

From Access to Advantage: ONDC's Role in Democratizing India's Digital Economy and Promoting Sustainability

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Abstract

Today, India's e-commerce is ushering towards inclusive growth with Open Network for Digital Commerce (ONDC). It is a revolution in e-commerce practices that aims to solve consumers' day-to-day problems and democratize business practices. Since India's e-commerce has a lot of untapped potential, ONDC would be further growing the merchandise value shortly. Thus, this paper attempts to analyze the role of ONDC in creating an integrated commerce network and digital economy. Also, this study evaluates the implications of ONDC on achieving a sustainable logistics ecosystem. To fulfill the objective of this study, meta-analysis methodology has been applied to analyze data from various studies that pertain to the same topic. The study result showed that using ONDC in logistics companies has a huge potential sustainability impact. Especially, in the economics dimension this network-centric model has more benefits than environmental and society dimensions. Thus, it can be concluded that sustainability in logistics can be improved with the maturity level of ONDC.

Keywords: E-commerce, ONDC, Sustainability, Logistics.

Introduction

During the pandemic the supply chain was disrupted across the world due to which MSMEs faced retail chain breakdown (Procmart, 2022). With the digitization, the MSMEs started to gain however, still, some challenges are borne by them. So, the government of India introduced ONDC to address the challenges faced by the MSMEs. ONDC stands for open network for Digital Commerce which is an interoperable network for e-commerce. The objective of this ONDC model is to accelerate the e-commerce scale and access (ONDC, 2023). It promotes equitable opportunity and democratizes the e-commerce industry by giving access to small as well as big retailers and merchants. Like UPI tech revolutionized the payment mechanism of India similarly, ONDC is all set to revolutionize the e-commerce industry with innovative, integrated, and inclusive platforms (Mahajan, 2023). This points to an urgent need to systematically examine the implications of the ONDC on the e-commerce industry and achieve a sustainable supply chain network

model in India. This paper critically examines the prospects of ONDC with the help of information available in journals, news articles, and the official website of ONDC. The rest of the paper is organised as follows: the next section discusses the studies related to ONDC and digitization in logistics. Section three provides the details of the research design and

then section four presents an overview of the pitfalls of the current e-commerce model and the case for ONDC. Section five outlines the role of ONDC in building sustainable logistics. Section six provides the conclusion and limitations of the study followed by directions for future work.

Literature Review

<i>Studies Related to Open Network for Digital Commerce</i>	
Mahajan (2023)	Stated ONDC is a game-changer that aims to curb the exploitations of buyers and sellers. Further, pointed out the significance of this network -centric model for small and medium enterprises. Moreover, it promotes convenience-based business models like UPI.
George & George (2022)	Explained how an open network for digital commerce works and showed the inclusive pathway to develop an alternative model to support digital commerce across sectors and regions.
Kumari & Sharma (2022)	Meta-analysis showed that small and medium enterprises are set to gain market share in the future. At the moment, the open network for digital commerce approach is at a nascent stage.
Girdhar (2023)	Critically analysed the open network for digital commerce in India. The study claimed that this new model of digital commerce will benefit the local economy to grow in the future.
Walia et al (2023)	Exploratory analysis revealed that consumer is more concerned about security while buying products on ONDC.
Perumal (2021)	Stated that an open network marketplace would dismantle the monopoly of existing companies by listing a variety of products and services on such a network -centric model. With a platform like ONDC, the MSMEs are set to gain competitiveness and mark their footprint in this digital marketplace.
<i>Studies Related to Digitization in Logistics</i>	
Van Marwyk&Treppte (2016)	Stated that digitization in logistics processes could add intrinsic value for society and industry both but it could also create disruptions.
Stuermer et al (2017)	Highlighted the four enablers namely for the digital logistics ecosystem: technology, process, organization, and knowledge. The success of digital logistics depends on integrating technology and applications. This study focused on six characteristics of digitization in logistics: cooperation, connectivity, adaptiveness, integration, autonomous control, and cognitive improvement.
Owen (2007)	Along the supply chain, vertical integration (supplier to consumer) and horizontal integration (among other competitors and business partners) could be enabled with digitization.
Evans (2017); Van Marwyk&Treppte (2016); World Economic Forum (2016)	In the logistics sector, digitization can lower the 10 -12 percent emissions by 2025. With digitization-based business models, sustainable logistics can be formed. This sustainable logistic ecosystem in terms of environmental, economic, and social dimensions.

