

Convergence and digital fusion lead to competitive differentiation

Convergence
and digital
fusion

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Abstract

Purpose – Organizations are consistently seeking innovative strategies and novel pathways to enhance business processes and create differentiation. The global business ecosystem is changing and there is growing demand for multi-modal digital technologies, big data consolidation and data analytics to harness a cost-competitive agile system. Technological convergence and integration of digital systems is one of the preferred methodologies that facilitates new and effective workflows and revives business processes. The progressive interlinking of digital technologies with business operations leads to the convergence and blending of management disciplines, devices and applications. The growing inconsistencies in managerial understanding regarding the benefits of convergence prompts a comprehensive examination of digital convergence pathways, identifying the impacts on converging entities and business objectives. The State bank of India (SBI) mega-merger case study was selected to investigate the pragmatic framework of digital convergence and to understand the impacts on interlinked entities such as: business operations, strategic management, project team that support value creation and competitive differentiation. The purpose of this paper is to focus on the phenomena of techno-fusion of emerging technologies creating new opportunities, business models and unique strategies for global banking and financial service organizations.

Design/methodology/approach – This study applies the qualitative, inductive research method using critical reflection of before and after the implementation of convergence and digital integration strategies. The SBI case study employs this research strategy based on the premise that banks must stay agile and highly responsive to the changing environment to enhance its value proposition and competitive differentiation objectives. The study methodology incorporates cooperative inquiry and multiple levels of analysis using data collection techniques of exhaustive review of archives, informal interviews, questionnaires and observations to identify the synergistic process improvement pathway. The study is grounded on the concept that the convergence of diverse business pathways involves innovative and interlinked project, strategic and information technology (IT) workflows that results in open innovative systems.

Findings – The studies identify that organizational innovation and creative solutions are a result of ecosystem turbulence, environmental force diversity, competitive pressure and the need for differentiation. Organizations that harness the power of digital fusion and convergence of management, systems and data generate a competitive advantage. The technological convergence strategy pulls multiple business and technology processes (project, strategic, IT, Cloud, AI and business process management) at the organizational, divisional or functional level generating new opportunities and threats, new business models and unique growth strategies for global banking and financial services organizations. Organizations that fully integrate techno-fusion of business and digital strategies produce synergistic effects and enhance adaptability, innovation and resiliency in the face of competitive challenges.

Research limitations/implications – Additional areas that can be explored further as an extension of this study are listed below: identifying factors to improve the speed of convergence; the current results are limited to large size organizations where formal management and technology functions are distinctive. Similar studies on smaller organizations are warranted.

Originality/value – This study focuses on the evolving field of technology innovation, which is increasingly being intertwined with business operations. Innovative digital technology is enabling the convergence of the disciplines of management, digital devices and applications. This facilitates the creation of a pragmatic framework that supports convergence of business operations, strategic management and digital fusion which leads to value creation and competitive differentiation. The techno-fusion of emerging technologies and digital strategies generates new opportunities and threats, new business models and unique growth strategies for organizations.

Keywords Convergence, Open innovation, Digital technology, Agile synergistic interaction, Business and technology management, Digital fusion

Paper type Conceptual paper



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Introduction

Technology convergence is a widely discussed phenomenon. Convergence describes the union of two or more distinct business processes, methodologies or technologies merging to create a unified distinct process pathway. In a recurring process all converging elements are either “moving,” “merging,” “developing” or “meeting” to create a versatile agile system.

Convergence literature suggests that convergence is an enhancement over a previous technical solution realized through mutual interdependence of the technical level of a product or artifact from different backgrounds and methodologies but having a larger impact beyond its original capability concentrating on a single methodology. Adner and Levinthal (2002) framed convergence as an enrichment, i.e., increasing the potential of one technological application domain through means of another application domain, thereby ultimately producing a whole new class of products or services.

Harreld *et al.* (2007) identified that in the early stages of technological convergence, standards are a critical success factor for complex technologies involving many subsystems. Hacklin (2008) suggests that convergence spurs “new forms of inter-organizational interactions, resulting in consortia creation, clustering and enhanced collaboration.”

