

**3.3.3 Number of books and chapters in edited volumes/books published and papers published in national/ international conference**

| Sl. No.        | Name of the teacher | Title of the book/chapters published  | Title of the paper   | Title of the proceedings of the conference  | Name of the conference  | National / International | Year of publication | ISBN/ISSN number of the proceeding                         | Affiliating Institute at the time of publication               | Name of the publisher |
|----------------|---------------------|---|--|---|---|--------------------------|---------------------|--|--|-----------------------|
| <b>2017-18</b> |                     |   |  |   |   |                          |                     |  |  |                       |
| 1              | Pradnya Vikhar      |   | Exploring Differential Evolution Algorithm for Content Based Image Retrieval System  | 2nd International Conference for Convergence in Technology (I2CT)                       | 2nd International Conference for Convergence in Technology (I2CT)   | International            | 2017                | 978-1-5090-4307-1  | KCES' College of Engoneering & Information technology, Jalgaon | IEEE                  |
| 2              | Dr. Veena Bhosale   | Emerging strides in Innovations & skill Enhancement-Sustainable Development a Key Focus | A role of MGNREGA scheme for sustainability of beneficiary households and rural asset creation to empower rural women in Jalgaon district. | Emerging strides in Innovations & skill Enhancement-Sustainable Development a Key Focus | 3 <sup>rd</sup> International conference on Emerging Strides in innovations and skill Enhancement-Sustainable Development a key focus. (At Bangkok, Thailand) Primax International Journal of commerce and Management Research, | International            | 2017-2018           | ISSN: 2321:3604 online ISSN :2321:3612 Impact factor:4.532 | KCES' College of Engoneering & Information technology, Jalgaon | IJSRR                 |
| 3              | Ms. Shefali Agrawal | Recent Trends in Management, Computer science & Application                             | Cash to Cashless economy: Transforming India towards Digitization  | Recent Trends in Management, Computer science & Application                             | National Conference on Recent Trend's in Management, Computer Science and Applications (International Journal of Research and Development(IJRD) I   | National                 | 2017-2018           |  | KCES' College of Engoneering & Information technology, Jalgaon |                       |

|   |                            |  |   |  |   |               |           |                 |  |  |
|---|----------------------------|--|---|--|---|---------------|-----------|-----------------|--|--|
| 4 | Ms. Shefali Agrawal        | Changing Paradigms of Business Intelligence through Digitization | Cryptocurrency- The money of future                               | Changing Paradigms of Business Intelligence through Digitization | 9th International Conference on Changing Paradigms of Business Intelligence through Digitization (e-ITBM2018) “VIIT                             | International | 2017-2018 | ISSN 2278-6112. | KCES' College of Engoneering & Information technology, Jalgaon |  |
| 5 | Dr. Veena Kuchekar-Bhosale | Recent Trends in Management, Computer science & Application      | Cash to Cashless economy: Transforming India towards Digitization | Recent Trends in Management, Computer science & Application      | National Conference on Recent Trend's in Management, Computer Science and Applications (International Journal of Research and Development(IJRDI | National      | 2017-2018 | ISSN 2279-5438  | KCES' College of Engoneering & Information technology, Jalgaon |  |
| 6 | Dr. Veena Kuchekar-Bhosale | Changing Paradigms of Business Intelligence through Digitization | Digitalization: A key driver for sustainable agriculture          | Changing Paradigms of Business Intelligence through Digitization | 9th International Conference on Changing Paradigms of Business Intelligence through Digitization (e-ITBM2018) “VIIT                             | International | 2017-2018 | ISSN 2278-6112. | KCES' College of Engoneering & Information technology, Jalgaon |  |

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|----|---|--|---|--|---|---------------|------|--------------------------|--|-----------------|
| 7  | Komal K. Ingale, Prasad D. Kulkarni       |  | Implementation of Fuzzy Logic Controller Based Active Power Filter to Improve Power Quality of 25KV Traction System | Mahratta chamber of commerce industry and Agriculture,Pune | 2nd International Journal of innovation in engineering and science  | International | 2018 | ISBN 978-93-87793-33-0   | KCES' College of Engoneering & Information technology, Jalgaon | A.R.PUBLICATION |
| 8  | Ms. Rupali M. Patil; Prof.Kalpesh Mahajan |  | Imrovement in stability of Hybrid Series Active Power Filter By using Sliding Mode Controller                       | Genba Sopanrao Moze College of Engineering                 | International conference on the contribution of engineering , science and humanities for the Development of the | International | 2018 | ISBN 978-93-87793-50-7   | KCES' College of Engoneering & Information technology, Jalgaon | A.R.PUBLICATION |
| 9  | Prof.Kalpesh Mahajan                      |  | VSC Based HVDC Transmission System : an overview  | Godavari College of Engineering                            | "Current trends in Engineering, Science and Technology" Godavari College of Engineering, Jalgaon                | National      | 2018 |                          | KCES' College of Engoneering & Information technology, Jalgaon | A.R.PUBLICATION |
| 10 | Rajesh R. Waghulde, Leena R. Waghulde     |  | GRID INTEGRATION OF HYBRID GENERATION   | Genba Sopanrao Moze College of Engineering                 | 7th International Conference on Engineering, Science & Management (ICRTE SM-2017)                               | International | 2017 | ISBN:- 978-93-86171-12-2 | KCES' College of Engoneering & Information technology, Jalgaon | A.R.PUBLICATION |



2nd International Conference  
for Convergence in Technology (I2CT 2017)



# CERTIFICATE

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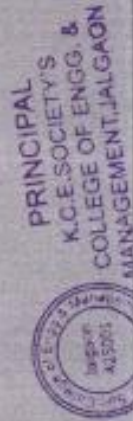
*Exploring Differential Evolution Algorithm for  
Content Based Image Retrieval System*

in the 2nd International Conference for Convergence in Technology  
held during 7<sup>th</sup> to 9<sup>th</sup> April 2017

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Date : 9/04/2017  
Place : Pune

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Dr. C. K. Jha  
Conference General, Chair-I2CT2017

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Paper

ON THE TOPIC

**A role of MGNREGA scheme for sustainability of beneficiary households and rural asset creation to empower rural women in Jalgaon district.**

**Submitted By**

**Dr. Veena P. Bhosale**

**Assistant Professor**

KCES's COEIT, Management Department,

Behind DIC, NH -6, COEIT Campus

Jalgaon – 425001

[veenapbhosale@gmail.com](mailto:veenapbhosale@gmail.com)

(Mob: 9975563908)

**AND**

**Adv.Jyoti Bhole**

**Advocate**

[jyotibhole1@gmail.com](mailto:jyotibhole1@gmail.com)

(Mob: +919421788764)



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## A role of MGNREGA scheme for sustainability of beneficiary households and rural asset creation to empower rural women in Jalgaon district.

### Abstract:-

The concept MGNREGA was envisaged with the intent of using its potent as a powerful tool for rural poverty alleviation through rural women empowerment. The present study is undertaken of beneficiary households and rural asset creation for empowerment of rural women in Jalgaon district. But unfortunately the traditional mind set of the society and negligence of the state and respective authorities is an important obstacle for the women development in India. The paper attempted about the evaluation of personal, social, economic and financial empowerment. MGNREGA and its implementation support this agenda through facilitating the essential processes of entrepreneurship, capacity building, education, health and hygiene etc. The sample has the representation of both male and female categories. The analysis shows an encouraging result and identifies significant changes in rural women entrepreneurship through these arrangements.

The Mahatma Gandhi National Rural Employment Guarantee Act is to enhance livelihood security of households in rural areas of the country by providing at least one hundred days of manual wage employment to every household in a year. MGNREGA is an Indian labour law and social security measure that aims to guarantee the 'right to work'.

It includes sustainability of the economy, agriculture, forest, income, health and many more ideas and principles of sustainable development, then it would be able to transform the face of rural India. This paper attempts to assess the prospective and consecutive of sustainable development in connection with MGNREGA. In this paper we will study how MGNREGA is a beneficial and effective scheme for the development of rural area. Our study found overall positive impacts of the assets created under MGNREGA in the Jalgaon district. Our study identifies provisions given under MGNREGA for ensuring durability and sustainability of the assets created under the program.

**Keywords:** Women Empowerment, MGNREGA, Rural development, Asset creation, Poverty

### Structure and Prospective of MGNREGA:

Poverty incidence and persistence are associated with the absence of assets, especially land, lack of education, belonging to a scheduled caste or scheduled tribe and working as agricultural labour. The National Rural Employment Guarantee Scheme (NREGS) thus, is seen as a major milestone in the anti-poverty policies in Independent India. The Directive Principles of State Policy enshrined in the Constitution require that the State provide an adequate means of livelihood for all citizens with equal pay for equal work for men and women. Poverty reduction and employment or livelihood generation are urgent and priority issues and special interventions are needed to ensure productive employment for those who are able bodied and can earn through work.

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) was notified on September 5, 2005 and implemented in three phases covering all districts over time. Although the focus is on augmenting wage employment, it is ambitious in scope and aims to accomplish a number of things. Amongst other things, the Act envisaged that the works undertaken as part of the program would strengthen natural resource management and address causes of chronic poverty like drought, deforestation and soil erosion, thereby encouraging sustainable development.

MGNREG Act is an important step towards the realization of the "right to work" and is consistent with Article 41 of the Indian Constitution that directs the State to secure to all citizens the right to work. The State also seeks to protect the environment through rural works which is consistent with Article 48A that directs the State to protect the environment.

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) 2005 is one such program that promises both these things. It was notified on September 7, 2005 in 200 rural districts in its first phase of implementation which took an effect from February 2, 2006. The remaining districts were notified under MGNREGA with effect from April 1, 2008. Since then MGNREGA has covered the entire country with the exception of districts that have a hundred percent urban population. MGNREGA marks a paradigm shift from previous wage employment programs, either planned or implemented in India's history. MGNREGA has a distinct feature of having an integrated natural resource management and livelihood generation perspectives.



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According to Maharashtra Act, it is been stated that the elimination of poverty by providing fruitful employment to the most disadvantaged section of community should be an integral part of any program of economic development.

There is requirement of the appropriate program which provides employment for the needy people and at the same time it would have the potential of poverty reduction.

**The aim of MGNREGA is :**

- To provide at least 100 days of unskilled work on demand per household per annum within 15 days and within 5KMs radius near to his/her address to all adults who have completed 18 years of age, thus by ensuring economic security to rural people.
- Equal wages for men and women and preference should be given to women in each work and at least one-third (33%) of person to whom work is allotted have to be women, thus ensuring women empowerment and social equality.
- Creation and maintenance of rural assets and environmental protection.
- Lowering of rural-urban migration
- Panchayat Raj Institutions to have a principal role in planning and implementation and each district has to prepare a shelf of projects.

**Establishment-**

Based on the MGNREG the Government of Tamil Nadu approved the by-laws for the formation of 'Social Audit society of Tamil Nadu'(SASTA) and accordingly the Social Audit society of Tamil Nadu societies Registration Act 1975.

### **Rural Women economic empowerment:**

The emergence of entrepreneurs in a society depends to a great extent on the economic, social, religious, cultural and psychological factor prevailing in the society. Entrepreneurship amongst women is a recent phenomenon.

