ONDC
Open Network for Digital Commerce

Knowledge partner
McKinsey & Company

Democratising digital commerce in India

An open network for inclusive, competitive marketplaces

April 2023

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Preface

India is on the cusp of a digital transformation. Every aspect of life is gradually being shaped by digital innovations and technologies. Commerce is no different. Digital commerce has immense potential to fuel economic growth in the country by empowering small businesses, creating jobs for the youth, enhancing choice for every kind of consumer, and including deserving but underserved segments of the country. And yet digital commerce in India is just 7 percent of the overall market, constrained by various barriers.

Against this backdrop, Open Network for Digital Commerce (ONDC) is working to create a new paradigm for digital commerce that eliminates many of these barriers. It is determined to democratise online commerce with an open network that, as the name suggests, has room for every seller, large or small.

ONDC is a Section 8 company, with a dedicated leadership team and an Advisory Council comprising senior leaders from the public and private spheres. Since its inception in August 2020, ONDC has been working to digitalise and support grassroots-level entrepreneurs and local retailers to include them in the digital commerce universe on an equal footing with larger, more market-savvy, and digitally enabled sellers.

The network will showcase an array of products and services for buyers, exponentially increasing the number of options available to them at multiple price points. In this way, ONDC aims to create marketplaces that are more inclusive, competitive, and innovative.

This report presents the vision, architecture, and road map of ONDC. It highlights some early experiments and spotlights the exciting use cases ONDC could unlock. It describes the benefits and opportunities ONDC could create for different stakeholders—sellers, buyers, platforms, and service providers—while also laying out important actions these stakeholders could take to reap the benefits from this pioneering initiative.

The insights in the report stem from in-depth interviews with business leaders, more than 100 industry experts in India and beyond, and stakeholders across sectors and geographies. This report draws on joint research carried out by ONDC and McKinsey & Company. We hope that this detailed report impresses upon you the potential of ONDC and moves you to chart your own path on this new digital network that could reshape the digital economy.

Acknowledgements

This report is the outcome of a comprehensive six-month effort to build a perspective on the emerging market opportunity from ONDC's disruption of the digital commerce ecosystem. We are grateful to the following leaders for their guidance and inputs:

Nandan Nilekani
Co-Founder and Chairman of Infosys, Founding Chairman of the Unique Identification Authority of India

Dr. Pramod Varma
Co-Founder, Foundation for Interoperability in Digital Economy

Dilip Asbe
MD and CEO, National Payments Corporation of India

Anil Agrawal
IPS, DGP - Training & Telecommunications, UP, Ex-Additional Secretary, DPIIT

Nitin Chugh
Deputy Managing Director and Head of Digital Banking, SBI

Adil Zainulbhai
Chairman, Network18 Group and Chairman, Capacity Building Commission

T. Koshy
MD and CEO, ONDC

Vibhor Jain
COO and President - Network Governance, ONDC

Shireesh Joshi
CBO and President - Network Expansion, ONDC

We also express our gratitude to the many business leaders and industry experts who spared their valuable time to discuss what they see as the potential and challenges in establishing and scaling up ONDC:

Abhishek Ganguly
Managing Director, India, Puma

Abey Zachariah
VP, Loadshare

Akarsh Shrivastava
Principal, Elevation Capital

Amit Prabhu
Executive Director & CFO, Puma

Anshoo Sharma
Co-Founder and CEO, Magicpin

Ashish Dikshit
MD, Aditya Birla Fashion & Retail

Ashish Kumar Singh
Head, Hyperlocal Growth & BD, Shadowfax

Ashutosh Gavali
Director, IT - Engineering & Analytics, Boat

Avijit Singh
Director, The House of Rohet

Bhaskar Ramesh
Director - Omnichannel Businesses (Technology, Retail, Auto, CPG, Finance, CoE - Digitisation), Google

Dalvir Suri
Co-Founder, Dunzo

Dhruv Sawhney
COO, nurture.farm

Digvijay Sujlana
Head of Policy, Delhivery

Dipti Sudhir
Head, Digital Marketing and PR, Britannia

Dr. Rohini Srivathsa
CTO, Microsoft

Hari Prasadh
VP, Juspay

Hemant Malik
Divisional Chief Executive of Foods Business, ITC

Kailash Agarwal
President Retail, Haldiram's

Kedar Lele
ED, Customer Development, Unilever

Kranthi Chaithanya Reddy Chemarla
Strategy and Investments, Swiggy

Kumar Rajagopalan
CEO, Retailers Association of India

Kumar Vembu
Founder and CEO, Gofrugal

Lalit Singh
Product, Phonepe

Lalitha Nataraj
Head, Digital Partnership, D2C Business and Payments, IDFC First

Madhivanan Balakrishnan
COO, IDFC First

Mehtab Singh Hans
Co-Founder - Finance and Product, Farmart

Mukund Vasudevan
Managing Director Enterprise, Moglix

Naren Ravula
VP, Head of Product Strategy & Deployment, Flipkart

Nikhil Tripathi
Co-Founder, Bijak

Parthiv Patel
Co-Founder, Petpooja

Prabhdeep Bedi
Director and Head, D2C e-Commerce, Puma

Prachi Bhuchar
Head of Government Relations & Public Policy, Meesho

Prachi Jha
Senior Manager, Strategy & PMO, CEO's Office, Meesho

Praharsh Chandra
Co-Founder, CBO, Shadowfax

Pranav Rungta
Mumbai Chapter Head, NRAI

Raghuram Talluri
Co-founder and CEO, Loadshare

Rajesh Gowrinath
VP, Business Head, E-commerce, Blue Dart

Saahil Goel
Co-Founder & CEO, Shiprocket

Sailee Rane
Business Head, RazorpayX Payroll, Razorpay

Sambhav Palawat
Marketing Director, Lavanya Brands

Sameer Nigam
Founder and CEO, Phonepe

Sanjeev Kumar
Co-Founder, Executive Director & CEO, Spicemoney

Sashank Rishyasringa
Co-Founder, axio

Senthil Kumar Natarajan
Public Policy and Government Relations, Ninjacart

Shashank Kumar
Founder and CEO, DeHaat

Shashwat Singh
CIO, Boat

Shayak Mazumdar
CEO, Eunimart

Shiv Pandey
Director, Delhivery

Smita Bhagat
Country Head, HDFC (Government and Institutional Business)

Sudipto Sannigrahi
Principal, Matrix Capital

Sumant Bhargavan
Executive Director/Wholetime Director on the Board, ITC

Suresh Sethi
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Sujith Nair
CEO and Co-Founder, Foundation for Interoperability in Digital Economy

Thomas Fenn
Member, Managing Committee, NRAI

Varun Parihar
Vice President & Head Corporate Affairs, Shiprocket

Vasudevan Chinnathambi
Co-Founder, Ninjacart

Vijay Shekhar Sharma
Founder and CEO, Paytm

Vimal Kumar
CEO, Juspay

Vipul Prakash
COO, MakeMyTrip

This report would not have been possible without the efforts and collaboration of dedicated teams from ONDC and McKinsey & Company.

Multiple leaders and colleagues from the ONDC team have provided inputs to the report, including Rahul Handa, Nitin Mishra, Harishankar Krishnan, Gautam Ganesh, Saransh Agrawal, Devendra Damle, Badrinath Mishra, Ramu Menon, Vidushi Singh, Abhishek Passi, Monisha Kumar, Vaibhav Goel, Neeraj Jain and Nitin Nair.

McKinsey & Company was the knowledge partner for this report, conducting independent third-party research and analysis. This research was directed by Alok Kshirsagar, Vikash Daga, Kanika Kalra, Girish Phansalkar, Nikhil Vyas, Anurag Chadha, and Nakul Banga.

Several leaders from McKinsey & Company provided analysis and insights for their respective sectors of expertise: Jaidit Brar, Neelesh Mundra, Ramdoss Seetharaman, Alessio Botta, Ashish Pandey, Ankur Bhajanka, Nitika Nathani, Ankit Agarwal, Vikas Siddeshwar, Mahima Chugh, Nadeem Ahmed, Abhik Tandon, Ishita Kayastha, Anushi Shah, and Abhishi Bhatia. The working team was led by Shrey Agrawal and comprised Himanshu Agrawal, Subham Chirania, Zarir Marfatia, Faraaz Mallick, Saurabh Sharma, Sumit Goenka, Romil Shah, Asitava Sarkar, Anamika Mukharji, Anand Sundar Raman, and Pradeep M. Kumar.


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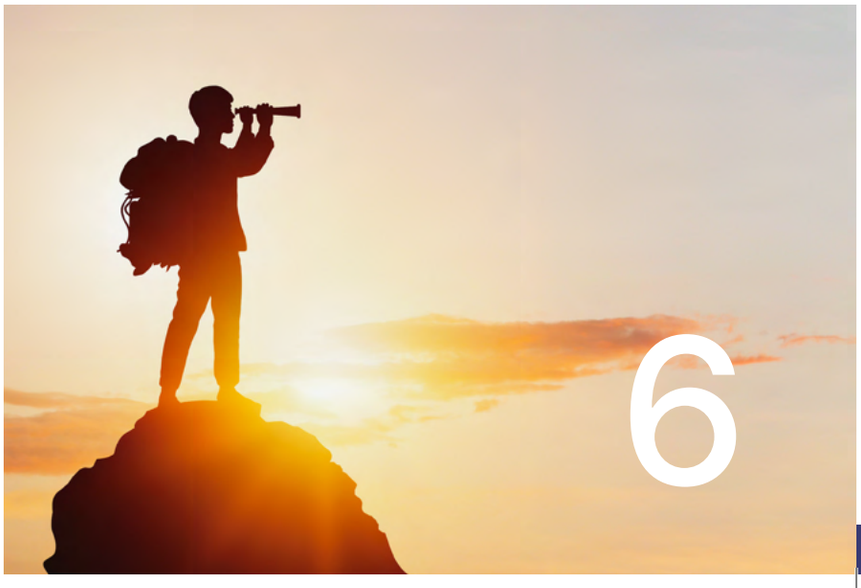
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Executive summary

In an increasingly digital world, India's rapid transformation stands out. Low data charges and 600 million smartphone subscriptions have ushered 840 million Indians into an online world of new possibilities.[1] Nearly every single adult Indian has an Aadhaar card, a digitally verifiable identification document that opens doors for digital transactions. The Unified Payments Interface (UPI) has changed the way most Indians pay. India's digital public infrastructure (DPI) is unlocking digital inclusion for the masses with innovations across banking and financial services, healthcare, logistics, transport, and much more.

The same digital inclusion remains to be seen in digital commerce, which is a mere 7 percent of the total retail market, with 165 million users.[2] Multiple challenges keep sellers and buyers from online commerce—their lack of digital ease, the trust factor in traditional shopping channels, the fears about security while transacting online, the difficulties for small businesses operating on digital trade platforms, and so forth. Only 6 percent of all MSMEs, for instance, actively sell on e-commerce platforms.[3] To boost digital commerce, we must reimagine it, with an ecosystem that eliminates or resolves challenges for stakeholders.

The stage is ready for this shift. The DPI, combined with the willingness and curiosity of Indians about what the internet can offer, could boost digital commerce.

This is the vision of ONDC: An open network for digital commerce that will establish open, inclusive, and competitive marketplaces online, creating choice and opportunity for everyone, by everyone.

India's 'tech-ade': Unlocking digital-led growth

India's internet usage numbers tell the story of a connected, young country (nearly half of the population is younger than 25 years old) hungrily adopting technology for greater convenience: 50 million merchants and 300 million users transacted $1.5 trillion worth of digital payments in 2022 alone; 96 percent of highway tolls came in as FASTag payments; Aadhaar identification covers 90 percent of India's population; and direct benefits transfers have saved Indians $25 billion in the past eight years.[4]

Five defining trends will continue to drive this growth

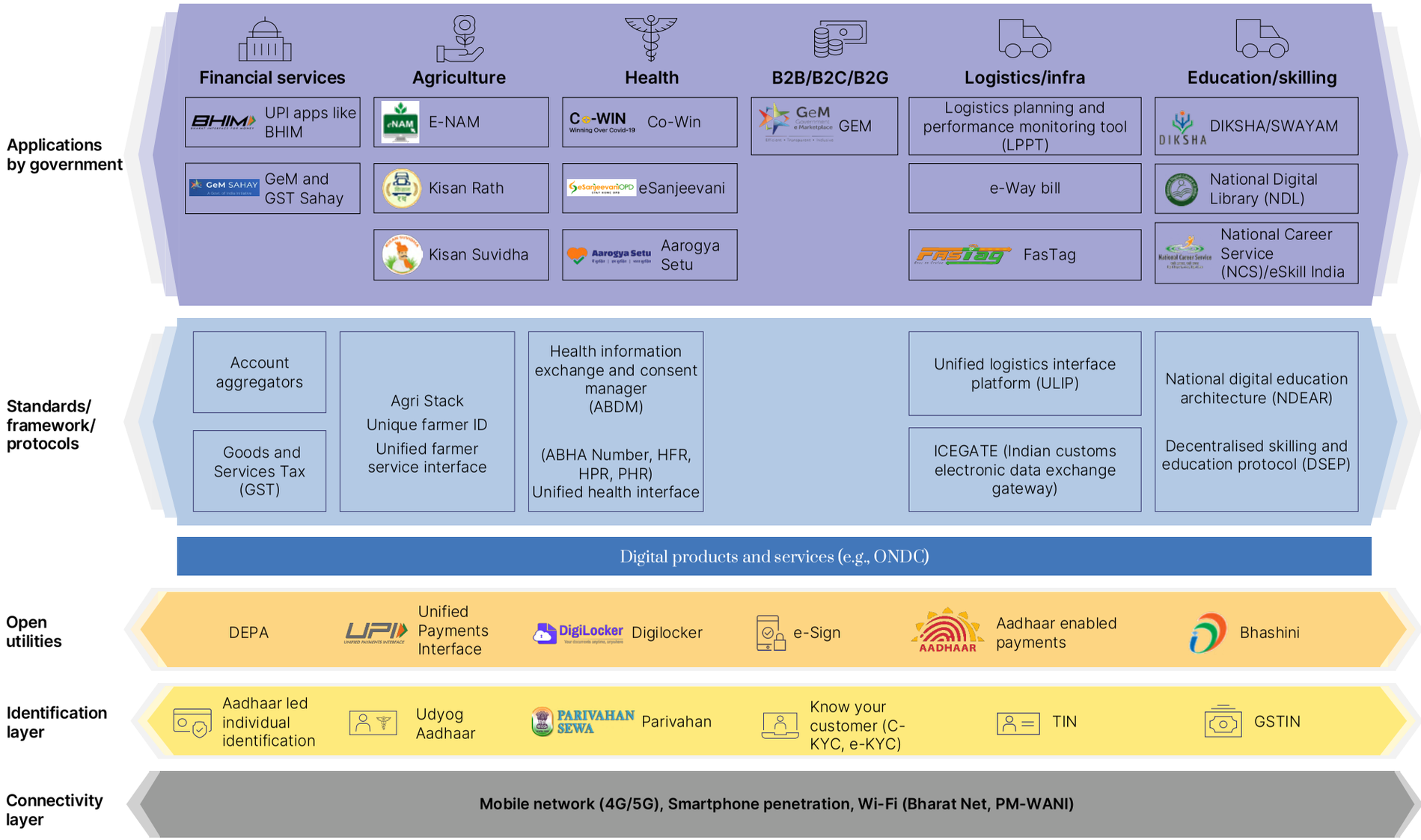
The emergence of digital public infratructure (DPI) that unlocks digital inclusion at population scale: This comprehensive infrastructure manages digital identity, payments, and data and is accessible across sectors (Exhibit E1). It is prompting innovations, and its continuous evolution could fuel broad-based, inclusive, and democratic growth. The widespread use of the Unified Payments Interface is just one success story of the DPI.

The rise of private-sector investments boosting the economy: Entrepreneurship is booming in India. The world's third-largest start-up economy and home to 107 unicorns across digital products and services,[5] India is a choice destination for private equity and venture capital funding.

1 India Brand Equity Foundation (IBEF), Telecom Regulatory Authority of India, Comscore, Dataportal, January 2023.
2 IBEF.
3 Based on registered sellers and their activity on prominent digital platforms in India. See "Digital SMBs," Zinnov.
4 https://Direct Benefit Transfer (DBT)bharat.gov.in/; https://www.bbnl.nic.in; https://lgdirectory.gov.in/.
5 "The Indian unicorn landscape," Invest India, September 7, 2022.

Exhibit E1

Emergence of digital public infrastructure to unlock digital inclusion at population scale.



Source: Industry expert conversations.

The advent of 5G data speeds: Dropping data costs and rising data speeds over the past five years prompted an 18-fold growth in India's data consumption.[6] The arrival of 5G is likely to boost internet use, attracting customers with innovations such as video commerce, live commerce, and chat-led commerce.

Multilingual, conversational AI technologies to capture the next wave of internet users: While the first language of the internet is English, only a fraction of Indians understand it. The government is investing heavily in R&D for technologies such as AI-based language models.[7] Such advances could feed into creating vernacular, video-based content and conversational and generative AI capabilities that bring more users of regional languages into the online world.

Democratisation of data by giving data back to the individuals and businesses that generate it: Data in the physical world has traditionally been disaggregated and hard to access. But in a huge shift, individuals can now access, control, and share their personal data and verifiable credentials. Data that had previously been visible to only a few aggregators or institutions is now available to the individual who generates it, and (with their consent) can be shared with public and private institutions. A few digital public infrastructure initiatives enable this democratisation. For example, the Data Empowerment and Protection Architecture lets individuals share verifiable data with banks or other institutions for their own needs. Account aggregators allow customers to share personal financial data across financial institutions, speeding up loan approvals and enhancing wealth management.[8]

Room for growth in digital commerce

India's digital commerce journey started over a decade after the United States and China, and today digital commerce accounts for 7 percent of India's retail economy (while it is 15 percent in the US and 25 percent in China).[9] Headroom exists for massive growth in India in the years to come. There is scope for growth among the internet using population—today, 450 million of the 840 million connected Indians voraciously consume content online, but only 165 million transact for digital commerce (Exhibit E2).[10] That means around 75 percent of Indians who have internet access are not shopping online— with the right, conducive factors, this could change.

Bringing the next 500 million consumers and 100 million sellers to trade online could grow digital commerce in India. However, some barriers to adoption could stand in the way.

Digital commerce is just getting started

Location and preferences dictate online shopping statistics. Of the 165 million consumers who already use digital commerce, a much smaller number (about 10 million to 15 million) are power users. They typically live in urban areas and shop across sectors. These power users drive high penetration figures in sectors such as electronics (35 percent) and fashion (11 percent).[11] Even here, consumers often shy away from digital commerce, due to a lack of comfort or trust with online shopping English-first platforms. This is especially true of the grocery sector—only 1 to 2 percent of the country's largest consumption category is online.[12]

Less than 5 million of 100 million MSMEs are registered to sell on e-commerce platforms

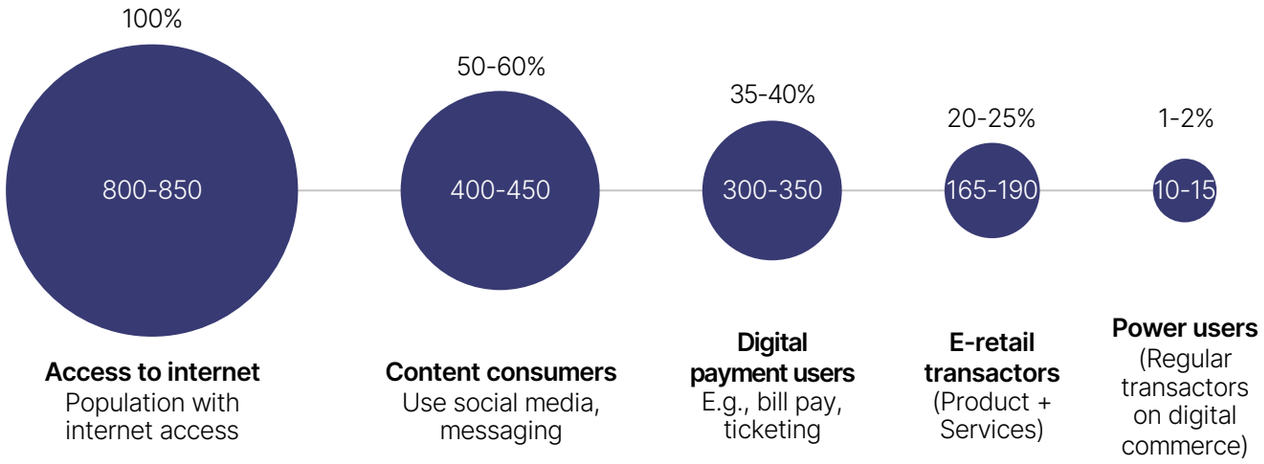
The seller space in digital commerce is consolidated: less than 5 million MSMEs are registered to sell online, with an even smaller number getting meaningful business from the large commerce platforms.[13] They lack either digital access or the money and confidence to operate via digital trade platforms.

6 IBEF, Telecom Regulatory Authority of India, Comscore, Dataportal, January 2023.
7 Bhashini, Indian Ministry of Electronics and Information Technology, accessed April 12, 2023.
8 Industry expert conversations.
9 Statista, Quarterly retail e-commerce sales: 4th quarter 2022, US Census Bureau, February 17, 2023.
10 India Brand Equity Foundation; Telecom Regulatory Authority of India.
11 Syndicated McKinsey research.
12 Ibid.
13 Based on registered sellers and their activity on prominent digital platforms in India. See "Digital SMBs," Zinnov.

Exhibit E2

India has demonstrated digital adoption across payments and content consumption; digital commerce has considerable scope for growth.

India online consumers funnel 2022, million



Source: IBEF, TRAI

Indian business-to-business (B2B) sellers lag behind the global average, too: their digital commerce penetration is 1 to 1.5 percent, far behind the world average of 20 percent.[14] The largely unorganised products and services sector often has sellers that are a party of one, with limited reach and visibility online. India's eight million independent professionals offering skilled services are largely absent from digital commerce platforms. Of the 200 million-plus unorganised labour force across sectors, only eight to ten million are digitally discoverable through digital commerce platforms.

Digital commerce unit economics remain a challenge

Despite the massive scale of a population like India's, unit economics remains a challenge in multiple sectors.

Consumers have shown neither the ability nor the willingness to absorb supply chain costs (30 to 100 rupees per order), especially for smaller orders. The multiplicative scale of e-commerce can happen only if the digital commerce supply chain integrates with India's incredibly efficient, disaggregated, and, in some cases, informal supply chains (distributors, wholesale, shop-led delivery, and the like).

These barriers to a vibrant digital commerce ecosystem could fall. Faster internet, multilingual and AI-powered conversational interfaces, and private investment in digital infrastructure are already set to unlock higher volumes of digital commerce.
An open network could be a further catalyst. It would allow access to network participants regardless of the platforms and applications used by the buyers or sellers, making room for multiple customer preferences and for sellers big and small.

ONDC: A pioneering initiative to boost digital commerce

ONDC presents an alternative to the existing platform-centric model. Moving the diverse Indian bazaar of goods and services online democratises digital commerce for buyers and sellers. Buyers can tap into it using any participating app to launch a search for an item. The network makes it possible for them to connect with thousands of sellers across the country who sell on ONDC via their preferred seller app. Within seconds, the customer sees a set of choices at a range of price points, along with transparent options for delivery modes, times, and costs provided by a choice of logistics operators.

[14] Inc 42 "State of Indian Ecommerce Report Q1, 2022"; 2020 China Industrial eCommerce Market Data Report; Share of US B2B Sales via E-commerce 2019-2023 by Statista; Europe B2B E-Commerce Market (2022-28) report.

While the early ONDC pilots have focused on a few use cases such as hyperlocal grocery and online food delivery, some interesting innovations highlight the diversity of what the network could offer. Namma Yatri allows commuters in Bengaluru to directly book an auto-rickshaw and pay its driver the entire fare. More than 47,000 registered drivers have completed over six lakh trips. Another player, Unified Energy Interface, empowers electronic vehicle owners to locate, access, and pay for the use of charging networks hosted by seven providers, both big and small, across 14,000 charging stations.

ONDC could enable economic growth by helping buyers and sellers overcome the challenges to digital commerce through the following three core attributes:

— **It is interoperable.** Network participants work together without being configured to any single platform. That means users can tap into the network through any buyer or seller app for digital commerce.

— **It is unbundled.** ONDC breaks down complex systems into granular activities or micro services. For example, in an e-commerce transaction, the seller-side, logistics, payments, and buyer-side activities can be handled by different entities.

— **It is decentralised.** Data availability and control over a transaction lie at both the buyer and seller ends.

Across the digital commerce ecosystem, consumers, providers, and buyer and seller apps could benefit from access to such a network.

The ONDC lens: Reimagining digital commerce

While India has the scope and space for all kinds of commerce to coexist, ONDC could expand opportunities across the landscape. Any seller—big or small, digitally savvy or not—could participate in an open network without needing to build the entire ecosystem on their own. With unbundling making it possible to offer discrete micro services, ONDC could also enable specialisation, allowing each participant to operate from a position of strength, innovation, and uniqueness.

In the fullness of time, the open network could unleash ten kinds of use cases, as follows:

1. **Boosting the direct-to-consumer (D2C) ecosystem.** With the reduced cost of customer acquisition and reduced buyer and seller app fee, sellers could find it financially attractive to build D2C brands.
2. **Putting self-employed professionals on the map.** Self-employed people could more easily promote themselves on an open, inclusive marketplace, attracting attention and business from consumers.
3. **Digitalising B2B commerce.** Retailers could access a wider distribution network to save time and costs, while direct linkages between retailers and manufacturers could improve margins in sectors such as agriculture and construction.
4. **Amplifying hyperlocal goods and omnichannel convenience.** Digital channels would take the neighbourhood market online to serve hyperlocal demand, while consumers could use omnichannel availability to order from home after checking out a product in a store.
5. **Bringing hyperlocal services within reach.** Consumers across India could find the full range of services on the network.
6. **Taking financial services further.** ONDC's transaction-based data could support innovative new offerings to provide businesses with greater access to credit.
7. **Growing peer-to-peer commerce.** The decentralised network would enable peer-to-peer commerce among consumers, peer sellers, and self-employed professionals.
8. **Empowering more people with education and skills.** More learners and workers could access skills-based education, vocational training, career counselling, and career opportunities, which could engender a more equitable, skills-driven labour market in India.
9. **Making logistics efficient.** Once digitalised, the entire supply chain could improve price visibility, and higher delivery volumes could bring down logistics costs.

10. **Taking India to the world.** India's digital commerce infrastructure could promote cross-border trade via marketplaces, helping MSMEs become discoverable by global consumers and businesses.

A combinatorial explosion of possibilities

Over time, ONDC could power India's digital economy to emerge as a vibrant digital commerce universe - making it meaningfully **bigger, broader and more inclusive.**[15]

India could see digital consumption surge fivefold to reach $340 billion by 2030, with 500 million digitally transacting consumers.

The network could be broader, with digital penetration across B2B companies growing to 8 to 10 percent.

It could emerge as a more inclusive network with the scope to connect around 80 to 90 million self-employed workers with demand, and bring six to seven times more MSMEs into a buzzing, diverse ecosystem.

ONDC could emerge as a network of networks, setting off a combinatorial explosion (Exhibit E3). The innumerable permutations and combinations enabled by such an interconnected network could unleash possibilities that are hard to imagine.

With ONDC, India could exceed expectations for the growth and possibilities of digital commerce. The network effect could give rise to a nerve centre of new connections sparking continuous innovation and advances.

Building trust and scale

A high-trust environment and widespread adoption could make all the difference between potential and reality for this pioneering initiative. This will be the key for ONDC to work in an impatient digital world.

Fostering an environment of mutual trust: The willingness of consumers to use ONDC-linked buyer apps will depend on their experience with the network.

A core characteristic of the open network is that it unbundles a series of services that would otherwise be unified on a single platform. Multiple participants deliver their respective components in the value chain. While allowing for individual margins and profitability, each of these participants needs to deliver to a high standard.

In an unbundled environment where no one player controls the end-to-end value chain, multiple challenges affect the customer journey, from search and discovery and order placement and fulfilment to payments, returns, and grievances. ONDC, along with a posse of technology service providers, is looking to address these concerns with a mix of clear network policies, enhanced and optimised API definitions, and innovations in third-party tools and solutions.

Building scale: Having sufficient participants on the network could help to unlock benefits such as simplified, efficient logistics and lower customer acquisition costs. It could also encourage providers to invest in the capabilities required (such as inventory digitalisation).

ONDC would play a market-making role, facilitating multiple other participants to scale up. It could build a mix of shapers who invest in developing the ecosystem, which may include large, influential companies as well as innovative young organisations that can push the boundaries of possibility and create new business models. And finally, a select few use cases could scale up, establishing what might be possible with this network. This could encourage more participants to join the market, creating a virtuous cycle of participation.

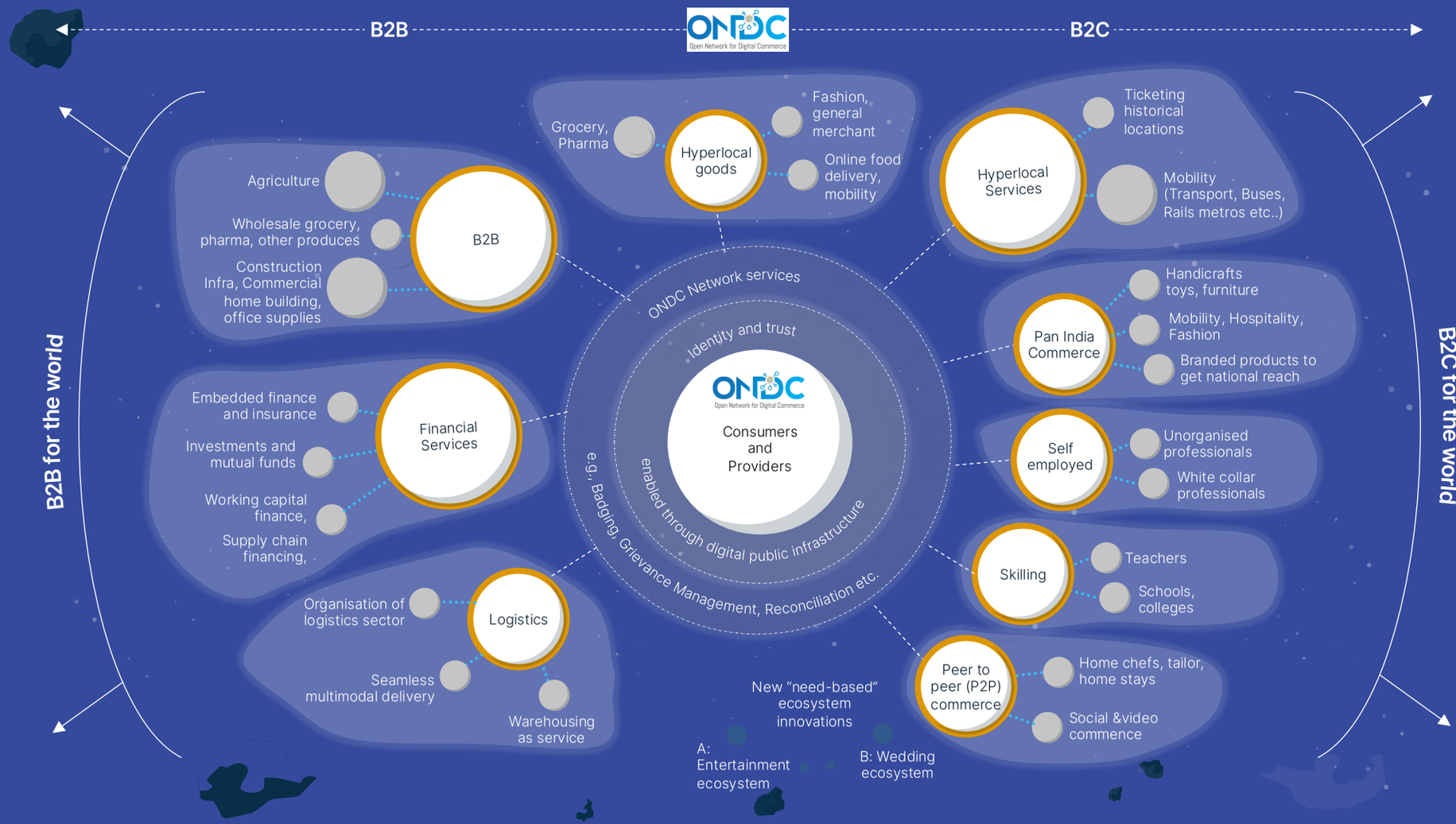
A seismic shift: Transforming digital commerce in sectors

This report considers the potential of ONDC to transform digital commerce through a sectoral lens. Each sector deep-dive begins with an overview of the present landscape of digital commerce for that sector. It goes on to outline the challenges or barriers restricting various stakeholders from participating in digital commerce. It then envisions the possibilities ONDC could unlock for the sector. It ends with a set of considerations—shifts that could shape and unleash the power of digital commerce in the sector.

While digital commerce could permeate

[15] Syndicated McKinsey Research.

Over time, as ONDC scales, it could unleash a combinatorial explosion through network of networks the impact of which could transform the Indian economy.



every sector, this report focuses on seven of the largest sectors in B2C trade (by total spending): grocery, fashion and lifestyle, electronics, online food delivery, pharmaceuticals, mobility, and hospitality.

Digitalisation and the open network could make an immense difference to B2B enterprises in India. In particular, it could benefit small businesses: MSME-to-MSME commerce is the most underserved type of transaction for multiple reasons and could receive a vital boost on the open network. The report focuses on ONDC's potential to transform two core sectors in B2B trade—construction and agriculture. In construction and real estate, contractors procure cement, bricks, tiles, and other building materials in bulk. Agriculture depends on retailers purchasing inputs (such as fertilisers and pesticides) from manufacturers before selling the products to farmers.

The report then lays out the potential for cross-cutting sectors—financial services and logistics—where digital commerce could unlock a new paradigm of possibilities for stakeholders across sectors.

ONDC could take financial services deeper into the ecosystem, delivering credit and insurance to consumers and businesses who sorely need it, powering seller growth, and boosting investments. The open network could connect more than a billion consumers seeking financial services and 90 million MSMEs eager to scale up their operations, customer base, and offerings.[16] The analysis of financial services takes stock of the rapidly evolving landscape, opportunities for further growth (including credit lending, insurance, and mutual fund and investment products), and how ONDC could accelerate digital adoption.

India's logistics sector is constrained by infrastructure challenges and higher logistics costs (11 percent) than in several countries, such as the BRICS economies.[17] ONDC could play a vital role in digitalisation that increases visibility across the logistics value chain and makes processes more efficient. In-depth analysis of the road transportation industry reveals how ONDC could directly address barriers to digital adoption, unlock value, and support additional business-building opportunities. Beyond these specific sectors, ONDC's unbundling of discrete services creates opportunities for incumbent companies and new entrants to shape their participation on the open network.

ONDC for the world

While ONDC is being tested in India, the problems it seeks to solve are truly global in nature. Despite the rise in internet connectivity around the world, cross-border trade and digital commerce remain beyond the reach of many companies, especially small sellers, as well as billions of consumers. As the network grows, it could influence digital commerce on a global scale in two primary ways: by promoting cross-border trade and by accelerating and democratising digital commerce across markets.

For ONDC to transform digital commerce beyond the borders of India, four key enablers should ideally be in place: seamless cross-border payment settlements, stringent grievance redressal systems, a globalised taxonomy, and global cooperation to support digital commerce.

Getting on board with ONDC

ONDC holds the potential to create open, inclusive, and competitive marketplaces in the virtual world. It will be important for companies to carefully evaluate the options available to them as they consider entering this space.

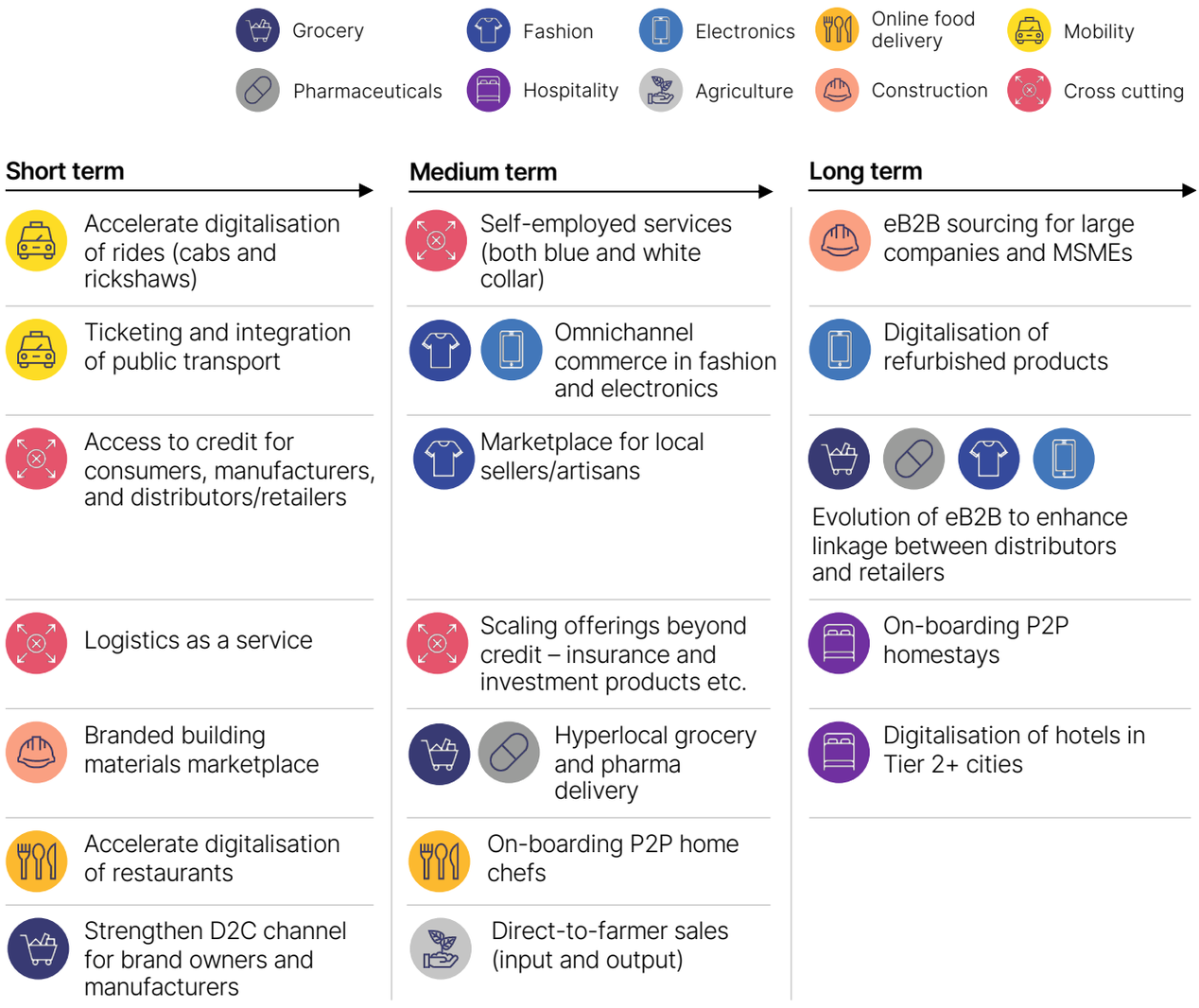
As company leaders explore the possibilities ahead, they could consider two horizons—short-term use cases that can help their companies to participate in the open network, and a more medium- to long-term transformation agenda that could help them innovate and move forward (Exhibit E4). Companies that follow this path could make the most relevant investments to achieve their strategic objectives.

[16] Syndicated McKinsey research.
[17] Indian Foundation of Transport Research and Training (IFTRT), https://timesofindia.indiatimes.com/business/india-business/indias-logistic-costs-higher-than-bricnations/articleshow/14151707.cms

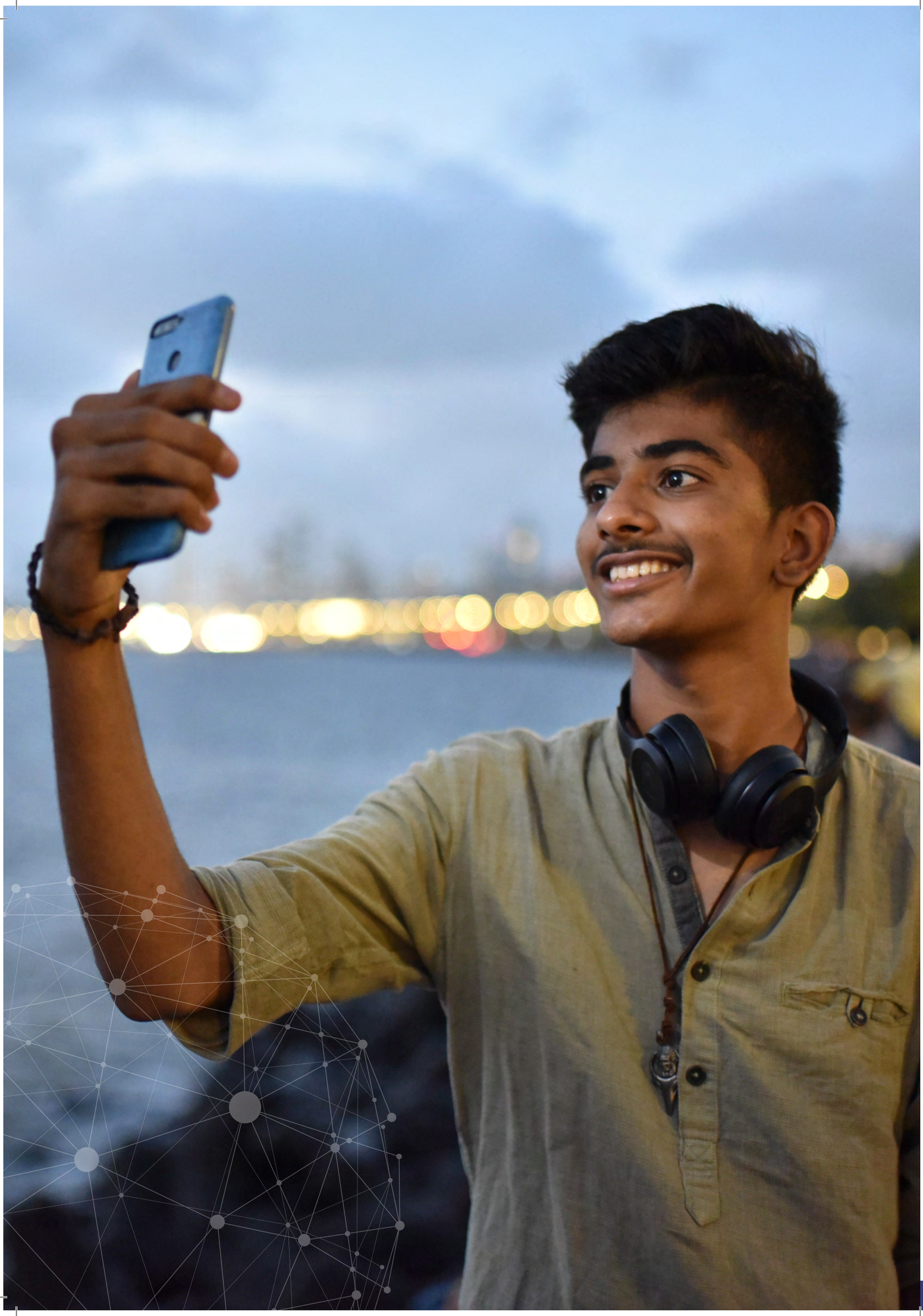
Exhibit E4

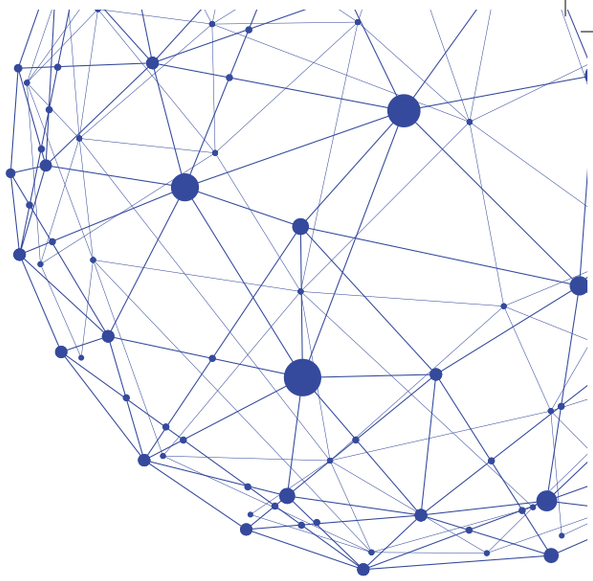
Use cases in the short term could prove the most beneficial for driving early adoption and scale.

Not exhaustive



ONDC presents a unique avenue for India to revolutionise its digital commerce landscape and set an example for the world, much as India did with the UPI. With vast potential for a robust buyer and seller ecosystem, ONDC is a rare opportunity that arises once in a decade. Stakeholders—the government, industry players, and consumers—can determine how they seize this 'tech-ade', putting their best, most innovative selves forward to democratise digital commerce for all.





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India's 'tech-ade': Unlocking digital-led growth

In an increasingly digital world, India's rapid transformation stands out. Drawn by convenience, knowledge, and entertainment at their fingertips, especially during pandemic-induced lockdowns, Indians have willingly embraced the internet. While digital adoption has swiftly swept the country, digital commerce still has a low share for various reasons. An open network for digital commerce could establish inclusive and competitive marketplaces online, creating choice and opportunity for everyone, by everyone.

India's internet usage numbers tell the story of a connected, young country (nearly half of the population is younger than 25 years old)[18], its people ready to experience novelty vicariously through their screens. India has 840 million internet users and 600 million smartphone subscribers, and Indians transacted $1.5 trillion worth of digital payments in 2022 alone. The swift pace of digital adoption has fuelled India's digital economy, which accelerated at 2.5 times the pace of the overall economy in the past five years (Exhibit 1).

Of the 840 million Indians using the internet, about 450 million are avid consumers of digital content, glued to their devices for an average of seven hours a day for social media, messaging, entertainment, and so forth. But only 165 million engage in digital commerce (buying goods and services online). India's low share of digital commerce, at an average of 7 percent,[19] is below the averages of 25 percent in China[20] and 15 percent in the United States.[21]

[18] Sample Registration System, Registrar General and Census Commissioner of India, 2018.
[19] IBEF.
[20] Statista.
[21] Quarterly retail e-commerce sales: 4th quarter 2022, US Census Bureau, February 17, 2023.

