

Purple Aware Beckn Networks

Unleashing the
Economic Potential of
People with Disabilities

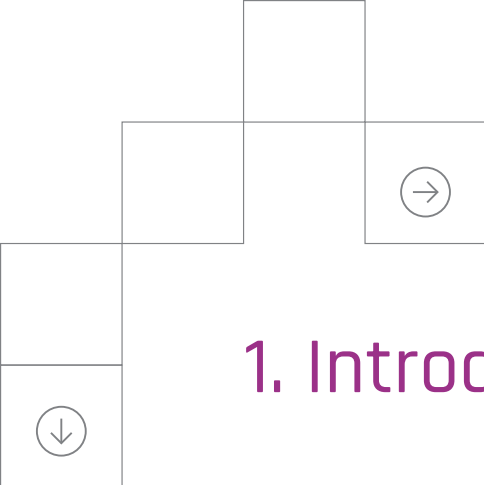


A person in a wheelchair is seated at a long table in a meeting room, viewed from behind. They are looking towards a whiteboard where another person is standing and pointing. A third person is visible in the background on the right. The table has papers, a cup, and an apple on it. The entire image has a purple tint.

By acknowledging disability as a diverse and pervasive experience, the purple economy promotes market driven solutions that empower individuals with disabilities to lead fulfilling lives.

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1. Introduction

Mallika leads a typical urban life in Bengaluru. Like many others, she commutes to work daily, relying on the convenience of ride-hailing apps for her transportation needs. As a person with a vision disability, **Mallika** navigates her way using a cane and finds comfort in the accessible auto-rickshaw service available near her home. With just a few taps on her smartphone, she books a ride and enjoys a safe journey to her workplace.

Although **Mallika**'s routine may seem ordinary, her experience sheds light on a broader issue. As one of the 1.3 billion people worldwide living with disabilities, she faces challenges that often go unnoticed. Exclusion of people with disabilities from mainstream services due to attitudinal and informational barriers is frequent, perpetuating inequality on a global scale. However, it's time to shift our perspective. Rather than viewing disabilities as limitations, we should recognize individuals like **Mallika** as catalysts for change and economic participation.

Enter the concept of the purple economy, purple being emblematic of the disability sector—a framework that emphasizes disability inclusion as a driver of economic growth.

Enter the concept of the purple economy, purple being emblematic of the disability sector—a framework that emphasizes disability inclusion as a driver of economic growth. By acknowledging disability as a diverse and pervasive experience, the purple economy promotes market-driven solutions that empower individuals with disabilities to lead fulfilling lives. For **Mallika**, accessible transportation services represent a step towards a “purple-aware” economy—one that caters to her unique needs and fosters inclusivity.

Consumers like **Mallika** have never found it easy before. However, with the emerging wave of disability-friendly technologies and solutions, 1.3 billion people with disabilities can enjoy the same opportunities as their peers. In a purple-inclusive economy, individuals like **Mallika** can lead ordinary lives, contributing to society as active and valued members.

2. Opportunity

In contemporary times, solutions for individuals with disabilities are at a critical moment akin to the state of healthcare before the 18th century. Historically, diseases were often seen as signs of moral and spiritual deprivation rather than as public health concerns. However, with advancements in knowledge, interventions against health threats became more effective, leading to the establishment of modern health systems encompassing hospitals, doctors, nurses, insurance, pharmacies, and community health workers. An illustrative example of this shift is ordinary vision impairment, once considered a severe disability for centuries until the invention of eyeglasses in the 13th century. Today, vision impairment is a common issue¹, and the global eyewear market is valued at \$170 billion (2022), expected to reach nearly \$300 billion by 2029².

Similarly, contemporary views perceive disability primarily as a medical impairment necessitating treatment or 'fixing', often with the moral implication that without complete remedy, individuals cannot be considered 'normal' or fully functional. While the overall prevalence of disability in India stands at 4.52%³, the expanded definition under the Rights of Persons with Disabilities (RPWD) Act brings the actual number of persons with disabilities (PwDs) close to 100 million. This substantial population segment presents a significant untapped economic opportunity. India has the potential to create a \$11.4 billion market by 2030 and attract private investment worth \$4.8 billion to cater to the needs of PwDs⁴. Contrary to popular belief, people with disabilities wield considerable purchasing power, collectively influencing around \$8 trillion in global spending⁵. This vast consumer market offers immense potential for businesses, especially when considering the interconnected network of families, friends, caregivers, colleagues, and others associated with PwDs.