It is estimated that presently women entrepreneurs comprise about 10 percent of the total entrepreneurs in India and this percentage is growing every year. If prevailing trends continue, it is not unlikely that in another five years, women will comprise about 20 percentage of the entrepreneurial force in India.

Women do have their role in our economy but presently being unaccounted it remains unnoticed. India's huge women population and present very low score of gender parity, both these factors make its potential very high in achieving spectacular addition in the economic performance by women empowerment. Women have a significant contribution, socially and economically, in protecting and upbringing of their family members more than the men in the times of crisis.

Sidhu and Kaur (2006) revealed that entrepreneurship is the only solution for the growing employment among rural youth. It helps to generate employment for number of people within their own social system. This is more beneficial for women in rural areas as it enable them to add to the family income while taking care of their farm, home and livestock centred tasks.

Dalit women's livelihoods Accountability initiative (DWLAI)" as an example -

Dalit women's participation in MNREGA activities as worker in Panchayat for planning work and supervisor of work has greatly increased. In 2009 their participation in work was 2811 in all eight districts of DWLAI programme.

### **Women entrepreneurship in India:**

The concept of "Women entrepreneurship" is becoming a global phenomenon and in India it became prominent in the later half of the eighties. According to Khanka (2000), a women entrepreneur is a confident, innovative and creative woman capable of achieving economic independence individually or in collaboration generates employment opportunities for others through initiating establishing and running an enterprise by keeping pace with her personal, family and social life.

Empowerment in the context of women's development is a way of defining, challenging and overcoming barriers in a woman's life through which she increases her ability to shape her life and environment.

For sustainable livelihood through MGNREGA 4.35 crore households have been provided employment in 156 lakh works. 160 crore man-days of employment generated and 7897 candidates have been trained under project LIFE MGNREGA.

**Challenges and opportunities for rural Entrepreneurs:**



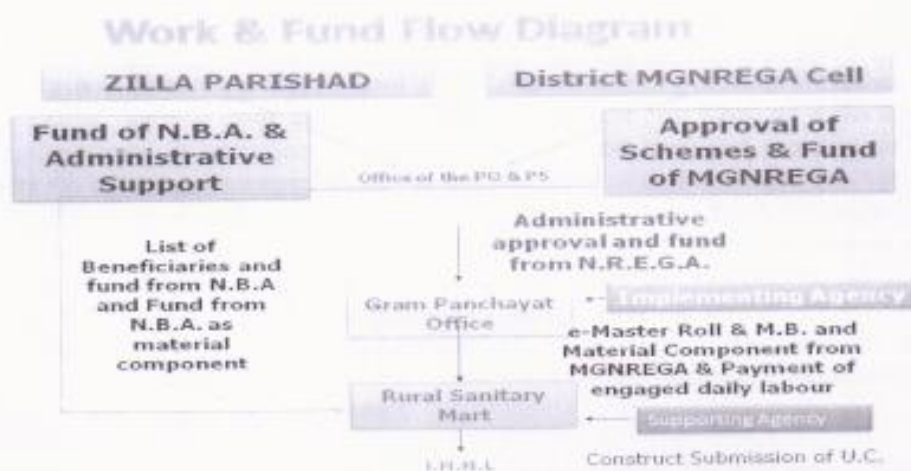
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The main challenges faced by rural women in business are lack of technical knowledge and skills and to make balance their time between work & family. Some of the challenges faced by rural entrepreneurs are as follows:-

- Dual role of women overlapping of responsibility of business and family.
- Problem of finance
- Illiteracy among rural women
- Less risk bearing capacity
- Lack of visibility as strategic leaders
- Lack of information and assistance
- Need of training and development
- Male dominated society
- Lack of infrastructure and widespread corruption

The MGNREGA provides explicit entitlements for women to facilitate their participation

1. Women participation increased and Equal Wages on par with men.
2. Reduction in migration
3. Financial inclusion increased.
4. Relief from village money lenders.
5. Improvement in rural environment and sanitation
6. Rural asset creation
7. Increase in average wages and employment.
8. Participation in social audit and SCs and STs increased.
9. Providing support for child care, and convenience to households



Source: Work and Fund Flow diagram in District level.

### Socio-economic profile of Jalgaon district:

The district is distributed among 15 taluka. Each Taluka has an industrial estate, an industrial training institute and higher secondary level education facilities.

In the 2011 Indian census Jalgaon had a population of 460,468. According to the 2001 census, males constituted 52 percent of the population and females 48 percent.

| Sr.No | Item(General)                               | Jalgaon district                         |
|-------|---|--|
| 1     | Population(in lakhs)                        | 460,468                                  |
| 2     | Density of population (person per sq.km)    | 4,800/km <sup>2</sup>                    |
| 3     | Sex ratio                                   | 52% male and 48 % female                 |
| 4     | Urban population to total population growth | 14.86%                                   |
| 5     | Geographical area                           | 11,765 sq km (Jalgaon City: 68.78 Sq.km) |

Source: Census, 20011



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**Table of Overall View of NREGA**

| Sr.No | Brief of overall view of NREGA of Jalgaon district |         |
|-------|--|---------|
| 1     | Literacy rate (male)                               | 80%     |
| 2     | Literacy rate (female)                             | 71%     |
| 3     | Average literacy rate (total)                      | 76 %    |
| 4     | Employment provided to households                  | 63177   |
| 5     | Person days (in lakh)                              | 2114116 |
| 6     | Number of active Job cards                         | 105780  |
| 7     | Active SCs   | 13663   |
| 8     | Active STs   | 17139   |
| 9     | Active Women                                       | 67057   |
| 10    | Works completed                                    | 189517  |

Source: Jalgaon district, MGNREGA report 2017-18

**Objectives of the study:**

The present study was undertaken with the following objectives:

1. To study the role of MGNREGA in economic development of rural India.
2. To study the impact of MGNREGA in employment generation in Jalgaon district.
3. To study the role of MGNREGA in asset creation and infrastructural development in Jalgaon district.

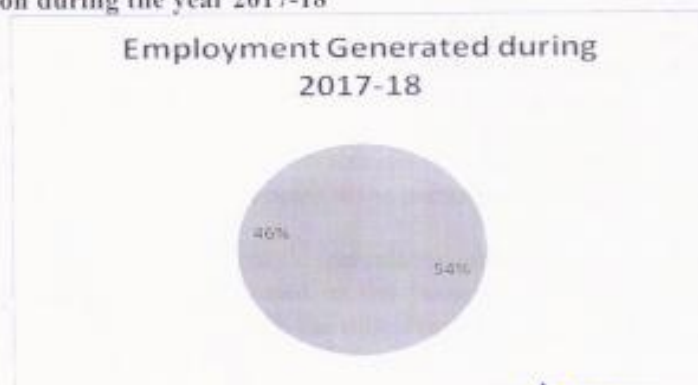
**Methodology :**

A study of MGNREGA in Jalgaon district involving the women participation and consequently impacting their empowerment in terms of different development indicators. Since the data on participation level of women on year to year basis at district and village level is available on Ministry of Rural Development (GOI) website, the primary data collection was made for knowing the impact of the provisions on women participants' economic, social and educational development. Their overall satisfaction level and capacity building prospects of the scheme were the indicators measured by survey method.

A sample of 500 women workers from 4 villages of Jalgaon district. Random sampling method was used for selecting 30 women workers of MGNREGA from each of the 15 Gram Panchayats of taluka. A structured questionnaire was administered through the interviews with the respondents to collect quantitative and qualitative household data relating to problems, satisfaction level and impact of the scheme on different facets of life. In addition to this, focus group discussions had also taken place in order to get deeper understanding of the issues and challenges faced by the women participants. A descriptive and judgemental analysis was applied on the collected data to draw the conclusions.

**Sources of data** The study predominantly depends on primary data. The data were collected from the sample of 500 members of MGNREGA located within Jalgaon district.

**Employment Generation during the year 2017-18**



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From the availability of data it found that total monthly sanction labour budget in overall Jalgaon taluka is 24% out of it 21% is achieved totally. We may say that out of total budget 88% is achieved monthly in Jalgaon district.



### Strategy for Development goal in broader level in Jalgaon district

From above diagram we may formulate the strategy for Anti-poverty with the help of acceleration of economic growth and human resource development in local as well as broader level. For better result different poverty alleviation programmes can be use for better results.

### Potential Direct and indirect benefits of MGNREGA:

From above study we may say that in Jalgaon district MGNREGA is giving better result and for more expansion it will be useful for

- Creation of employment: livelihood security: increases in consumption, food security and nutrition, reduction in poverty, positive impact on health and education.
- The most important benefit according to workers is self respect
- Asset creation rural development and environment protection
- Positive impact on agricultural wages
- Impact on women empowerment
- Help marginalized sections SCs and STs.

**The obstacles in the way of successful performance of MGNREGA are numerous and multifarious. The problems mainly fall in four areas viz. design, implementation, monitoring and promotion.**

**Design Issues:** The MGNREGA guidelines do not provide for anything special for women. The procedural requirements, work design, payment conditions and assignment of duties to the local bodies (Gram Sabha and Gram Panchayat) all require reforms to be effective and practical for village women. Involving some voluntary or self help groups or NGOs may be essential to get the work essentially done in the present age.

**Implementation Issues:** The plan guidelines provide for the facilities like crèche, resting place, first-aid, recreational facility for children etc. for women workers but such arrangements were generally absent on the worksites as reported by the respondents. The workers are neither getting 100 days of work nor unemployment allowance for that due to lack of interest and initiation by the concerned local bodies in creation and approval of the job projects. The scheme as such loses its main attraction on this account. Similarly delay in job card release and delayed payments have also been the impediments in the participation of poor women.

**Monitoring Issues:** The local bodies and the public servants entrusted with the job to monitor the functioning and progress of the scheme are neither dedicated to the poorest of the poor rural people nor are they professionally competent enough to do justice with the task. The whole process is hung on the mercy of Gram Sabha and Panchayat who are not efficient in developmental activities. Lethargy, delays and hurdles are rampant all through the process.

**Promotion Issues:** The awareness of MGNREGA provisions and workers' entitlements is very low. In the villages, illiteracy and poverty are the barriers in getting complete information regarding the government schemes and support provisions. Most of the people are not aware about how should they apply for work or



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claim the unemployment allowance in case of not getting the work. Those who are aware have no knowledge or skills to fulfil its procedural requirements. They need awareness, counselling and assistance in availing the opportunities around them.

### Major Suggestions:

On the basis of the above problems, the study makes the following recommendations to make MGNREGA a net contributor to women empowerment.

1. Some projects should be designed in each block especially to be handled by women as many of the projects are not convenient for them. NGOs involvement which is presently very low should be encouraged. The involvement of professional agencies and voluntary bodies will make the program meaningful and successful.
2. To prevent leakages in the MGNREGA programme, the government is planning to introduce the system of electronic transfer of wages to the beneficiaries from 1<sup>st</sup> Jan 2017. But, this should be extended to the entire country at an early date.
3. The average days of labour used was only 50 days as against 100 days stipulated per annum by MGNREGA. Hence, it is advised to encourage the rural people to utilize stipulated 100 days of labour.
4. The facilities provided in the scheme like shade for children, periods of rest and a first aid box etc. should be implemented and maintained properly.
5. Proper monitoring should be done for an efficient functioning of the scheme. Delays in job card issue, project approval, payment transfer etc. should promptly be attended and resolved. Transparency, reporting, audit and fixing accountability through professional agencies should be an essential part of every such program entrusted to public bodies.
6. The Panchayats, opinion leaders, public and private bodies and the media should extensively be used to create awareness among the prospective workers regarding rights, entitlements, provisions and procedure of the program. Facilitating information flows and guidance to all the participants of the scheme viz. workers, sarpanchs, gram pradhans and the officials through all types of communication and information modes (using modern technology) are essential.

