

# Service Supply Chain-Lean and Green Practices Adopted by Indian Banks

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## Abstract:

Banking services are progressively rising their importance in the global economy. In the context of Indian banking, there is a paradigm shift from manual to an automated system. Supply chain information flows through digitalization is very useful in managing stakeholders. This information flow model has increased customer inclusion, saves time and has increased manifold volume of transactions. Davies Robin [1], the financial services industry has become one of the highest growth sectors of the global Lean Six Sigma market. Efficient green banking is the integration of physical processes with the digital infrastructure to create an effective distribution and settlement of cash transactions. Banking operations are looking for an overall reduction of carbon footprints. Green banking is incorporating and promoting environmental-friendly practices to reduce carbon footprints by adopting lean practices. These Lean concepts have combined operational improvements, technology adaptation and changing habits in the banking business. This research is attempting to investigate the effect of green technologies on Indian banking and its customer satisfaction.

## Article History

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**Keywords:** Green banking, technology, green products, customer satisfaction.

## I. INTRODUCTION

United Nations Environment Programme Finance Initiative started in 1991, with Sustainable Banking Network to adopt and develop green banking practices in line with world best practices. A service supply chain with lean and green practices adopted by Indian banks is of the recent era. With rising means of electronic payment systems, Reserve Bank of India built up a robust and resilient technology infrastructure, which ensured the smooth functioning of crucial and systematic settlement systems in the country. The banking payment system has widened its scope, speeded up its strategic initiatives in the Payment and Settlement system.

Green banking was first started in Mt.Dora, Florida in the US and commenced its first operations in 2009. Focussed on environmental friendly banking practices, staff are well equipped with LEED(Leadership in Energy and Environment Design) accreditation professional designation, in

the sense, they understand green building practices and provide incentives to customers. In India first green banking was initiated by SBI and ICICI, from 2013 and this initiative is extensively capitalized.

## II. LITERATURE REVIEW

[3] Lean innovation is relatively a new approach that is advocated in management Literature.[2] in their study on Green Banking in India have overviewed Indian bank's adaptation to environmental turbulence and the commercial banks' actions on 'go green'. [4] Speedier the restructuring higher the increase in demand for consultants, to popularize the approach of the lean method into banking. [5] Most Commercial Banks believe that lean supply chain practices enhance long term business performance and success, less process waste, reduced inventory, reduced lead time, less rework, financial savings and increased process. [6] Organization particularly commercial bank gain from lean Management.[7] The author in his inquiry concludes that public

sector banks have shown better performance compared to private banks.[8] Results revealed that JIT(Just In Time) significantly plays its role in financial services and especially in the loan approval process of banks.[9] has analyzed a set of drivers that are instrumental in bringing about the lean practices in a bank.[10] concludes how to minimize seven waste in the banking sector. [11]Competition and profitability are mutually contradictory keywords that banks have to balance the severity of the competition and continue to be the arithmetic in refining their profits.[12] Technology has become important to differentiation, competitive edge, and institutional survival.[13] With the migration of traditional paper-based funds movements to quicker and more efficient electronic mode, fund transfer has become easy and efficient to perform.[14] Technology introduction by itself will have certain effects on the processes. The absorption of technology in Indian Banking scenario has witnessed a gradual but steady transgression in the last two decades.[15] Technology has changed the face of banking, and it can help catapult Indian banking to newer heights.[16] The application of IT in banks reduced the scope of conventional banking with manual operations.

### III. OBJECTIVES

- To overview the concept of Lean and Green in Indian banking practice
- To examine the correlation between green banking products
- To analyze the growth and performance of green banking payment paths
- To estimate association among green banking payment system in India

### IV HYPOTHESIS

- There is no relationship between RTGS and Card payment system
- There is no relationship between cards and PPIs

### IV. METHOD AND MODEL



Ratio	3.220
F (Observed Value)	3.220
F (Critical value)	7.146
DF1	5
DF2	5
p-value (Two-tailed)	0.225
alpha	0.05

Test

interpretation:

H0: The ratio between the variances is equal to 1.

Ha: The ratio between the variances is different from 1.

As the computed p-value is greater than the significance level  $\alpha=0.05$ , one cannot reject the null hypothesis H0.

The risk to reject the null hypothesis H0 while it is true is 22.52%.

Anywhere, anytime, cashless transactions facilitated through electronic payments have made manifold utilization of payment path. Customer satisfaction and usage of all the three have enhanced not only easier repayments but also has widened the scope of supply of volume of transactions. In volume, it is said that the Electronic Clearing System, Real Time Gross Settlement, CARDS are dominant in usage. Easier process and less cost have made high reliance on these choices of payments, hence have risen to a high speed. Evidence reveal paradigm shift from manual banking to electronic banking been a boon in money supply and lean concept do play a significant role in its design and innovation process to satisfy customers. It is evident from the model that E-

banking, digitization, and automated IT in its strategic resource for bank technology has aided business, financial institutions, customers and has integrated business environment and markets. Green banking and lean supply chain have ensured for continuous availability, elimination of non-valued activities in banking transactions. Better quality operational controls, reduced risk, fewer errors and greater speed lead has increased customer experiences and satisfaction. Lean approaches of incremental, do-learn-do, mini transformation indicate a structured process to deliver benefits. The lean wave of delivery to customers, institutions, and others has benefitted in a revolution wave manner. Quick wins, breaking the delay barriers momentum of supply wave with high efficiency and gainfull decisions made.