Exhibit 1

India's digital economy has grown ~2.5 times faster than the overall Indian economy since 2016.

Adoption

Internet users in 2022

840 million[1]

2x growth since 2016

Smartphone subscribers in 2022

600 million[1]

2x growth since 2016

Consumption

Data consumption per subscriber in 2022

16.4 GB/month[1]

18x growth since 2016

Screen time in 2022

7.3 hours/day[2]

3x growth since 2016[3]

Financial activity

Share of population (age >15 years old) that have a bank account in 2022

~80%[4]

2x growth since 2016

UPI payments in 2022

$1.5 trillion[5]

7x growth since 2019[6]

[1] Telecom Regulatory Authority Of India (TRAI), ComScore.
[2] Dataportal, Jan 2023.
[3] Dscout.
[4] Global Findex Database.
[5] National Payments Corporation of India.
[6] Data for 2016 is N/A as Unified Payment Interface (UPI) was launched around that time.

Five trends driving the rapid march of digital adoption

1

Emergence of digital public infrastructure (DPI) to unlock digital inclusion at population scale

2

Rise of private-sector investment boosting the digital economy

3

Advent of 5G data speeds

4

Multilingual, conversational AI technologies to capture the next wave of internet users

5

Democratisation of data by moving the power of data back to individuals and businesses who generate it

1. Emergence of digital public infrastructure to unlock digital inclusion at population scale

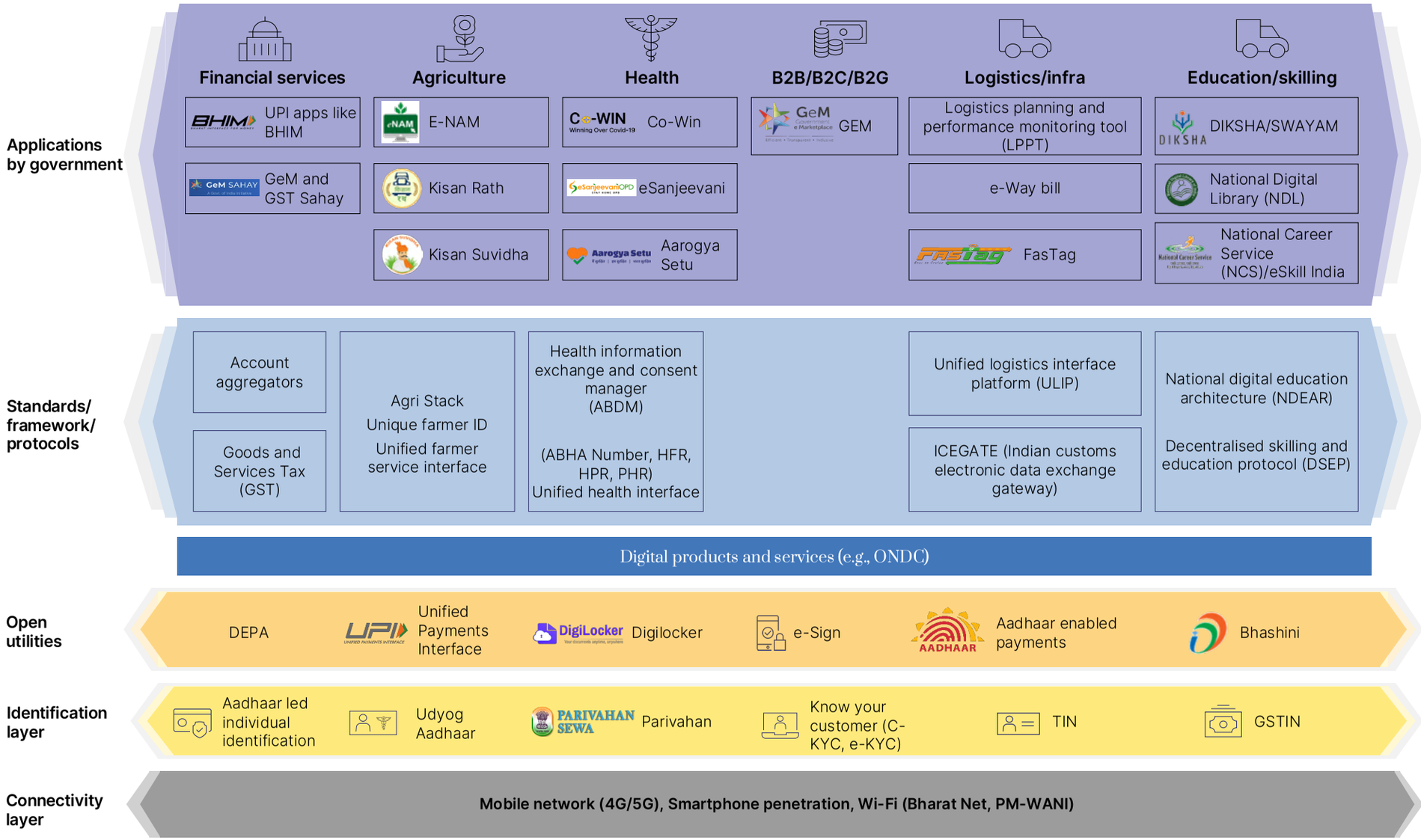
Radical innovations are changing how things get done in India, replacing time-consuming paperwork and long queues with digital solutions. Indians can now easily authenticate their identity with Aadhaar, scan and pay on the go via the UPI, breeze past highway toll points with FASTag, and quickly retrieve and store government-issued digitalised documentation using a DigiLocker digital locker. These are just a few highlights of the massive digital public infrastructure ecosystem emerging in India. No other country has this sort of ecosystem.

This is the comprehensive DPI that manages digital identity, payment, and data. It overcomes challenges related to customer identification, limited connectivity, elaborate paperwork, and primarily cash transactions (Exhibit 2). This infrastructure builds on an underlying layer of internet connectivity that has brought 840 million Indians online on the back of cheap data and pocket-friendly smartphones, with initiatives such as BharatNet gradually connecting rural areas. Aadhaar, the digital identity for every Indian, enables single-step identity verification for any transaction. Open utilities such as the UPI and DigiLocker create a level playing field for all stakeholders, unlocking access to digital payments and data for all. Standards, frameworks, and protocols such as Account Aggregator facilitate interactions and exchange of customer data for faster banking processes.

The government is exploring creating a layer of digital products and services, of which the Open Network for Digital Commerce (ONDC) is a part.

Exhibit 2

Emergence of digital public infrastructure to unlock digital inclusion at population scale.



Source: Industry expert conversations.

These layers form a digital public infrastructure ecosystem, accessible for verticals such as financial services, agriculture, health, B2B/B2C/B2G, logistics, and education. Indians have embraced these advantages (Exhibit 3). The number of digital payments jumped threefold in the past three years thanks to the rollout of 4G and 5G networks, cheap data, and the launch of the UPI. In 2022, UPI transactions increased by 55 percent over the previous year across 50 million merchants and 300 million users.[22] The Co-WIN portal was developed in just nine months to ensure access to the COVID-19 vaccine; by December 2022, it had supported the delivery of 2.2 billion vaccine doses.[23] FASTag penetration surged from 16 percent in 2017–18 to 96 percent in 2021–22.[24]

The DIKSHA portal (Digital Infrastructure for Knowledge Sharing) is a K-12 resource for teachers and students, offering textbooks, courses, televised classes, and more. It has 160 million enrolments, with over 130 million courses completed in more than 30 languages. DIKSHA kept education going in India even through the pandemic.[25] Similarly, e-Skill India is an e-learning aggregator with a collection of courses that are open for India's youth to learn relevant skills for improved employment opportunities. To date, it has nearly 20 lakh course enrolments.[26]

These digital public infrastructure initiatives have aided broad-based inclusion like never before, breaking down silos and putting the power of data in the hands of the individual.

2. Rise of private-sector investment boosting the digital economy

Over the past 15 years, India has seen an entrepreneurship boom supported by private capital. India is the world's third-largest start-up economy, with 107 unicorns across digital products and services in B2B and B2C.[27] This growth stems from the fivefold rise in private equity and venture capital funding, from $14 billion in 2016 to $65 billion in 2021.[28] One-fifth of all venture capital funding in the Asia–Pacific region flowed to India in 2022, further boosting the digital start-up ecosystem (Exhibit 4).[29] Private enterprises are also investing to build at-scale digital businesses like Jio-Mart and Tata Digital. This robust private-sector trend will likely continue fuelling India's digital growth.

[22] "UPI product statistics," National Payments Corporation of India, accessed April 12, 2023.
[23] Co-WIN portal dashboard.
[24] Indian Ministry of Road Transport and Highways.
[25] "DIKSHA," India Stack, accessed April 12, 2023.
[26] "eSkill India – Fostering a future-ready workforce, digitally," National Skill Development Corporation, accessed April 12, 2023.
[27] "The Indian unicorn landscape," Invest India, September 7, 2022.
[28] Grant Thornton, *The Fourth Wheel 2017: Private equity in the corporate landscape,* 2017; Venture Intelligence Report 2022.
[29] Sohini Mitter, "India adds more unicorns than China for 2nd year in a row; country accounts for 20% of APAC funding," Business Today, March 21, 2023.

> Digital public infrastructure such as Aadhaar and UPI are groundbreaking initiatives with the potential to revolutionise India's digital ecosystem and, in future, the world. With the JAM trinity, we now have a billion plus Aadhaar cards, nearly a billion bank accounts and a billion mobile phone connections that have played a foundational role in making India's fintech/startup ecosystem one of the most vibrant and fastest growing in the world. As we move into a digital era, ONDC could become an integral component of India's DPI. Its end goal is to democratise commerce, and onboard millions of merchants (that do not participate on any digital platforms today) to sell their goods and services online.
>
> — Dilip Asbe
> MD & CEO, National Payments Corporation of India

Exhibit 3

Digital public infrastructure (DPI) initiatives have seen rapid adoption.

$1.5 trillion

Transactions in value on UPI in 2022[1] across 50 mn merchants and 300 mn users

$25 billion

Amount saved 2014-2022 by DBT enabled by Aadhaar, which covers 90% of India's population[2]

96%

Share of tolls in India collected through FASTag in 2021; toll revenues have jumped by 148% compared with pre-COVID-19 levels[3]

140 million

Number of people in India (~10% of population) registered on DigiLocker 2015-2022[4]

2.2 billion

COVID-19 vaccines delivered till Dec 2022 on Co-WIN portal, which was developed within 9 months of onset of pandemic[5]

$210 billion

Amount credited via Aadhaar payment bridge across 1 bn transactions;[6] this is the world's largest DBT, which was a critical enabler during the pandemic

75%

Percentage of Gram Panchayats in India connected to internet under Bharat Net project by 2022[7]

160 million

Enrollments on DIKSHA portal, including >130 mn completed courses across >30 languages[8]

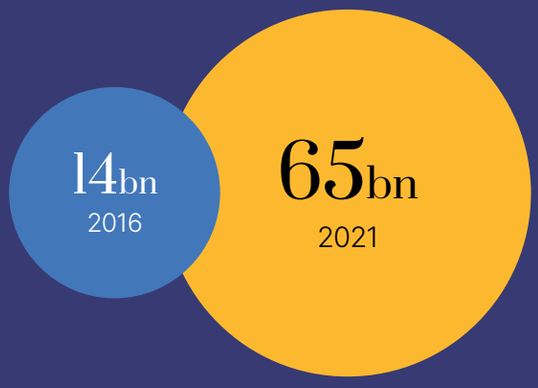
[1] https://www.npci.org.in/what-we-do/upi/product-statistics
[2] https://Direct Benefit Transfer (DBT)bharat.gov.in/
[3] Press release 2021, NETC;FASTag dashboard on NPCI website.
[4] https://www.digilocker.gov.in
[5] Co-Win portal dashboard.
[6] https://Direct Benefit Transfer (DBT)bharat.gov.in/
[7] https://www.bbnl.nic.in; https://lgdirectory.gov.in/
[8] https://www.indiastack.global/diksha/

Exhibit 4

Rising private-sector investments are likely to boost India's digital economy.

Not exhaustive

Private equity and venture capital investments in India
$ billion



Leading institutions that have emerged in the last 2 decades

E- Commerce/Marketplace

Flipkart · Urban Company · bigbasket · mall · snapdeal · INFRA.MARKET · CredAvenue · apna · SHOP · Quikr · MENSA · meesho · Spinny · CARS24 · CarDekho · blinkit · firstcry · SHOPCLUES · Craftsvilla · NYKAA · lenskart · DealShare · purplle · GlobalBees · ZETWERK

Financial services and fintechs

paytm · PhonePe · ICICI Bank · Razorpay · digit · Groww · policybazaar · one card · ACKO · open · Pine Labs · yono · SBI · IDFC FIRST Bank · zeta · HDFC BANK · CRED · ZERODHA · slice · upstox · Spice money · ofbusiness · BillDesk · FIVE STAR Business Finance Limited · oxyzo

SaaS

ZOHO · freshworks · BrowserStack · Mu Sigma · DIGIIT · POSTMAN · innovaccer · BIZOM · HASURA · uniphore · druva · nStore · Chargebee · Fractal · Icertis · zenoti · GOFRUGAL · eSamudaay · mindtickle · leadsquared · uEngage · darwinbox · eVital · Store

Edtech

BYJU'S The Learning App · unacademy · ERUDITUS Executive Education · upGrad · PW · LEAD SCHOOL · Vedantu

Logistics

DELHIVERY · Shiprocket · elasticrun · XPRESSBEES delivering happiness · RIVIGO · BLACKBUCK · GRAB · DUNZO · LOADSHARE NETWORKS

Foodtech

SWIGGY · zomato · REBEL FOODS

Gaming

DREAM11 · GAMES24x7 · MPL MOBILE PREMIER LEAGUE

Social media

ShareChat · glance · dailyhunt · gupshup · hike

B2B

moglix · udaan · INFRA.MARKET

Health-tech

PharmEasy · TATA 1mg · cure.fit · Pristyn Care · CitiusTech · molbio

Mobility

OLA · OLA ELECTRIC

Others

polygon · CoinDCX · Innobits · coinswitch · protean Change is growth · namma yatri · LIVSPACE · NOBROKER · Licious BORN TO MEAT · OYO · INMOBI · MYGLAMM · mamaearth · GrowthFalcons · Enduring Value

Large-scale private institutions have invested to build at-scale digital businesses

Jio Mart · Apollo 24|7 · TATA DIGITAL

Source: Venture Intelligence Report 2022; Grant Thornton - The Fourth Wheel 2017

3. Advent of 5G data speeds

Data consumption in India grew by 18 times in the past five years, with data costs falling and data speeds rising thanks to 4G. Consumption could grow further with the advent of 5G connectivity, which promises ten times faster speed, seamless coverage, and lower latency for internet users, encouraging them to keep surfing as they explore new possibilities and innovations.[30]

Indian users spend about 35 percent of their screen time on social media applications. They are also getting used to "social commerce," or shopping on social media; use of social commerce has tripled in India since 2019.[31] For small businesses, social commerce offers a direct line to customers, especially in untapped markets such as tier 2 and tier 3 towns. India's 450 million social media users are already a growing base of potential buyers who can find, research, and purchase products or services without exiting social media apps.

Faster internet through 5G could attract more customers with innovations like video commerce, live commerce, and chat-led commerce. These could be significant bridges to drive digital commerce in a primarily vernacular country. Augmented reality and virtual reality (AR/VR) could allow e-commerce brands to demonstrate more real-world products on shopping sites. In China, the social commerce market size in 2021 was $370 billion (nearly 15 percent of e-commerce sales), with over 800 million participants.[32] In India, faster internet speed is projected to boost social commerce from $3 billion in 2022 to $90 billion by 2030.[33]

Beyond social commerce, 5G will likely have a transformative impact on India's diverse and hard-to-reach population. Telemedicine, AI for remote surgery, and VR to simulate medical scenarios could help doctors in far-flung areas treat critically ill patients. It could also extend to other fields, such as aiding dynamic traffic management for a better, safer driving experience.

4. Multilingual, conversational AI technologies to capture the next wave of internet users

While the first language of the internet is English, only a fraction of Indians understand it. Over 95 percent of online video consumption is in Indian languages.[34] As content creators move to match these preferences, vernacular news content is expected to grow nearly eight times faster than English news in number of viewers and time spent.[35] The proportion of regional languages beyond Hindi in over-the-top video content could double to 54 percent by 2024.[36] And yet, there is some way to go to offer more intuitive, seamless vernacular digital experiences. For example, while Amazon India is available in multiple languages, only 5 to 10 percent of all purchases happened on its non-English-language platform in 2021.[37]

The government is investing heavily in R&D toward this purpose. MeitY's Bhashini is a government initiative to capture India's 20-plus languages and more than 20,000 dialects for a more sophisticated conversational AI experience.[38] As part of Project Vaani, Google has partnered with the Indian Institute of Science, Bangalore, to create an AI-based language model that understands diverse Indian languages and dialects.

These advances could feed into creating vernacular, video-based content and conversational and generative AI capabilities such as Chat GPT and DALL-E. Such shifts could bring greater comfort and convenience for the next wave of internet users.

[30] Livemint, "5G in India: How next-gen technology changes your life," October 1, 2022.
[31] Inc42, State of Indian ecommerce, Q4, 2022.
[32] China's social commerce market statistical report 2022.
[33] Inc42, State of Indian ecommerce, 2022.
[34] Expert conversations.
[35] Dalberg Advisors and Google, *The future of the news in India,* December 2021.
[36] India Brand Equity Foundation.
[37] Peerzada Abrar, "Amazon seeks to tap next 500 mn users in India, expands vernacular offering," Business Standard, September 20, 2021.
[38] Bhashini, Indian Ministry of Electronics and Information Technology, accessed April 12, 2023.

5. Democratisation of data by giving data back to individuals and businesses who generate it

India is on a journey to move the power of data back to those who generate it—consumers and small businesses. Data in the physical world has traditionally been disaggregated and hard to access. Now, individuals can access, control, and share their personal data and verifiable credentials.

A few digital public infrastructure initiatives make this possible. The Data Empowerment and Protection Architecture is a consent-based data-sharing framework[39] that lets individuals share verifiable data such as Aadhaar, financial information, and health data with banks and other institutions. Account Aggregator is a consent-based financial data-sharing ecosystem with more than 250 participants. DigiLocker is a single application to digitally store and retrieve authentic documents, hugely simplifying tedious processes such as collecting required documents for a passport application.[40]

Open data can benefit various stakeholders across public and private institutions. Data earlier visible to only a few stakeholders is now available to public and private institutions. Government institutions can analyse it to respond with relevant policy interventions. For example, the GSTN portal allows over ten million businesses to upload line-item-level data, helping the government track GDP consumption in real time. Consent-based access to individual data or aggregated level data can make it possible for small businesses to devise targeted offerings or reach more customers, such as financial institutions, who can access verifiable data through Account Aggregator for underwriting and lending to previously unserved customers.

Room for growth in digital commerce

Low-cost data and smartphones have made it possible for India to craft its own digital growth story. The number of internet users has doubled since 2016,[41] and digital transaction volumes have grown by seven times since 2019.[42] And yet, the share of digital commerce is just 7 percent of India's total retail market.[43] The funnel of Indian online consumers shows a tapering from a high number of internet users (840 million) to active consumers of social media and content (450 million) to a proportionately small number of digital commerce transactors, a mere 165 million (Exhibit 5).

In 2021, India ranked eighth among global economies in the size of its digital commerce market—which is 7 percent of the total retail market.[44] While this is lower than China (25 percent)[45] and the United States (14 percent),[46] it shows rapid growth, given these two countries have nearly a decade's head start over India in online commerce.

Bringing the next 500 million consumers and 100 million sellers to trade online could grow digital commerce in India. Some ground realities, explained next, are keeping them from adopting digital commerce.

[39] Nandan Nilekani, "India must embrace data democracy," Carnegie Endowment for International Peace, August 16, 2017.
[40] Ibid.
[41] Telecom Regulatory Authority of India; Comscore.
[42] National Payments Corporation of India.
[43] IBEF.
[44] ecommerceDB, "eCommerce market in India," accessed April 12, 2023.
[45] Statista.
[46] "Quarterly retail e-commerce sales: 4th quarter 2022," US Census Bureau, February 17, 2023.

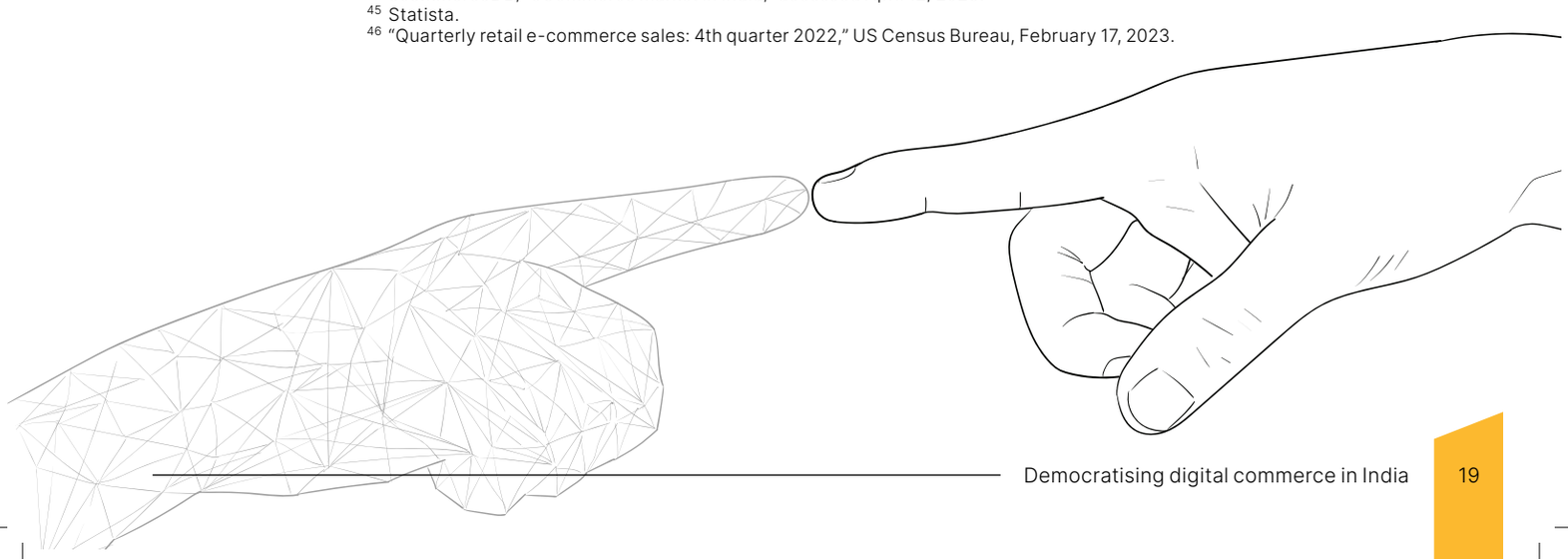
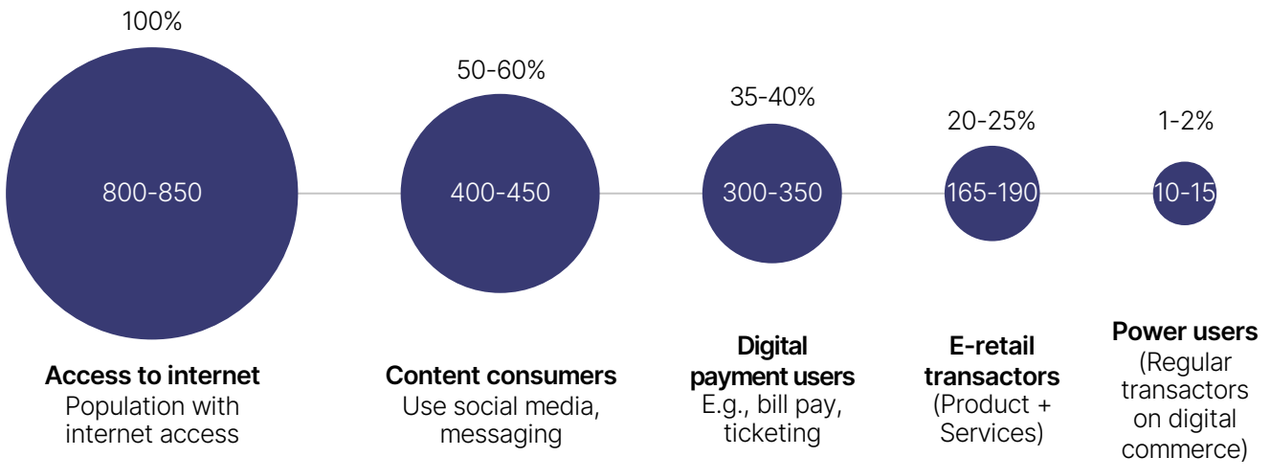


Exhibit 5

India has demonstrated digital adoption across payments and content consumption; digital commerce has considerable scope for growth.

India online consumers funnel 2022, million



Comparative internet penetration, 2022

	India	China	US	Brazil	Indonesia	South Africa
Per capita income USD	2,256	12,556	70,248	7,507	4,332	7,055
Internet users % of population	60-65	70-75	90-95	80-85	70-75	65-70
Digital commerce users % internet users	20-25	85-90	85-90	45-50	75-80	65-70
Digital commerce % of total retail market	6-7	25-30	14-16	15-20	20-25	2-5

Source: Data Reportal, US Census Bureau, International Trade Administration, Singapore Dept. of Statistics, World Bank, IBEF, TRAI

Only a fraction of internet users regularly shop online

Of the 165 to 190 million consumers[47] who already use digital commerce, a much smaller number (about ten to 15 million) are power users, typically living in urban areas and shopping across sectors (Exhibit 6). The majority shops in a few segments, mostly fashion, mobility, or electronics. Another divide is the rural-urban gap. While nearly 65 percent of internet users from the top eight cities shop online, the figure for rural India is less than 5 percent (Exhibit 7).[48]

Potential consumers who have internet access often shy away from digital commerce, generally lacking comfort with or trust in online shopping. Sometimes this is due to the lack of comfort with English-language platforms—the convenience that keeps consumers hooked to digital content could encourage them to try digital commerce as well. When comfort or trust is lacking, customers much prefer the experience of in-person shopping (even of local, unbranded products) at a familiar, nearby store where they feel the shop owner offers the comfort of advice and accountability, and with whom the customer may have a long personal association.

This is especially true for the largest consumption segment, grocery. Non-standardised products, easy access to a wide assortment of merchandise at nearby physical stores, and low ticket sizes mean that the grocery sector has just a 1 to 2 percent share of the digital commerce market. Up to 70 percent of shopper journeys in this segment are same-day trips for a daily top-up or impulse purchases. The convenience of a quick grocery run or a phone call for fast, hyperlocal delivery keeps consumers offline: same-day delivery via hyperlocal grocery players is an option in only 20 to 25 cities in India.

Differences across sectors affect the uptake of digital commerce. In contrast to grocery, electronics has about a 35 percent share of the digital commerce market, with standardised products, a wider online assortment, and high ticket sizes that absorb logistics costs.

The purchase of high-demand skilled services performed by workers such as carpenters, plumbers, and beauticians, and of unskilled labour such as domestic help, is largely undigitised beyond the top ten cities. The same goes for mobility needs—tickets for buses, local trains, autos, and taxis are physically purchased in most Indian cities.

[47] Expert interviews.
[48] Based on population data from the 2011 census.

7%

the share of digital commerce in the overall Indian retail market

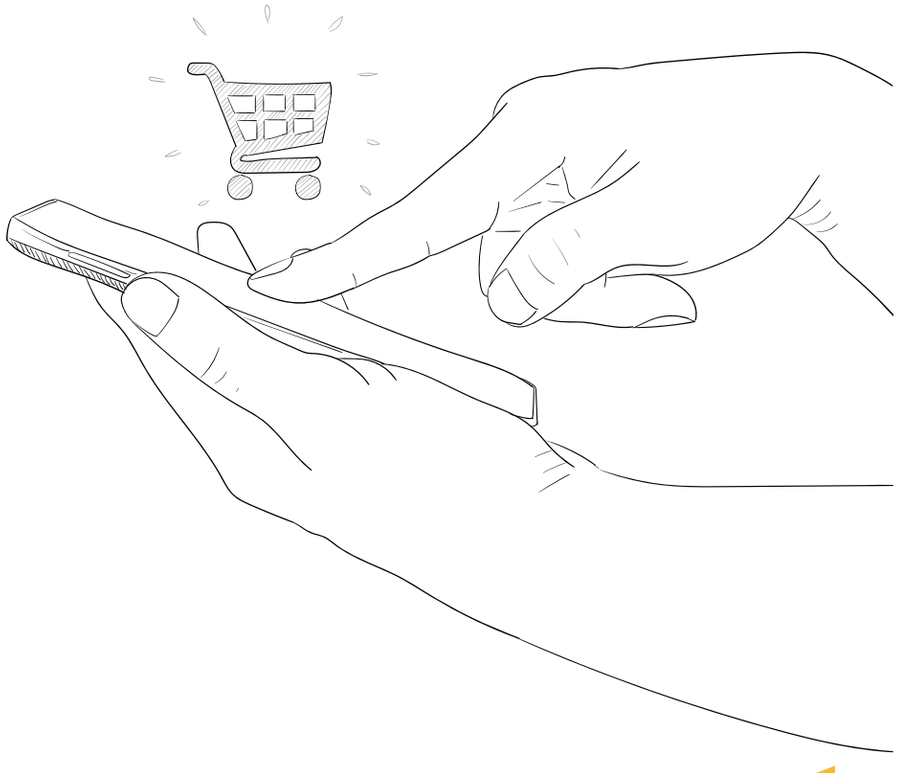


Exhibit 6

Today with 160+ million ecommerce consumers every year, multi-category commerce adoption is being led by 10-15 million 'power users'.

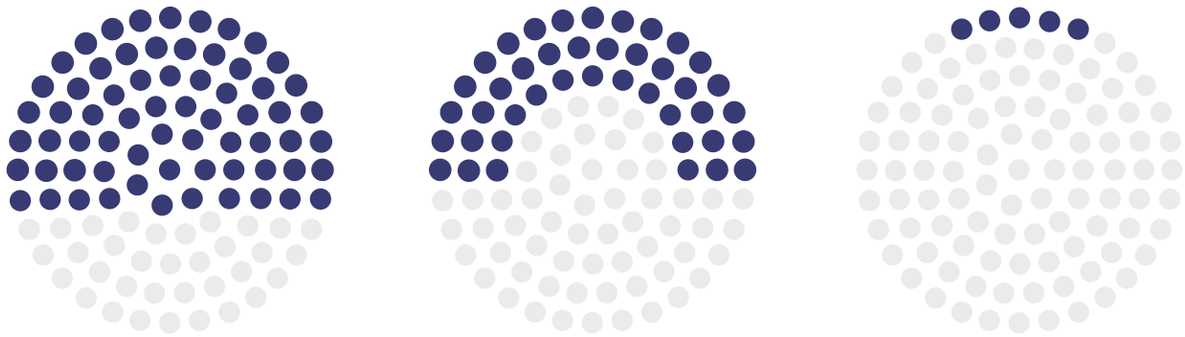
Digital commerce varies significantly across sectors[1]

Category	# Digital transacting consumers mn, FY22	Digital commerce share of market %, FY22
Fashion	150-160	10
Mobility	120-130	25
Electronics	100-120	35
Travel (Only Airlines)	30-35	75
Food & Beverages	30-35	8
Grocery	25-30	1-2
Pharmaceuticals	10-15	5
Ed-tech[2]	10-15	5
B2B	NA	1

[1] Definitions of sectors are mentioned in Glossary.
[2] Includes K-12 supplemental education, early childhood education, language learning, higher education, test preparation, vocational training and/or skilling.
[3] As per TRAI's Performance Indicator Report 2021, number of rural internet subscribers per 100 of population stood at 37.74 which is very low compared to number of urban internet subscribers per 100 of population which stood at 105.06.

Exhibit 7

Penetration in top cities is ~10-15x compared to that of rural region.[1]



60-65%
Top 8 cities[1]

40-45%
Rest of cities

<5%
Rural

[1] Based on population data from census2011.co.in

Less than 5 million of 100 million MSMEs are registered to sell on e-commerce platforms

The insufficient presence of B2C and B2B sellers, as well as of independent skilled professional service workers, is a factor in the low share of digital commerce in India.

B2C sellers

While about 65 to 70 percent of India's 100 million MSMEs or small businesses have internet connectivity, only 5 to 6 percent can sell on digital platforms, and even fewer get meaningful business online (Exhibit 8).

Sellers, particularly in rural areas, lack either digital access or the knowledge to confidently use digital platforms for trade. Even those interested in selling online are deterred by the high cost of digitalising inventory and sorting out or paying for related infrastructure such as warehousing and logistics. They struggle to access capital to modernise or expand—the credit gap for MSMEs in India is about $300 billion—driving about 60 percent of business owners to opt for informal credit at prohibitive cost.[49] Even when MSMEs join a selling platform, existing algorithms and filters often obscure their presence, by default favouring sellers who can operate at scale, offer low prices, and consistently maintain stock in several locations. Consumers are less likely to find the smaller sellers, who are ill-equipped to stay competitive and visible.

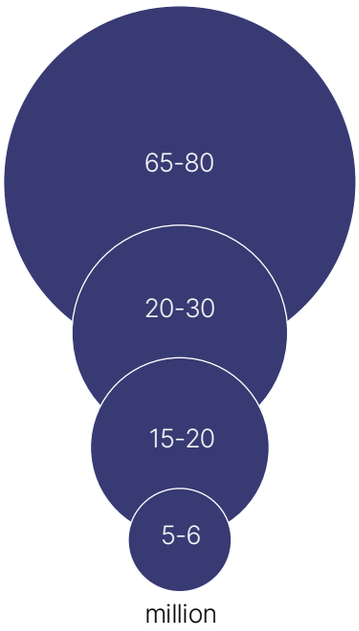
B2B sellers

Business-to-business sellers lag far behind the global average of 20 percent when it comes to digital penetration (Exhibit 9). The entrenched distributor system in retail trade provides credit to customers and offers prices equivalent to those of digital B2B marketplaces. For B2Bs, the margins from participating in online platforms are thin. Many retailers and distributors are also wary of the system, fearing fraud, especially with large and recurring transactions. Compounding these concerns is the fact that global B2B companies have not invested in India to build an ecosystem that might benefit local companies. Limited standardisation or certification for different product categories makes it difficult to digitalise the product category.

[49] TransUnion, *Empowering credit inclusion global report: A deeper perspective on credit underserved and unserved consumers*, April 2022; BLinC Invest, *MSME lending report 2022*, December 2022.

Exhibit 8

Only 5-6% of the 90-100 million MSMEs are participating in digital commerce.



Usage by MSMEs

65-80% Connectivity & communication	With the 4G/5G rollout, cheap and high-speed data has led to increase in usage of social media apps by MSMEs for business communication
25-30% Digital payments	Demonetisation, launch of UPI, and COVID-19 pandemic have led to increased adoption of digital payments
15-20% Discoverable on digital platform	Discovery through online website or through social media platforms like Instagram, Pinterest and Facebook
5-6% Active sellers on digital platforms	Listed on digital platforms like Amazon, Flipkart and Meesho across sectors like, grocery, lifestyle, pharma and electronics

[1] As per notification effective July 2021, retail and wholesale sectors have been added to the definition of "MSME".
Source: Based on registered sellers and their activity on prominent digital platforms in India; Zinnov – Digital SMBs

Exhibit 9

There is considerable potential for digital commerce adoption in B2B retail.

Indian GT B2B[1] Market, FY22, $ billion

Overall
700-750 bn

Offline
675-725 bn

e-B2B (GMV)
8-12 bn

Digital share of B2B commerce
India vs. global countries, 2022

India[2]
1-1.5%

China[3]
28-32%

USA[4]
15-17%

UK[5]
17-22%

[1] Inc 42 "State of Indian Ecommerce Report Q1, 2022".
[2] Ibid.
[3] 2020 China Industrial eCommerce Market Data Report.
[4] Share of US B2B Sales via E-commerce 2019-2023 by Statista.
[5] Europe B2B E-Commerce Market (2022-28) report.

Self-employed workforce

Independent professionals or unorganised labour force offering skilled services also need to be discoverable over digital commerce platforms. The Indian economy has largely been informal, with an unorganised labour force of around 380 to 400 million. Only around 8 to 10 million of the workforce are on digital platforms.[50] In the current postpandemic economic scenario, many professionals have left or had to leave the organised workforce. Rising internet speeds enable remote service offerings that were previously unimaginable. Telemedicine, remote surgery, and upskilling could all create opportunities for self-employed individuals, and a unified, decentralised, low-cost, reliable digital ecosystem could provide such workers the necessary boost.

Platform unit economics remains a challenge

Despite the massive scale of India's population, platform unit economics remains a challenge in multiple sectors. Most notable platforms themselves face the economic fallout of deep discounts and high consumer acquisition costs, leading to a higher cost of growth. Consumers have not yet shown their ability or willingness to absorb supply chain costs (30 to 100 rupees per order), especially for smaller orders.[51]

India has an incredibly efficient, disaggregated, and often informal supply chain across distributors, wholesalers, and shop-led delivery. Reimagining the digital commerce supply chain to incorporate these strengths could transform the business case for digital commerce.

The barriers to a vibrant digital commerce ecosystem can be brought down. Some changes, such as faster internet, multilingual and AI-powered conversational interfaces, and private investment in digital infrastructure, are already underway. The vast DPI and democratised access to data could power an "open network", that eliminates the barriers to digital commerce adoption by creating a level and inclusive playing field for all buyers and sellers.

[50] https://labour.gov.in/unorganized-workers
[51] Expert conversations.

> The Indian consumer is highly aspirational: connected for many hours a day to the mobile screen, she is now aware of all that is on offer in the bigger cities. Availability, however, lags aspiration. E-commerce has been a big enabler to bridge this gap but sectors like grocery and personal care need a different solve that can profitably go deeper than the top 200–300 cities and enable wider consumer access to the assortment. ONDC could enable a significant increase in consumption by bridging the gap between aspiration and availability.
>
> — B. Sumant
> Executive Director, ITC

The concept of an open network to democratise digital access

An "open network," as the name suggests, could allow market access regardless of the platforms and applications used by the buyers or sellers. It is neither owned by a single company nor limited to a particular company's products (Exhibit 10). An early example of an open network is the internet, where multiple servers connect to one another on the World Wide Web, and search engines curate results using all relevant information fetched from an endless array of sources.

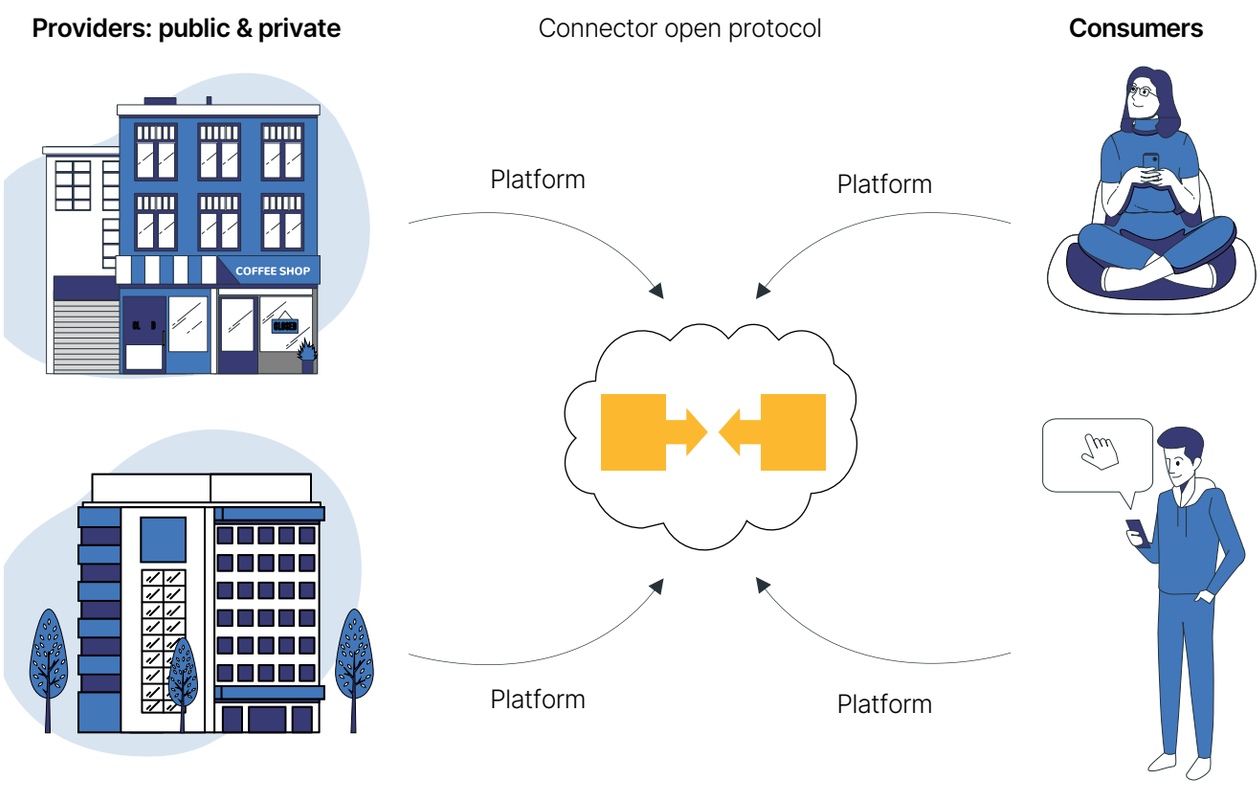
Interoperable: Network participants work together without being configured to any single platform.

Unbundled: Breaking down of complex systems into granular activities or micro services, such as in an e-commerce transaction; different entities can take up seller, logistics, payments, and buyer-side activities.

Decentralised: Data availability and control of agreeing transactions are at both the buyer and seller ends.

Exhibit 10

Illustrative example of working of an open network.



Source: ONDC strategy paper 2022

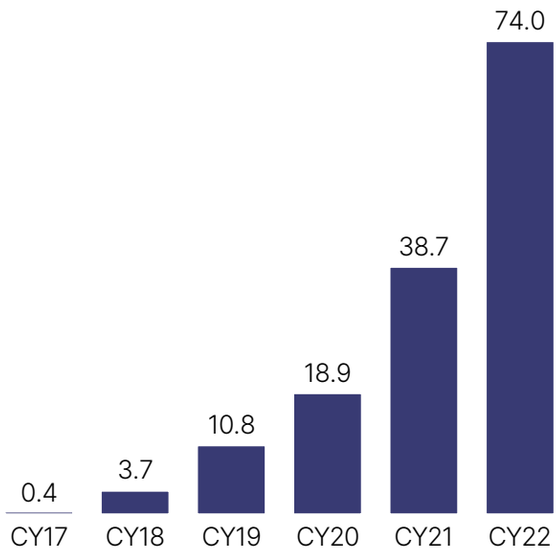
The UPI has all three of these characteristics. Its success proves how open networks can unlock the opportunities for massive participation in India's digital economy by democratising access for all consumers. The launch of the UPI was an inflection point in the country's payments history. Transaction volumes quintupled between 2019 and 2022, and transaction value grew by ten times over the past four years to reach $1.5 trillion in 2022 (Exhibit 11).

Exhibit 11

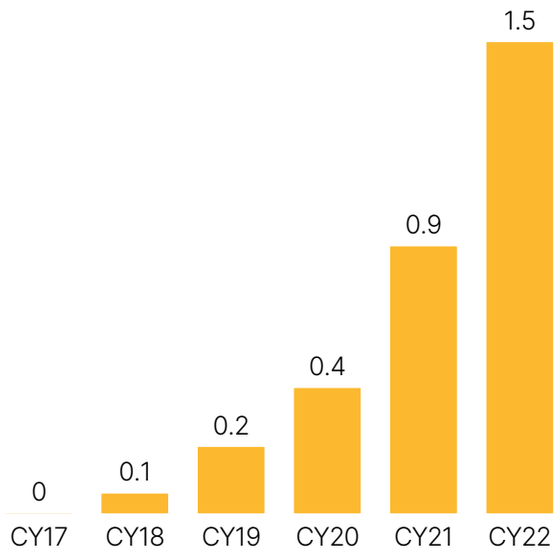
UPI is an example of the large-scale application of an open protocol.

Growth of UPI in India

UPI transactions (by volume) up ~5x in 3 years, bn



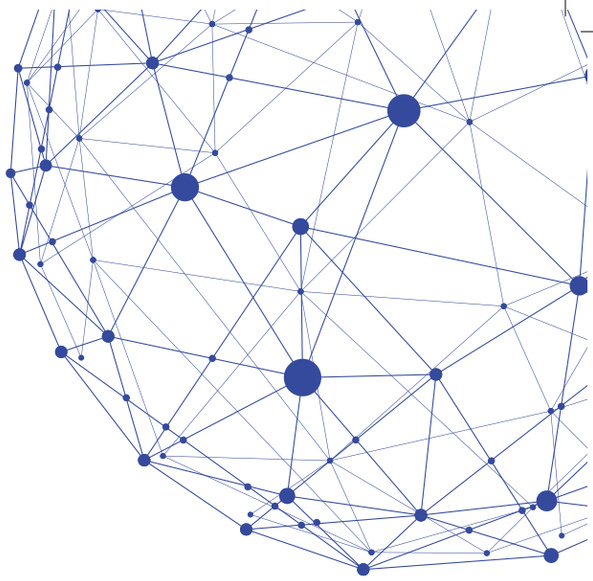
UPI transaction (by value) has grown ~10x in last 4 years, $tn



Source: NPCI

India has in the past led the world with innovative, population-scale initiatives that disrupt the market, such as Aadhaar and the UPI. With the UPI, the average Indian enjoys the power to scan and pay on the go. Democratising digital commerce in goods and services—that is, making it equally available for all Indians through an open network—could be a transformative, pioneering move.

The next chapter details the vision and possibilities of ONDC. This could transform the landscape and opportunities for consumers and providers, unlocking digital-led growth for India's economy and its people.



2

ONDC: A pioneering initiative

Open Network for Digital Commerce (ONDC) is a bold initiative to build an inclusive digital commerce ecosystem. Success stories of open networks showcase how ONDC could put India on the cusp of transformative possibilities for stakeholders and the economy. The opportunities it unlocks could accelerate the growth of digital consumption in India, bringing to life a vibrant digital commerce universe — bigger, broader and more inclusive.

An open network where consumers and providers can transact regardless of the platform or application they use, ONDC is an alternative to the current platform-centric model that aims to:

— Expand digital commerce as a channel for all transactions between consumers and providers.

