

# **A study of Role of Emerging Technology in current Banking Industry**

## **[A case study of ICICI bank]**

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### **ABSTRACT**

*Banking Industry and technology are very closely associated with each other. Technology is the only tool which helps banks in creating new innovations. Today, Indian banks are witnessing drastic changes. Bank's products are more customer centric and provides personalized solution to customers. This research paper provides an insight on various new technologies such as Artificial Intelligence, Machine Learning, Big data Analytics, IoT, Cloud Computing etc. that plays a vital role for bringing digital revolution in banking industries. The aim of this paper is to find out the applications of above mentioned technologies in banks. Both public sector and private sector banks are implementing this technology based solutions in their banks. This paper also includes study of various technology driven innovative products and services implemented by ICICI bank and awareness about these products among the customers.*

**Keywords:** *Artificial Intelligence, Machine Learning, Big data Analytics, IoT, Cloud Computing.*

### **INTRODUCTION**

Bank started their journey toward technology by introducing standalone PC followed by LAN, then VSAT network, then by adopting core banking solution that helps customers by providing *Anytime Anywhere Banking* facility. Then banks adapted E-banking (a big revolution), MICR based cheque processing, Electronic fund transfer system like NEFT and RTGS, Electronic Clearance System (ECS), Cheque Truncation System i.e CTS, Online or Internet banking, Electronic Wallets i.e (E-wallets), Payment Cards and Kiosk banking. In today's era i.e the era of smart gadgets and smart phones banks adapted Mobile banking and also introduces Immediate Payment Service (IMPS) which is a inter-bank electronic fund transfer through mobile phones.

Then NPCI introduces UPI i.e unified payment system that uses IMPS infrastructure and provides very easy method for making payments. This shows how Indian banks travelled from ***Conventional banking to Convenience banking.***

This paper covers emerging technologies [**FINTECH**] that current banking industry had adapted.

1. ***Artificial Intelligence [AI]***:- AI is field of computer science that focuses on creation of intelligent machines that work and react like humans. Banks are exploring AI for fraud detection, to provide customer support and helpdesk, for enhancing security and wealth management.

2. ***Machine Learning [ML]***:- It is a field of scientific study that studies the systems and models that provides computer systems the ability to learn, perform, and improve tasks without the need for explicit instructions. Machine learning is also called as ML. ML applications are used by banks for market research, to optimize inefficient loan approval processes. It can be used for enhancing call center operations. The most important use of ML in banking is ***KNOW YOUR CUSTOMER [KYC]***.

3. ***Internet of Things [IoT]***:- IoT is a technology that consist of a network of connected devices through the internet, which receive and send data. This technology helps banks in increasing customer loyalty. It helps banks in deciding important points related to the installations of ATM centers. With IoT banks can find out number of ATM center and their location depending on usage volume.

4. ***Block chain***: Top Indian Banks are using this technology for financing international trade. RBI has shown inclination toward block chain and IDRBT is also working on use of block chain in the banking system. Banks are using block chain for KYC, Anti-money laundering, cross-border remittance, digital currency [BITCOIN], trade finance etc.

5. ***Cloud Computing***:- IBCC(Indian Banking Community Cloud) initiative of IDRBT provides cloud based services exclusively for Indian Banks .It provides Iaas, Paas and Saas for Indian banks. Many small finance banks, credit societies and NBFC are using Cloud based solution. This helps banks in not only reducing their capital expenses but also provides them flexibility in scaling infrastructure in future when their business grows.

6. **Big Data Analytics:** This technology helps banks in efficient customer feedback analysis. Bank's customer support center generates lots of data on regular basis about enquiries and customer feedback big data analytics helps in responding each of these properly, even enquiries and feedback from social media platform are also considered in analysis.

