

A Project Management approach: Study of E-Banking Contracts^{1, 2}

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ABSTRACT

With the span of technology, banks are one of the fastest online moving organisations. The involvement of internet in banking has made the process simpler but the number of complaints (registered by the customers) are gradually increasing. The loopholes which are present in today's online banking costs some customers a huge amount, a study of contract is necessary to figure out the loopholes.

In this paper I am going to do a detailed study of e-banking contracts and applying the values, skills and techniques of project management to find the feasible alternatives, which in future can improve the experience of banking online.

Keywords: Customer, Online Banking, Net Banking, Rights, Security, E-Contracts, Blockchain, Risks, Smart contracts.

INTRODUCTION

As we all are aware of online banking systems today, we all have to agree the terms and conditions or a click is required on "I Agree" button before signing into the web portal of online banking or applications. This package of terms & conditions is known as contractor e-contract. The bank assures us the safety of our money instead of this every year thousands of cyber theft and disputes complaints are registered. So, for decreasing the chances of theft and conflicts, there is a need for faster advanced and low-cost contracts or Smart Contracts. In this paper, we will figure out that how smart contracts can replace e-contracts and what are the advantages of smart contracts over e-contracts.

Motivation

Banks are at the pure focus of the money related framework. They go about as delegates between all the four divisions of the economy and all other money-related mediators. They are additionally at the pure focus of the currency showcase, the market for transient obligation and stores, attractive and non-attractive, and the interbank markets. They additionally make the critical payment

¹ Editor's note: Student papers are authored by graduate or undergraduate students based on coursework at accredited universities or training programs. This paper was prepared for the course "International Contract Management" facilitated by Dr Paul D. Giammalvo of PT Mitratata Citragraha, Jakarta, Indonesia as an Adjunct Professor under contract to SKEMA Business School for the program Master of Science in Project and Programme Management and Business Development. <http://www.skema.edu/programmes/masters-of-science>. For more information on this global program (Lille and Paris in France; Belo Horizonte in Brazil), contact Dr Paul Gardiner, Global Programme Director, at paul.gardiner@skema.edu.

² How to cite this paper: Gaur, S. (2019). A Project Management approach: Study of E-Banking Contracts, *PM World Journal*, Vol. VIII, Issue VI, July.

framework. The banks are one of a kind in that they can create new cash (by new bank loaning), and this is so in light of the fact that money is acknowledged as the method of payment/mode of exchange: bank deposits (notes and coins make up a minor piece of the cash stock). “Along these lines, and different reasons (moral danger, for instance) banks are additionally characteristically unsteady, and require vigorous direction and supervision”³.

“A bank is characterised as a foundation whose present tasks comprise in giving loan and getting the deposit from the general population”⁴. As Freixas and Rochet author of *Microeconomics in Banking* said.

With the range of innovation, the banks began to move their business on the web. “Online banking was first presented in the mid-1980s, the clients used to pay \$12 per month for dial-up administration which enabled them to keep up electronic chequebook registers, see account balance, exchange assets and best of all electronic creation payments”⁵. “web-based managing an account is an electronic payment system that empowers customers to do direct monetary exchanges on a website worked by the organisation, for example, a retail bank or virtual bank. It additionally alludes as internet banking, e-banking or virtual banking”⁶.

Values of project management control moving businesses on the internet and managing them. “Task the board is the use of information, attitudes, strategies and devices to project activities to meet or achieve stakeholders’ expectations and needs”⁷.

3 Faure, A. (December 2013). Banking: An Introduction. Retrieved From

https://www.researchgate.net/publication/259579344_Banking_An_Introduction

4 Freixas, X., Rochet, J. (2008, March). The Microeconomics of Banking. Retrieved From

<https://financelecturer.files.wordpress.com/2016/05/microeconomics-of-banking-freixas.pdf>

5 Cronin, M. (1998). Banking and Finance on the Internet. Retrieved From

<https://books.google.fr/books?id=I94FEs->

[IMu4C&pg=PA41&lpg=PA41&dq=pronto+home+banking&source=web&ots=EANGZE3BIP&sig=stuB2zgENrZkD8BjiSKOriVABCI&hl=en&sa=X&oi=book_result&ct=result&redir_esc=y#v=onepage&q=pronto%20home%20banking&f=false](https://books.google.fr/books?id=I94FEs-IMu4C&pg=PA41&lpg=PA41&dq=pronto+home+banking&source=web&ots=EANGZE3BIP&sig=stuB2zgENrZkD8BjiSKOriVABCI&hl=en&sa=X&oi=book_result&ct=result&redir_esc=y#v=onepage&q=pronto%20home%20banking&f=false)

6 Halder, K. (2016, February). A Study on Online Banking in India. Retrieved From

<https://www.slideshare.net/KoushikHalder4/total-project-report-koushik-58895874>

7 Portfolio of projects, Article01.1.2.1.07, Retrieved from

<http://www.planningplanet.com/guild/gpccar/introduction-to-managing-project-controls>