### CONCLUSION

Women entrepreneurs can play a role of catalyst in social and economic development of country like India. They faced many obstacles specifically in finance and marketing of their produce.

Government also directs that the widest publicity will be given to these orders and operational procedures prescribed for planning and implementation of the Maharashtra Rural Employment Guarantee Scheme throughout the state so as to create an atmosphere of work consciousness for the creation of durable and productive assets calculated to result in the development of the rural economy.

But to be a real contributor to women empowerment the program needs a restructuring, reorganization, promotion and monitoring. It is incumbent on our part to offer the women some concession in working standards or design of the projects to suit them to raise their participation level. External agencies or the voluntary NGOs should be brought in the system to plan, monitor, audit and promote the tasks for its successful and timely completion. The whole process should be transparent and fair; and delays or hurdles should immediately be detected and resolved by a well-coordinated system.

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TITLE OF THE PAPER

**Cash to Cashless Economy: Transforming India towards  
Digitization**

AUTHOR-I

**NAME:** Ms. Shefali M. Agrawal

**INSTITUTE:** KCES's COEIT, Management Department,  
Behind DIC, NH -6, COEIT Campus, Jalgaon – 425001.

**CONTACT NO:** +91- 9595573989

**MAIL ID:** shefali.agrawal92@yahoo.com

AUTHOR-II

**NAME:** Dr. Veena P. Bhosale

**INSTITUTE:** KCES's COEIT, Management Department,  
Behind DIC, NH -6, COEIT Campus, Jalgaon – 425001.

**CONTACT NO:** +91- 9975563908

**MAIL ID:** veenapbhosale@gmail.co



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# Cash to Cashless Economy: Transforming India towards Digitization

## Abstract:

India is such a country where most of the payments are done in cash forms. To become a developed country, it is required to transform towards the cashless economy. It is the economy where economic transactions are done with the facilities like credit card, debit cards, online transactions by means of fund transfer and using e-wallets and now moving towards digital currency. This paper also analyze the challenges that are faced by such a large economy and also the opportunities created by this transformation. It's an ardent effort to move towards a cashless transaction economy by minimising the use of physical cash. The leading advantage of building a cashless economy is elimination of black money. Digitalisation of transactions is the best way to move towards cashless economy. Such a cashless economy is realisable by promoting electronic money instruments, developing financial infrastructure and spreading digital transaction habits among people. It's a big move towards the motive to be Developed country.

**Key Words:** Cashless Economy, Financial Inclusion, Digitalization, Electronic Payment System

## Introduction

A cashless economy is one where financial transactions are not done by physical money rather it is done through digitization. In a cashless economy, electronic channels like debit card, credit card, mobile banking, electronic merchants, payments such as IMPS, payment through apps like PAYTM are mode of transaction. Cashless societies have existed, based on barter and other methods of exchange, and cashless

transactions have also become possible using digital currencies such as Bitcoin. India has been a cash-dependent economy, with 97-98% of all transactions still in cash. Only half the nation's adult population i.e. around 233 million possess a bank account, a precursor for a cashless economy.

A cashless society is a term describing the economic eco-system in which physical money (banknotes and metal coins) are replaced with virtual, digital money, and where cash circulation is substituted with payments done by using numerous types of cards, mobile devices and various other equipment connected to the internet.

India has taken an ardent effort to move towards a cashless economy by minimising the use of physical cash. The leading advantage of building a cashless economy is elimination of black money. Digitalisation of transactions is the best way to move towards cashless economy. Such a cashless economy is realisable by promoting electronic money instruments, developing financial infrastructure and spreading digital transaction habits among people.

Types of plastic money, E-wallet and digital currency

| Plastic Money            | E-Wallet   | Digital currency |
|--------------------------|------------|------------------|
| Credit card              | PayTM      | Bitcoin          |
| Charge cards             | Momoe      | Ethereum         |
| Debit card               | PayUMoney  | Litecoin         |
| Customer card/store card | Mobikwik   | Ripple           |
| (PLCC)                   | Freecharge | Dash             |
| Prepaid card/gift card   | Citrus.    | IOTA             |
|                          | State Bank | Monero           |
|                          | Buddy      | Zcash            |
|                          | Citi       |                  |
|                          | MasterPass |                  |
|                          | ICICI      |                  |
|                          | Pockets    |                  |



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### Importance of Cashless Transaction:-

**Taxation:** With lesser availability of hard cash at homes and more in banks, there is lesser scope of hiding income and evading taxation and when there are more tax payers it ultimately leads to a lesser rate of taxation for the whole country.

**Transparency and accountability:** It becomes a lot easier to track the flow of money with every transaction being recorded with the buyer, seller as well as regulatory bodies, making the system much more transparent and compliant. In the long term it leads to better business and investment prospects for the economy as a whole. More currency in bank will mean more circulation of money in the economy, leading to greater liquidity and would eventually mean lesser interest rates (according to the monetary policy of the country).

**Reduced red tapism and bureaucracy:** With cashless transactions through electronic means the wire transfers are tracked and people are accountable which in turn reduces corruption and improves service time.

**Less availability of cash for illegal activities:** When people are encouraged to go cashless, there is lesser cash available with the people and there won't be a means to invest in other activities to use the idle cash. Channels like hawala (illegal remittance) will ultimately suffer the brunt of a cashless economy.

**Pack of cards:** No need to carry bulky notes in a case. Just carrying the required cards or mobile banking will suffice. More sense of safety with a PIN protected card etc. which will work only with your own credentials.

**No fear of being robbed:** Unlike carrying cash and letting everyone know that there could be something worth snatching.

**Tracking of expenses:** It becomes easier to determine how much was spent where.

**The exact amount in small denominations can be paid:** Unlike cash transactions, there is no need to pay fringe amount in case the exact amount is not available with either of the parties. An important, though seemingly insignificant issue is that of hygiene of the notes.

**Easier accounting:** Direct payment to bank account. You don't need to go every day to deposit cash to your current account.

**Easier transactions:**-We can easily do any transaction with security.

**A boost to global remittances**

**Unleashing the potential of e commerce**

**Programmable money and smart Contracts**



### Objectives

- To study the challenges and opportunities of cashless economy.
- To study the socio-eco impact of cashless economy on society in India.
- To understand the factor influence the customer's moving towards cashless.
- To study the prospect of cashless economy in India.



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**Comparison among Cash, Cheques, and Immediate Payments**

| Key Payment Attribute              | Cash | Cheque | Immediate Payments |
|------------------------------------|------|--------|--------------------|
| Cancellation/ Revocability         | C    | A      | C                  |
| Comprehensive Reach                | A    | A      | A                  |
| Control with Payer                 | A    | B      | A                  |
| Convenience                        | B    | B      | A                  |
| Cost of Use                        | C    | B      | B                  |
| Ease of Use                        | B    | C      | A                  |
| Information Attached with Payments | C    | B      | A                  |
| Risk of Fraud                      | B    | C      | B                  |
| Settlement Time                    | A    | B      | A                  |
| Straight-Through Processing (STP)  | C    | B      | A                  |
| Time of Operations                 | B    | C      | A                  |
| Tracking/Transparency              | C    | B      | A                  |
| Transaction Confirmation           | A    | C      | A                  |

**Benefits-**

There are many benefits that are related directly or indirectly to the India's economy with the use of cashless transactions in the market.

1) **Cost of printing money:** Printing money is the direct cost that effects the bank( Reserve Bank Of India). In the cash system of economy where maximum people will work on the cash transaction, government has to produce more and more cash notes. Printing notes it is a costly affair. Data from a Right to Information answer by the RBI in 2012 shows that it costs Rs. 2.50 to print each Rs. 500 denomination note, and Rs. 3.17 to print a Rs. 1,000 note. From April 1994 to June 2016, currency has shown a yearly growth rate of 17%, while the share of bank

currency has remained around 5%. It was estimated that, for 2009–2010, RBI incurred an annual cost of INR 2800 Crores for printing currency notes (Das and Agarwal 2010). As per the new declaration of demonetization by Modi it has cost the nation an additional burden of 12000 Crore on the exchequer.

2) **Maintenance Cost:** Other than printing cost of the currency notes there are many other expenses that RBI and government has to do. Another important aspect is the maintenance in the form of storage of notes, transportation of the notes to the distant places, security of the notes, and devices for the detection of counterfeit notes. The other major aspect of the maintenance is that the distribution of money through ATM machines at the different locations. It is reported that all this maintenance cost the government about 5% of the GDP of India. In nutshell we can save somewhere around 500 crores by this mean only.

3) **Eradication of the corruption:** Going cashless is going to eradicate the corruption to some extent. The direct transactions of the money cannot take place easily. These transactions will be simple easy and transparent which in turn will show in the accounts of the senders and the receivers. This cashless economy is going to hit the corruption in a very planned way from the government offices. This is again going to save enough money in the economy of the country.

4) **Help to Check High Rate of Organized Crimes, Such As Armed Robbery, Kidnapping Terrorist Activities and Money Laundering:** It is a well known fact that the criminal underworld usually requires huge volumes of cash to carry out their nefarious operations in order to avoid being traced or tracked. Therefore, placing a limit on the amount of cash flowing in the system, will curtail such activities as armed robbery, kidnapping, drug and gun running and money laundering. In an environment of extensive and predominant use of cheques



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and e- payments, criminal transactions can be easily traceable and tracked. All the terrorist related activities are highly funded by the cash. The cashless economy helps the government to keep a check on the free flow of cash to the terrorists and terrorist related activities.

**5) Wipe away the black money from the market:** It has been observed that many businessmen start evading the real money. Most of them never show the actual business on paper. This habit of evading sales has caused a lot of impact on the tax of the country. Small shopkeepers and big industrialists do this to save tax. This practice has created a very big problem of loss of tax to the exchequer. The loss of huge money has led to the parallel economy in the state that has created a big loss not only to the government but towards the development of the common people's goal. The presence of cashless economy will definitely lead to the development of the country by means of collecting surplus taxes and also to spend these taxes for the benefit of the scheme. Modi in his poll manifesto of 2014 general election has announced that if the government is able to bring back the black money in the mainstream than every Indian will have 15 lakhs of rupees in their accounts irrespective of their income potential.

**6) Installation of formal and pure form of economy:** It has been observed that cashless economy leads to the start of proper formal and functional economy in the country. When all the transactions are made proper clear clean and taxed, it may lead to the establishment of formal setup of the total financial system that leads the country towards the development.

