will be more convenient to both parties.

6.5.6 Other operational issues

Other operational issues have minor effects, still if corrected efficiency of the shared ATM network performance will be much higher. These issues are taking place

mainly due to operational gaps. Two categories of issues are uncounted for 75% of all operational issues. They are

- Settlement disputes
- Recovery procedures.

Settlement disputes are the money which is difficult to recover. In this shared ATM environment, no visible agreements are present for dispute settlement purpose, therefore identification of how to and when to recover has become an issue for both the banks. So defining of correct procedures and methods for dispute settlement has become a must for the both banks.

The completeness of recovery procedures of the initial agreement has some issues. Some times recovery is done through manual operations. A comprehensive report format will minimize this kind of issues to reasonable level.

6.5.7 Summary of LEAP

Though there are small issues exist, LEAP is providing excellent service to both BOC and Sampath customers. According to the research theme we looked at IT, marketing and operation aspects of shared ATM Environment. Above discussion has highlighted IT and operational issues within the BOC and Sampath shared ATM network.

In the research IT resource availability, Technological change and innovation culture was considered. The LEAP issues can also be categories under the same categories mentioned in the research. According to the LEAP discussion we can say innovation culture and resource availability are not highly supported as fault resolving has become an issue. If adequate levels of these considerations are there the technical issues of LEAP will be minimized.

Under operations department Operations commitment, operations flexibility and Evaluation and control were assessed. Proper evaluation and control will minimize all the above operations issues. It seems this factor is not up to the standard as no improvement has done with this regard after the initial agreement. Operations flexibility is also not up to the standard as there are settlement and reporting issues.

In conclusion LEAP aligned in most situations with the research findings. If the issue areas can be rectified LEAP will become huge success to Srilankan banking industry.

6.6 Managerial Implications

This study provides some insights for top management and other key departments of respective banks interested in improving the success of implementing shared ATM network. Firstly, it is important that top management recognizes that implementing shared ATM network requires timely involvement of IT, marketing and operations departments.

Study has confirmed that marketing department's innovative culture encourages the involvement of marketing managers in shared ATM marketing strategy making and authority delegation to the managers, and that enables the organizations to be flexible and responsive to environmental changes.

Study has also confirmed that top management should also realize that their true or "honest" commitment in supporting the shared ATM network planning is very crucial, especially to gain operations' commitment. This commitment represents the feeling of "ownership" amongst operations staff to the formulated shared ATM network and its related processes.

Finally, IT managers should recognize their important role in the shared ATM planning. The present study reveals that their innovative culture and resource availability substantially enhances the credibility of the formulated marketing strategy. Being involved in the planning process of the shared ATM network allows them to understand the organizational objectives and priorities, and the assumptions of the formulated shared ATM network.

6.7 Practical recommendations for a shared ATM network in Srilanka

Research outcome could be used to generate few recommendations for a future Srilankan shared ATM network. Most common recommendation is the agreement of the two banks to a shared ATM network. Following can be highlighted as the research recommendations

- Readiness of IT department
- Readiness of marketing department
- Readiness of operations department

There are few recommendations that has to be stressed out

- Streamlined operational procedures

This will enhance the operations of shared ATM network. Expected out put will be smooth and reliable shared ATM network environment.

- Uniform Security standards

Uniform security standards will secure customers as well as the systems at both ends. Compatibility with respect to security at both ends will make ATM network sharing easier as well as secured.

- Regulation Authority

Central unit of control is a must for a shared ATM environment. Since the handling of all the functions as well as the faults at a central location will remove the extra burdens. Handling of future expansions of the shared ATM will also be much easier in this kind of environment.

6.8 Limitations of the Study and Guidelines for Future Research

As in any research, this study has certain limitations. Firstly, the integrative approach used in the study is rarely implemented in this kind of research, and this study represents a significant part of the big picture of the dynamic and complex of shared ATM network operations – performance relationship. However, since the study has only considered the aspects of the IT department contributions, marketing department contributions and operations department contributions only, there may be some possibilities for future research to include some other variables into the structural model to generate a more comprehensive study.

The sample size also a problem for this kind of research as Sri Lanka as only thirty one operating banks in the country. If the sample size is bigger the predictions of the research will be more accurate.