— Include all providers of products and services for both B2C and B2B commerce.

— Build multiple rails to the buyer (through different buyer apps) to connect supply and demand.

— Unlock innovations across the ecosystem by making it inclusive.

ONDC could be the world's first such digital commerce ecosystem, putting participants on an equal footing and powering a faster-growing digital economy. While the early ONDC pilots have focused on a few use cases such as hyperlocal grocery and online food delivery, some interesting innovations highlight the diversity of what the network could offer (Exhibits 12 and 13).

Exhibit 12

Namma Yatri : Application of open network in mobility.

Namma Yatri is the **first open network mobility application** built by JusPay technologies in partnership with Bengaluru auto driver union to provide multi-modal service **without the involvement of any middlemen.**

Key value proposition

- Direct-to-Driver app
- No commission or middle-men i.e., whatever consumer pays goes, 100% to the driver and his family

Concept

The application is built on the common network standards defined by ONDC built on the Beckn protocol (open source). The common network standards allow for interoperability for any buyer app compliant with the network standards to offer rides

Key growth metrics

Scaled quickly within last 3 months on the back of mostly organic promotions and collaboration by auto drivers who describe the application as “namma” (their own)

~6 lakh	~0.5 mn	~47k	~100 mn
trips	registered users	registered drivers	drivers’ earnings

Source: Namma Yatri website

Exhibit 13

Unified Energy Interface (UEI): Application of open network in electric vehicles.

UEI is a decentralised network for energy transactions to help users of electric vehicles locate and use charging points. It integrates charging point information across seven different charging networks, and offers a single wallet to ease digital payments.

Key value proposition

- All charging stations now accessible on 1 app
- A small or big provider stands an equal chance of business as accessible through same open network
- A single UEI certification replaces the need for multiple agreements

Concept

The number of charging networks across India has increased from 5 to 70+ over the past 2 years. However, each charging network runs a closed loop wallet leading to challenges like the need to download 42+ Charge Point Operators (CPO) apps to operate and pay at different charging stations, and the lack of a unified view of chargers for policy makers to take up appropriate grid planning activities, etc. This has led the Department of Science and Technology and industry experts to create a decentralised and open network for electric vehicle chargers

Key growth metrics

- **7** Charging networks
- **~14 K** Charging stations
- **100+ kWh** of charging transactions

In these ways, ONDC has the potential to change the game for many stakeholders, from setting up sustainable market linkages for grassroots artisans to addressing the challenges of commuting in a sprawling city like Bengaluru. To understand the possibilities ONDC could unlock, it is important to delve into how it works.

A glance at the network

Imagine ONDC as a set of gears that swing into action the moment the consumer launches an item search through their preferred buyer app, such as Pincode or Paytm (Exhibit 14).

The buyer app relays this search query to a gateway, which searches the ONDC registry. The gateway identifies relevant sellers and multicasts the search query to all seller apps. The apps then fetch product availability from their respective sellers and relay the information to the buyer app, which sorts and displays the most relevant results to the buyer.

While the buyer app can define the subset of products and services it wants to be known for (e.g., hyperlocal grocery and online food delivery services), it will need to make public its rules for listing and sorting search results. This is in keeping with network policies to ensure a truly democratic marketplace.

The seller might fulfil the order on its own or use a logistics service discovered via the network. Depending on the option, the delivery time and cost are transparently shown, allowing the buyer to make an informed choice.

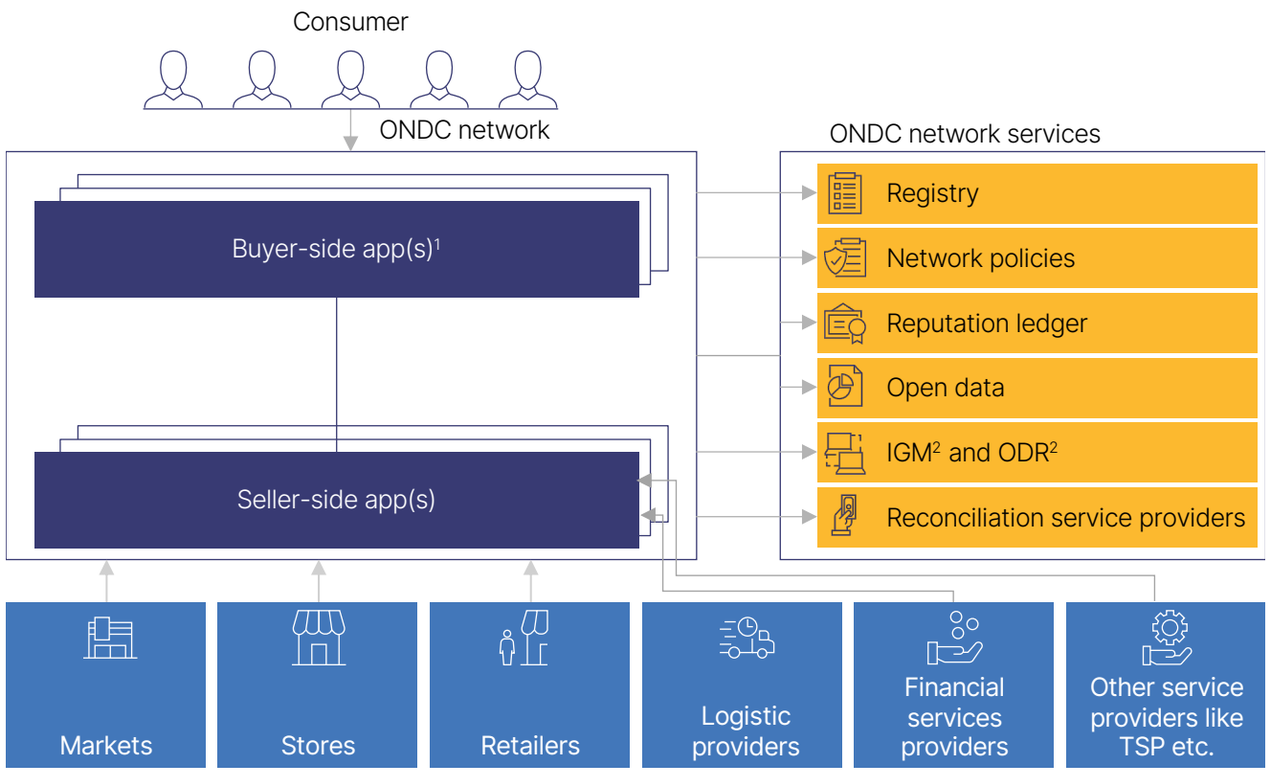
At the back end, a set of network services keeps ONDC running smoothly, from registries or applications that maintain the list of participants to scoring and badging services that uphold sustainable and transparent practices on the network.

Together, all these gears interlock for a tailored outcome based on the consumer's preferences.

In 18 months, ONDC has built its presence in key categories such as grocery, online food delivery, home décor, and mobility, with pilots in five major cities—Delhi, Bengaluru, Meerut, Bhopal, and Coimbatore (Exhibit 15).

Exhibit 14

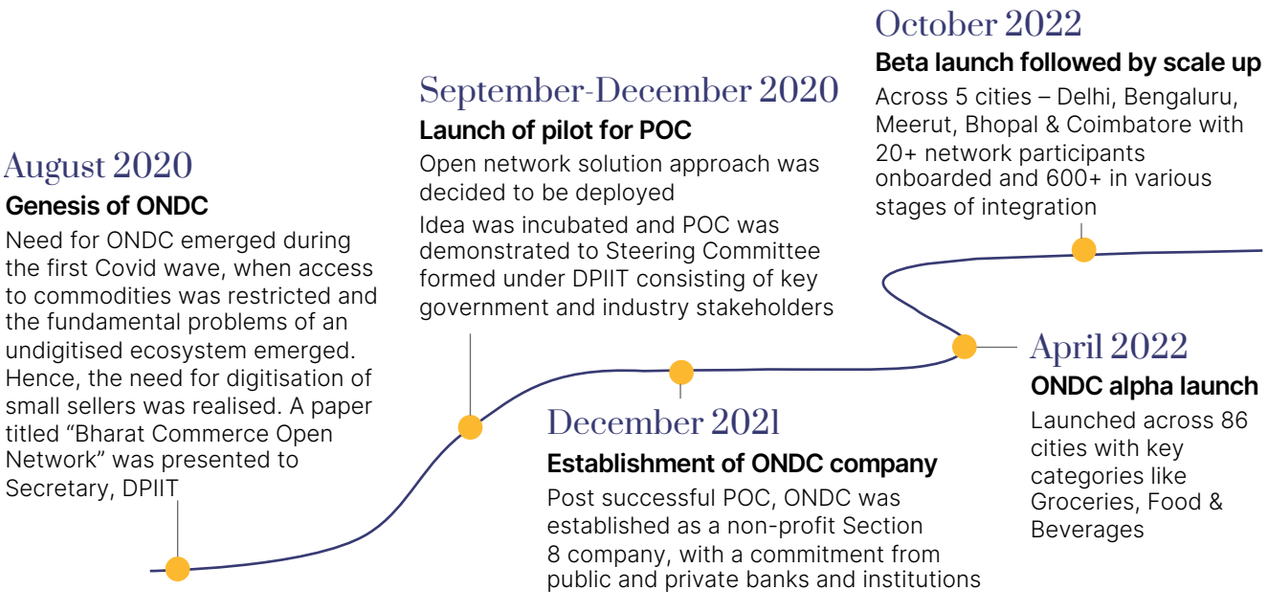
ONDC is based on the principles of interoperability, decentralisation and unbundling.



[1] Buyer side apps interact with seller apps via Gateways.
[2] IGM - Issue Grievance Management and ODR - Online Dispute Resolution.
Source: ONDC strategy paper 2022

Exhibit 15

ONDC has achieved several milestones since its genesis in 2020.



Source: ONDC team

The ONDC edge

By virtue of being interoperable, unbundled, and decentralised, ONDC splits a complex system into discrete microservices that different players can offer separately, with positive outcomes for all. This could be an alternative to the existing platform-centric model, in which the platform controls the buyer and seller journeys end to end, from provider onboarding, customer acquisition, and order fulfilment to payments and complaint resolution.

Across the digital commerce ecosystem, consumers, providers, and buyer and seller apps could benefit from an open network in the following ways:

— **New and niche ways of seller discovery emerge for consumers.** Potential buyers on ONDC could access a wider ecosystem of products and services that is not yet seamlessly available online, such as locating a nearby carpenter in a new city or sourcing a handmade carpet directly from an Agra-based seller. ONDC could bridge the gap between online and offline commerce in prices, assortment, and category availability, from groceries and transportation to specialised items and offerings.

— **Providers reach further.** Small businesses, or MSMEs, could be discoverable by a wider customer base across different buyer apps with greater ease at a lower cost. With access to customer data, these providers could further scale their online businesses and tailor relevant new experiences in both B2B and B2C commerce. Sellers could also enjoy greater autonomy. All-network discoverability means that they can go to their preferred seller app, the one offering better terms and commissions. It can also lead to the growth of out-of-the-box collaborations across various kinds of partners, such as financial services providers, technology solutions providers, logistics partners, badging agencies, vernacular video content platforms, and solutions to help sellers provide end-to-end integrated e-commerce offerings.

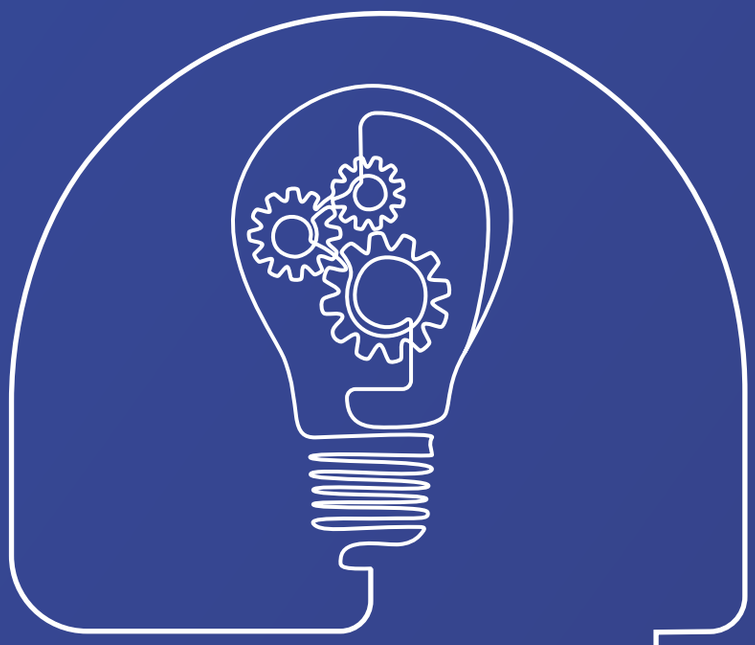
— **Buyer and seller apps get efficient.** These apps could save business costs as India's incredibly efficient local and regional supply chains go digital in rural and urban areas. When existing supply chains shift online, they could bring with them the reputation and trust they have earned in the past. This would inspire confidence in their abilities to support consumers across the value chain and in newer segments.

The ONDC lens:

Reimagining

digital commerce

While India has the scope and space to support both platform-based and open-network-based commerce, the open network can expand opportunities across the landscape, as illustrated by Exhibits 16, 17, 18, and 19. In the fullness of time, the following ten archetypes of commerce could take shape on an open network.



01 Boosting the direct-to-consumer (D2C) ecosystem

With the reduced buyer and seller app fees, sellers could find it financially attractive to build up D2C brands. Big brands might rethink their innovation to reach microsegments directly, and small businesses (for example, Kanchipuram saree weavers) could find a national market.

02 Putting self-employed professionals on the map

Self-employed people could promote themselves on the open, inclusive marketplace, attracting attention and business from newer consumers. It could be an advantage for skilled workers (e.g., lawyers, accountants, and doctors) and blue-collar workers. ONDC could bring workers from the unorganised sector online, connecting them with demand.

03 Digitising B2B commerce

Retailers (such as grocery stores and pharmacies) could access a wider distribution network, saving time and costs. Direct linkages between retailers and manufacturers would be likely to cut prices, improving margins in sectors such as agriculture and construction.

04 Amplifying hyperlocal goods and omnichannel convenience

Digital channels would take the neighbourhood market (kirana stores, stationery shops, electronics goods) online to serve hyperlocal demand, while omnichannel availability could make it easy to order from home after checking out a product at a physical touchpoint (such as an electronics or clothing store).

05 Bringing hyperlocal services within reach

Consumers could seek and find a range of services online, from tailoring to plumbing to transport. Whether a user needs an electrician or tickets for a multimodal journey from home to the office, the network could offer it all.

06 Taking financial services further

Without traditional financial records, businesses and consumers struggle to secure credit or qualify for insurance coverage. ONDC's transaction-based data could support innovative new offerings. For example, banks could track nontraditional metrics to offer sellers milestone and flow-based financing. Greater access to credit could address a range of needs for businesses, including working capital in B2B (agriculture and construction, for instance) and supply chain financing for retailers and wholesalers (for example, in electronics and fashion).

07 Growing peer-to-peer commerce

The decentralised platform would eliminate the need for a middleman between consumer and provider for peer-to-peer commerce. Inspired by influencers, consumers could be excited and inspired to shop through social media. Peer sellers could offer attractive purchase options by easily showcasing their goods and services at negligible cost. Self-employed professionals such as home chefs and homestay hosts could easily find individual consumers for their services.

08 Empowering more people with education and skills

More learners and workers could access a skills-based education, vocational training, career counselling, and knowledge of career opportunities. Allowing for more equity and inclusion, this shift could engender a more equitable, skills-driven labour market in India, with the ability to upskill and seek employment available to all on an open network.

09 Making logistics efficient

Once digitalised, the entire supply chain could improve price visibility, including for shippers, fleet owners, and operators across rural and urban India. Higher delivery volumes could bring down logistics costs with batching and multimodal deliveries through multiple provider options at each stage.

10 Taking India to the world

India's vibrant internal trade could also ramp up globally. The digital commerce infrastructure could promote cross-border trade via marketplaces, particularly helping MSMEs become discoverable by global consumers and businesses.

Exhibit 16

New possibilities: ONDC could empower farmers with a one-stop solution to boost crop production and increase incomes.

Illustrative

Satish, a farmer in Jharkhand, wants better input materials to boost his crop yield. But he lacks the time to travel to a far-off market to source such materials.

Access to eB2B marketplace for best input materials at competitive costs (seeds, fertilisers, pesticides) due to digitalisation

Value-added services, e.g., customised crop planning depending on region weather and soil, demand forecasting, personalised farmer advisory such as pest warnings provided by specialised partners on the network enabled by unbundling

Access to market, e.g., selling directly to modern trade retail/consumers at better prices due to increased transparency

Easier and cheaper credit driven by increased availability of alternative data sources like digital transactions leading to better underwriting

Exhibit 17

New possibilities: ONDC could transform India's largely unorganised, wedding services ecosystem by bringing together various digitalised products and services.

Illustrative

The Mishras

The Mishras are planning a wedding for their daughter in Patna and want a hassle-free digital experience. They leverage a buyer app created to handle weddings.

Availability of financial services on ONDC

Get a loan, or avail unique services like marry-now-pay-later schemes

Availability of travel and hospitality options, along with intra-city mobility choices

Big and small businesses offering their products

Purchase jewelry, dresses, etc.

Self-employed individuals and professional service providers offering their services

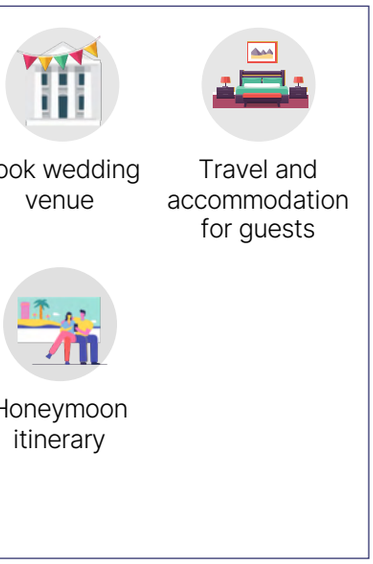
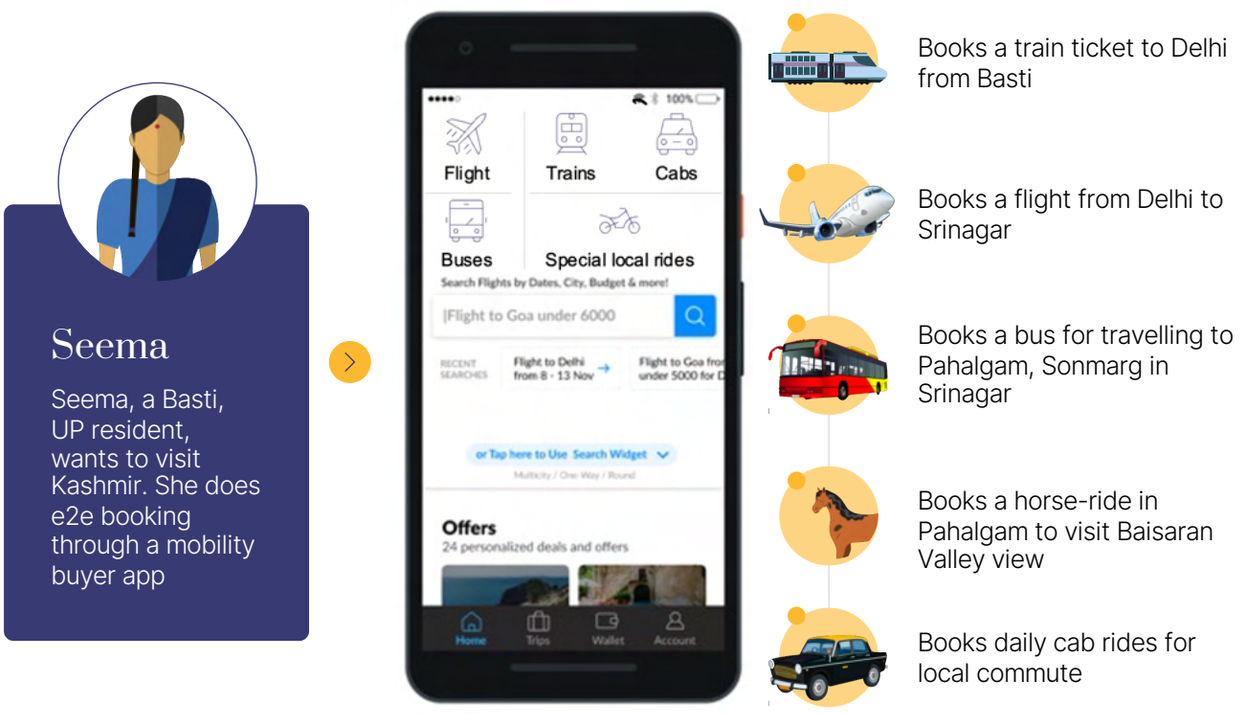


Exhibit 18

New possibilities: ONDC could transform the transport ecosystem by stitching together public and private modes of transport for a seamless experience.

Illustrative



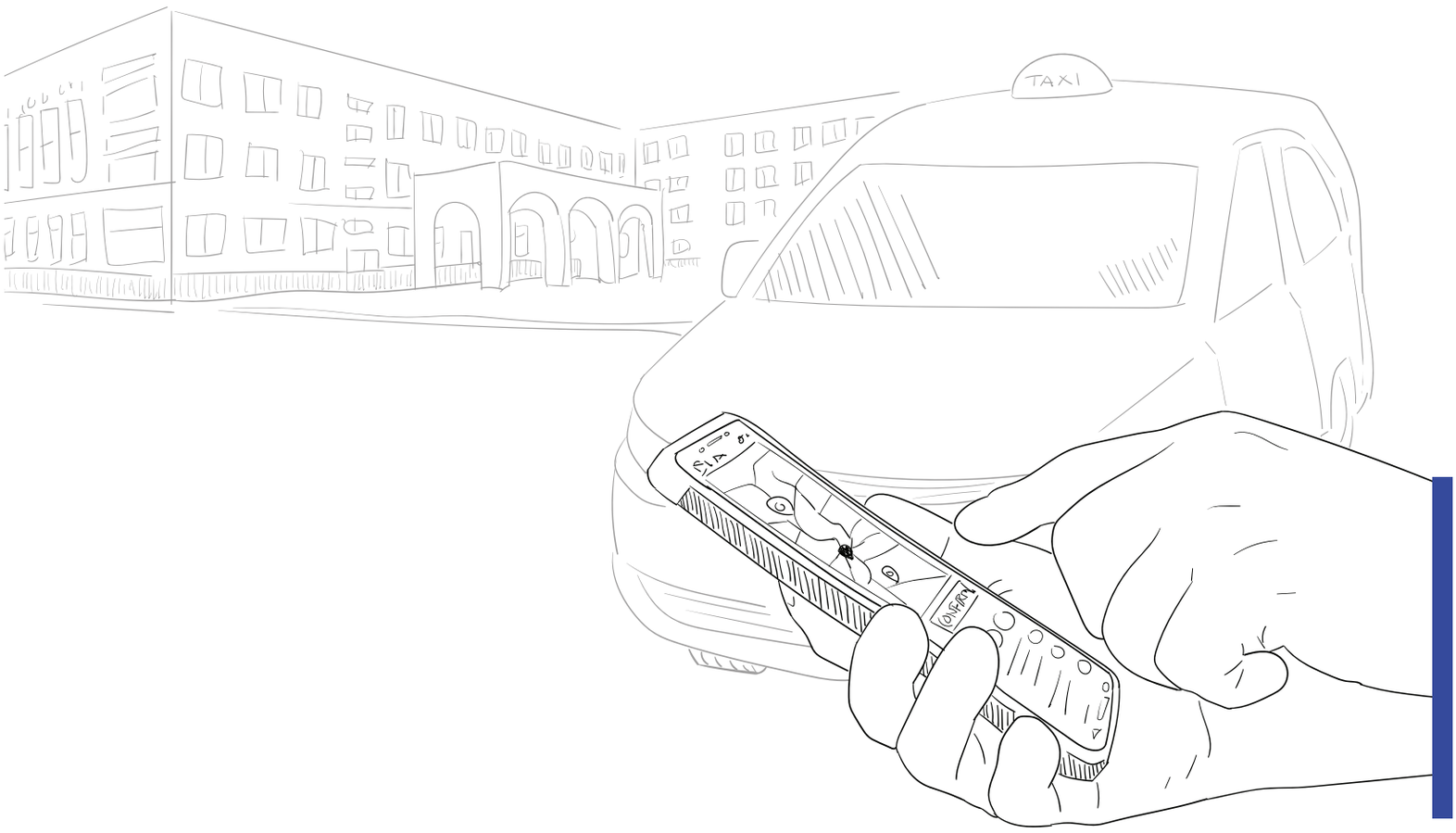


Exhibit 19

New possibilities: ONDC could transform the possibilities for self-help groups.

Illustrative

A self-help group with 8-10 women in Harsul village, Nashik, want to be financially independent by launching their own brand of authentic local Mahua products, but have limited product and marketing know-how.

Use SWAYAM/Skill portal to learn making homemade jams & jellies at scale and key essentials of doing business, e.g., business finance	Easy access to financing available due to real-time access to consent driven comprehensive seller data by financial services	Access eB2B marketplace to procure raw materials from distant places at affordable prices	Use ONDC partnered SAAS providers for services like packaging, license partners, etc. to launch own brand of mahua based products	Use live commerce to explain and sell mahua based products directly to pan India consumer base at minimal cost

Building an inclusive marketplace

From the toymaker operating at his village home to the pan-India retailer, every kind of player could participate in an open network without needing to build the entire ecosystem on their own. ONDC could also enable specialisation, with each player bringing their own strengths, innovations, and unique offerings (Exhibit 20).

> There is a high cost of compliance and being included in the formal economy. As a result, the millions of individuals who run businesses of one—shopkeepers, electricians, beauticians, daily wagers, house helps, etc.— appear in the population and identity counts of the country, but are invisible on the larger economic map of India. The opportunity of ONDC is to connect these individual businesses, ensuring their inclusion in India's digital consumption landscape, enabling formalised credit and ensuring they thrive and are not marginalised.
>
> — Vijay Shekhar Sharma
> CEO, Paytm

Exhibit 20

ONDC could enable multiple archetypes of ecosystem stakeholders to join the network.

XX Incumbents ● App archetypes ● Non-app archetypes

Buyer side apps

Buyer side apps having **high organic traffic** and the ability to create right consumer-centric experience

Multiple archetypes emerge

- Banks
- UPI payment apps
- Telecom companies
- Commerce marketplaces/incumbents
- Messaging apps
- Social media apps
- Short-form video apps
- AI-based personalised shopping experiences
- Ticketing platforms and OTAs
- Browsers/search engines
- Smart TV/channels
- Voice-assisted ● Chat/mobile text ● IVR
- Man-Machine-Interface

Seller side apps

Seller side apps **having a large base of MSMEs** and the ability to create a much-loved experience for the seller

Multiple archetypes emerge

- UPI payment apps[1]
- Banks
- Restaurant service providers
- B2B aggregators
- Accounting/ERP software providers
- Social-media marketplace
- Chat-based business
- Telecom and internet providers[2]
- Co-working space providers[2]
- Home services marketplaces
- Distributors
- Yellow pages equivalents
- Digital marketing agencies

Logistics service providers (LSP)

LSPs providing fleet solutions to enable transfer of goods from one place to another

Multiple archetypes emerge

- Hyperlocal Logistics Providers
- Express Service Providers
- Delivery Aggregators
- Freight operators
- Warehousing service providers
- Courier and postal services
- Individuals[3]

Technology service providers (TSP)

TSPs providing SAAS solutions like grievance management tools, inventory management tools, etc. to help build and scale business

Multiple archetypes emerge

- High end technology service providers such as search as service, cataloguing as a service, etc.
- Trust-building service providers such as badging, etc.
- Business optimisation service providers to digitise businesses such as inventory management, coding, digital marketing, etc.

Financial service providers (FSP)

Financial institutions including banks, NBFCs, insurance companies, investment companies, fintech players, etc.

Multiple archetypes emerge

- Banks
- UPI payment apps
- NBFCs
- Neo banks
- Insurance companies
- Investment companies
- Payment desks

Knowledge partners

Public and private associations & organisations with deep sectoral expertise to build and scale business

Multiple archetypes emerge

- Trade associations
- Government organisations

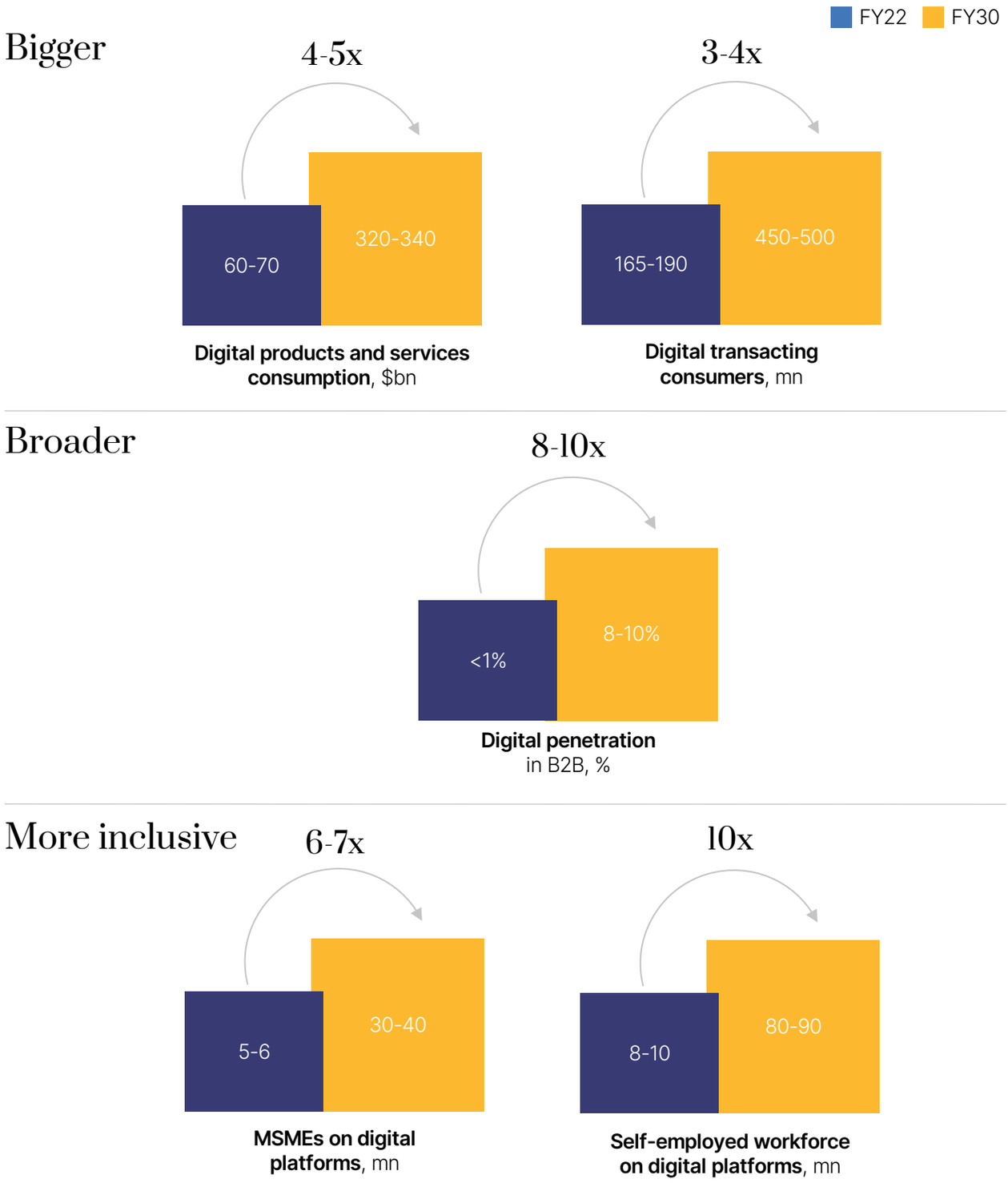
[1] Can send voice orders to kiranas via their payment machine for them to accept (say, Paan order going to a paan-shop owner via the Paytm machine).
[2] Have access to B2B company data across sectors that obtain fiber connection from them.
[3] E.g., Individuals can offer to store inventory of high-value items that occupy small space or carry items when they fly from point A to B.

Spurring on a fast-growing economy

India's digital consumption is poised to grow to as much as $340 billion by FY30. ONDC could accelerate this growth across multiple parameters (Exhibits 21 and 22). By the end of this decade, India's digital commerce users could number 500 million, with six to seven times more MSMEs online than today, ten times the number of self-employed workers, and four to five times greater consumption of digital products and services.

Exhibit 21

ONDC envisions a vibrant digital commerce universe – bigger, broader and more inclusive by FY30.



Source: McKinsey analysis

Exhibit 22

By 2030, ONDC could further accelerate the expected 5x growth in digital consumption of products and services.

Digital products and services consumption breakup across key categories, $ billion

Categories[1]		# Digital transacting users FY22, mn	FY22	FY30E
Products	Grocery	25-30	4-5	50-55
	Fashion and Lifestyle	150-160	11-13	80-82
	Electronics and Durables	100-120	24-26	70-72
	Pharmaceuticals	10-15	1-1.5	10-12
	Other Retail[2]	-	2-3	12-14
	Hospitality[3]	30-35	3-4	8-10
	Food & Beverages (Online food delivery)	30-35	5-6	30-32
Services	Education	10-15	4-5	30-32
	Mobility	120-130	3-5	9-12
	Entertainment[4]	35-40	3-5	17-19
Total			60-70	320-340

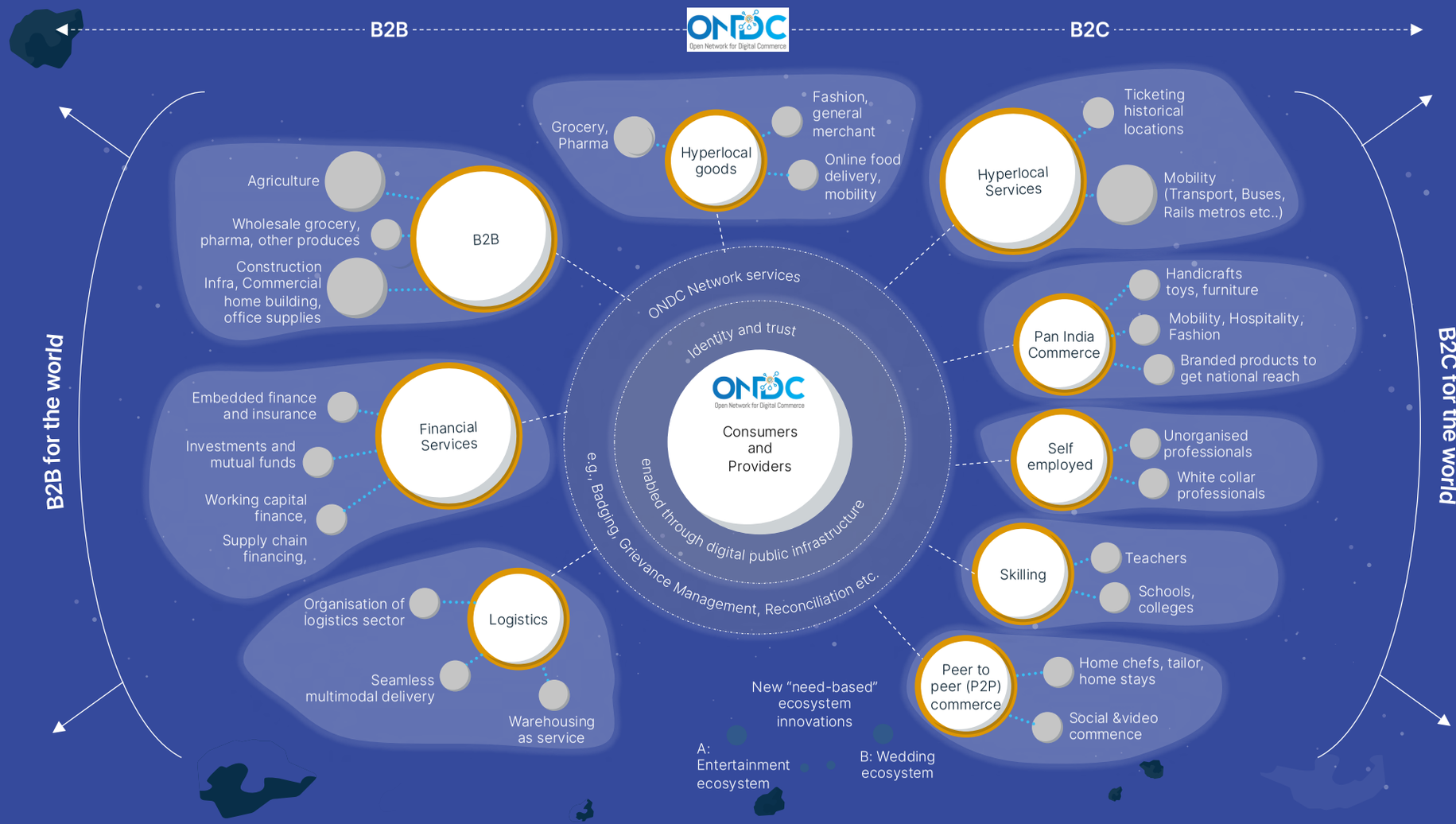
[1] Definitions of Grocery, Fashion and Lifestyle, Electronics and Durables, Pharmaceuticals, Food and Beverages and Mobility are in Glossary.
[2] Includes books and general merchandise.
[3] Includes hotels, homestays.
[4] Includes gaming, over the top, film and TV, but does not include B2B advertising spending – estimated at $11 bn in FY21 and $21 bn in FY26.
Source: Syndicated McKinsey research

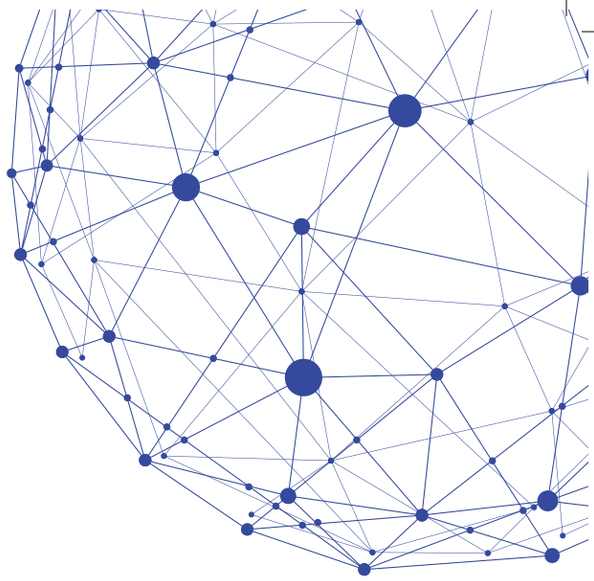
In the future: A combinatorial explosion of possibilities

Over time, as ONDC scales up, it could emerge as a network of networks, unleashing a combinatorial explosion (Exhibit 23). The innumerable permutations and combinations possible in such an interconnected network could unleash possibilities that are hard to imagine.

India could exceed expectations for the growth and possibilities of digital commerce with ONDC. The network could evolve into a nerve centre of new connections, sparking continuous innovation and advances. However, there are multiple challenges to address to allow ONDC to scale and achieve greater momentum for success.

Over time, as ONDC scales, it could unleash a combinatorial explosion through network of networks the impact of which could transform the Indian economy.





3

Building trust and scale

ONDC could have a transformative impact on consumers, sellers, technology service providers and the country. This could be a huge achievement for India, a country already known globally for high levels of digital adoption despite per capita incomes lower than those of many other economies. For this pioneering initiative to work, it will be critical to establish trust and scale—a high-trust environment and widespread adoption could make all the difference between potential and reality. There can be no substitute for a good experience to build trust, and a new concept like ONDC needs to build early traction and scale in an impatient digital world.

Executives of large, thriving companies and bootstrapped start-ups, traditional companies and tech-led disrupters all agree that what ONDC is trying to do has never been attempted, and that it is taking on a very complex situation. Trust and scale will be mutually reinforcing attributes that could define the success of this huge network.

Fostering an environment of mutual trust

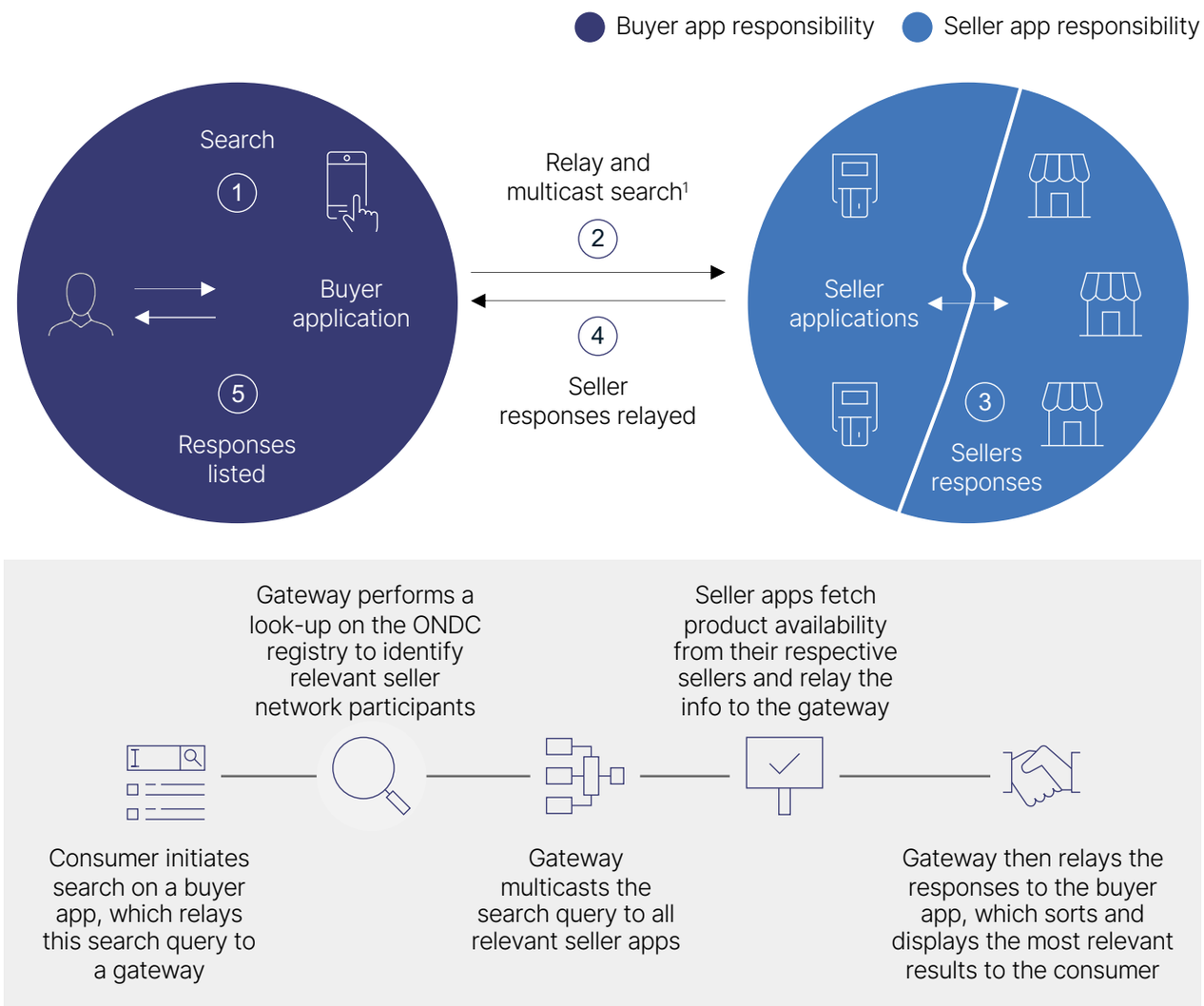
The willingness of consumers to use ONDC-linked buyer apps will depend on their experience with the network. A core characteristic of the open network is that it unbundles a series of services that would otherwise be unified on a single platform. Multiple participants deliver their respective components in the value chain. While allowing for individual margins and profitability, each of these participants needs to deliver to a high standard. One weak link in the entire chain, or one underperforming entity, can bring the customer experience crashing down.

Proactive complaint resolution and stringent policies could be crucial to foster a trusted environment that safeguards customer interests.

The success of ONDC would turn on ensuring a trust-based environment and seamless experience across the customer journey, including search and discovery, order placement and fulfilment, payments and reconciliation, and returns and customer grievances. Exhibit 24 and 25 capture the process and flow of information in an unbundled value chain for the first two steps of the customer journey: search and discovery, and order placement and fulfilment.

Exhibit 24

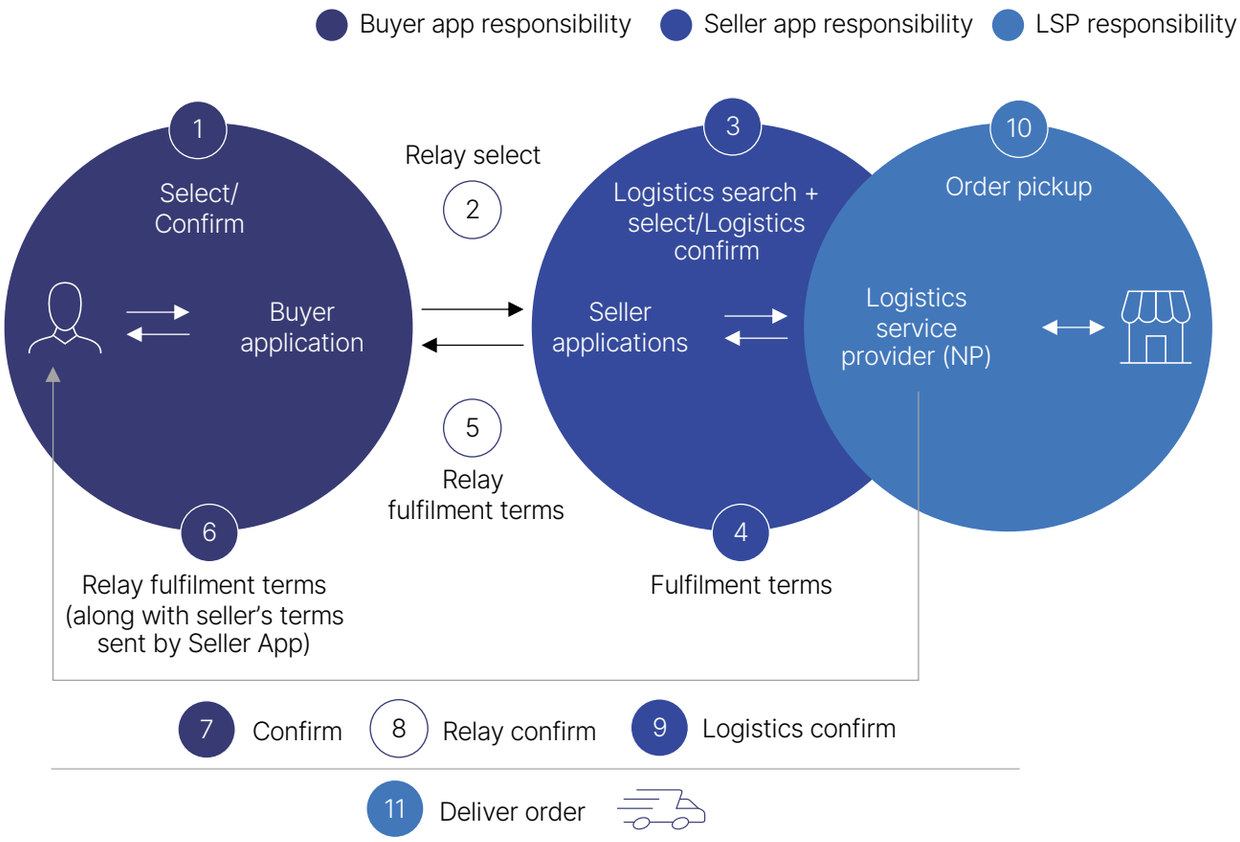
Unbundled responsibility of search and discovery on the open network.



