



E-NAM – Digital Agricultural Market: Challenges and Opportunities in India

Mohit Garg* and Shelly Singhal

Chitkara Business School, Chitkara University Rajpura 140401, Punjab

*mohitgarg0692@gmail.com (Corresponding Author)

ARTICLE INFORMATION

Received: July 28, 2021
Revised: September 12, 2021
Accepted: October 23, 2021
Published Online: October 15, 2021

Keywords:

E-NAM, Agricultural Marketing, Digitalization and Stakeholders

ABSTRACT

Agriculture is one of the most crucial sectors of the Indian economy. Growth and development of agriculture and allied sectors directly affect the well-being of people at large, rural prosperity, and employment opportunities, and they form an important resource base for many agricultural-based industries. Following independence, agricultural production in India has improved significantly. But there is a deficiency in the agricultural marketing framework in India. The system of agricultural marketing in India has a long path-way between the producer and the ultimate consumer of agricultural produce (Gopal Naik et al. 2002., Basu 2020). To shorten this path, the government of India brought digitalization in agricultural marketing in April 2016 through E-NAM (Electronic- National Agriculture Market) to bring the marketing of agricultural commodities to a digital form. All this requires a great revolution in agricultural extension services for different stakeholders. The current study evaluates the various challenges and opportunities in India through E-NAM for different stakeholders. The current study is descriptive and based on secondary data collected from websites, newspapers and journals.

DOI: [10.15415/jtmge.2021.122005](https://doi.org/10.15415/jtmge.2021.122005)



1. Introduction

In ordinary language, the term market means a particular place where buyers and sellers meet each other and buy and sell commodities. However, in Economics, the term market does not mean any particular place where sellers and buyers of a commodity are in such close contact with each other that the price of the commodity tends to be one throughout that area (Chatnani 2010). In other words, a market is a place where buyers & sellers meet to transact a business i.e. for the exchange of goods and services for consideration, which is usually and traditionally at a place or location. However, in the modern world, buyers and sellers can transact business activities in digital form through different modes of communication, namely telephone, telegram, fax, e-mail, letters, or on the internet. Hence in today's world, markets need not exist in physical form as long as the exchange of goods and services takes place. Electronic trading and online settlement of transactions have created a revolution in global financial and agricultural commodity markets.

For the Indian economy, agriculture is one of the most important sectors. The advancement and extension of agriculture and the associated sectors have a direct impact on the welfare of people, rural accomplishments, and

employment opportunities as a whole and agriculture is a key resource base for many industries based on agriculture. The system of agricultural marketing in India has a long pathway between the producer and the ultimate consumer of the agricultural produce (Rajib 2015). Before independence, the policy of the government on the marketing of agriculture was to maintain the prices of food for the consumers and agro-rum materials for the industry. However, after independence, the need to safeguard the interests of farmers and offer them competitive prices to increase the production of different agricultural commodities was also felt. Farmers in India were the victims of the faulty accounting and weighing systems of different traders and middlemen, lack of transparency in trading information, lack of pricing information, financial burden, long supply chain, etc. In addition to the above, the farmers of India did not have many storage facilities. Henceforth, they were compelled to sell their produce at whatever price they got in the market. Therefore, the government of India, along with the state government and private sector implements E-NAM – a digital agricultural market, to bring transparency in agricultural marketing in a digital form (Reddy 2018, Reddy & Mehjabeen 2019, Kumar, N., Kumar, A., & Tyagi, S. 2016, Nair & Mehta 2020). The current study describes how E-NAM – the

digital agricultural market, creates challenges and better opportunities for all stakeholders.

2. Review of Literature

Several studies have been reviewed for agricultural marketing system in India. These studies were arranged according to different segments, starting from the agricultural marketing in India to E-NAM digital agricultural market.

2.1. Agricultural Marketing in India

The term marketing of agriculture refers to the sale of goods and services by their respective producers, i.e. farmers. It comprises various steps, viz., gathering, transporting, putting away, purchasing, selling, normalizing, reviewing, handling, advancing, and so on. As a rule, marketing is the exhibition or activity of different business exercises that direct the merchandise, and administrations from the makers to definitive shoppers. Independence in agriculture has been fundamentally important for Indian policymakers since mid-1960s. Many projects have been sent off to increase homegrown creation and reduce dependence on imports. A bundle of endowment plans, yield value backing, and exchange limitations was effectively embraced to achieve independence in the production of different agricultural commodities. These approaches were gigantically effective, and by the mid-seventies, India had become practically independent in the production of different agricultural commodities. Irrespective of this, marketing of agriculture did not get the necessary consideration. The agricultural marketing system in India has a long pathway between the producer and the ultimate consumer of the agricultural produce.

