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Banking Technology Innovations in India: Enhancing Customer Value and Satisfaction

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Abstract

Background/Objectives: This paper studies the development in information and technology enable banks in value added services to be effective in satisfying customer needs by adopting new innovative solutions in banking services to meet perceived value and expectations. Methods/Statistical Analysis: To study the perceptions of bank customers, bank employees regarding the use of various products/services delivery channels and their acceptability in Andhra Pradesh. 200 sample respondents had interviewed in order to assess the number of existing bank customers availing e-banking services. Correlation analysis also applied in this study. Findings: Regardless of their size, profitability and growth demand that banks focus on serving customers at the right time, with the right level of service and at the right cost. Several factors are driving this customer focus. Number one, today's customers expect personalized pricing and portfolio mixes. Banks that can't deliver will suffer reduced profitability. While banks, by default, sell every product to every customer, digital banking allows customization, providing the data and analytics capabilities needed to examine each customer's profitability and offer individual rized or segmented products and pricing. Application/Improvements: To stay profitable and grow in the new digital economy, banks need to adopt a customer-centric business model, diversify online delivery of products and services channels, and begin making meaning from valuable trails of digital information.

Keywords: Banking Technology, Customer Centric Model, Digitalization, Technology Led Solutions

1. Introduction

The change in the behavior of banking customers is fundamental and sustained. As a result of the financial crisis, customers demand understandable and secure products and thereby increase the pressure on banks' profitability. Banking customers now distribute their assets across multiple banks and punish financial institutes for the recent crisis through their lethargic passivity. As a result, the customer profitability has significantly decreased after the crisis. Leading banks have witnessed a decrease of 10% in customer profitability.

Banks that have tried to address this trend through cross-selling or pricing optimization are already facing difficulties to improve their profitability as their efforts conflict with the interests of their customers. Consequently, it is not surprising that many banking customers have reduced their activities or have even turned their back on their banks. Banking industry in India has also achieved a new height with the changing times. Customer services and customer satisfaction are prime responsibilities of banks now days. Information technology has given rise to new innovations in the product designing and their delivery in the banking and finance industries¹.

1.1 Objectives of the Study

- To study the extent of comparative cost differences between the banks/bank groups while managing transformation through different e-delivery channels.
- To study the problems and prospects for Inter-

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- net/e-banking in India and predict the future of e-banking in India.
- To suggest possible measures in the light of problems, if any, how to mould these challenges into opportunities by application of innovative banking technology.

1.2 Hypothesis

This hypothesis investigates impact of banking technology innovations on customer's satisfaction in banks of Andhra Pradesh

- H_0 : The banking technology innovations affect on customer satisfaction.
- H_1 : The banking technology innovations does not affect on customer satisfaction.
- H0: Internet banking is not facilitated customer satisfaction.
- *H2*: Internet banking is facilitated customer satisfaction.

1.3 Statistical Methods

To study the perceptions of bank customers, bank employees regarding the use of various products/services delivery channels and their acceptability in Andhra Pradesh. 200 sample respondents had interviewed in order to assess the number of existing bank customers availing e-banking services, switch over rate of customers from traditional public sector banks to modern IT equipped banks, the reasons for not availing e-services by bank customers. The study is descriptive and empirical in nature where secondary and primary data is used to address the above objectives.

What customer would want to buy products that do not meet the customer needs? Even more so if the customer is asked to pay more for such products while the servicing levels remain unchanged. It is not only the customer needs that are now more complex than ever before; customers are demanding products and services that match their individual needs.

In some cases they even change the bank. Only banks that adjust to these needs will have a long-term benefit. The goal is to become more relevant to each customer. This does not only mean to increase the interaction with the customer but to be able to provide the right service at the right time and place to the customer. Technology offers a chance for banks to build new systems that address a wide range of customer needs including many that may not be imaginable today².

The main challenges, therefore, for banks are the development of personalized services, the improvement of the customer interactions, and communication; and these measures must be achieved in combination with differentiating from competition cost and revenue structures. A very promising approach to address these challenges is the leverage of banking technology innovations. Banks approach towards customers presented in Figure 1.

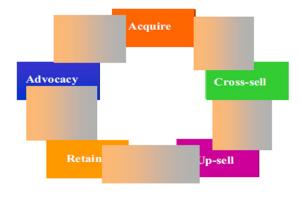


Figure 1. Banks approach towards Customer.