	Definition	Example
Project	A project is defined to be "an investment that requires a set of logically linked and facilitated exercises performed over a limited timeframe to achieve a one of a kind outcome in the help of a coveted result" ⁸ .	Converting all existing traditional e-contracts into smart contracts, and to ensure that all the contracts made in future are smart contracts
Program	Strategic Program: "Convey resources and advantages that are straightforwardly connected to accomplishing the supporting association's future state" ⁹ .	Ensuring that customers should understand what is written in a contract. Also, a bank can track project status within their internal teams as well as their major external clients.
	Operational Program: "Convey resources and advantages that are basic to the supporting association's everyday tasks" ¹⁰ .	A new system needs to be made, so skilled in-house resources are required to develop contracts, as it is very recent and upcoming technology; and there is a need for proper personnel and systems in place to ensure the security and safety of all the data.
	Multi-Project Program: Achieve synergies from projects with common traits such as shared resources, similar clients or product technology.	There are multiple technologies such as computer vision (image recognition), natural language processing, chatbots (so that users can ask questions related to their contracts 24/7 without talking to a human being) feeding into the centrally automated contract ecosystem and they all involve similar profiles such as project managers, data scientists, data manager, data engineers. All these technologies are all tying into one project, i.e., to enable the bank to have smart contracts base system, and thus all resources can be used to work across projects.
	Mega-Project: "Convey an explicit advantage for the sponsoring association" ¹¹ .	A specific asset would be a powerful in-house smart contract tool, something that can be used exclusively by this bank to create smart contracts for their clients and internal/external projects.
Portfolio of Assets	Informational Asset: "Controlled by functional groups like IT, engineering" ¹² .	Secure IT environment, cloud servers, hardware servers, secured laptops, software and tools.
	Human Asset: Controlled by HR	Project managers, IT personnel, data scientists/engineers/architects, data managers, informational security personnel, finance persons
	Physical Asset: "controlled by either operation ("plant manager")"	The physical location/office of all the project team.

⁸ Planning Planet. (n.d.). Guild of Project Controls Compendium and Reference. Retrieved October 30, 2018, from <http://www.planningplanet.com/guild/GPCCAR-modules>

⁹ Planning Planet. (n.d.). Guild of Project Controls Compendium and Reference. Retrieved October 30, 2018, from <http://www.planningplanet.com/guild/GPCCAR-modules>

¹⁰ Planning Planet. (n.d.). Guild of Project Controls Compendium and Reference. Retrieved October 30, 2018, from <http://www.planningplanet.com/guild/GPCCAR-modules>

¹¹ Planning Planet. (n.d.). Guild of Project Controls Compendium and Reference. Retrieved October 30, 2018, from <http://www.planningplanet.com/guild/GPCCAR-modules>

¹² Planning Planet. (n.d.). Guild of Project Controls Compendium and Reference. Retrieved October 30, 2018, from <http://www.planningplanet.com/guild/GPCCAR-modules>

	or other functional entities such as "heavy equipment shop" ¹³ .	
	Financial Asset: "controlled by accounting or finance" ¹⁴ .	Budget allotted for developing the contract, payroll of the employees.
	Intangible Asset: " Distinction between an organisation's book values and market capitalisation esteem is controlled by deals and marketing or advertising offices" ¹⁵ .	Posing themselves as a thought leader in this tech domain by conducting seminars and conferences that can be used to attract new minds and to let the world know the plans that the organisation has.
Portfolio of Project	"Portfolio of Project is an investment portfolio. The objective being is to minimising the risk and maximising the return. Any organisation, be it owner or contractor has a portfolio of assets available to dedicate to projects, with the objective being to develop the best "mix" of projects which will generate the most favourable return on those "assets" ¹⁶ .	Our final product is a smart contract-based ecosystem, and to get an ideal final product up and running multiple technologies will need to be developed (different portfolios of various products), but the core tech can work with just a part of these side products. Even if a few non-core technologies are interrupted or fail, still the core smart contract product can be assembled without compromising the full project.

While logging in into any of the financial institution's websites we have to accept the terms and conditions provided by the institution which is known as a contract, "Contract is an understanding between at least two able gatherings in which an offer is made and acknowledged and each gathering advantages. The agreement can be formal, casual, composed, oral or just plain understood (By the actions of the parties)" ¹⁷.

In online banking, they are termed as e-contracts. E-Contracts can be utilised as an advanced method of communication with the parties. The merchants can straightforwardly achieve the end consumer without the involvement of a third party. Contracts today are common to the point that the vast majority don't understand that they have gone into one. Did you tap on an 'I Accepted' button when you downloaded an App? Congrats! You have acknowledged the terms of an e-contract without to such an extent as checking the record.

