

# Cybercrime overwhelming online banking: A Project Management approach's alternative<sup>1, 2</sup>

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## ABSTRACT

In banking, technology goes to next level as online banking. Here we can easily do the transaction hassle free from any part of the world to others, but as we know, the new inventions have a bad side too. As in this invention, it carried out to be cyber-crime where peoples process the fraud & do illegal activities like transaction of money without any permission or without knowing you.

So in this paper, we research over this issue and worked with real fact & figure and evaluate the several feasible alternatives to secure our account from illegal activity with the help of project management tools & technique (root cause analysis) and also with the help of guild of project controls, at last we find the alternative solution throughout our research which can easily slow down this online criminal activity

**Keywords:** Terms and Conditions, New Technologies, Fraud, Risks & Scenario, Security, Banking, Contracts

## INTRODUCTION

In this day and age, every single individual is aware about the process of banking. We all know that how banks used to operate in older days but now due to an involvement of technology the time and methodology of working has also changed as we are more focused towards the internet.

In the current study, a successful implementation of Internet banking services may lead to enhanced banking productivity and customers' satisfaction, while failure to provide banking services over the Internet might influence banking productivity negatively and result in dissatisfaction among customers. As we as a whole our mindful of online banking an accounting framework today, we as a whole need to concur the terms and conditions or a tick is required on "I Agree" button before marking into the online banking interface of web-based saving money or applications. This bundle of terms and conditions is known as **Contract**. "A Contract is an agreement between two or more competent parties in which an offer is made and accepted, and each

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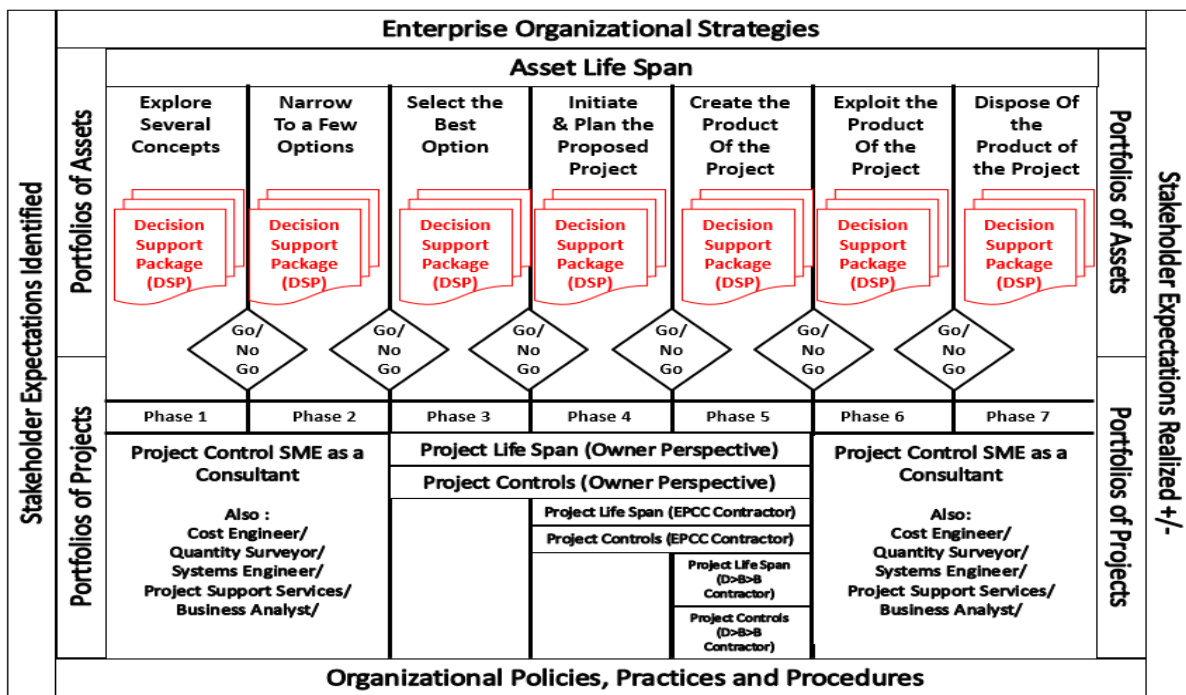
<sup>1</sup> Editor's note: Student papers are authored by graduate or undergraduate students based on coursework at accredited universities or training programs. This paper was prepared for the course "International Contract Management" facilitated by Dr Paul D. Giammalvo of PT Mitratata Citragraha, 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](mailto:paul.gardiner@skema.edu).