The application of technology to deliver a business capability or outcome requires a judicious selection process of the right technology to meet specific business objectives. Many organizations practice sequential decision making where “business managers” develop a plan and deliver it to the “technology team” for implementation. Due to the complexity of technology proliferation and implementation, the two sides operate in silos and the final results are starkly different from planned outcomes.

There is an emerging cultural shift to eliminate functioning in niche groups and individual operational silos. Management of business and digital technology is progressively becoming interrelated and gaining extreme significance. Digital technology is being accepted as the means for achieving business objectives by embedding technology at functional, site and organizational levels. The convergence of business strategies and technology solutions results in highly versatile organizations capable of responding to changing marketplace dynamics and technology evolutions. This convergence study presents the evolutionary steps and pathways for delivering optimum services and benefits to multiple stakeholders.

The Baseline/BTM 500 studies investigates a sample of Fortune 500 companies and identifies that efficient and optimized technology management organizations leverage synergistic application of the convergence with digital integration strategies for enhanced agility, growth and profitability. This study confirms the distinct link between business and technology convergence as well as the maturity level of convergence with the enterprise’s operations and financial performance. This study validates that organizations influenced by convergence and integration adapt better to dynamic market conditions, innovate faster and maintain resiliency in the face of competitive challenges.

Organizations are accelerating the rate of technological innovation and expanding the scope of their products or services by combining product or service features of other markets. With the enhancement of technological capabilities from open innovation in multiple industries competition is steadily growing. Both the service and production sectors’ new technologies are transforming business models and streamlining new pathways. In the financial industry, digital system operators and financial service providers have reformed their customer relationship, marketing and service delivery strategies to be highly competitive and agile.

Open innovation was conceptualized by Chesbrough (2003) using cases from the information and computing technology (ICT) sector especially in reference to equipment and vendors such as Lucent, IBM and Intel. Chesbrough defined open innovation as the

innovation generated by accessing, harnessing and absorbing flows of knowledge across a firm's boundaries. It incorporates "the use of inflows and outflows of knowledge to accelerate internal innovation and expand the markets for external use of innovation." Chesbrough proposed two kinds of knowledge flows that support open innovation: outside-in and inside-out. The outside-in flow involves opening up an organization's innovation processes to external knowledge inputs. In inside-out open innovation, the organization willingly shares their unused and underutilized knowledge with outside organizations for others to use in their business models.

The financial technology (Fintech) domain is gaining significant attention due to the application of new technology and open innovation efforts within the financial services industry. Banking and Fintech use a wide spectrum of cutting-edge technologies and rely on enhanced accessibility of smart devices for mobile banking, investing and cryptocurrency services. With the rapid emergence of finance and technology customers have access to more scalable tools and online solutions where customer data are distributed across multiple platforms using new technologies such as open application programming interfaces (APIs), cloud computing or artificial intelligence (AI).

Banks who develop convergence strategies and innovative models build an enterprise data architecture which results in the purging of fragmented data stores and the development of value-added pathways tailored to service offerings. This allows banks to embark on full digitization and target growth in select markets and invest in technologies that simplify operations and enhance customer experience (Digital banking trends & technology that future-proof your bank B.V., F., 2018).

In this paper, we study the phenomena of technological convergence and management of big data in the banking and financial sector. There is growing need for banks to evolve and adopt new technologies and big data analytics that permeate existing workflows/pathways in order to create an agile system. The State bank of India (SBI) case study provides a strategic roadmap for technological convergence leveraging multi-modal digital technologies, big data consolidation, data analytics and the Omni-channel marketing of banking products/services. The focus is to meet changing customer preferences and expectations. The digital convergence revolution engages multiple stakeholders' partners' i.e.: banking institutions, Fintech companies, information technology companies (IT), regulatory agencies (RBI, Bank of Canada and Federal Reserve Bank), data that may be converging toward a unified market.

One of the first questions we consider is:

RQ1. What role does technological convergence play in a mega bank merger involving multiple independent entities?