E-Contracts are a result of the requirement for speed, proficiency and simplicity. With the end goal to make an e-contract, an offer should be made by the consumer and recognised by the seller;

¹³ Planning Planet. (n.d.). Guild of Project Controls Compendium and Reference. Retrieved October 30, 2018, from <http://www.planningplanet.com/guild/GPCCAR-modules>

¹⁴ Planning Planet. (n.d.). Guild of Project Controls Compendium and Reference. Retrieved October 30, 2018, from <http://www.planningplanet.com/guild/GPCCAR-modules>

¹⁵ Planning Planet. (n.d.). Guild of Project Controls Compendium and Reference. Retrieved October 30, 2018, from <http://www.planningplanet.com/guild/GPCCAR-modules>

¹⁶ Planning Planet. (n.d.). Guild of Project Controls Compendium and Reference. Retrieved October 30, 2018, from <http://www.planningplanet.com/guild/GPCCAR-modules>

¹⁷ Planning Planet. (n.d.). Guild of Project Controls Compendium and Reference. Retrieved (2018, November), from <http://www.planningplanet.com/guild/gpccar/managing-contracts-managing-the-contract>

a legitimate thought is included, i.e. “The two parties must profit, the parties and articles included must be inside the law, and the agreement must be unambiguous”¹⁸.

Problem

The issue with which all banks are managing currently is cybercrime. Most banks ensure that their sites are secure, yet no bank site is safe from cybercrime and hacking. Programmers target bank sites to swipe account data. Not exclusively can large-scale fraud put you out of hundreds, maybe even thousands, of dollars, however, it can set aside an opportunity to remedy the harm, and it's assessed that just 25 per cent of digital wrongdoings is settled. "The bank used the move online as an opportunity to dump the fraud risk on the customer"¹⁹ as Ros Anderson Britain's leading expert on cybersecurity,

“In their race to give clients quicker instalment benefits, the banks have traded off security for comfort. Quicker instalments enable individuals to move noteworthy entireties in a flash, yet additionally, enable fraudsters to do likewise. The banks need to acquire a 24-hour chilling period that would mean you couldn't send a large aggregate”²⁰ as Richard Emery another expert in this area who runs security consultancy 4Keys International.

The disputes in charges are also one of the significant problems in the banking sector. A dispute happens when a cardholder contacts their card issuing bank and requests to have their cash returned. Question is an element of the Visa and Mastercard card systems planned to shield cardholders from deceitful movement.

The debate may emerge for various reasons including:

- “Not as portrayed, where the cardholder professes to have never gotten the merchandise, or the products were substantially unique with their desires.
- Not perceived, where the cardholder has no memory of what a charge in their bank proclamation identifies with.
- Fraud, where the cardholder claims they didn't approve the buy (e.g. their card data was stolen and utilised deceitfully).
- Administrator blunder, for example, copies charging, off-base sum charged or a discount which was guaranteed yet never gotten”²¹.

¹⁸ Feelium ICO-cryptocurrency. (2018, June 12). Do you think E-Contracts and Smart Contracts are the same? Think again. Retrieved From <https://medium.com/@feelium/do-you-think-e-contracts-and-smart-contracts-are-the-same-think-again-61d29010f9b7>

¹⁹ Brignall, M. (2015, November 21). So you think you are safe doing internet banking. Retrieved From <https://www.theguardian.com/money/2015/nov/21/safe-internet-banking-cyber-security-online>

²⁰ Brignall, M. (2015, November 21). So you think you are safe doing internet banking. Retrieved From <https://www.theguardian.com/money/2015/nov/21/safe-internet-banking>

²¹ Stone, S. (2016, August 8). The chargeback process: Explained. Retrieved From <https://chargeback.com/chargeback-process/>

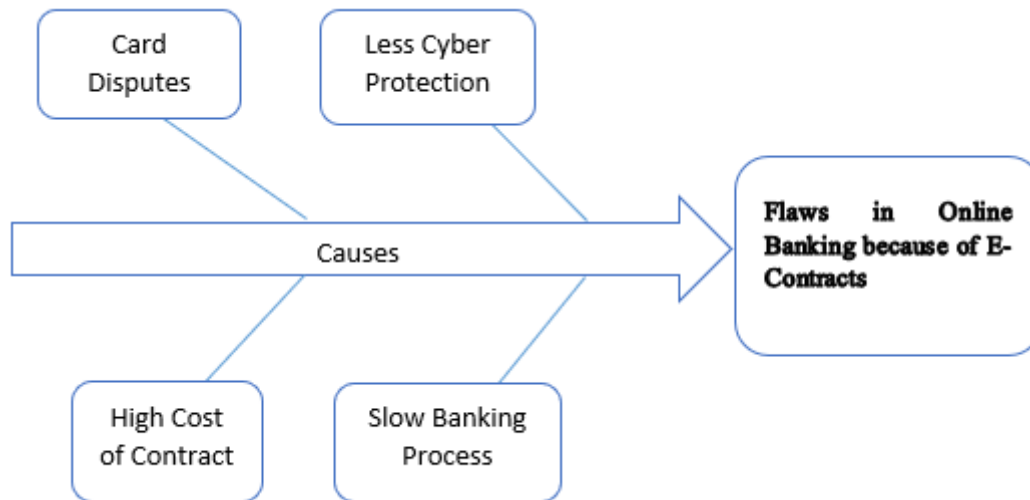


Figure 1: Fish Bone Diagram: Different causes of Flaws ²².

The Root cause Analysis can be divided into four parts which are responsible for the flaws in online banking, i.e. Less cyber protection in e-contracts as compared to smart contracts, Number of card disputes is higher in e-contracts, E-contracts costs higher and online bank charges are also higher.