<sup>2</sup> How to cite this paper: Tyagi, S. (2019). Cybercrime overwhelming online banking: A Project Management approach's alternative, *PM World Journal*, Vol. VIII, Issue V, June.

party benefits.”<sup>3</sup> But the harsh truth is that only a negligible percentage of population goes through the contract provided by the organisation because of that people are often victim of cybercrime. In this paper we will figure out the banks are working according to the benchmarks decided or not and to provide the alternatives so that banks can work more efficiently without any more complaints.

**Online Banking**, also called as **Internet Banking**, is an electronic instalment framework that empowers clients of a bank or other monetary organization to lead a scope of budgetary to conduct a range of financial transaction through the financial institution's website”. The **First online banking** services was first presented in the mid-1980s in New York, United States. Four noteworthy banks — Citibank, Chase Bank, Chemical Bank and Manufacturers Hanover — offered home keeping money administrations. <sup>4</sup>

As per signing this contract, we can store up our assets. Here the assets are in the form of capital which transacted from one place to another (the definition of **assets** is “A substantial or impalpable asset with monetary esteem that an individual, company or nation claims or controls with the desire that it will give future advantage”<sup>5</sup>). The Organisation need specific solution and different strategies within the project for taking care of our asset’s life span.



The 10,000-metre view of ASSET, PROJECT and PROJECT CONTROL Life Spans <sup>6</sup>

<sup>3</sup> 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>

<sup>4</sup> Wikipedia. (2018, November). Retrieved from: [https://en.wikipedia.org/wiki/Online\\_banking](https://en.wikipedia.org/wiki/Online_banking)

<sup>5</sup> 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>

<sup>6</sup> Giammalvo, Paul D(2015), view of Assets, project and project control life span. Retrieved from: <http://www.planningplanet.com/guild/gpccar/introduction-to-managing-project-controls>

	Definition	Example
Project	<b>Project</b> is defined to be "an investment that requires a set of logically linked and facilitated exercises performed over a limited timeframe so as to achieve a one of a kind outcome in help of a coveted result" <sup>7</sup>	Converting all existing loopholes into alternatives and to ensure that all the contracts made in future are good enough.
Program	<b>Strategic Program:</b> Deliver assets and benefits that are directly linked to attaining the sponsoring organization's future state. <sup>8</sup>	Ensuring that customers should understand what is written in contract. Also, bank can track project status within their internal teams as well as their external major clients.
	<b>Operational Program:</b> Deliver assets and benefits that are critical to the sponsoring organization's day to day operations. <sup>9</sup>	New system needs to be made, so in-house talented 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.
	<b>Multi-Project Program:</b> Achieve synergies from projects with common traits such as shared resources, similar clients or product technology <sup>10</sup>	There are multiple technologies such as computer vision (image recognition), natural language processing, chat bots (so that users can ask questions related to their contracts 24/7 without taking to a human being) feeding into the main 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.
	<b>Mega-Project:</b> Deliver a specific asset to the sponsoring organization. <sup>11</sup>	Specific asset would be extremely strong 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.
	<b>Informational Asset:</b> Controlled by functional	Secure IT environment, cloud servers, hardware servers, secured laptops, software and tools.

<sup>7</sup> 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>

<sup>8</sup> 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>

<sup>9</sup> 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>

<sup>10</sup> 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>

<sup>11</sup> 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>

Portfolio of Assets	groups like IT, engineering. 12	
	<b>Human Asset:</b> Controlled by HR <sup>13</sup>	Project managers, IT personnel, data scientists/engineers/architects, data managers, informational security personal, finance persons
	<b>Physical Asset:</b> controlled by either operation (“plant manager”) or other functional entities such as “heavy equipment shop” <sup>14</sup>	The physical location/office of all the project team.
	<b>Financial Asset:</b> controlled by accounting or finance.	Budget allotted for developing the contract, payroll of the employees.
	<b>Intangible Asset:</b> Difference between a company’s book value and market capitalization value is controlled by sales and marketing or public relations departments <sup>15</sup> .	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 organisation has.
Portfolio of Projects	<b>Portfolio of Project</b> is an investment portfolio, the objective being is to minimizing of the risk and maximizing the return. Any organization, 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 favorable return on those “assets”. <sup>16</sup>	Our final product is a contract-based ecosystem, and to get an ideal final product up and running multiple technologies will need to be developed (different portfolios of multiple 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.