Finally, few additional variables can be incorporated to the process of shared ATM network planning aspect, because the present study only considers the general role of IT, marketing and operation departments in the process. This study results and few other findings could be use generate a sample shared ATM network model to the srilankan banking industry. In the designing of network model further studies can be done on network security in the shared ATM environment.

6.9 Conclusion

The objective of the present study is to explore the readiness of srilankan banking industry towards shared ATM network. In doing this first part of the study tries to identify banks operation–performance relationship of shared ATM environment using the readiness of the IT, marketing and operations departments of the respective banks. Additionally network equilibrium condition under shared ATM and the Central bank requirements are also discussed in second and third parts of the study respectively. Against these objectives, the findings of the study have led to several contributions in the area of shared ATM network in Srilankan banking industry.

The current study demonstrates that the external business environments (i.e. Effects of IT department) influence the credibility of the shared ATM network. While the technological change negatively affects the credibility of the strategy, the IT resource availability and innovative culture affect the credibility of the shared ATM network.

Operation department process flexibility in conjunction with commitment of operations staff and credible shared ATM network in turn facilitates in performing the evaluation and control of the shared ATM network to attain the fit between the shared ATM network and its external and internal business environments, so that banks can realize the intended financial and strategic performances.

Implementing a shared ATM network is not merely a matter of the utilization of sophisticated analytical techniques or a sequential step of actions. It involves several dimensions, which are dynamic and complex. The lack of utilization and communication barriers within organizations represents that the shared ATM network planning and implementation is not as simple as prescribed in the literature. According to the research though the individual departments of banks are having the capabilities to move into a shared ATM network, still the above mentioned “lack of utilization and communication barriers” could be reason for the delay of the Srilankan banking industry to move into shared ATM networks.

Therefore it can be conclude that a good visionary leadership may guide the Silanakan banking industry towards shared ATM networks. Finally if the government back up is there this can be continued or build up to a national ATM network.

7.0 References

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Appendix

Appendix A Research Questionnaire

Twelve constructs in this study (ref to research model) uses multi items measures and a five-point Likert scale.

Statements below relate to the IT environment of your bank. Please express your opinion on each statement by circling the appropriate number, considering IT operations in a shared ATM network environment.

- The extent of technological orientation of industry is very high
- You have made substantial technological changes in ATM Networks in the past five years
- You have made substantial technological changes in ATM switches in the past five years
- Competitors have made substantial technological changes in ATM Networks in the past five years compare to your bank
- You have made substantial technological changes in ATM switches in the past five years compare to your bank
- Shared ATM network will cause huge technological changes in both ATM network/switch environments.
- Your bank IT has enough capabilities and innovative skills to migrate into a shared ATM network.
- Your bank has IT innovation skills to provide better facilities through a shared ATM network.
- Your bank has enough hardware/software capacity to cater to a shared ATM network
- You have enough HR at IT of your bank to support shared ATM network.
- Your bank has a fully fledged IT disaster recovery center to cater to shared ATM network.
- Your bank network is very reliable and has backup equipments in place to minimize the down time.

Statements below relate to the marketing department related facts of your bank. Please express your opinion in terms of marketing ATM related products and services in a shared ATM network environment by circling the appropriate number on each statement.

- Your bank structure enables you to carry out participatory management
- Your bank climate and culture encourage our staff to generate innovative ideas in marketing
- Your bank is very responsive to environmental changes
- Your bank uses external sources (e.g. consultants, agencies) for new ideas
- Your bank provides adequate time for developing the strategic marketing plans
- Your bank uses a number of motivational factors to encourage good planning
- Your bank uses a number of motivational factors to encourage good operational performance
- Your bank provides adequate resources for developing the strategic marketing plans

- Experience curve analysis
- Profit impact of marketing strategy (PIMS) analysis
- Computer based modeling
- Product/Market life cycle analysis
- Financial ratio analysis
- Portfolio analysis
- Strengths, weaknesses, opportunities, and threats (SWOT) analysis
- Contingency or "What if..." analysis
- Business forecasting
- Generating strategic marketing options
- Evaluating strategic marketing options
- Developing details about strategic marketing options
- Taking the necessary actions to put changes into place

Following statements are about the perceptions of your operations department, including your self, toward shared ATM network operations strategy. Please express your opinion on each statement, by circling the appropriate number.