**7) Stop Leakages:** Cashless economy is the best and one of the few ways in the system to stop leakages of the money by the officials of the government while distribution money to the beneficiary. The present policy of the linkage of AADHAR or UID NO. by the government has

resolved this issue to the great extent. The direct benefit transfer policy of the government has helped the identification of the beneficiary on the basis of biometric identity and helps the people to get their dues directly in their bank accounts. This is again a digital or cashless system of transaction that helps the individual to save time and money.

**8) Decrease the cost of commodity:** the cashless economy aims at reducing the cost of the commodities by setting aside the black market and the proper deposit of the tax. All this leads to the development of the system where one can find the cost of the commodity going down in the market. The developed economy like China is the best example for this.

### Prospects

**The JAM infrastructure can encourage digital transaction culture:** The JAM infrastructure is spreading to reach each remote corner of the country as well as to every citizen. Almost 24 JDY Accounts, 124 Aadhaar identity cards and nearly 90 crore mobile phones. Similarly, 33 million internet users are in India. This means that the JAM infrastructure can be used to promote cashless transactions.

- A large number of government transfers (DBT) are made through JAM mode. This will help people to get digital transaction awareness.
- The growth in volume and value of transactions using prepaid payment instruments (PPIs) issued by banks and authorised non-bank entities has also been significant.
- NPCI promoted Aadhaar enabled Payment System, IMPS etc and they have registered big turnover in transactions. Newly launched UPI (Unified Payment Interface) is expected to give a big boost to cashless transactions.
- Numbers of credit and debit cards are increased to 25.4 million and 691.1 million, respectively. The demonetisation



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drive may encourage people to learn and settle transaction using online.

- RTGS and NEFT volumes increased almost threefold between 2013 and 2016 reflecting greater adoption of the system by all segments of users.

- As more people start using RuPay debit cards and Aadhaar for digital payments, it will facilitate a less cash economy.

- With increasing mobile banking services, growth in e-commerce and use of mobile payment applications, the use of cash will decrease. The RBI has made several efforts to promote digital settlements. Most important of them are launch of a regulatory set up for Prepaid Instruments (PPIs). Similarly, encouragement to mobile banking and internet banking will help to reduce the use of physical cash. There are some threats to the transformation which are as below:

#### **Mindset of keeping and saving cash**

This is the most dominating factor in our country which will give challenges to this transformation. But this can be solved if government gives reasons/advantages for moving to digital economy. Be it incentives or bonuses or other benefits, if government use the money which is saved because of going digital (cost of cash) in this kind of promotion, I think there will be more acceptability.

**Financial Inclusion** Still many people are not in the financial inclusion of the country.

For women the figures are really bad. Government should promote the cashless economy by using the platforms of women empowerment so that is it entrepreneurial role or a housewife role or a mother role the transaction through digital channel gets increased. Imagine a situation where a mother does not give pocket money to her school going child and give instead a separate card having dedicated amount for his expenses in account.

#### **Digital literacy**

Personally I know many people who do not know how to use payment apps like Paytm.

Some do not know how to make on-line payments. Despite of bearing pain of standing in queue many people do money transfer standing in queues especially in rural areas and tier 3 cities and places which are close to such areas. And this happens because they do not know how to use such tools. I think this is where opportunities are in creating jobs. Imagine for every village there is one trainer assigned by government or banks who train few people and they also join government initiative as an employee in training others. But just providing knowledge about how to use is not sufficient. From security point of view required information should be given like Dos and Don'ts.

**Connectivity** still many areas do not get proper Internet connections.

#### **Impact of Cashless Transaction:-**

##### **1. Business Process:-**

The impacts of Cashless Transaction on the Business sector are as following:

- Businesses are legally strong.
- Proper audit. Not hidden excess liability.
- Increase use of e-payment.
- Wallet hold business gets an advantage.

##### **2. Education Process:-**

The impact of Cashless Transaction on the education sector is likely to be minimal. Some of the foreseeable fallouts of demonetization on the Indian education sector are as following:

- The decision of the central government to withdraw high-value bank notes to curb unaccounted cash will hurt education institutions that accept donations or capitation fees for admissions.
- Accepting and accounting donations will become difficult because of the demonetisation drive. Education sector was not immune to the Indian theory of 'you can buy everything with money'. This move of demonetisation will definitely curb this mentality of



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many in the country. Nursery admissions, private education institutions and professional higher education including medical and engineering are the segments which accept donations widely. For the first time these segments are going to feel the impact in a big way.

- Private educational institutions take huge amount of donations in Cash which is 40% to 50% more than the fees of the course. We expect that demonetisation will impact the recipient.
- Admissions in private educational institutions and medical college admissions come tagged along with donations without a glitch. The donations in medical colleges are usually more than 100% of the fees. Demonetisation will impact both admissions and also the receipt.
- MBBS seats in some colleges go for Rs40 lakhs to Rs60 lakhs, while MD seats have a range of Rs 2 crore price tag on it. Similarly, engineering and management stream seats have a price tag between Rs 2 lakhs to Rs 10 lakhs each. This move can change the course of expensive education which can be made more affordable devoid of the capitation fee.

### 3. Economic Growth:-

The impact of Cashless Transaction on Economic Growth in India is as following: According to the Bank, India's growth in the first half of FY 2017 was underpinned by robust private and public consumption, which offset slowing fixed investment, subdued industrial activity and lethargic exports.

- The medium-term may be liquidity expansion in the banking system, helping to lower lending rates and lift economic activity," the World Bank noted.

### 4. Impact of Information Technology in cashless economy:-

The impact of Information Technology on in cashless economy in India is as following:

- Because of information technology the cost of bank will reduce that will result in lower service charges for customers.
- Making Transaction is very easy by using information technology.
- New IT Technology like biometric are help to do secure and transparent transaction.

### Challenges in Transitioning to a Cashless Society

- Acceptance infrastructure and digital inclusion
- Financial Inclusion Digital and Financial Literacy
- Cyber Security
- Changing habits and attitude
- Urban – Rural Divide
- Currency dominated economy
- Transactions are mainly in cash
- ATM use is mainly for cash withdrawals and not for settling online transactions
- Limited availability of Point of Sale terminals and poor transaction culture in POS
- Mobile internet penetration remains weak in rural India

### CONCLUSION

However, the benefits of this move have now started trickling in with more and more people switching to digital modes of receiving and making payment. India is gradually transitioning from a cash-centric to cashless economy. Digital transactions are traceable, therefore easily taxable, leaving no room for the circulation of black money. The whole country is undergoing the process of modernization in money transactions, with e-payment services gaining unprecedented momentum. A large number of businesses, even street vendors, are now accepting electronic payments, prompting the people to learn to



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transact the cashless way at a faster pace than ever before.

If we look at the overall scenario of establishing the cashless economy, its benefits and uses in the present system it can be said that cashless economy is the need of the hour. It has become not only important but necessary for the country to go cashless for the systematic development in the economy. This is to be done in a very systematic way by taking some of the initiatives. By following some of the points it can be said that we can effectively implement the cashless transactions in the country. It will be better to say that India at this point of time has to go for less cash economy rather than cash less economy. The continuous march towards less cash economy will lead to cashless economy in the country.

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TITLE OF THE PAPER

**Crypto-Currency: The Money of The Future**

AUTHOR

**NAME:** Ms. Shefali M. Agrawal

**INSTITUTE:** KCES's COEIT, Management Department,  
Behind DIC, NH -6, COEIT Campus, Jalgaon – 425001.

**CONTACT NO:** +91- 9595573989

**MAIL ID:** [shefali.agrawal92@yahoo.com](mailto:shefali.agrawal92@yahoo.com)



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# Crypto-Currency: The Money of The Future

## Abstract:

Cryptocurrencies are kind of digital currency that are rapidly growing and booming the markets. To combine the core ideas of cryptography with the transactional and monetary properties they rely on shared transaction ledgers and distributed networks to create an anonymous, secure and potentially stable virtual currency. In this paper below what are cryptocurrencies and altcoins including Bitcoin and the other six most important altcoins than bitcoin and what are the potential of the cryptocurrencies and how they are used for transactions are explained. The paper also shows some of the various advantages and disadvantages of these digital currencies and impact of government regulation on digital currencies. From the paper we can conclude that the the Crypto currency is not only the unicorn but the money of the future.

## Introduction

A digital currency in which encryption techniques are used to regulate the generation of units of currency and verify the transfer of funds, operating independently of a central bank. The currency can be traded globally without any trading cost and revealing your identity and these coins are not controlled by governments and businesses.

Cryptocurrency is an attempt to replace physical money transactions with a digital medium of exchange using peer-to-peer networking. Bitcoin is the first decentralized cryptocurrency, and still the most successful one and "A Peer-to-Peer Electronic Cash System."

Bitcoin was released in 2009 by Satoshi Nakamoto, who wanted a virtual currency that was unrestrained by regulation. These are forms of digital money that use encryption to secure transactions and control the creation of new units. New Bitcoins are released at a rate of about 25 new coins every 10 minutes.

The fast and comfortable means of payment with a worldwide scope are Cryptocurrencies, and they are private and anonymous enough to

Serve black markets and any other forbidden economic activity as a means of payment.

Crypto-currencies gave birth to an incredibly dynamic, fast-growing market for speculators and investors. Exchanges like Okcoin, poloniex or shapeshift enables the trade of hundreds of cryptocurrencies. Their daily trade volume exceeds that of major European stock exchanges.

Because Bitcoin was the first cryptocurrency to exist, all digital currencies created since then are called Altcoins, or alternative coins.

## The 6 Most Important Cryptocurrencies Other Than Bitcoin:



### 1) Litecoin (LTC)

Litecoin, was created by Charlie Lee, a MIT graduate and former Google engineer and launched in the year 2011. It was among the initial cryptocurrencies following bitcoin and was often referred to as "silver to Bitcoin's gold." Litecoin is based on an open source global payment network that is not controlled by any central authority and uses "scrypt" as a proof of work, which can be decoded with the help of CPUs of consumer grade. Although Litecoin is like Bitcoin in many ways, it has a faster block generation rate and hence offers a faster transaction confirmation. Other than developers, there are a growing number of merchants who accept Litecoin.



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## 2) Ethereum (ETH)

Launched in 2015, Ethereum is a decentralized software platform that enables Smart Contracts and Distributed Applications (DApps) to be built and run without any downtime, fraud, control or interference from a third party. During 2014, Ethereum had launched a pre-sale for ether which had received an overwhelming response. The applications on Ethereum are run on its platform-specific cryptographic token, ether. Ether is like a vehicle for moving around on the Ethereum platform, and is sought by mostly developers looking to develop and run applications inside Ethereum. According to Ethereum, it can be used to "codify, decentralize, secure and trade just about anything." Following the attack on the DAO in 2016, Ethereum was split into Ethereum (ETH) and Ethereum Classic (ETC). Ethereum (ETH) has a market capitalization of \$41.4 billion, second after Bitcoin among all cryptocurrencies. (Related reading: The First-Ever Ethereum IRA is a Game-Changer)

## 3) Zcash (ZEC)

Zcash, a decentralized and open-source cryptocurrency launched in the latter part of 2016, looks promising. "If Bitcoin is like http for money, Zcash is https," is how Zcash defines itself. Zcash offers privacy and selective transparency of transactions. Thus, like https, Zcash claims to provide extra security or privacy where all transactions are recorded and published on a blockchain, but details such as the sender, recipient, and amount remain private. Zcash offers its users the choice of 'shielded' transactions, which allow for content to be encrypted using advanced cryptographic technique or zero-knowledge proof construction called a zk-SNARK developed by its team.