The motivation behind this paper is to find:

- How can smart contracts reduce the disputes?
- How can cybercrime be reduced with the help of smart contracts?
- What are the advantages of smart contracts over e-contracts?
- How can banking charges be reduced with the help of smart contracts?
- What is the future of banking with smart contracts?

METHODOLOGY

Step 1 – Problem Statement

The purpose of this paper is to analyse the flaws in online banking because of the e-contracts and its impacts and to give advice on the methods to stay away from these happenings.

The leading causes of disputes are as follows:

- Cybersecurity issues
- Disputes with customers
- Cost of contract

²² Image made by Author

- Slow Banking Process

As listed, there are four major causes of flaws in online banking, we are going to find the alternative of e-contracts so all the aspects should be covered like time, risk, output etc.

Step 2 – Feasible Alternatives

To assess these problems, we should find feasible alternative solutions:

- **Involvement of Blockchain in contracts** – “It is supposed that blockchain will do to the bank what the internet did to media. We are in high demand of technology for banks which is transparent and almost untraceable”²³.
- **Multichannel presence** – Each customer would prefer a bank which is providing proactive banking services and payment security. “To influence people for becoming cashless banks should provide a vast variety of services”²⁴.
- **Cost of Cash Supply** – “The cash which is available for use in ATM's and branches have been there from very far away. So, it costs the bank a lot”²⁵.
- **Adoption of a customer-service assurance** – “It will allow banks to ensure good quality of services to customers. It will ensure that payment services are meeting a predefined service quality or not”²⁶.

Step 3 – Development of Feasible Alternatives

Involvement of Blockchain in contracts –

²³ Iskandar, K. Booking Bug: What will blockchain mean for banks? Retrieved From <https://www.bookingbug.com/blog/what-blockchain-will-mean-for-banks/>

²⁴ Bobs guide. (2014, October 28). Riskshield: connecting the dots in multi-channel fraud. Retrieved From <https://www2.deloitte.com/content/dam/Deloitte/in/Documents/financial-services/in-fs-deloitte-banking-colloquium-thoughtpaper-cii.pdf>

²⁵ Mckinsey. (2018, August). Attacking the Cost of Cash. Retrieved From <https://www.mckinsey.com/industries/financial-services/our-insights/attacking-the-cost-of-cash>

²⁶ Munusamy, J. (2010, January). Service quality delivery and its impact on customer satisfaction in the banking sector in Malaysia. Retrieved From https://www.researchgate.net/publication/303238622_Service_quality_delivery_and_its_impact_on_customer_satisfaction_in_the_banking_sector_in_Malaysia

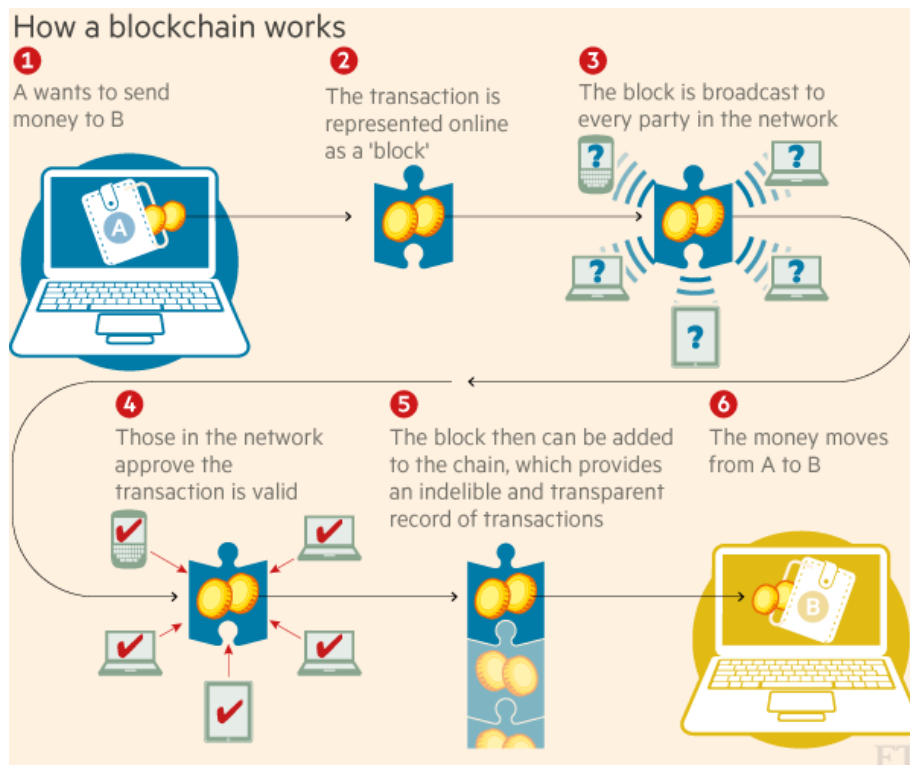


Figure 2: “How a blockchain works”²⁷.