**Research:**

In India, Different issue is examined by the Working Group constituted by Reserve Bank of India relating to online Banking recommend technologies, Security, lawful models and operational principles keeping in view

<sup>12</sup> 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>

<sup>13</sup> 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>

<sup>14</sup> 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>

<sup>15</sup> 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>

<sup>16</sup> 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>

the universal prescribed procedures. The Group is going by the Chief General Manager– in– Charge of the Department of Information Technology and contained specialists from the fields of keeping money control and supervision, business saving money, law and innovation. The Bank additionally established an Operational Group under its Executive Director involving officers from various teaches in the bank, who might manage usage of the suggestions. The main gathering of the Working Group was hung on July 19, 2000. It was chosen that individuals from both Working Group and Operational Group would partake in all gatherings and consultations. The Group, in its first gathering recognized the wide parameters inside which it would centre its thoughts. The Group, in its first gathering, recognized the expansive parameters inside which it would centre its thoughts. The Group concurred that the Internet Banking is a piece of the electronic managing an account (e-saving money), the fundamental distinction being that in I-banking the conveyance channel was Internet, an open area. Further held that I-Banking did not mean any essential change in the idea of saving money and the related dangers and returns.<sup>17</sup>

The Group chose to concentrate on over three noteworthy regions, where supervisory consideration was required, i.e.: **(i) technology and security aspects, (ii) legal aspects and (iii) regulatory and supervisory issues**. Before implementing any project, **Stakeholders\Board Member need investment portfolio or Portfolio of projects** to measure the intangibility. Any organization, be it Owner or Contractor has a portfolio of assets (resources) 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.<sup>18</sup>

The reason for this paper is to recognize:

1. How cybercrime and fraud can be reduced?
2. How to control security and fraud instance while banking online?
3. How project management can help banking?

## **Objective**

Evaluate the significant business answers for the issues expressed over, this empowers me as the analyst to know the important answer, or rather answer for the current issues. As we can expand our online banking security with a feasible alternative, on the other hand we can set or fabricate the terms & condition which is easy to understand to the customer while banking or accepting it before, as users found it really up in the air many-times. Build up an extensive documentation that will be utilized as a guide in future framework improvements and upkeep, As we can connect project management in banking so we can improve lot of things initially as more power to the masses(customer) and prioritize it according to our concern. With the help of technology, we can initiate a new thing which is comfortably grip and make understanding of this

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<sup>17</sup> Reserve Bank of India-Report (2001, June) Internet Banking. Retrieved from:

<https://www.rbi.org.in/SCRIPTS/PublicationReportDetails.aspx?UrlPage=&ID=243>

<sup>18</sup> Portfolio of projects, Article01.1.2.1.07, Retrieved from: <http://www.planningplanet.com/guild/gpccar/introduction-to-managing-project-controls>

cyber-crime which is enlarging day by day and users can enjoy services in complete security and peace of mind.

## Problem

Assaults on Online Banking utilized today depend on deluding the client to take login information and legitimate TANs. Two surely understood precedents for those assaults are phishing and pharming. Cross-site scripting and keylogger/Trojan steeds can likewise be utilized to take login data.