Therefore, the government of India brings E-NAM to digital agricultural market to create a digital revolution in the agricultural market.

2.2. Karnataka Model for Agricultural Marketing

The state of Karnataka is embracing the above alterations of the advisory group of 2011 and enhancing its offering cycle to bring straightforwardness, intensity, and effectiveness to the controlled business sectors (Aggarwal et al. 2017). The model was completed through a joint endeavor of the state government and NCDEX, for example Rashtriya e-Market Administration's (ReMS) Confidential Restricted Organization. ReMS gives a bundle of administrations that incorporate closeout as well as post-sell-off offices (gauging, invoicing, market expense assortment, bookkeeping); testing offices; stockroom-based deals of produce; item

financing, and cost dispersal. The e-tender framework was first presented in 2006-07 on a pilot basis for paddy in the Mysore-managed market, which was additionally stretched out to 11 wares in 2010.

Under this drive, the farmer has the choice of utilizing either a typical stage or the foundation of a commission specialist to sell his produce for the parcel number created. Any planned purchaser can offer the item online from anyplace utilizing her/his accreditations with ReMS. A dealer can update the bid vertical quite a few times before the conclusion of the offering time. After the conclusion of the closeout time frame, the offers are streaked on TV screens set up in the mandis, and on the entryway of ReMS. From there on, the maker/vender is expected to give his acknowledgment for the bid. A dealer has the independence to dismiss the bid, in that case, the second round of offering happens around the same time, and similarly. A bidder is expected to keep a pre-offered edge of 5% of the worth of the parcel set apart available to be purchased with ReMS before the kickoff of the delicate. ReMS charges 0.2% of the value of the executed produce for offering different internet-based types of assistance. The significant component of the model is that support for UMP isn't confined to Karnataka. Dealers from different states and mass institutional purchasers are additionally enrolled with ReMS. The UMP got a staggering reaction from ranchers in the state, and it shows noteworthy outcomes in a brief period. The bartering and offering of domestic produce are not limited to merchants inside the market. Accordingly, the chance of an implied understanding to smother costs incurred by farmers or cartelization has been eliminated.

2.3. E-NAM (Electronic National Agriculture Market)

Dazzled by the example of overcoming the adversity of e-market in Karnataka, and coordinating the spot, and the future market, the Public authority of India, presented the electronic exchanging stage at the public level called Electronic National Agricultural Market (E-NAM) in April 2016 with a goal of one price in one market in one country. Understanding the current need to address the difficulties of the current farming showcasing framework, the Association Government has presented a Focal Area Plan for the Advancement of National Agricultural Market through a typical electronic market stage, called the Electronic National Agricultural Market or the E-NAM. This stage was created by Nagarjuna Fertilizers, and Chemicals Limited (NFCL), and overseen by Small Farmers Agribusiness Consortium (SFAC) under the Division of Agriculture, Collaboration, and farmers' government

assistance. The aggressive program of associating India's Mandi started unassumingly at the APMC in Gulbarga in December 2011. The one who came up with the idea however started in a little manner in Gulbarga is R. Ramaseshan, a previous IAS official from Karnataka. He laid out India's most memorable web-based stage, not as an administration worker, but rather in the wake of leaving IAS and moving into NCDEX as its president. He accepted that an innovation driven market configuration can create a national market for agriculture, and save farmers from trouble. The E-NAM intends to incorporate every one of the agricultural business sectors of the nation, and conceives a typical national market for agricultural commodities with consistent development across state limits. This is viewed as an answer for promoting issues of all partners - farmers, brokers, retailers, customers, and calculated suppliers. While the farmer is the essential partner, the E-NAM likewise gives merchants, commission specialists, and exporters better business opportunities through a bound together and broad commercial center (Reddy 2018, Reddy & Mehjabeen 2019, Kumar, N., Kumar, A., & Tyagi, S. 2016, Nair & Mehta 2020). The E-NAM gateway gives a solitary window administration to all APMC-related data, and administrations, including item appearances, costs, and offers. The actual development

of farming creation happens through the mandis while internet exchange is supposed to lessen exchange expenses and data deviation.