[1] Multicast search carried out by 3rd party gateways.
Source: Building Trust in the ONDC Network, an ONDC publication, 2022.

Exhibit 25

Unbundled responsibility of ordering and fulfilment on the open network.



Buyer app relays this request to the relevant seller app, which relays it to the respective seller

Seller app then relays this quote[1], along with terms of fulfillment[2] from the Logistics Provider, to the buyer app, which displays it to the consumer

Transaction-level contract is created and digitally signed by buyer app and seller app, as well as seller app and LSP

Consumer selects listing to navigate to SKU's product page

Seller app can use its own logistics or leverage the network's logistics providers by initiating a search to fulfill the order

Consumer decides whether to place order based on the quote – then adds item to shopping cart, completes payment, and confirms the order; in parallel, the seller app confirms the logistics order

[1] The logistics procurer decides on the amount it would like to recover from the buyer as fulfilment cost.
[2] Buyer App can choose to deliver order itself, in which case Buyer App will offer fulfilment terms and become the Logistics Buyer instead of the Seller App. However, in most cases, it is the Seller App.
Source: Building Trust in the ONDC Network, an ONDC publication, 2022

Multiple challenges exist across the customer journey in an unbundled environment, where no one player controls the end-to-end value chain. Exhibit 26 lays out a few such challenges and outlines how ONDC could address them. It would require a mix of clear network policies, enhanced and optimised API definitions, and innovations in third-party tools and solutions.

ONDC also has a structured redressal system to ensure just and timely raising and redressal of customer issues, as outlined in Exhibit 27. It has a three-step escalation matrix (classifying the problem into an issue, grievance, or dispute depending on the escalation level and resolution timelines) with defined service-level agreements and response rates across each of the three steps. The seamless and timely working of this redressal system is critical to the success of the network.

ONDC could also establish its leadership as a trusted network by fostering new ideas and disseminating best practices to enhance customer experience.

Exhibit 26

Various steps across the customer journey could foster trust and improve experience.

Enabled by: Policy API 3rd party tool/solution

Challenges		Steps considered/to be considered
Search and discovery	Buyer app could **selectively reach out to, and display results of a few seller apps,** masking others	ONDC **network policy** that mandates multicast search requests to all relevant seller apps and integration with gateways for the same
		Parameters used in sorting algorithms by buyer apps must be made **public** and **uniformly applied** to all search results
	Response time seller apps may vary; consumer experience gets hampered due to **non-predictability of response time**	Beckn protocol enables **asynchronous interaction** enabling buyer apps to render results as they are received from seller apps
		Protocol optimisation to reduce data payload between participants
	Buyer apps may like to **cache results** to improve speed of searches. However, caching by buyer app runs the **risk of displaying out-of-date results**	**Guidelines** to capture what attributes are synced in **real-time** (e.g., price, quantity, store level serviceability), what attributes are **cached** (e.g., product features & images) and what is **displayed** at first render
	Quality of data sent by seller apps not sufficient for buyer app standards for filtering and displaying data	**Flagging mechanism** for incorrect or poor-quality search results
		Cataloguing-as-a-service for small sellers to help digitalise inventory and provide accurate data to network participants
		Catalogue scoring mechanism to ensure high quality (automated)
	Seller apps need search intent to provide **meaningful results;** buyer apps need **granular information** to slice & dice results	**Sector-specific taxonomy** defined for specific search query & response
		Search-as-a-service to improve accuracy and correctness of search intent
Ordering and fulfilment	Given the distributed nature of the network, **building trust through contracts** is essential given there is no face time between consumers and sellers	Transparency in terms and conditions through a **digitally-executed transaction-level contract** for every transaction on the network
		Contract adherence through network mechanisms (e.g. IGM), ensuring **timely and effective resolution** of issues
	Seller apps will need to build more innovative ways to **determine serviceability.** The road distance may be significantly longer than the radial distance between consumer and seller, resulting in unserviceability	**Serviceability solution** – A **digital tool** for seller apps to embed to decide serviceability of a location (based on **road-distance** & current traffic, **time** and **geographic considerations**)

Exhibit 26 (cont'd)

Various steps across the customer journey could foster trust and improve experience.

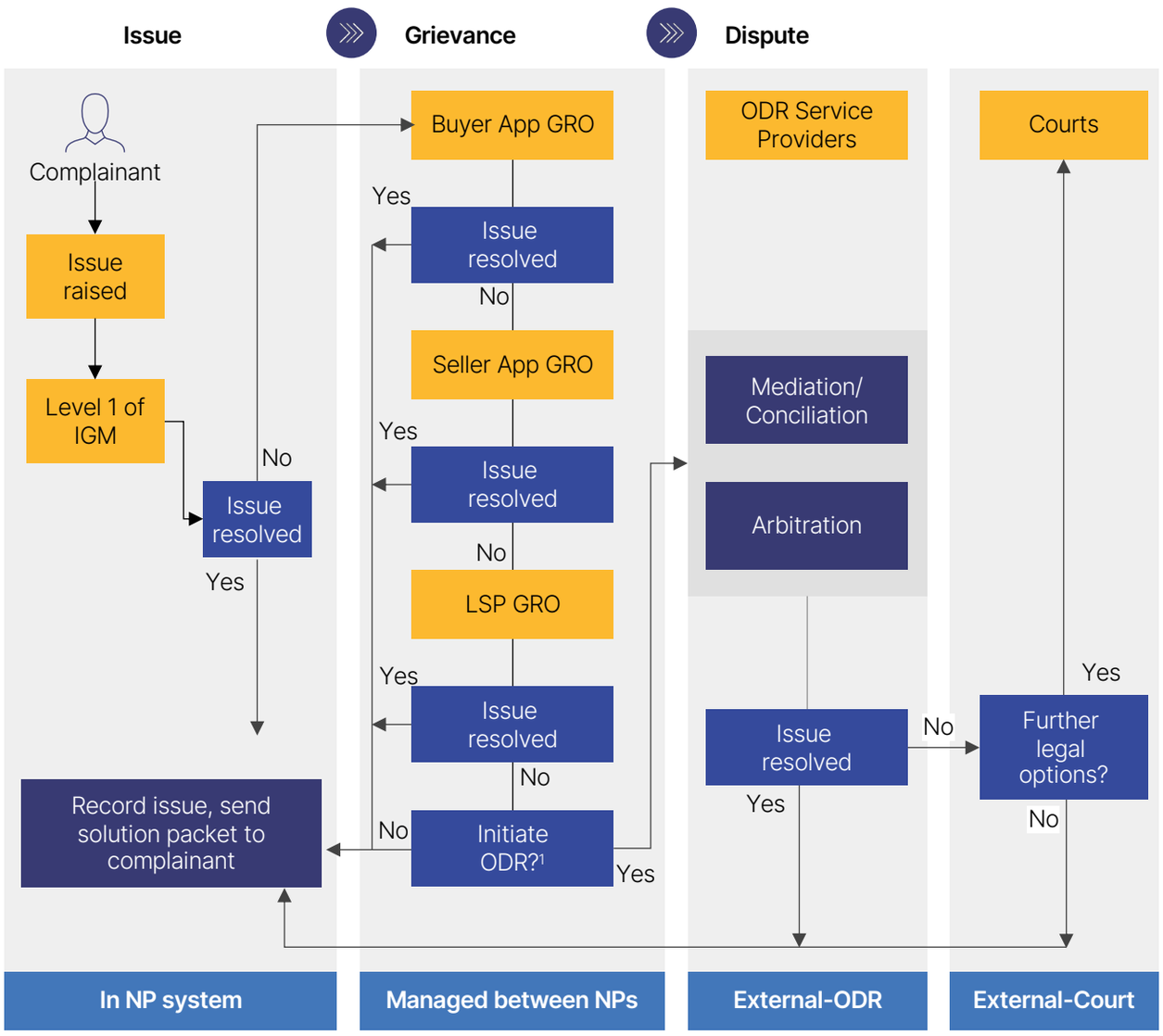
Enabled by: Policy API 3rd party tool/solution

Challenges		Steps considered/to be considered
Ordering and fulfilment	**Privacy risk** emanating from buyer app having to share PII info about the buyer to seller app/seller/ logistics provider for fulfilment	Policy to **restrict** seller apps & logistics service providers using **consumer data for any purpose other than order servicing**
	Monitoring network health in an environment where ONDC does not store or carry any data itself	Open data framework under consideration to store **anonymised, aggregated transaction data**
Payments and reconciliation	No single responsible party to assure **timely reconciliation and settlement** in an unbundled network	Integration with **reconciliation service providers** (that determine liability and collectible as per transaction-level contracts) and **settlement agencies**
		Network participants to maintain **audit trail** through **digitally signed and authenticated payloads** to ensure non-repudiability
	Payment across multiple entities requires safeguards against **misuse of collected funds**	Use of **nodal-like[1] accounts** to ensure funds are paid as per system-generated triggers, governed by the transaction-level contract (and as per regulation framework in the country)
		Policy & digital contract mandates that in event of a payment falling due to a trigger, the funds must move from network's nodal-like account to the respective participant **within 24 hours**
Returns	Determining responsibility among network participants for **cancellations, returns and replacements** in an unbundled network	Clear **disclosure of terms (encoded upfront into the transaction-level contract)** regarding returns, refunds and cancellations
		Awareness about best practices through **non-binding edge-case guidelines**, for scenarios where liability is disputed/not easily determined, highlighting process and cost implications to minimised disputes
		Network mechanisms (e.g. IGM) to ensure **timely and effective resolution** of issues
Grievances	Consumers and sellers require a **single point of contact** to raise any complaints	Consumers and sellers to raise complaints with their **respective interfacing applications** (i.e., buyer and seller apps respectively)
	Establishing liability and settling **grievances** in absence of a single authority taking responsibility in an unbundled network	**Issue and grievance management (IGM) system**[2] to handle disputes and complaints in a timely manner[3]
		Network participants to **log transaction audit trail**[4] for grievance redressal (only transaction number to be made public) to help determine liability
		Grievance redressal officers to be designated amongst buyer apps, seller apps and logistics service providers (as per existing e-commerce rules) to evaluate liability of their respective app, if liability is clearly ascribed
		Online dispute resolution service providers to address grievances that are escalated into disputes, through mediation, conciliation and arbitration

[1] Nodal-like accounts will exhibit features of nodal accounts and, in addition, ensure a few checks are in place, e.g., no cash withdrawal, no cheques, etc.
[2] Detailed in exhibit.
[3] End-to-end process, from raising complaint to concluding arbitration proceedings, to be carried out in ~35-40 days.
[4] Covered in next exhibit.

Exhibit 27

Network's Issue and Grievance Management (IGM) system clearly lays out a tiered redressal system.



[1] Online dispute resolution.
Source: Building Trust in the ONDC Network, an ONDC publication, 2022

Building scale

For the network, having sufficient participants could help to unlock network benefits such as simplified, efficient logistics and lower customer acquisition costs. It could also encourage providers to invest in the capabilities required, such as inventory digitalisation.

ONDC could gain traction or scale by addressing the barriers to digital commerce for consumers and providers. It will be crucial for ONDC to play a market-making role and enable multiple other participants to scale. It will also be important to build a mix of shapers who can invest in developing the ecosystem. They could include large, influential companies as well as innovative young organisations that can push the boundaries of possibilities and create new business models. And finally, a few selected use cases could scale up them to establish what might be possible. This could encourage more participants to join the market, creating a virtuous cycle of participation.

ONDC could focus on the following four priorities to scale up and overcome the barriers to digital commerce

01

Attract consumers by focusing on goods and services more frequently purchased

ONDC and network participants could **concentrate on high-frequency and relevant use cases** that would be most meaningful for potential consumers. ONDC could power early wins by diving deep into select categories and geographies with a focus on a few use cases, such as buying tickets for an entire commute through a single interface or lending and embedded financing in credit.

02

Bring providers on board multiple networks

To build scale more rapidly, ONDC could **integrate with other government initiatives** such as account aggregators, Government e-Marketplace (GeM), and Unified Logistics Interface Platform. ONDC has also introduced economic incentives for buyer apps, seller apps, and providers that reach transaction-based milestones on the network.

03

Remove barriers that restrict providers from going online

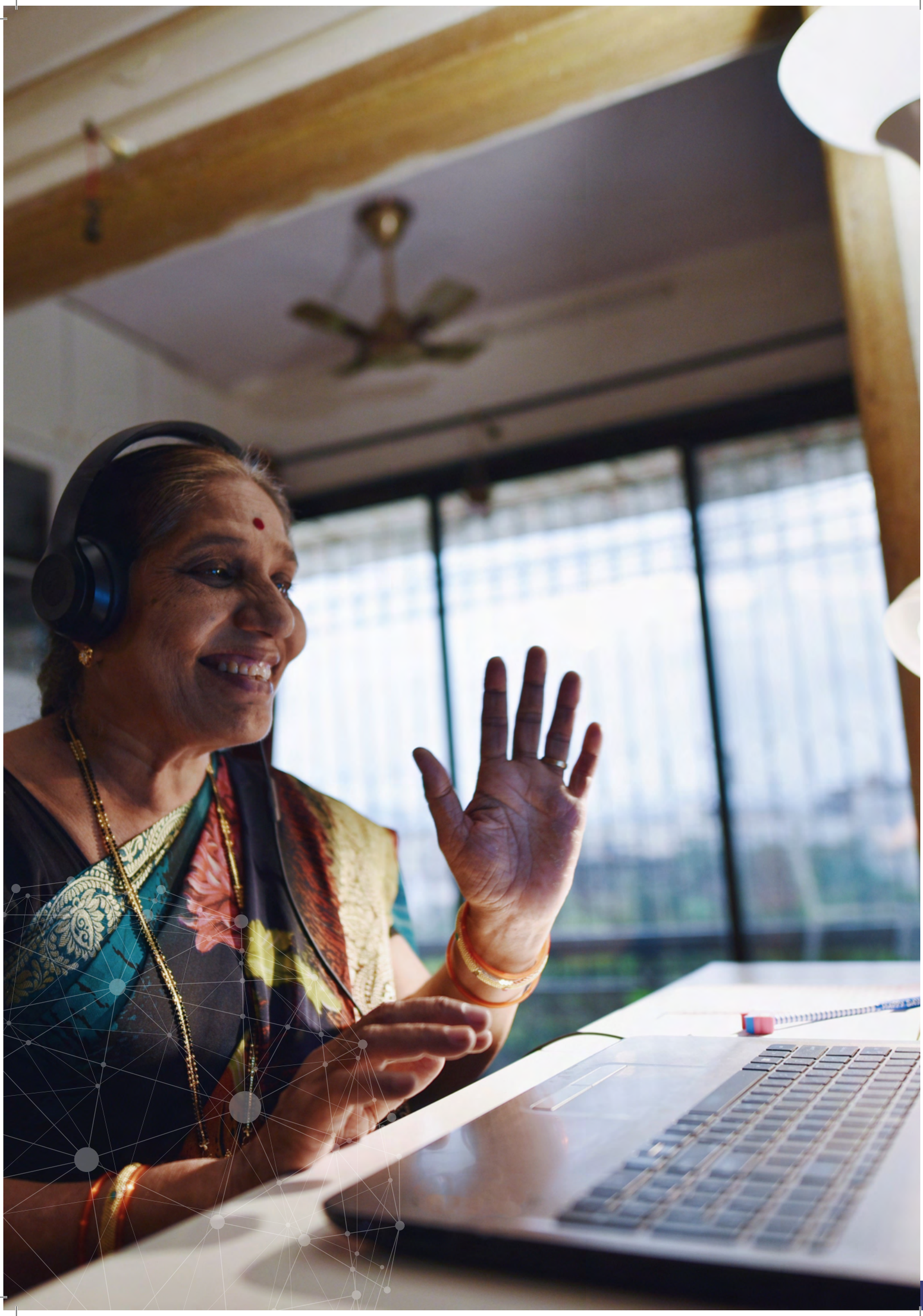
Seller apps need to **invest in creating awareness about the channel and removing their barriers to onboarding** (for example, the challenges of digitalising inventory, resistance to formalising businesses, and a lack of technological savviness). They could create content that promotes the benefits of participation and provide additional resources to support providers throughout the onboarding process. They could also engage in partnerships with third-party tech players (such as companies that offer cataloguing as a service) to facilitate the onboarding of small providers. Third-party scoring and certification programs could offer providers rewards or improved ratings for inventory digitisation and fulfilment. The result would be a virtuous cycle of more providers on the network.

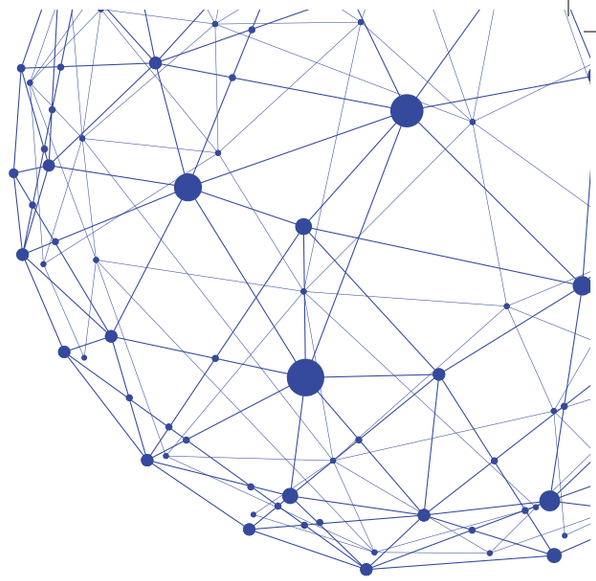
04

Offer a viable economic model that improves on the unit economics on platforms

Participants could find ONDC a viable and sustainable network on which to remain only if they are turning a profit. A **robust economic model** could be critical to creating this profitability for network participants and making ONDC self-sufficient to support a gradual, eventual scale-up. It could be important for ONDC to explore multiple commercial models for its own operations, such as flat fees, subscription models, and transaction commissions, to ensure that the network is viable as it scales and that its participants are self-sufficient.

Focusing on deepening trust and building scale could be critical for ONDC to have a meaningful impact. The outcomes could manifest differently for different sectors. The next chapter explores the potential of ONDC to transform the digital commerce environment in a series of sectors.





4

A seismic shift: Transforming digital commerce in sectors

This chapter examines the applications and innovations that could be enabled through an open network. By analysing the largest B2C (grocery, fashion and lifestyle, electronics, online food delivery, pharmaceuticals, mobility and hospitality), B2B sectors (agriculture and construction materials) and cross-cutting sectors (financial services, and logistics), we identified the challenges associated with digital adoption and the transformative role an open network could play. Exhibit 28 shows the largest B2C sectors by spend, and indicates the ones focused on in this report. Additionally, this chapter outlines priority use cases for each sector, with a focus on the new opportunities enabled by ONDC.[52]

[52] Unless otherwise specified, analysis and insights in this chapter are drawn from McKinsey research and conversations with industry experts.

Exhibit 28

We examined the seven largest B2C sectors by spend to analyse the transformative impact ONDC could have.

FY22

Deep dive ahead

B2C categories[1]	Category	# Digital transacting users, mn	Digital consumption market size $ bn
Products	**Grocery**	25-30	4-5
	Fashion and Lifestyle	150-160	11-13
	Electronics and Durables	100-120	24-26
	Pharmaceuticals	10-15	1-1.5
	Other Retail[2]	-	2-3
Services	**Hospitality[3]**	30-35	3-4
	Food & Beverages (Online food delivery)	30-35	5-6
	Education	10-15	4-5
	Mobility	120-130	3-5
	Entertainment[4]	35-40	3-5
Total			60-70

100%

[1] Definitions of Grocery, Fashion and Lifestyle, Electronics and Durables, Pharmaceuticals, Food and Beverages and Mobility are in Glossary.
[2] Includes books and general merchandise.
[3] Includes hotels, homestays.
[4] Includes gaming, over the top, film and TV, but does not include B2B advertising spending – estimated at $11 bn in FY21 and $21 bn in FY26.

4.1 Grocery

Grocery accounts for 35-45 percent of India's consumer spending and is valued at approximately $400 billion.[1] India's online grocery penetration is 1 to 2 percent, substantially lagging behind other product categories such as electronics and fashion.[2] The landscape is experiencing a twin disruption, however, with the market becoming more organised on the one hand and more digitalised on the other.

ONDC can accelerate this momentum by digitally enabling local kiranas (small grocery shops) and putting one of the world's largest fragmented trade bases at the heart of India's digitalisation story.

1 Less affluent households spend ₹2,000 on monthly groceries, Livemint, November 1, 2022.
2 Why this is India's decade, Morgan Stanley, October 2022.

The landscape

India's grocery sector, with 12 million stores, accounts for 35 to 45 percent[53] of consumer spending and plays a significant role in conveniently fulfilling the daily needs of the country's population. In fiscal year 2022, the Indian grocery sector totalled approximately $400 billion—a figure projected to grow at a CAGR of 6 percent over the coming years (Exhibit 29).

As multiple digital commerce platforms evolve from focusing on customer acquisition to growing transaction frequency, e-grocery has been gaining traction. It received a further boost in recent years with the pandemic forcing people to stay home. And the changing preferences of consumers seeking omnichannel experiences and instant delivery are driving the growth of e-grocery. A thriving supply and delivery ecosystem has emerged with multiple modes. Customers can choose one- to two-day warehouse-based delivery (dry and fresh products or purely staples-oriented plays). Or they can opt for quick

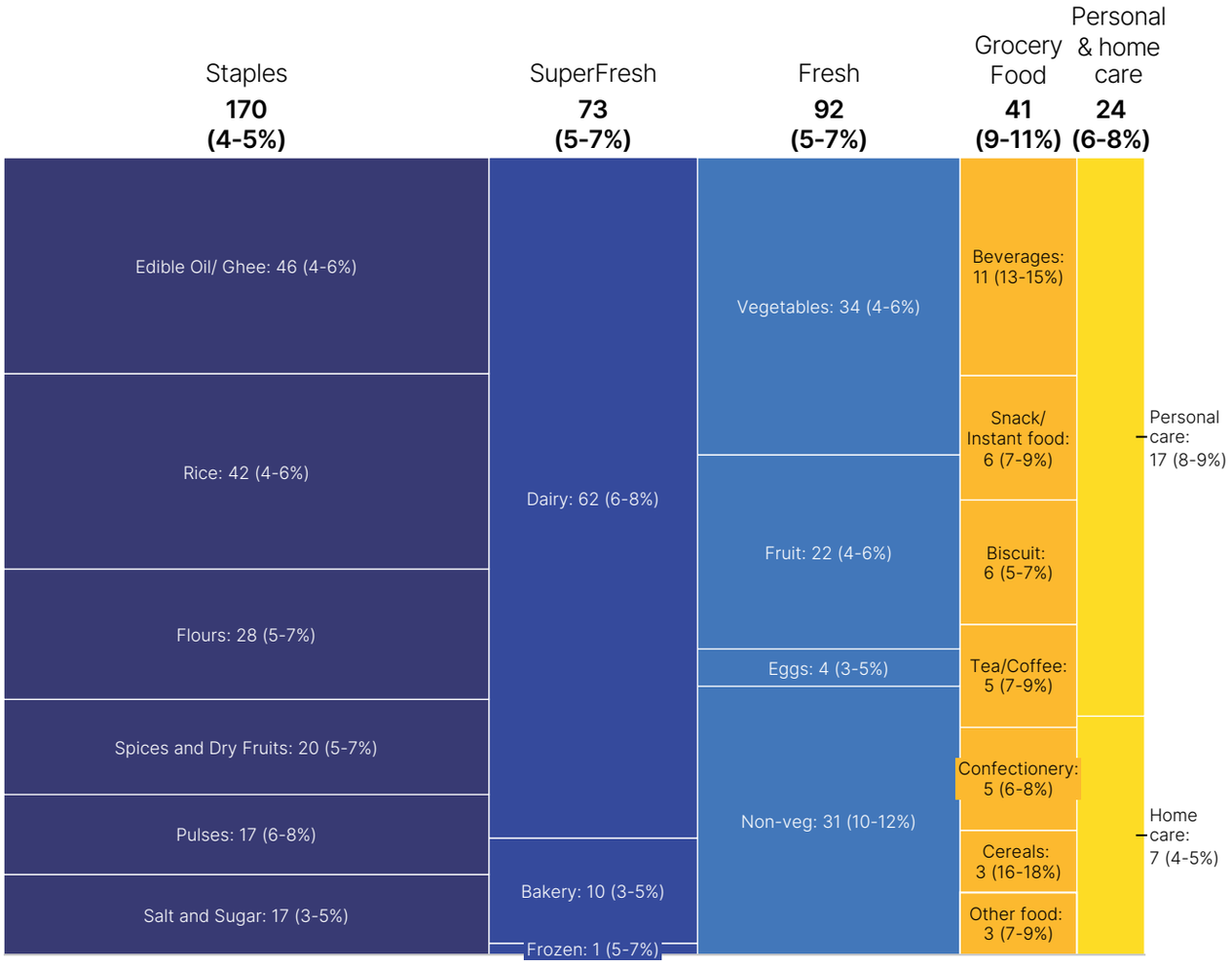
[53] Kantar Research.

Exhibit 29

India's grocery market totalled approximately $400 billion in fiscal year 2022 and comprises five major segments.

Split of grocery market across segments and sub-segments[1] (FY22)

xx: Spend pool FY22 ($ bn) (xx%): CAGR FY22-30



[1] General merchandise not included.

commerce delivery (within 1-2 hours) through players who have emerged either as extensions of online food delivery or stand-alone players operating from hyperlocal dark stores.

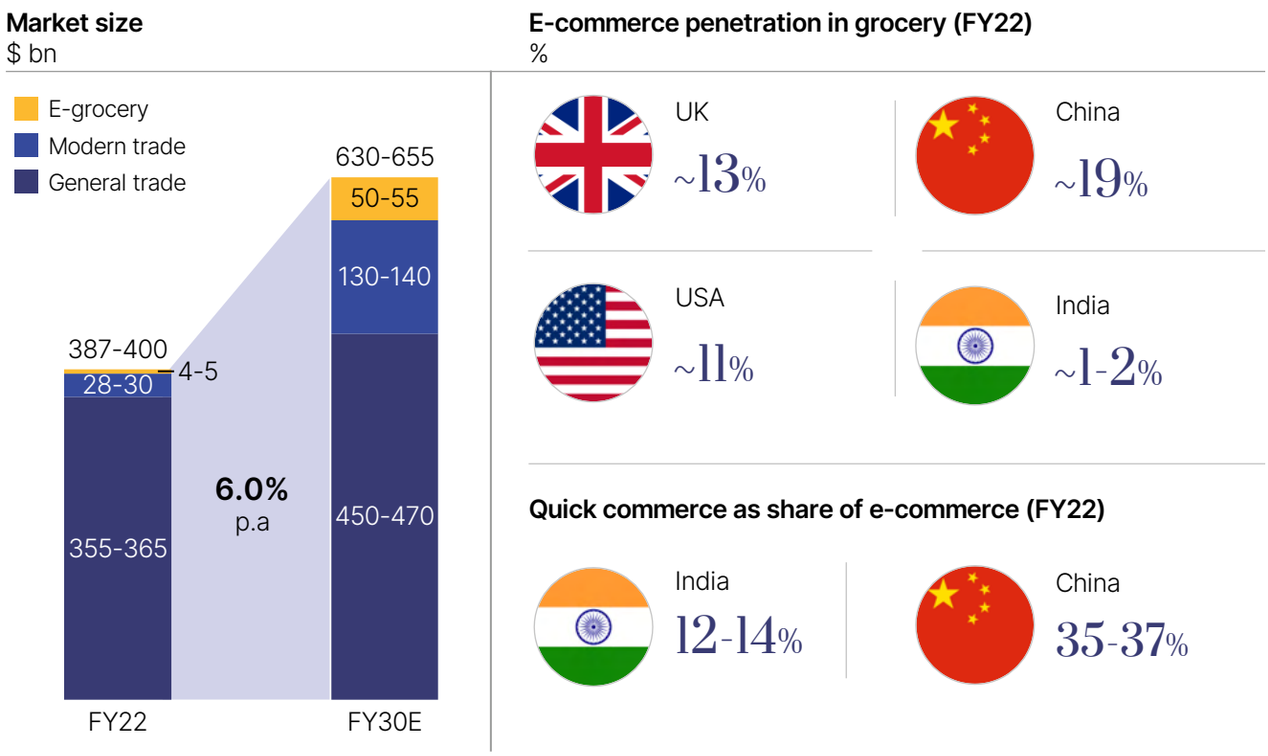
Despite this upward swing, the share of digital commerce in the Indian grocery industry remains low (Exhibit 30)—just 1-2 percent, compared with other global markets such as China (19 percent), the United States (11 percent), and the United Kingdom (13 percent). Digital penetration across segments within the grocery sector varies greatly: for example, e-grocery penetration rates for staples (0.5 to 1 percent) and super-fresh items (0.3 to 0.5 percent) are lower than for personal and home care products (2.5 and 3.0 percent respectively).

This limited penetration is unsurprising—India's 12 million kirana stores offer a convenience that is hard to match, along with a personalised shopping experience built on close, enduring customer relationships. Kirana stores are also unique in offering occasional credit for a month at a time.

Around 65 percent of grocery sales come from daily top-up and impulse purchases, whereas these purchases drive only 25 percent of e-grocery sales (Exhibit 31). This journey has not been digitalised beyond the top 20 to 30 cities in India, where quick commerce has taken market share away from e-commerce, highlighting the need to speedily fulfill grocery demand.

Exhibit 30

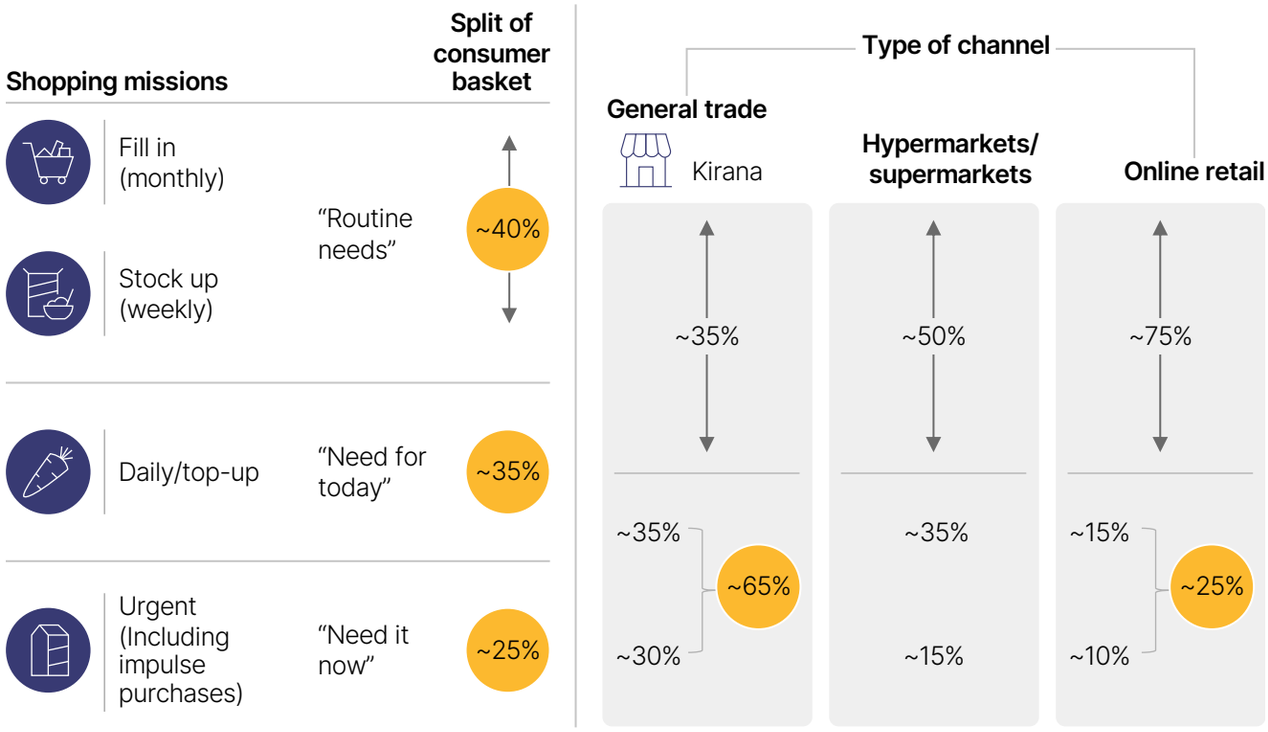
Penetration of e-grocery and hyperlocal is less than global peers; e-grocery expected to grow the fastest.



Source: Morgan Stanley; Adobe; Grand View Research; Insider Intelligence; Kantar; Syndicated McKinsey research

Exhibit 31

Daily and urgent grocery trips account for about 65 percent of general trade vs. about 25 percent for online retail.



> It is important to acknowledge that while modern retail formats are here to stay and grow, kirana stores are the fabric of the Indian grocery ecosystem. Even during the challenging times of Covid, the neighborhood kiranas showed their resilience and agility in modifying their assortment, managing the broken supply chains, and continuing to serve the customers. ONDC holds the promise to transform India's e-commerce sector by creating an opportunity for millions of kiranas to participate in the digital economy. As a company that counts millions of small stores as its partners, HUL is committed to supporting ONDC and helping it reach its full potential. We believe that ONDC will foster innovation, collaboration, and inclusion in India's digital commerce ecosystem.
>
> — Kedar Lele
> Executive Director – Customer Development, Hindustan Unilever Ltd.

Barriers to digital commerce and potential solutions from ONDC.

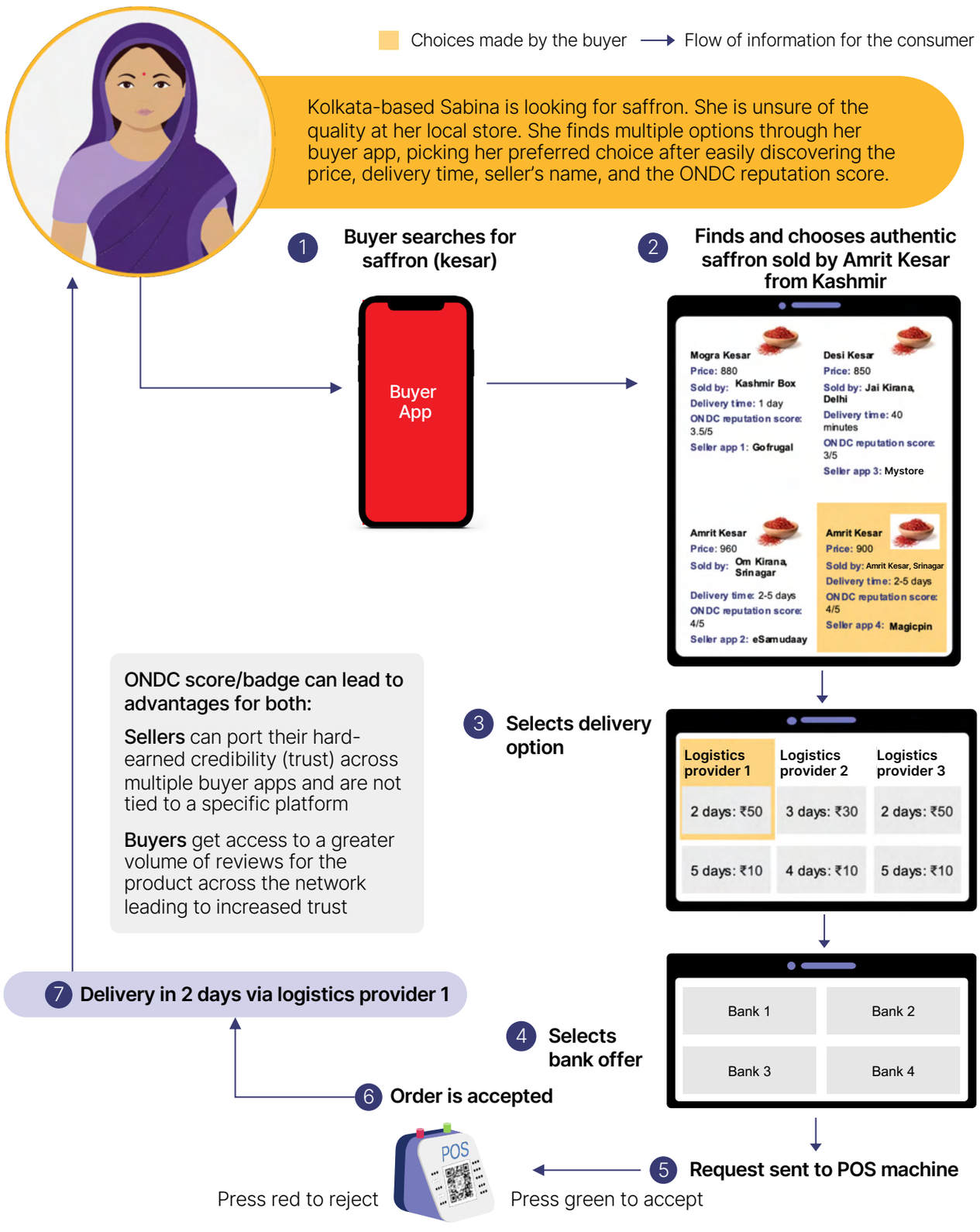
	Barriers to digital commerce	Potential use-cases
Company (Brand) 	• **CPG companies are managing a fast-evolving channel mix** with a shift towards e-commerce/ Modern trade. • **Modern retail has a higher cost to serve** versus General trade, putting pressure on profitability. • Large CPG players have had few D2C brands due to **high digital acquisition costs.**	**Accelerate D2C brand build to expand the reach** • Ability to offer a large assortment of long-tail SKUs beyond the kirana, including premium SKUs and D2C brands • Boost assortment and availability at a local level, especially in tier 3+; micro market activation • D2C access to building brands that serve niches
Distributors and Wholesalers 	• Compression of growth in general trade and increased costs are putting **distributor's scale and profit under stress.**	**Evolution of eB2B/eWS to lower procurement costs** • Enable kiranas to source from a wider distribution network at a lower cost • Anytime ordering, next-day delivery and endless aisle enable convenience and a wider basket **Access to credit and insurance products** • Flow-based financing access to enable increased stock availability
Kiranas 	• Increased operating costs and lower growth have caused a **10-15% decline in profitability** among urban kiranas.	**Hyperlocal service by local kirana beyond top cities** • The largest **grocery assortment stores can now be connected to consumers hyper-locally** • **Demand for the kirana could expand** on the back of hyperlocal area **Access to credit to enable a wider assortment** • **Lost sales reduction** by stocking additional inventory due to **working capital finance**
Consumers 	• **Inefficiencies in general trade** could lead to unmet demand, especially for premium and new category of products. • **The limited reach of online grocery in Tier 2+ cities** where 70-80% of spending happens, due to unfavourable unit economics.	**Access to a wider product assortment and enhanced convenience** with hyperlocal grocery **Access to financing options** • Increased ability to drive up cart value and purchase high-value products (e.g., skin care)

The network can enable customers to purchase choice products from a seller located anywhere in the country (Exhibit 32).

Exhibit 32

New possibilities: ONDC could enable a saffron brand based in Kashmir to broadcast its reputation score across multiple buyer apps to appeal to a wider audience.

Illustrative



Potential impact on kiranas

Digitalisation and the open network could help midsize kiranas increase take-home profit by around 13 to 15 percent. This boost could be attributed primarily to a 20 to 25 percent growth in top-line revenue due to rising hyperlocal demand (Exhibit 33).

Exhibit 33

A connected midsize kirana could increase its take-home profit by 13 to 15 percent, propelled by top-line growth of 20 to 25 percent.

Illustrative monthly kirana P&L for offline business[1]		With ONDC, %[2]	Assumptions/rationale
GMV	100		
COGS	86-88	85-87	• **Decrease in inventory holding cost and reduced losses due to damages and expiry due to better visibility on the digitised inventory** could reduce COGS by 1-2%
Overheads	4-5	~1	• **Marginal cost** to serve an incremental order (e.g., electricity, etc.) **taken negligible**
Logistics	0	~1	• Assuming 4-5% as logistics cost with the customer bearing 3-4% as convenience fee and **~1% borne by the kirana using unutilised capacity of the existing manpower**
Marketing	0	~1.5	• Assuming **~1% for ATL marketing** (ad spend on the buyer app to earn clicks and impressions) and **~0.5% for BTL marketing** (e.g., leaflet distribution)
Write-offs	0	~0.5	• Given hyperlocal play, it is **assumed that kirana and customers can communicate informally** to have low write-offs (could be due to damages during transit, item expiry, etc.)
Labour	0	~1	• **Additional manpower is required for inventory and grievance management** for online orders; an adequate **inventory management system is critical for the success of the kirana**
NP fee	0	~4.5	• Assuming **1.5-2% and 2.5-3% as buyer app and seller app fees**[3] respectively • Buyer app **could earn ad revenue** from kirana and brands; hence the fee is relatively lower
EBITDA	7-9	~4.5-5	• **Lower margins in the online business, however, overall take-home goes up**
Total orders	**800**	180-200	**Kirana could gain** 20-25% topline growth to hit **~1,000 monthly orders** (from 800) driven by: • **Hyperlocal demand** redirected from catchment to online kirana (better product discovery) • **Higher impulse purchases due to access to credit, leading to premiumisation**
EBITDA (INR)	32,000	4,000-5,000	• **Assuming an AOV of INR 500, a 13-15% increase in EBITDA could be realised**

[1] For a store earning INR ~4 lakhs per month in a rural/semi-urban setting, figures in the chart scaled to 100, and the net margin in offline business is 7-9%. For 800 monthly orders, the EBITDA is ~INR 32,000.
[2] Unit economics is for an online order.
[3] Buyer app incurs costs in marketing, employee, IT, and customer servicing, whereas the seller app incurs costs in kirana digitalisation and management, employee, and IT. Given thin margins, buyer apps could consider grocery as a traffic-generating sector to enhance customer engagement and seek to cover costs from ad revenue from the brands to reduce the fee to kirana further, thereby improving the kirana economics online.

Five considerations to shape digital commerce in the grocery sector

01

Generate demand

Buyer apps must mobilise their existing user base to search for their favourite hyperlocal products to drive adoption of a new buyer interface. Financial institutions could help draw customers by offering monthly credit.

02

Digitalise inventory

Seller apps could take the lead in driving store digitalisation across both kiranas and wholesale. They could begin by leveraging modern retail, stand-alone modern trade (SAMT), and company dark stores or distributors with digitalised inventory to manage product availability. Real-time conversational order acceptance at the kirana level could be implemented over time. A convenient and efficient way to digitalise the small grocery stores inventory would be a big unlock.

03

Manage change effectively

Seller apps could encourage both the kirana and wholesale traders to adopt e-grocery by creating a compelling case for change, that includes structured incentives and formal credit at fair rates.

04

Improve cataloguing

There is a need to create a standardised catalogue to ensure that the brand design, representation, and detail can be easily replicated by multiple sellers.

05

Enhance logistics capabilities

Delivery partners could establish multipoint pick-up capabilities at lower costs, while stores could develop their capabilities for short-distance deliveries.

Ramping up digitalisation with local kiranas could transform the momentum of e-grocery in India. With a strong focus on enablers for digital commerce, ONDC could unlock this immense potential for the country's economy and people.

4.2

Fashion & Lifestyle

India's fashion and lifestyle sector could double by fiscal year 2030 to a market size of $220 billion. The rapid growth of digital commerce, at a CAGR of around 28 percent during this period, could create an even more vibrant sector that makes space for a range of stakeholders—from the largest brands to the smallest independent sellers and from big-city buyers to small-town and village-based customers.

The landscape

India's fashion market—historically unorganised—has evolved quickly, with around 35 percent of the fashion market organised and 10 to 11 percent now digitalised.[54]

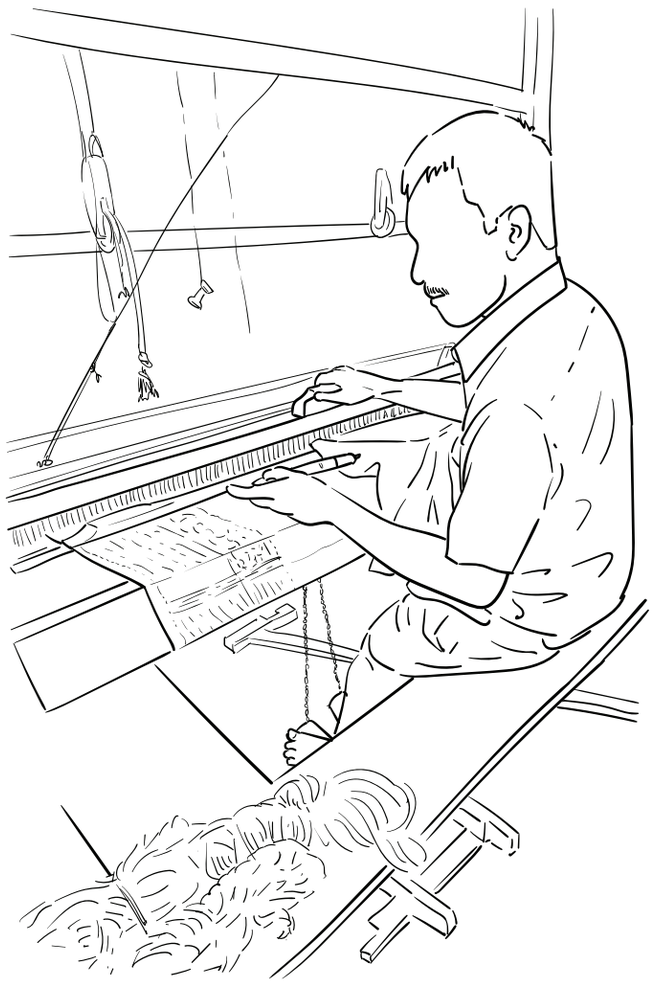
The rapid growth of digital commerce is blurring the boundaries of style that would otherwise separate large and small towns. Trend-based, fast-fashion brands are bringing runway styles to the consumer within weeks, and Instagram influencers are educating a new wave of fashion consumers in novel trends.