Emerging sectors related to disability services, such as accessible mobility, equipment manufacturing, assisted living, inclusive education, and inclusive financial services, can generate approximately 9,00,000 jobs in the coming decade⁶. Moreover, the proliferation of assistive technologies, valued at approximately ₹4,500 crore, along with new accessibility tools and Digital Public Goods (DPGs) like Bhashini, empower PwDs to lead innovation by expressing their unmet needs and contributing their expertise to co-create products and improve services.

Existing markets must become 'purple aware' and avoid excluding PwDs from services available to all to ensure inclusivity and seize market opportunity. A paradigm shift is underway, leveraging interoperable open networks and community-driven initiatives focused on purple inclusion. These forces hold the potential to realize the vision of a purple economy, where disability is seen not as a limitation but as a driver of innovation, economic growth, and societal progress.

3. Open Networks as a Medium for Inclusion

3.1. Beckn Protocol and Open Networks

Open networks, powered by the Beckn protocol, offer a fresh approach compared to the conventional closed platforms that control interactions between buyers and sellers. These open networks prioritize interoperability, creating an ecosystem where power shifts from middlemen to both service providers and users. This shift fosters seamless economic transactions across various platforms and applications, promoting innovation, enhancing user experience, and involving a wide range of stakeholders.

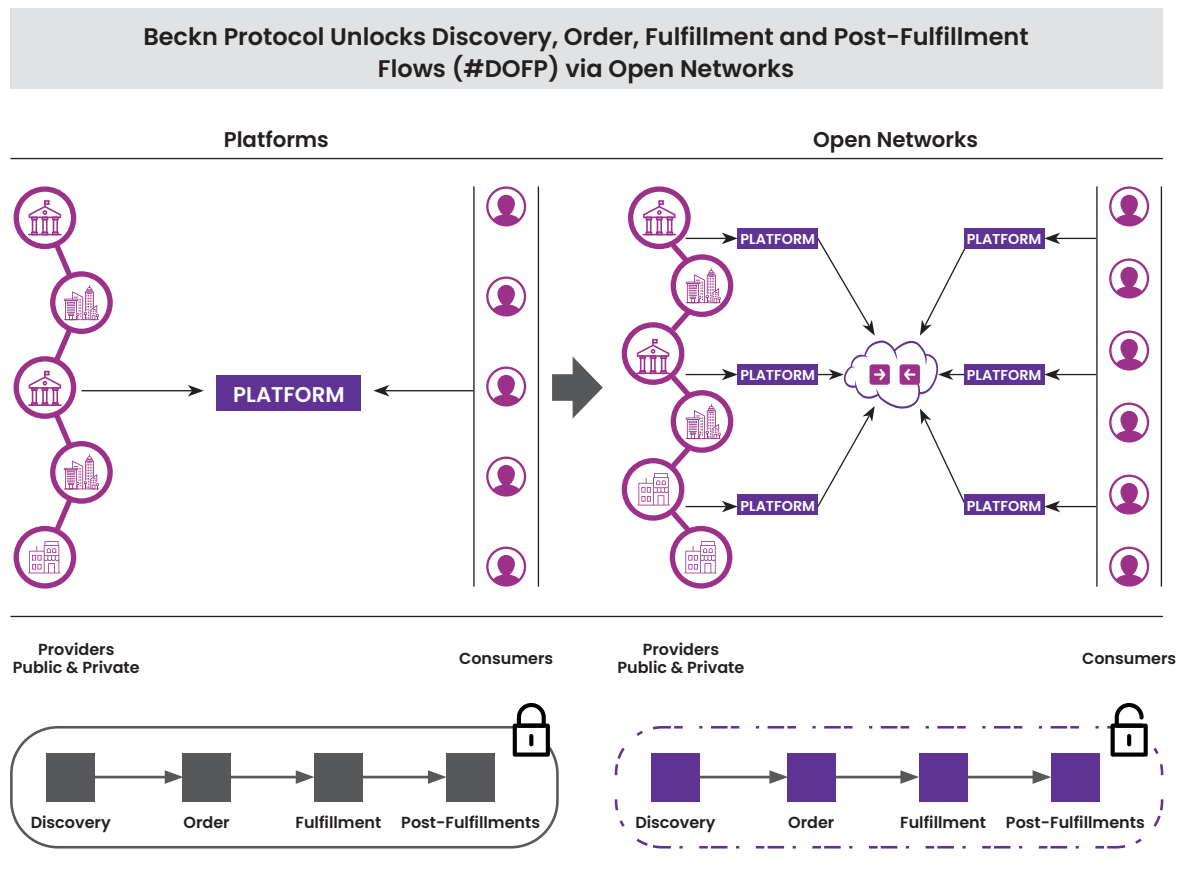
The Beckn Protocol establishes a common language for economic transactions using open specifications, essentially a set of API standards. Inspired by the fundamental principles of the internet—openness, interoperability, and layered structure—Beckn serves as a universal framework for economic exchanges.

