Perils and Perks Pertinent to Progressive Mobile Banking in reference to Quality Management aspect: Lean and Agile Approach

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Abstract

Purpose: The main purpose of this paper aims at identifying the major perks and perils in context to mobile banking applications both on part of the customers as well as banks and how with help of lean and agile principles the perils could be minimized and how the maximization of perks would be possible.

Design/Methodology/Approach: Lean and Agile approaches along with total quality management were applied for eliminating the perils and strengthening the perks of mobile banking applications. The study sample consists of 3200 respondents.

Findings: The findings of the study suggests that convenience and competitive advantage are the two major perks that attract customers towards the use of mobile banking applications whereas security and cost are the two major perils pertinent to progressive mobile banking which hinder the use of mobile banking applications among customers.

Research limitations: The study takes into consideration only two major perks and two major perils of mobile banking which limits the horizon of the study and paves way for future research on this topic.

Practical Implications: On amalgamation of banking with their handsets or mobile phones, customers are engrossing themselves in apps like never before. This brings in the need for ensuring that customers are completely satisfied with the services offered to them and are ready to accept the technological changes without any hesitation and fear.

Originality/value: The study discovers the application of lean and agile principles in the working of mobile banking applications for improving the quality of the services rendered thus leading to satisfaction among both the customers as well as the banking institutions.

Keywords: Mobile banking, Lean and Agile principles, Total Quality Management, Perks and Perils, lean banking, Leagile principles, Services

Paper Type: Research paper

Introduction

Banks are the powerhouse of the financial system and in the 21st century where technology is taking up the charge of anything and everything, banks have also undergone a landmark change.

Banks are advancing mobile banking solutions analogous to headways by paramount cellular porters to enhance their networks thus using mobile banking as a revolutionary policy to outperform in this era of cut-throat competition. The functionality of such automation can be discovered to the fact that it dispenses easy retrieving of money, eliminates fund transfer complications, boosts up the speed of dispatching, and collecting money and other utilities. (Zhang, Lu and Kizildag, 2018).

All corporations adjudicate on introducing innovative techniques in a competitive environment to improve electronic knowledge exchange and transactions. One of these strategic action plans is to connect bank accounts and to deliver banking services to customers through mobile application (app) services. (Lee, Tsao and Chang, 2015). M-banking proffers to its customers both transaction-based as well as inquiry-based services According to (Changchit and Chuchuen, 2016) with rapid transition and technical innovation, the masses continue to focus more on using technology as an impetus for the growth of economic structures and raising their living standards.

At the micro-level, there is a considerable structure of corroboration that innovation is the presiding aspect in national economic growth and the international archetype of the banking sector. Application of total quality management enhances service quality at the banks and therefore leads to increased customer satisfaction (Pattanayak, Koilakuntla and Punyatoya, 2017). This technology is inspiriting customers to make use of mobile banking which gives them a realistic insight, as they can execute their key transactions on mobile devices which is both, time as well as cost-efficient but at the same time numerous challenges are being encountered by banks cause of massive multiplication in the mobile banking user database like device efficacy, vital privacy affairs, app adaptability, transaction viability, and felicitousness, customer awareness, and consciousness, etc. (Alalwan, Dwivedi, Rana and Williams, 2016)

(Zhang, Lu and Kizildag, 2018) cited (Laukkanen, 2016) determining mobile banking as an emerging research area needs additional analysis and development, specifically due to the evolving application of mobile banking (from traditional text-based alerts to new forms of depositing checks through mobile apps, accessing bank accounts through mobile applications.

Literature Review

Mobile Banking and Use of Mobile Applications

The growth of the mobile banking market can be accredited to advance technologies and reformed consumer expectations when it comes to ease of use, availability of substitutes, cost-efficiency, and durability. In a developing economy like India alternate service delivery mediums, in banking have exceeded the conventional branch-based banking services. (Chawla and Joshi, 2017).

Technology-driven delivery means have caught upon conventional brick and mortar banking, but this still was confined to the accessibility of the system and the computer network. This affair was resolved with the advent of m-banking, a technology for smart devices-savvy customers. Mobile banking has slowly developed from an elementary data-rendering system to a wide banking medium. This m-bank adventure was driven by both changes in smart app technologies and market expansion (Priya, Gandhi, and Shaikh, 2018).