Source: Own Compilation, 2023

Evaluation of Literature

After going through extant studies in this field, it was found that prior studies related to ONDC have explored its usefulness in e-commerce, and discussed the challenges and opportunities of adopting it. However, there is no existing literature on the sustainability impact of ONDC in logistics. So, this study adds to prior literature by providing the case for ONDC and focusing on its sustainability impact in logistics.

Research Design

To understand the implications of ONDC on the e-commerce sector and its sustainability impact on logistics processes, this research applied meta-analysis. Therefore, the paper draws on secondary resources and information about the ONDC practices available in journals, news articles, and the official website of ONDC.

How ONDC deals with the Pitfalls of the Current E-Commerce Model?

Pitfalls of the Current E-commerce Model

- In India, the E-commerce platform has been dominated by two American e-commerce giants namely, Flipkart and Amazon (Mahajan, 2023). The dominance of American giants has consolidated the majority of trade in India which means any functional disruptions could have a cascading effect on the overall digitized world. This monopoly has raised concerns about single-point failure.
- Both Flipkart and Amazon require new sellers to come under the ambit of service providers. However, the new sellers face difficulty to carve niches through these platforms. As these new sellers often lack funds to setup their own digital space because the required investment surpasses the availability of sellers. That implies only digitization will not solve the problem of MSMEs (Procmart, 2022). That means the digital revolution will not bear fruitful results unless the MSMEs penetrate the e-commerce platform.

Figure 1: Monopoly of Two E-commerce Giants in Indian Digital Marketplace



Source: Own compilation, 2023

Figure 2: Current Indian E-Commerce Model



Source: Own compilation, 2023

- Currently, e-commerce platforms promote a unilateral model as the buyers and sellers are not allowed to frame their own rules and processes.
- In the current framework of e-commerce platforms, sellers are not allowed to transfer their brand value built from one platform to another although they can register under many platforms. This is the reason why Indian e-commerce is not a fair and efficient marketplace (Gupta, 2022).
- Under the single service provider framework, sellers and buyers can meet only at the same digital marketplace (Walia et al., 2023). Thus, the current Indian e-commerce platform offers limited discoverability and choices for both sellers and buyers.

The question arises now how ONDC is going to reform and transform the E-commerce industry?

Present E-commerce model	ONDC based model
The dominance of American giants has consolidated the majority of trade in India which means any functional disruptions could have a cascading effect on the overall digitized world.	Provides wider opportunities to consumers with many sellers instead of the duopoly of Amazon and Flipkart
Unilateral Model (Firms not allowed to frame their guidelines about rules and regulations)	Democratized model (where buyers and sellers are allowed to formulate their own rules and processes).
Offers limited discoverability and choices for both sellers and buyers	Vouch for consumer welfare by providing a list of all goods and services of different e-commerce platforms to consumers across the network
New sellers face difficulty to carve niches because of preferential treatment to big players.	Provide equitable working opportunities to all the business players whether it is small or big.
Lack of competition	Promotes fair competition within the e-commerce industry.
Indulge in predatory pricing practices to curb the entrance of other players	Discourages anti-competitive practices such as predatory pricing, collusion with sellers, deep discounting, etc.

Source: Own compilation, 2023

Case for ONDC

Curbing dominance of giant e-commerce players

ONDC provides wider opportunities to consumers with many sellers. It restrains the preferential treatment enjoyed by big existing platforms. Such big players often engaged in predatory pricing by offering huge discounts in flash sales. This kind of practice limits the profits of offline retailers as they would not be able to offer huge discounts, especially on high-value products. Thus, ONDC will create a more sustainable paradigm for business practices.

Democratized Model of E-commerce

With the ONDC platform, buyers and sellers can formulate their rules and processes. Thus, it promotes the democratic model of e-commerce where buyers and sellers are allowed to formulate their own rules and processes.