## **TECHNOLOGICAL USAGE IN ICICI BANK**

**ICICI BANK:** - It is a Private sector bank in India that offers various financial products and services to retail, SME and corporate customers. This bank plays an important role in digital transformation of financial services industry in India. Bank completed its 21 years of digital banking journey. Using emerging technologies ICICI bank had introduced many innovative products and services which are as follows

1. **Money Couch** :- It is India's first automated and robotics based investment advisory tool for customers.
2. Bank brings country's first Fund transfer service using voice command.
3. **PayLater**:- It is an instant digital credit facility that helps customer to buy small ticket items immediately in a completely digital and paperless manner. Paylater uses ICICI bank's new big data based algorithm for undertaking credit assessment of customer.
4. Bank is using "**Software Robotics**" under this facility bank had re-engineered more than 200 business processes. These software robots are processing over 10 lac transactions daily.
5. **Robotics Arms**:- Bank uses robotic arms for counting millions of currency notes across the country.
6. **iWear**:-Bank recently launched iWear an application for all smart watches. It is available on Google playstore for Android wear, App store for Apple Watch and Samsung Gear Manager for Samsung Gear.
7. **Tap n Pay** : Bank had launched NFC (Near Field Communication) based payments for its employees. It provides cashless and convenient **Tap n Pay** experience to employees. More than 7500 employees using this facility for their day to day payments within campus. Tap n Pay allows users to tap the NFC-enabled tag at the merchant's POS device to make payment.

8. **Smart vault:** - It is first-of-its-kind locker service in India. These lockers are powered by robotic technology that minimizes human intervention while operating the locker. The advanced RFID enabled mechanism scans customer's request and retrieves locker using robotic arms. The smart vault uses multi-level intelligent security systems. The access to the locker room is secured by Debit card and Biometric authentication.
9. **ipal:**- It is an Omni channel Chatbot that is accessible through internet banking, iMobile and pocket also. It is AI based virtual financial assistant that is available anytime anywhere to answer customer's questions on Amazon's Alexa and Google Assistance device. iPal completed 6 million responses and interacted with 3.1 million customers in eight months.
10. **Voice Biometric** :-Bank introduces voice recognition for Biometric authentication.
11. **Social Banking**:- ICICI bank has two Social media banking Channels Pockets for Facebook and icicibankpay on Twitter. Customers can check balance, pay to a friend, recharge prepaid mobile phone, book movie tickets and also can divide group expenses with friends on Pockets. Customer can transfer funds to their Facebook or Twitter friends by using OTP.
12. **Blockchain:** This technology is used for vendor financing and for financing international trade. ICICI bank successfully executed its pilot project with Dubai's largest Bank - Emirates NBD in cross-border remittances. By using the blockchain technology the time required to settle cross-border remittances has reduced from two days to few minutes. Bank has successfully on-boarded over 250 corporates on its blockchain platform for domestic & international trade finance.

## **OBJECTIVES OF THE STUDY**

The main objective of this paper are

1. To study and understand various emerging technologies that are adapted by current Banking Industry.
2. To study various technology driven products used by ICICI Bank.
3. To find Awareness about technology driven new products and services launched by ICICI bank among the customers.

## **REVIEW OF LITERATURE**

**Gond (2017).** stated that banking sector is a fast growing sector in India. Researcher examined that in order to attract customers, retained them, find new opportunities, to maximize revenue and minimize their own losses banks are using latest technologies like big data analytics. He stated this by giving examples like HDFC bank uses big data analytics for getting complete picture of their customer. ICICI bank uses Business Intelligence and Analytics for reducing their Credit losses. SBI uses Analytics for determining ATM location and amount of cash it should carry. He analyzed that

**Nancy Syan(2018).** Stated that because of digitization new value added and customized products were introduced by Indian banks which makes banking as innovative or creative banking. The researcher examined that digitization has given rise to new techniques which helps banks to create more customer centric products. But use of networking and internet had also created new challenges in front of banks related to privacy, security and confidentiality to transaction.

### **SCOPE OF THE STUDY:**

The study covers technology driven products and services offered by current Indian banks. More specifically it includes technologically advanced, innovative products and services provided by ICICI Bank. For example Mobile banking app, internet banking related products, AI –based, ML driven, Robotics, IoT products, Block chain and Big Data Analytics etc.

### **RESEARCH METHODOLOGY:**

The study uses both primary and secondary data. Primary data has been collected from 30 ICICI bank customers through questionnaire on the basis of convenient sampling. The Secondary data has been taken from Bank's Annual reports, Academic journals, periodicals, online news portals, and websites.

### **LIMITATION OF THE STUDY:**

- The study was primarily related to only 30 respondents.
- It discussed only about some products and services provided by ICICI bank and not all top Indian banks.
- IT does not includes all the latest innovative technology driven products of ICICI bank.