(Changchit, Lonkani and Sampet, 2017). (Zhang, Lu and Kizildag, 2018) mentioned that academicians must focus their methods and approaches towards modifying potential risk considerations that could adversely affect the adoption of mobile banking transaction processes by customers.

Total Quality Management and M -banking Services

In general, Total Quality Management is a managerial concept which aims towards increasing user loyalty with remarkable results. (Bouranta, Psomas, Suárez-Barraza and Jaca, 2019). Researchers state that the application of total quality management (TQM) is emphatically linked to

advancement in the quality of services offered (Lam et al., 2012; Samat et al.,2006 as cited in (Pattanayak, Koilakuntla and Punyatoya, 2017. Additionally, by refining the satisfaction level of internal employees concomitantly it helps to increase the level of customer satisfaction as in-house staff furnished with accurate data and facts render better service to exterior customers. Hence shaping it to be a bit more market-driven, convincing its customers and improving allegiance within customers. (Terziovski, 2006 as cited in (Pattanayak, Koilakuntla and Punyatoya, 2017).

The current literature on TQM application methods focuses primarily on producing companies. Considering the important features of the services (abstraction, inequality, inevitability, and feasibility) (Jyoti et al., 2017; Boronta, Somas, Suarez-Barreza, and Jaka, 2019). The fortunate execution of management of total quality practices in the tertiary context recognizes and prioritizes its core features (Borta et al., 2017; Boronta, Somas, Suarez-Barraja and Jaka, 2019). There are many benefits to the financial industry in upgrading customers to access and use remote media, by raising the standard of mobile banking, the service catches more customers and captures the potential threats of mobile banking. With the result of constantly increasing relevant performance (Tom and Oliveira, 2017). An augmented apprehension of particulars defining the quality of mobile banking services and how it associates with allegiance, faith, and gratification is required to recognize the prime operators of fortunate and favourable user relations in this application-based banking arena (Arcand, PromTep, Brun and Rajaobelina, 2017). In order to ignite the use of mobile banking and to build trust in the system, banks nowadays are likely to pay greater attention more on assisting customers in accessing these amenities, which will lead to increased quality (Singh and Srivastava, 2020).

Major Factors

As smartphones become more popular and portable, people will continue to seek "personalized" and "utilitarian" products and services for mobile banking services. The delivery of validated security, anonymity, efficiency, ease of use, and enjoyment of just-in-time financial details, assistance, or services is playing an increasingly important role in the encounters between customers and service providers embracing mobile banking (Zhang, Lu and Kizildag, 2018). Masses can prefer not to follow automation, even if it seems to be as handy if it is deemed to be difficult to use. Therefore, both perceived utility and user-friendliness are essential considerations for the adoption of technology (Chawla and Joshi, 2017).

This paper considers 4 major factors associated with mobile banking technology defining the elementary perks and perils be it for the customers or the bankers in the light of quality management.

The 4 major factors are:

Security: Financial transaction protection, being conducted from certain far-off areas, and transmitting financial information over the internet, are the most complex tasks that need to be tackled, in collaboration with mobile device developers, cellular network access providers, and the bank's Information Technology departments. Wireless Application Protocol is employed for transmission between devices such as wireless cell phones, the internet, etc.

Customers must consider and evaluate the potential benefits and probable risks associated with their security and confidentiality across emerging technical services and infrastructure (Zhang, Lu and Kizildag, 2018). Thus, m-banking access providers must improve functioning-based consequences by rendering additional elements in existing services. Also, the banking institutions require need to figure the security issues in m-banking systems on a priority basis and present an affirmation of assurance and should monitor customers closely to improvise users' perceptions of security (Foroughi, Iranmanesh and Hyun, 2019).

Cost: Adoption of technology for banking services sounds convenient for the users it demands major investment on part of banks, here is when banks need to adopt lean mobile banking. What sets lean apart from distinctive improvement strategies is that it does not require a large investment in resources. In general, the excess is covered when it comes to utilities as opposed to in factories. Lean quality requirements will minimize error costs if added to service functions and extend the normal sensitivity and customer satisfaction. One rationale is that duplication and

mismanagement that could conflict with services are also no longer evident.