The paper has chosen to analyze lean and green practices by Indian banking are CAGR, correlation variance, and association among payment path. Also, the autoregressive integrative moving average indicates that regression coefficients and forecast that green banking due to the Lean supply chain in money management is having a high positive correlation and there is a linear relationship between retail clearing system as the years to come. Green banking has made revolutionary changes, has accelerated the volume of transaction, ease of settlement through payment system.. The following table explains the variance between RTGS vs ECS as well as CARD vs PPI. The output indicates that the probability value is greater than the significance value, is due to the voluminous domination of CARDS than PPIs. Latter seems to impose a limit as per RBI guidelines in the payment and settlement system Act 2005, PPI instrument maximum limit cannot exceed Rs.50,000 and the maximum validity period is six months from the date of activation/issuance to the holder. PPI in the Payment instrument is the last spectrum that is existing in India at the moment. However, the correlation between RTGS and RECS ratio of variation looks less than one. Indicates that Indian customers, banks,

interbank do consistently utilize these payment systems to a higher level. Retail electronic clearing system growth also is consistent, has increased to 48% and has decreased during the control of legal tender money announced by the BJP government in 2016. Due to the upper ceiling imposition, incremental utilization of ECS had dipped during demonetization time. However, the use of PPIs during 2016-17 was high while that of RGTS, ECS, CARDS were ranging between 8% to 25% and 16% percentage only.

Ratio	0.000
F	
(Observed Value)	0.000
F (Critical value)	7.146
DF1	5
DF2	5
p-value (Two-tailed)	< 0.0001
alpha	0.05

Test interpretation:

H0: The ratio between the variances is equal to 1.

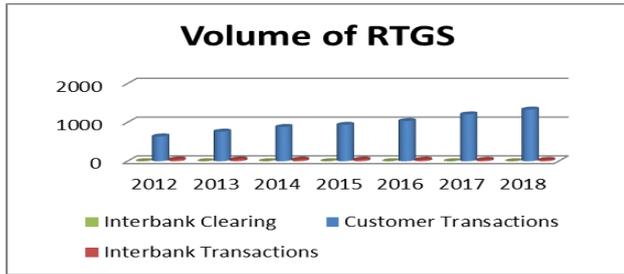
Ha: The ratio between the variances is different from 1.

As the computed p-value is lower than the significance level  $\alpha=0.05$ , one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

The risk to reject the null hypothesis H0 while it is true is lower than 0.01%.

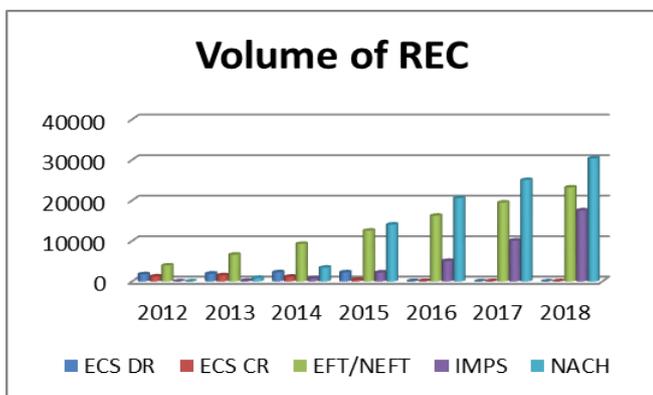
**V. PERFORMANCE AND GROWTH OF PAYMENT OPTIONS**

*A. Figures and Tables*



**Figure 1: Growth of RTGS**

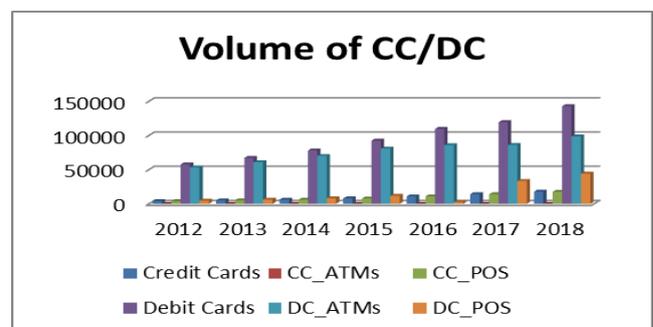
In India RTGS is done for high-value transactions, the minimum amount being Rs.2lakh, a 24/7 system service window. This payment system facilitates customer's predictability of cash flows, as customers are aware when their accounts will be debited and credited. This payment system ensures a fast, secure, irrevocable settlement of all institutions and market transactions. Among the classified RTGS, the table indicates that customer transactions are higher than inter-bank clearing and Interbank transactions. The payment system under this electronic transmission takes on a real-time basis. This window gives assurance of timely transactions as stipulated in the payment policy, from morning 8 a.m to 6 p.m. Percentage growth of RTGS ranges from 15% to 10% during the year 2012 to 2018.