As new brands emerge to define their own styles and language, a wider, more inclusive marketplace could allow them to grow out of the boundaries of a platform and compete head-to-head with private labels. A plethora of diverse providers—ranging from haute couture to mass-clothing designers and supported by a vast network of bespoke fashion players (tailors, dry cleaners, and embroiderers)—form the backbone of local fashion markets. India's fashion and lifestyle sector is valued at approximately $110 billion and could double to $220 billion by fiscal year 2030, with the fastest growth expected in the online segment (Exhibit 34).

The ability to shop online can transform wardrobes regardless of geography and demographics. However, only 10 to 11 percent of fashion commerce takes place digitally.[55] The United States and China were at that number nearly eight years ago through significant investments in digital commerce by players such as Amazon and Alibaba and offline retailers expanding to omnichannel play.

Digital commerce penetration is also significantly skewed towards tier-1 markets (around 30 percent), with only 5 percent penetration in tier-2+ markets. Things could change dramatically by the end of this decade if digital commerce grows at the projected rate of 26 to 28 percent, soaring to a third of the overall market size (more than 35 percent).

This growth could also stem from the growing clout of the influencer ecosystem (57 percent of fashion and beauty brands use influencers to promote their products). Around 86 percent of women in India turn to social media for purchasing advice before buying branded fashion products.[56] Social commerce would showcase both the inspiration and the opportunity to shop on online platforms, especially for celebrity- or entertainment-led merchandise.



[54] All numbers in the fashion landscape are taken from syndicated McKinsey research.
[55] ET Retail.
[56] Digital Marketing Institute Study.

Exhibit 34

The fashion and lifestyle market in India is expected to double to about $220 billion by fiscal year 2030.

Fastest growth is expected in the online segment

	Overall market size, $bn			Online market size, $bn		
Category	**FY22**	**FY30E**	**CAGR 22-30**	**FY22**	**FY30E**	**CAGR 22-30**
Apparel	64-66	128-130	9-10%	5-7	42-44	27-29%
Footwear	12-14	24-26	9-10%	1-2	8-10	25-27%
Accessories	4-6	7-9	5-6%	0.4-0.6	0.5-1	13-15%
Home[1]	27-29	54-58	9-10%	4-5	24-26	25-27%
Fashion and Lifestyle	$108-112	$220-224	8-10%	$11-13	$80-82	26-28%

[1] Includes gardening, home improvement, smart home, furnishings and furniture; home and kitchen appliances not included.

Barriers to digital commerce and potential solutions from ONDC.

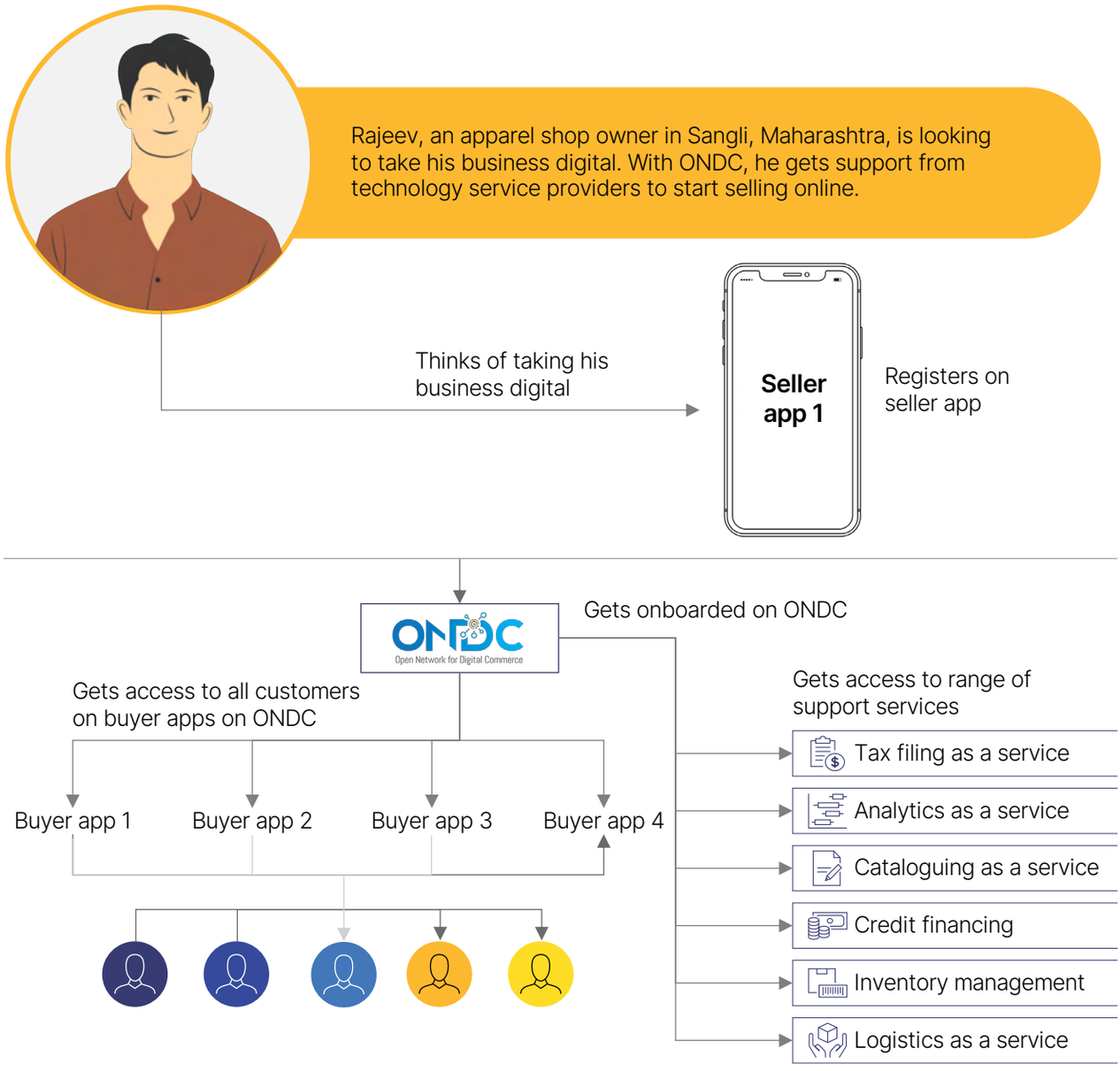
	Barriers to digital commerce	Potential use-cases
Brands and channels 	• The **return rate of 25 to 30 percent** for online purchases is a massive challenge for fashion retailers (versus 8 percent for general merchandise): – Sellers face high costs due to full-refund policies on returned products and additional logistics costs to pick up the returns. – Instances of wrong product returns and unsettled claims can sometimes result in a write-off and loss for the seller. • Commissions affect the **thin margins for smaller brands and sellers**. • Sellers also face stiff **competition as leading marketplace private labels** have captured a significant volume of the online fashion market. • **Operational and financial hassles** pose challenges to online business. For example, sellers need to digitalise and update their inventory regularly and maintain minimum inventory requirements online for order fulfillment.[1] • Sellers might need help **competing on prices and managing working capital** for everyday costs.	• Leading technology providers on the network could **offer customers features such as virtual try-on** and recommendations, potentially lowering the return rate. • Seller apps could **digitise and onboard bespoke fashion providers** that offer tailoring services to customers to reduce returns and cut logistics costs.[2] • **Cost synergies** with the existing business for the buyer and seller apps could reduce take rates and grow profit margins for brands and sellers. Buyer and seller apps could utilise a portion of human resources (e.g., technology, HR, and finance teams) and infrastructure (e.g., customer support, IT, office spaces, etc.) from existing businesses to save costs. • The growth of eB2B could help sellers to **discover more business partners** (e.g., retailers could discover wholesalers or manufacturers offering the best prices, and vice versa) to fulfill just-in-time orders and prevent lost sales. • Digitalised stores could enable an omnichannel play for **higher seller discoverability** and customer mindshare – increasing seller competitiveness (Exhibit 35). • D2C brands that register as a seller app on the network could gain higher traffic from multiple buyer apps without significant marketing spend.[3] • An open network and new age selling formats such as social/video commerce could give smaller sellers in Tier 3 and 4 towns, market information on the latest fashion trends, helping them to **update their inventory and remain competitive.** • Based on historical data, financial institutions on the network could **offer credit to sellers** to meet their working capital requirements.
Consumers 	• Many customers are **discouraged by the inability to try on items** when shopping online, especially for high-ticket items or categories where fit is crucial but is hard to assess online, e.g., suits and trousers require personalisation.[4]	• Enhanced omnichannel play could provide the **convenience of discovering the nearest offline store** to try on products before purchase. • Vibrant **social commerce and the P2P ecosystem** enabled by resellers and influencers could empower the customer to make a more informed purchase decision via the online channel. • Technology features such as **virtual try-on** present on the network could attract customers to shop online. • Customers could consider buying high-ticket items with **access to finance options** (e.g., EMI, BNPL) from credit lending institutions on the network.

[1] At times, certain SKUs may require a minimum of 10 units in stock.
[2] Seller/ seller apps could provide customers with coupons to promote local tailoring so they could save logistics costs on returns.
[3] Cost of lead generation on a D2C website would be higher as compared to that on the network that diverts traffic from buyer apps.
[4] Digital penetration of men's formal wear is only ~3% currently.
Source: Brand Equity.

Exhibit 35

New possibilities: ONDC could give a small seller access to customers across the country.

Illustrative



Four considerations to shape digital commerce in the fashion sector

01

Explore more interactive and exciting ways to sell fashion

With the power of fast internet, sellers could innovate to attract customers—for example, through live commerce, an immersive experience that invites potential buyers to interact and engage, via make-up tutorials or interviews with style icons. In China, a leading short-video social platform converted sales through livestreaming, with a closed loop for transactions on branded stores.

02

Support sellers to digitalise inventory

Seller apps could take the lead to support sellers on complex skills, such as digitalising the inventory management process. Technology service providers on the network could also offer services such as cataloguing,[1] photoshoots and tax management, and customer-relationship-management offerings to facilitate smooth online business.

03

Handle returns effectively

Seller apps could train sellers to properly verify and process returned products (for example, immediate dry-cleaning to make the product resale ready). Buyer apps could also use historical data across the network to create customer profiles, assess their likelihood of returning purchases, and possibly apply tailored charges for returns.

04

Design a robust customer interface

The customer experience is at the heart of online fashion, and the buyer app defines this experience. Buyer apps could build a best-in-class team of industry experts and technical/IT professionals to offer a world-leading, competitive customer experience. They could also collaborate with leading marketing agencies to design attractive campaigns to convert and retain customers.

Deeply personal and aspirational, fashion shopping could receive a tremendous boost through an enhanced digital commerce experience—creating opportunities for buyers and sellers and changing how Indians engage with fashion trends.

[1] Service providers could share a catalog score with the sellers with action items so they could improve their online presence.

4.3

Electronics

Consumer electronics is a popular segment for digital commerce, with 32 to 34 percent of transactions conducted online. The $75 billion market (FY22) could double to reach $150 billion by 2030, especially if the untapped potential for digital commerce is unlocked.

Changing this could unleash an exciting new wave of growth. With ONDC, digital commerce could give retailers in small cities and towns wider reach across all consumers for sale of electronic goods in India.

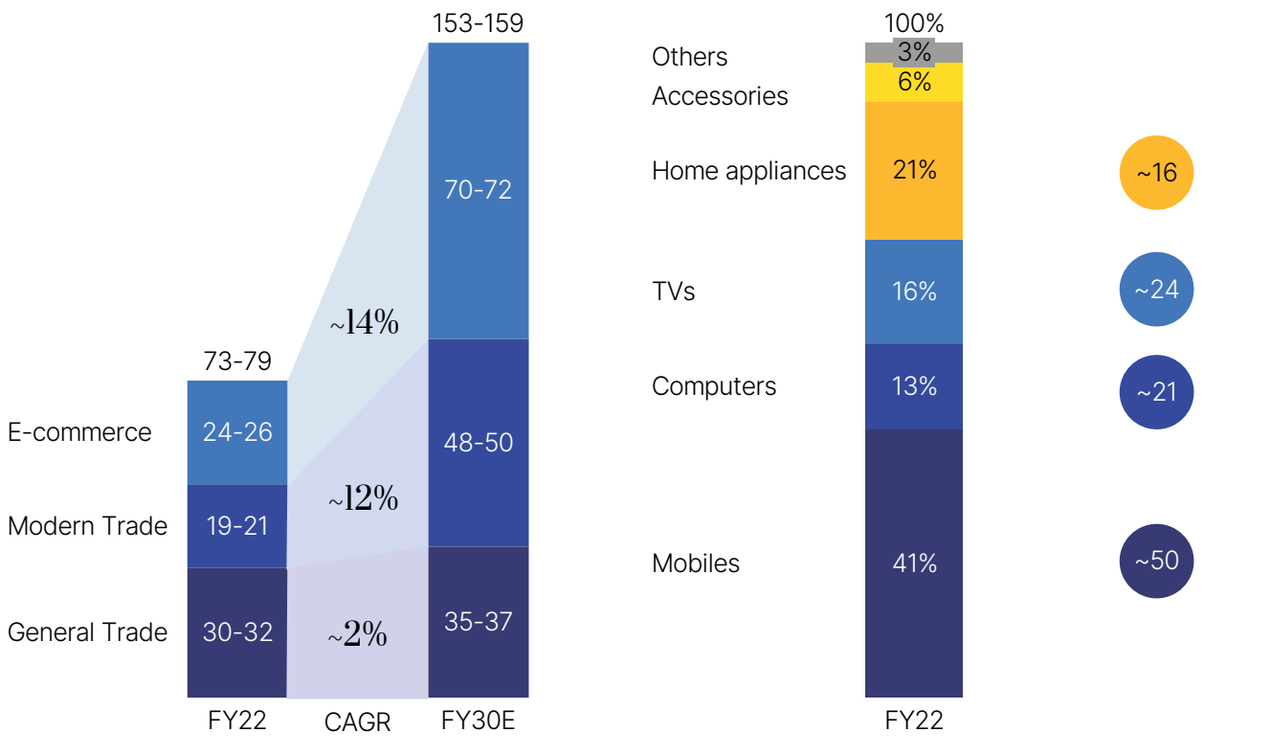
The landscape

The consumer electronics sector in India has been growing steadily. As an example, India has the world's second-largest smartphone market (after China), with approximately 600 million smartphone users. India's consumer electronics market is expected to double from about $75 billion in fiscal year 2022 to more than $150 billion by fiscal year 2030 (Exhibit 36).

Much of the projected growth is expected to come from digital commerce and from modern retail players. These two segments are projected to grow at a CAGR of 12 to 14 percent until fiscal year 2030, far outpacing general trade's growth of approximately 2 percent.

Exhibit 36

India's consumer electronics market is expected to double to more than $150 billion by fiscal year 2030.



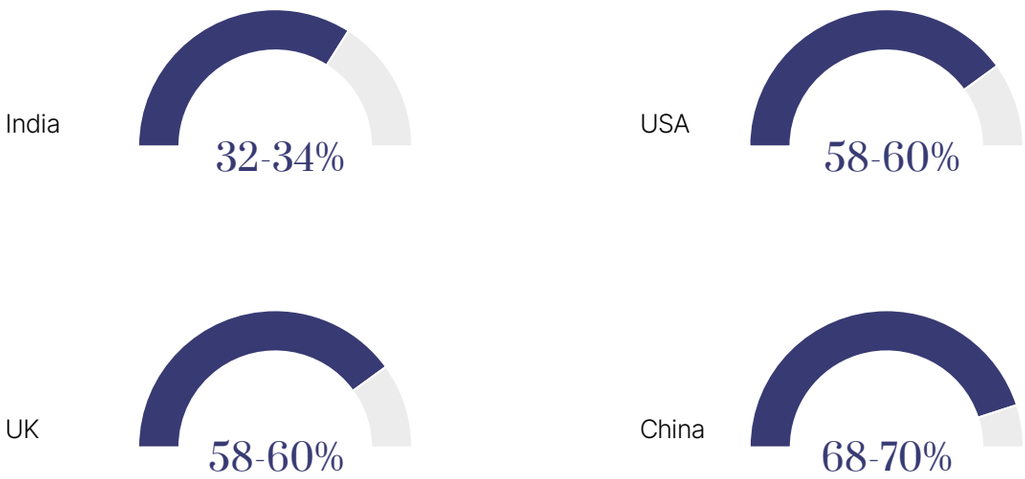
The digital commerce penetration in the industry is 32 to 34 percent, with tier-two or smaller markets accounting for nearly 65 percent of online orders compared with around 50 percent just two years ago.[57] This growth stems from product standardisation, online availability of a wider range of products, a growing number of shoppers from smaller towns, improved delivery timelines and overall customer experience, and the rise of social commerce to influence purchase decisions.

The constraints, too, remain—customers' inability to try out products before purchasing and concerns about the quality of after-sales service impede the growth of digital commerce. This is also a consolidated market, with a small number of sellers generating 60 percent of online sales. ONDC could help to change that by bringing buyers and sellers from India's small towns and villages into the fold of digital commerce, reaching for parity with global peers such as China, the United Kingdom, and the United States (Exhibit 37).

[57] Economic Times

Exhibit 37

Digital commerce in electronics in India could grow to reach parity with global peers.



Source: Forrester and syndicated McKinsey research

Barriers to digital commerce and potential solutions from ONDC.

	Barriers to digital commerce	Potential use-cases
OEM (Company)	• **High customer acquisition costs** make it difficult to scale direct-to-consumer (D2C) channels. Both traditional and digital-first brands rely on aggregators for more than 90 percent of their GMV and are increasingly looking to grow their D2C reach.	• Registering as a seller or seller app on the network could bring the D2C brand **traffic from multiple buyer apps** at a potentially **lower marketing spend.**[1] • The network could enhance customer experience by allowing the ability for cross-model comparison, something that a D2C website cannot do.
Channel (Distributors and retailers)	• Small sellers find it hard to compete in an aggressive price market. • Small sellers are unable to dynamically change prices.[2]	• The open network could also make it possible for channel participants to be **cost-efficient and increase profitability.** – A greater omnichannel play could increase store footfall, boosting both online and offline sales. – Synergies with the existing business for buyer and seller apps could lead to cost savings that could be passed on to the sellers.[3] – Digitalisation of the wholesale/in-store inventory could boost eB2B and help retailers easily discover the best-priced wholesalers. – Enhanced availability and discovery could boost community group buying, particularly from smaller towns, which could result in the consolidation of orders served at a potentially lower cost with a more efficient supply chain. • The open network could allow small sellers to discover the **best-priced technology professionals** to support them with a pricing strategy for competitive advantage online. • Resellers could discover **quality certification agencies** at the best price that could verify and certify their products to enhance their credibility online (Exhibit 38).
Consumer	• The **inability to try out or experience products** could discourage a segment or long tail of consumers from online purchases, particularly in the case of more expensive categories such as $400-plus mobile phones. • **Concerns about damage-free delivery,** especially for high-value bulky items, and after-sales services (such as installation and grievance redressal) pushes consumers to shop from physical stores. • Lack of **access to credit** could also be a constraint.	• An enhanced omnichannel offering could allow consumers to try products at the nearest store and then buy online for a **more informed purchase decision.** • The **aggregation of the seller and product ratings** across buyer apps, as facilitated by the open network, could strengthen trust. • **Digitalisation of the resale and refurbished products** market on the network could offer the buyer additional options for price and product discovery. • Consumers could be more willing to buy when supported with credit options such as EMI, BNPL, and discounts.[4]

[1] Brands do not need to register on multiple platforms; by joining the open network as a seller app, the brand could enjoy traffic from all buyer apps catering to the electronics segment.
[2] Sellers charge much higher prices during the initial months of product launch, when most sales happen, and then allow deep discounting.
[3] Buyer and seller apps could utilise existing infrastructure (e.g., IT, office space, etc.) and human resources for the new business to realise some cost savings.
[4] Access to consumer data could allow banks and NBFCs to design new financial products and expand their portfolio (win-win for both parties).

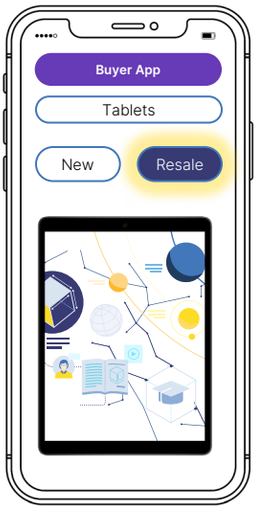
Exhibit 38

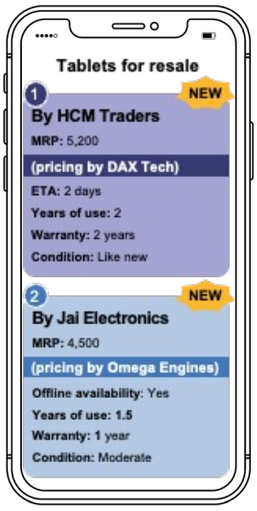
New possibilities: ONDC could spur digitalisation of the market for refurbished electronics goods, creating a support ecosystem for small resellers.

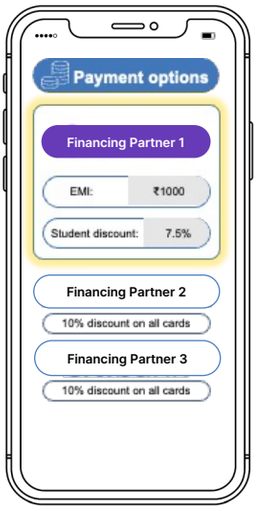
Illustrative

High-school student Ali uses a buyer app to find an affordable, pre-used tablet; he can see a range of product choices with details of quality certification, warranty status and low-cost and innovative financing options[1]

Searches for refurbished tablets within ₹5-6k







Unlocks for various stakeholders

Certification agencies

Provide **QC certificate to resellers** based on product testing, to boost seller's reliability on the network

Product pricing partners[2]

Engage with resellers to **price their products** using robust algorithms, helping resellers earn consumer's trust on pricing

Financing partners

Grow their portfolio by accessing consumer data and offering financial products

[1] Customised offer by the buyer app based on buyer's spend behaviour on the app.
[2] Price-recommendation engines (for example, DAX Tech and Omega Engines on Screen 2 in the illustration above) on the network could help the sellers in adequate pricing of the product.

Four considerations to shape digital commerce in the electronics sector

01

Catalyse D2C for brands

Buyer apps could benefit from effective marketing strategies that harness social media to activate their existing user base. Financing partners on the network could also ease the pinch for consumers with flexible payment options for desirable high-ticket items.

02

Digitalise the inventory

Seller apps on the network could lead the store digitalisation initiative, particularly in the general trade segment, to tap into digital growth momentum. As a start, the seller apps could target well-known modern retail stores in urban areas to build credibility and then attract mom-and-pop stores to their platform.

03

Develop robust logistics capabilities

Sellers must ensure the safe, secure delivery of high-value goods over long distances while minimising the risk of product damage or fraud. One way to achieve this goal is for brands to use their existing store infrastructure and provide inventory locally from nearby stores. Video interactions among sellers, logistics providers, and consumers could enhance this effort, improving communication and transparency throughout the delivery process. Financial-services players could also contribute with micro-insurance products that integrate with delivery offerings to provide additional protection to sellers and consumers.

04

Build a support ecosystem for resellers and new sellers

First-time sellers and resellers need to establish trust with consumers on product quality and price. On the network, low-cost technology service providers could facilitate this process by certifying the seller's products on pricing and quality.

The electronics industry is already well penetrated online by digital commerce. ONDC could help offline retailers to compete by capturing part of the local, digital-first demand.

4.4

Online food delivery

The online food delivery (OFD) sector in India is on the verge of tremendous growth. The total market could grow sixfold to $30 billion by 2030. ONDC could catalyse this growth by greatly expanding OFD reach beyond the largest cities, bringing on board a larger network of kitchens as well as logistics and delivery providers to cater to dining tables in India's smaller cities. This push could ramp up order volumes and choices for customers across India, transforming the OFD business.

The landscape

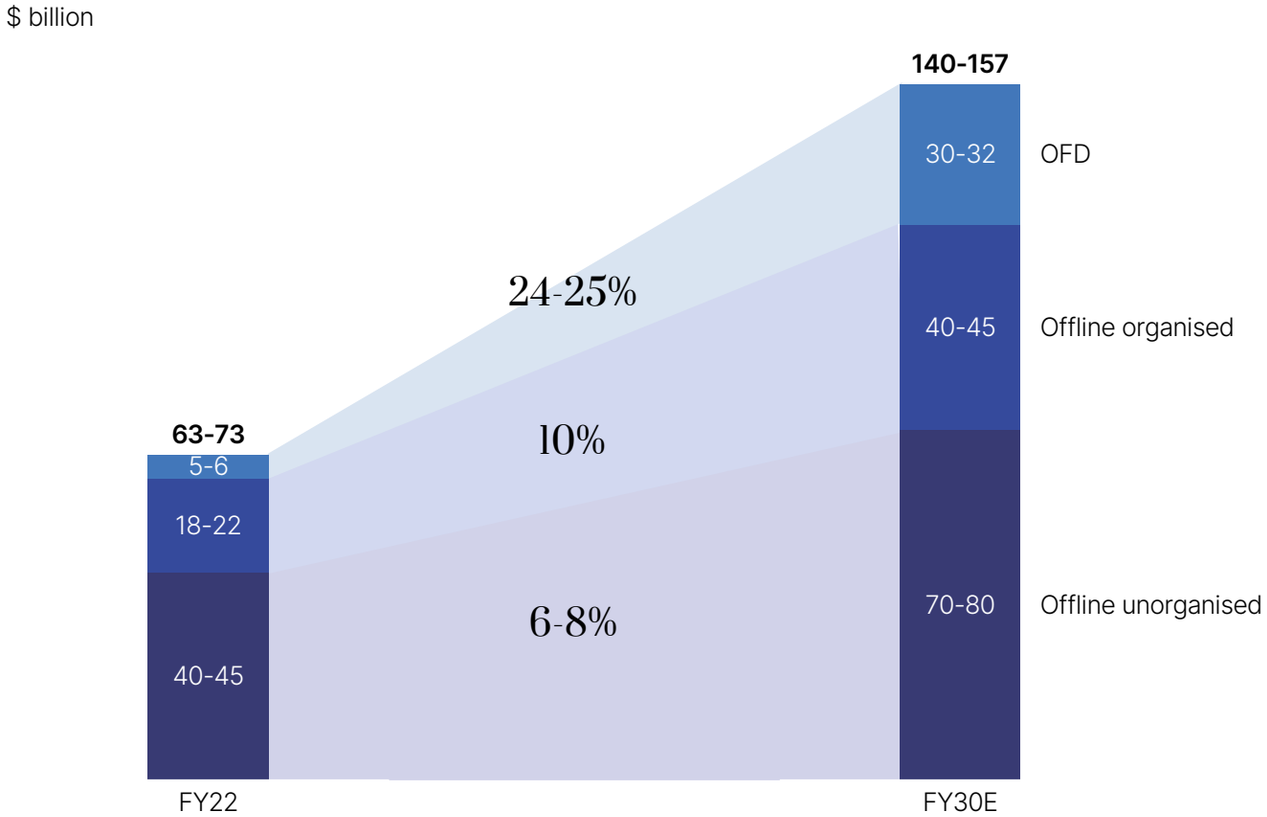
Ordering online for doorstep food delivery has become a way of life in India's biggest cities. Hungry diners are scrolling through their phones in a quest for variety and convenience at mealtimes. This has led to rapid growth for the OFD industry, which earned revenues of more than $5 billion in FY22. With growing digital literacy, increasing numbers of dual-income families, rising disposable incomes, and higher order frequencies across mealtimes, OFD could grow sixfold by 2030, achieving revenues of up to $30 billion (Exhibit 39)[58].

But this is not a widespread story. Only 7 percent of internet users in India use OFD, a significantly lower percentage than in China (around 50 percent) and the United States (around 35 percent).[59] Orders are also heavily concentrated in a single meal (dinner) and from traditional formats such as chain and stand-alone restaurants, which together account for more than 95 percent of GMV. Demand could look very different if OFD penetrated more people in more geographies, at other meal or snack times, with more nontraditional formats.

[58] Online Food Delivery Market in India 2022 – 2027, Netscribes, October 2022.
[59] "A global concept with local flavour: Online food delivery in the world's most populous nations"; Macquarie Perspectives, https://www.macquarie.com/au/en/perspectives/a-global-concept-with-local-flavour-online-food-delivery-in-the-worlds-most-populous-nations.html, accessed April 2023.

Exhibit 39

India's online food delivery industry is expected to grow sixfold by FY30.



Source: Prosus Annual Report 2022; Zomato Annual Report 2022; Zomato Q4FY22 Shareholder's Letter and Results; NRAI India Food Services Report; Netscribes report 2022

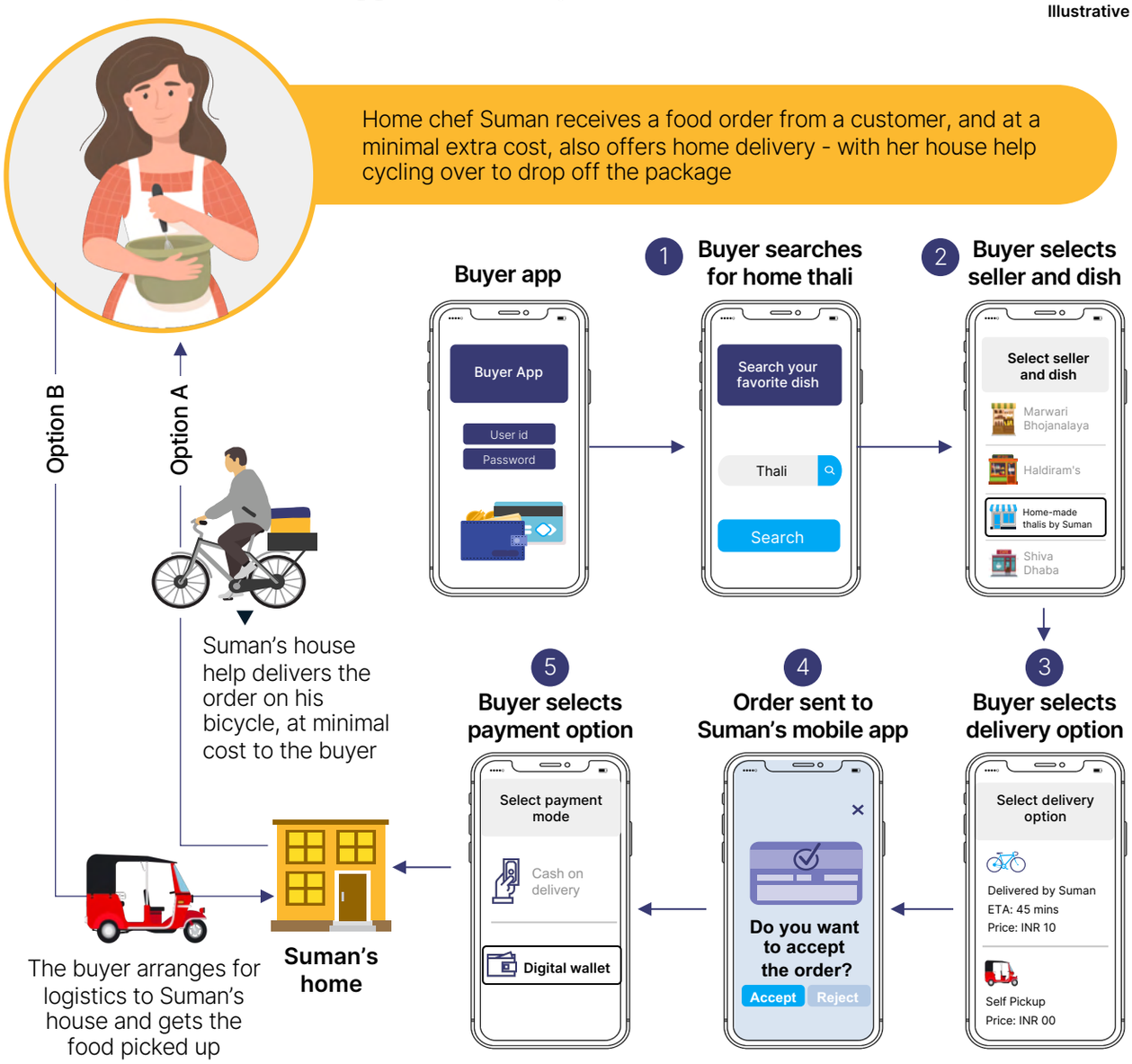
Barriers to digital commerce and potential solutions from ONDC.

	Barriers to digital commerce	Potential use-cases
Restaurants 	• Small restaurants with low margins find themselves **unable to digitalise profitably.** They often don't meet the criteria for listing and also often struggle with discoverability. • Restaurants **lack the ability to access or strategically use customer data** that might help them refine future marketing strategies.	• Potential **savings could be unlocked** due to a reduction in performance marketing costs (by monetising existing user bases) and operational costs (by using existing manpower and tech resources) for buyer apps. • Restaurants in the organised and unorganised sectors could **go online** (with the help of point-of-sale providers) to build or expand their business. • With an open network, each restaurant could **gain access to granular customer data**, empowering it to regulate and refine its marketing spend and product offerings on buyer apps. • **Digitalised transaction history** and scoring models could enable **credit access** for eateries in the unorganised sector.
Logistics 	• Aggregators **stretched by peak volumes** in the top four cities. • The cost of maintaining a delivery fleet in smaller cities is high due to a **low concentration of demand.**	• The growth of **hyperlocal logistics marketplaces coupled with aggregation of demand across multiple use cases** (e.g., grocery, electronics delivery) could address the challenges of peak capacity requirements in large cities and low demand concentration in smaller towns for online food delivery aggregators. • Logistics marketplaces could provide **new opportunities for local delivery partners**, creating employment and supporting economic growth in both urban and rural areas.
Customers 	• **Online list prices can be 30-50% more** than dine-in prices. • In Tier-3+ cities, there is a **lack of variety** of restaurants.	• Lower performance marketing and operational costs for the buyer app could reduce commissions, with consequently lower list prices. • Availability of a wide variety of sellers, including **home chefs**, could create a multitude of choices (Exhibit 40).

Exhibit 40

New possibilities: ONDC can unleash the power of the informal economy by accelerating the digitalisation of small sellers, (e.g., home chefs) and enabling low-cost marketing (e.g., via WhatsApp) and delivery models.

Illustrative



Four considerations to shape digital commerce in the online food delivery sector

01

Ensure that customer experience is at par with current platforms

Restaurants will gain the benefits of ONDC only when a large number of customers switch to buyer apps on the network. To attract customers, developers could improve their apps by offering user-friendly interfaces, a smooth customer experience comparable to platform apps (the existing alternative), and even specific customer-experience features such as correctly tagging restaurant and meal-related information and displaying dynamic delivery times.

02

Scale up logistics capabilities to meet demand

Logistics players need to meet the anticipated growth in demand with adequate scale and capacity. Third-party logistics providers such as Pidge could optimise the three-sided marketplace (restaurants, delivery personnel, and customers) within time-constrained delivery guidelines, matching orders based on food readiness, timing, and the availability of delivery personnel.

03

Democratise visibility for all business archetypes

Buyer apps could optimise their search algorithms to display P2P and non-chain restaurants based on customer needs (for example, meal preferences and fulfilment ratings) rather than overall ratings and advertising spend. This would provide a fair experience for newer business archetypes such as home chefs who compete with the more established restaurants.

04

Support digitalisation of small restaurants and home chefs

Seller apps could support small eateries and home chefs through easy-to-use interfaces that assist with onboarding, inventory management, and pricing. Seller apps could also provide verification and assistance to home chefs (and small eateries) to acquire the credentials and certifications necessary to transact online.

Attention to these enablers could help the online food delivery landscape emerge as a vibrant ecosystem that benefits all stakeholders.

4.5 Pharmaceuticals

Crucial to health, vitality, and well-being for Indians, domestic pharmaceuticals is one of the fastest-growing sectors in the country. It is estimated to grow at a pace of 10 to 11 percent, doubling from around $21 billion in fiscal year 2022 to $45 to 47 billion in fiscal year 2030. Supportive factors are likely to prompt tenfold growth for the online market over the next eight years, compared to 1.5x to 1.8x growth for the offline market. And yet, digital commerce penetration in the sector is far from the level of global peers. There is immense scope for an open network to change that dynamic and power even greater growth for the online pharma market.

The landscape

In the fiscal year 2022, the Indian domestic retail pharmaceutical market was valued at about $21 billion, with the digital commerce segment accounting for about $1 billion. The online pharmacy market could grow at a CAGR of around 33 to 35 percent between FY22 and FY30, far higher than the projected 6 to 7 percent CAGR for the offline market (Exhibit 41).

Five supportive trends are expected to propel this rapid growth:

— **Availability of a broader range of medicines.** While an offline pharmacy has about 5,000 to 10,000 SKUs, an online pharmacy offers consumers more than 50,000 SKUs.[60]

— **Buyer comfort with tech platforms as a result of the COVID-19 pandemic.** The pandemic-induced lockdown led to a 3x growth in the number of households that buy medicines online—from around 3.5 million before COVID-19 to around 9.0 million during COVID-19.[61]

— **The convenience of ordering online.** Home delivery of medicines through online orders offers great convenience, especially for people with limited mobility due to age or illness. Patients with chronic disease account for a 60 to 70 percent share of the market for chemists.[62]

— **Prompt delivery.** Today's online pharmacies aim to deliver products in four to six hours. Just a few years ago, delivery time was three to four days.

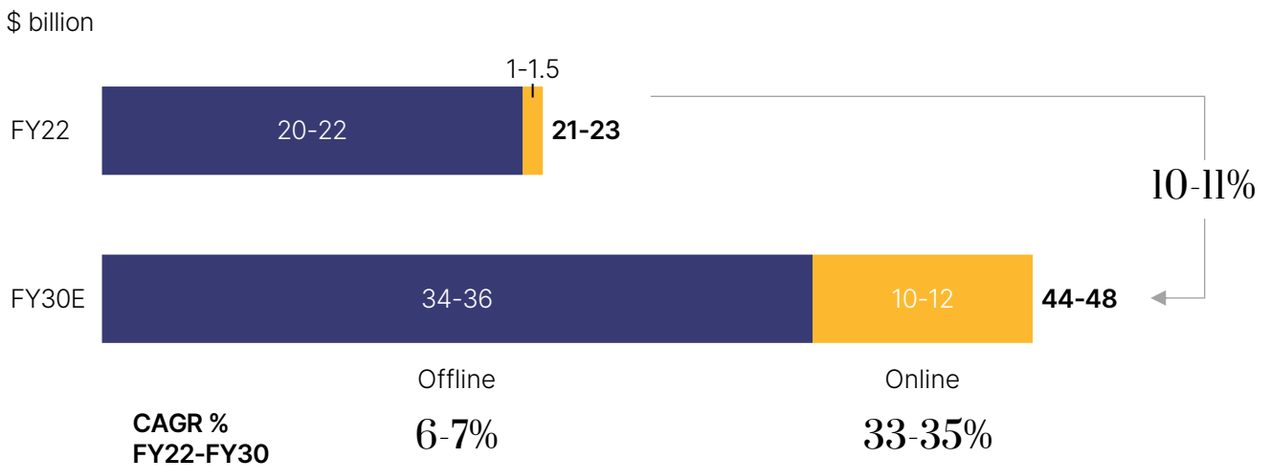
— **Lucrative discounts.** Online pharmacies offer discounts of 15 to 20 percent, which is double or triple what local pharmacy shops can offer.

While the future looks promising for online chemists, digital penetration in India (4 to 6 percent) lags behind that of global peers such as China (8 to 10 percent) and the United States (10 to 12 percent),[63] where advanced digitalisation levels and robust last-mile logistics infrastructure propel higher adoption of digital commerce. In India, a variety of barriers currently restrict the widespread adoption of online medicine purchases.

[60] How technology is redefining retail pharmacy to improve community health; Healthworld.com, from Economic Times, October 2021.
[61] E-Pharmacies at COVID-19 Frontline: Fighting the Odds: Serving the Nation, a FICCI publication, August 2020.
[62] E-Pharmacy: The Growth Story of 2020; Business World, April 2023.
[63] Pharmacy's new era—in the home, a McKinsey publication, December 2021. Statista.

Exhibit 41

India's retail pharma market.



Source: McKinsey and Company article: "Pharmacy's new era—in the home", Statista, IBEF and Expert interviews

Barriers to digital commerce and potential solutions from ONDC.

	Barriers to digital commerce	Potential use-cases
Pharma-ceutical companies (Pharmacos) 	• **Pharmacos may face pricing pressures** in the future with the consolidation of channels online, potentially impacting profit margins.	• An open network **enables the standalone chemists to go digital and operate an omnichannel play.** • Going online enables the **chemists to compete in an omnichannel world**.
Distributors 	• **Lack of technical know-how** to go online and **resistance to change** prevents distributors from exploring the online channel at full potential.	• **Technology support providers on the network** (e.g., cataloguing, inventory management) could enable traditional distributors to establish an online presence with greater ease. • **The evolution of eB2B** could enable the distributors to conduct business with more retailers and grow their revenue. Margin erosion is less likely in an open network, given that the transaction price is largely negotiated between the distributor and the pharmacist (e.g., pricing, discounting, etc.).
Pharmacy 	• **High customer acquisition costs may inflate cost structures online,** crushing the margins of the pharmacy. • **Additional costs incurred in digitising and managing inventory** (>5,000 SKUs in a pharmacy), handling product returns, and performing BTL marketing could hold back pharmacists seeking to move online. • **Lack of enough online demand in Tier-3/4+ regions** due to customer preference for offline purchases.	• Buyer app and seller app could **pass on cost savings achieved via synergies from the existing business** to the pharmacist, making online a profitable and attractive proposition for them. For example, the buyer app could monetise its existing user base to lower customer acquisition costs. And the buyer and seller apps could use their existing business functions such as Finance, Human Resources, and infrastructure such as IT, call center, etc., to realise cost savings. • The pharmacy can **also cut procurement costs** by accessing a wider distributor network to find the best-priced distributors and wholesalers. • The digitalisation of the local pharmacists whom buyers trust **could boost online demand in Tier-3/4+ regions**, attracted by a wider product assortment and better discount offers.
Customers 	• **Concerns around counterfeit medicines**, particularly in Tier 3/4+ towns, further deter consumers from shopping online. • The lack of **online access to medicine delivery** in Tier 2 and Tier 3 towns due to logistical constraints could mean some medicines might not be available. • **Lack of credit availability that restricts ability to subscribe to high-priced drugs** (e.g., year-long subscription for chronic medicines) due to lack of credit availability.	• Sellers could gain credibility on the open network as reliable, genuine medicine providers by **aggregating seller and product ratings across buyer apps**. This could create transparency and trust. • **Increased digitalisation of pharmacies** at the local level could allow customers to discover more products online. • Hyperlocal logistics could flourish with the **aggregation of demand across multiple use cases** (e.g., grocery delivery, online food delivery, etc.), providing convenience and quick delivery. • The **availability of credit** from lending institutions based on customer's past purchase behaviour could allow customers to make a high-value purchase.

Five considerations to shape digital commerce in the pharma sector

01

Create a great customer experience

To spur greater adoption of online pharma on the network, buyer apps must offer a user-friendly interface with robust customer acquisition strategies. Financial institutions could accelerate the momentum by offering credit on high-ticket purchases (for example, a subscription plan for chronic disease medication).

02

Tap systemic cost efficiencies

Buyer and seller apps need action-oriented cost reduction strategies through automation (for customer management, return handling, prescription verification, and other actions) and cultural changes (such as leadership-driven interventions to create lean teams that optimise speed with quality of output). This could enhance the unit economics for each stakeholder.

03

Digitalise the inventory

Given the vast numbers of SKUs in the industry, pharmacists need to develop real-time online inventory management capabilities to fulfill orders in an optimal way. Technology service providers (e.g., cataloguing agencies) on the network could support this endeavour.

04

Build robust logistics and storage capabilities

Logistics players will need to develop cold-chain-storage capabilities, particularly in smaller regions, to store and distribute medicines properly.

05

Offer additional support services

Buyer and seller apps need to offer customers add-on services such as prescription verification (for example, Optical Character Recognition technology) and doctor teleconsultation (some customers might require online consultation to obtain a prescription). This could create a comprehensive, end-to-end offering that attracts customers to online pharma.

> Trust in the offline pharmacy going online with its "reputation" could be a big unlock to attract customers. ONDC could help create this reputation through a seamless ecosystem on the open network.

4.6 Mobility

The jam-packed streets of India highlight the country's critical need for reliable, efficient, and sustainable mobility solutions. With a large part of India's population preferring flexible and on-demand transportation, the organised-cab and shared-mobility segments need to be digitalised and made more efficient. "Digital mobility" in India—or digitalised access to transport bookings—is a sector set to double in size to $11 billion by 2030.[1] Concentrated in the largest urban centres at present, digital mobility solutions could evolve into an integrated mobility system that weaves in other services for a smooth end-to-end rider experience.

[1] This chapter is entirely focused on digitally accessible means of transport. The word "mobility" is used to represent "digital mobility."

The landscape

Digital mobility (here referred to as "mobility") in India appears to be on course to more than double to as much as $11 billion by FY30. This growth could be on the back of rapid expansion in the two-wheeler (2W) and three-wheeler (3W) segments, which are expected to increase at a CAGR of 40 to 45 percent and 20 to 25 percent respectively through 2030 (Exhibit 42). The top seven cities in India account for more than 80 percent of the mobility market's revenues, creating a concentration in the urban centres of the country.