Convenience: Mobile tech is considered to boost comfort for banking services and its user-friendliness is significant to customer acceptance Zhang, Lu and Kizildag, 2018). Now, M-banking has taken the entire affair to another level thereby bestowing their customers with a far better experience. One can make transactions and also manage accounts whenever and wherever required. This is possible as unlike the brick-and-mortar branches, mobile banking is operational 24*7. However, all this demands a solid mobile application and an efficient system thus requiring agile methodology in practice henceforth integrating the IT industry and financial sector.

Competitive Advantage: Mobile banking has been considered one of the most efficient banking transaction systems in recent times thanks to its distinctive benefits over existing brick and mortar-based banking services (Mortimer et al., 2015 as cited in Zhang, Lu and Kizildag, 2018). Mobile banking leads to an improvement in customer satisfaction through enhanced customer experience and ease of use, which are key drivers and a major source of competitive advantage.

Objectives and Scope

1. The major perils and perks common to both the bankers as well as the customers when engaging themselves in mobile applications
2. How the application of lean and agile principles in the development of mobile applications could assist in curtailing the perils and boosting the perks ensuring delivery of quality services.

Methodology

(Why lean and agile)

When companies became more dependent on IT services, they felt the need for approaches to optimize the implementation of IT project activities to minimize costs, resources, and time required. (Tarhini, Yunis and El-Kassar, 2018). Agile signifies a procedure of software design that targets to promote continual iteration of software design and trial procedure through cooperative attempts of multi-functional teams and the end customers.

Although agile cropped up in the technology sector, however, the agile approach may be expanded to several other industries which require more versatile methods and techniques (MacCormack, Verganti, & Iansiti, 2001, as cited in Albuquerque, Torres and Berssaneti, 2020)

Coming to lean, Lean is the act of curtailing waste; it actually implies "performing extra with less while performing it better".

Lean can be expounded as an operative master plan engrossed in enhancing competitive precedencies such as standards, flexibility, value, and conveyance inside corporations (Hallam, Valerdi and Contreras, 2018) .

Lean has constituents of a strategic plan as it demands authority to position the corporation towards precise administration grounded on pre-determined objectives directed at attaining the targets linked with lean functioning (Hallam, Valerdi and Contreras, 2018). Acquisition of lean practices in the tertiary sector is grounded on the pentad regular practices in lean that include: Recognizing the worth; plotting the value chain; improvising flow and getting rid of waste; executing pull; and attempting for excellence (Gupta et al., 2016). Perceiving more efficaciousness is corresponding with executing lean all around in any service institution (Dahlgaard and Dahlgaard-Park, 2006 as cited in Sunder M., Ganesh and Marathe, 2019). In addition to this, lean also prompts a significant upsurge in employee motivation, giving rise to engagement and downsizing staff turnover rate. As cited in (Kumar Kundu and Bairi, 2014 according to Petersson et al. (2010), few pragmatic elements of the lean application are the enhanced competency of the staff, brisk working of employees, lowering frustration level with enhanced customer gratification, and financial perks for the corporation. Furthermore, it motivates the emancipation of staff and allows companies to attain a competing edge with superior quality and swift delivery of services. (Petersson et al., 2010).

Research Questions

RQ1. How the teams within banks could use these methods (lean and agile) to improve processes and workflow for better performance?

RQ2. What are the 2 major perils associated with mobile banking and how could they be minimized with the help of lean banking?

RQ3. What are the 2 major perks of mobile banking and how could they be maximized for a better experience for customers when adopting lean and agile?