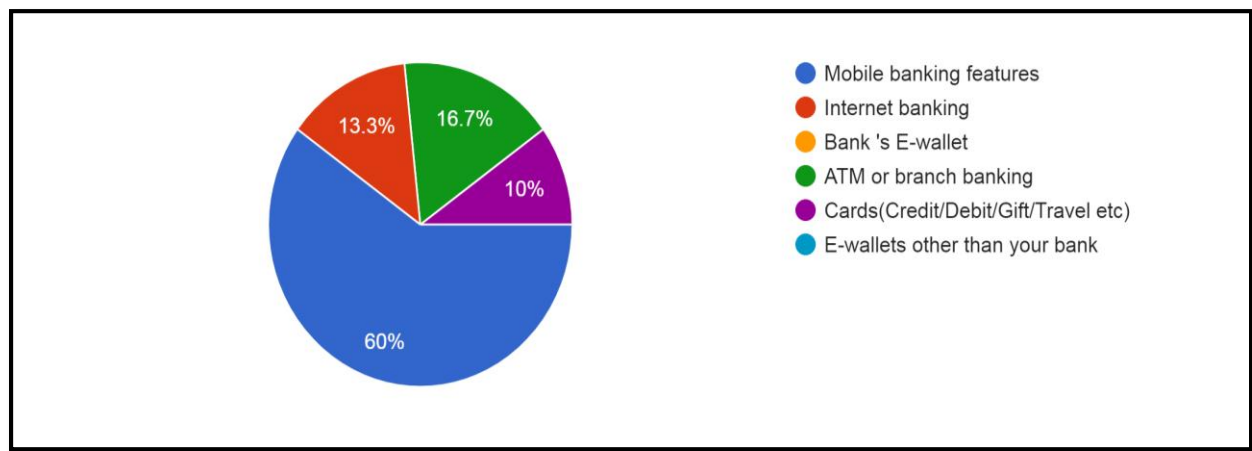
## DATA ANALYSIS AND INTERPRETATION

Data Analysis includes simple percentage, pie and column charts with tables and interpretations.

Table 1.1 showing level of exploration according to types

Type of banking like to explore	No. of Respondents	Percentage
Internet Banking	4	13%
Mobile Banking	18	60%
Cards	3	10%
ATM or Branch banking	5	17%
Total	30	100%

Figure 1.1 showing level of exploration according to types

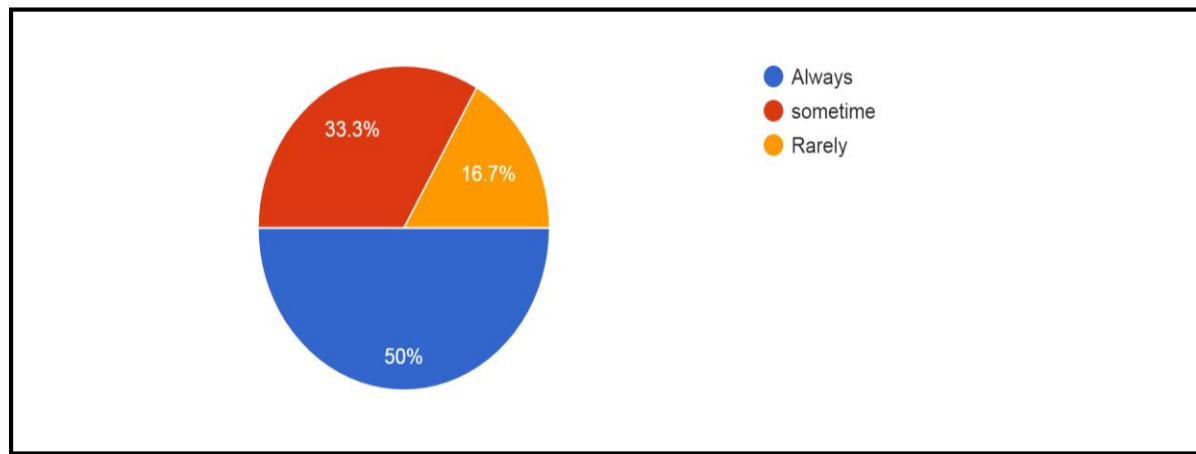


**Interpretation:-** Analysis shows that 60% customers prefer to explore Mobile banking features whereas no one is interested in exploring bank E-wallet i.e. Pocket.