## 4) Dash

Dash (originally known as Darkcoin) is a more secretive version of Bitcoin. Dash offers more anonymity as it works on a decentralized mastercode network that makes transactions almost untraceable. Launched in January 2014, Dash experienced an increasing fan following in a short span of time. This cryptocurrency was created and developed by Evan Duffield and can be mined using a CPU or GPU. In March 2015, 'Darkcoin' was rebranded to Dash, which stands for Digital

Cash and operates under the ticker - DASH. The rebranding didn't change any of its technological features such as Dark-end, InstantX.

## 5) Ripple (XRP)

Ripple is a real-time global settlement network that offers instant, certain and low-cost international payments. Ripple "enables banks to settle cross-border payments in real time, with end-to-end transparency, and at lower costs." Released in 2012, Ripple currency has a market capitalization of \$1.26 billion. Ripple's consensus ledger -- its method of conformation -- doesn't need mining, a feature that deviates from bitcoin and altcoins. Since Ripple's structure doesn't require mining, it reduces the usage of computing power, and minimizes network latency. Ripple believes that "distributing value is a powerful way to incentivize certain behaviors" and thus currently plans to distribute XRP primarily "through business development deals, incentives to liquidity providers who offer tighter spreads for payments, and selling XRP to institutional buyers interested in investing in XRP."

## 6) Monero (XMR)

Monero is a secure, private and untraceable currency. This open source cryptocurrency was launched in April 2014 and soon spiked great interest among the cryptography community and enthusiasts. The development of this cryptocurrency is completely donation-based and community-driven. Monero has been launched with a strong focus on decentralization and scalability, and enables complete privacy by using a special technique called 'ring signatures'. With this technique, there appears a group of cryptographic signatures including at least one real participant - but since they all appear valid, the real one cannot be isolated.

| Cryptocurrency | Market Cap       | Price      |
|----------------|------------------|------------|
| Bitcoin        | \$11,382,240,050 | \$712.76   |
| Ethereum       | \$904,848,975    | \$10.54    |
| Ripple         | \$290,446,848    | \$0.008121 |
| Litecoin       | \$184,904,214    | \$3.82     |
| Monero         | \$83,466,495     | \$6.27     |
| Dash           | \$66,519,213     | \$9.68     |



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## Databases Of Cryptocurrencies :

A cryptocurrency like Bitcoin consists of a network of peers. Every peer has a record of the complete history of all transactions and thus of the balance of every account.



Bitcoin can be stored offline on a person's local hardware. When the currency is stored on the internet somewhere (hot storage), there is high risk of it being stolen. So, to protect the currency from being stolen the process of cold storage used.

On the other side, if a person loses access to the hardware that contains the bitcoins, the currency is simply gone forever. It's estimated that as much as \$30 billion in bitcoins have been lost or misplaced by miners and investors. Nonetheless, the most famous cryptocurrency over time is Bitcoins which remain popular incredibly.

CryptoCoins can be directly obtained from individuals or special websites called 'exchanges' that will swap Bitcoins for regular currency. It's possible to accept them as payment for goods or services.

## Properties of Cryptocurrencies

### Transactional properties:

1.) **Irreversible:** After confirmation, a transaction can't be reversed. By nobody, nobody means nobody. Not you, not your bank, not the president of the United States, not your miner. Nobody. If you send money, you send it. Period. No one can help you, if you sent your funds to a scammer or if a hacker stole them from your computer. There is no safety net.

2.) **Pseudonymous:** Neither transactions nor accounts are connected to real-world identities.

You receive Bitcoins on so-called addresses, which are randomly seeming chains of around 30 characters. While it is usually possible to analyze the transaction flow, it is not necessarily possible to connect the real world identity of users with those addresses.

3.) **Fast and global:** Transaction are propagated nearly instantly in the network and are confirmed in a couple of minutes. Since they happen in a global network of computers they are completely indifferent of your physical location. It doesn't matter if I send Bitcoin to my neighbour or to someone on the other side of the world.

4.) **Secure:** Cryptocurrency funds are locked in a public key cryptography system. Only the owner of the private key can send cryptocurrency. Strong cryptography and the magic of big numbers makes it impossible to break this scheme. A Bitcoin address is more secure than Fort Knox.

5.) **Permissionless:** You don't have to ask anybody to use cryptocurrency. It's just a software that everybody can download for free. After you installed it, you can receive and send Bitcoins or other cryptocurrencies. No one can prevent you.

### Monetary properties:

1.) **Controlled supply:** Most cryptocurrencies limit the supply of the tokens. In Bitcoin, the supply decreases in time and will reach its final number somewhere in around 2140. All cryptocurrencies control the supply of the token by a schedule written in the code. This means the monetary supply of a cryptocurrency in every given moment in the future can roughly be calculated today. There is no surprise.

2.) **No debt but bearer:** The Fiat-money on your bank account is created by debt, and the numbers, you see on your ledger represent nothing but debts. It's a system of (IOU). Cryptocurrencies don't represent debts. They just represent themselves. They are money as hard as coins of gold.

To understand the revolutionary impact of cryptocurrencies you need to consider both properties. Bitcoin as a permissionless, irreversible and pseudonymous means of payment is an attack on the control of banks and governments over the monetary transactions of their citizens. You can't hinder someone to use Bitcoin, you can't prohibit



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someone to accept a payment, you can't undo a transaction.

As money with a limited, controlled supply that is not changeable by a government, a bank or any other central institution, cryptocurrencies attack the scope of the monetary policy. They take away the control central banks take on inflation or deflation by manipulating the monetary supply.

Mostly due to its revolutionary properties cryptocurrencies have become a success their inventor, Satoshi Nakamoto, didn't dare to dream of it. While every other attempt to create a digital cash system didn't attract a critical mass of users, Bitcoin had something that provoked enthusiasm and fascination. Sometimes it feels more like religion than technology.

#### Price Determinantes of Bitcoin-

- The supply of bitcoin and market demand for it.
- The number of competing cryptocurrencies.
- The exchanges it is traded on.
- Regulations governing its sale.
- Its internal governance.

#### Impact of Government Regulations on Price-

- Through buying and selling actions in international markets, governments can regulate the price of assets, such as fiat currencies.
- Government regulations increases the cost of running business by burdening the asset class with excessive enthusiasm.
- By imposing controls the government can make the asset scarce.

All the above actions in the case of bitcoin and cryptocurrencies have the potential to fail. This is because of decentralized and extra national ledgers of cryptocurrencies that are spread across multiple countries. Their regulation will require a well-coordinated effort across several economies. This can be a difficult task and impact on economies due to

the varying levels of interest in cryptocurrencies at different places.

The example of such difficulties to cryptocurrencies is the differing reactions of China and Japan. Initial coin which use funding mechanism are banned for offerings by China to prevent the laundering of money and capital outflow. On the flip, Japan rapidly developing its own currency by considering cryptocurrencies as legal tender. Both have the positive and negative impact of Bitcoin prices.

#### Advantages:

1. Mutual Exposure
2. No surprise Fees or Waiting Periods
3. International Use
4. Transaction Security:
5. Lower Transaction Processing Costs

#### Disadvantages:

1. Irreversible Payment
2. Not Widely Accepted
3. Loosing You Wallet
4. Helps illegal activities

#### Warnings about Cryptocurrency-

- Bitcoin has no central bank and there is no government regulation.
- Experts think the bubble could burst.
- Earlier this year Ethereum – the second biggest cryptocurrency after Bitcoin – saw its value collapse from \$317 a coin to \$0.1 a coin in a day. It bounced back, and is now trading at \$473 a coin, but the lesson is there.
- "Stay away from it. It's a mirage, basically." - Legendary investor Warren Buffett.
- "Bitcoin is a highly speculative investment. Putting money in it is a form of gambling." - Finance expert Martin Lewis.



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### Future of Cryptocurrency-

The cryptocurrencies market is growing rapidly. Nearly every day new cryptocurrencies emerge, old die, early adopters get wealthy and investors lose money. Every cryptocurrency comes with a promise, mostly a big story to turn the world around. Few survive the first months, and most are pumped and dumped by speculators and live on as zombie coins until the last bagholder loses hope ever to see a return on his investment.

People all over the world buy Bitcoin to protect themselves against the devaluation of their national currency. Mostly in Asia, a vivid market for Bitcoin remittance has emerged, and the Bitcoin using darknets of cybercrime are flourishing. More and more companies discover the power of Smart Contracts or token on Ethereum, the first real-world application of blockchain technologies emerge.

The revolution is already happening. Institutional investors start to buy cryptocurrencies. Banks and governments realize that this invention has the potential to draw their control away. Cryptocurrencies change the world.

Second-generation cryptocurrencies include altcoins with more advanced functions that harness the computing power of the blockchain. An example is Ethereum - the blockchain can execute "smart contracts".

These are pieces of computer code that can interact with other coded contracts and perform work - for instance moving money around and making decisions.

To decide what investments the DAO makes, its members vote on which proposed contracts will be included in the blockchain. This could be the start of an autonomous financial future dictated by machines rather than humans. With regards to the Blockchain, India can't be overlooked.

It is an incredible nation with more than a billion people who recently experienced demonetisation. That is the time that numerous Indians started capitalizing their cash in Bitcoin and proceed to owe them now. This spike drove some tech-savvy citizens to purchase Bitcoins as well as accomplish something with the blockchain protocol itself.

This year, we have seen the crypto network growing at a rapid pace. While until today there is no clear policy or regulation on cryptocurrency. The government and courts stand have been unclear. Though entrepreneurs in the country are making the most of the opportunity.

In a country like India, where we value everything by its monetary worth, the sure-shot way to beat cash is to make currency that is more valuable than cash.

Apart from that, there is no one who understands Indian consumers better than native companies. A crypto exchange and a wallet that would allow hundreds of millions of citizens to become part of the crypto economy will be a great leap for the entire blockchain community.

### Conclusion:

In terms of Cryptocurrencies, Bitcoin continues to lead in market capitalization and popularity.

Nevertheless, virtual currencies are becoming popular as they are used more for enterprise solutions such as Ethereum and Ripple. And for the superior and advanced features some altcoins are being authorised.

Going by the current trend, cryptocurrencies are here to stay. With advancements in technology, cryptocurrencies are more likely to become the mainstream currency for transactions in the coming years. With less government regulation and with their proprietary algorithms central banks have decided to circulate their own cryptocurrencies and choosed the decentralized management cryptocoins among the public. Alternatively, for some cross border collaboration and economic control, bitcoins are authorised with some mechanisms.

Further, By using cryptocurrencies their customers loyalty management programmes can be enhanced. For example, Tradeable cryptocurrency can be used as a substitute for reward points in loyalty programmes. Technological advancements can make this possible in the near future.