Our aim is to study the determinants of such a mega-merger and convergence of big data systems in order to gain higher levels of insight into data faster and enable effective decision making.

The secondary question that guides our study is:

RQ2. What tools and methodologies are vital for facilitating successful mergers that create competitive differentiation?

We have carefully chosen qualitative, inductive research method using critical reflection of pre and post implementation of convergence and digital integration strategies. The study methodology incorporates cooperative inquiry using a conceptual approach to identify the synergistic process improvement pathway. The key purpose of this inductive-based case study research is:

(1) provide a summary review of the stages of technological convergence and management of big data in banking mergers;

- (2) provide a strategic roadmap for the big data consolidation and review of pathways for technological convergence, application of management tools and interlinking methodologies; and
- (3) study determinants of mega-merger and convergence of big data systems to gain higher levels of insight into data faster and enable more effective decision making.

Literature review

Additional literature review provides a conceptual understanding of open innovation, convergence and technology fusion prototypes, the multiple workflows, innovative pathways and the knowledge sharing models they deliver. Technology convergence and fusion research is based on two schools of thoughts. The first is based on the theoretical aspects and the second is based on the case study method analyzing the organization and industry-level data. A number of studies in the first stream of thought focus on the theoretical definition of convergence (e.g. Kodama, 1995; Hacklin *et al.*, 2007). In particular, Curran (2013) suggests that the two terms “convergence” and “fusion” have slightly different meanings. Convergence refers to a process in which multiple elements move toward a new commonplace; while fusion signifies that the two elements merge “in the very same place of at least one of the objects.” Technological convergence is considered as the combination of multiple technological elements for creating new technological domains (Kodama, 1995). The technology convergence results from dynamic evolution of the diverse technologies resulting in the blurring of boundaries between the multiple technologies (Kim *et al.*, 2014). Convergence means two different objects change or interact with each other to create one new domain. Fusion, on the other hand, means one of the objects is merged into the same domain as the other (Curran and Leker, 2011). The second school will be discussed further in this paper.

There is a rising trend of technological innovation and convergence dominating many industries especially the telecommunications industry (Bigliardi *et al.*, 2012; Yamasaki Sato, 2014). Shin (2005) presented cases of convergence between broadcasting and telecommunications facilitated by digital technologies in Korea and relevant policy implications. Hacklin *et al.* (2004) focused on technological convergence in the ICT domain, and highlighted the leveraging of strategic management tools for innovation management. Other studies have identified that convergence across various fields creates new opportunities and understanding. Such opportunities can offer a new competitive edge to companies and governments (Allarakhia and Walsh, 2012). Additionally, innovation results from a generation of new combinations of technologies result from technological convergence (Karvonen and Kässi, 2013).

This current study aims to evaluate the multiple dimensions of convergence and analyze its impact on an organization’s competitive positioning. The field of technological convergence allows a variety of diverse and emergent technologies to create and evolve a new field by transmuting into promising scientific and technological areas.

The concept of open innovation has gained prominence in multiple domains (Chesbrough, 2017; Gassmann *et al.*, 2010). Case studies show that leading organizations such as P&G (Dodgson *et al.*, 2006), IBM and GE (Chesbrough, 2017) have developed innovative business models to determine knowledge pathways to fuel innovation. The Deloitte Center for financial services surveyed banking consumers in 17 countries to measure the state of the banks’ digital integration. The survey results support that restructuring organizations and integrating services around customer interaction is essential for digital banking.

Open innovation and convergence occur most frequently in the “TIME” industries (Hacklin *et al.*, 2013) which refer to the telecommunications, IT, media and entertainment industries. The TIME industries are characterized by the launching of a large variety of

innovative products and services at a rapid pace along with a surge in the complexity of products, markets and competition. These new complexities have expanded the scope of some companies while others have been forced to rethink and retool their operational, project and management strategies. The persistent evolution of technology and markets has transformed many industries due to major reconfigurations of their vital design and the way companies capture value and create competitive differentiation.

Methodology/approach

This study applies the qualitative, inductive research method using critical reflection of before and after the implementation of convergence and digital integration strategies.