Table 1. Leagile Principles

Lean Principles	**Agile Principles**	***Leagile Principles***
Define Value	User satisfaction by the early and timely deployment of apps	**1.Defining customer value with the ultimate objective of customer satisfaction.**
Map the value stream	Adjust the system for strategic advantage for the consumer	**2.Being adaptive to the dynamic environment and identifying the value stream thus offering a competitive advantage to customers as well as the organization.**
Create a flow	Preference to shorter timescales by frequently delivering working software	**3.Delivering of service with higher frequency and creating the flow.**
Establish pull	Business teams and developers must work together Create projects around inspired people The most effective and productive way to communicate knowledge is through meeting in person	**4. Creation of pull with Collaboration of stakeholders closely daily thus motivating individuals enabling face-to-face interactions.**
Pursue perfection	Simplicity	**5. Pursuing Perfection keeping in mind that simplicity is a vital element.**

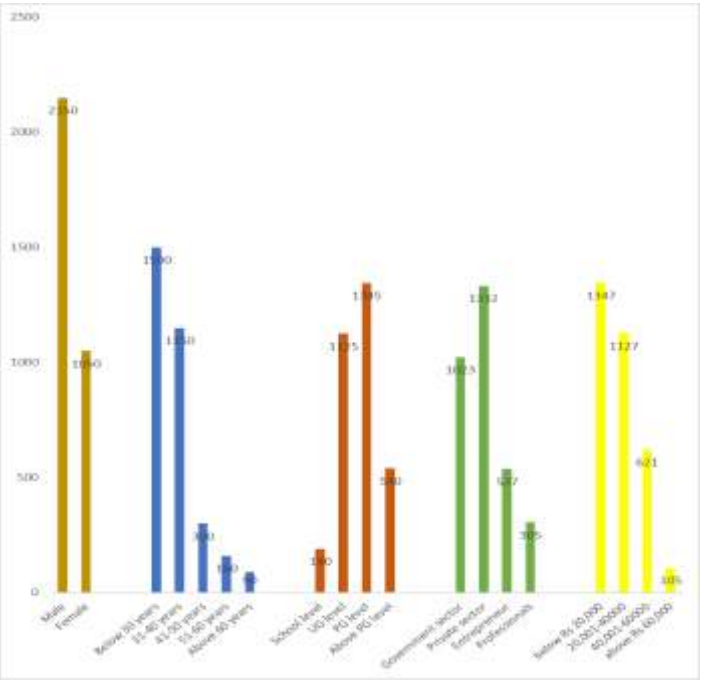
Thus, combining certain major principles of both lean as well as agile we get 5 new sets of principles that could be applied for quality management and better performance across mobile banking platforms.

Experimentation

In the data collected through a questionnaire circulated to know on who, when, and how do people prefer using mobile banking applications and to know their perspective on if there is any improvisation needed in the existing system and if yes then what advancement are they looking forward to for an uninterrupted and safe mobile banking interface. The data so obtained reveals that males account for 67% of total customers engrossed in the use of mobile banking applications on the other hand only 33% of women prefer mobile banking. It is also evident from the data collected that the younger generation is more inclined towards application-based banking as 47 % of users comprised below 30 years of age and vice versa in the case of adults as the percentage is seen to decline at large when coming to age group above 30 years and so as can be seen in the table below. Other socio-economic factors included herein are the literacy level, current occupation, monthly income, and also the time duration since when the customers have been using mobile banking applications.

Table1.2 Socio Economic factors affecting the use of mobile banking among customers

Variables	Category	Frequency	Percentage
Gender	Male	2150	67(67.18)
	Female	1050	33(32.8)
	Total	**3200**	**100**
Age	Below 30 years	1500	47(46.8)
	31-40	1150	36(35.93)
	41-50	300	9.3
	51-60	160	5
	Above 60 years	90	3(2.8)
	Total	**3200**	**100**
Literacy Level	School-level	190	6(5.9)
	UG Level	1125	35.1
	PG Level	1345	42.03
	Above PG level	540	17(16.8)
	Total	**3200**	**100**
Current Occupation	Government sector	1023	32(31.9)
	Private sector	1332	42(41.6)
	Entrepreneur	537	17(16.7)
	Professional	305	9(9.5)
	Total	**3200**	**100**
Monthly Income	Below Rs 20000	1347	42(42.09)
	Rs 20,001- Rs 40,000	1127	35(35.21)
	Rs 40,001 – Rs 60,000	621	19(19.40)
	Above Rs 60,000	105	3(3.28)
	Total	**3200**	**100(99.98)**
Using mobile banking applications	Less than 6 months	493	15(15.4)
	6 months- 1 year	1039	32(32.46)
	1 year-2 year	772	24(24.12)
	More than 2 years	896	28
	Total	**3200**	**100(99.98)**
Purpose of using M- banking	Balance inquiry	1031	(32.21)
	Mini statement	383	(11.9)
	Phone recharge	464	(14.5)
	Fund transfer	549	(17.15)
	24 hours usage facility	773	(24.15)
	Total	**3200**	**100(99.91)**



