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# Interoperability and Infrastructure Sharing Among Financial Services Providers

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# INTEROPERABILITY AND INFRASTRUCTURE SHARING AMONG FINANCIAL SERVICES PROVIDERS

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## INTRODUCTION

Extending reach through interoperability and cost sharing measures using shared infrastructure are avenues being explored in various climes to enhance efficiency, drive financial inclusion, implement risk and fraud management and also address dispute resolution and consumer protection concerns. The theoretical standpoint is lucid and logical. However, challenges to implementation are multifaceted, multi-dimensional and sometimes becoming an unending spiral of projects without concrete gains. Developing nations are further challenged with capacity issues, history of uncoordinated market development and the balancing of public policy requirements with the preservation of competitive markets in the payments system landscape. Interoperability and Infrastructure sharing measures therefore require, clear goal definition, careful analysis and incisiveness in balancing public priorities and markets dictates.

Global development is demanding greater efficiencies of businesses especially in the banking world. Payments system being a key component of banking services, more so in the developing world is equally a key cost component of the cost structure of banks as typified by the brick and mortar model. Competition is getting stiffer in the developed world even in the midst of the crises thereby compelling cost reduction initiatives among banks to aid in staying afloat in the turbulent economic milieu. Beyond competition, in the developing nations, financial inclusion has been identified as a key public policy tool for fighting prevalent poverty. Central Banks are increasingly leveraging on payments and remittances services to channel other financial services to the poor. Governments are also encouraging the banking culture among the poor as they integrate payments of social benefits, medical aid and pension with financial services. The argument, however, remains that efforts at enhancing access to finance should adopt economically sustainable means of widening the reach. Therefore, the financial service industry must innovate and evolve efficient arrangements to extend the financial service infrastructure to a niche which may not be high yielding in returns.

This paper seeks to explore the issues around interoperability and infrastructure sharing among financial services providers, especially in the context of a developing nation with the aim of highlighting an efficient path to successful implementation of the concepts. Following this introduction is an attempt to underscore the importance of shared infrastructure. The section II identifies some key criteria for determining candidate-infrastructure for sharing. Section III is a consideration of pathways to achieving shared and interoperable infrastructure. Section IV contains Suggested recommendations for implementation and conclusions.

### 2.0 Case for Interoperability/ Infrastructure Sharing

Interoperability is considered here as the ability to transact across various independent networks thereby enlarging the reach and services of the networks. In other words, it is the integration of independent networks into a single network towards creating greater value in terms of reach and services for operators and users alike. An interoperable payments landscape therefore ensures that various payments schemes could inter-transact without hitches in message exchange, switching and settlement of transactions among users. A highly interoperated payments landscape will therefore, have no major observable difference in the seamlessness of executing transactions within the independent schemes and the execution of inter-scheme transactions, at least cost to the users. Interoperability at highest maturity level may integrate across instruments/channels and across scheme e.g. POS of scheme X accepting payments from mobile phone enabled for payments by scheme Y.

With regards to card payment, according to the Australian Payments Clearing Association (APCA) interoperability arises from:

- Terminals and ATMs supporting

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all (or many) card types;
- Combination cards, which carry international scheme and proprietary debit functionality;
- Issuer and acquirer host systems that process transactions for multiple card types;
- Merchant-acquirer services that cover multiple card types; and
- Multiple card types on a single issuer account (companion cards).

Interoperability may be achieved by simple definition of standards and rules as a basis for mandating various networks to interoperate. In this instance, interoperability occurs within a mesh of bilateral agreement among several participants or networks. Alternatively, interoperability may be implemented by a coordination vehicle that ensures that the disparate network execute cross transactions as one network through the operation of a central coordination mechanism.

Therefore, achieving interoperability may necessitate infrastructure sharing. Infrastructure sharing involves the identification of core infrastructure requirement, which is commonly required by users of a community, implementing a single type of such infrastructure with extensive capacity to service the need of all, under general protocol which is accessible to all usually with the aim of achieving reduced cost of service delivery. The savings are derivable from realisation of scale economies in providing payments services, increase in payments transactions as convenience enhances spending rate, back office operations savings, and savings from technological innovations exerting downward pressure on cost of telecommunication and processing costs.