Since the 1980s, there has been a progressive call for empirical research methods in response to the over-reliance on the analytical research studies (Chase, 1980; Buffa, 1980; Flynn *et al.*, 1990; Meredith *et al.*, 1989; Wood and Britney, 1989). Additionally, survey research methods and data collection techniques (Gupta *et al.*, 2006; Rungtusanatham *et al.*, 2003; Scudder and Hill, 1998) have gained momentum. An important alternative to survey-based research, is the use of qualitative case study research (Lewis, 1998; McCutcheon and Meredith, 1993; Meredith *et al.*, 1989; Voss *et al.*, 2002). The qualitative case study is defined as an empirical research that primarily uses contextually rich data from real-world settings to investigate a focused phenomenon (Benbasat *et al.*, 1987; Bonoma, 1985; Meredith *et al.*, 1989; Yin, 1994; Meredith, 1998; Roth, 2007). This approach has appealed to researchers, as the field of operations management has many emerging areas of research such as the integration of operations management with other functional areas of the supply chain (e.g. Hines *et al.*, 2002; Pagell, 2004).

The SBI case study employs this research strategy based on the premise that banks must stay agile and highly responsive to the changing environment to enhance its value proposition and competitive differentiation objectives. The study methodology incorporates cooperative inquiry and multiple levels of analysis using data collection techniques of exhaustive review of archives, informal interviews, questionnaires and observations to identify the synergistic process improvement pathway.

The study is grounded on the concept that the convergence of diverse business pathways involves innovative and interlinked project, strategic and IT workflows that results in open innovative systems.

Case analysis

The Indian banking system especially the public banks have been experiencing multiple challenges related to intensified stressed assets (non-performing loans plus restructured assets) which have drastically impacted the bank's capital requirements established by Basel III standards. Additionally, public banks in India have faced multiple challenges related to balance sheet management, risk management, inconsistent technological growth and HR management. The cumulative effect of these challenges was a downward spiraling trend on the asset quality, capital adequacy and profitability of banks. The Indian banking sector seems highly fragmented, especially in comparison with banking players from other economies. The five-bank asset concentration in India for public sector banks is way lower than several other countries. Review of the dismal performance of SBI's internal efficiency measures: return on assets, return on equity, earnings per share became the catalyst in initiating a six-way merger and SBI's consolidation project.

Published SBI information indicates that the consolidation project was organized for consolidating the assets, liabilities, products and services offered by SBI and the five associate banks: State Bank of Bikaner and Jaipur, State Bank of Travancore, State Bank of Patiala, State Bank of Mysore and State Bank of Hyderabad. On April 1, 2017, SBI opened as a "consolidated bank" which resulted in the advent of India's largest commercial Bank based on

its assets, deposits, branches, number of customers and employees. The SBI consolidation project transformed SBI into one of the top 50 banks in the world ranking with a significant international footprint, total assets of \$400bn and a network of 17,000 plus branches (including over 190 international locations across 36 countries). SBI now offers a wide range of products and services to individuals, commercial enterprises, large corporates, public bodies and institutional customers through its branches, joint ventures, subsidiaries and associate companies. The consolidated SBI boasts that it caters to one-fourth of the deposit and loan market in India, increasing its market share from 17 to 25 percent.

From the banking and financial industry perspective digitization is an evolving phenomenon and fundamentally changing due to change in technology offerings and big data generated by evolving customer preferences/behaviors. This study was conducted to identify the business process improvement strategy in developing an agile system that exceeds customer expectations and yet ensures data security and flexible transaction capability. The study was initiated with the proposition that banks need to strategize and stay agile for creating a competitive differentiation. What are the essential strategies that will help develop competitive differentiation for an evolving and rapidly changing banking industry? The global banking industry has undergone systematic and enduring changes due to regulatory requirements, economic pressures, technological advances and consumer preferences. Due to the evolutionary nature of the micro and macro environment of global business ecosystem, banking or financial services institutions are accelerating their digital transformation roadmap for generating a competitive differentiation. AT Kearney's studies identified that banks have had a steady increase in the number of digital banking clients in the last five years and new technologies (IoT, Machine learning, AI and Cloud computing) are producing heavily connected users using digital devices extensively. Banks are motivated to build an agile operating model with a distinct digital road map focused on the customer experience, organizational transformation, IT agility and ultimately creating competitive advantage.