A technique to assault signature-based Online Banking strategies is to control the utilized programming as it were, that right exchanges have appeared on the screen and faked exchanges are marked out of sight.<sup>19</sup>

“A **2008 U.S. Government Deposit Insurance Corporation Technology** Incident Report, accumulated from suspicious action reports banks document quarterly, records 536 instances of PC interruption, with a normal misfortune for each episode of \$30,000. That signifies an about \$16-million misfortune in the second quarter of 2007. PC interruptions expanded by 150 percent between the main quarter of 2007 and the second. In 80 percent of the cases, the wellspring of the interruption is obscure however it happened amid web based managing an account, the report states”<sup>20</sup>

As according to famous philanthropist and multi-millionaire **Bill Gates** “ You may have known about Black Friday and Cyber Monday. There's one more day you should need to think about: Giving Tuesday. The thought is truly direct. On the Tuesday in the wake of Thanksgiving, customers enjoy a reprieve from their blessing purchasing and give what they can to philanthropy.”<sup>21</sup>

In some countries, such as USA, pressure by consumer-rights advocates led to regulation that require disputed transactions to be refunded. Recent research also found bank T&Cs did not have sufficient detail for customers to work out what they had to be complaint and in some cases were contradictory, there are some unmistakable difficulties and issues in the Online Banking segment. The issues can extend from specialized elements to ongoing components. Banks seeking to drive the selection rates of online managing an account ought to be very much aware of such issues: **Traditional banking habits, Security and fraud instance, Cross-border transactions.**<sup>22</sup>

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<sup>19</sup> European Commission. (2017, January). Retrieved from

[http://ec.europa.eu/internal\\_market/payments/docs/framework/framework-workingdoc-contrib/barclays\\_en.pdf](http://ec.europa.eu/internal_market/payments/docs/framework/framework-workingdoc-contrib/barclays_en.pdf)

<sup>20</sup> Cronin, Mary J. (1997). Banking and Finance on the Internet. Retrieved from [https://books.google.com/books?id=I94FEs-IMu4C&pg=PA41&lpg=PA41&dq=pronto+home+banking&source=web&ots=EANGZE3BIP&sig=stuB2zgENrZkD8BjiSKOriVABCl&hl=en&sa=X&oi=book\\_result&resnum=4&ct=result#PPA41,M1](https://books.google.com/books?id=I94FEs-IMu4C&pg=PA41&lpg=PA41&dq=pronto+home+banking&source=web&ots=EANGZE3BIP&sig=stuB2zgENrZkD8BjiSKOriVABCl&hl=en&sa=X&oi=book_result&resnum=4&ct=result#PPA41,M1)

<sup>21</sup> Gates, B. Retrieved from [https://www.brainyquote.com/quotes/bill\\_gates\\_626164?src=t\\_cyber](https://www.brainyquote.com/quotes/bill_gates_626164?src=t_cyber)

<sup>22</sup> Challenging in online banking sector. Retrieved from: [https://www.quantzig.com/blog/challenges-online-banking-sector?utm\\_source=T1&utm\\_medium=Request&utm\\_campaign=businesswire](https://www.quantzig.com/blog/challenges-online-banking-sector?utm_source=T1&utm_medium=Request&utm_campaign=businesswire)