Table 1.2 showing frequency of explorations among customers about various products.

Frequency of Exploration	No. of respondents	Percentage
Always	15	50%
Sometime	10	33%
Rarely	5	17%
Total	30	100%

Fig 1.2 showing frequency of exploring various products among the customers.

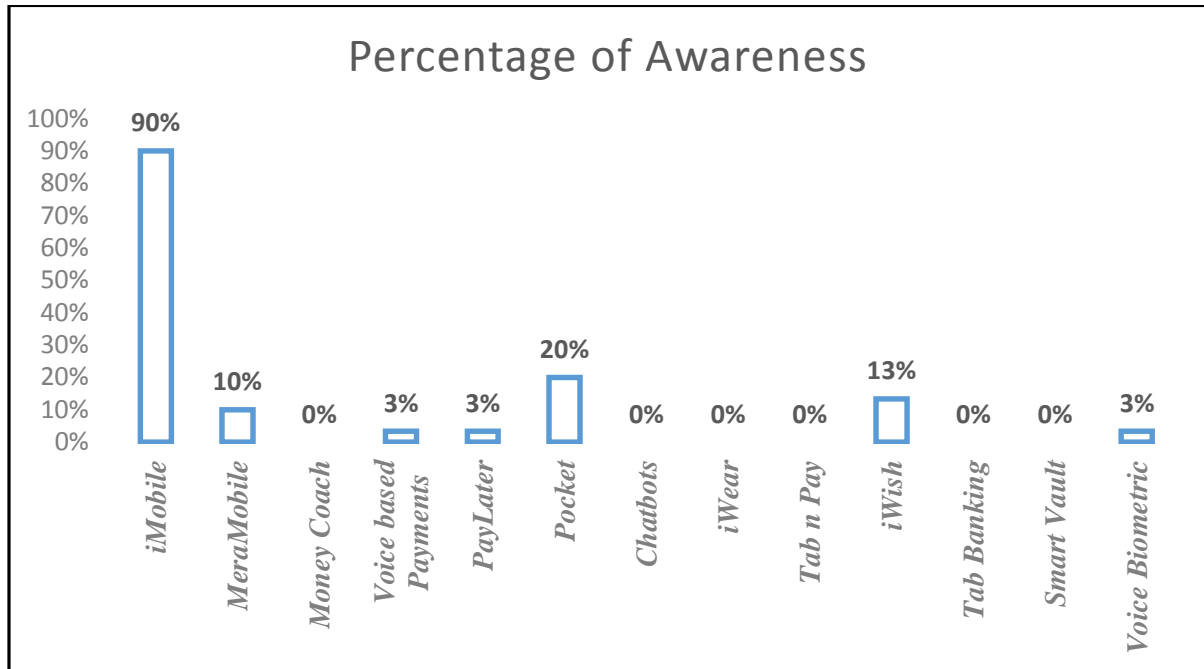


**Interpretation:-** The above fig shows that 50% percent customers always like to explore bank website or application. This shows that they are in touch with their bank.

**Table 1.3** Showing level of awareness about bank products and services.

Bank's Products and Services	No. of Respondents Aware about products	Percentage of Awareness
iMobile	27	90%
MeraMobile	3	10%
Money Coach	0	0%
Voice based Payments	1	3%
PayLater	1	3%
Pocket	6	20%
Chatbots	0	0%
iWear	0	0%
Tab n Pay	0	0%
iWish	4	13%
Tab Banking	0	0%
Smart Vault	0	0%
Voice Biometric	1	3%