This study investigates the vital role of data integration, open innovation and technological convergence plays within the financial services domain and examines its impacts on the SBI's six-way merger and consolidation case study. The central strategy for this case study is technology fusion in which data flow between merger partners are integrated and consolidated employing data encryption within the framework. The different entities collaboratively amalgamated into a unique entity, adopting a common technology platform to integrate operational processes and knowledge sharing. The strategic re-alignment offers seamless operations, account reconciliation, uninterrupted customer service and innovative pathways for SBI.

The study investigates the multi-faceted approaches to this six-way merger, identifying specific methodologies employed to establish a new banking paradigm for competitive differentiation. It addresses the role of convergence of technologies and impacts on the information and communication pathways (devices, applications and services) within the banking domain. The technological convergence in the banking domain is dependent on the evolving regulatory requirements set by Banking Regulation Act, 1949, Reserve Bank of India Act, 1934, Foreign Exchange Management Act, 1999, Foreign Exchange Management Act., Companies Act 2013, Ministry of Finance, Government of India, Lead bank regulator – RBI, Securities Exchange Board of India, Insurance Regulatory and Development Authority of India, Insolvency and Bankruptcy Board of India, other financial sector regulators, Basel III capital regulations. To manage cybersecurity threats, streamline technology fusion strategies to RBI's guidelines on information security, electronic banking, technology risk management and cyber frauds of April 2011, in addition follow multiple regulatory requirements related to internet banking, payment systems, mobile banking, IT outsourcing and RBI's cybersecurity guidelines.

An open discovery of the six-way SBI merger was accomplished through partnerships with domain experts in concert with customers. The application of open innovation at SBI provides a framework to build a coherent innovation strategy, leverage APIs to innovate, digitize and disrupt the market, scale the product and service offerings and coordinate a suite of new initiatives that occur separately (and sometimes disjointedly). Open innovation at SBI incorporates multiplicity of knowledge sourcing and development models, all of which must be coordinated to create a coherent ecosystem.

The case analysis is based on the second school of thought regarding technological convergence and it was done in three phases:

- Phase 1 is the exploration phase where the context of the research study and incumbent operators were investigated to identify past and ongoing online service innovation projects.
- Phase 2 is the exploitation phase where additional information on the industry trends and SBI consolidation as the main subject were gathered. The research questions were elucidated using a three-tier logic of technology, organization and customer. The secondary data including public corporate documents from SBI, RBI, and Ministry of Finance, Government of India press releases were reviewed prudently.
- Phase 3 is the consolidation phase where insights and propositions were confirmed. The evidence was obtained through documentary analysis, number of interviews and informal conversations with primary and secondary stakeholders. Interviewing stakeholders such as the intermediary and clients, along with the use of secondary data, helped include different perspectives and complementary information which enhances the validity of our findings. Based on this process of research, relationships between challenges faced by clients and the firm's capabilities in overcoming those challenges to facilitate open service innovation were uncovered.

To consolidate the in-depth study, a narrative history of the development of capabilities and systems was mapped based on discussions and archival data (e.g. SBI website, blog, SBI press releases, media reports). Additionally, the changing of online service needs, demand for new innovative pathways for banking success and client case studies were examined. Emergent patterns from these findings were compared with patterns from the initial data analysis. Iterative triangulation methods between literature review, case evidence and intuition further the development and modification of patterns. The study enhances the understanding of the importance of the application of open innovation in the banking and financial services domain as observed in the SBI case study.

Findings

This study proposes synergistic open innovation pathways in managing business and digital technology leveraging convergence and integration of multiple management strategies. The convergence strategy is based on the premise that multiple business and technology processes (project, strategic, IT, Cloud, AI and business process management) relate at the organizational, divisional or functional level and they undergo techno-fusion to mutually reinforce each other. Organizations that fully integrate business and digital strategies produce synergistic effects and enhance adaptability, innovation and resiliency in the face of competitive challenges.