Figure 1: Challenges hindering of online banking sector.<sup>23</sup>

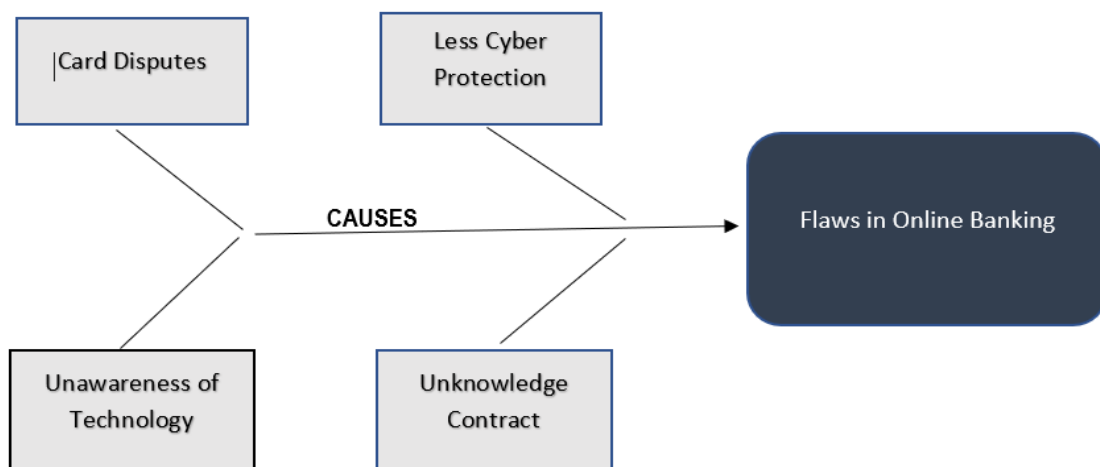


Figure 2: Fish Bone Diagram: Different causes of Flaws. (by author)<sup>24</sup>

<sup>23</sup> [Challenging hindering. Retrieved from: https://mms.businesswire.com/media/20180327005727/en/648371/5/Top\\_Challenges\\_Hindering\\_the\\_Growth\\_of\\_the\\_Online\\_Banking\\_Sector.jpg?download=1](https://mms.businesswire.com/media/20180327005727/en/648371/5/Top_Challenges_Hindering_the_Growth_of_the_Online_Banking_Sector.jpg?download=1)

<sup>24</sup> Image represents by author.

The Root cause Analysis can be divided into four parts which are responsible for the flaws in online banking i.e. Less cyber protection contracts, Number of card disputes is higher, Unknowledgeable contract details and Unawareness of technology.

## **METHODOLOGY**

### **Step 1: Definition of Problem:**

The reason for this paper is to recognize:

1. How cybercrime and fraud can be reduced?
2. How to control security and fraud instance while banking online?
3. How project management can help banking?

### **Step 2 – Feasible Alternatives**

In order to assess these problems, we should find feasible alternative solutions:

- **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.
- **Protecting authentication system** - Giving the option for the user to choose the appropriate authentication method is a fundamental usability feature that adds flexibility to the system and safeguard the cybersecurity.
- **Multichannel presence** – Each and every 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.
- **Cost of Cash Supply** – The cash which is available for us in ATM's and branches has been from very far away. So, it is costing bank a lot.

### **Step 3 – Development of Feasible Alternatives**

#### **Adoption of a customer-service assurance-**

Quality assurance step one: Plan

Establish goals by defining business's version of quality and determining how you can achieve it through measurable objectives. Create steps that will help you achieve these objectives, for example, changing a material that goes into your item or setting a course of events for reacting to the client request.



Quality confirmation stage two: Do

Execute the systems in the past "plan" step. Ensure staff is progressive on your new working norms. Train workers on their particular obligations, and make a handbook that illuminates your QA objectives and strategies.

Quality affirmation stage three: Check

Measure the achievement 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? Frequently analyse the outcome of your QA program.

Quality assurance step four: Act

Re-evaluate your methods if your outcomes from the "check" step require changes. Enhance your working measures, and convey any progressions to your staff. Refresh your handbook or manual. This four-advance process can be rehashed.<sup>25</sup>

## Protecting authentication system

Giving the alternative for the client to pick the appropriate authentication method is a fundamental usability feature that adds flexibility to the system. Despite the fact that this feature does exist in some current systems, it is realized that the available options depend mainly on phone banking services providing the required access or on giving the customer the choice of selecting between the use of a hardware token or SMS. That means that there is still potential for encountering some of the usability

problems, such as that of being reliant on hardware devices like mobile phones or OTP tokens, which are vulnerable to theft and loss or in the case of mobile phones may suffer an interruption in the service coverage. In addition, other systems may offer the traditional passcode option or allow authentication via a series of Q&A challenges in case the user is unwilling/unable to use the recommended secure authentication options which potentially fall back into the weaknesses of the traditional textual password.

There are several of services in the authenticating option and these were compared on the basis of the following factors:

- **Authentication options:** when more than one authentication method is available for the user to choose from (e.g. OTP hardware-token or subset digits of textual password). Combining more than one form of authentication mechanism is called Two-factor authentication.
- **Static password:** The conventional password approach
- **Subset digits of password:** challenges the user by requesting to submit different digit locations of the full password (e.g. 2nd, 4th, 7th digit of your password).