At the heart of interoperability and infrastructure sharing is the prospects for greater efficiency brought about by scale. Economies of scale and scope as well as cost optimization are realizable benefits of interoperability and infrastructure sharing. It therefore should be a necessary path for developing nations facing the flurry of fast evolving electronic payments products. Leap-frogging by developing nations in the development of modern payments system must be cautiously approached to achieve efficiency by avoiding duplications due to uncoordinated market development. For a market at its infant, it may be easy to conclude on infrastructure-sharing-based-interoperability led by the regulatory authority or other coordinating arrangement, it is more arduous a task to agree a path for interoperability for an established market.

### 3.0 What Should Interoperate and Be Shared?

This question is core to successfully manage the market towards achieving interoperated systems and/or shared infrastructure. It determines the level of cooperation that operators may be willing to extend to the initiative whether market led or regulator induced. Proper and critically unbiased criteria for determining candidate systems and infrastructure must therefore be outlined as core principles guiding choice of interoperable and shareable infrastructure. Factors to be considered includes the structure of the market, legacy technology in use, cost allocations, adoptable technological innovations, regulations, international best practice and regional payments policy direction as well as local peculiarities (e.g. market development history). Any infrastructure that lends itself to re-use by several participants for delivery of similar functions without discriminating in the quality of output derivable by the various users can be considered for sharing usually with clearly specified operational rules and procedures considered fair and equitable by the participants. Example of infrastructure that could be shared include the switching infrastructure, Automated Clearing House, among others.

### Achieving Interoperability and Infrastructure Sharing

Without proper coordination, interoperability may be forlorn even as the choice of coordination model could spell doom for the project from inception. In taking policy positions in respect of interoperability and infrastructure sharing, note should be taken of the need to have a system that will enhance efficiency, promote innovation, engender compliance to standards while ensuring that public policy matters like financial inclusion and consumer protection are aided rather than hindered. Obviously, some joggling of trade-offs may be too demanding than realistic in that case. It is therefore very important to focus on specific and realistic goals premised on clear cut policy objectives for pursuing interoperability and infrastructure sharing. For example, enhancing innovation within the context of infrastructure sharing and interoperability requires careful approach to avoid stifling of adoption of new technologies and methods.

In determining the appropriate model for infrastructure sharing and interoperability, it is essential to take cognizance of the development of the payments system landscape as well as the prevailing market structure. Usually, dominant operators pose stiff opposition towards such directions. However, with appropriate coordination, much

could still be achieved through various models, although at differing costs.

In a "Mesh " payments landscape like that found in many nations, bilateral and multilateral agreements seemed the preferred paths for achieving interoperability with rare opportunities for newly built shared infrastructure. While this method preserves service providers' ability to innovate, it is mostly at sub-optimal cost usually leading to unfair pricing. The cost of multiple implementations of various standards, duplication of systems and processes makes the option not the best for developing nations. Many developing nations have embedded financial inclusiveness in their payments system development objective hence the need to chart cost effective path.

For countries with disparate systems which are not yet interconnected but offering parallel services, the path to take could be to agree on single interoperability and communication standard to drive interoperability. This may lead to some scale advantage without savings on cost derivable from shared infrastructure. Alternatively, such environment may choose to rival present arrangement and set up parallel shared infrastructure which new innovators/entrants may leverage to gain greater reach from start up at least cost and put them in good stead to compete effectively with existing providers. This case ensures that the market is not disrupted while creating avenue for more effective competition and engendering fair pricing of services.

Countries with sparse payments system landscape have the privilege to leap-frog by starting out with shared and fully interoperable payments infrastructure. Such infrastructure should take into consideration future integration into the regional and international payments system by ensuring observance of international standards and best practices.
Implementing interoperability and infrastructure sharing, as earlier alluded, can only be successful through coordination. Naturally, tendencies of dominant stakeholders, cost consideration for new technology investment, perceived stifling of innovation are issues that strain coordination efforts. However, consideration will be given to a coordination continuum, which could be explored depending on various market structure scenarios for the purpose of attaining interoperability and infrastructure sharing.