2.3.1. Features of E-NAM

1. Through the E-NAM portal, farmers can exhibit their agrarian items through their close by markets and get the merchants to quote price estimates from any place.
2. E-NAM portal provides a single window administration for all APMCs related services and information.
3. Each trader can get a licence from the state-level authorities without any condition of premises in the yard.
4. Infrastructure for quality testing is available in every market for checking of quality standards of agricultural products.
5. E-NAM portal offers direct payment into farmers' accounts.

2.3.2. Process flow of E-NAM

The online trading system on the E-NAM portal is a continuous process flow, starting from allocating lot numbers to farmers to exiting the gate after the final settlement of payment.

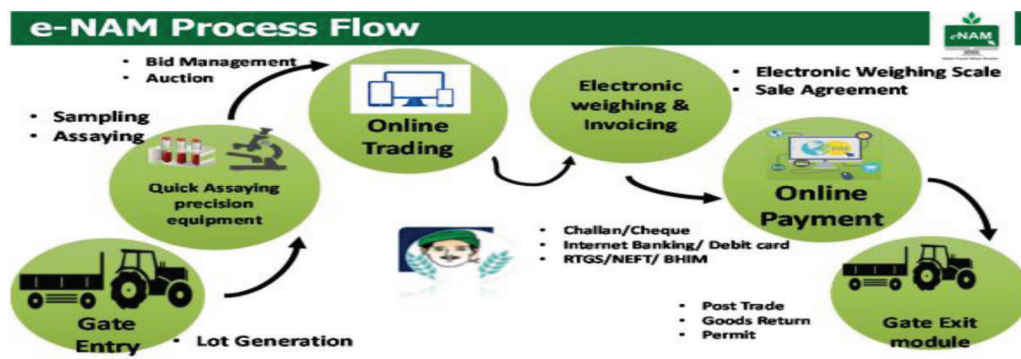


Figure 1: E-NAM process flow.

The E-NAM gateway gives a unique recognizable proof number to each parcel carried by the farmers to the APMC market. The farmer can utilize either a typical stage or the foundation of a commission specialist to sell his produce. The parts prepared to be purchased are tested for their quality, and the data about quality and amount is placed on the E-NAM gateway. The enrolled purchasers or brokers on the E-NAM gateway who are keen on the acquisition of items are expected to get the unified market licence. Any planned purchaser can offer the item online from any place by utilizing her/his accreditations with the E-NAM gateway. A dealer can change the bid vertical quite a few times before

the conclusion of the offering time. After the conclusion of the sale time frame, the offers are streaked on TV screens set up in the mandis and on the gateway of the E-NAM. From there on, the merchant is expected to acknowledge the bid. If they both agree, then the weighing of goods takes place, and the final payment is made in the farmer's account after settling the other charges from the buyer.

3. Methodology

The current study is descriptive and based on secondary data collected from websites, newspapers, and journals.

The current study uses the data of different commodities traded on NCDEX and on the E-NAM portal both by using the National commodity exchanges website NCDEX and agmarknet.ac.in respectively.

It depicts how E-NAM – a digital agricultural market, creates better opportunities for all stakeholders, and the government should take more steps to increase the participation and satisfaction of all the stakeholders. Also, further studies can be conducted by considering the Indian agricultural commodity market and international agricultural commodity market. The study can be further extended to include risk management functions in addition to market efficiency and price discovery mechanisms. In addition to this the price discovery mechanism and market efficiency of E-NAM have been analyzed by using Johansen co-integration method, VECM model and GARCH model respectively.

4. Findings

4.1. Scope for Digital Agricultural Market

E-NAM - Digital Agricultural Market has a vast scope for different stake holders. Digital agriculture market or e-agriculture market came out as an emerging field focused on providing and upgrading the agricultural marketing and communication information services in India. E-agriculture brings the different departments under one roof. Through E-NAM, different private institutions such as banking, insurance, networking, APMCs, etc. collaborate to enhance the agricultural marketing services in India.