India's organised-cab and public-transport infrastructure is constrained by several challenges:

— Digitalisation is still quite low, at less than 5 percent.

— Car penetration (at less than 10 percent) is insufficient to meet high demand for transportation services, particularly in areas where public-transport options are limited.[64]

— Cab drivers for aggregators are in short supply and their income challenges continue remain largely neglected.

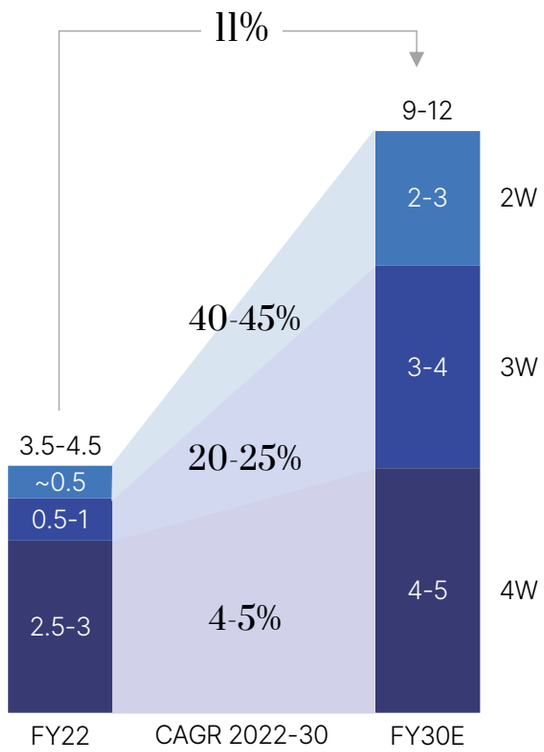
[64] NFHS.

Exhibit 42

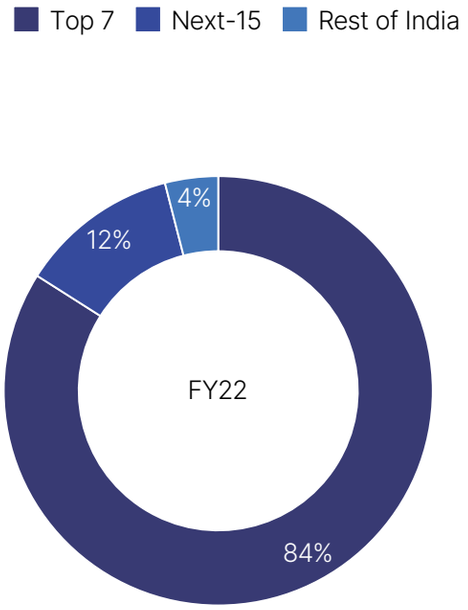
India's mobility market is expected to grow at 11 percent, from ~USD 4 billion in FY22 to ~USD 10 billion by FY30.

The mobility market is on a high-growth trajectory[1]

$ billion



Tier distribution



[1] COVID-19 led to a sharp contraction in the market both from a demand and a supply front.

Despite these challenges, the rise of shared mobility services and the growth of the 2W and 3W segments have made transportation more affordable and accessible, particularly for consumers unable or unwilling to buy and maintain a personal vehicle. In the future, demand is likely to continue growing, especially with demographic segments such as millennials—50 percent of whom prefer to book well-maintained taxis online than to own a car. The need for flexible and on-demand transportation could spur the growth of the organised-cab and shared-mobility segments.

Mobility is supply constrained, with a deficit of cab drivers. While the mobility industry has focused on technology to improve the customer experience, there is scope to do more to improve the driver experience, in addition to ongoing initiatives such as frequent settlements, the go-home feature that allows them to get rides in the direction of their home, etc. A network that empowers drivers could improve the mobility ecosystem, and the experience for riders and drivers.

The open network could allow for an integrated ecosystem across sectors to create a seamless journey experience for users (Exhibit 43).

Barriers to digital commerce and potential solutions from ONDC.

	Barriers to digital commerce	Potential use-cases
Drivers/ riders 	• **For passenger mobility,** aggregators charge drivers a commission.	• Drivers could see an **increase in take-home pay** due to reduced commissions[1] and improved asset utilisation[2] with requests received from multiple buyer apps on the open network, as well as demand for auxiliary services (e.g., grocery pick-up for 2W, school pick-up/drop by 4W) generated on the open network.
Customers 	• **Unreliable availability, high wait times** during peak hours, and **declining vehicle quality** have led to a drop in customer experience.	• Improved commission structure and income possibilities for the driver could incentivise the **shift of offline commercial cabs to digital platforms** and encourage ride completion in far-off/less preferred locations, **improving ride availability and experience for the customer.** • ONDC could enhance the user experience by **developing a multi-modal transport network** that integrates public transport systems (e.g., buses and metros) into a common framework.

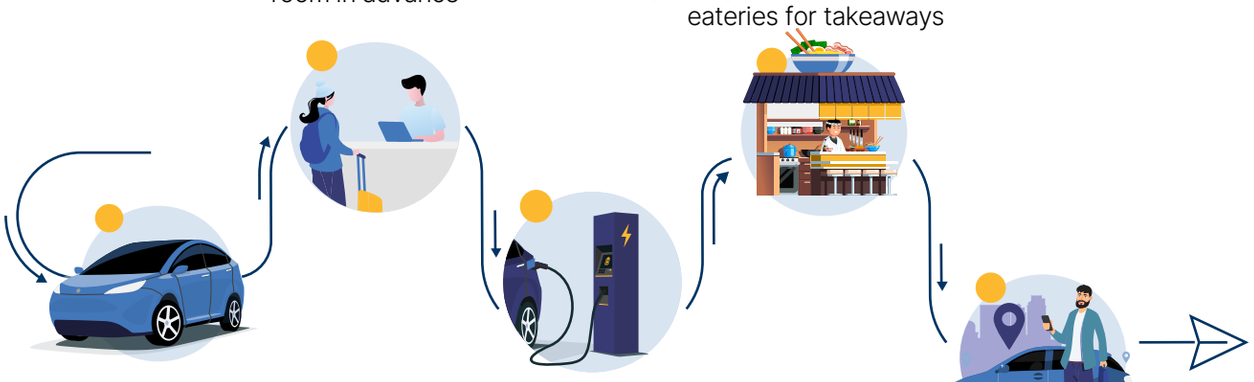
[1] Synergies with existing functions for buyer and seller apps could reduce the need for high take-rates to maintain the same EBITDA as incumbents.
[2] On average, the idle time faced by a driver is 25-35% and the gross asset utilisation is 65-70% with 10-20% spent in dead run (arrival and wait times).

Exhibit 43

New possibilities: ONDC could transform India's mobility sector and give rise to a journey-focused ecosystem.

Illustrative

Deepak wants to take his family on a road-trip from Delhi to Mumbai. He logs on to a buyer app that focuses on trip planning. It helps him map the entire journey.



Possibility of hiring an EV cab for the trip

Find highly rated affordable mobility services

Digitalisation of small hotels

Digitally book a hotel room in advance

Digitalisation of refuelling/charging stations

Discover EV charging stations to better plan the trip out

Digitalisation of small eateries

Book meals in advance of journey at different roadside eateries for takeaways

Discovering service providers on the route

(e.g., get vehicles serviced during break-downs)

Four considerations to shape digital commerce in the mobility sector

01

Create an enhanced user interface and user experience

Buyer apps will need to enhance the current user interface and experience (UI/UX) by developing a single app for travellers to purchase different mobility services and access various public transport networks. Widespread adoption of this app would provide an early use case for scale.

02

Invest in digitalisation efforts

Seller apps will need to manage the onboarding of taxis and autos onto the network, including developing adequate technology and algorithms to bring offline cabs into the digital fold. Doing so would require investment in optimisation technology and the onboarding of new partners.

03

Ensure support for the ecosystem from transport authorities and the government

Public transport authorities could support digitalisation efforts and enable integration across modes of transport, while making sure that the system complies with existing fare structures and regulations. Local and state governments could partner with unions that have state backing, thus providing support and resources to integrate the taxi and auto industry with the network.

04

Build a support system for the driver

A powerful way to bring more drivers on board would be to develop a supportive ecosystem that addresses their pain points—this could include an improved app, financing programs for cars, health insurance for families, education loans, and admission support for their children.

> Mobility is a continuous need and priority in a nation of more than a billion people. Early wins with Namma Yatri have shown the opportunity to seamlessly digitalise the ecosystem.

4.7 Hospitality

Travel is back with renewed vigour in India after the pandemic-induced pause on vacations and tourism. Eagerly planning holidays to make up for lost time, travellers are seeking convenience, reliability, and variety.

Thanks to a confluence of factors, India's hospitality sector could nearly double in size by 2030, from $13 billion to as much as $25 billion. Digital commerce could be a critical driver of the sector's growth and represents a significant untapped opportunity. As it scales up, ONDC could support the emergence of a hospitality ecosystem that offers consumers unrivalled convenience and options and provides hotels and homestays with newfound discoverability.

The landscape

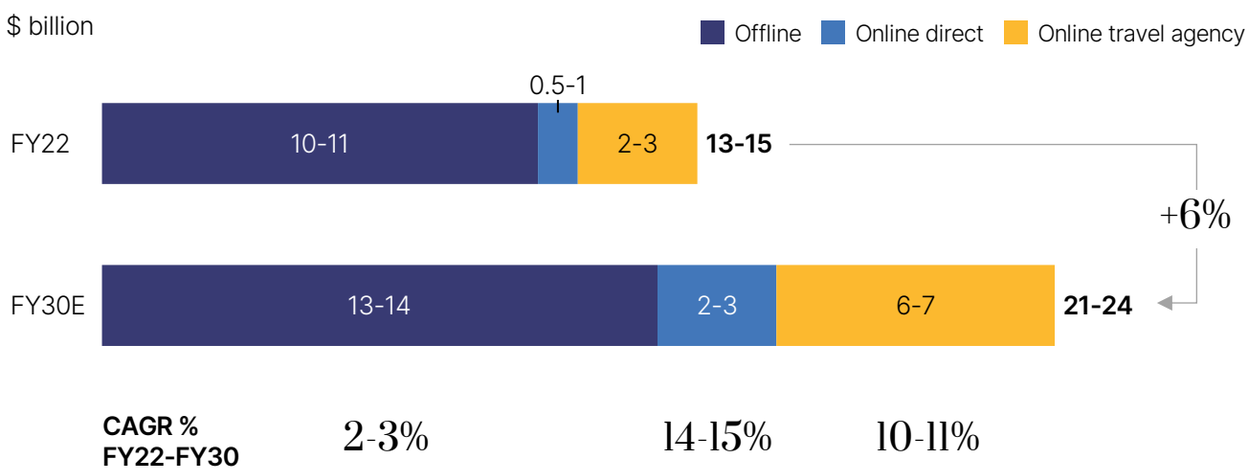
The hospitality sector has grown steadily over the past few years to a current value of $13 billion. With rapid expansion expected in the coming decade, the market could nearly double by FY30 with a CAGR of about 6 percent (Exhibit 44). Growth rates for online bookings (direct bookings and through online travel agencies or OTAs) are expected to outpace growth in offline channels. This growth could stem from multiple factors—such as the rising disposable incomes of middle-class and affluent consumers, improved air and road connectivity in tier-two cities and beyond, and the ease and attraction of domestic travel after the shocks to international travel from the COVID-19 pandemic.

However, digital commerce in the sector still has room for growth—penetration in the industry is just 25 to 30 percent in tier-one cities and a mere 8 to 10 percent in tier-two cities and beyond. These levels lag behind other major economies, including the United States (55 to 60 percent)[65] and China (35 to 40 percent).[66]

[65] U.S. Hotel & Lodging Market Report 2021 – 2025, Phocuswright, March 2022.
[66] China online accommodation market - Growth, trends, and forecasts (2023 - 2028), Mordor Intelligence

Exhibit 44

The hospitality market could nearly double by FY30 with a CAGR of about 6 percent.



Barriers to digital commerce and potential solutions from ONDC.

	Barriers to digital commerce	Potential use-cases
Hotels 	• Online travel agencies (OTAs) charge **commissions for small ticket sizes** and hotel transactions. • Smaller hotels find it difficult to get on board; they are **resistant to digitalisation and lack sufficient digital capabilities**, such as inventory management. • Homestays (especially offline ones) find it difficult to **build credibility** with travelers. • Hosts are also wary of giving their houses to strangers and there is also a **fear of damage to property.**	• ONDC could bring down commission charges due to **reduced marketing and customer acquisition costs** on buyer apps. • Hotels that list on a single seller app could **sell their rooms across buyer apps,** and no longer need to maintain inventory and price parity across platforms. • Homestays and consumers could gain credibility through a **positive feedback loop created through interoperable ratings** across seller apps and a higher volume of transactions (due to access of home stays to a wider market).
Customers 	• The frequent **mismatch between rooms displayed at booking versus the reality** erodes trust in online travel agents—this is the challenge of a non-standardised inventory (especially for home stays).	• **Access to ratings and reviews** on the back of a robust and interoperable reputation economy coupled with a high volume of ratings could make it easier to trust the online hospitality market.

ONDC could make it possible for consumers to find multiple solutions on the network, such as accessing all their vacation needs in one place (Exhibit 45).

Exhibit 45

New possibilities: ONDC could transform India's hospitality sector.

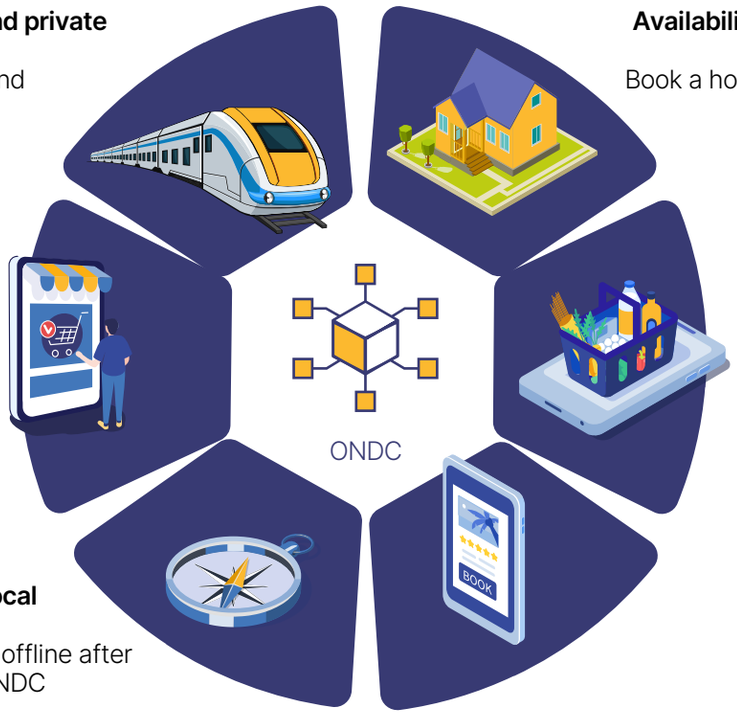
Illustrative

Madhumita, a Chennai resident, wants to visit Sikkim for a vacation. She uses a **buyer app** focused on enabling **vacations.**

Integration of public and private transport with ONDC
Book a train to Sikkim, and cabs for local commute

Availability of small homestay owners on ONDC
Book a homestay for two nights

Availability of financial services
Like BNPL to fund the vacation



Order food online
from regional eateries

Omnichannel play for local business owners
Buy souvenirs online, or offline after discovering shops on ONDC

Book tickets to a nearby museum

ONDC could connect multiple value chains, such as hospitality, mobility and online food delivery, to create an end to end ecosystem.

Three considerations to shape digital commerce in the hospitality sector

01

Improve UI/UX and grievance management

The disaggregated nature of the open network makes grievance management and dispute resolution more complex. Buyer apps will need a user interface and grievance management process at par with those of current OTA leaders to execute this use case. Third-party service providers could also build solutions using augmented and virtual reality to allow potential guests to preview properties in detail before booking, providing an enhanced level of transparency and confidence in their decision making.

02

Ensure fair visibility for all hotels and homestays

Buyer apps can create ranking algorithms for impartial visibility to all accommodation options based on customer preferences. Network participants can have transparency on how rankings work.

03

Establish comprehensive onboarding rules and accurately represent inventory

Seller apps will need to define a comprehensive set of onboarding rules for hosts while addressing potential safety concerns around the home-sharing model. To reduce listing discrepancies and build credibility among consumers, seller apps will need to accurately represent hotel rooms and homestays online.

These important details can make or break a vacation for customers, and attending to them could create a virtuous cycle of business in the hospitality ecosystem. The digital advantage could enable a transformed experience for all network participants and rapidly unlock growth for the sector.

4.8 Construction materials

In fiscal year 2022, the Indian construction and real estate market reached approximately $550 billion to $600 billion.[1] Central to the sector are vast numbers of SME contractors that remain underserved by a highly fragmented market by number of players; India currently has 300,000 construction SMEs, and the ten largest players control about 70 percent of the market.[2] Additionally, the limited number of at-scale players has created white space for SMEs to expand their operations. For these reasons, ONDC has the potential to unlock significant value for SMEs in the construction market.

[1] Crisil Report; EMIS reports on construction sector.
[2] Ibid.

Key challenges in the current ecosystem

The residential construction value chain comprises four key stakeholder groups—customers, architects, contractors, and manufacturers—each of whom faces a unique set of barriers to widespread digital adoption.

Customers struggle to find reliable builders and contractors due to their lack of trust in the quality and price of materials procured and the quality of work delivered by contractors. They must manage a multitude of stakeholders in the process and experience frequent project delays that lead to higher total costs.

Architects face challenges in growing their businesses due to limited discoverability (mostly word of mouth) and difficulty in establishing trust and credibility to potential customers.

Contractors serve as the linchpin in the current ecosystem. However, their margins are highly sensitive to procurement prices (saving about 2 percent leads to an increase in margins of 18 to 20 percent), and they frequently struggle to secure formal loans and credit, which can increase financing costs. Like architects, the growth of their business is often impeded by low discoverability (word of mouth) and the difficulty of gaining trust from prospective customers. In addition, they have limited ability to engage with and cross-sell to customers who have needs across product categories (such as tiles and sanitary ware). Finally, a lack of coordination among different stakeholders frequently leads to project delays.

How ONDC can unlock value for the sector

Four use cases illustrate how ONDC can address many existing pain points to drive digital adoption and boost the construction materials industry.

1. Sourcing: Discovery for online procurement

ONDC could also enable a large number of MSME manufacturers in this space to connect directly with buyers (Exhibit 46). Buyer apps could access key building materials and products across multiple brands through various seller apps. SKUs across a wide range of product categories could be catalogued in a standardised way, and contractors could achieve lower sourcing costs through demand aggregation that enables multiple product purchases from a single touchpoint.

2. Financing: Easy access to credit and loans

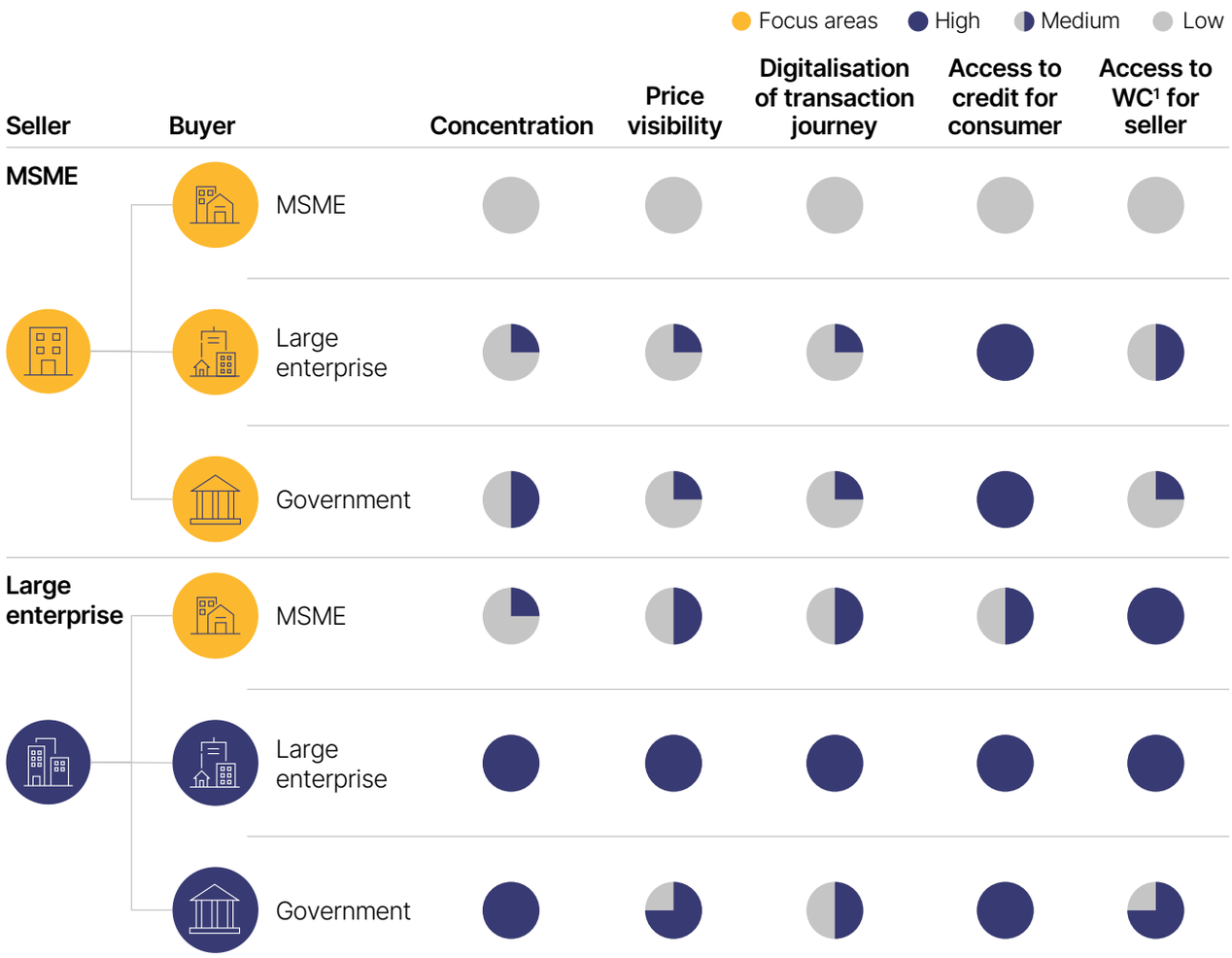
Contractors could qualify for financing at better-than-industry rates through partnerships with non-banking financial companies (NBFCs) and fintech players, which would benefit from a large, untapped customer base. Through ONDC, contractors could take advantage of innovative underwriting (for example, through milestone-based funding and improved transaction visibility). In addition, they can access companies that offer bill discounting, purchase order financing, and asset financing, which could fill working capital gaps and in turn could help them scale their businesses.

3. Logistics: Unbundling to improve distribution

Stakeholders across the value chain could take advantage of unbundled logistics on the network to improve the distribution and last-mile delivery for SMEs. For example, they could enhance supply chain efficiency by using logistics players to aggregate and service demand from multiple sources. Similarly, contractors could achieve better inventory management through expanded logistics networks to enable the shift from bulk to frequent purchasing. Such services could enable contractors to access a wider pool of customers and expand their operations beyond local and regional plays.

Exhibit 46

Amongst various B2B archetypes, transactions involving MSMEs stand to benefit the most from digitalisation.



[1] Facilities for working capital financing, such as bill discounting and purchase order financing.

4. Labour: Discovery of self-employed workers

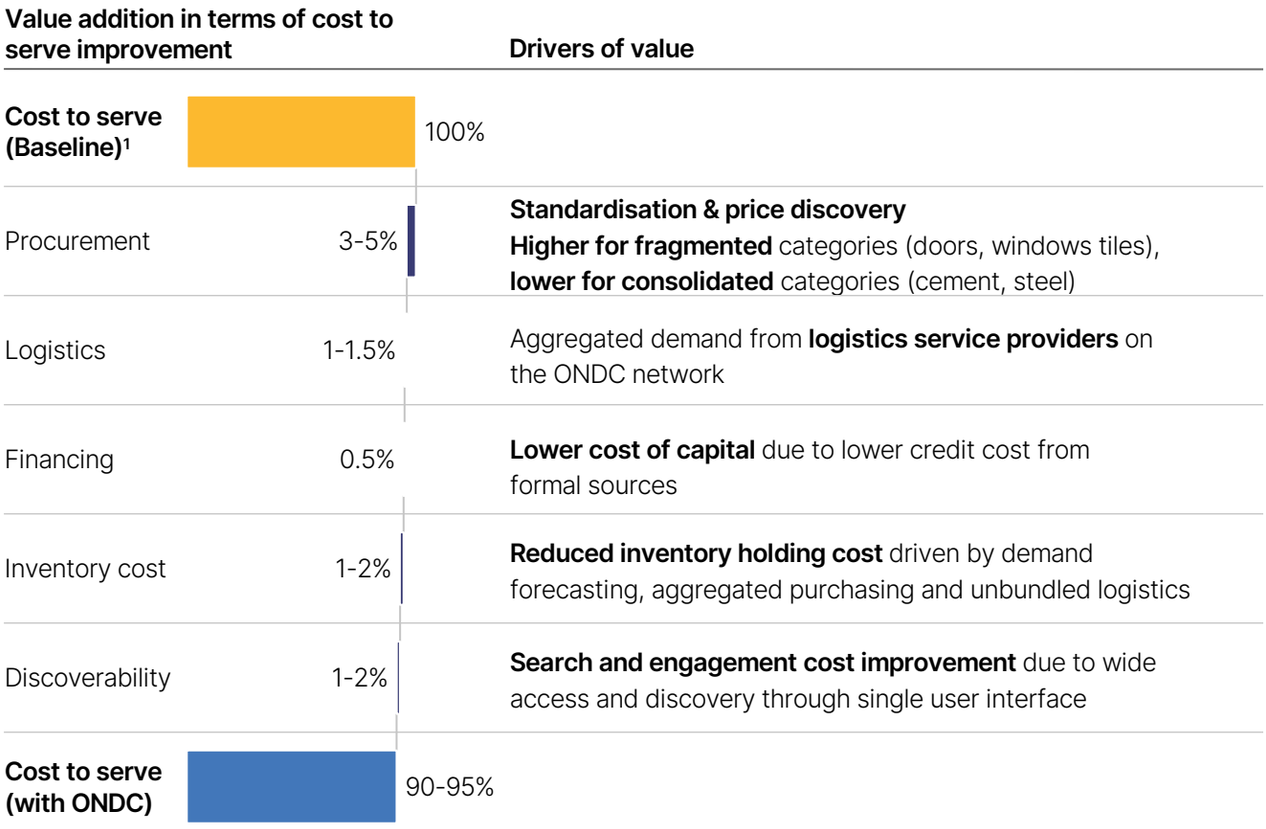
Today, the self-employed economy is characterised by high levels of fragmentation, low discoverability (driven by word of mouth), and low digitalisation. An online ecosystem could enable connections and discoverability among prospective customers, architects, contractors, and self-employed workers. To support this ecosystem, ONDC could facilitate third-party integration with a seller app that includes labour matching algorithms. And by providing certification and ratings across a federated network, ONDC could support broader discovery and increase the number of meaningful leads for professionals.

Potential impact on a typical contractor

As a result of these use cases, ONDC has the potential to reduce an SME's cost to serve by 5 to 10 percent (see Exhibit 47 for an illustrative example).

Exhibit 47

By overcoming inefficiencies, ONDC could reduce the cost to serve for small and medium-size enterprises by 5 to 10 percent.



[1] Indexed to 100%.

Challenges and considerations for successful adoption

ONDC and network participants will need to overcome specific challenges to drive adoption of high-priority use cases and unlock the full potential of ONDC in India's construction materials industry.

1. Sourcing: Discovery for online procurement

Today, some 60 to 70 percent of business on potential seller apps is conducted through offline channels. More than 90 percent of MSMEs lack the robust IT systems and productivity tools they need for digital commerce. Furthermore, many B2B buyers are looking for high-ticket items with customised pricing and product specifications, which can result in quality assurance issues when products are procured through digital channels.

ONDC and network participants can alleviate these concerns in several ways. Buyer apps can redirect their people and resources from offline to online customer acquisition, for example, by providing online purchase incentives. Seller apps can help MSMEs digitise their inventory by offering cataloguing services. Meanwhile, technology service providers on the network can improve quality assurance—for example, by implementing a pan-network scoring and badging system.

2. Credit: Easy access to credit and loans

Financial institutions face a cold-start problem in providing formal access to credit. A majority of MSMEs still conduct their sales offline, so they have limited operational data to secure credit. Workarounds such as collateral-free lending could be difficult to scale due to collection issues, especially for underserved MSME-to-MSME sales channels.

To address these challenges, ONDC can onboard third-party fintech companies that can provide credit based on alternative data sources—for example, execution-based funding, analysis of utility bills, and social media. Network participants can also digitalise credit processes (such as e-know your customer and e-signatures) to widen MSME adoption.

3. Labour: Discovery of self-employed workers

Two forces currently limit the broader use of self-employed in the construction industry. First, customers find it difficult to trust prospective workers because there is no way to verify their professional qualifications and capabilities. Second, the current industry is highly relationship-driven, with exclusive networks of contractors.

Several actions can help build trust among self-employed workers and customers. Buyer apps, which may struggle to generate demand, can partner with large builders and contractors in need of such workers to scale adoption. Seller apps can build platforms to enable accurate search with verification of qualifications and capabilities of professionals. ONDC can provide certification and ratings systems on a federated network to help workers establish their credibility with prospective customers.

4.9 Agriculture

India has a large and growing agricultural sector. The second-largest agriculture producer in the world after China, India is the world's largest producer of milk, mangoes, bananas, papayas, and pulses.[1] In fiscal year 2022, the sector had a total market size (across inputs and outputs) of about $500 billion. Agricultural outputs (predominantly crops and livestock) account for more than 90 percent of the total market, while agricultural inputs (including fertilisers, agro-chemicals, seeds, and other farm mechanisation inputs) make up the rest.[2]

[1] *India's century: Achieving sustainable, inclusive growth,* FICCI and McKinsey, December 2022.
[2] Agricultural statistics at a glance 2021, Government of India, May 17, 2022.

Key challenges across the value chain

Despite the industry's size, value chains are highly fragmented and inefficient, with minimal digital penetration. Value chain structures and stakeholder margins vary significantly among crops and types of produce across both input and output value chains, reflecting a lack of standardisation across the sector (Exhibit 48). Moreover, the large number of intermediaries—aggregators, distributors, mandis, agents, and retailers—adds to inefficiencies and reduces productivity for farmers, a cost that often gets passed on to consumers in the form of higher prices.

Confronted with these challenges, India's vast population of farmers experiences pain points and barriers to digital adoption across every stage of the farming cycle—from financing and risk mitigation to sowing and planting, harvesting, and selling their products. All these barriers are exacerbated and underpinned by a scarcity of trust among farmers and a highly localised environment that impedes digital adoption at scale.

Financing and risk mitigation

Without access to formal credit, many of India's farmers rely on informal loans from local money lenders or retailers, with interest rates that can be up to ten percentage points higher than those associated with formal credit.[67] The lack of transparency and effective collection mechanisms makes it difficult for banks to expand formal credit through digital channels. Long gestation periods exacerbate the cost of credit, as farmers must wait until after harvest to pay back the loans that they took out before planting. Furthermore, many Indian farmers do not have any type of crop insurance, making them particularly vulnerable to bad harvests and unforeseen weather events.

Planning, planting, and in-season care

Farmers often have limited access to the information, commodities, and inputs that they need to optimise production. Many do not have critical information about weather forecasts or knowledge of which tools or fertilisers to use. Access to essential commodities and equipment, such as hybrid seeds and tractors for rent, remains limited. Meanwhile, long and complex legal processes impede the expansion of agricultural input retail outlets (for example, it can take dozens of permissions to set up an organised rural retail outlet). Farmers continue to rely on physical demonstrations and touch-and-feel assurance when purchasing inputs, which creates an additional barrier to digital adoption.

Harvesting

Even though India is one of the largest agricultural producers in the world, its farm mechanisation rate is below 40 percent—well short of the United States (95 percent), Brazil (75 percent), and China (57 percent).[68] The lack of cold-chain logistics and facilities also creates inefficiencies in the supply chain: up to 40 percent of farm produce is wasted before food ever reaches the customer.[69]

Selling

When it comes to selling their products, farmers struggle with low price visibility, low margins, and low bargaining power in hyperlocal markets. They often lack accurate and up-to-date information on prices in other markets. Most produce is sold through multiple parties and intermediaries, which means farmers may earn significantly less than the retail price of their crops. As a result of geographic restrictions, farmers often have no choice but to sell at their local mandi, which in turn further diminishes their bargaining power. Moreover, the lack of an effective quality assurance mechanism and complex legal frameworks that vary across states and districts make it difficult to digitalise the transport and sale of goods.

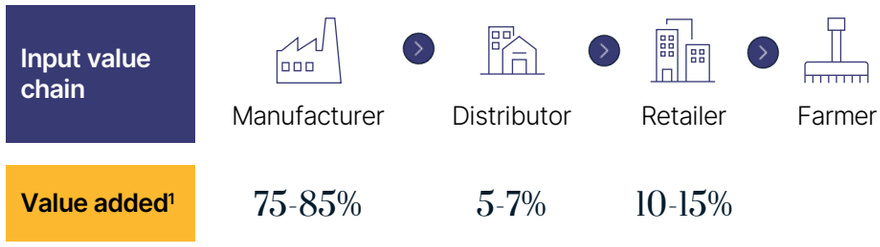
[67] *India's century: Achieving sustainable, inclusive growth,* a joint report from the Federation of Indian Chambers of Commerce & Industry (FICCI) and McKinsey, December 2022.
[68] Rituraj Tiwari, "Focus on farm mechanization to cope up with increasing food demand," *Economic Times*, January 31, 2020.
[69] *Achieving sustainable, inclusive growth*, December 2022.

Exhibit 48

A highly fragmented value chain poses challenges, with minimal digital penetration.

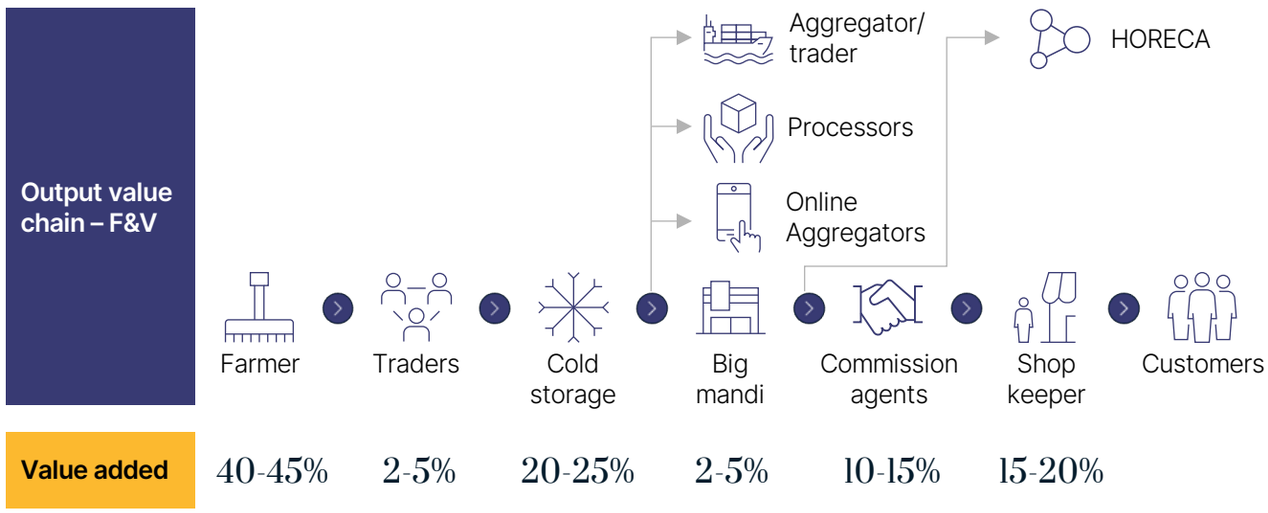
Value chains and margins vary between different inputs and outputs

Use case: Agro-chemicals



Use case: Non-basmati rice

Use case: potato



[1] % realisation of final retail price.

How ONDC can unlock value for the sector

While existing platforms have made progress toward alleviating these pain points, they have not yet built the scale to provide an end-to-end digital offering for farmers and customers. To enable value creation, interventions must address farmers' pain points and allow them to improve productivity. This would create economic surplus that can then be distributed across the value chain. By cutting across current platform archetypes, ONDC has the potential to enable solutions to many of these challenges at scale and transform the value chain across the entire industry.

Four use cases illustrate how ONDC can accelerate digital adoption and unlock value across India's agricultural sector:

1. Accelerate direct-to-farmer commerce

ONDC could enable direct linkages between farmers and other stakeholders across both agricultural input and output value chains. On the input side, farmers could purchase directly from manufacturers—potentially resulting in higher margins for manufacturers and enabling farmers to make more informed product choices, which could lead to improved yields and better on-field outcomes. On the output side, farmers could sell directly to large businesses, retailers, and individual consumers—which would minimise wastage, reduce touchpoints in the value chain, and improve farmer profits. ONDC could also bring together multiple platforms that operate in niche areas, widening the farmer base and the potential market for sellers. By digitalising the certification and licensing process, ONDC could make it easier for retailers to secure authorisation and tap into the open network.

2. Improve transparency, traceability, and efficiency

By increasing the transparency and reach of the market, ONDC could enable better price discovery, more efficient logistics, and a higher degree of traceability across the value chain:

- **Price discovery.** The open market could allow farmers to gain price visibility across multiple seller apps and choose the most affordable inputs. Similarly, consumers and retailers could gain price transparency among sellers without solely relying on mandi pricing.
- **Logistics efficiencies.** ONDC could create efficiencies and prevent waste by facilitating the discovery of cold-chain infrastructure and on-demand logistics providers. Sellers could extend their geographic reach by accessing a wider range of distribution partners and options for hyperlocal delivery in underserved markets.
- **Traceability.** The open network could improve product traceability by enabling end-to-end tracking of produce from farms in the case of exports.

3. Accelerate better access to formal credit

ONDC could help bridge the formal credit gap by improving farmers' access to credit, innovating new financing structures, and digitalising credit functions. Through the open network, farmers could discover multiple formal credit sources from both banks and NBFCs with fewer geographic constraints, instead of relying on retailers for informal credit. ONDC could spur innovative financing structures—including operations-based funding, credit issued against transaction history on the network, and credit based on nonconventional markers (such as PM Kisan credit, subsidy flows, and crop insurance debit). Integrations with existing solutions (such as Agristack) can also leverage farmer data to inform credit decisioning. Moreover, ONDC could help digitalise and simplify the credit journey for customers by eliminating the need for bank branch visits and streamlining documentation requirements.

4. Improve on-farm efficiency

Bringing farmers into the digital commerce marketplace could increase their access to better advisory and forecasting tools. With more access to information and more opportunities to connect with market players (such as agtech start-ups), farmers could access personalised crop advice and incorporate the latest tools and techniques to increase yields, reduce input costs, boost productivity, and improve sustainability. Through the ONDC network, farmers could also gain access to better demand forecasting, weather forecasting, and pest attack forecasting. With these, farmers would be able to optimise their input requirements; improve the timing of their irrigation, fertiliser, and pesticide purchases; and minimise the loss of crops due to pest attacks.

Potential impact on a typical farmer

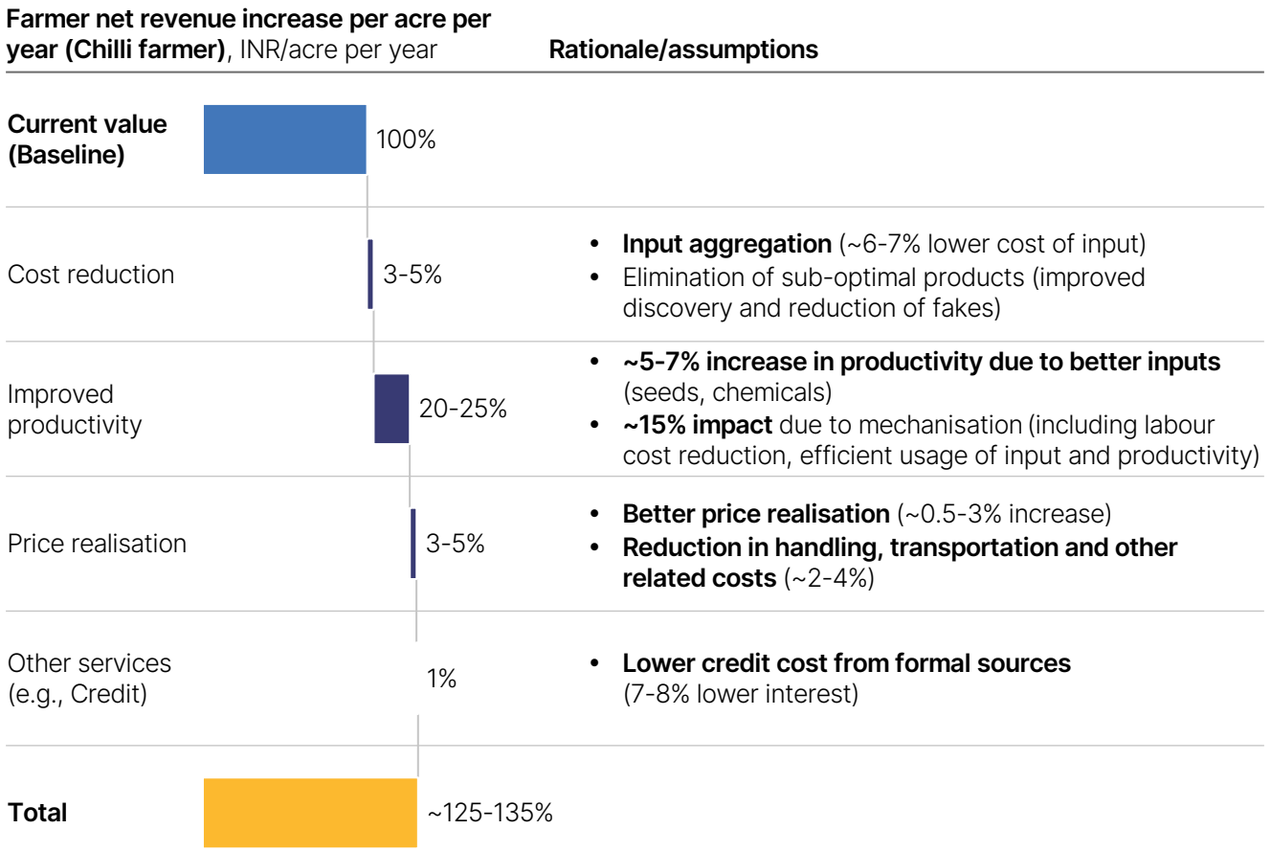
As a result of the four use cases described above, ONDC could increase a farmer's net income by 25 to 35 percent (see Exhibit 49 for an illustrative example). This additional revenue is derived from four distinct levers—cost reductions, improved productivity, price realisation, and other services.

Challenges and considerations for successful adoption

ONDC and network participants will need to address user behaviour and ecosystem challenges to drive adoption and transform India's agricultural sector. The critical challenges and considerations to successfully implement each of the four use cases are as follows:

Exhibit 49

ONDC could increase a farmer's net income by 25 to 35 percent.



Source: Farmer survey, deep structured farmer interviews, interviews with agronomists, traders, retailers, off-takers, press search

1. Accelerate direct-to-farmer commerce

ONDC participants will need to overcome low digital adoption among farmers and build trust in the digital ecosystem. Existing informal networks have a low cost of doing business; digitalising direct linkages may prove to be expensive. Furthermore, ONDC may face pushback from stakeholders within the existing value chain.

To overcome these challenges, buyer and seller apps will need to invest in education and incentives for digital adoption. Seller apps can partner with farmer producer organisations (FPOs) to onboard farmers to the network, while buyer apps can onboard modern retailers and consumers who are willing to purchase directly. Third parties can set benchmarks and standardise parameters for quality assurance. Meanwhile, government intervention can help streamline statewide licensing processes and enable pan-India transactions through the network.

2. Improve transparency, traceability, and efficiency across the value chain

Today, buyers and sellers face limited options and low discoverability for key infrastructure (such as cold-chain logistics). Additionally, most inputs are purchased on demand in response to an immediate need, and farmers may be unwilling to wait multiple days for delivery, even if it is more cost effective.

Local players can help fill in the gaps by setting up hyperlocal logistics networks, while seller apps and third parties can provide services that enable the end-to-end tracking of produce across the value chain. Additionally, the integration of advisory services with ONDC can help farmers optimise their planning and smooth demand for inputs.

3. Provide access to formal credit

Many farmers rely on informal lending channels that have been built through relationships and trust. In the shift from informal to formal credit, underwriting challenges may persist as farmers find it difficult to access and establish their credit history. The lack of collections facilities and infrastructure makes it more difficult for financial institutions to expand formal credit access.

Buyer and seller apps both have a role to play. Buyer apps can invest in embedded financing for inputs and educate farmers on the adoption of formal credit. Seller apps can invest in the human resources and capabilities to enable collections.

4. Improve on-farm efficiency

While new tools and techniques can help farmers improve efficiency, farmers will need some initial support and examples to understand why and how to change their farming practices. Personalised advisory services are difficult to scale (as they require access to data including location and agro-climatic conditions) and difficult to monetise (because most of the economic value is indirectly generated through inputs and outputs sold on the back of advisory). Additionally, best-in-class research is currently neither digitalised nor centralised.

The government can take the lead on digitalising the latest precision farming research and providing access to all stakeholders. Advisory service providers can engage in partnerships (for example, with input players on the network) to cross-sell and monetise their services. Finally, platforms can contribute by developing local language interfaces and feet-on-street tactics to boost adoption among farmers.

4.10

Financial services

The face of financial services in India has transformed. In a paradigm shift from queuing at the bank branch and counting out cash at points of sale, Indians today are banking with ease without leaving home and scanning to pay their way through their daily transactions—notching up the highest digital payment volumes globally. ONDC could take financial services deeper into the ecosystem, delivering credit and insurance to the stakeholders who sorely need it, powering seller growth and boosting investments. The open network could connect more than a billion consumers seeking financial services and 100 million MSMEs and self-employed skilled workers eager to scale up their operations, customer base, and offerings.

The landscape

Continuously evolving, the financial-services sector is reaching unprecedented scale (Exhibit 50). The map of India is dotted with a vast network of more than 150,000 bank branches representing more than 130 banks, and around 8,000 NBFCs. While just over a third of Indians had bank accounts in 2011, around 80 percent of the population is banked today. In just three years, the number of demat account holders has tripled to 100 million. Insurance premiums have reached an all-time high of $115 billion, and 40 asset management firms support India's investors in managing their portfolios.