Similar to protocols like HTTPS and SMTP that form the backbone of internet and email communications, Beckn provides a standardized, machine-readable language for economic transactions, regardless of the platform's size or type. It covers every stage of digital commerce transactions (DOFP), from discovery (D) and order placement (O) to fulfilment (F) and post-fulfilment (P) processes. As a technology- and sector-neutral protocol, Beckn sets the stage for creating interoperable peer-to-peer digital networks, facilitating transactions across multiple sectors.

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The impact of Beckn Protocol-based open networks is already evident in mobility and digital commerce. For instance, the Open Network for Digital Commerce ([ONDC](#)) enables local commerce across various segments like mobility, groceries, food delivery, hotel bookings, and travel to be discovered and accessed through any network-enabled application. Likewise, Namma Yatri is the first open network mobility application designed to offer multi-modal services to commuters without involving intermediaries. Auto rickshaws are among the initial service providers to join this mobility network. Beyond mobility, Beckn is also being used to address challenges in healthcare ([UHI](#)), education and skill development ([ONEST](#)), and various other sectors. As a result, improved discoverability and frictionless transactions can unlock value exchange for all stakeholders involved.

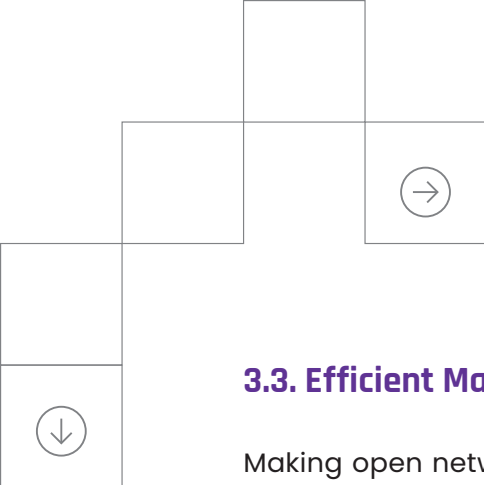
Figure 01: Interoperable Open Networks



3.2. Making Open Networks Purple Aware

Beckn protocol allows users to freely discover and access services across segments and not face the trouble of navigating between multiple closed-loop platforms and applications. Making the Beckn protocol “purple aware” means it can recognize and cater to people with disabilities (PWD). By doing this, open networks can make sure all the four stages of economic transaction for a PWD user are accessible. They can enjoy a wide range of services from various sectors.

The Beckn protocol is made “purple aware” by creating protocol tags: unique identifiers that mark users based on their disability to enable the discovery of appropriate service providers. These protocol tags are modified at the core protocol layer making the overall Beckn protocol “purple aware”. It ensures that any application which joins an open network enabled by the Beckn protocol is made “purple aware” by default. Through purple-aware open networks, PWD users can lead the way in testing and co-creating emerging solutions built by entrepreneurs. It’s about making sure everyone can participate fully in the online world.



3.3. Efficient Markets through Purple Aware Networks

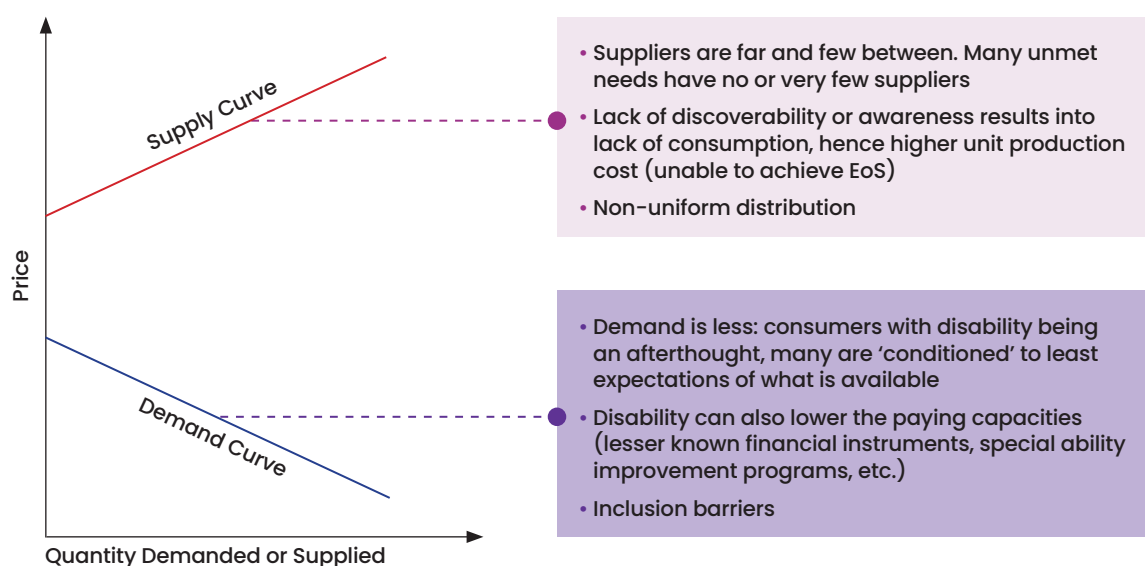
Making open networks “purple aware”, i.e. accessible to people with disabilities has countless benefits. It has the transformative potential to eliminate their systemic exclusion from the larger economy. It can help reshape the current market dynamics by bridging the gap between individuals with disabilities and the demand for services.