Before E-NAM, agricultural marketing was administered by the states as per their agricultural marketing regulations, under which, the state was divided into several market areas, each of which was administered by a separate Agricultural Produce Marketing Committee (APMC) which imposed its marketing regulation (including fees). This fragmentation of markets, even within the state, hindered the free flow of agricultural commodities from one market area to another and multiple handlings of agricultural produce and multiple levels of market charges ended up escalating the prices for the consumers without commensurate benefit to the farmer. E-NAM addresses these challenges by creating a unified market through the online trading platform, both at state and national levels, and promoting uniformity, and streamlining of procedures across the integrated markets, removes information asymmetry between buyers and sellers, and promotes real-time price discovery based on the actual process. It also accesses a nationwide market for the farmer, with prices compatible with the quality of his produce and online payment, and availability of better quality products at more reasonable prices to the consumer. E-NAM is

now developing as the “Platform of Platforms” to create a digital ecosystem that leverages the expertise of individual platforms across various segments of the agricultural value chain in developing and integrating service platforms with e-NAM. This includes QC services, transportation, and delivery services, sorting/grading services, packaging services, insurance, trade finance, warehouses, etc. This will enable the farmers to add value to their products and facilitate agricultural marketing.

Under this, e-NWR (Electronic National Warehouse Receipts), cold storage facilities, contract farming, and direct selling to customers facilitate connecting farmers directly to customers and removing the farmers from the clutches of middlemen. E-NAM was developed in 1000 coordinated comprehensive markets in different 18 states and 3 UTs were keen to join the online platform on 31st July 2022 [8]. For facilitating the assaying of commodities to trade on this portal, similar tradable aspects have been formulated for 175 commodities (Negative to Commodity Quality Partner). These aspects include quality, moisture, foreign matter, other edible grains, damaged grains, etc.

Technology is considered a key to the growth in the agricultural sector through different innovative models. In addition to the E-NAM as the digital agricultural marketing initiative, the government of India launches different apps that can be downloaded from the Play Store. These apps mainly include those related to livestock, cropping patterns, agricultural events, modern technological equipment, weather information, pest information, etc. After 2016, tremendous growth in the number of apps has been shown. More than 300 apps related to agriculture have been initiated that provide information to farmers about their agriculture. In addition to this, the farmers can also take advantage of these apps for logistics management through apps like Kisan Rath. Through this app, the farmers bring their agricultural produce from one station to another after registering.

According to the estimate provided by the different reports, E-NAM is considered to be a fruitful measure for different stakeholders. The results indicated that about 1.73 crore farmers, 2.31 lakh traders, 105000 commission agents, and 2200 FPOs have been registered on E-NAM since its perception to 31st August 2022 [9]. The value and volume of trade also reached 1.22 lakh crores and 4.3 MT on December 2021 [10].

4.2. Challenges and Opportunities in India

From the data analysis of the information available on E-NAM and different farmers and welfare associations, E-NAM proves to be better at making agricultural marketing in Indian digital way. From the above results, we conclude that there is an overall growth in the number of markets

integrated with E-NAM. In addition to this, the number of farmers registered on E-NAM, the number of commodities added, trade value, trade volume, online payment system, etc. show a continuous growth since its inception. But in a diverse cultural country, the digitalization of agricultural marketing through E-NAM has both challenges and opportunities for all the stakeholders.

4.2.1. Challenges through E-NAM

1. The real challenge has been faced by the government of India in convincing the different stakeholders to adopt digitalization in agricultural marketing through E-NAM.
2. In most states, from traders has shown stiff resistance to any change in the reforms in Agricultural Produce Market Committee Acts (APMCs).
3. At ground level, in most of the APMCs market, the trade of agricultural commodities takes place through the old mechanism.
4. Even after six years of implementation, no data reveals that there has been an increase in farmers' income after the digitalization of agricultural marketing.
5. Illiteracy among farmers is the major challenge in the digitalization of agricultural marketing.
6. A loan taken from moneylenders compels the farmers, not to sell directly through E-NAM.
7. The lack of basic infrastructure in grain markets is another big challenge to implement E-NAM.
8. The scarcity of electricity, computer facilities, staff, etc. is also the biggest challenge for this portal.
9. The monopoly of some big traders is another challenge for E-NAM.
10. Sometimes there is a scarcity of grading and assaying facilities, open auction platforms, and electronic weighing machines which resists the digitalization of agricultural marketing.
11. A trader can't assess the quality of all types of grains through electronic quality assaying machines.
12. Through this system, the farmers get the payment immediately in a bank account, but some traders are reluctant to pay until they receive the goods. Before E-NAM, this risk was borne by commission agents by making payments to farmers and then paid from traders after delivery.
13. Both farmers and traders require commission agents for their storing, assaying, and credit.

These are the challenges that different stakeholders have to face in digital agricultural market in India. Despite these challenges, there are ample opportunities in India through the digitalization of agricultural marketing which can make the farmers of India self-dependent.