India is also home to around 2,000 fintech companies that are constantly innovating to cater to the dynamic needs of a modern India.[70]

In recent years, two major transformations have changed the financial-services landscape in India. First, the push to open bank accounts for every single Indian through the Jan-Dhan Yojana has boosted account penetration like never before. In just a decade, India's account penetration rose from around 35 percent in 2011 to about 80 percent in 2021 (Exhibit 51).[71]

[70] https://www.ceicdata.com/en/indicator/india/total-deposits; https://www.investindia.gov.in/sector/bfsi-banking; Global Findex Database; ACI Worldwide.
[71] Global Findex Database.

Exhibit 50

Landscape of financial services in India.

India is among the top countries globally on key aspects of financial services

~80%

Bank account penetration (age 15+), from 35% in 2011

1st

Rank in volume of real-time transactions globally, 3x more than the nearest challenger (China)

5th

largest insurance market globally with $115 bn annual premiums

3x

growth in past 24 months in number of demat accounts totaling to 100 mn+

5th

largest equity market and expected to become 4th by 2024

In last 10 years,

Total deposits have grown ~1.8x from $1.2 tn to $2.2 tn (9% CAGR)

Loans have grown ~2x from $0.8 tn to $1.6 tn (10% CAGR)

...supported by

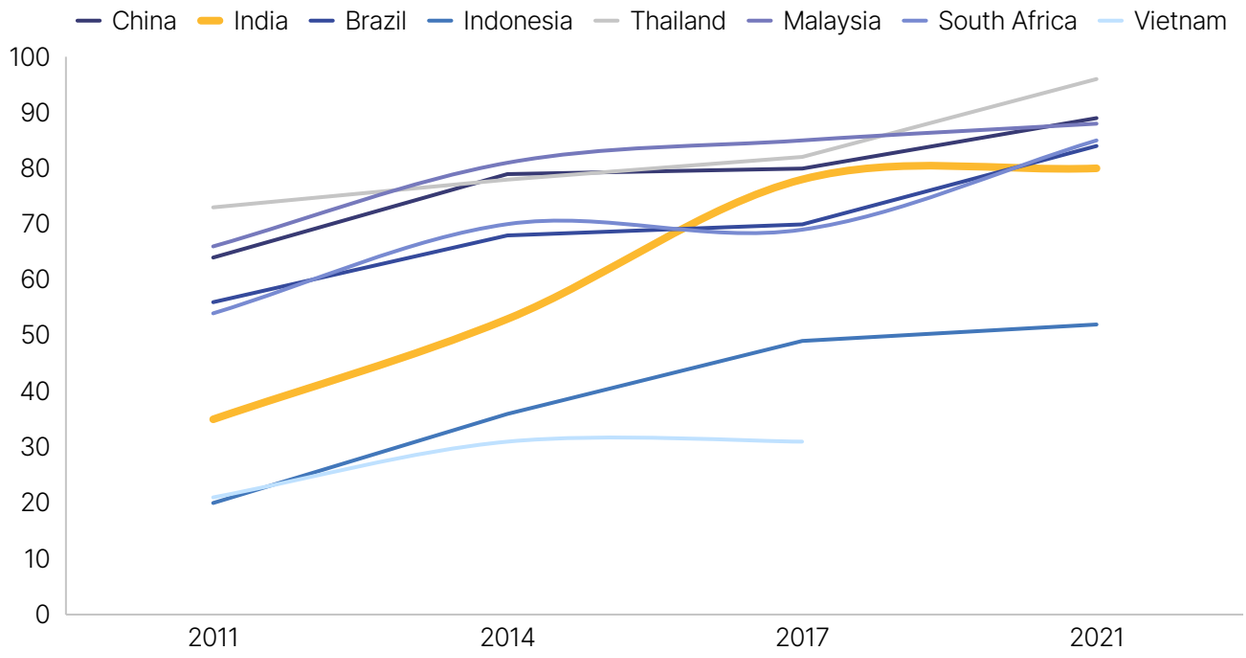
130+	1.5 lakh+	2.1 lakh+	55+	40+	10k+
Banks	Bank branches	ATMs	Insurance companies	Asset management companies	NBFCs and fintech players

Source: https://www.ceicdata.com/en/indicator/india/total-deposits; https://www.investindia.gov.in/sector/bfsi-banking; Global Findex Database; ACI Worldwide

Exhibit 51

Account penetration in India has doubled in the past ten years, from 35 percent in 2011 to about 80 percent in 2021.

% of adults (15+) with bank accounts



Source: Global Findex Database

Second, India has established itself as a prominent global player in financial services. The launch of digital payment infrastructure (DPI) such as Aadhaar, e-KYC, and Unified Payments Interface (UPI), along with extensive efforts by public and private institutions, has greatly increased access to banking services. Today, India boasts the world's highest volume of digital real-time payments. There is an S-curve of rapidly growing adoption as a critical mass of users scale up, spurred by a shift from physical banking (characterised by customer walk-ins and face-to-face interactions) to digital channels (branchless banking made possible by modern, contactless technologies).

Room for greater growth

While this rapid evolution is heartening and transformative, scope remains for greater growth across major financial products.

Credit lending

A glaring lending gap dominates in both the retail lending and MSME segments in India (Exhibit 52). Household debt is a mere 14 percent of GDP, compared with a global average of about 60 percent. Of India's roughly 400 million to 440 million eligible retail-lending customers, only 25 to 30 percent have received credit from formal lenders. The remaining 70 to 75 percent face a range of challenges:

— Patchy or insufficient documentation makes it difficult to comply with the "know your customer" (KYC) norms that stand between the applicant and the loan.

— Around 60 to 65 percent of customers are not part of the credit bureau, so there is a dearth of reporting on their creditworthiness.[72] As a result, such loan seekers turn to high-interest informal loans instead of formal credit.

— While innovative lending products exist, they are not easily discoverable online. Their value proposition helps no one if there is no uptake.

— Credit options at the point of sale are available only through select digital channels for a small subset of retail consumers.

Like retail borrowers, small-business owners face a host of issues when seeking loans:

— They may be unable to furnish audited financial statements and have limited banking history or statements that can help the credit issuers to make an informed decision.

— They have limited documented collateral to provide in support of their application.

— The lengthy application process requires multiple bank visits, taking away from their productive working hours.

— The repayment cycle of 30 days is not in sync with the cash flow pattern of receipts coming in every 45 days.

These challenges have led to an MSME lending gap of $300 billion. At least 60 percent of India's 100 million MSMEs (including kiranas) are unable to access formal credit because of the barriers to financing.[73]

Insurance products

Digital penetration in India's insurance industry is low, at less than 5 percent of the population; by comparison, digital penetration in the United States is 14 percent. Even in non-life categories, the digital share is 5 to 6 percent in India and 19 percent in the United Kingdom.[74] This is due to various factors. For example, awareness of benefits is low, and complex products are insufficiently explained online, which deters potential buyers who might be looking to understand a product.

Traditional products exist, but there is a need to innovate to offer more tailored insurance products—for example, health policies that cover preexisting diseases common among Indians, such as heart disease. And finally, the insurance purchase and claim filing process is not standardised.

Mutual funds and investment products

Indian consumers have raced to put their funds in investment products in the past six years—and assets under management (AUM) across fintech players have grown 10x to $5 billion. During this period, the emergence of discount brokerage players has promoted a 4x increase in the number of demat accounts—from around 25 million in 2016 to more than 100 million in August 2022. Digital platforms now account for 8 to 10 percent of AUM across direct and indirect channels in India.[75] This leaves scope for greater growth, especially compared to other economies where digital platforms manage higher percent of AUM.

Several challenges restrict digital penetration. Consumers have limited awareness and financial literacy about investment products, online platforms, and regulations. They are in the habit of building trust through in-person interactions with investment counsellors, and online transactions raise lingering fears of malpractice or fraud.

Overcoming these challenges for deeper digital adoption across financial products is crucial for a more robust and flourishing financial-services ecosystem.

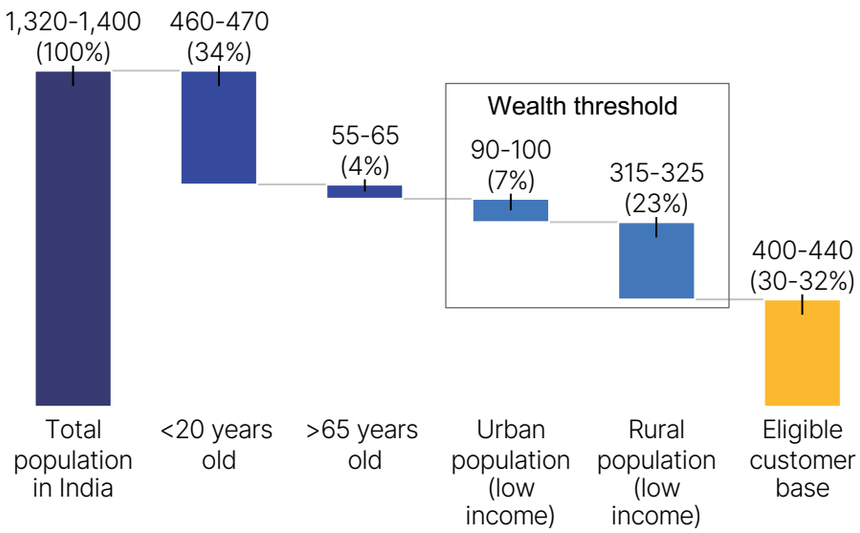
[72] Empowering Credit Inclusion 2022 by TransUnion.
[73] Ibid.
[74] IRDAI.
[75] NSDL, CDL.

Exhibit 52

India has a significant lending gap across the retail and MSME segments.

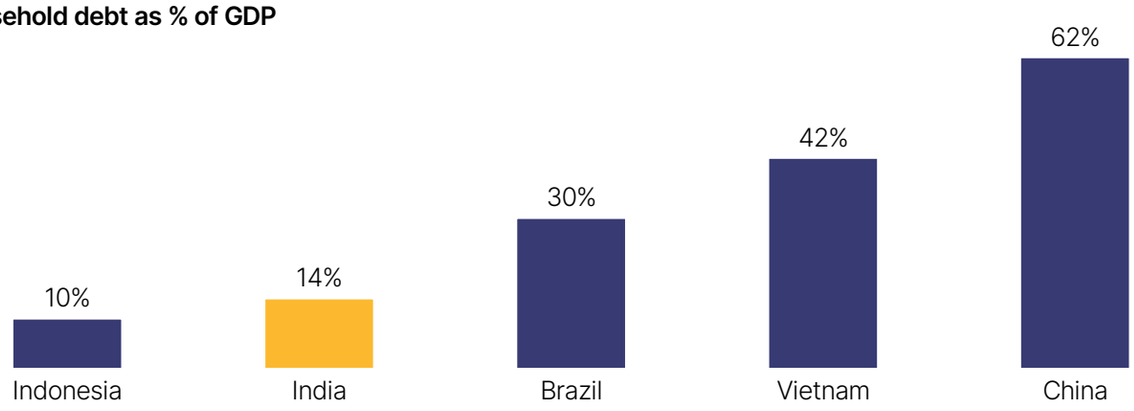
Retail credit gap in India

Out of total 400-440 mn eligible people, only 120 mn are covered by formal lenders, i.e., approximately 25-30% of base is covered



Active loans, mn	
Credit card	71
Personal loan	58
Consumer durable	41
2-wheeler	22
Business Loan	12
Total base	**120-140**

Household debt as % of GDP



MSME lending gap in India

$ billion

Source: National Commission July 2020, UN Population Prospects, Periodic Labor Force Survey FY21, CEIC,RBI

The role of ONDC in accelerating digital adoption

India's digital economy has seen several inflection points over the past few years (Exhibit 53). Aadhaar enrolments grew from 600 million in 2014 to 1.3 billion in 2022, the percentage of Indians age 15 and older with a bank account more than doubled, and digital transactions grew sevenfold over the past five years.

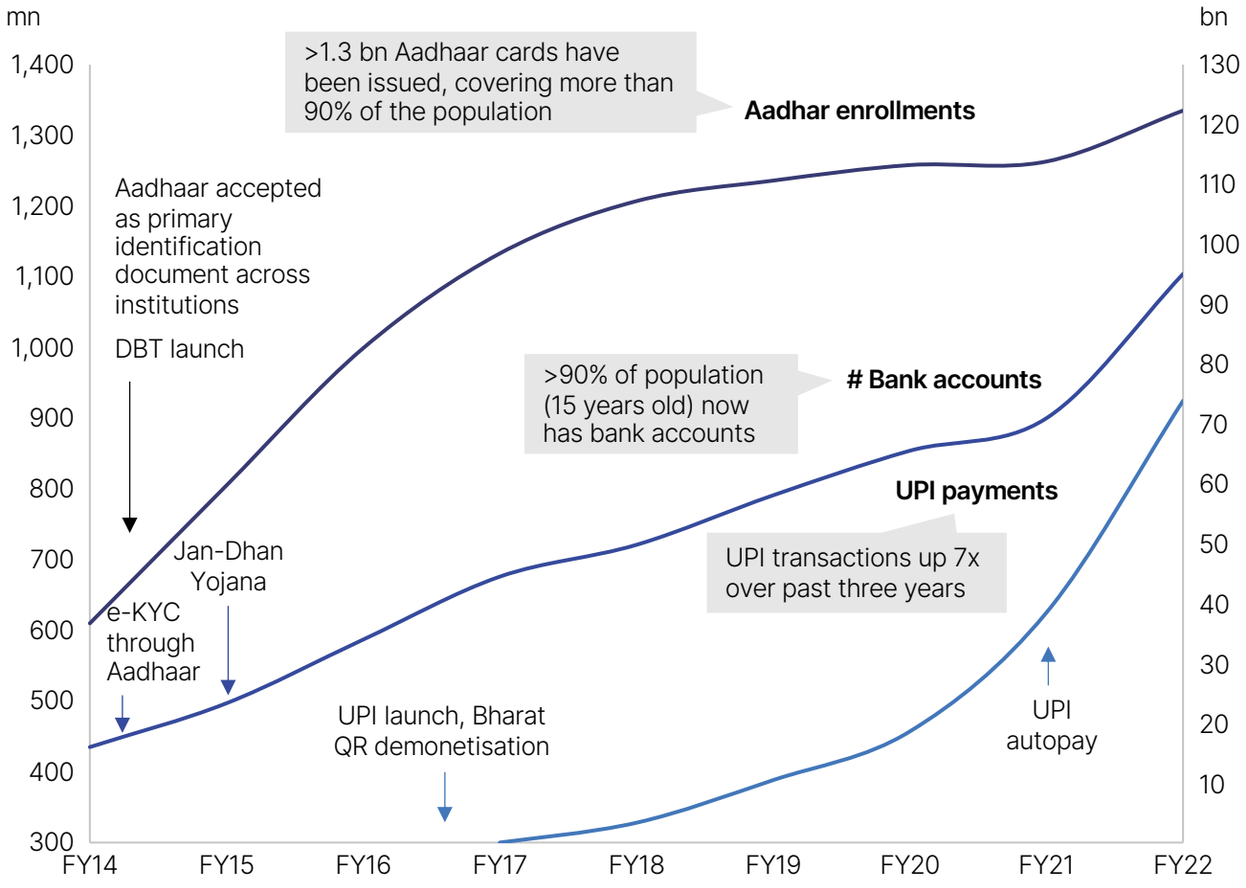
In addition to these developments, India's comprehensive digital public infrastructure forms a strong backbone for financial services to grow exponentially, with the rollout of DPIs, e.g., account aggregators (AAs) at scale. Add to this the ONDC muscle that is poised to eliminate barriers to digital commerce for stakeholders, and financial services could be at an inflection point in India (Exhibit 54). The network could connect financial institutions with more than one billion consumers and 90-100 million MSMEs, benefitting them all in the following ways:

Meeting credit needs of MSMEs

With the expansive open data on the network, financial institutions could more smoothly extend credit to underserved small businesses and that could drive significant growth in MSME lending (Exhibit 55).

Exhibit 53

India has seen several inflection points in the last few years..

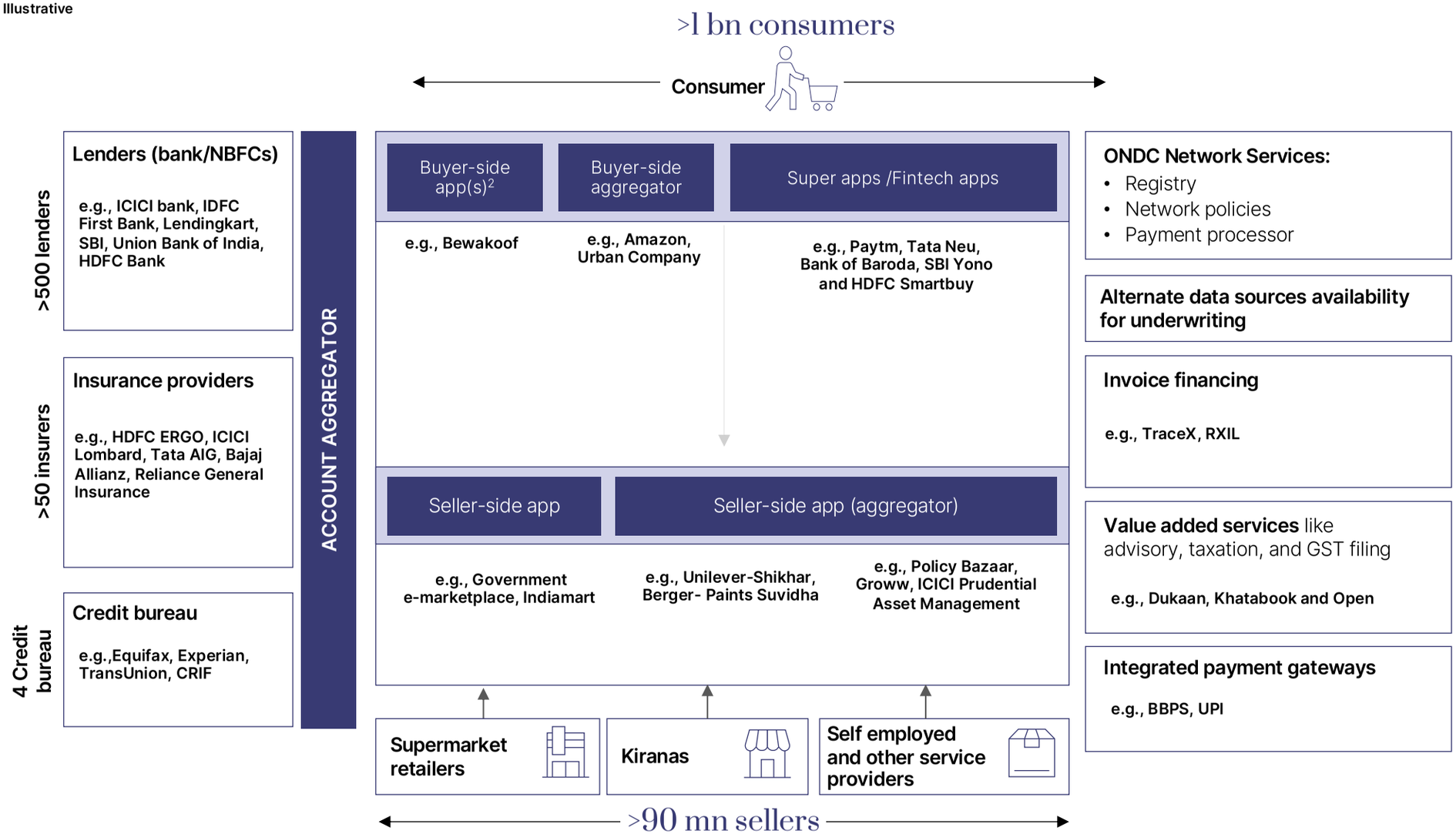


Source: IBEF, CLSA, UIDAI, RBI, NPCI

Exhibit 54

ONDC can unlock key areas of growth in financial services with implementation of targeted use cases.

Illustrative



[1] Buyer-side apps interact with seller apps via gateways.

Exhibit 55

New possibilities: ONDC can unlock credit access for small businesses.

Illustrative

Sai owns a medium-sized fleet of trucks, and his business has an annual turnover of INR 5 crore. He can more easily request a loan through the open network, a big shift from the earlier complex processes that denied him funding.

Key financing needs

Fleet expansion

Purchasing additional vehicles and hiring new operators to grow business

Technological investment

GPS, communications systems, fleet upgrade (collision avoidance systems etc.)

Working capital

To meet operating expenses, e.g.,

- Tyre replacement at ~1 lakh km/ 1 yr, mark
- Other consumables (e.g., lubes, oil) to be replaced every 6 months
- Annual insurance payment
- Trip fuel and toll costs

Emergency spends

Ad-hoc expenses like vehicle overhaul in case of accidents, sudden drop in demand/ revenue etc.

The power of AA and ONDC network

High discoverability through embedded credit at POS and easy access to leading lenders registered on open credit enabled networks

Formal credit will provide **access to multiple lenders with competitive product pricing**

Granular products tailored to needs and preferences of MSMEs, e.g., invoice financing, short term insurances, etc.

Enables 'more' fluid access to data from other banks/lenders, alternate sources like transaction data, GST data leading to better underwriting

Greater visibility enabled via LSPs and credit monitoring through AA

Significantly lower TAT due to availability of verifiable documents through once click

Recurring repayments through UPI/NACH: capture **end to end needs across business cycles** through supply chain financing

EWS/credit monitoring through AA (cash flows) and seller side app on ONDC (orders)

Focus on core capability around superior product building and buyer app to focus on UI and customer experience

The integration of ONDC with multiple platforms—such as Government e-Marketplace (GeM), Sahay, Trade Receivables Discount System (TreDS), and Receivables Exchange of India Ltd (RXIL)—could enable the relevant data flow to process supply chain and invoicing finance loans (Exhibit 56). Underlying this is a complex, enabling layer from ONDC that integrates data from the Income Tax Department, GST, Credit Bureau, and Supplier Banking Data from AA, along with ONDC's supplier scores.

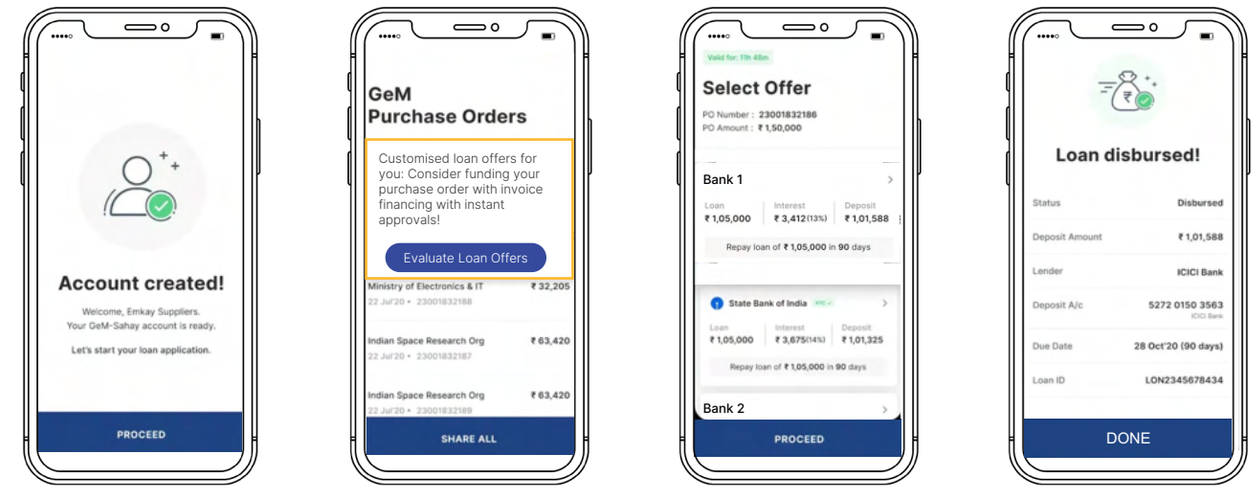
MSMEs could get unsecured business loans to support their expansion plans (for example, for a restaurant owner to upgrade operations) as well as working-capital lines. Suppliers could benefit from embedded insurance products to safeguard their goods during shipping and export. Financial institutions might also provide MSMEs with other value-added services such as tax filing, advisory services, personal financing, and legal counsel—on their own or through ONDC network partners.

Exhibit 56

New possibilities: Invoice financing loan enablement for sellers on ONDC.

Seller's journey for obtaining invoice financing

Illustrative



1. Seller signs up on the seller app and declares various identity and license-based, verifiable tokens in the process (e.g., GST, Permanent Account Number, Udyog Aadhaar)
2. Seller app nudges seller to explore invoice financing
   Customised offer based on PO details shared and consent-based data across below- mentioned data sources pulled from AA
3. Seller receives offers from multiple credit providers and selects offer
4. Seller sets up repayment method
5. Seller accepts loan terms and conditions
6. Loan is disbursed immediately and no KYC is needed

Data sources (secured and leveraged based on consent)

Tax data
Income Tax Return

GST data
Filings, historical statements, etc.

Credit bureau
Financials and transaction data

Supplier data
Payment and transaction data of suppliers

Supplier score enabled by ONDC
Overall supplier score based on customer and fulfillment ratings

Supplier banking data enabled by Sahamati
Accounts data, outstanding loans, etc.

An attractive customer value proposition

With ONDC, buyer apps could offer an array of financial services, from travel insurance to payment financing options (Exhibit 57). Ease of use, faster access to credit, and a memorable customer experience could grow **consumer financing significantly** from its current market size ($3 billion)**.**

Buyers making online purchases could receive financing options at checkout as a payment option, along with an explanation of benefits and terms. If they express willingness, they could also see customised offers (based on the buyer profile) for credit and insurance products, giving them greater choice across multiple lenders, rates, and discounts. They also would enjoy an attractive user interface and high-quality customer service.

Seller apps (in this case, financial-services providers) could focus on improved products and underwriting processes to extend credit and insurance products to a broader set of consumers.

A dynamic, expanding suite of financial-services products

ONDC envisions an open, inclusive, and competitive marketplace that could provide new opportunities for banks and financial institutions to connect with customers. NBFCs and niche fintechs (such as monoline lenders that focus on a specific type of credit) could tailor their offerings to targeted use cases using the open network data.

An NBFC or fintech company, for example, could partner with fintech companies on the network to expand its offerings (Exhibit 58). It could choose to collaborate with a personal finance manager to stretch to a fuller suite of financial services offerings for a wider customer base.

In these ways, an open network such as ONDC could create multiple use cases that promote digital commerce and embed it in financial services.

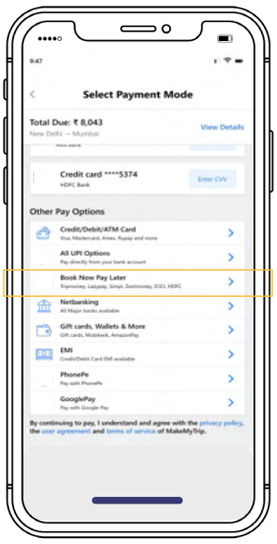
Exhibit 57

New possibilities: Buyer apps can provide an array of financial services, including travel protection and financing solutions, to enhance the customer experience.

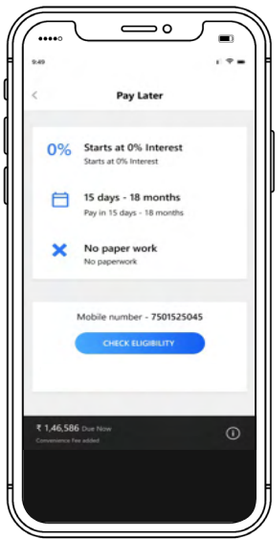
Illustrative

Consumer financing

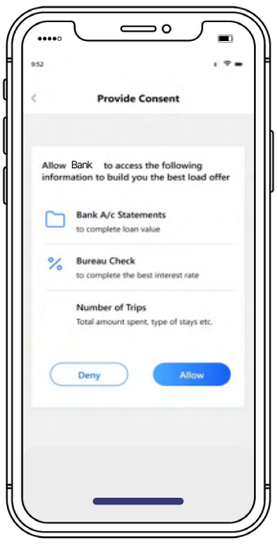
Checkout financing available as a payment option



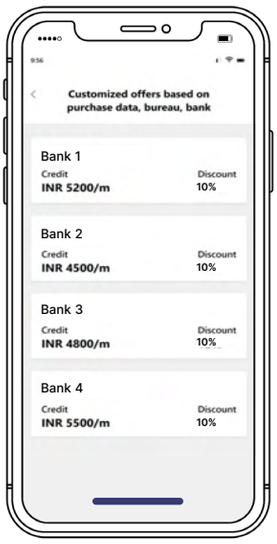
Explanation of benefits of consumer financing



Seeking consent to show customised offers

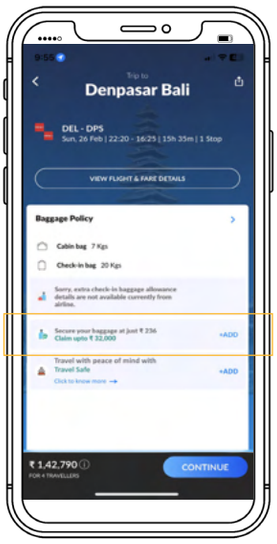


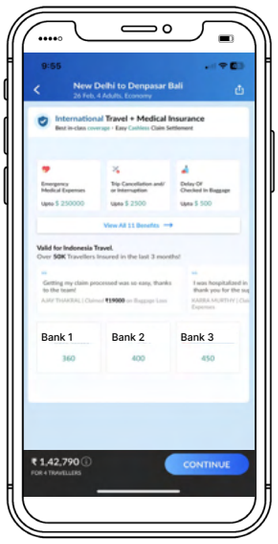
Customised offers based on the buyer profile



Embedded insurance

While booking flight on the buyer app, customers can also get travel insurance from multiple providers, depending on profile





With the availability of gateway and standardised protocols from ONDC, the buyer app can focus on User Interface(UI) and provide best-in-class customer service.

Seller apps (in this case, financial service players) can focus on offering a better product proposition, ensuring ease of underwriting to provide credit to maximum consumers

Data sources (secured and leveraged based on consent)

Credit bureau
Financials and transaction data

Supplier banking data by Sahamati
Account data, outstanding loans, etc.

Customer score
Buyer app enabled customer score based on returns and platform engagement

Exhibit 58

New possibilities : NBFCs and fintechs with a focus on specific use cases can expand offerings in financial services to drive higher engagement and monetisation.

Illustrative

Existing offering by a leading NBFC/ Fintech player

Buy new gold loan
Low interest gold loans at home

Shift existing gold loan

Safety
Gold safely stored at partner banks branches near home

100% Insurance on gold loan

Convenience
Hassle free online repayments

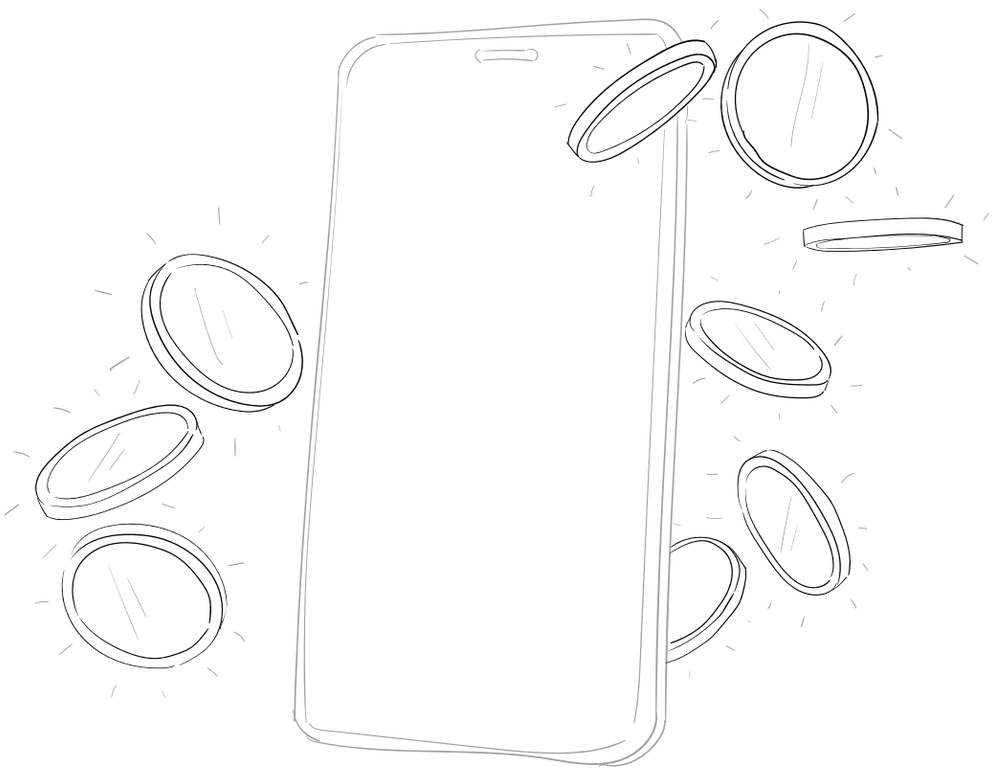
ONDC enabled partners to expand full suite of offerings

Product

Personal finance manager
(e.g., spend analyser, budget planner etc.)

Insurance products
(e.g., nonlife insurance like travel, consumer durable)

Allied value-added services like GST filing, taxation etc.



Six considerations for digital commerce in the financial services sector

01

Stitch together digital public goods such as AA and UPI with ONDC for a seamless commerce, payment, and lending experience

Issuing credit to those who are deserving but underserved could become smoother as ONDC scales up. Its buyer apps could bring more than a billion potential consumers to the marketplace, while its seller apps could bring nearly 100 million small businesses and more than 500 lenders. The integration of protocols for a digital lending gateway and AAs (to provide data to lenders for underwriting) with ONDC could mean a new unlock for MSME credit (Exhibit 59).

As an illustration, a supplier app loan service provider (LSP) signals a nudge to a credit-seeking MSME and brings it on board. With the MSME's consent, the lender accesses an account aggregator to receive consolidated financial information. Armed with this information, the lender offers a loan, in parallel with offerings from other lenders. The supplier then selects the offer, completes the KYC, and provides disbursal account details, setting up repayment through E-NACH or E-Mandate. After the agreement is signed, the MSME allows monitoring, and the loan is disbursed.

In this way, both the borrower and lender have made an informed choice to borrow or to lend, creating inclusion and empowerment in a free-flowing, transformed lending landscape for both consumers and MSMEs.

New seller apps could emerge to cater to previously unserved MSMEs—unlocking their access to secure funds at lower rates than they would get from unorganised providers. Financial institutions could tailor offerings to MSMEs—for example, with granular, lower-ticket products that fit with their repayment cycles and working-capital needs. Various participants in the ecosystem could also enable the seamless disbursal of credit. Personal financial services for MSMEs could ensure financial fitness, embed insurance across the supply chain (for example, covering products that could be damaged in transit), and ensure that businesses have the goods to support day-to-day functioning.

Exhibit 59

Stitching together of digital public goods e.g., AA, UPI with ONDC could scale up credit access for underserved MSMEs.

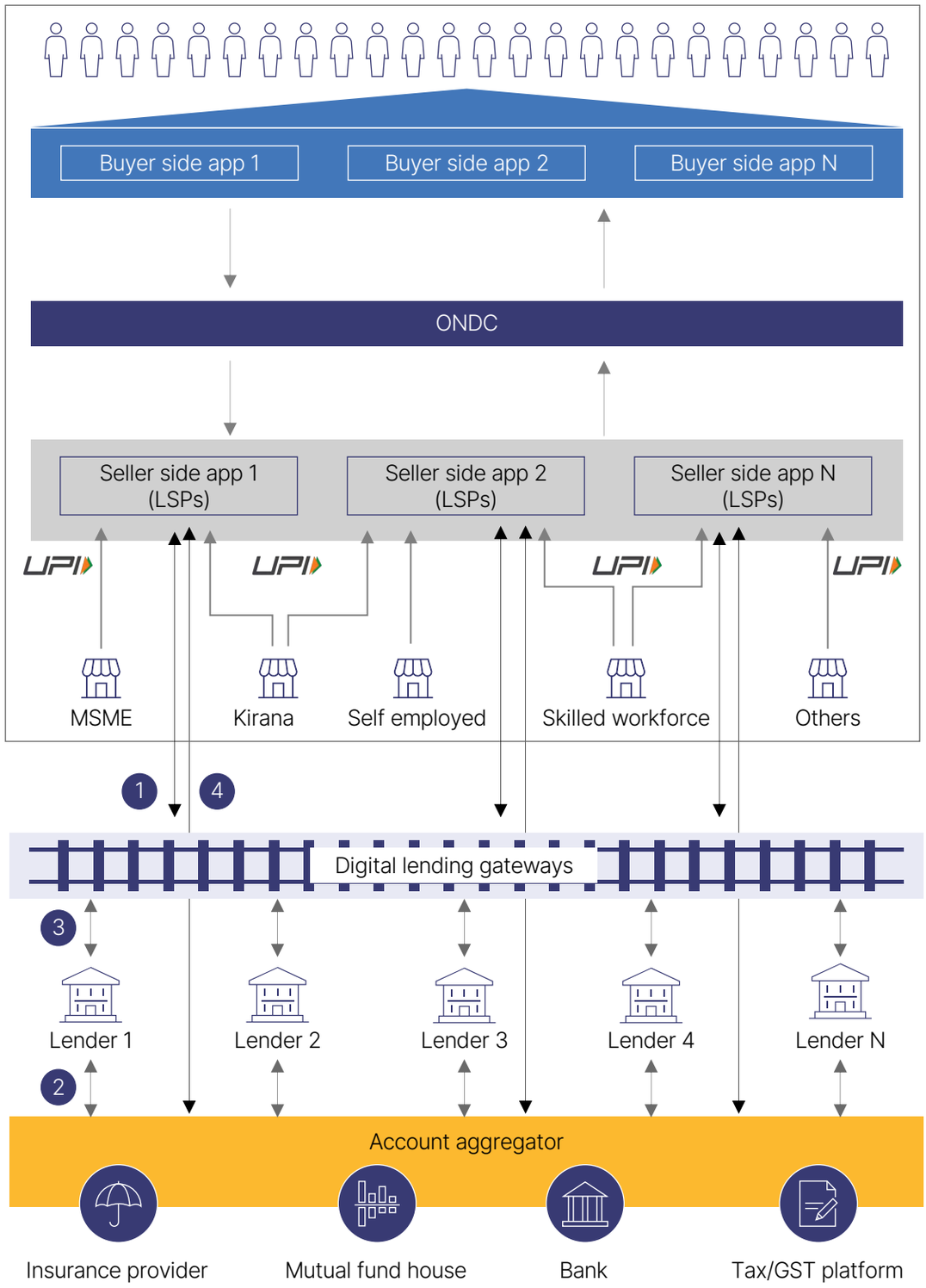
1 bn+
consumers

+

90-100 mn
MSMEs

+

>500
lenders



02

Improve underwriting through availability of alternative data sources enabled by ONDC

Access to open data would make it possible to assign scores to financial services. The financer could access MSME data across sources for better underwriting, whether for invoice financing, a working-capital loan, or capital financing (Exhibit 60).

03

Modernise core technologies across banks, especially public-sector banks

Traditional banks in India would need to step up their IT infrastructure to truly tap into the potential of ONDC. Investing to modernise their core technology will be critical, for example to build the capability to ensure 24/7 loan disbursals and servicing.

04

Engage and enable ecosystem players (TSPs, fintechs) to accelerate the digitalisation of financial-services journeys

Technology service providers and fintechs could facilitate the digitalisation of financial-services journeys in ONDC for a seamless customer experience. This could include providing services such as virtual KYC, fraud checks, NACH (National Automated Clearing House) mandates, and more.

05

Drive supportive product policies and mindset changes across financial-services and ecosystem partners

The enactment of supportive credit policies to enable machine-led underwriting could eliminate the need for certain manual and cumbersome processes, such as validating customer profiles. The adoption of ONDC would represent a huge shift from traditional ways of working. Therefore, financial institutions and other ecosystem partners would need to pursue change management efforts within the organisation to instill the appropriate mindset and culture.

06

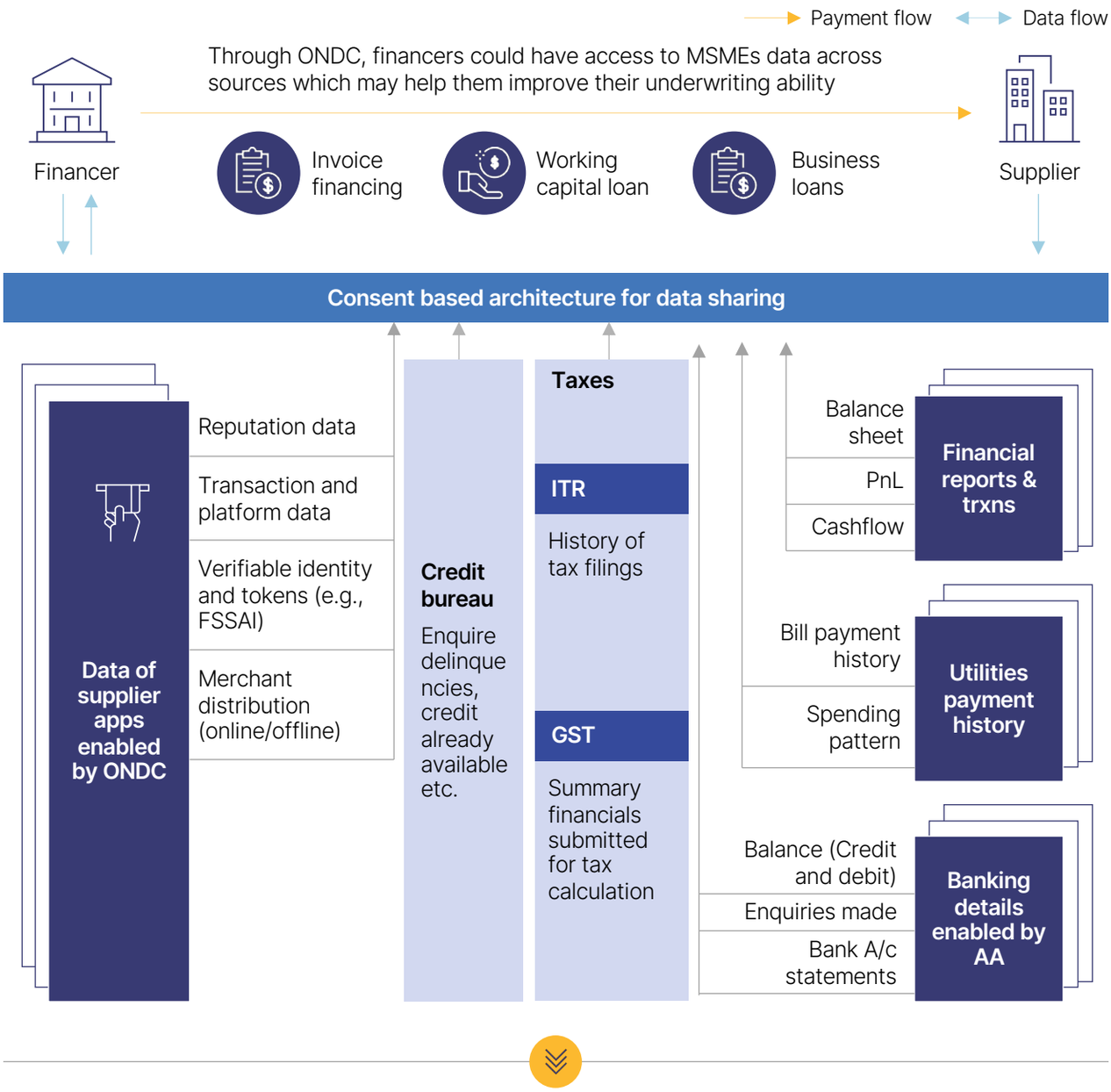
Streamline and evaluate KYC norms

Simplification of existing KYC norms and guidelines for full digital lending—that is, existing KYC norms and limits—need reevaluation to enable full STP digital lending journey especially for MSME segment.

Ensuring these enablers are in place could help to unleash the full potential of ONDC to transform the financial-services landscape in India. Doing so could bring financial inclusion and prosperity to a huge segment of India's population, accelerating the country's economic and social development.

Exhibit 60

Availability of alternative data sources enabled by ONDC to help drive data and cash flow-based underwriting.



Key benefits

Real time access data for better underwriting and monitoring

No requirement of collateral due to **comprehensive data and cash flow backed underwriting**

Increased MSME credit penetration, especially among micro enterprises with limited bureau history

4.11 Logistics

Providing a livelihood for 22 million Indians, logistics is a critical contributor to the economy, worth $190 billion to $200 billion. Pushed up by infrastructure limitations, logistics costs in India are higher than several other economies. For example, the average logistics cost by GDP is 11 percent among BRICS countries, while in India it is 14 percent.[1] With only 2 percent of the industry digitalised, an open network such as ONDC could make a difference to logistics costs in India.

[1] Indian Foundation of Transport Research and Training (IFTRT), https://timesofindia.indiatimes.com/business/india-business/indias-logistic-costs-higher-than-bric-nations/articleshow/14151707.cms

The landscape

India's logistics sector, while a critical contributor to the economy, is constrained by infrastructural challenges such as inadequate road and rail connectivity, complex customs, limited visibility across demand and supply, and subscale fleet opportunities.

Logistics providers for ecommerce companies struggle with significant gaps – they are not able to aggregate or batch delivery services as they are either captive providers (captive logistics accounts for about 55 to 60 percent) or are third-party logistics providers (3PLs) whose arrangement with their client curtails them from aggregating deliveries.

While digital interventions could minimise such challenges and slash costs, the industry is only at around 2 percent digitalisation. It lacks the technology infrastructure to benefit all stakeholders. For example, one major gap is a common technology infrastructure for GPS data exchange to seamlessly integrate across different systems, regardless of the device used. This section focuses on road transportation in logistics—a large subsector ($115 billion to $120 billion), highly fragmented and lacking price discoverability (Exhibit 61).

Exhibit 61

India's logistics industry is large, presenting significant opportunities for digital disruption and innovation.