Promote Fair Business Practices & Benefits MSMEs platform

Currently, small businesses have been unable to carve their

niche in the world of e-commerce due to cost concerns and the dominance of duopoly e-commerce platforms namely Amazon and Flipkart in India. So, the present scenario works in a haphazard manner where a lack of competition prevails and no room for small business ideas. Thus, ONDC fills this gap by giving an equitable working platform to all the business players whether it is small or big. Simply put, it promotes fair competition within the e-commerce industry and aims to achieve perfect competition in the world of digital commerce. Moreover, with the opportunity to sell online to a wide range of customers including rural consumers, small businesses will get the most benefit out of it. Otherwise, for small merchants, serving the rural segment would be costly. With local languages in apps, small merchants as well as other potential merchants would be able to cater to the rural market segment which has not been catered fully before by merchants due to varied reasons. So, ONDC works in the favor of small merchants as well as rural consumers. It bridges the gap between small

merchants and potential rural consumers by providing access to the digital world in local Indian languages.

For Consumers Welfare

ONDC platform vouch for consumer welfare by providing a list of all goods and services of different e-commerce platforms to consumers across the network. After registration of all the e-commerce platforms on ONDC, consumers would be able to compare the different brands and choose accordingly. It opens the room for wider choices for consumers. This way their exploitation by large e-commerce platforms could be put to stop.

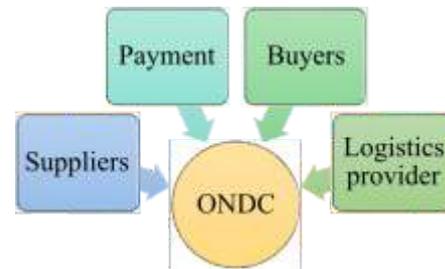
Global e-commerce

It promotes cross-border commerce. Indian sellers can tap orders from outside of India due to the location-agnostic nature of ONDC. Thus, it can lead to more cross-border export performance.

Evaluating the Sustainable Impact of ONDC on Logistics

Today the world is more concerned about the environment than earlier which is why the regulations have been changing at an accelerated pace for the elimination of paper, ecological transport, delivery, and pick-up points. These changes severely affect the logistics industry. Hence the role of ONDC becomes more pertinent now because it is the only tool that can make the logistics industry more environment-friendly with the network-centric model. With over a million smartphone users, ONDC could be a huge market for domestic and global suppliers both. It is a decentralized network that is facilitator driven and interoperable and works on the set of standards and protocols that break down the system into microservices. Under this platform, the market offers the best combination to both buyers and sellers and many sellers can also perform the same function. It discourages anti-competitive practices such as predatory pricing, collusion with sellers, deep discounting, etc. to build robust supply chain networks.

Figure 4: Integration of different players on the ONDC platform



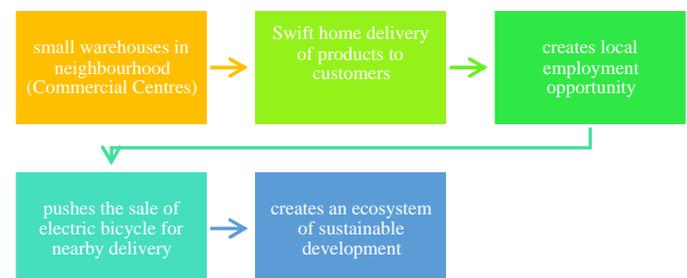
Source: Own Compilation, 2023

How ONDC can build a sustainable logistics business model?

With ONDC the buyer can access the commodities from nearby locations like Kirana stores or mom & pop shops which means anything can be accessed from nearby local retailers like tutors, insurance, grocery, etc. This paves the way for innovative business models in the arena of logistics for local retailers (Gupta, 2022). With this, the network of small warehouses in the neighborhood will increase due to which the home delivery of products will become much swift and economical as it will shorten the delivery time, bring local employment opportunities, and push the sale of electric vehicles for delivery in nearby locations. This way the more sustainable e-commerce platform will get a big push and the era of centralized large warehouses will become dormant. With ONDC India is ushering towards a hyper logistics era where the neighbourhood's small dark warehouses will become key commercial centers.