Competition, notwithstanding its drawback to coordination, sometimes forces interoperability and infrastructure sharing. A good example for this is the case of Brazil's POS/ATM market. The Brazilian payments landscape is defined by the history of banking industry in the country with large banks and several other small banks. In terms of ATMs, the banks started up building proprietary networks thereby creating a challenge for infrastructure sharing and interoperability. Initial attempts at interoperability were dominated by bilateral agreements. However, two shared ATM networks eventually evolved- TecBan and and RVA. TecBan is jointly owned by some banks in Brazil, while RVA is owned by another 11 banks. RVA started up as a shared switch infrastructure for the 11 banks' ATM networks. This structure is typically obtainable where there is limited coordination and competition is allowed to fully dictate interoperability. The outcome of this approach is a limited level of interoperability, pricing challenges and , in the Brazilian case, evolution of alternative channels e.g correspondent banking which further inhibited linkages as some operators adopted these channel to achieve similar services to an ATM notwithstanding the likelihood that it costs more. Achieving interoperability through competition may represent a tortuous path which may not offer real advantage.

The Brazilian POS market further proves the point above. The evolution of Redecard S.A and Visanet attests to this. The two were set up by dominant banks in credit card business divided along MasterCard and VISA card lines. Similarly, private label cards also sprung up and targeted niche markets that were underserved by the dominant networks. Despite the stronger collaboration witnessed in the Brazilian POS market, it took a regulatory order to achieve non-exclusivity and interoperability of POS networks in Brazil. The lesson is trite that competition cannot deliver effective infrastructure sharing and interoperability and the limited gains derivable through competition driven interoperability may be long drawn to derive real benefits except regulatory intervention catalyses it.

Collaboration is an approach that proves more effective than competition as may be inferred from the Brazilian POS industry case. It also offers room for greater coordination later as it provides room for regulator to legislate full interoperability. Collaboration either ensures that infrastructure is built from inception with the intent of sharing or existing disparate infrastructures are collapsed into one by collaborating stakeholders (e.g Redecard S.A). Similarly, it fosters business combinations with the purpose of sharing infrastructure for greater efficiency e.g. Link and Voca in U.K. Working examples of collaborative approach includes SIBS of Portugal.

Collaboration need not stifle market innovation and growth provided the regulator is alive to its

oversight responsibility. In fact, it encourages creativity to develop other collaborative mechanism towards delivering greater value while not foreclosing eventual convergence at least cost path to the economy as it reduces the level/points of interconnectivity and interoperability required in the future.

Cooperation can be viewed, as an hybrid of competition and collaboration. It lends itself to such forms as self-regulatory institutions in the payments system landscape. It is a method that allows stakeholders a good level of competitive independence while engendering cooperation on specifics that equally affects all, e.g. fraud and risk management, implementation of standards. In another sense, it is termed "co-opetition" as now used in Nigeria in the implementation of its cashless policy, referring to the more coordinated and regulator engendered cooperation among stakeholders. Usually cooperation and/or "co-opetition" does come with strains during implementation as tendencies to back out of agreements may require regulatory legislation or orders to enhance compliance. This drawback may be an off-shoot or poor communication at every stage of the cooperation process. Full Coordination through legislation and regulatory directives is also an option. This may be more appropriate in a payments industry at its infancy. It could also be a measure of introducing an alternative in an already developed payments industry towards pursuing social goals at optimal cost effectiveness. For example a country may decide to build a mobile shared payments infrastructure to provide alternative to an uncoordinated cards payments industry or the creation of a national card scheme to extend payments and financial services to areas where already established schemes are not interested in.

## 4.0 CONCLUSION

Evaluating the appropriateness and workability of Infrastructure sharing and interoperability goes beyond the viability of the project. Feasibility in terms of several factors should be assessed to avoid turning an otherwise cost saving and revenue enhancing strategy into a money guzzling monster of endless projects. Appropriate coordination framework must be in place to galvanise activities of stakeholders towards efficient implementation of the infrastructure sharing projects. It is also essential that in-depth analysis of the prevailing industry or business environment is given proper consideration towards highlighting and detonating potential mines on the path to a mutually rewarding infrastructure for all parties. Furthermore appropriate tracking systems must be evolved for measurability of cost and benefits at every point of the implementation to ensure that gains are realisable. Developing nations however need to properly situate such efforts within the prism of social priorities to ensure that activities in that direction re-enforces national agenda for the payments system.

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