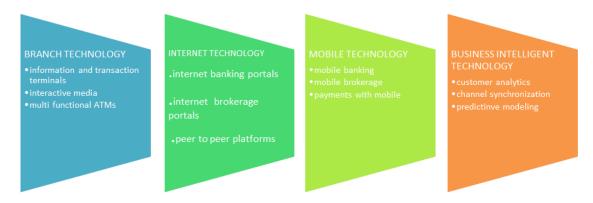


Figure 2. Technology-led banking services.

In this study "Enhancing the banking customer value; technology-led innovation", we are analyzing the new customer requirements towards banks. The study sheds light on the importance of technology for the banking customer and provides practical advice and tools for bank managers.

The results of the representative customer survey of more than 200 banking customers in Andhra Pradesh offer a new perspective. Technology-led banking services: Innovation in the areas that scored highest among customer preferences- internet, mobile, branch and business intelligence is presented in Figure 2.

1.4 Changing Customer Needs, Behavior and Preferences

Banks are facing three main challenges in the retail banking landscape today:

- The customer productivity and profitability in the retail segment has collapsed in many markets around the world.
- The self-aware attitude of the new customer towards the bank has led to a shift of power in the customer bank relation that is here to stay.
- Tighter regulation demanded by governments and institutions leads to increasing costs for compliance.



Figure 3. Customer needs, behavior and preferences in banks.

The currently ongoing power shift dictates also the

changes in the way customers and banks conduct their business. In such a competitive environment, innovation is essential in order to achieve profitable growth. The present banking customer technology survey reveals six trends that reflect the changing customer needs, behavior, and preferences in their interaction with their banks is presented in Figure 3.

1.4.1 Customer Behavior

Banking customers become more experienced and savvy using technology-based banking services.

Bank customers are today more informed than ever before and have a high level of confidence in choosing products and service providers for themselves. As a result of the recent crisis and the reduced trust in banks, customers are now much more willing to purchase products and services from various banks than they were in the past, and are consequently banking with multiple providers.

Managing different banking relationships and comparing products and services between different providers is becoming easier for customers through direct channels, Internet blogs, and forums, and social networks. Consequently, customers have increased the number of their banking relationships.

Changes in the number of customer banking relationships in response to recent developments in the banking industry and financial markets (over the past two years) is shown in Figure 4.

At the same time, the use of self service and direct channels has become a top priority for the majority of banking customers.

Top 3 Emerging changes in customer behavior that will impact the banking business over the next three years (in %) shown in Figure 5.

This trend is accompanied by the customers' need for better and more personalized services. In addition, customers have become more price-sensitive as indicated by the change in customer reactions to pricing strategies for banking products and services.

As a result of this changing customer behavior, banks need to offer innovative and more personalized services investing in the digital channels in order to attract and retain customers. Only by doing so can they gain a competitive edge in the fight for new customers and win back the trust of their existing customers.



Figure 4. Customer behavior in banks.

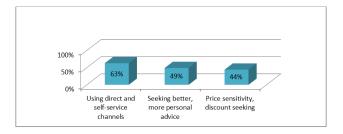


Figure 5. Emerging changes in customer behavior.

2. Multi-Channel

Two thirds of the customers demand a consistent service offering through multiple banking channels.

The survey conducted to banking customers, out of 200 67% of customers prefer to interact with their bank through multiple channels. Almost one third of customers (34%) rate the availability of banking services through the branch, Internet, and mobile channels are very important. Only 21% of customers still prefer to interact with their bank through a single channel such as through branch, Internet, or mobile banking. Customer channel preferences for interaction with the bank is presented in Figure 6.

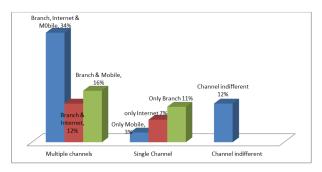


Figure 6. Customer interaction channels in banks.

The following banking services and innovative technologies rank highly among customer preferences:

Branch: Multifunctional ATMs, (cash points) information and transaction terminals, as well as interactive media in the branch.