**Fig. 1.3** Shows percentage of awareness about bank's products



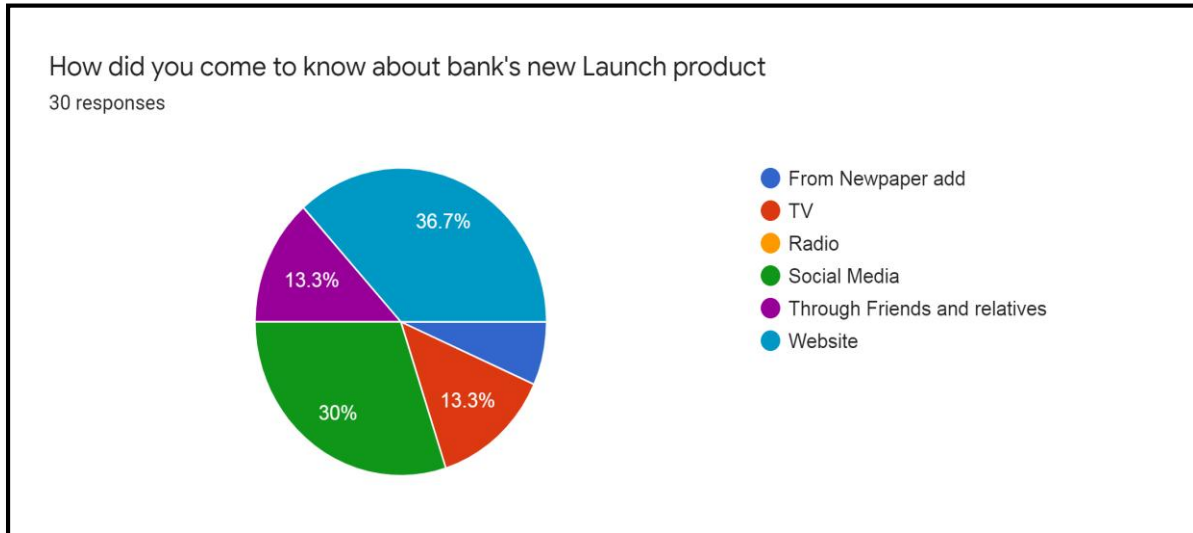
**Interpretation:-** Maximum customers are aware about mobile banking app but there are five latest products about which customers are not aware at all. So, generating awareness among customers is very essential.

**Table 1.4** Showing how customers get acquainted with bank's new products

Sources of Information about new products	No. of respondents	Percentage
Newspaper	2	7%
TV	4	13%
Radio	0	0%
Social Media	9	30%
Friends and Relatives	4	13%
Website	11	37%
Total	30	100%



**Fig. 1.4** shows different channels through which customers get acquainted with bank's new products.

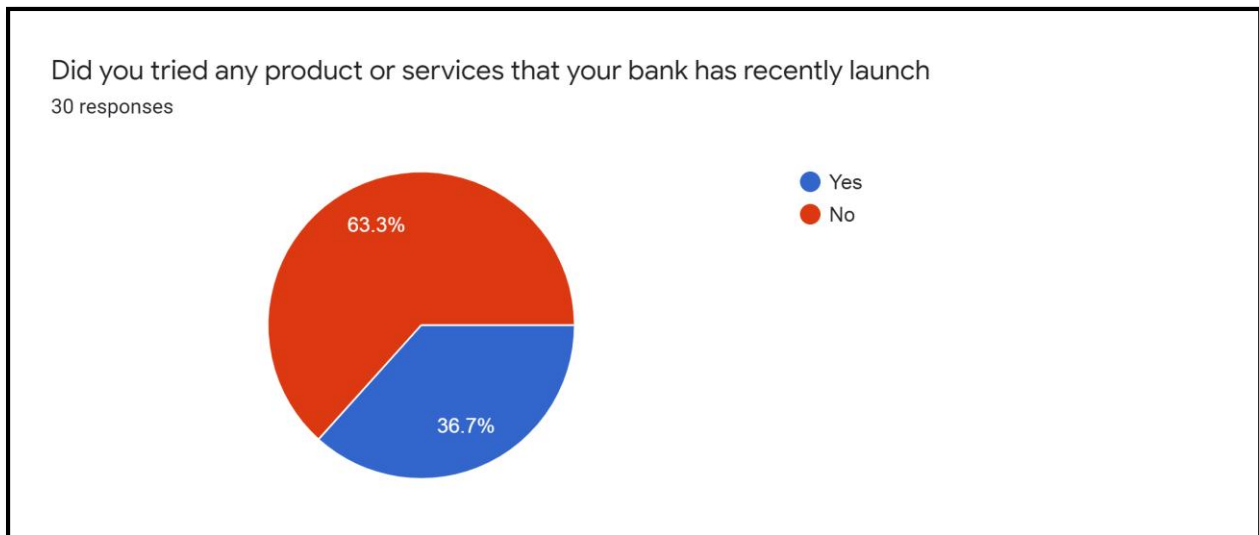


**Interpretation:-** Analysis shows that customers prefer website and social media platform and through this channels they came to know about latest products and services.