When you utilize blockchain for smart contracts you can disregard the disturbing flaws which were in the customary contract, for example, their issuance is tedious and wasteful, they are anything but difficult to fashion and crush, Human factor assumes a significant job in their requirement: individuals sign contracts and screen whether every one of the conditions are being satisfied. However, the issue is that people are not as mindful and earnest as machines are – they commit errors and break guarantees. “Keen contracts are programming, codes that incorporate guidelines and punishments around an understanding as customer contracts do, yet when the conditions are satisfied the savvy contract is implemented naturally”²⁸.

“Blockchain is an innovation that utilises conveyed databases, math and cryptography to record exchanges. Consider it a framework made out of numerous mammoth bookkeeping record databases all adjusted with same exchange data. Each new money-related exchange gets replicated or stacked in an arrangement like Lego squares. This implies it is difficult to hack since it is important to hack a great many databases”²⁹.

²⁷ Hutt, R. (2016, June 17). World Economy Forum: All you need to know about blockchains. Retrieved From <https://www.weforum.org/agenda/2016/06/blockchain-explained-simply/>

²⁸ Smart Contracts. (2018, February 10). How to use smart contracts in banking. Retrieved From <https://nulltx.com/how-to-use-smart-contracts-in-banking/>

²⁹ Iskandar, K. Booking Bug: What will blockchain mean for banks? Retrieved From <https://www.bookingbug.com/blog/what-blockchain-will-mean-for-banks/>

Multichannel Presence –

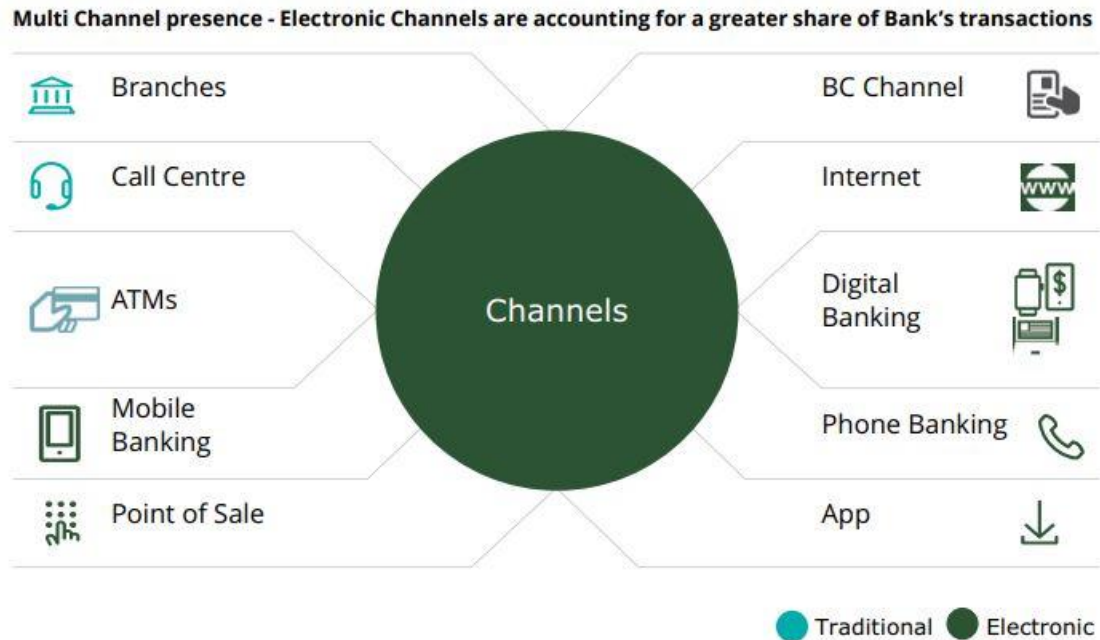


Figure 3: “Multichannel presence of a payment bank”³⁰.

The small payments bank unlike Small Finance Banks, cannot extend loans, yet they pay interest. Making customers switch over from full-service banks to a limited set of offerings is challenge Payment banks need to address. As avenues to earn are limited, to be viable, they would have to be technology led and innovative. Solutions need to be structured around moving toward a cashless economy. “They will also have to look at asset-light business models. PB's will have to position themselves to broadly three kinds of customers: the tech-savvy young ones, who are likely to welcome proactive banking services and a secure payment platform; the lower income financially excluded, who deals in cash and is looking for basic banking services on mobile; and to the financially included, although digitally, non-savvy customer”³¹. This implies presence via a digital and branch platform to cater to different sets of customers, till the time technology adoption increases significantly. “To be successful, they will have to innovate and gain significant market share. They will have to look at providing proactive banking services—use of cloud for

³⁰ Deloitte. Banking on the Future: vision 2020. Retrieved From <https://www2.deloitte.com/content/dam/Deloitte/in/Documents/financial-services/in-fs-deloitte-banking-colloquium-thoughtpaper-cii.pdf>

³¹ Deloitte. Banking on the Future: vision 2020. Retrieved From <https://www2.deloitte.com/content/dam/Deloitte/in/Documents/financial-services/in-fs-deloitte-banking-colloquium-thoughtpaper-cii.pdf>

services such as storage of receipts, data analytics for generating insights, social interactions, tools for budgeting, user experience, and customised offers based on location and transaction history”³².