- Internet: Banking portals, brokerage portals, peer-topeer platforms, and social media.
- Mobile: Information and notification services, mobile money transfers, payments with mobile devices, and mobile brokerage platforms.

In conclusion, it is becoming essential for banks to integrate Internet, branch network, and mobile banking channels in order to attract and retain customers.

3. Role of the Branch

3.1 Customers will Conduct 40% of their Banking Activities in the Branch and 50% through Direct Channels in 2013

The banking communication and distribution channels are not substituting one for another, but rather extending the possibilities to interact with the customer. As a consequence, the amount of customer interactions with the bank is increasing. Change in the use of banking channels following the global financial crisis and recession is shown in Figure 7.

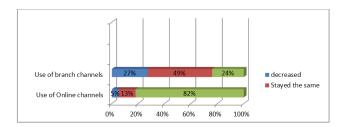


Figure 7. Banking channels.

Furthermore, despite the significant increase in the use of direct channels, i.e., Internet, phone, and mobile. Customers have not altered their preferences concerning the use of the branch even after the recent financial crisis.

Banking customers therefore continue to consider the branch as the main place in which they anticipate conducting approximately 40% of their banking activities in 2013.

Overview showing percentage of banking activities

predicted to be conducted in various banking channels in 2013 is presented in Figure 8. Nevertheless, it is predicted that approximately 30% of banking activities will be conducted via the Internet and 20% through the mobile channel by 2013.

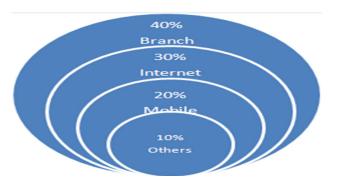


Figure 8. Use of banking channels.

4. Online Channels

Banking through internet has emerged as a strategic resource for achieving higher efficiency, control of operations and reduction of cost by replacing paper based and labor intensive methods with automated processes thus leading to higher productivity and profitability³.



Figure 9. Online channels.

Customers use Internet banking up to 80% as the main channel for interaction with their preferred bank. Percentage of customers that use the internet account as their main bank account is presented in Figure 9.



Figure 10. Internet banking.

The majority of the customers (81%) conduct their main banking relationship through Internet banking. Customers request direct and simple access to information

here and now, and use direct channels to obtain greater transparency and control. Percentage of customers that have their internet account with a bank shown in Figure 10.

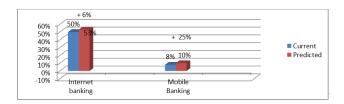


Figure 11. Internet banking vs mobile banking.

In addition, 83% of the customers have their Internet account with a retail bank. This emphasizes the trend that Internet banking needs to be an integral part of a bank's mix of services. Current and predicted (next 12 months) usage of Internet and Mobile banking is shown in Figure 11.

More customers use Internet (50%) than mobile banking services (8%). However the latter is strongly emerging as an alternative banking channel with a projected usage growth of 25% during the next 12 months, compared to a projected growth of 6% for Internet banking services.

Therefore, banks need to establish a customer-centric infrastructure and build and improve capabilities for the "pull" customers using innovative technologies and tactics. Integrating Internet and mobile channels into this customer-centric infrastructure will be a key success factor for banks in the future.

5. Demographics

Innovation in the banking channels is a strong customer value proposition for all generations. Usage of online and mobile banking channels by age group presented in Figure 12.

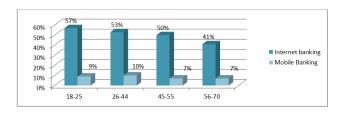


Figure 12. Age-wise usage of banking channels.

57% of customers that are between 18 and 25 years old, use Internet banking, however the older generation are not significantly lagging behind, with a usage rate of 41%. On average, one out of two customers uses Internet banking technology across all age groups. On the other hand, the use of the mobile banking channel has not yet been widely adopted. However it is gaining momentum, especially for the Younger generation. Innovation in banking channels can therefore be considered a strong value proposition across all age groups.

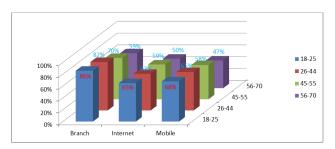


Figure 13. Interaction of banking channels.

In general, a higher percentage of the younger generation – compared to the older one – considers innovative channel technologies to be important. This holds true for each channel – branch, Internet and mobile is shown in Figure 13.