4.2.2. Opportunities through E-NAM

For Farmers:

1. E-NAM the digital agricultural market provides enhanced and better options to farmers for selling their agricultural produce and has fair competition in the market.
2. The farmers of India have full freedom to sell their produce anywhere in India through E-NAM without the interference of intermediaries.
3. Through E-NAM the farmers have the option to access the nationwide market according to the quality of their produce.
4. Through E-NAM farmers get direct payments into their bank accounts and have better returns than the traditional way.
5. Through the digital agricultural market, the farmers get the whole market information and other pest control, and logistics management information for their agricultural produce.

For Commission Agents

1. Through E-NAM there is a reduction of workload in record keeping, as all information is available on the E-NAM portal.
2. Through this initiative better monitoring of traders takes place.
3. There is complete transparency in the whole trade process with no intentional or unintentional manipulation in the trading mechanism.
4. As everything is done online, there are fewer people required.
5. All the information about different traders and different markets is available on the government website.

For Traders

1. Different buyers, traders, and exporters get nationwide access to secondary trading.
2. Traders from other places directly deal through E-NAM thereby reducing intermediation and transaction costs.
3. High-quality products are available to consumers directly.

After analyzing the above challenges and opportunities in India through E-NAM, it is found that the E-NAM creates more opportunities for all stakeholders than the challenges in India. No doubt, the digitalization of agricultural marketing through E-NAM in a culturally diverse country is not easy, but it has unified the different markets under "One Nation, One Market". As E-NAM provides strength to different stakeholders, it will lead to better opportunities for traders in terms of doing business. The number of farmers

using digital agricultural marketing initiatives has increased considerably which has opened up new possibilities for them and proved to be a game-changer. Due to the addition of a large number of commodities under different groups like pulses, spices, food grains, vegetables, and fruits, the farmers can easily divert to horticulture crops and cultivate their crops according to the demand and supply in the market. It creates the belief that historical agriculture would be converted into a business venture and the young and literate generation would get engaged in the sector. The government of India should encourage the remaining states to introduce E-NAM. It will increase the transparency in price discovery mechanism and make E-NAM market efficient by reducing the chances of a cartel between local traders as the bidding is open to all traders across the country. The government of India should remove some bottlenecks to make digitalization of agricultural marketing through E-NAM a country wide initiative.

- **Countrywide Information:** Generally, the farmers are not able to get countrywide information regarding when to sell, in which market to sell, and at what price to sell. The government should implement the dashboards in all the market yards and provide all information on the E-NAM portal and AGMARKNET. Pre- and post-harvest market information should be provided to farmers so that they can make informed decisions about selling their produce immediately or later.
- **Linked with Farmers Producer Organizations:** The government should link small and marginal farmers with farmer producer organizations and cooperative societies. It enables them to access the signals of demand and supply at the national level. In addition to this, the FPOs should help them sell their produce at competitive rates by linking them through E-NAM. In addition to this, the government should encourage the private sector to directly purchase from the farmers through E-NAM and meet the demand and supply in the market. It helps in reducing the burden on the government and the farmers get direct customers for their agricultural produce.
- **Separate Logistics and Supply chain management system:** The government should ensure a separate system for loading the goods of outside traders from the markets to their respective outlets. This is mainly because if some outside trader has purchased the farmer's produce then it takes many days for that trader to visit that market and complete the remaining weighing and another payment system. In addition to this, there must be a separate grievance redressal system for any type of illegal goods. Also, adequate storage capacity should be provided with proper maintenance and an electronic national warehouse receipt facility must be

the part of electronic national agricultural markets. The insurance and loan facility should be provided for these warehouse receipts so that the goods can be sold in the future at more competitive prices. E-NAM markets must have an appropriate storage system in warehouses to avoid distress sales by farmers.

- **Better Assaying systems:** The quality assaying systems through E-NAM should be updated as the traders will lose trust in E-NAM initiative if the quality of the goods they purchase through the assaying laboratories of E-NAM is not the same as the goods that reach their outlets.
- **Better Development activities:** The government should provide better infrastructure to make the auction process effective. The literacy campaign for different stakeholders has to be inaugurated and from time to time training sessions have to be conducted for all employees. Farmers should be informed about grading and assaying of their produce's quality, commission agents should be informed about the bidding process on E-NAM, its linking process with a bank account, etc.