Cost of Cash Supply –

Retail banks work probably the biggest, most perplexing and most secure supply chains on the planet, transporting and putting away money crosswise over a large number of areas consistently. The expense of working these supply affixes reaches out to spending on all the hardware and administrations required to process and appropriate money all through the bank's network– from the national bank through to branches/ATMs and eventually to clients. These expenses are high and becoming because of two principal drivers: the rising interest for money and the expanding utilisation of more mind-boggling innovation over the production network.

Figure 1 – Cash supply chain network

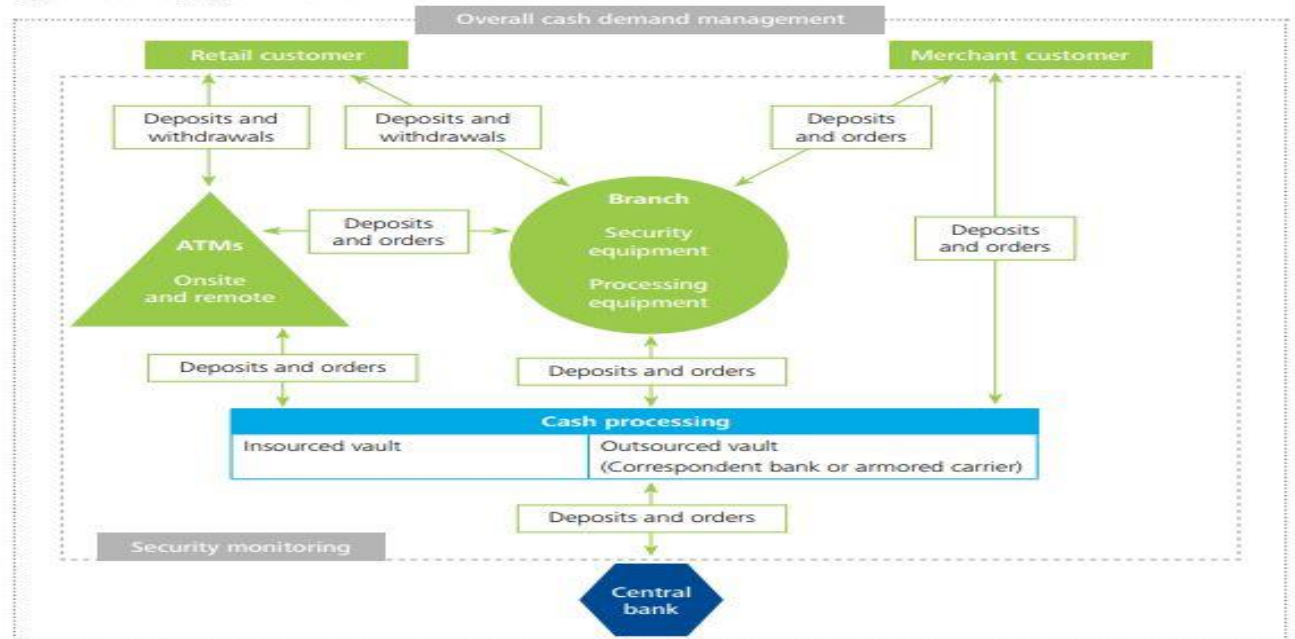


Figure 4: “Overall cash demand management”³³.

Adoption of a customer-service assurance-

Quality assurance step one: Plan

Establish goals by defining the business's version of quality and determining how you can achieve it through measurable objectives. Create steps that will help you achieve these

³² Deloitte. Banking on the Future: vision 2020. Retrieved From <https://www2.deloitte.com/content/dam/Deloitte/in/Documents/financial-services/in-fs-deloitte-banking-colloquium-thoughtpaper-cii.pdf>

³³ Deloitte. Optimising the Retail Bank Supply Chain. Retrieved From <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Financial-Services/gx-fsi-ca-optimizing-the-retail-bank-supply-chain-2013-10.pdf>

objectives, for example, changing a material that goes into your item or setting a course of events for reacting to a client request.

Quality affirmation stage two: Do

Actualise the methods in the past "plan" step. Ensure staff is avant-garde on your new working norms. Train representatives on their particular obligations, and make a handbook that illuminates your QA objectives and strategies.

Quality confirmation stage three: Check

Measure the accomplishment of your new framework. Contrast your representatives' activities with your objectives. Did results meet your meaning of value? What methods miss the mark concerning meeting your targets? Much of the time analyse the outcome of your QA program.

Quality assurance step four: Act

Re-evaluate your procedures if your results from the "check" step require changes. Improve your operating standards, and communicate any changes to your staff. Update your handbook or manual. This four-step process can be repeated"³⁴.

Step 4 – Selection of Criteria

To accept one of the alternatives, it has to have at least one positive attribute (green colour on the chart) that gives to the non-profit a positive outcome or benefit in choosing this option. (MADM)

To better compare those feasible alternatives, we will choose nine attributes to help us to examine those alternatives found between them. They are:

- Time Management – Here, the management of time refers to "the speed of banking and solution to the disputes of customers"³⁵.
- Risk – Risk here refers to the "mishappenings while banking online such as cyber threat, data breaches etc."³⁶.
- Cost – "How much effect is there on banking cost due to the alternative. Does this alternative increase or decrease the cost of banking which is paid by customer"³⁷.