Socio-Economic Factors

Since the paper focuses to find out the major perks and perils associated with mobile banking the two major perks that have been considered here are convenience and competitive advantage and the major perils herewith are security and cost. Firstly, coming to the perks, the convenience has been subdivided into two major factors i.e., ease of activation and usage functions wherein the customers from different banks gave a score out of 20 based on their past experiences of mobile banking usage which has been given a weightage of (36 %) and usage function (16 %). The second perk i.e., the competitive advantage which again has been subdivided into a technology platform, promotion and training by banks, and the customer services offered by the banks with 18%, 20%, and 10% as respective weightage of the three calculated based on preferences they hold. Simultaneously here again customers gave scores as in the case of the previous factor as mentioned in the table below which led to an understanding of how much these perks matter to the customer and up to what level are these mobile banking applications able to withstand the expectations of its customers.

Table 2.1: Convenience

Respondents	Ease of Activation (Score out of 20)	Weightage (36%)	Usage Functions (Score out of 20)	Weightage (16%)
829	18	6.48	19	3.04
1025	15.5	5.58	15	2.4
256	14.5	5.22	18	2.88
343	14	5.04	16	2.56
632	15	5.4	15.5	2.48
115	16	5.76	18.5	2.96
N= 3200				

Convenience: an agile approach

Agile has revolutionized online and mobile banking operations by making them more customer friendly. Therefore, using agile methods in a financial services business helps them improve speed and implement improved operations of customer remarks. In addition to enhancing the process of product creation, agile methodologies often allow economic organizations to keep up with business realities and have a greater return on investment in data technology.

Table 2.2: Competitive Advantage

Technology Platform (Score out of 20)	Weightage (18%)	Promotion And Training by banks (Score out of 20)	Weightage (20%)	Customer Service (Score out of 20)	Weightage (10%)
15	5.4	18.5	3.7	14	1.4
14.5	5.22	18	3.6	14.5	1.45
14	2.52	14	2.8	15	1.5
16.5	2.97	16	3.2	16	1.6
18	3.24	12.5	2.5	16.5	1.65
16	2.89	15.5	3.1	18	1.8

Competitive Advantage: An Agile approach

Mobile banking leads to enhancement in customer gratification through enhanced customer experience and ease of use which are the key drivers and major sources of competitive advantage. The number of services such as Balance inquiry, mini statements, cheque status, fund transfer, bill payments, and more encompassed within a single mobile banking application aid in gaining a competitive advantage over other fintech companies.

Major perils associated with M- banking (RQ2)

Implementing Lean Security

Advances in technologies have now allowed edge-to-edge security to be enforced. This means that if the user accesses his / her portable laptop for mobile banking, then the information transacted is safe at the level of a bank but not at the level of the user, rendering the data vulnerable to attack. It has been embarked on the challenge of providing end-to-end security through WAP. Here in it becomes vital to build a versatile and explicit regulation

Fig 3. Lean Diagram

framework that warrants license for a ceaseless association between anticipation, spotting, retrieval, and feedback thus following the lean security cycle.

Table 3.1 Security Cost

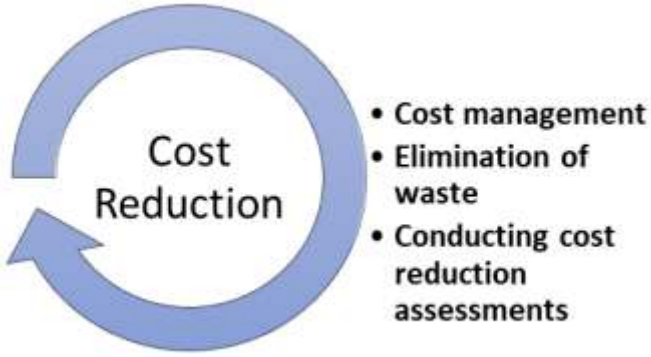
Respondents	Identity theft	Weightage (30%)	Malware	Weightage (25%)	Operational	Weightage (20%)	Charges	Weightage (25%)
156	17	5.1	17	4.25	12.5	2.5	16	4
134	19	5.7	17.5	4.37	14.5	2.9	15	3.75
1384	18	5.4	16.5	4.12	15	3.0	14.5	3.62
1042	16.5	4.95	16	4.0	15.5	3.1	12.5	3.12
484	17.5	5.25	18	4.5	16.5	3.3	15.5	3.87
N =3200								