5. Conclusion

The current study describes that E-NAM the digital agricultural market creates a lot of challenges and opportunities in India for different stakeholders. Technology changes provide access to all types of agricultural-related information. The weather forecasts provide climate information that enables timely cropping and harvesting of agricultural products and inputs for better soil fertility and crop growth. In addition to this, it provides better access to all agricultural markets, agricultural equipment markets, logistics management, etc. It meets the demand of all stakeholders by providing both buyers and sellers with one platform.

This platform will reduce costs by eliminating middle men, providing better quality agricultural products, improving productivity by providing timely information, reducing risks through the insurance sector, and creating a digital ecosystem in the agricultural market. The government of India should take steps to remove the above-discussed bottlenecks so that it can be implemented effectively. The experience from foreign countries like China and Thailand concluded that the electronic agricultural markets can run successfully if they go through the art of ICT technologies to solve the problems faced by different stakeholders in distant markets. The states that have not adopted E-NAM platform should learn from the functioning of Telangana state for the trading of turmeric, with a quick assaying and weighing system and a better timely payment system.

Ultimately, E-NAM –the digital agricultural market creates better opportunities for all stakeholders and the government should take more steps to increase the participation and satisfaction of all the stakeholders. In a culturally diverse country like India, the different stakeholders need motivation and encouragement to adopt these eco-friendly technologies. Finally, E-NAM –the digital agricultural market will change the nature of agriculture in a developing country like India and specify better returns and incomes for all the stakeholders.

6. Acknowledgements

None

7. Authors' Contributions

All the authors participated in the research coordination. The authors read and approve the final manuscript.

8. Funding

Not applicable

9. Conflict of Interest

The authors declare that they have no conflict of interests.

References

- Aggarwal, N., Jain, S., & Narayanan, S. (2017). The long road to transformation of agricultural markets in India: Lessons from Karnataka. *Economic and Political Weekly*, 52(41), 47-55
- Basu, S. (2020). Spot and futures markets–Scope for integration. *IIMB Management Review*, 32(3), 336-345. <https://doi.org/10.1016/j.iimb.2020.10.001>
- Chatnani, N. N. (2010). *Commodity markets: operations, instruments, and applications*. Tata McGraw Hill Education Private Limited.
- <https://enam.gov.in/web/state-unified-license/no-of-unified-licenses>
- <https://enam.gov.in/web/dashboard/stakeholder-data>
- [https://www.ibef.org/blogs/enam-india-s-nationwide-electronic-trading-portal#:~:text=The%20eNAM%20platform%20has%20gained,approximately%20US%24%2016.2%20billion\).](https://www.ibef.org/blogs/enam-india-s-nationwide-electronic-trading-portal#:~:text=The%20eNAM%20platform%20has%20gained,approximately%20US%24%2016.2%20billion).)
- Krishna, A., & Naik, G. (2020). Addressing the crisis in Indian agriculture through agricultural information delivery. *IIMB Management Review*, 32(2), 217-229. <https://doi.org/10.1016/j.iimb.2020.09.004>
- Kumar, N., Kumar, A., & Tyagi, S. (2016). E-NAM: Connecting farmers and traders. *Rashtriya Krishi*, 11(2), 61–62.
- Rajib, P. (2015). Indian agricultural commodity derivatives market–In conversation with S Sivakumar, Divisional Chief Executive, Agri Business Division, ITC Ltd. *IIMB Management Review*, 27(2), 118-128.
- Reddy, A. (2018). Electronic national agricultural markets: the way forward. *Current Science*, 115(5).
- Reddy, A. A., & Mehjabeen. (2019). Electronic National Agricultural Markets, Impacts, Problems and Way Forward. *IIM Kozhikode Society & Management Review*, 8(2), 143–155.
- Nair, D., & Mehta, S. (2020). E-NAM: An Impact Study on Doubling Farmers Income. *Sustainable Humanosphere*, 16(1), 1765-1781.



CHITKARA

Journal of Technology Management for Growing Economies

Chitkara University, Saraswati Kendra, SCO 160-161, Sector 9-C, Chandigarh, 160009, India

Volume 12, Issue 2

October 2021

ISSN 2456-3226

Copyright: [©2021 Mohit Garg and Shelly Singhal] This is an Open Access article published in Journal of Technology Management for Growing Economies by Chitkara University Publications. It is published with a Creative Commons Attribution- CC-BY 4.0 International License. This license permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.