“Reduce the delivery time + Push the local employment opportunities + sales of electric vehicle will get boost = Sustainable Supply Chain”

Figure 4: ONDC-based sustainable supply chain model



Source: Own Compilation, 2023

Table 3: Key Implications of ONDC on Sustainable Logistics Ecosystem

Sustainability Dimensions	Sustainability Criteria and Sources	Impact of ONDC	Sources (Sustainability Criteria Selection)
Economy	Cost of Distribution (Logistics)	Cost reduction in terms of transport, warehousing, inventory carrying, and administration cost	[13] [1] [3] [8] [20]
	Transportation time	Speedy delivery of products, improvements in cycle time, and lead time.	[13] [1] [8] [16] [20]
	Decrease in Inventory	Efficient management of inventory volume with nearby located small warehouses.	[1]
	Damage	Reduce the damage or loss of goods due to theft and accidents	[13]
	Service Frequency	Changes in load factor and improve the frequency of services	[1] [18]
	Prediction Precision	Demand can be ascertained more accurately (Kirana shops & local retailers have more information about their customers)	[1] [8]
	Reliability	Reliability increases with scheduled time deliveries and perfect orders due to changes in inventory, transport, and warehousing	[13] [1] [3] [8] [20]
	Adaptability and Delivery Volumes	Unprecedented orders can be delivered without any delay. In addition to, improve the total volume of delivered goods	[13] [8] [20]
Applications	A suitable network model for digitization in the logistics ecosystem	[3]	
Environment	Optimizing the use of resources	Reduce the use of non-renewable resource consumption in vehicles and transport as bicycles and e-vehicle consumption will increase for nearby delivery orders.	[13] [3] [18]
	Energy and Emissions arising from the process	Shift towards e-vehicle and bicycles will change the energy requirements, fuel consumption, CO ₂ , and other greenhouse emissions.	[3] [20] [21] [3] [18]
	Streamlining Efficiency	Most of the administration work would shift to online mode which paves the way for the elimination of paperwork and reduced waste.	[3] [20]
	Mitigating Pollution	Changes in transportation mode, process energy, and emissions, will to some extent reduce the air, noise, and water pollutants	[13] [20]
Society	Gains from Development	ONDC will direct the economy toward further digitization and sustainable development.	[3] [8]
	Pollution Abatement (Health)	Reducing pollutants via the adoption of bicycles and e-vehicles will lower the diseases caused by transport side effects.	[13]
	Employment Landscape Transformation	Society will witness an increase in local employment, changes in employment schemes, and types of work.	[13] [3] [18]

Source: Own compilation, 2023. Adapted and updated from a table presented in Kayikci (2018).

Table 3 represents the key sustainability implications of ONDC in logistics. The economic dimension revealed that ONDC has the potential impact on sustainable logistics including the cost of logistics, delivery time, inventory management, frequency of services, demand forecasting, transport volumes, reliability, flexibility, and applications. Moreover, the social implications of ONDC show that society benefits from this model in terms of development, improved health outcomes, and an increase in local employment levels. The environmental implications of the ONDC network model found that it creates more value for renewable resources. The pollution, waste, and emission from greenhouse gases can be dealt with to some extent with the help of ONDC.

Conclusion

This study analysed how the adoption of ONDC can democratize e-commerce in India and what are its sustainability impact on logistics processes. The prior studies have not explored the sustainability impact of ONDC in logistics processes therefore, this research provides a new perspective to the broad implications of ONDC in the digital marketplace of India. The study result showed that using ONDC in logistics companies has a huge potential sustainability impact. Especially, in the economics dimension this network-centric model has more benefits than environmental and society dimensions. Thus, it can be concluded that sustainability in logistics can be improved with the maturity level of ONDC.

Limitations of the Study

The results lack generalizability as the quantitative analysis is missing in the study. This study was conducted only through secondary resources of information on the three sustainability dimensions: economy, environment, and society.

Directions for Future Research

Future studies can pursue the quantitative research to evaluate the impact of ONDC on the three sustainability dimensions of logistics namely, economy, environment, and society.

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