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<sup>25</sup> Wells Fargo Works. (2017, January 20). Creating a quality assurance plan. Retrieved From <https://wellsfargoworks.com/marketing/article/creating-a-quality-assurance-plan>

- **Memorable information:** a type of personal questions that can be easy and short to answer by legitimate user.
- **OTP (SMS):** A One Time Password sent to mobile phones through carrier short messages
- **OTP (Soft-Token):** a type of One Time Password that is generated by software application usually installed on smart phones.
- **OTP (Hard-Token):** a special hardware device that directly generates a One Time Password.
- **PIN-dependent token:** an additional feature to the hard-token device where a PIN is needed to generate One Time Password.
- **Card-dependent token:** Another additional feature to the hard-token device where a smart-card is required to generate One Time Password.
- **Authorization site image:** a feature that allows the selection of a picture that will indicate a correct access to the official online banking website at every login time (and not a phishing website).
- **Authorization personal image:** allows uploading a personal picture that will be shown at every login to ensure accessing the official online banking website<sup>26</sup>

## Multichannel presence

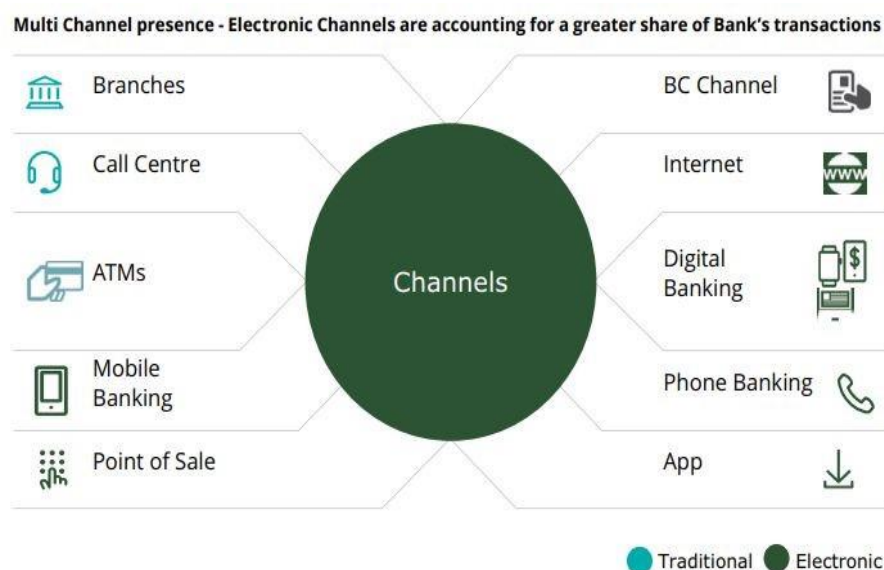


Figure 3: Multichannel presence of a payment bank<sup>27</sup>

<sup>26</sup> Dowland, P.S, Papadaki, M. (2014) Alternative Graphical Authentication for Online Banking Environments. Retrieved from: [https://www.researchgate.net/publication/275891911\\_Alternative\\_Graphical\\_Authentication\\_for\\_Online\\_Banking\\_Environments](https://www.researchgate.net/publication/275891911_Alternative_Graphical_Authentication_for_Online_Banking_Environments)

<sup>27</sup> 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>

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 a 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 is 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. This implies presence via a digital and branch platform to cater to divergent sets of customers, till the time technology adoption increases significantly. So as to be successful, they have to innovate and gain significant market share. They will have to look at providing proactive banking services—use of cloud for services such as storage of receipts, data analytics for generating insights, social interactions, tools for budgeting, user experience, and customized offers based on location and transaction history.<sup>28</sup>

### **Cost of Cash Supply**

Retail banks work the absolute biggest, most mind boggling 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 supplies fastens 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 at last to clients. These expenses are high and becoming because of two fundamental drivers: the rising interest for money and the expanding utilization of more mind-boggling innovation over the store network.