- People in o department would accept almost any type of job assignment in order to keep working toward the strategic priority
- Operations department strongly believe that its strategic priority will go a long way in aiding company's performance
- People in operations department are glad to take the challenges in operations of a shared ATM network
- Operations department always monitor our business environment
- Operations department carry out routine evaluation and control of your products and services to ascertain their alignment with the business environment
- Operations Department adjust its procedures and programs to cope with environmental changes
- Operations Department establish appropriate communication to minimize intra and inter-functional conflict
- Operations department has the flexibility to adjust its procedures and strategies to suit to the newer environments.
- Operation department personnel have appropriate and adequate marketing skills mange operations in shared ATM network environment.
- upgrade the skills of your operations personnel regularly, through training, workshops, or seminars

A credible shared ATM network is defined as an ATM network service that can be access by foreign customers, which is also reliable, accurate, specified, consistent, complete, and valid.

- Your bank ATM network is reliable and has enough band width to cater for a shared ATM network.
- Your bank provide lot of facilities and products via your ATM network to the customers
- The market share is high and very competitive of your ATM network.
- Your bank invests lot of funds for research and development of your ATM network.

- Your bank makes every effort to improve the quality of your ATM network services and products.
- Your bank continuously makes attempts to develop new product(s)
- Your bank always develops a good relationship with your customers.
- Your bank provides a lot of other benefits to ATM customers.

Select the strategic objective(s) set by your Top Management during the past five years, by circling the number to the left corresponding to the objectives and rank them in accordance with their level of importance. 1 represents very importance and 7 indicates less importance.

Strategic Objective	Level of Importance
1. Increase the awareness of the ATM related products and company policies on shared ATM networks	_____
2. Respond to competitive pressures in the ATM related business and shared ATM networks	_____
3. Improve market share position of the company with shared ATM network	_____
4. Increase the profitability of the company through shared ATM networks.	_____
5. Expand strategically into new markets using shared ATM networks	_____
6. Just respond to inquiries from markets related to shared ATM networks.	_____
7. Others (please specify) _____	_____

How would you rate the achievement of those strategic objectives set by the Top Management related to shared ATM network

- Increase the awareness of the shared ATM network environment
- Respond to competitive pressures
- Improve market share position of ATM related product and services using shared ATM network environment
- Increase the profitability of the banks ATM network with a shared ATM network
- Expand strategically into new markets
- Just respond to inquiries from markets
- Others (please specify)

How would you rate the bank's performance in a shared ATM environment using the three indicators below?

- Return on investment if you enter to a shared ATM network
- Profit margin if you enter to a shared ATM network
- Market share of ATM business if you enter to a shared ATM network

Appendix B Srilankan Banks

Table 10 Licensed banks in Sri Lanka

Licensed Specialized Banks	Licensed Commercial Banks
Ceylinco Savings Bank Ltd	Bank of Ceylon
DFCC Bank	City Bank
Housing Development Finance Corporation Bank of Sri Lanka	Commercial Bank
Kandurata Development Bank	Deutsche Bank
Lankaputhra Development Bank	DFCC Bank
National Savings Bank	Habib Bank
NDB Housing Bank Ltd	Hatton Bank
Rajarata Development Bank	Indian Bank
Ruhuna Development Bank	ICICI Bank
Sabaragamuwa Development Bank	Indian Overseas Bank
Sanasa Development Bank Ltd	MCB Bank
S M E Bank Ltd.	NDB Bank
State Mortgage & Investment Bank	NTB Bank
Uva Development Bank	Pan Asia Bank
Wayamba Development Bank	People's Bank
	Public Bank Berhad
	Sampath Bank
	State Bank of India
	HSBC Bank
	Union Bank
	Union Bank of Colombo

Appendix C List of acronyms

Table 11 List of Acronyms

No	Acronym	Description
1	ATM	Automated Teller Machine
2	IT	Information Technology
3	PIN	personal identification number
4	HR	Human Resources
5	SEM	Equation Modeling
6	TCH	Technological Change
7	TIC	Innovative Culture of IT department
8	TRA	Resource availability of IT department
9	MIC	Innovative Culture of marketing department
10	MTMS	Top Management Support to marketing strategies
11	MAC	Analytical Competence of marketing department
12	MMI	Involvement of marketing manager
13	OC	Commitment of operations staff
14	OEC	Evaluation and Control of shared ATM network
15	OF	Operations flexibility
16	CSAN	Credibility of shared ATM network
17	SP	Organizations Strategic performance
18	FP	Organizations Financial Performance