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TITLE OF THE PAPER

**Cash to Cashless Economy: Transforming India towards  
Digitization**

AUTHOR-I

**NAME:** Ms. Shefali M. Agrawal

**INSTITUTE:** KCES's COEIT, Management Department,  
Behind DIC, NH -6, COEIT Campus, Jalgaon – 425001.

**CONTACT NO:** +91- 9595573989

**MAIL ID:** shefali.agrawal92@yahoo.com

AUTHOR-II

**NAME:** Dr. Veena P. Bhosale

**INSTITUTE:** KCES's COEIT, Management Department,  
Behind DIC, NH -6, COEIT Campus, Jalgaon – 425001.

**CONTACT NO:** +91- 9975563908

**MAIL ID:** veenapbhosale@gmail.co



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# Cash to Cashless Economy: Transforming India towards Digitization

## Abstract:

India is such a country where most of the payments are done in cash forms. To become a developed country it is required to transform towards the cashless economy. It is the economy where economic transactions are done with the facilities like credit card, debit cards, online transactions by means of fund transfer and using e-wallets and now moving towards digital currency. This paper also analyze the challenges that are faced by such a large economy and also the opportunities created by this transformation. It's an ardent effort to move towards a cashless transaction economy by minimising the use of physical cash. The leading advantage of building a cashless economy is elimination of black money. Digitalisation of transactions is the best way to move towards cashless economy. Such a cashless economy is realisable by promoting electronic money instruments, developing financial infrastructure and spreading digital transaction habits among people. It's a big move towards the motive to be Developed country.

**Key Words:** Cashless Economy, Financial Inclusion, Digitalization, Electronic Payment System

## Introduction

A cashless economy is one where financial transactions are not done by physical money rather it is done through digitization. In a cashless economy, electronic channels like debit card, credit card, mobile banking, electronic merchants, payments such as IMPS, payment through apps like PAYTM are mode of transaction. Cashless societies have existed, based on barter and other methods of exchange, and cashless

transactions have also become possible using digital currencies such as Bitcoin. India has been a cash-dependent economy, with 97-98% of all transactions still in cash. Only half the nation's adult population i.e. around 233 million possess a bank account, a precursor for a cashless economy.

A cashless society is a term describing the economic eco-system in which physical money (banknotes and metal coins) are replaced with virtual, digital money, and where cash circulation is substituted with payments done by using numerous types of cards, mobile devices and various other equipment connected to the internet.

India has taken an ardent effort to move towards a cashless economy by minimising the use of physical cash. The leading advantage of building a cashless economy is elimination of black money. Digitalisation of transactions is the best way to move towards cashless economy. Such a cashless economy is realisable by promoting electronic money instruments, developing financial infrastructure and spreading digital transaction habits among people.

Types of plastic money, E-wallet and digital currency

| Plastic Money                   | E-Wallet         | Digital currency |
|---------------------------------|------------------|------------------|
| Credit card                     | PayTM            | Bitcoin          |
| Charge cards                    | Momoe            | Ethereum         |
| Debit card                      | PayUMoney        | Litecoin         |
| Customer card/store card (PLCC) | Mobikwik         | Ripple           |
| Prepaid card/gift card          | Freecharge       | Dash             |
|                                 | Citrus.          | IOTA             |
|                                 | State Bank Buddy | Monero           |
|                                 | Citi             | Zcash            |
|                                 | MasterPass       |                  |
|                                 | ICICI            |                  |
|                                 | Pockets          |                  |



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### Importance of Cashless Transaction:-

**Taxation:** With lesser availability of hard cash at homes and more in banks, there is lesser scope of hiding income and evading taxation and when there are more tax payers it ultimately leads to a lesser rate of taxation for the whole country.

**Transparency and accountability:** It becomes a lot easier to track the flow of money with every transaction being recorded with the buyer, seller as well as regulatory bodies, making the system much more transparent and compliant. In the long term it leads to better business and investment prospects for the economy as a whole. More currency in bank will mean more circulation of money in the economy, leading to greater liquidity and would eventually mean lesser interest rates (according to the monetary policy of the country).

**Reduced red tapism and bureaucracy:** With cashless transactions through electronic means the wire transfers are tracked and people are accountable which in turn reduces corruption and improves service time.

**Less availability of cash for illegal activities:** When people are encouraged to go cashless, there is lesser cash available with the people and there won't be a means to invest in other activities to use the idle cash. Channels like hawala (illegal remittance) will ultimately suffer the brunt of a cashless economy.

**Pack of cards:** No need to carry bulky notes in a case. Just carrying the required cards or mobile banking will suffice. More sense of safety with a PIN protected card etc. which will work only with your own credentials.

**No fear of being robbed:** Unlike carrying cash and letting everyone know that there could be something worth snatching.

**Tracking of expenses:** It becomes easier to determine how much was spent where.

**The exact amount in small denominations can be paid:** Unlike cash transactions, there is no need to pay fringe amount in case the exact amount is not available with either of the parties. An important, though seemingly insignificant issue is that of hygiene of the notes.

**Easier accounting:** Direct payment to bank account. You don't need to go every day to deposit cash to your current account.

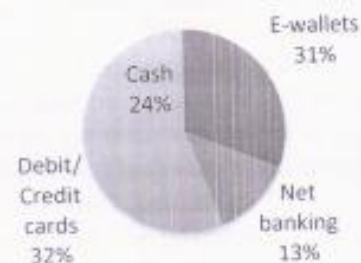
**Easier transactions:** We can easily do any transaction with security.

**A boost to global remittances**

**Unleashing the potential of e commerce**

**Programmable money and smart Contracts**

Preferred Payment



### Objectives

- To study the challenges and opportunities of cashless economy.
- To study the socio-eco impact of cashless economy on society in India.
- To understand the factor influence the customer's moving towards cashless.
- To study the prospect of cashless economy in India.



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**Comparison among Cash, Cheques, and Immediate Payments**

| Key Payment Attribute              | Cash | Cheque | Immediate Payments |
|------------------------------------|------|--------|--------------------|
| Cancellation/ Revocability         | C    | A      | C                  |
| Comprehensive Reach                | A    | A      | A                  |
| Control with Payer                 | A    | B      | A                  |
| Convenience                        | B    | B      | A                  |
| Cost of Use                        | C    | B      | B                  |
| Ease of Use                        | B    | C      | A                  |
| Information Attached with Payments | C    | B      | A                  |
| Risk of Fraud                      | B    | C      | B                  |
| Settlement Time                    | A    | B      | A                  |
| Straight-Through Processing (STP)  | C    | B      | A                  |
| Time of Operations                 | B    | C      | A                  |
| Tracking/Transparency              | C    | B      | A                  |
| Transaction Confirmation           | A    | C      | A                  |

**Benefits-**

There are many benefits that are related directly or indirectly to the India's economy with the use of cashless transactions in the market.

1) **Cost of printing money:** Printing money is the direct cost that effects the bank( Reserve Bank Of India). In the cash system of economy where maximum people will work on the cash transaction, government has to produce more and more cash notes. Printing notes it is a costly affair. Data from a Right to Information answer by the RBI in 2012 shows that it costs Rs. 2.50 to print each Rs. 500 denomination note, and Rs. 3.17 to print a Rs. 1,000 note. From April 1994 to June 2016, currency has shown a yearly growth rate of 17%, while the share of bank

currency has remained around 5%. It was estimated that, for 2009–2010, RBI incurred an annual cost of INR 2800 Crores for printing currency notes (Das and Agarwal 2010). As per the new declaration of demonetization by Modi it has cost the nation an additional burden of 12000 Crore on the exchequer.

2) **Maintenance Cost:** Other than printing cost of the currency notes there are many other expenses that RBI and government has to do. Another important aspect is the maintenance in the form of storage of notes, transportation of the notes to the distant places, security of the notes, and devices for the detection of counterfeit notes. The other major aspect of the maintenance is that the distribution of money through ATM machines at the different locations. It is reported that all this maintenance cost the government about 5% of the GDP of India. In nutshell we can save somewhere around 500 crores by this mean only.

3) **Eradication of the corruption:** Going cashless is going to eradicate the corruption to some extent. The direct transactions of the money cannot take place easily. These transactions will be simple easy and transparent which in turn will show in the accounts of the senders and the receivers. This cashless economy is going to hit the corruption in a very planned way from the government offices. This is again going to save enough money in the economy of the country.

4) **Help to Check High Rate of Organized Crimes, Such As Armed Robbery, Kidnapping Terrorist Activities and Money Laundering:** It is a well known fact that the criminal underworld usually requires huge volumes of cash to carry out their nefarious operations in order to avoid being traced or tracked. Therefore, placing a limit on the amount of cash flowing in the system, will curtail such activities as armed robbery, kidnapping, drug and gun running and money laundering. In an environment of extensive and predominant use of cheques



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and e- payments, criminal transactions can be easily traceable and tracked. All the terrorist related activities are highly funded by the cash. The cashless economy helps the government to keep a check on the free flow of cash to the terrorists and terrorist related activities.

**5) Wipe away the black money from the market:** It has been observed that many businessmen start evading the real money. Most of them never show the actual business on paper. This habit of evading sales has caused a lot of Impact on the tax of the country. Small shopkeepers and big industrialists do this to save tax. This practice has created a very big problem of loss of tax to the exchequer. The loss of huge money has lead to the parallel economy in the state that has created a big loss not only to the government but towards the development of the common people's goal. The presence of cashless economy will definitely lead to the development of the country by means of collecting surplus taxes and also to spend these taxes for the benefit of the scheme. Modi in his poll manifesto of 2014 general election has announced that if the government is able to bring back the black money in the mainstream than every Indian will have 15 lakhs of rupees in their accounts irrespective of their income potential.

**6) Installation of formal and pure form of economy:** It has been observed that cashless economy leads to the start of proper formal and functional economy in the country. When all the transactions are made proper clear clean and taxed, it may lead to the establishment of formal setup of the total financial system that leads the country towards the development.

**7) Stop Leakages:** Cashless economy is the best and one of the few ways in the system to stop leakages of the money by the officials of the government while distribution money to the beneficiary. The present policy of the linkage of AADHAR or UID NO. by the government has

resolved this issue to the great extent. The direct benefit transfer policy of the government has helped the identification of the beneficiary on the basis of biometric identity and helps the people to get their dues directly in their bank accounts. This is again a digital or cashless system of transaction that helps the individual to save time and money.

**8) Decrease the cost of commodity:** the cashless economy aims at reducing the cost of the commodities by setting aside the black market and the proper deposit of the tax. All this leads to the development of the system where one can find the cost of the commodity going down in the market. The developed economy like China is the best example for this.

### Prospects

**The JAM infrastructure can encourage digital transaction culture:** The JAM infrastructure is spreading to reach each remote corner of the country as well as to every citizen. Almost 24 JDY Accounts, 124 Aadhaar identity cards and nearly 90 crore mobile phones. Similarly, 33 million internet users are in India. This means that the JAM infrastructure can be used to promote cashless transactions.

- A large number of government transfers (DBT) are made through JAM mode. This will help people to get digital transaction awareness.
- The growth in volume and value of transactions using prepaid payment instruments (PPIs) issued by banks and authorised non-bank entities has also been significant.
- NPCI promoted Aadhaar enabled Payment System, IMPS etc and they have registered big turnover in transactions. Newly launched UPI (Unified Payment Interface) is expected to give a big boost to cashless transactions.
- Numbers of credit and debit cards are increased to 25.4 million and 691.1 million, respectively. The demonetisation



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drive may encourage people to learn and settle transaction using online.