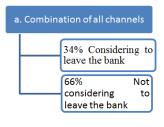
Services offered through the branch are still considered more important across all age groups than services offered through the Internet and mobile banking channels. Nevertheless, customers across all generations are embracing services through the Internet and mobile channels and expect banks to offer services through these channels.

Despite the homogeneous preferences for the various age groups, banks need to be able to address the needs of each customer generation across all channels.

6. Propensity to Change

6.1 Every Third Customer is Willing to Change to a Bank that Offers Better Technology-based Services

A consistent services offering across all banking channels leveraging innovative technologies is essential for the banking customer. Percentage of customers who may change banks due to better services provided through innovative channel technologies by another bank is shown in Figure 14



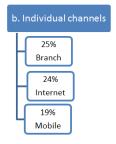


Figure 14. Combination of banking channels.

34% of all customers would change their banking relationship toanother bank that make such anoffering and 25% of the survey participants would change their bank due to better services offered through branch technology provided by another bank.

Also regarding direct channels – Internet and mobile – 24% and 19%, respectively, of customers would change to another bank.

It is apparent that customer loyalty can be significantly influenced by the differentiation that is created through technology-led service innovation across all banking channels.

In conclusion, changing customer behavior and preferences are making multichannel integration as well as customer dialogue and experience management increasingly important.

This leads to a number of imperatives for banks. The availability of innovative, technology-led banking services is a top priority for the banking customer of the future, in order to fulfill their demand for simplicity, self-control, mobility, personalized service, and consistency of customer experience across all channels.

7. Technology-Led Service Innovation as Differentiator for Customer-Centric

Banks have several options to meet the changing customer needs, behavior, and preferences leveraging technology innovations. Such innovation in the areas of Internet, mobile, and branch technologies have scored highest in the customer preferences. Financial innovation associated with technological change totally changed the banking philosophy and that is further tuned by the competition in the banking industry⁴. Digital Technology process is shown in Figure 15.

Generating Value from Digital: An Outside-in View

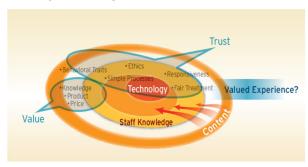


Figure 15. Digital technology process.

In addition, this survey also shows, within the area of Business Intelligence, the opportunities for banks to address customers individually and in a customer oriented way.

Customer demand for technology-led banking services innovation.

Furthermore, selected client case studies provide reallife examples of how leading banks can leverage technology to address changing customer behavior and preferences, and to enhance the customer value proposition.

8. Branch Technology

8.1 Increase Relevance of Branch Services to the Customer through Channel Integration

Challenging business environment within the banking system create more innovation in the fields of product, process and market⁵.

Customers today are demanding a more personalized service and look for an optimal customer experience. Direct in-person customer contact and customer advisory services in the branch provide opportunities for

banks to enable a high-quality, differentiated customer experience supported by innovative technology, such as surface computing, information or transaction terminals, interactive media, and multifunctional ATMs (cash points), enhancing the customer value proposition as follows:

- Increased flexibility and control through self-service channels in the branch.
- Better understanding and improved transparency regarding complex financial products and services through graphical and interactive approaches using interactive media.
- Advanced decision-making effectiveness through financial data from multiple sources integrated and available on the touch-screen at the customer's fingertips.
- More personalized services through integrated cross-channel customer data analytics.
- Enhanced and better informed customer involvement in the advisory process in the branch through surface computing.
- Broader spectrum of innovative services that address the customer's changing needs through integration of third-party partner services into multifunctional ATMs, e.g., ticketing, loyalty schemes, and prepaid mobile services.
- Enhanced customer experience in the branch.

9. Internet Technology

9.1 Offer Innovative Internet Banking Services for the Self-Directed Customer

Through innovative Internet services for the selfdirected customer, banks can improve transparency, reestablish customer trust, and increase customer loyalty.

Table 1. Technology interventions

Customers demand	technology-led banking services innovation
More personalized services and en-	Branch technology: increase relevance of branch services to
hanced customer experience	the customer through channel integration
Increased simplicity, self-control, and	Internet technology:Offer innovative internet banking
mobility of banking services	services for the self-directed customerMobile technology:
	introduce mobile banking services for the mobile customer
More relevant services and transparent	Business intelligence(BI) technology: customize and
access to information across all chan-	personalize products and services across all channels to
nels consistently	enhance the customer experience

The increasing demand for simplicity and self-control by banking customers can be addressed by innovative Internet banking services.