Our studies ascertain that digitization in banking is crucial for business success and continuous growth. Banking and financial services providers are facing transformational changes due to technology evolution, rigorous market and regulatory requirements (BASEL III) and evolving customer demands and preferences. Customer behavior is changing and the

competitive landscape is evolving due to new competitors or disruptors entering the market space in quest for gaining a percentage of the market share.

These developments are rapidly transforming the financial service delivery models by integrating an Omnichannel experience for exceptional customer experience. Omnichannel in banking is the offering of a set of seamless and consistent services to customers across both digital and offline channels. Banking clients are able to perform the same banking operations, whether they use a website, a mobile app, a call center, a bank's branch, or any other available channels. True Omnichannel banking platforms also allow real-time data synchronization between different channels. For example: customers can start onboarding process with one channel and finish it with another without the need to provide the same data over and over again.

Business process optimization and transformation projects are dependent on the competitive environment of the industry. In the banking and financial services domain, the effectiveness and efficiency of the customer service value chain dictates the competitive advantage of the organization. These are critical structures for financial service providers such as banks, insurance companies and Fintech companies.

Banking technology transformation projects are complex and involve transforming existing systems and information pathways to meet new technology requirements, standards and frameworks. The SBI mega-merger and consolidation involves a series of multiple sub-projects interwoven to provide effective and differentiated data management of traditional enterprise-wide data, business forecast data and other data sources.

The enterprise-wide data were mapped from customer touchpoints with any aspect of the operational systems such as:

- credit/debit cards;
- ATMs/digital kiosks;
- web portals and mobile apps;
- call centers or online systems;
- branches/specialized mobile units; and
- debt including education, auto loans and mortgage products.

Business forecast data were consolidated from several sources such as:

- industry data;
- regulatory data;
- analyst reports (internal and competitive); and
- events (news, blogs and other media feeds).

Other data sources such as:

- trading data;
- advertising data;
- competitors data; and
- social media data.

The first sub-project in this consolidation series was the data consolidation sub-project designed to create a robust customer-centric and innovative technical system. The central focus of data consolidation sub-project involved the core banking solution (BoNCS) implementation. This sub-project engaged multiple vendor partners (Tata Consultancy Services (TCS), Hewlett Packard, Datacraft, Cisco and Microsoft) over a multi-year time horizon. TCS lead the

multi-faceted B&NCS implementation and coordinated as systems integrator in concert with other major technology partners. Core banking solution is recognized as the critical central processing unit for the consolidated banking systems and offers all bank entities a stable, country-wide network through dynamic integration of their individual LANs on this common platform. The implementation of the core banking solution enabled enterprise-wide data and customer transactions to be seamlessly migrated into a central database and distributed across all applicable branches based on specific data management guidelines. The core banking solution facilitated special data rule for specialized branches with a unique set of requirements due to their specialized nature of business. The consolidation sub-project was complicated since it required integration at multiple levels starting with technological integration of technical systems, followed by integration of diverse business systems, business processes, information and data management flows across the bank.

Once B&NCS implementation was completed, the SBI migrated all its branches (17,000 plus branches including over 190 international locations across 36 countries) onto the centralized core system for facilitating an agile environment for consistency of service, performance, meeting customer needs and improving market share. Technological capabilities are becoming an important differentiator for banks in accomplishing an exceptional customer experience. The newly implemented core banking solution at SBI and its associate banks currently executes over 42m transactions per day with a peak of 1,900 transactions load per second (Narter, 2010). The SBI technology deployment project involved moving all entities from their existing platforms to a new agile core banking platform. This agile operating model incorporates a new set of requirements in terms of business process re-engineering, upgrading of hardware and software, extensive employee and management training, data cleansing and data migration of tech solutions. SBI had more than 200,000 employees, and many of them had limited or no familiarity with using a core banking solution resulting in extensive user and product training.