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<sup>28</sup> 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>

Figure 1 – Cash supply chain network

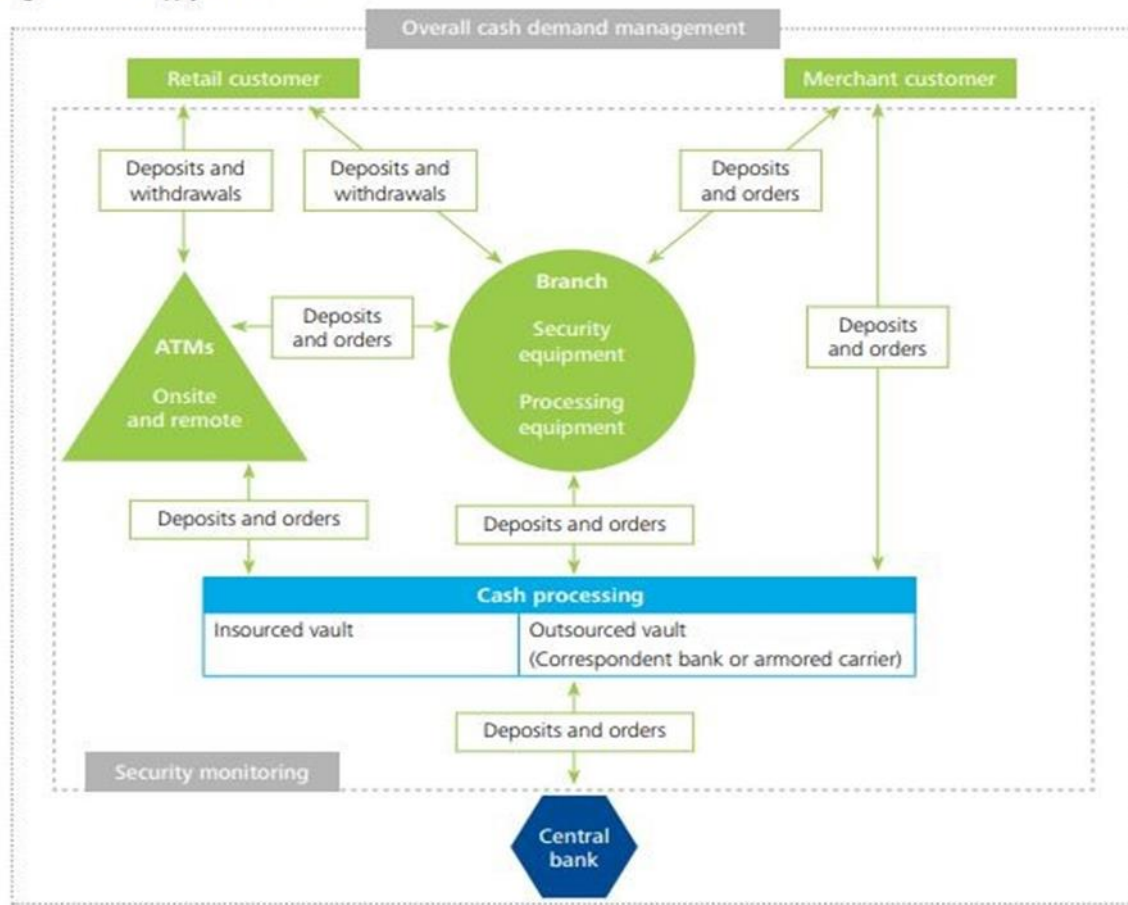


Figure 4: Overall cash demand management<sup>29</sup>

#### Step 4 – Selection of Criteria

In order 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 9 attributes to help us to compare 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.<sup>30</sup>

<sup>29</sup> 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>

<sup>30</sup> Wells Fargo Works. (2017, January 20). Creating a quality assurance plan. Retrieved From <https://wellsfargoworks.com/marketing/article/creating-a-quality-assurance-plan>

- **Risk** – Risk here refers to the mis happenings while banking online such as cyber threat, data breaches etc.<sup>31</sup>
- **Cost** – How much effect is there on banking cost due to the alternative. Does this alternative increases or decreases the cost of banking which is paid by customer.<sup>32</sup>
- **Security** – The technical aspects of each alternative is carried out in terms of cyber security or privacy of customers.<sup>33</sup>
- **Service** – How much better services are provided to the consumers, how effectively the complaints of customers are solved by involving each alternative.<sup>34</sup>
- **Bank Reputation** – The reputation of banks which is maintained or increased by involving new alternatives.<sup>35</sup>
- **Student's Benefits** – The special benefits for students which they get from bank in terms of some gift price, easy loans etc.<sup>36</sup>
- **Proximity of ATM's** – How easily can a person can get money from the ATM's nearby and how the charges of ATM's are managed.<sup>37</sup>
- **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<sup>38</sup>