The Internet banking channel plays a pivotal role in the attraction and retention of customers, as banks create an experience that sets them apart from the competition at this important customer touch point. Technology innovation for the Internet channel is driven by Internet banking and brokerage portals with enhanced functionality, as well as banking peer to-peer platforms and social media.

These technology-led innovations can enhance the customer value proposition as follows:

- Innovative services through the creation of new Internet platforms and market places.
- Increased customer enablement, leading to greater trust through Internet information pull services.
- · Cost-efficient Internet transactions, payments, and lending services through Internet banking and brokerage portals.
- Access to remote markets and products through Internet brokerage portals.
- Innovative and transparent peer-to peer platforms for services, such as lending and portfolio management.

Better information, increased transparency, and community building through Social Media and Websites.

10. Mobile Technology

There is an increasing demand for mobile banking services. Mobile banking is emerging as the customer touch point that is providing banking services at the customer's fingertips "here and now". As customers and their banking business become more international, mobility and availability of services is becoming essential for customers.

Mobile banking and mobile brokerage along with the facility to make payments using mobile devices are three distinctive service offerings that can enhance the customer's value proposition as follows:

- Control and timing of content to the "pull" customer.
- Direct access to banking services "here and now," e.g., real-time customer support functionality with a bank advisor through Chat and SMS.
- Innovative banking services combining mobile telephone functionality and third-party offerings, e.g., cash point and branch locator, ticketing, loyalty rewards, automatic phone top-ups, local currency exchange rates.

- Flexibility through mobile and near-field payment services at the point of purchase; from mobile phone to mobile wallet.
- Enhanced customer experience wherever the customer is located.

11. Business Intelligence **Technology**

11.1 Customize and Personalize Products and Services Across All Channels to Enhance the Customer Experience

- Across all generations, customers are looking for products and services that are consistent, customized, and personalized. Making these available through multiple channels offers banks the opportunity to tailor their customer value proposition.
- Banking customers are consistently demanding more relevant services and transparent access to information across all channels. Technology-led innovation in the branch, Internet, and mobile channels is a prerequisite for an enhanced customer value proposition across all channels.
- Business intelligence technologies are used in order to share and combine information and services and to establish a truly integrated multiple customer touch point strategy. Leading banks use customer analytics, channel synchronization, and predictive modeling to establish a consistent customer experience across all banking channels that can enhance the customer value proposition as follows:
- Personalized services enabled by insights into individual customer and peer-group preferences and matching their needs to banking products and services using customer analytics.
- Enhanced risk assessment services for customers based on coherent finance and risk data gathered across all channels.
- Improved transparency through offering customers ad-hoc and standard reports.
- Increased customer satisfaction through the early identification of needs of dissatisfied customers.
- Consistent offering of customer relevant products and services across all channels.

12. Hypothesis Testing

This hypothesis investigates impact of banking technology innovations on customer's satisfaction in banks of Andhra Pradesh

Table 2. Banking technology innovations and customer satisfaction

	Un-standardized coefficient Standardized					Co linearity	statistics
	В	Std.Error	Beta	t	Sig	Tolerance	Vif
Constant	-0/414	0/269	-	-1/540	0/126	-	-
Banking technology innovations	0/061	0/151	0/043	0/405	0/680	0/379	2/615

Table 3. Internet banking and customer satisfaction

		My Internet	I do not use my	My Internet	My Internet	Recommendations
		bank account	Internet account	bank account	account is	
		& banking	as my main bank	is with a retail	with a direct	
		relationship	account	bank	bank	
My Internet bank	Pearson correlation	1	680	670		630
account and banking	Sig. (2-Tailed)	0	0	0	0	0
relationship	N	410	50	410	415	415
I do not use my In-	Pearson correlation	680	1	640	615	590
ternet account as my	Sig. (2-Tailed)	0	0	0	0	0
main bank account	N	50	50	50	50	50
My Internet bank	Pearson correlation	670	640	1	680	655
account is with a	Sig. (2-Tailed)	0	0	0	0	0
retail bank	N	415	50	412	410	415
My Internet account	Pearson correlation	670	620	680	1	720
is with a direct bank	Sig. (2-Tailed)	0	0	0	0	0
	N	415	50	410	415	415
Recommendation	Pearson correlation	630	590	655	720	1
	Sig. (2-Tailed)	0	0	0	0	0
	N	415	50	410	415	415

Correlation is significant at the 0.01 level (2 tailed)

 H_0 : The banking technology innovations affect on customer satisfaction.