Appendix D Correlation matrices of the measurement model

IT department Technological Change

	TCH1	TCH2	TCH3
TCH1	1.000		
TCH2	0.695	1.000	
TCH3	0.683	0.790	1.000

IT department technological Innovation

	TIC1	TIC2
TIC1	1.000	
TIC2	0.724	1.000

IT department resource availability

	TRA1	TRA2	TRA3	TRA4
TRA1	1.000			
TRA2	0.800	1.000		
TRA3	0.825	0.965	1.000	
TRA4	0.634	0.865	0.784	1.000

Marketing department innovation culture

	MIC1	MIC2	MIC3
MIC1	1.000		
MIC2	0.800	1.000	
MIC3	0.770	0.720	1.000

Top management support for marketing

	MTMS1	MTMS2	MTMS3
MTMS1	1.000		
MTMS2	0.760	1.000	
MTMS3	0.775	0.721	1.000

Marketing analytical competence

	MAC1	MAC4	MAC6	MAC7	MAC9
MAC1	1.000				
MAC4	0.875	1.000			
MAC6	0.684	0.854	1.000		
MAC7	0.754	0.765	0.828	1.000	
MAC9	0.825	0.854	0.784	0.785	1.000

Marketing Manager involvement

	MMI1	MMI2	MMI3
MMI1	1.000		
MMI2	0.765	1.000	
MMI3	0.785	0.770	1.000

Operations department commitment

	OC1	OC2	OC3
OC1	1.000		
OC2	0.821	1.000	
OC3	0.770	0.690	1.000

Operations evaluation and control

	OEC1	OEC2	OEC3
OEC1	1.000		
OEC2	0.854	1.000	
OEC3	0.829	0.854	1.000

Operations flexibility of operations department

	OF1	OF2	OF3
OF1	1.000		
OF2	0.865	1.000	
OF3	0.658	0.825	1.000

Credibility of shared ATM network

	CSAN1	CSAN2	CSAN3	CSAN4	CSAN8
CSAN1	1.000				
CSAN2	0.875	1.000			
CSAN3	0.865	0.683	1.000		
CSAN4	0.812	0.789	0.857	1.000	
CSAN8	0.764	0.754	0.865	0.736	1.000

Strategic performance of shared ATM network

	SP1	SP2	SP3	SP4	SP5	SP6
SP1	1.000					
SP2	0.865	1.000				
SP3	0.770	0.771	1.000			
SP4	0.765	0.766	0.754	1.000		
SP5	0.743	0.726	0.744	0.828	1.000	
SP6	0.766	0.658	0.725	0.796	0.720	1.000

Financial performance of shared ATM network

	FP1	FP2	FP3
FP1	1.000		
FP2	0.766	1.000	
FP3	0.727	0.715	1.000

Appendix E Structural model correlation matrices

Correlation Matrix

	TCH	TIC	TRA	MIC	MTMS	MAC
TCH	1.000					
TIC	0.751	1.000				
TRA	0.332	0.561	1.000			
MIC	0.625	0.466	0.206	1.000		
MTMS	0.028	0.086	0.066	0.348	1.000	
MAC	0.418	0.487	0.007	0.079	0.106	1.000
MMI	0.385	0.198	0.179	0.009	0.219	0.359
OC	0.011	0.162	0.242	0.146	0.168	0.101
OEC	0.509	0.334	0.151	0.309	0.347	0.052
OF	0.182	0.334	0.309	0.062	0.262	0.158
CSAN	0.499	0.561	0.356	0.376	0.064	0.447
SP	0.471	-0.419	-0.460	-0.585	-0.275	-0.272
FP	-0.017	-0.273	-0.164	-0.020	-0.315	-0.321

Correlation Matrix

	MMI	OC	OEC	OF	CSAN	SP
MMI	1.000					
OC	0.086	1.000				
OEC	0.451	0.038	1.000			
OF	0.377	0.232	0.510	1.000		
CSAN	0.452	0.142	0.408	0.606	1.000	
SP	0.105	0.069	0.008	0.266	0.426	1.000
FP	-0.087	-0.123	-0.230	-0.170	-0.043	-0.165

Correlation Matrix

	FP
FP	1.000

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