- RTGS and NEFT volumes increased almost threefold between 2013 and 2016 reflecting greater adoption of the system by all segments of users.

- As more people start using RuPay debit cards and Aadhaar for digital payments, it will facilitate a less cash economy.

- With increasing mobile banking services, growth in e-commerce and use of mobile payment applications, the use of cash will decrease. The RBI has made several efforts to promote digital settlements. Most important of them are launch of a regulatory set up for Prepaid Instruments (PPIs). Similarly, encouragement to mobile banking and internet banking will help to reduce the use of physical cash. There are some threats to the transformation which are as below:

#### **Mindset of keeping and saving cash**

This is the most dominating factor in our country which will give challenges to this transformation. But this can be solved if government gives reasons/advantages for moving to digital economy. Be it incentives or bonuses or other benefits, if government use the money which is saved because of going digital (cost of cash) in this kind of promotion, I think there will be more acceptability.

**Financial Inclusion** Still many people are not in the financial inclusion of the country.

For women the figures are really bad. Government should promote the cashless economy by using the platforms of women empowerment so that is it entrepreneurial role or a housewife role or a mother role the transaction through digital channel gets increased. Imagine a situation where a mother does not give pocket money to her school going child and give instead a separate card having dedicated amount for his expenses in account.

#### **Digital literacy**

Personally I know many people who do not know how to use payment apps like Paytm.

Some do not know how to make on-line payments. Despite of bearing pain of standing in queue many people do money transfer standing in queues especially in rural areas and tier 3 cities and places which are close to such areas. And this happens because they do not know how to use such tools. I think this is where opportunities are in creating jobs. Imagine for every village there is one trainer assigned by government or banks who train few people and they also join government initiative as an employee in training others. But just providing knowledge about how to use is not sufficient. From security point of view required information should be given like Dos and Don'ts.

**Connectivity** still many areas do not get proper Internet connections.

#### **Impact of Cashless Transaction:-**

##### **1. Business Process:-**

The impacts of Cashless Transaction on the Business sector are as following:

- Businesses are legally strong.
- Proper audit. Not hidden excess liability.
- Increase use of e-payment.
- Wallet hold business gets an advantage.

##### **2. Education Process:-**

The impact of Cashless Transaction on the education sector is likely to be minimal. Some of the foreseeable fallouts of demonetization on the Indian education sector are as following:

- The decision of the central government to withdraw high-value bank notes to curb unaccounted cash will hurt education institutions that accept donations or capitation fees for admissions.
- Accepting and accounting donations will become difficult because of the demonetisation drive. Education sector was not immune to the Indian theory of 'you can buy everything with money'. This move of demonetisation will definitely curb this mentality of



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many in the country. Nursery admissions, private education institutions and professional higher education including medical and engineering are the segments which accept donations widely. For the first time these segments are going to feel the impact in a big way.

- Private educational institutions take huge amount of donations in Cash which is 40% to 50% more than the fees of the course. We expect that demonetisation will impact the recipient.
- Admissions in private educational institutions and medical college admissions come tagged along with donations without a glitch. The donations in medical colleges are usually more than 100% of the fees. Demonetisation will impact both admissions and also the receipt.
- MBBS seats in some colleges go for Rs40 lakhs to Rs60 lakhs, while MD seats have a range of Rs 2 crore price tag on it. Similarly, engineering and management stream seats have a price tag between Rs 2 lakhs to Rs 10 lakhs each. This move can change the course of expensive education which can be made more affordable devoid of the capitation fee.

### 3. Economic Growth:-

The impact of Cashless Transaction on Economic Growth in India is as following: According to the Bank, India's growth in the first half of FY 2017 was underpinned by robust private and public consumption, which offset slowing fixed investment, subdued industrial activity and lethargic exports.

- The medium-term may be liquidity expansion in the banking system, helping to lower lending rates and lift economic activity," the World Bank noted.

### 4. Impact of Information Technology in cashless economy:-

The impact of Information Technology on in cashless economy in India is as following:

- Because of information technology the cost of bank will reduce that will result in lower service charges for customers.
- Making Transaction is very easy by using information technology.
- New IT Technology like biometric are help to do secure and transparent transaction.

### Challenges in Transitioning to a Cashless Society

- Acceptance infrastructure and digital inclusion
- Financial Inclusion Digital and Financial Literacy
- Cyber Security
- Changing habits and attitude
- Urban – Rural Divide
- Currency dominated economy
- Transactions are mainly in cash
- ATM use is mainly for cash withdrawals and not for settling online transactions
- Limited availability of Point of Sale terminals and poor transaction culture in POS
- Mobile internet penetration remains weak in rural India

### CONCLUSION

However, the benefits of this move have now started trickling in with more and more people switching to digital modes of receiving and making payment. India is gradually transitioning from a cash-centric to cashless economy. Digital transactions are traceable, therefore easily taxable, leaving no room for the circulation of black money. The whole country is undergoing the process of modernization in money transactions, with e-payment services gaining unprecedented momentum. A large number of businesses, even street vendors, are now accepting electronic payments, prompting the people to learn to



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transact the cashless way at a faster pace than ever before.

If we look at the overall scenario of establishing the cashless economy, its benefits and uses in the present system it can be said that cashless economy is the need of the hour. It has become not only important but necessary for the country to go cashless for the systematic development in the economy. This is to be done in a very systematic way by taking some of the initiatives. By following some of the points it can be said that we can effectively implement the cashless transactions in the country. It will be better to say that India at this point of time has to go for less cash economy rather than cash less economy. The continuous march towards less cash economy will lead to cashless economy in the country.

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## Digitalization: A key driver for sustainable agriculture

### Abstract :

*This preliminary study has been undertaken to access the digital payment system and online marketing in agriculture and related activities of different economic agents. The study is based on secondary collected from farmers, traders and consumers and also reviews the impact on agriculture from different sources. The objective for study is to study the initiative taken by the government towards Digital Economy in India. To study challenges that will affect the implementation of Digital Economy. To study the Impact of Digital Economy on India's GDP. However, there are scopes in future to replicate this type of study at larger scale and computation of cost and benefits of such policy shocks to know the exact economic impact.*

*Information and Communication technologies (ICT) have been used to deliver knowledge to support agriculture and rural livelihood (ARL) for over ten years now. Yet, in India today, use of ICT to support ARL remains at an early stage yet there are more than a hundred active ICT initiatives towards this end across the country. This paper proposes a three-step approach for replacing the cash payments made by large buyers (e.g. lead firms, cooperatives) to smallholder farmers with digital payments. By helping to transition these aggregated cash payments to digital payments; agriculture developers are well positioned to leverage digital finance on behalf of the agricultural base of the pyramid.*

**Keywords:** Agriculture, e-Payment Methods, ARL (Agriculture rural livelihood), ICT

### Introduction

India is the world's largest sourcing destination for the information technology (IT) industry, accounting for approximately 67% of the market. However, the emergence of farm technologies integrated with a robust information and communication technology (ICT) framework is still evolving in India, and it holds tremendous potential to both positively impact agricultural performance and enhance farmers' income. The impact of technology is in unlocking value for the people at the bottom of the pyramid and improving access to critical services.

Digital agriculture is an ICT and data ecosystems to support the development and delivery of timely, targeted information and services to make farming profitable and sustainable while delivering safe nutritious and affordable food for all.

Technical meaning of it is leveraging digital technologies i.e. cloud, mobile, remote sensing, sensors, bioinformatics and systems biology and others to support demand-driven innovation of sustainable and equitable interventions for ecological intensification of modern food systems.

In the past, Indian agriculture faced a formidable challenge to grow more food, but it faces an even more difficult challenge today and for the future: to grow more sustainable and inclusively. Major challenges confronting Indian agriculture include declining total productivity, diminishing and degrading natural

resources, a rapidly growing demand for food (not just for quantity but also for quality), stagnating farm incomes, fragmented land holdings, and unprecedented climate change. It has been established that technology adoption modernizes farmers' production practices and leads to uniform annual returns for farmers, reduced risk of crop failure, and increased yields. Direct applications of digital technology include remote sensing (via satellites), geographic information systems, and crop and soil health monitoring, and livestock and farm management, among other applications.

The growth of competitive markets and demand for consistent food quality is making the adoption of such tech based solutions imperative for the Indian farmer.

The application of digital technology in agriculture has been instrumental in promoting data generation as well as the advanced analytics that allow farmers to make smart decisions about farming and to benefit it from an economical use of inputs and labour.

Today's economic activities are driven by the use of digital platforms which enable transmission of information by the use of worldwide network. Use of digital technologies enables transformation of public life and has a significant impact on socio economic development of people and economic development of the country. The government initiatives are driven towards creating an environment where good governance is possible by use of digitization. The growing use of technologies, in commercial environment leads to various innovation in digital payments like debit cards, credit cards, ECS, NEFT, RTGSUSSD, UPI, Aadhar based payment system etc.

Consumers have used more than one mode of payment to deal with cash crunch situation but, the lower income class people and those who did not use alternative payment methods (e-payment) were affected most. Moreover, all the economic agents have responded in favour of normalization of situation at the end of February, 2017.

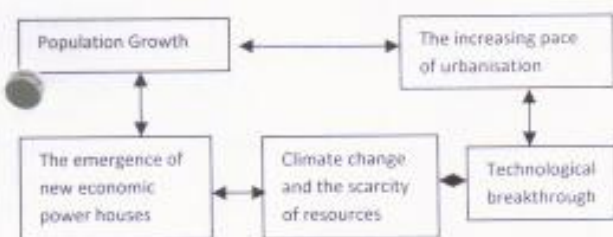
Application of IT is associated with markets in the developed countries where capital intensive method of agricultural production is followed. However, in a country like India where rural base is wide, its relevance cannot be overlooked. In addition to facilitating farmers in improving the efficiency and productivity of agriculture and allied activities, the potential of IT lies in bringing about an overall qualitative improvement in life by providing timely and quality information inputs for decision making; IT can also be effectively used to strengthen the supply chain for agro based companies for leading to better price realization by farmers.



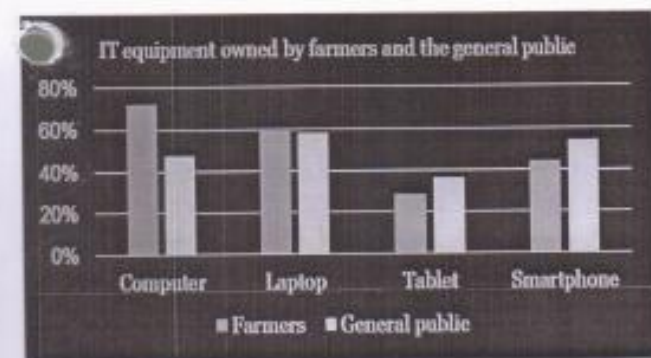
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### Five major trends will transform the cooperatives environment over the next 30 year



Farmers have led the way in embracing new technologies such as GPS, which they have used on their tractors since the 1990s. Today, they are better equipped than the average member of the general public in terms of computers and laptops, and the number of farmers with tablets and smart phones has been increasing since 2013. Cooperatives are also embracing digital technology, recognising it as a key issue for the agricultural industry.