In table 3.1 shown above the perils taken as factors are being rated out of 20 by the respondents. The security factor has been subdivided into identity theft and malware whereas the cost has been subdivided into operational and charges applied.

Cost Reduction:

Lean production and industrialization concepts can be applied to service facets. As well as production lines, with one big difference: the costs to be handled derive from payroll, and poor customer satisfaction, and no longer body inventory. Lean concepts encourage workers to manage and refine the processes they follow – ensuring that employees engage in a productive, long-lasting process of quality improvement, instead of relying on external consultants to solve problems. Financial institutions use lean banking approaches to record outcomes of 20-30 percent costs in their operations. Another impediment lies challenge lies with the clerical personnel involved, who will always reject the notion of standardizing their jobs. This lack of standardization in company procedures and quality is costly. Broad, inefficient strategies are slower, have higher error rates, and restrict the everyday responsiveness and satisfaction of purchasers .

Fig : 2 Lean Cost Reduction



Result and Discussion

This research gives an insight into customer's experience of using mobile banking applications and their ratings on the 4 major factors considered to be the major advantages and disadvantages of these services and why quality is the supreme governing factor that drives users to switch from one application to the other and how quality can be maintained along with the reduction of cost and time infused in for rendering services to customers .The data collected and analyzed comprising of 3200 respondents give us the preview of diversity among the mobile banking users and the scores provided by them on different factors reveals their impartial feedback of the same which gives the reason on to why service providers must rethink on developing applications with the newest technology evolving as major players in the market to meet up the rising expectations of customers and to ensure long term survival by obtaining competitive advantage so that they do not lag and remain up to date with technological advancements without compromising in quality. The study also comes up with a new set of leagile principles as a structural framework for banking organizations to work within so that their growth is not hampered due to their existing traditional practices in today's era where technology and innovation are becoming an indispensable part of a successful business.

Practical Implications

This research may proffer substantial practical inferences for managers, executives, and administrators. In banking dealings, customers can procure banking services via several substitute mediums. This reality explains why do banking institutions usually provide their mobile banking applications free of cost. In these kinds of situations, banking institutions generally assimilate the maximum cost involved in the introduction and promotion of mobile banking applications in the aspiration of an incessant flow of profits from its true-blue customers. It implies that the mobile banking applications developed should be user-friendly, have a handy interface, function with authenticity, and an extensive array of banking services accessible from anywhere 24*7.

Limitations and Future Scope of the Study

The study considers only the two major perks and the two major perils associated with mobile banking, therefore paving way for future research considering more such factors associated with the study. Another major limitation

is that this study ignores the bank's perspective on the use of mobile banking applications and their development which provides an avenue for future research involving case studies conducted at different banks. A very generalized set of respondents have been considered for study which fails to express the view of the particular segment of society on their views of using mobile banking which again can be a subject for future study on the same. The role of IT in the implementation of these services with the help of lean and agile approaches has not been duly expressed paving way for further research in this area.

Conclusion

This study highlights the application of lean and agile principles while combining the two to get a new set of leagile principles in the implementation of mobile banking services for ensuring quality services while eliminating the risk associated and working on improving the customer experience while operating seamlessly. They remain dubious when it comes to adopting this sort of technological transformation due to the perils and cost of non-success or negligence on part of customers associated with such transformations. Service rendering institutions such as banks should embrace such technological innovations as early as possible to procure preceding competitive advantage by ensuring smooth and convenient services for customers. Matters like, security and cost are still hindering the innovative measures of quality-of-service being rendered by mobile banking in India.

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