**Figure 2: Growth of REC**

Retail electronic Clearing system volume of transactions through electronic clearing payment system has tremendously increased. Institutions

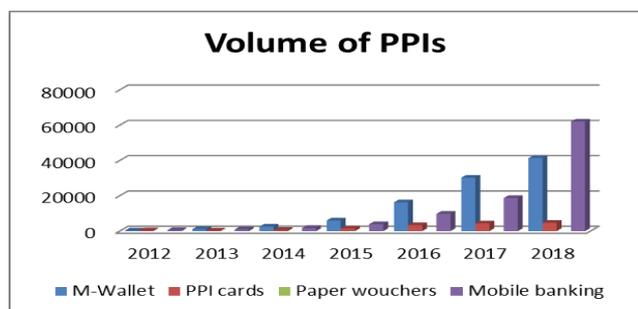
make settlement through this path, for making payments like interest, dividends, salary, and pension. Retail electronic clearing has increased in its magnitude from 34% to 48% during the year 2012 and 2018 respectively. Within ECS the mostly grouped payment choices preferred is EFT(electronic fund transfer), NEFT(internet electronic fund transfer) has an upper limit up to Rs.10lakh. Mostly Retail electronic fund transfer operates on a deferred net settlement. Electronic Clearing System by debit and Electronic Clearing System by Credit is negligible compared to NEFT/EFT, which indicates that volume and upper limit, is the speed at which cumulative transaction settlement is in circulation. ECS-DR is mostly chosen for making customers recurring payments such as EMI towards a loan, SIP, While ECS-CR when institutions make payments to customer SB account. IMPS is the instant payment that is depending upon customer bank approval and the maximum limit allowed is Rs.2lakh, however, multiple transactions are allowed. NACH(National Automated Clearing House) is also an EFT system, but high volume payments made by institutes, banks, governments, financial corporates. Build payments like utility bills, premiums, donations, credit card bills, a faster and efficient platform for clearance. Based on unique registration reference number NACH transaction is driven.



**Figure 3: Growth of CC/DC**

The volume of credit card and debit card transaction shows consistently accelerated increase independence and usage of plastic cards with the chip being mandatory. Wider swiping facility and

with wifi facility server inclusion has enhanced extensive usage of retail electronic transfer payment. CC point of sales payments is much usage but DC Point of sales is very high. CC-ATM is least while DC ATMs are moderate. With flourishing e-commerce, trade PoS has enlarged convenience, wider view of product list choice and settlement of the purchase.



**Figure 4: Growth of PPIs**

Prepayments are exclusively electronic fund transfers for the purchase of goods and services. Fund transfer against the value of goods stored is part of the transaction. It is reloadable and not loadable. Upon this transaction through BCs (Business Correspondent) is reloadable with normal ATM/debit/credit transaction and settlement of payment. Within a day settlement is cleared, however, it depends on the confidence of the public and merchant establishments. PPI certainty and timeliness of settlement for claims arising from the use of these PPIs. The next component in the payment path is m-wallet and mobile banking. Both depend upon the compatible use of the device with application technology. M-wallet includes Bhim, PayPal, Google-Pay, other customized customer bank apps. Depending upon device compatibility, number of wallet works, bank passbook is replaced with m-wallet. An iPhone app organizes customers' one's cards, coupons, movie tickets, boarding passes and rewards on cards.

## VI Discussion and Suggestion

There is great impetus developed because of Lean and green practices in the banking sector which is

the backbone of any economy. Acceptability by the stakeholders will attract more investments and hence revenue generation. If the idea is backed up by the local government, it gains a lot of momentum. Risk associated needs to be intelligently managed to gain good confidence in potential customers. No doubt parallel economies will try to create issues out of these developments. Nevertheless, the grey area needs to be erased out of the system to streamline the economies. Business wants sustainability and Lean and Green are the only way to cater to potential stakeholders. These technologies are saving a lot of carbon footprints and reducing wastages which will emerge as cost and time components of efficacy. Hence, Lean energy and environment design are remarkably making a wider wave in the era of the technological revolution of green banking with the availability of customer choice in the electronic payment system. However, a study in the era of green banking prosperity, only about 10% of the growing population is efficiently utilizing this advancement, while the rest of 90% of the population in digital India are digitally illiterate. In the digital inclusion policy, schemes need to incorporate every citizen of India to be part of this electronic banking practice and push India to the upper growth of prosperity. Because of Electronic Fund Transfer system, the real winner is RTGS because of its maneuverability and needs more attention from the settlement system to enrich and strengthen this sector of EFT.

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