 H_1 : The banking technology innovations does not affect on customer satisfaction.

Table 2 reports the hypothesis impact of banking technology innovations as independent variable on customer satisfaction and as a dependent variable has been assessed. Considering that P-value for this effect is equal .680 and this isn't much smaller than .05 it can be concluded that banking technology innovations affect on customers satisfaction of banks of Andhra Pradesh. Finally, assumption of H0 is accepted and H1 is rejected from that here, VIF or variance inflation factor for present variable equal of 2.615 means that this variable hasn't a lot of multi-co linearity with dependent variable and we don't need to eliminate present variable. Therefore this assumption is rejected.

H0: Internet banking is not facilitated customer satisfaction.

H2: Internet banking is facilitated customer satisfaction.

The correlation analysis (Table 3.) though showed that all these variables are directly connected and have an impact on the final performance of customer satisfaction. The correlation analysis with total satisfaction, continue use, future use and recommendation proved that there is a strong connection between these variables with the strongest relationship with overall satisfaction (>63%). Internet banking has a positive impact on customer satisfaction.

13. Findings

High Performance banks enhance their customer value proposition and set themselves apart from the competition through technology-led banking services innovation. These banks focus on establishing customer-

centric, personalized, flexible, versatile, and innovative offerings across multiple customer touch points. To achieve this objective, High Performance banks develop strong capabilities in the following areas:

The banking industry's efforts to shift to digital channels have been halting, at best — a business unit here, an upstart department there. But given the industry's financial pressures and global economic uncertainties, there is increased urgency — and opportunity — to adopt a holistic approach to going digital and integrating that strategy across the banking ecosystem.

Embracing a fully digital strategy requires end-to-end modernization of a bank's often outdated infrastructure. Equally important, it requires a transition from an account-based view of banking customers to one that knows them as individuals and enhances the customer experience with relevant, convenient and personalized products and services.

Integration of multiple customer touch points.

- Development of an integrated and consistent customer experience.
- Offering of simple, differentiated customer-centric services based on changing customer behavior and preferences.
- Leverage of technology-led direct channel innovation for the self directed and mobile customer.
- Improvement of the customer experience in the branch through technology-led enhancement.
- Technology-led integration of data analytics, business intelligence, and capabilities across all channels.

14. Enhancing the Banking Customer Value; Technology-Led Innovations

- The technologies is not deployed that would have a significant, positive effect on performance.
- The level of specialized training has been received by the officers and employees assigned to selecting, deploying, and managing technology.
- Complete dependency on technology in banking services may have a diplomatic problem.
- The technology uses at several channels in banks was not eco-friendly to customer.
- Most of the customers were not preferred the technological in banks in rural areas compared to urban areas banks.
- The online banking is not secured because of technical era by the hackers.

15. Conclusion

Today's increased regulations and competitive challenges are forcing banks to deleverage and identify alternative sources of value. Enter digital banking. New digital models steer banks in the direction of customer relationships that present new sources of value. The focus is on engaging customers and building trust in the key activities of digital banking: Marketing and sales; customer onboarding; and account opening and servicing.

Computers are getting more sophisticated. They have given banks a potential they could only dream about and have given bank customers high expectations. The changes that new technologies have brought to banking are enormous in their impact on officers, employees, and customers of banks. Advances in technology are allowing for delivery of banking products and services more conveniently and effectively than ever before thus creating new bases of competition. Rapid access to critical information and the ability to act quickly and effectively will distinguish the successful banks of the future. The bank gains a vital competitive advantage by having a technological development at customer service and business processes.

The techno-led innovations in banks were preferred by the customers as completion of business activities through computerization at various channels had become simple. However, the development in banks with technology emphases only when there is complete security, upgrades and also awareness to customers of banks.

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