Attributes	Adoption of customer Service Assurance	Protecting Authenticity System	Multi-Channel Presence	Cost of Cash Supply
Time	2	2	2	1
Risk	2	1	1	1
Cost	1	2	2	2
Security	2	1	1	2

<sup>31</sup> Zaidi, U. (2015, January). Time Management and Professional Stress among Bank Managers: A Correlational Study. Retrieved From <https://pdfs.semanticscholar.org/1ca5/c79d7a05307c9915db2711670da495b74726.pdf>

<sup>32</sup> Gds Link. More financial Institutions focusing on risk management. Retrieved From <https://www.gdslink.com/fr/deloitte-more-financial-institutions-focusing-on-risk-management/>

<sup>33</sup> Quality Attributes in Cost Management and Accounting Subjects: the Students' Viewpoint. Retrieved From <https://www.repec.org.br/repec/article/download/271/657/>

<sup>34</sup> 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>

<sup>35</sup> 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>

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<b>Service</b>	2	2	2	2
<b>Bank Reputation</b>	2	2	2	2
<b>Student's Benefits</b>	2	2	1	2
<b>Proximity of ATM's</b>	2	1	2	1
<b>Financial Benefits</b>	1	2	1	0
<b>Total</b>	<b>16</b>	<b>15</b>	<b>14</b>	<b>13</b>

Figure 5: Multi attribute decision making matrix<sup>39</sup> (By Author)

### Step 5: Analysis and Comparison of the Alternatives

In this section, we compare the alternatives with the quantitative representation. We choose a quantitative number for each alternative:

Attributes	Time	Risk	Cost	Security	Service	Bank Reputation	Student's Benefits	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<sup>40</sup>.

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

- Protecting Authenticity System
- Multichannel Presence
- Adoption of Customer Service Assurance

<sup>39</sup> Image represents by author

<sup>40</sup> By author: Quantitative Representative of Attributes



Therefore,

Attributes	Protecting Authenticity System	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
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.**<sup>41</sup>

After using Pair-Wise Comparison by comparing each feasible alternative, we can state that:

A Pair-wise analysis is a method of comparing customer's requirements/attributes to form a basic design decision.

	Time	Risk	Cost	Security	Service	Bank Reputation	Student's Benefits	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
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.**<sup>42</sup>

Where,

1: Row of the more important objective

<sup>41</sup> By Author: Relative Weighing

<sup>42</sup> By Author: Pairwise Analysis

0: Row of the less important objective

The result of Pair-wise analysis:

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

**Figure 9:** Pairwise Analysis Ranking<sup>43</sup>

			Protecting Authenticity System		Multichannel Presence		Adoption of Customer Service Assurance	
Attributes	Relative Ranks	Normalized Weight(A)	(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
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 technique<sup>44</sup>

**Step 6: Selection of Preferred Alternatives:**

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

1. Protecting Authenticity System
2. Adoption of Customer Service Assurance

<sup>43</sup> By Author: Pairwise Analysis Ranking

<sup>44</sup> By Author: Additive weighting technique

### 3. Multichannel Presence

#### **Step 7: Performance Monitoring and post evaluation of results**

This investigation was done to locate the best alternative, which will protect the organization and ensure the best and best method for doing business.

For this purpose, we needed to decide and settle on a decision with the end goal to see and decide to best important that is the reason in the event that we take another positioning for the quality the positioning may change. In this purpose, I used five feasible alternatives for this case and then started doing a pair-wise comparison. Nevertheless, the investigation was done thank to research and examination.

#### **Conclusion**

The reason for this paper is to recognize the answers to the following questions:

- How cybercrime and fraud can be reduced?
- How to control security and fraud instance while banking online?
- How project management can help banking?

In this paper, we present an investigation 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 about T&Cs. The more important topic is the safety and social impact on the technology and on customers

#### **Recommendation**

As we discussed earlier, about the problems which are currently faced by online banking, mostly of them can be overcome by using feasible alternatives such as:

Protecting Authenticity System, as to protect the authentication of the banking system and it is consisting of several level of identification, Due to which fraud activities can be easily identify whether it is in online banking or regarding to our banking cards.

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