Today every PwD faces a crushing lack of information and awareness on finding the support and opportunities they need to live comfortably. This is further exacerbated by contextual factors such as gender, location and personal networks that marginalize their agency.

There are stories of individuals who have overcome many challenges to live independently, yet continue to face a lack of accessibility and options daily. **Pratibha**, who uses a wheelchair due to a spinal cord injury, took eight years to receive appropriate rehab, get educated and find a job that allows her to live independently in a new city. **Jeeja**, a person with cerebral palsy, has fought many odds to complete a double master, move between cities to work and start her own family. Despite their considerable grit, even today, being able to move between places or participate in activities such as sports still throws up a newer set of challenges.

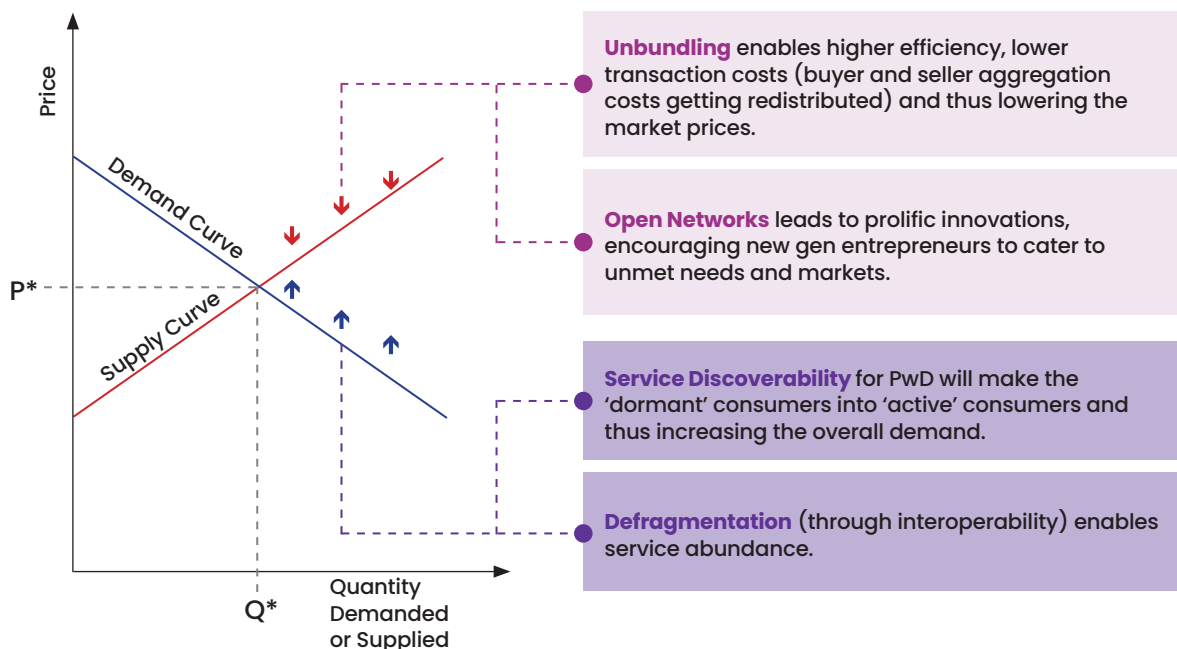
On the other side of the story, service providers find it difficult to cater to this population segment since they lack information about the customer base, distribution and needs. It leads to high unit costs in production and service delivery. The markets for PwDs are stuck in a vicious cycle of inefficiency.