### Objective

- i. To study the initiative taken by the government towards Digital Economy in India.
- ii. To study challenges that will affect the implementation of Digital Economy.



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### Data Collection:

In this paper the research is based on secondary data. The data is taken from different research reports, journals, websites, and research paper. The research is based on the study of India's current status as compared to other countries for digital economy, challenges and its impact on GDP.

When digital payments whether on mobile phones, cards, or online —become available to everyone, everyone in the economy can benefit from the outcomes. These include:

#### 1. Cost Savings

Governments, companies, and international organizations and individuals waste time and resources making and receiving inefficient cash payments. Digital payments can be made quickly and efficiently, which decreases overall costs.

#### 2. Transparency and Security

Transparency and accountability are harder to achieve with cash payments because they are anonymous and difficult to trace. Digital payments increase accountability and tracking, lessening the risk of corruption and theft.

#### 3. Financial Inclusion

Digital payments have emerged as an important tool for advancing financial inclusion because it lowers the cost of providing financial services to poor people and increases the safety and convenience of using savings, payments, and insurance products.

#### 4. Women's Economic Empowerment

Improving access to digital payments can empower women by giving them more control over family finances, increasing personal security, and improving their economic opportunities.

#### 5. Inclusive Growth

Integrating digital payments into the economies of emerging and developing nations addresses the critical issue of domestic resource mobilization. Digitizing payments also drives inclusive economic growth and individual financial empowerment.

### Impact on agriculture

For the present study data from three different classes of farmers (i.e. large farmers, medium farmers and small farmers); two different class of traders from fruits and vegetables and grain markets (Wholesalers and retailers); and four different income class of consumers were collected. The results of the study are categorised into three groups i.e. impact on activities farmers; impact on activities of traders and impact on the consumption activities of the consumers.

### Impact of digital technology interventions on agriculture outcomes:

greater arbitrage opportunities, reduction in spatial price dispersion, lower wastage, increase in both consumer and producer welfare.

Increases in farm-gate prices from improvements in bargaining power with middlemen, greater market participation in remote areas through more efficient coordination.

#### Enhance Farm Productivity:

Facilitates adoption of improved inputs by providing extension advice and weather forecasts at a lower cost and encouraging agricultural investment decisions. Improvements in rural households' food security, income, value of assets through enhanced management practices.

Success of digital technology interventions depend on broader institutional support such as political empowerment, human capital, and income inequality.

#### Enable Efficient Logistics:

Optimize supply chain management; enhance coordination of transportation, delivery of products, and improving capacity utilization. Ensures food safety in global agriculture product chains, tracing from point of origin to consumer's. Facilitates secure payments, allows fast and safe transfer of funds to pay for products and inputs, agricultural subsidies, or remittances.

#### Key Finding:

- Expanding digital payments and building responsible digital payments ecosystems are fundamental to creating a sustainable agricultural sector and addressing poverty and hunger.
- Investing in agricultural productivity and capacity by enabling more digital payments is likely to have outsized returns.
- The disadvantages of cash are magnified for people in rural and remote communities.
- There is a wide gender gap in agricultural opportunities and outcomes, which digital payments can help to address.
- Digital payments have been slow to catch on with smallholder farmers in poor rural communities.
- In order to replace cash, digital payments must offer a greater value proposition and operate within a far broader digital payments ecosystem.

#### Promoting Digitization :

Governments, the private sector, and the international development community all have important roles in making payment systems more efficient and more accessible to low-income consumers. Although all countries can benefit from digitalization, it is important to consider that specific roles will vary on a country-by-

country basis by local market development and dynamics, regulations, and strength of institutions.

#### A Role for Government

Government effort is needed to facilitate the movement of financial transactions from cash to digital, especially with regard to reaching individuals in financially underserved areas. While the private sector is, for the most part, eager to introduce or expand on digital payments solutions, governments have an essential role to play by creating an enabling regulatory environment, promoting consumer protection and education, and playing a catalytic role in building a digital ecosystem



**Construct a supportive regulatory environment.** In order for the private sector to be able to provide digital payments solutions, it needs the space to develop innovative payment products.

Providing a clear and functional regulatory framework for these new players will be important to ensure both a level playing field between the different actors in the digital payment space and adequate protection of consumer funds.

Since moving toward digital payments will bring many individuals into the formal payments system for the first time, regulators should establish appropriate "Know Your Customer" (KYC) account opening and documentation requirements that do not have the unintended consequence of excluding legitimate businesses and consumers from the financial system.

**Establish an appropriate financial consumer protection framework.** The potential access by consumers to digital services that go beyond basic banking functions, including credit, investments, and complex or bundled products, raises associated risks for consumer segments with weaker financial capability. There are also significant issues concerning fraudulent, misleading, and unfair commercial practices, and consumers require the right to dispute any unauthorized transaction. Data privacy and security are important issues to be raised, and governments should safeguard personal information against loss or theft. Consumers should have access to appropriate (independent, impartial, and free) redress mechanisms.



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play a catalytic role in building a digital ecosystem by moving its payments from cash to digital. The sheer volume of government payments, from salaries to pensions and social cash transfers, has the potential to add significant volumes of transactions to service providers. This, then, can make a critical contribution to commercial viability of financial infrastructure in currently underserved areas, such as rural locations, and can help reach especially low-income households. This does not mean that a government itself will necessarily provide for these digital payments. Rather, in partnering with private-sector payment service providers, governments can help jump-start the creation of digital payments infrastructure.

**Increased credit information and reduced incidences of nonperforming loans:** The inclusion of positive payment data in consumer credit files such as utilities and telecommunications services bill payments can potentially have a large impact on the financially excluded. Biometric identification of borrowers allows lenders to collect positive and negative credit information on loan performance.

Farms are becoming increasingly computerised. We help producers to manage their automated milking systems, which constantly generate data. We are therefore able to remotely manage farms, monitor changes in milk temperature, the health of livestock, the quantities of feed consumed, production volumes, milk flows, etc. With smart phones, farmers are now able to manage many aspects of farming from the comfort of their home.

#### Challenges:

- The digital revolution is not ahead of us, but is happening right now. It is essential that we make it a major driver of our business. There's no point asking whether we should or we shouldn't.
- Digital technologies are indispensable and we're in an experimental phase. We're learning to use the tools, we're trying to understand the changes and everything's moving so quickly. The rules keep changing.
- Digital technology isn't just something that will make us better if we use it: if we don't want to be obsolete in 5 years time, it's an absolute must. It's a challenge and a necessity.

#### Conclusion:

As adoption of digital payments with regard to both remittances and other payments can significantly advance the global financial inclusion agenda and support the priority areas of the Global Partnership for Financial Inclusion (GPII).

The international community must work with both governments and the private sector to address the challenges of digitizing payments in order to achieve the potential benefits. These challenges include generating up-front investment in payments infrastructure, ensuring that recipients understand how each cash-transfer

program works, and taking steps to guarantee reliable and consistent payments.

A successful future growth strategy for agriculture will need to perceive agriculture as a business enterprise involving constant innovation and catering to dynamic market demand. Although agricultural technologies are fast evolving in India and a mix of business models are driving the ecosystem, there is a need to design the pathway to successful commercialization and to scale it up by utilizing the right incentives and policy support. Technology will continue to play an important role while the dynamics of the agriculture sector changes and produces new challenges.

The IT revolution in India was brought forward by the private sector, with the public sector creating an enabling environment. Uptake of technologies at market prices in a sector that has traditionally been heavily subsidized remains challenging, but farmers are prompt to identify what works in their interest and are ready to pay for it. Digital technologies offer the potential to achieve the necessary conditions for scale, with distributed low cost and customized delivery, creating unique opportunity for private enterprise and innovation to thrive. The challenge before India lies in balancing high growth with inclusive growth; leveraging technology to achieve these twin goals will be a fascinating journey to track.

A developed agriculture system is based on three key pillars: knowledge, infrastructure, and a robust delivery mechanism. Supporting the research and development ecosystem in agriculture directly contributes to creating knowledge and preparing for the future. To strengthen the supporting framework for growth, it will be important to focus on creating new physical markets, improving storage and transport facilities, making better roads, and ensuring a continued electricity and water supply.

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# Implementation of Fuzzy Logic Controller Based Active Power Filter to Improve Power Quality of 25KV Traction System

Komal K. Ingale<sup>1</sup>, Prasad D. Kulkarni<sup>2</sup>

<sup>1</sup>PG Student (EPS), Dept. of EE, KCE'S College of Engineering, Jalgaon, Maharashtra, India

<sup>2</sup>Assistant professor, Dept. of EE, KCE'S College of Engineering, Jalgaon, Maharashtra, India

Adv

## ABSTRACT

A good power quality is an important factor for the reliable operation of electrical loads. The nonlinear loads such as compact fluorescent lamps, switching mode power supplies, induction motors give rise to several challenges in power quality for power systems. Due to the non-linear load connected in the power system, harmonics will be presented, which affects power quality at the distribution level. Conventional PI, PD, PID controllers and fuzzy logic controllers are used to improve power quality. Fuzzy logic controller in conjunction with the PLL synchronizing circuit as the controller for shunt APF facilitates improving power quality. For power quality improvement, a separate converter with shunt APF is used. The APF is controlled by dq theory with hysteresis controller is used to generate gate pulses to inverter switches. The FLC ensures that the dc-side capacitor voltage is nearly constant with small ripple besides extracting fundamental reference currents. The PLL synchronizing circuit assists the active filter to function even under distorted voltage current conditions. The shunt APF system is implemented with voltage source inverter and is connected in parallel at PCC for filtering the current harmonics and compensating the reactive power in traction system. 25KV traction system details are taken from POH, ELW, Bhusawal. The APF controlled by Fuzzy controller is modelled using MATLAB/Simulink.

**Keywords:** Active Power Filter (APF), Electric Locomotive Workshop (ELW), Hysteresis Current Controller (HCC), Point of common coupling (PCC), Periodically Overlying House (POH).

## 1. INTRODUCTION

Nowadays, electricity demand increases, power quality is decreasing and becoming difficult to mitigate. The power system needs to be protected against different power quality problems. Harmonics is one of the power quality issues that influence to a great extent transformer overheating, rotary machine vibration, voltage quality degradation, destruction of electric power components, and malfunctioning of medical facilities. The nonlinear loads generate current harmonics that can be asymmetric and can cause voltage drops on the supply network.

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ISBN: 978-93-87793-50-7

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This Certificate Acknowledges and honours

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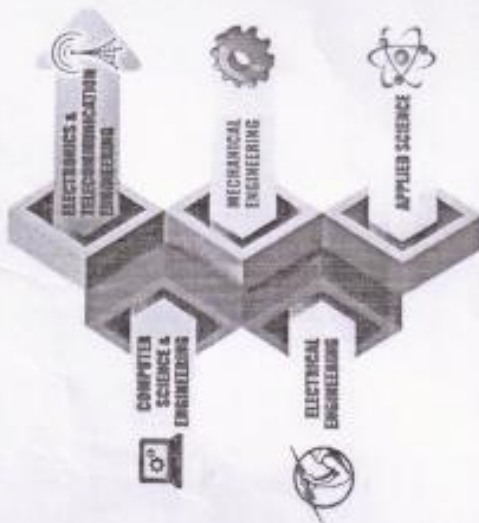
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