The second sub-project involved increasing digital initiatives in products, services and transactions, supported by technologically advanced backend operations and modernization of service locations equipped with state-of-the-art machines and facilities. The employment of multiple innovative technologies offers a range of newer digital services and equips merchants to collaborate with the bank to make digital collections through SBI Pay (a mobile-based payment solution), which is integrated to the corporate's payment interface. Digitization in banking is a business enabler which produces an end-to-end transformation of the bank's archaic infrastructure to strategically position it in a highly competitive and evolving marketplace. Banks are increasing their innovation and digital strategies because the customers are progressively demanding more flexibility and creative services due to increased competition. Digital modernization leads to a paradigm shift from product-centric to customer-centric decision-making resulting in enhanced business agility and competitive advantage. Omnichannel solutions deliver banking products and facilitate transactions allowing real-time data synchronization between different channels. Studies by Celent highlights that consolidation with core banking solution delivers a myriad of additional retail capabilities (Greer and Narter, 2012) such as:

- enhanced call center support and internet banking services;
- money transfers integrating third party biller sites;
- services for public provident fund account for tax-deferred savings;
- self-service channels for investment, saving and checking accounts;
- multi-currency deposits in foreign currency accounts: Dollar, Euro, Pound, Yen; and
- agile online banking and options for consumers.

SBI's first digital banking platform "YONO" (You Only Need One) leverages digital fusion and strategic leadership to sustain business priorities and conceptualize a strategic plan for competitive differentiation. YONO offers a myriad of innovative products and services:

- customized products and services from consortium of e-commerce alliance partners: Amazon, Uber, Ola, Myntra, Jabong, Shoppers Stop, Cox & Kings, Thomas Cook, Yatra, Airbnb, Swiggy and Byjus by leveraging customer analytics;
- provisioning of an enterprise-wide configuration, deployment and management model for IT system resources to deliver innovative banking and financial services products, which employ AI, predictive analytics and machine learning;
- formulating designing of insurance policies for online portal and offering seamless access and purchasing of investment products;
- easy navigation web-portal designed with minimum possible clicks and seamless access to multiple, secure bank services with a single user ID and password;
- facilitating an integrated Omnichannel digital platform that offers an array of banking and financial services accessible through digital fusion and web applications compatible for mobile phones (android, iOS), iPad, smart and digital devices; and
- online platform to sell bank cards, life and general insurance and mutual funds and leverage new technologies for loan financing.

Digital modernization empowers traditional banks to develop a competitive differentiation within the highly competitive banking domain. The second sub-project transforms the bank into a digital, customer-oriented culture focused on delivering differentiated customer experience leveraging technological innovation and convergence for sustained results.

The third sub-project involved re-engineering business processes, consolidated tech systems, interfaces and improved reports for better decision making. Progression of manual processes to automated systems improves the collection and analysis of data, better understanding of customers, cost drivers and risks. The consolidation and core banking solution results in improvements (Greer and Narter, 2012) such as:

- business process management through rule and role-based operations workflow;
- workflow and process standardization across all entities;
- multi-currency transaction processing;
- distinct differentiation between front- and back-office operations;
- centralized critical control functions;
- increased straight-through-processing; and
- replacement of paper-based transactions with electronic payment channels.

The third sub-project employed blending and convergence of strategic planning, project management and digital fusion activities. The success of SBI consolidation resulted from progressive technological innovations, deregulation of financial services, enhancement of intermediaries and increased emphasis on delivery of shareholder value in the midst of intense international competition. One of the first steps in the consolidation project involved transforming legacy systems into a technologically sophisticated and innovative system (core banking solution). Once all merging entities were operational on the new enhanced technical platform (core banking system) the focus shifted to developing the middle layer and front-end layer compatible for agile banking system. The key to developing an agile and customer-centric system was switching the inside-out thinking to outside-in thinking, which resulted in high focus on the customer's perspective instead of a product- or system-based perspective.

The new wave of technology is transforming the banking and financial service industry. Banks are increasingly harnessing the power of mobile experience due to the changing usage patterns of customers who prefer convenient mobile devices and Omnichannels. Banks are actively pursuing the strength of digital fusion strategies and changes in the banking infrastructure. Banking and financial services are undergoing rapid changes in the market environment and are adopting consolidated strategies in order to meet the challenges of the emerging digital ecosystem (Figure 1).