Low · Medium · High · Focus areas

Segment	Market size FY22, $ bn	Number of service providers (level of fragmentation)	Need for price discoverability (by users)	Attractiveness for ONDC
Road (e.g., FTL, LTL, Express[1])	115-120	High	High	High
Warehousing, VAS	35-40	High	Medium	Medium
Railways	25-30	Low	Low	Low
Ports	4-5	Low	Low	Low
Water-ways	0.5-1	Low	Low	Low
Freight forwarding	2-3	High	Medium	Medium
Total	190-200			

[1] Includes air transport.

An open network such as ONDC that provides interoperable adapters could be key to enhancing digital adoption in the sector, increasing visibility, utilisation, and efficiency across the logistics value chain.

Barriers to digital adoption

Stakeholders across the road transport value chain are hesitant to adopt digital solutions for several reasons:

— **Shippers** tend to place greater trust in local, familiar connections than in online channels. They develop these networks over decades of steady business relationships, creating a strong sense of loyalty and reluctance to switch away from existing partners. Consequently, many shippers hesitate to switch to digital platforms and work with new fleet operators.

— **Brokers and 3PL contractors** could be wary of digital platforms trying to disrupt the current ecosystem. These players work in an arbitrage-based business model, and the entry of a digital commerce platform could negatively impact their margins.

— **Fleet owners and truck drivers** generally have limited digital literacy and are often unfamiliar with the digital platforms' processes. This leads to a mistrust of digital marketplaces, and they typically prefer to interact with shippers in person, such as during post-service follow-ups.

How ONDC can unlock value

ONDC could potentially help logistics stakeholders unlock five use cases:

— **A higher scale of operations bringing down logistics costs.** ONDC could spur growth in the e-commerce sector, boosting last- and first-mile delivery volumes. This would enable logistics players to benefit from economies of scale, ultimately reducing costs. It could also create opportunities for new players in untapped markets including rural or underserved areas and bring in more self-employed workers, unlocking India's informal economy.

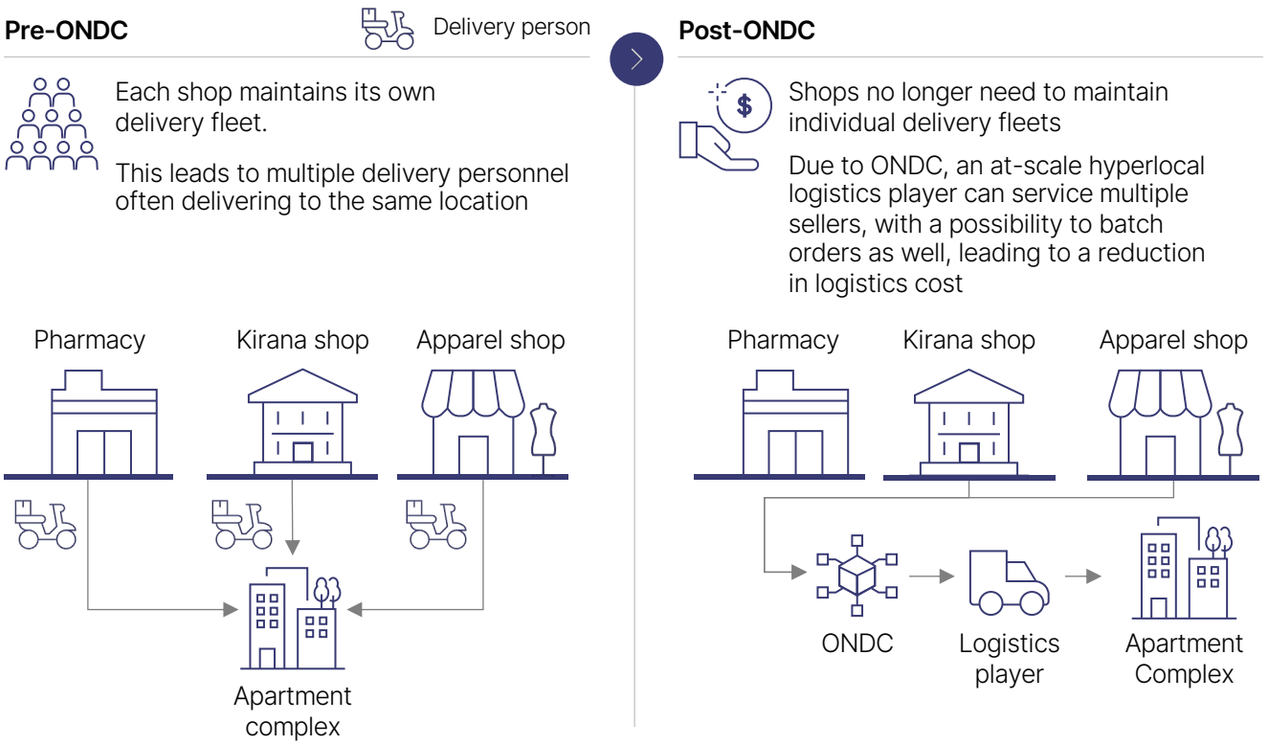
— **Improved price visibility and transparency across the value chain.** The free flow of information, especially price, is crucial for a well-functioning market. ONDC could help facilitate this by improving price visibility and discovery for shippers as well as fleet operators, empowering them to make informed decisions. It could also improve visibility of location, asset use, and loading status for trucks, which in turn could reduce downtime, improve asset utilisation, and provide better financing options to fleets. Finally, ONDC can help improve trust within the system via a robust rating mechanism and a high volume of ratings.

— **Improved demand aggregation.** ONDC can help identify logistics demand, enabling delivery personnel to work across sectors and increasing their earning potential. For instance, during a temporary slump in food orders, delivery personnel could assist in fulfilling last-mile and e-commerce deliveries. This flexibility could improve operational efficiency and reduce costs for delivery personnel while also ensuring timely delivery for customers. ONDC could also enable the batching of delivery orders across multiple sellers, leading to cost reductions (Exhibit 62).

— **Backward integration of logistics apps to become retail seller apps.** ONDC creates avenues for value-added-service (VAS) players to expand their services. VAS players could use their shipper databases to create a seller app in the open network that offers services to a broader customer base—for example, a player could integrate backward to become a seller app. By doing so, these players differentiate themselves in the market and boost their revenue streams.

Exhibit 62

Demand aggregation of hyperlocal deliveries could help cut last-mile logistics costs.



— **Digitalisation of transaction history.** This could benefit players across the road transport value chain, e.g., digital proof of delivery could shorten payment cycles, ensuring faster and more efficient payment processes. In addition, access to transaction history could enable companies to develop innovative credit mechanisms, such as the digital disbursement of bank-backed trip loans. These could facilitate working-capital financing for express players, less-than-container-load (LCL) consolidators, and freight forwarders. SMEs could also benefit from these processes by gaining easy access to credit for logistics.

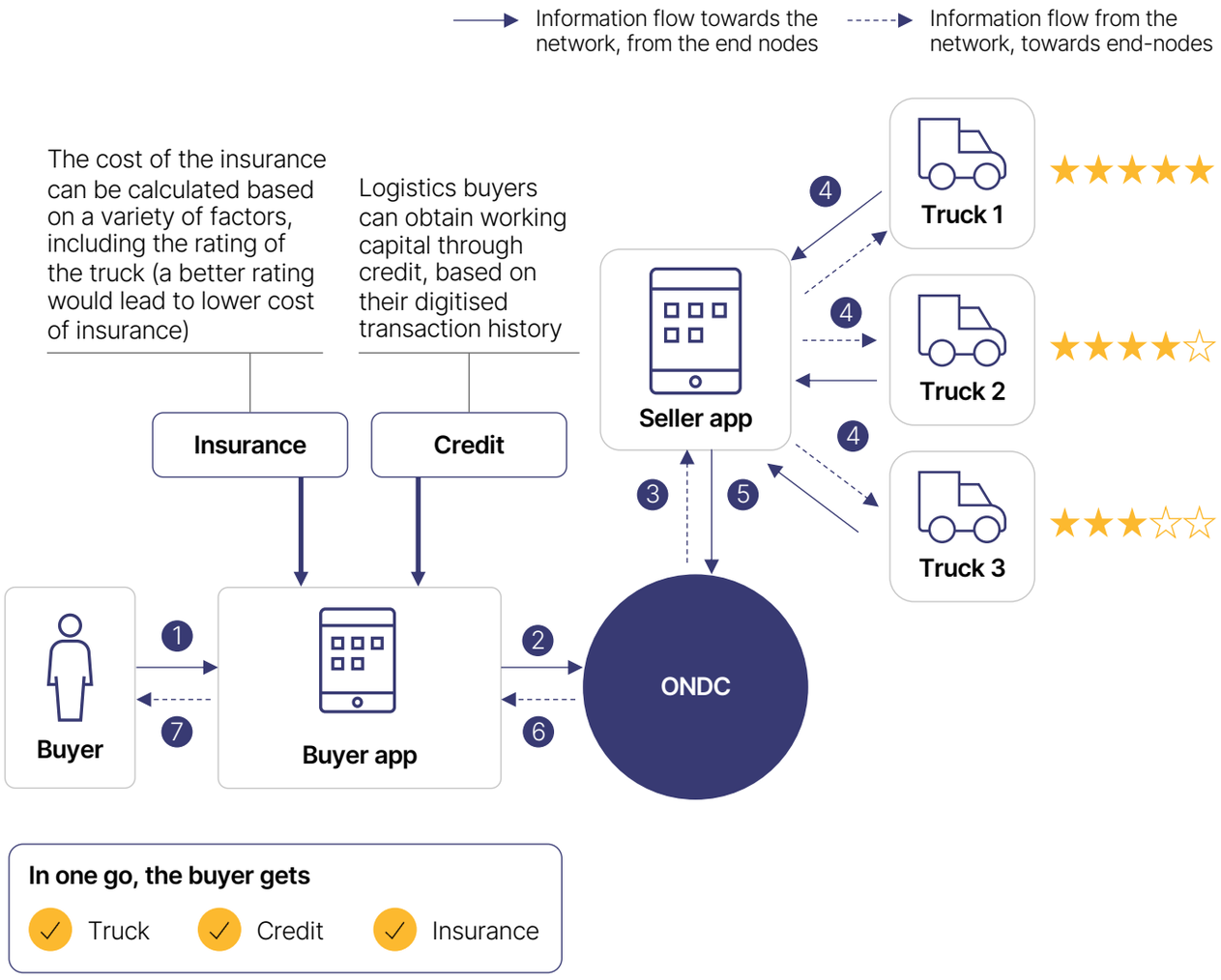
Over time, it could become simpler to embed insurance and credit in buyer apps (Exhibit 63), thus streamlining the purchasing process and increasing protection against road accidents. The free flow of information across ONDC could also allow insurers to factor additional data such as truck ratings into their models for accurate and efficient pricing.

ONDC has the potential to unlock additional value and business-building opportunities for road transport players. The open network could facilitate seamless, multimodal deliveries through several logistics providers, offering buyers a wider range of delivery options. For example, logistics buyers can now access and leverage multiple modes of transport—such as full-truck-load (FTL) and railways—for each leg of the journey, via the same network, leading to easier coordination, lower overheads, and maximum efficiency (Exhibit 64).

Exhibit 63

New possibilities: ONDC can enable embedded insurance and credit for logistics service buyers, protecting them from mishaps.

Illustrative



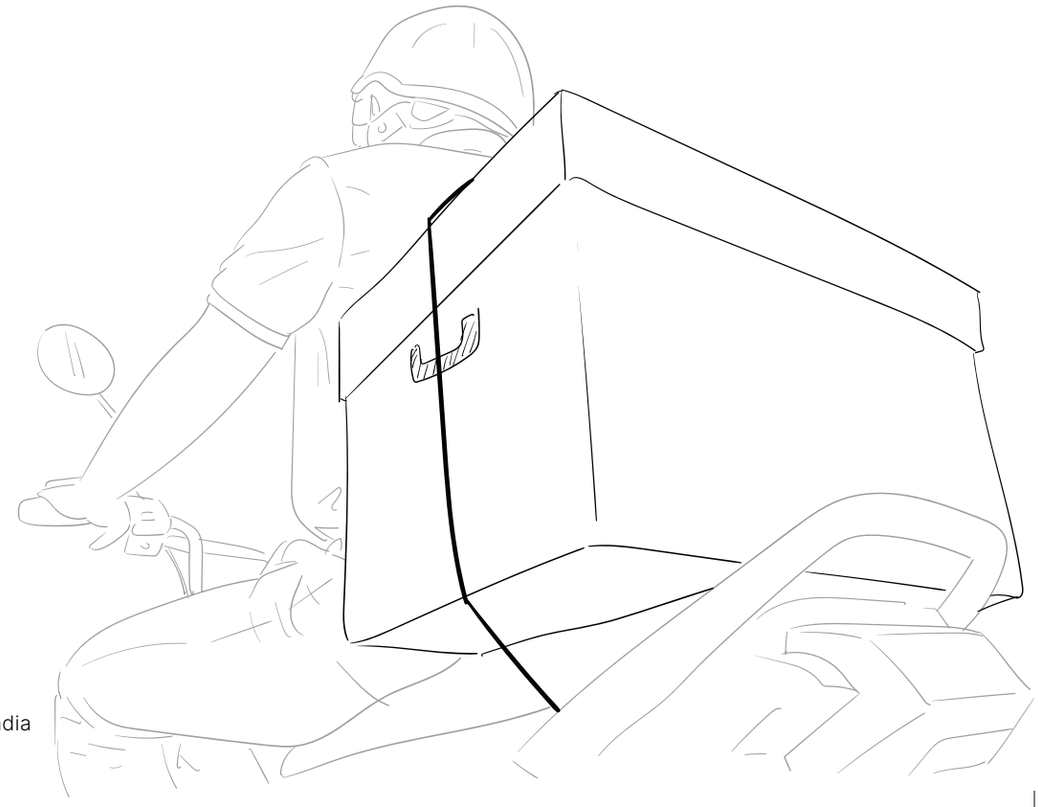
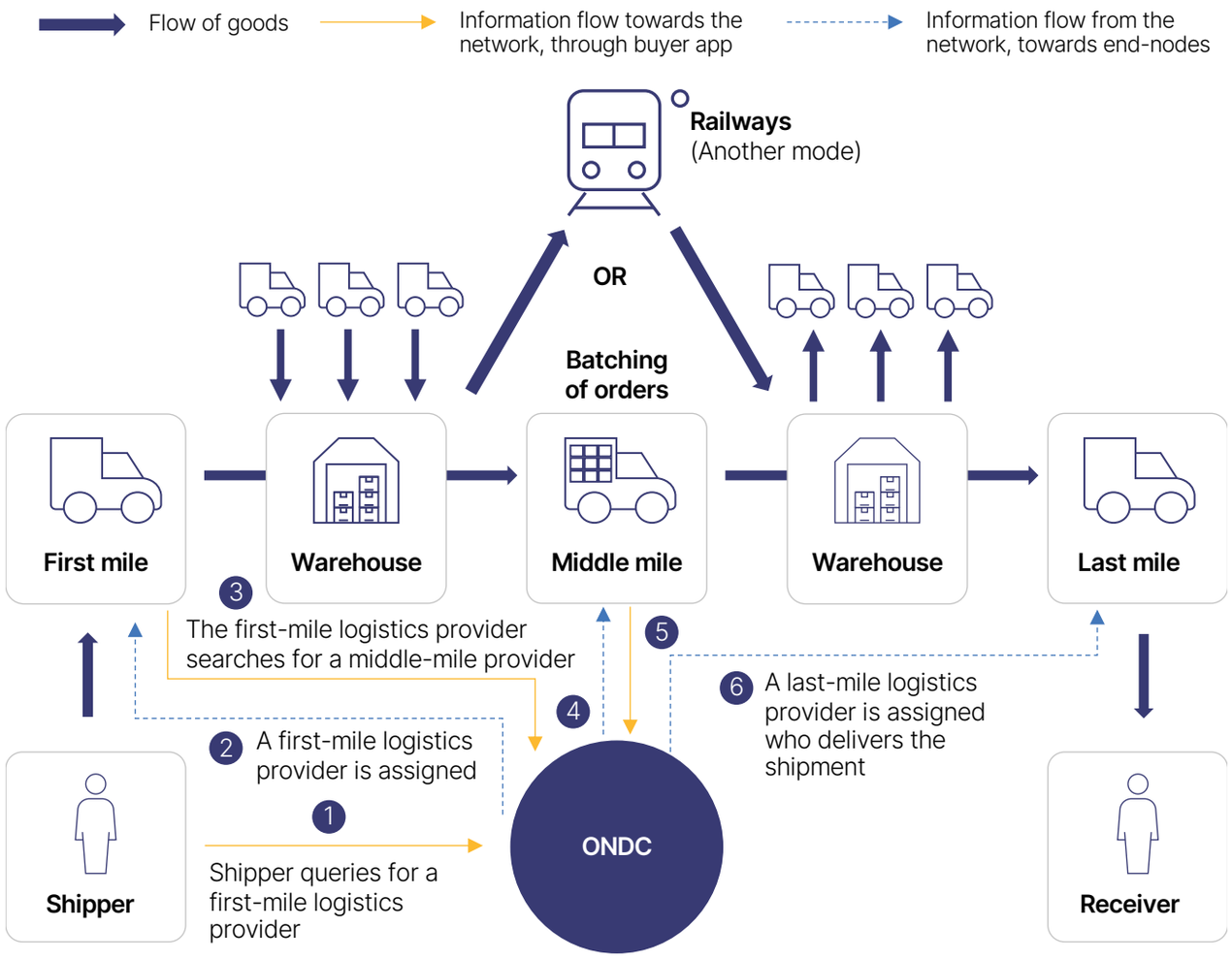


Exhibit 64

New possibilities: ONDC can enable multi-modal deliveries leveraging different players in each leg with seamless information flow.

Illustrative



4 A middle mile provider is assigned; the same truck can also be assigned to multiple other first mile trucks, leading to the possibility of batching

5 The middle mile provider searches for a suitable last mile logistics provider

Four considerations to shape digital commerce in the logistics sector

01

Ensure a robust supply network

As ONDC facilitates greater digital adoption, the demand for first- and last-mile delivery services could increase significantly. To be able to scale their operations and truly benefit from this growth, logistics players will need to build a robust supply network and create an ecosystem that is equipped to manage this surge in demand.

02

Create an unbiased reputation economy

Although ONDC can enhance price visibility and transparency in the market, buyers need to still be able to shortlist logistics providers based on performance and scale to make informed choices. ONDC could establish a robust reputation economy by partnering with third-party providers to showcase unbiased and accurate ratings of logistics players.

03

Upskill delivery personnel to handle different goods

Even with ONDC allowing demand aggregation and better use of delivery personnel, logistics players must take responsibility for ensuring their delivery personnel are properly trained to handle a variety of goods and services seamlessly. This means implementing effective training methodologies and processes to ensure that all delivery personnel can meet the standards required to maintain quality and reliability across the logistics value chain.

04

Set up technology infrastructure to implement digitised proof of delivery

While digitalised proof of delivery (PoD) has the potential to significantly shorten payment cycles by reducing paperwork, its effective implementation requires appropriate tech infrastructure investment by shippers and logistics players. Furthermore, seamless transactions depend on widespread acceptance of digital PoDs among truck drivers, fleet owners, and shippers without disputes or delays.

With digitalisation unlocking utilisation, visibility, and efficiency across the logistics value chain, ONDC could help India to bring down its higher-than-average logistics costs, benefitting all stakeholders.

Scope for all players to benefit from an open network

Each sector has a set of considerations to drive digital commerce, with the onus resting on specific stakeholders. However, the opportunity does not end with them. The unbundling of discrete services on the open network could create infinite opportunities for incumbent companies and new entrants to carve out niches for themselves.

ONDC could provide additional opportunities for both incumbents and new entrants to participate.

Leading consumer tech companies (e.g., fintech, telecom orgs.)

- Diversify and **enhance business offering to adjacent categories** (e.g., grocery, mobility) as a buyer app
- Achieve **profitable unit economics** by driving cost synergies with existing capabilities (e.g., in manpower)
- Boost **consumer engagement** on their platform, driving **cross-sell and upsell**

Logistics players

- Create an **additional revenue stream** by investing ahead of the demand in hyperlocal logistics
- Achieve cost efficiencies to **increase profitability** due to more and concentrated hyperlocal demand
- **Access rich data** to improve the **demand-supply matching engine** and further reduce costs

SaaS players

- **Expand their business** by designing low-cost and **scalable tech solutions for sellers** (e.g., scoring, CRM, tax management, pricing, cataloguing, tech support) **and seller apps** (e.g., chatbots, cataloguing)

Brands/OEMs

- Niche/ **new brands could boost their D2C play** by registering as a seller or seller app on the network
- **Harness consumer data** on purchase behavior across buyer apps **to inform future strategies**

Sellers

- **Access host of services** from tech providers (e.g., tax and inventory management) and brands (e.g., incentives, marketing support etc.) **to go and run business online with ease**
- **Achieve improved unit economics** owing to less platform commission and potential reduction in delivery charges (e.g., by building low-cost capability to cater to a concentrated demand in the neighborhood)

POS players

- Leverage current business strength i.e., partnership with GT[1], restaurants etc. to **become a seller app on the network**
- Create **additional revenue stream** at a low cost by digitising sellers

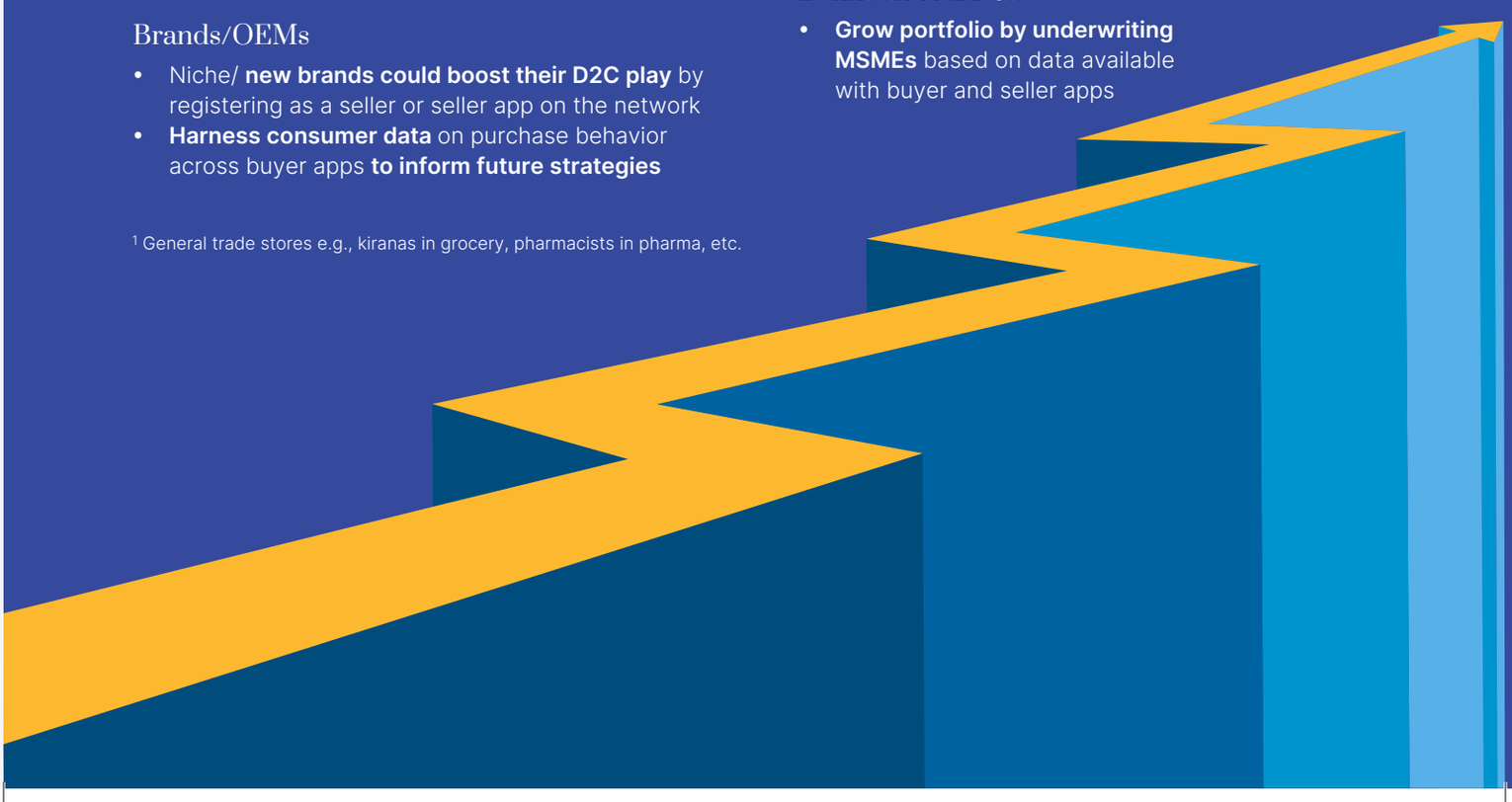
Resellers and influencers

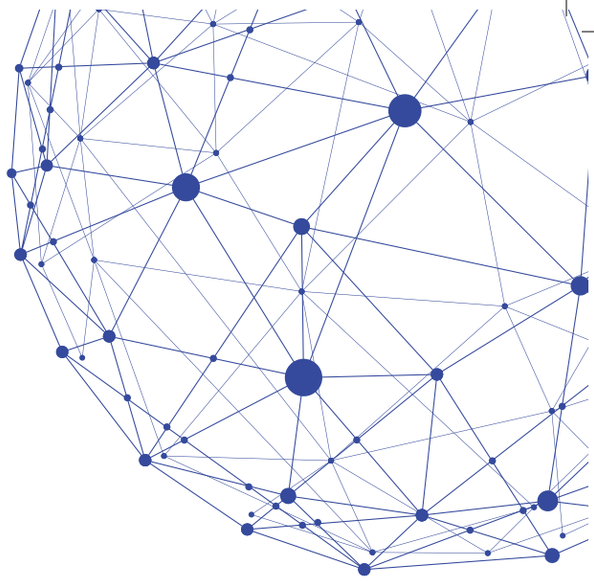
- **Build/ expand their online business** by leveraging varied support available on the network (e.g., pricing and certification agencies could collaborate with electronics resellers, fashion influencers could partner with brands)

Banks and NBFCs

- **Grow portfolio by underwriting MSMEs** based on data available with buyer and seller apps

[1] General trade stores e.g., kiranas in grocery, pharmacists in pharma, etc.





5

ONDC for the world

Although ONDC is being tested in India, the problems it seeks to solve are global in nature. Even in developed countries, internet access alone does not necessarily translate to the widespread adoption of digital commerce across all sectors. Despite the rise in internet connectivity around the world, cross-border trade and digital commerce remain out of reach for many companies, especially small sellers, and for billions of consumers.

As the network grows, it could influence digital commerce on a global scale in two primary ways: by promoting cross-border trade and by accelerating and democratising digital commerce across markets. For ONDC to transform digital commerce beyond the borders of India, four key enablers must be in place—seamless cross-border payment settlements, stringent grievance redressal systems, a globalised taxonomy, and a global coalition to support digital commerce.

Sparking cross-border trade via open marketplaces

Just as the open network could make small businesses discoverable by online buyers in India, it could extend their reach to buyers beyond borders as well. For example, a wooden toy manufacturer in a village may not need to invest in customer acquisition—the simple step of joining the network could give the company visibility to international buyers and grow its customer base.

This could be especially beneficial for MSMEs that lack the resources to invest in discoverability and navigate the complexities of cross-border trade. The unbundling of the value chain could give MSMEs access to specialised services. For example, they could enjoy improved price discovery for transport and logistics, unlocking more efficient exports and imports.

Growing digital commerce across markets

The ONDC model could transform digital commerce around the world—not just in developing countries, but also in developed nations, albeit in different ways (Exhibit 65).

For developing countries,[76] ONDC could take digital commerce to untapped markets and enable small sellers to scale their business digitally, yielding economic benefits. Digital commerce penetration in the Philippines, for example, is at only 21 percent, with 10 percent of MSMEs using advanced digital tools. In Egypt, 29 percent of MSMEs have no digital presence, and only 1 percent of MSMEs sell via online channels. In addition to accelerating the adoption of digital commerce and supporting the growth and financial well-being of small businesses, ONDC could over time transform the emerging industry structure by embedding digital commerce as an established model.

For developed countries, digital penetration has been uneven across sectors. Even in the United States, sectors such as grocery and pharmaceuticals have digital commerce adoption rates of only 11 to 12 percent. ONDC could help increase demand by giving consumers access to a broader assortment of goods at a wide range of prices from a larger number of online sellers, all through an easy-to-use interface. The same dynamic could play out in other sectors such as pharma and B2B.

[76] Market details for developing and developed countries are taken from the official website of International Trade Administration, and from Statista

Exhibit 65

ONDC could help accelerate adoption and democratisation of digital commerce across economies.

Developing economies[1]

	Digital commerce penetration[2]	Status of digitisation of SMEs
S. Africa	35%	~66% of SMEs have low availability of tech skills
Egypt	34%	~29% of SMEs have no digital presence and only ~1% of SMEs sell via online channels
Philippines	21%	~30% of MSMEs have an online presence and barely 10% use advanced digital tools
Mexico	36%	Online sales channel accounts for 35% share of total sales for SMEs

Developed economies[1]

	Sectors with low digitisation
US	**Grocery, Pharma:** 10-12% **B2B:** 15-17%
UK	**Grocery:** 13% **B2B:** 18-22%
China	**Grocery, OFD:** 18-22% Pharma: 8-10%
Australia	**Grocery:** 7% **Pharma:** 15% **OFD:** 13%

[1] Based on Human Development Index (HDI) 2021 by United Nations (UN).
[2] Percentage of population who have bought at least 1 product online.
Source: International Trade Administration; Statista

Exporting a digital payments platform

India's unified payments interface (UPI) has been widely successful worldwide, and ONDC could follow a similar global trajectory. Like UPI, ONDC is an open network, so any country could use these protocols to build its own open network for digital commerce. Many of the elements that contributed to UPI's success in India also made it applicable in other countries (Exhibit 66).

Exhibit 66

The Unified Payments Interface is an Indian innovation that is being used around the world.

UPI is live | MoU stage/ UPI will go live soon

UPI could hold universal appeal

Convenience
Eliminated need to remember account details for doing transactions

Quicker execution
Reduced time, processes & formalities in transactions

Interoperability
Used of single bank app for fund transfers

Zero merchant discount rate

Security and reliability
Replaced sharing of bank account details with a virtual ID

UPI
UNIFIED PAYMENTS INTERFACE

Excitement around the globe for UPI

Nepal	Adopted UPI as payments platform (1st country outside India)
Oman	Adopted UPI for digital transactions across platforms
Bhutan	Used UPI standards for its QR deployment
Malaysia	Allowed sending remittances through UPI
UAE	Enabled Indian travelers to pay for their purchases (P2M)[1] using UPI across NEOPAY enabled merchant stores
NRIs	Linking of international mobile numbers with UPI enabled, facilitating flow of money into India
Singapore	Cross-border payments live; this is projected to bring down cost of sending remittances by 10%
UK, France, EU	MoU signed with PayXpert, Lyra Network, Worldline and NIPL[2] respectively for interoperability of UPI in POS associated with its network for in-store payments

[1] Person to Merchant.
[2] NIPL (wholly owned subsidiary of NPCI) is taking the lead in exporting indigenously developed offerings and technological acumen like UPI to foreign markets.
Source: NPCI: https://www.npci.org.in/npci-in-news/press-releases

Paving the way for ONDC's global adoption

While ONDC could change the game in transforming digital commerce around the world, four key enablers should ideally be in place to unlock its full value:

01

Support seamless cross-border payment settlement and information flows

Any scenario of cross-border payment will require very clear information on country-level regulations and rules for settlement.

02

Create robust grievance redressal frameworks

Consumer protection laws vary across jurisdictions, and protections in one country may not align with those of the country where the business is registered. A robust redressal framework could ensure fast, satisfactory resolution of grievances, inspiring trust among global users.

03

Build a globalised taxonomy

Buyers anywhere in the world seeking a specific product (for example, a consumer in Thailand who wants a Kanjivaram saree) should be able to find it easily online. In addition, a taxonomy could ensure buyer and seller apps know about country-specific guidelines for the sale of products. For example, the United States prohibits the import of many wildlife-based products.[1] Designing and implementing a standardised taxonomy across countries could help ensure a seamless experience for consumers.

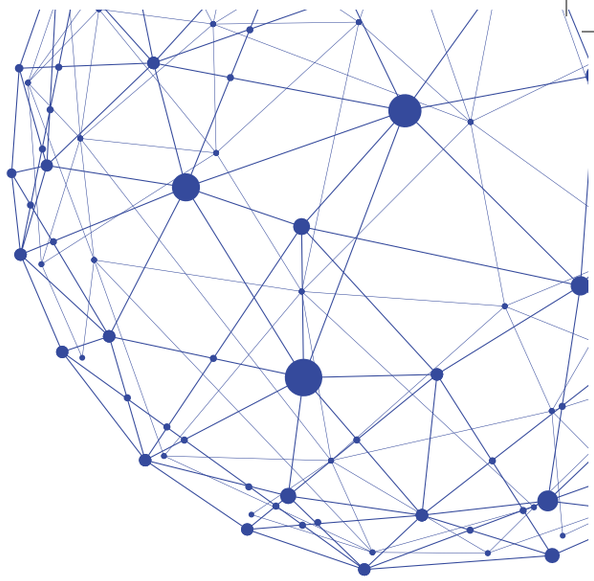
04

Develop global co-operation for digital commerce

ONDC could partner with international buyers and seller apps to build an ecosystem that would give consumers access to local digital commerce experiences.

> India offers a testing ground for the ability of an open network to support digital commerce. The success of ONDC could lead the network and India to become global pioneers in connecting buyers and sellers beyond borders. The world is watching how this story plays out.

[1] "Bringing animal products into the United States," Centers for Disease Control and Prevention, updated September 14, 2022.



6

Getting on board with ONDC

ONDC holds the potential to create open, inclusive, and competitive marketplaces in the virtual world. It will be important for companies to carefully evaluate the options available to them as they consider entering this space. This could help them to identify plays that maximise benefits from the immense opportunities unlocked by the open network.

As company leaders look to make the most of the opportunities ONDC offers, they could explore the possibilities across two themes. First, they could determine which use cases have potential to scale fast and which would take longer to yield results. And second, they could evaluate where they are best positioned to play—through the lens of the market opportunity, their own capabilities, and the consequent feasibility of investing in specific use cases. This could support them in making the most relevant investments to achieve their company's strategic objectives.

Assessing scalability

As a market maker keen to create and democratise opportunities for all participants, ONDC could catalyse a range of business opportunities in the short, medium and long term (Exhibit 67).

This answer emerged after analysing three indicators of potential to scale:

— Short term: Digitisation of existing hyperlocal goods and services

— Medium term: Scaling up and innovating in D2C businesses

— Long term: Digitising new use cases for ONDC-first business models, especially in B2B

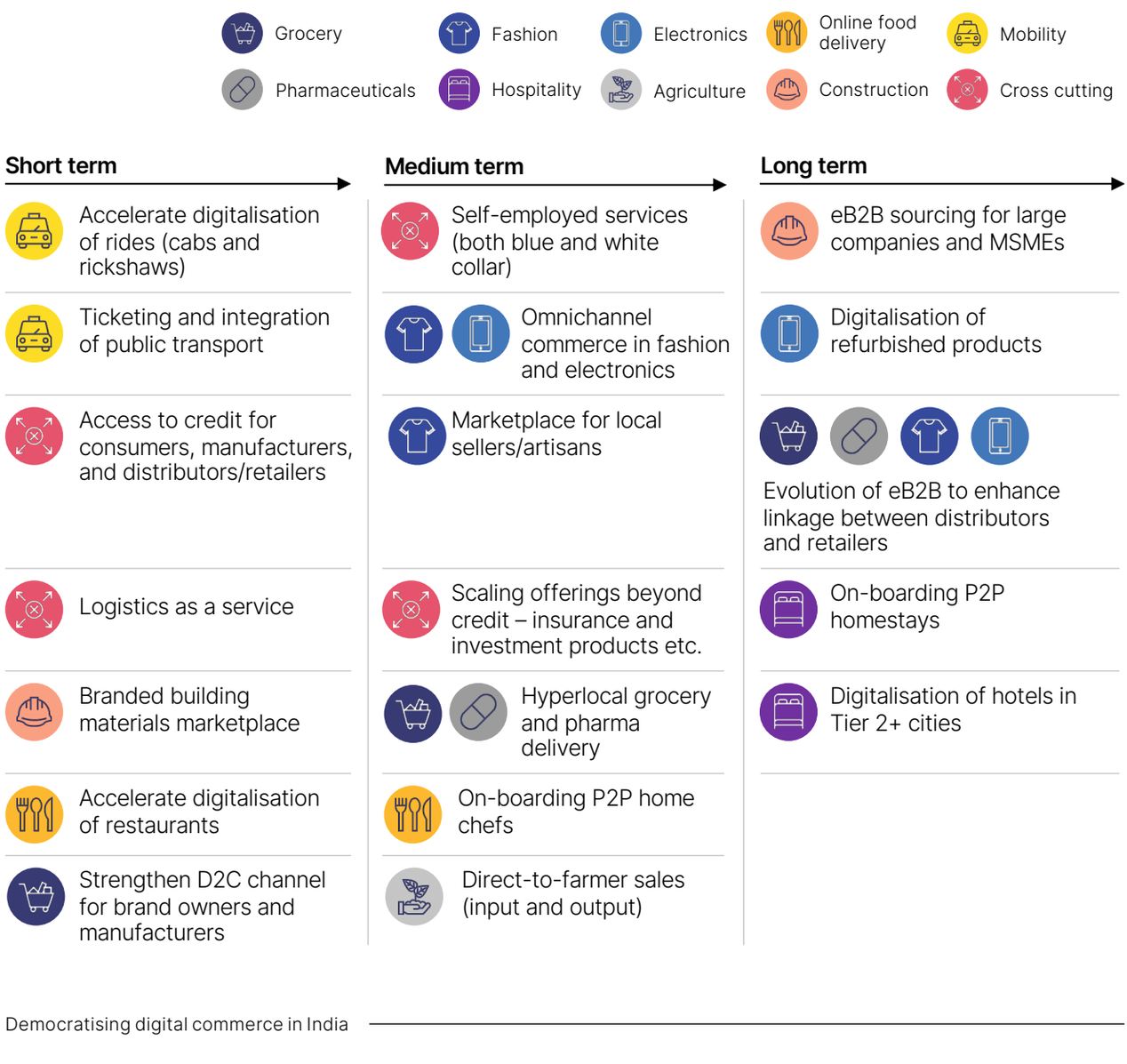
As companies think about use cases they could prioritise, it would make sense to look at their options through three lenses:

1. The use case should solve an unsolved problem.
2. It should have a ready ecosystem (for example, digitalised supply chain, standardised goods and services, or ease of logistics and fulfilment).
3. It should be economically viable.

Exhibit 67

Use cases in the short term could prove the most beneficial for driving early adoption and scale.

Not exhaustive



Identifying the best-fit use case for a company

Companies looking to develop innovative business models that tap the open network can examine the opportunity against two considerations: how to participate immediately in a fast-developing space, and how to reimagine their business for an open network and its possibilities.

Businesses need to zero in on the most relevant use cases that map to their chosen stance as a shaper or a fast follower. They can accordingly identify a pool of investable resources to help them pursue the opportunity.

If the collective investments of companies across industries can support the expansion of ONDC, they could unlock the full potential of digital commerce for buyers, sellers, third-party providers, and India as a whole. Companies and entrepreneurs must carefully consider several strategic questions:

- **Evaluate the opportunity.** How will an open network disrupt the sector? What is the problem that it will solve, and for whom? Which are the most relevant use cases for the business? What are the potential benefits of addressing this problem? What are the potential risks and challenges in implementing these use cases?
- **Identify the capability required.** Which role (e.g., seller, buyer, tech service provider, etc.) is the company best positioned to play? What are the key capabilities needed to execute the use case? What are the resource requirements (for instance, people, time, or money) in building out these use cases? How should governance be managed, including engagement with the ONDC core team and network participants?
- **Evaluate feasibility of the use cases.** When should a company decide to implement or pilot a use case? Should the organisation be a leader or a fast follower? What are the feasibility considerations for executing the use case (for example, market, financial, or legal)? What should be the pilot structure for prioritised use cases including the initial investment and scale-up milestones?

ONDC presents a unique avenue for India to revolutionise its digital commerce landscape and set an example for the world, much as it did with UPI. With vast potential for a robust buyer and seller ecosystem, ONDC represents an opportunity that arises once in a decade. Stakeholders—government, industry players, and consumers—can determine how to seize this 'tech-ade,' putting their best, most innovative selves forward to democratise digital commerce for all.

Glossary of terms

2W – Two-wheeler

3W – Three-wheeler

4G – Fourth generation

4W – Four-wheeler

5G – Fifth generation

AA – Account aggregator

ABDM – Ayushman Bharat Digital Mission

ABHA – Ayushman Bharat Health Account

AI – Artificial intelligence

AOV – Average order value

API – Application programming interface

ATM – Automated teller machine

AUM – Assets under management

B2B – Business to business

B2C – Business to consumer

BAU – Business as usual

BHIM – Bharat Interface for Money

BNPL – Buy now, pay later

C2C – Consumer to consumer

CA – Chartered accountant

CAC – Customer acquisition cost

CAGR – Compound annual growth rate

CASA – Current account savings account

ChatGPT – Chat generative pre-trained transformer

CII – Confederation of Indian Industry

COGS – Cost of goods sold

CoWIN – COVID Vaccine Intelligence Network

CPG – Consumer packaged goods

CPV – Customer profile validation

CRM – Customer relationship management

CY – Calendar year

D2C – Direct to consumer

DBT – Direct benefit transfer

DEPA – Data empowerment and protection architecture

DIKSHA – Digital infrastructure for knowledge sharing

DIY – Do it yourself

DPI – Digital public infrastructure

DSEP – Decentralised Skilling and Education Protocols

E2E – End to end

EBITDA – Earnings before interest, taxes, depreciation, and amortisation

EBO – Exclusive brand outlet

EMI – Equated monthly installment

eNAM – National Agriculture Market

ERP – Enterprise resource planning

ETA – Estimated time of arrival

EV – Electric vehicle

eWS – E-wholesale

FD – Fixed deposit

FICCI – Federation of Indian Chambers of Commerce & Industry

FPO – Farmer producer organisation

FS – Financial services

FSSAI – Food Safety and Standards Authority of India

FTL – Full truck load

FY – Financial year

GDP – Gross domestic product

GeM – Government e-marketplace

GMV – Gross merchandise value

GPS – Global positioning system

GRO – Grievance redressal officer

GST – Goods and services tax

GSTIN – Goods and services tax identification number

GT – General trade

GWP – Gross written premium

HFR – Health Facility Registry

HoReCa – Hotels, restaurants, and cafés

HPR – Healthcare Professionals Registry

HTTP – Hypertext transfer protocol

ICEGATE – Indian Customs Electronic Data Interchange Gateway

IGM – Issue and Grievance Management

IMAP – Internet messaging access protocol

ITR – Income tax return

IVR – Interactive voice response

KYC – Know your customer

LCL – Less than Container Load

LLM – Large language model

LPA – Lakh per annum

LPPT – Logistics planning and performance monitoring tool

LSP – Logistics service provider or lending service provider

LTL – Less than truck load

MBO – Mixed brand outlet

MF – Mutual fund

MOU – Memorandum of understanding

MSME – Micro, small, and medium-size enterprises

MT – Modern trade

NACH – National Automated Clearing House

NASSCOM – National Association of Software and Service Companies

NBFC – Non-banking financial company

NCS – National Career Service

NDEAR – National Digital Education Architecture

NDL – National Digital Library

NIPL – NPCI International Payments Limited

Non-RTO – Non-return to origin

NP – Network participant

NRAI – National Restaurant Association of India

ODR – Online dispute resolution

OEM – Original equipment manufacturer

OFD – Online food delivery

ONDC – Open Network for Digital Commerce

OpEx – Operating expense

OTA – Online travel agency

OTT – Over the top

P&L – Profit and loss (statement)

P2M – Person to merchant

P2P – Peer to peer

PAN – Permanent account number

PBCL – Pubs, bars, cafés, and lounges

PE – Private equity

PHR – Personal health record

POC – Proof of concept

PoD – Proof of delivery

POP – Post office protocol

POS – Point of Sale

QA – Quality assurance

QC – Quality control

QR – Quick response

SAAS – Software as a service

SAMT – Stand-alone modern trade

SBI – State Bank of India

SHG – Self-help group

SIDBI – Small Industries Development Bank of India

SKU – Stock keeping unit

SME – Small and medium-size enterprises

SMTP – Simple mail transfer protocol

SOP – Statement operating procedure

STP – Straight through processes

SWAYAM – Study Webs of Active-Learning for Young Aspiring Minds

T2 – Tier two

TAT – Turnaround time

TCP – Transmission control protocol

TIN – Tax identification number

TRAI – Telecom Regulatory Authority of India

TSP – Technology service provider

UFSI – Unified Farmer Service Interface

UHI – Unified Health Interface

UI – User interface

ULIP – Unified Logistics Interface Platform

UPI – Unified Payments Interface

UX – User experience

VAS – Value added services

VC – Venture capital

VR – Virtual reality

Sector definitions

Sector	Definition
Grocery	Staples (rice, flours, etc.), super fresh (dairy, bakery, etc.), fresh (fruits, vegetables, non-vegetarian), grocery food (beverages, snacks, etc.)
Fashion and lifestyle	Apparel, footwear, accessories, and home (furniture, gardening, décor, etc.)
Electronics and durables	Mobiles, computers, televisions, home appliances (home audio, etc.), large appliances (laundry, refrigeration, air treatment), kitchen appliances (dishwasher, microwave, etc.), small appliances (personal care, fans, irons, heating, etc.) and others
Food and beverages	Online food delivery (OFD), organised offline food market
Mobility	Online mobility (2W,3W, and 4W)
Pharmaceuticals	Prescription medicine, over-the-counter medicine, wellness-led beauty, foods (fortified/functional, natural), and wellness services (spas, fitness, etc.)
Hospitality	OTAs, hotel websites, homestays, offline (walk-in and travel agents), and corporate; focus on OTAs
Agriculture	Crop, livestock, fruits and vegetables, forestry and logging, fishing and aquaculture, condiments and spices, drugs and others
Construction materials	Utilities and power, infrastructure, industrial, institutional, commercial, and residential; focus on residential
Financial services	Bank accounts, digital payments, insurance, and credit; focus on insurance and credit
Logistics	Road (LTL, FTL, Express), warehousing, Value-added services, railways, ports, Waterways, Freight forwarding

Notes

Notes