34 Wells Fargo Works. (2017, January 20). Creating a quality assurance plan. Retrieved From <https://wellsfargoworks.com/marketing/article/creating-a-quality-assurance-plan>

35 Zaidi, U. (2015, January). Time Management and Professional Stress among Bank Managers: A Correlational Study. Retrieved From <https://pdfs.semanticscholar.org/1ca5/c79d7a05307c9915db2711670da495b74726.pdf>

36 GDS Link. More financial Institutions are focusing on risk management. Retrieved From <https://www.gdslink.com/fr/deloitte-more-financial-institutions-focusing-on-risk-management/>

37 Quality Attributes in Cost Management and Accounting Subjects: the Students' Viewpoint. Retrieved From <https://www.repec.org.br/repec/article/download/271/657/>

- Security – “The technical aspects of each alternative is carried out regarding cybersecurity or privacy of customers”³⁸.
- Service – “How much better services are provided to the consumers, how effectively the complaints of customers are solved by involving each alternative”³⁹.
- Bank Reputation – “The reputation of banks which is maintained or increased by involving new alternatives”⁴⁰.
- Student’s Benefits – “The special benefits for students which they get from the bank regarding some gift price, easy loans etc.”⁴¹.
- The proximity of ATM's – “How easily can a person get money from the ATM’s nearby and how the charges of ATM’s are managed”⁴².
- Financial Benefits – “The benefits which the customers get from the bank whether it is in the form of good interest rates, loans, senior citizen's interest rate, service etc.”⁴³.

Attributes	Involvement of Blockchain	Multichannel Presence	Cost of Cash Supply	Adoption of customer Service Assurance
Time	2	2	1	2
Risk	2	1	1	2
Cost	2	2	2	1
Security	2	1	2	2
Service	2	2	2	2
Bank Reputation	2	2	2	2

³⁸ Rada, I. (2017, October 22). Using banking information security management to ensure system stability and investors’ wellbeing. Retrieved From <http://science-gate.com/IJAAS/Articles/2018/2018-5-1/07%202018-5-1-pp.49-60.pdf>

³⁹ Financial Stability Board. (2016, October 19). Key Attributes assessment methodology for the banking sector. Retrieved From <http://www.fsb.org/wp-content/uploads/Key-Attributes-Assessment-Methodology-for-the-Banking-Sector.pdf>

⁴⁰ Kanto, D., Run, E. (2015). Science Direct. The reputation quotient as corporate reputation management in the Malaysian banking industry. Retrieved From https://ac.els-cdn.com/S1877042816301239/1-s2.0-S1877042816301239-main.pdf?_tid=671090f6-be46-4967-a686-e3a98addc543&acdnat=1543677697_45d1e86d22a5966ef7b347e527353de7

⁴¹ ERNST & Young. (2010, February). Understanding customer behaviour in retail banking. Retrieved From [https://www.ey.com/Publication/vwLUAssets/Understanding_customer_behavior_in_retail_banking_-_February_2010/\\$FILE/EY_Understanding_customer_behavior_in_retail_banking_-_February_2010.pdf](https://www.ey.com/Publication/vwLUAssets/Understanding_customer_behavior_in_retail_banking_-_February_2010/$FILE/EY_Understanding_customer_behavior_in_retail_banking_-_February_2010.pdf)

⁴² Wolken, J. Brevoort, K. (2008, July 10). Does distance matter in banking. Retrieved From [https://www.ey.com/Publication/vwLUAssets/Understanding_customer_behavior_in_retail_banking_-_February_2010/\\$FILE/EY_Understanding_customer_behavior_in_retail_banking_-_February_2010.pdf](https://www.ey.com/Publication/vwLUAssets/Understanding_customer_behavior_in_retail_banking_-_February_2010/$FILE/EY_Understanding_customer_behavior_in_retail_banking_-_February_2010.pdf)

⁴³ Kotykhov, M. Determinant attributes of customer choice of banks. Retrieved From https://www.researchgate.net/publication/30040316_Determinant_attributes_of_customer_choice_of_banks_supplying_mortgage_products

Student's Benefits	1	1	2	2
The proximity of ATM's	1	2	1	2
Financial Benefits	2	1	0	1
Total	17	14	13	16

Figure 5: Multi-attribute decision-making matrix⁴⁴.

According to MADM, we can narrow the alternative into three options: 1st, 2nd and 4th options.

FINDINGS

Step – 5 Analysis and Comparison of Analysis

In this section, we compare the alternatives with the quantitative representation. Before moving further, we will choose a quantitative number for each alternative

Attributes	Time	Risk	Cost	Security	Service	Bank Reputation	Student's Benefits	The proximity of ATM's	Financial Benefits
Low	1	1	1	0	0	0	0	1	0
Medium	0.5	0.45	0.75	0.35	0.45	0.5	0.3	0.8	0.4
Good	0.2	0.25	0.55	0.70	0.65	0.85	0.55	0.6	0.6
Excellent	0	0	0	1	1	1	1	0	1

Figure 6: Quantitative Representative of Attributes.⁴⁵

Among the four alternatives, three feasible alternatives were narrowed down:

- Involvement of Blockchains
- Multichannel Presence
- Adoption of Customer Service Assurance

Therefore,

⁴⁴ Image by Author.