Conclusion

Our studies identify that organizational innovation and creative solutions are a result of ecosystem turbulence, environmental force diversity, competitive pressure and the need for differentiation. Organizations that harness the power of digital fusion and convergence of management, systems and data generate a competitive advantage.

The technological convergence strategy pulls multiple business and technology processes (project, strategic, IT, Cloud, AI and business process management) at the organizational, divisional or functional level generating new opportunities and threats, new business models and unique growth strategies for global banking and financial services organizations. Organizations that fully integrate techno-fusion of business and digital strategies produce synergistic effects and enhance adaptability, innovation and resiliency in the face of competitive challenges.

The benefits of convergence and integration strategies include:

- improved efficiency and reduced operational risk with streamlined business processes;
- digital fusion enhancing adaptability, innovation and resiliency of IT operations;
- customization of products and services with customer-centric approach;
- scalable solutions enabling growth and agile organizations; and
- consolidated and holistic technological solutions.

The consolidation project highlights that project leadership plays a vital role in determining organization priorities and developing a strategic plan for differentiation. The strategic plan

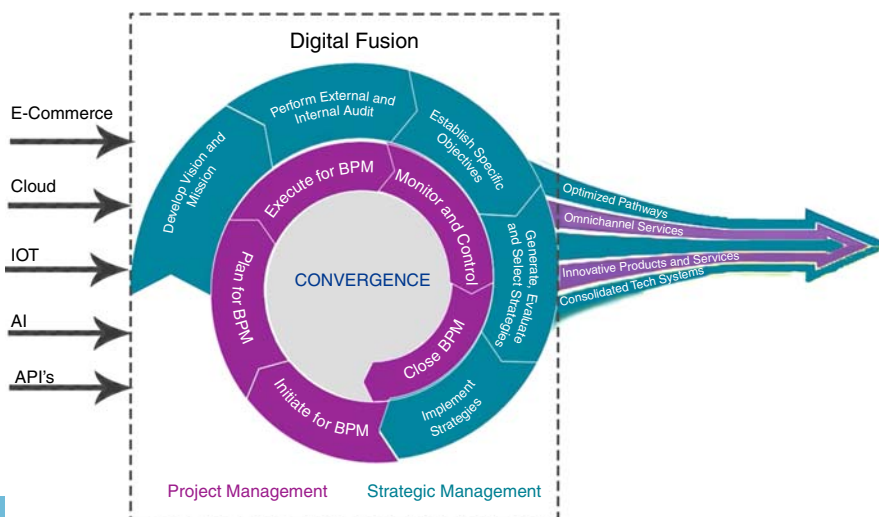


Figure 1.
Converging pathways

is advanced by designing a precise strategy pathway to gain competitive advantage. A comprehensive internal and external audit of the organization sizes the organizational turbulence, environmental forces, competitive pressure and potential opportunities. Industry and data analysis through internal and external audit allow the organization to elicit a specific set of pathways for strategic differentiation. To accomplish the key strategic objective, organizations adopt convergence strategies on multiple pathways resulting in new and effective process improvement pathway.

The blending of convergence and digital fusion results in triple outcomes. The triple outcomes include: enhanced engagement between different functional groups and stakeholders producing innovative business models/pathways that drive competitive advantage; streamlining communication, information sharing and techno-fusion of tech solutions (Cloud, AI, IOT, E-Commerce) results in integrated agile systems; and advancing alignment among functional groups, management and systems resulting in highly responsive and interactive digital organization that enables competitive differentiation. When technological fusion of business and digital strategies is integrated within organizations, the consequential synergistic effects enhance adaptability, innovation and resiliency in the face of competitive challenges.

Additional areas that can be explored further as an extension of this study are listed below:

- (1) Identifying factors to improve the speed of convergence.
- (2) The current results are limited to large size organizations where formal management and technology functions are distinctive. Similar studies on smaller organizations are warranted.

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