**Table 1.5** Showing percentage usage of recently launched product by the customers.

Usage of recently lunched product	No. of Respondents	Percentage
Yes	11	37%
No	19	63%

**Fig. 1.5** Shows usage of recently launched new products by the customers



**Interpretation:-** Analysis shows that only 37 % customers are trying newly launched products whereas 63% customers had not yet tried any new product.

## **FINDINGS**

1. In last 5 years banks had introduced many innovative products that helped bank in their back office operations and also in increasing and retaining their customers.
2. Bank had implemented AI -powered, Robotics based and highly advance technology driven services recently.
3. Bank customers mostly prefers to explore mobile banking features as they finds it very user friendly.
4. It was analyzed that Customers are not trying recently launched products as many of them are not yet aware about them.
5. Customers those who are aware about new services they are not preferring to use them.
6. Customers are mostly getting information through bank website and through social media platform.

## **SUGGESTIONS**

1. It was observed that customers were not aware about bank's products, so bank should take initiative to properly advertise their products and should use social media platform or website for creating awareness.
2. Bank should also focus on creating awareness about social banking tools such as pockets , iWish and icicibankpay available on facebook and Twitter as many customers mostly prefers social media platform.

## **CONCLUSION**

Today Top Indian banks are exploring advance technology, as technology is making their products more user friendly, reliable and scalable. Using AI and ML banks are approaching towards convenience banking. Block chain is going to be a vital area of research in banking industry. Robotic process automation, cyber security, IoT , cloud computing and other technologies are used to reduced human interventions. Banks are implementing technology for reducing monotonous workload of their employees so that they can concentrate more on strategic

work. In coming days with advance technology usage banking industry is going to create a big transformation.

## REFERENCES

1. **Syan,N. (2018)**, “EMERGING TRENDS IN BANKING SECTOR IN INDIA WITH SPECIAL REFERENCE TO DIGITIZATION”. Abhinav National Monthly Refereed journal of research in commerce and Management. Volume 7,Issue 1 Online ISSN-2277-1166
2. **Aswin Raj,T. and Rao , B. (2018)**, “A STUDY OF TECHNOLOGY IN BANKING SECTOR”. International Journal of Trend in Scientific Research and Development (IJTSRD).International Open Access Journal. Volume 2 , Issue 6 ISSN-2456-6470
3. **Gond,R. and Gupta,R. (2017)**, “AN EMPIRICAL STUDY OF BIG DATA ANALYTICS IN INDIAN BANKING SECTOR.”. Anveshana’s International journal of research in Regional studies, Law, Social sciences, Journalism and Management Practices. Volume 2, Issue 4 Online ISSN 2455-6602.
4. **Praveen Kumar, S. and Pavithra,J. (2017)**, “RECENT TRENDS IN INDIAN BANKING SECTOR”. International Journal of pure and Applied Mathematics. Volume116 , Special Issue ISSN1311-8080(Printed version) and ISSN: 1314-3395 (online-version)
5. **Agarwal, H. (2016)**, “A STUDY ON CUSTOMER SATISFACTION TOWARDS SERVICES PROVIDED BY ICICI BANK”. TMIMT International Journal , Special Issue ISSN 2348-988X
6. <https://www.icicibank.com/aboutus/article.page?identifier=news-icici-bank-completes-20-years-of-digital-banking-journey-the-bank-launches-revamped-itable-with-many-industryfirst-features-20180612123039494>
7. <https://www.slideshare.net/prajaktatalathi/business-intelligence-and-analytics-for-icici-bank>
8. <https://analyticsindiamag.com/icici-bank-introduces-new-digital-credit-facility-based-on-ai-and-data-analytics/>
9. <https://www.icicibank.com/aboutus/article.page?identifier=news-icici-bank-introduces-software-robotics-to-power-banking-operations-20160809103646464>
10. <https://www.icicibank.com/aboutus/article.page?identifier=news-icici-bank-onboards-over-250-corporates-on-its-blockchain-platform-for-trade-finance-20181704141936142>
11. <https://www.icicibank.com/blogs/smart-banking/banking-gets-social.page>
12. <https://www.icicibank.com/annual-report-microsite/index.html>
13. : <https://yourstory.com/mystory/1dd8be50c6-blockchain-technology->