⁴⁵ Image by Author.

Attributes	Involvement of Blockchains	Multichannel Presence	Adoption of Customer Service Assurance
Time	1	1	1
Risk	0.45	0.25	0.45
Cost	1	0.75	0.55
Security	0.7	0.35	0.70
Service	0.65	0.65	0.65
Bank Reputation	1	0.85	0.85
Student's Benefits	0.3	0.3	0.3
The proximity of ATM's	0.60	1	0.8
Financial Benefits	1	0.4	0.4
Total	6.7	5.55	5.7

Figure 7: Relative Weighing.⁴⁶

After relative weighing of the selected alternatives, we will move on to a pair-wise analysis of attributes. A Pair-wise analysis is a method of comparing customer's requirements/attributes to form a fundamental design decision.

	Time	Risk	Cost	Security	Service	Bank Reputation	Student's Benefits	The proximity of ATM's	Financial Benefits	Score	Ordinal Rankings
Time	x	1	1	0	1	1	0	1	1	6	5
Risk	1	x	1	1	1	1	0	1	1	7	4
Cost	1	1	x	2	1	1	1	1	1	9	2
Security	0	1	2	x	1	2	0	0	0	6	6
Service	1	1	1	1	x	1	1	1	1	8	3
Bank Reputation	1	1	1	2	1	x	1	1	2	10	1
Student's Benefits	0	0	1	0	1	1	x	0	0	3	9
The proximity of ATM's	1	1	1	0	1	1	0	x	0	5	8
Financial Benefits	1	1	1	0	1	2	0	0	x	6	7

Figure 8: Pairwise Analysis.⁴⁷

⁴⁶ Image by Author.

⁴⁷ Image by Author.

After using pair-wise analysis by comparing each attribute, we can figure out the ranking of each attribute.

The ranking of each attribute is as follows,

Ranking	
Bank Reputation	1
Cost	2
Service	3
Risk	4
Time	5
Security	6
Financial Benefits	7
The proximity of ATM's	8
Student's Benefits	9

Figure 9: Pairwise Analysis Ranking⁴⁸

Now, we have rankings of attributes. So, we will move on to additive weighting technique

Attributes	Relative Ranks	Normalized Weight(A)	Involvement of Blockchain		Multichannel Presence		Adoption of Customer Service Assurance	
			(B)	(A*B)	(C)	(A*C)	(D)	(A*D)
Time	5	0.11	1	0.11	1	0.11	1	0.11
Risk	4	0.09	0.45	0.04	0.25	0.02	0.45	0.04
Cost	2	0.04	1	0.04	0.75	0.03	0.55	0.02
Security	6	0.13	0.7	0.09	0.35	0.04	0.7	0.09
Service	3	0.07	0.65	0.04	0.65	0.04	0.65	0.04
Bank Reputation	1	0.02	1	0.02	0.85	0.01	0.85	0.01
Student's Benefits	9	0.2	0.3	0.06	0.3	0.06	0.3	0.06
The proximity of ATM's	8	0.18	0.60	0.1	1	0.18	0.8	0.14
Financial Benefits	7	0.16	1	0.16	0.4	0.06	0.4	0.06
Total	45	1	6.7	0.66	5.55	0.55	5.7	0.57

Figure 10: Additive Weighting Technique⁴⁹

⁴⁸ Image by Author.

⁴⁹ Image by Author.

Step – 6 Selection of preferred alternative

After completing the analysis, we can rank the alternatives in the following order:

1. Involving blockchain in contracts.
2. Adoption of customer service assurance.
3. Multichannel presence.

Step – 7 Performance monitoring and post evaluation of results

This investigation was done to find the best alternative. Initially, I have taken four alternatives which can serve in the e-contracts for better results, so that we can figure out the most effective way for the betterment of contracts.

For this analysis, the four feasible alternatives were narrowed to three through pair-wise analysis after that additive weighting technique was used for picking out the best alternative which can be the most influential alternative among all and who can solve the problems in online banking and e-contracts up to a greater extent.

CONCLUSION

The purpose of this paper was this paper was to find out answers of the following questions:

- How can smart contracts reduce the disputes?
- How can cybercrime be reduced with the help of smart contracts?
- What are the advantages of smart contracts over e-contracts?
- How can banking charges be reduced with the help of smart contracts?
- What is the future of banking with smart contracts?

In this paper, we have presented an analysis of the impact of cybercrime and fraud in the PM world and the Online Banking sector. In this kind of contract, you need to be careful about several points and T&Cs. The more important topic is the safety and social impact on technology and customers.

Recommendation

As we have discussed earlier in this paper about the problems which are currently faced by online banking. For banks to work efficiently:

- Banks should use blockchain in e-contracts as this will be a solution fulfilling various attributes and can overcome multiple other problems.
- Banks should adopt customer service assurance as one of the main alternatives. As banks are for people so banks should set up call centres for their customers and banks should often ask feedbacks from customers to overcome their issues.

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