Figure 02: Supply-demand Mismatch for Purple Services



By making open networks “purple aware”, both individuals with disabilities and service providers can better discover each other’s offerings and requirements. It facilitates smoother transactions, reduces costs, and enables providers to reach economies of scale. It allows PWDs to fully participate in the mainstream economy and consume more services. The previously ‘dormant’ demand, perpetuated by a lack of trust and frustration, can now lay the groundwork for new generations of providers to come and meet the visible unmet needs in the market. All these factors establish a new market equilibrium, generating a virtuous cycle of economic activity.

Figure 03: Market Equilibrium through Purple Aware Open Networks



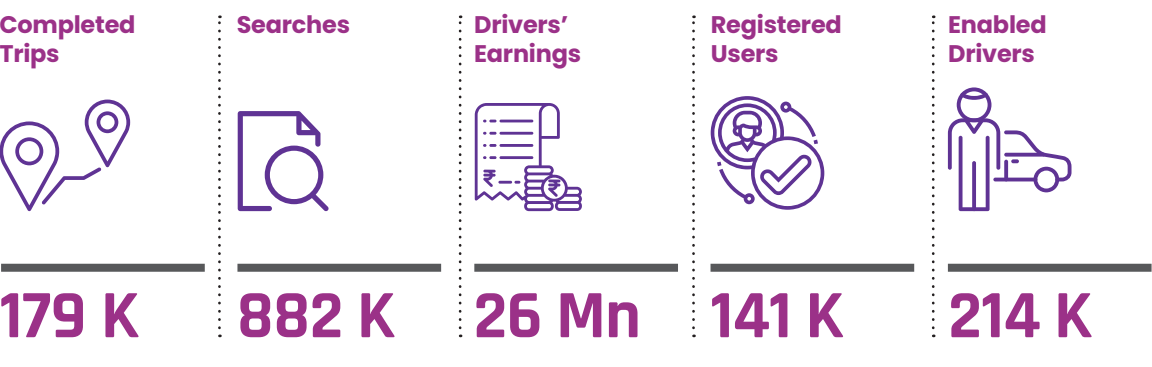
4. Namma Yatri: Community Initiative for Inclusive Mobility

4.1 Purple Rides through Namma Yatri

Namma Yatri is a ride-hailing app, a Beckn-enabled open network, launched in Bengaluru in August 2022. It embraces a people-first approach that connects drivers directly to customers. Today, the app sees over 1,00,000 rides every day in Bengaluru and is rapidly expanding to other cities.

In September 2023, Namma Yatri launched Purple Rides, an initiative to make mobility disability friendly. It was a community-driven initiative from day one with the active involvement of PWDs, **EnAble India**, drivers and the development team. In just under four months, close to **62,200 purple rides** have been made possible by **1.27 million PWD customers** and **1,21,000 drivers** in Bengaluru alone.

Figure 04: Snapshot of Namma Yatri’s Purple Rides



Source: [Nammayatri.in](https://nammayatri.in) (as of September 2024)

“Previously, some drivers would cancel their ride when they realized that the rider had a disability. However, nowadays there are fewer cancellations. This is because drivers can make an informed decision about accepting the ride, and they already know that they must provide service according to the needs of the rider.”

— Mallika
(A person with vision impairment)

“One of my most memorable experiences was when I helped a visually impaired couple get to their bus stop in Majestic. They needed to catch a bus, and I guided them to the stop and ensured they got on the right bus.”

— Adarsh
(An auto driver on Namma Yatri with 10+ purple rides)



So, how do purple rides work? Users with disabilities can register as purple riders and indicate their type and level of disability on the application. Users with visual, hearing or locomotor disability go through a different process when they request a ride.

Here's an example. For **Mallika** and **Sujatha**, people with vision disability, the *Talkback* feature on their phones reads out information to them. On the driver's side, the chat feature is disabled nudging them to call. Drivers are also informed to reach the location, honk and request permission to guide the user if needed.

Meanwhile, for **Narasimha**, who has hearing and speech disability, the call feature automatically gets disabled. The driver is encouraged to coordinate with the user on chat. For users with physical disabilities, the drivers are prompted to assist with disassembling the wheelchair if needed.

Drivers on the network are trained to respond appropriately towards purple riders. A PWD rider is identified as a purple rider which informs the driver about their disability. At the beginning of the ride, the driver is shown a short video on the type of disability of the rider and the kind of support they might require. These videos have helped drivers communicate effectively with PWDs, provide adequate support, and also offer mobility services to a large consumer base, thus increasing their income opportunities.

On the network protocol side, **Namma Yatri** has added disability tags to search requests so service providers can see if a rider has specific needs. The tags are based on feedback from PWDs and follow user experience guidelines. **Namma Yatri** regularly updates them based on user feedback.

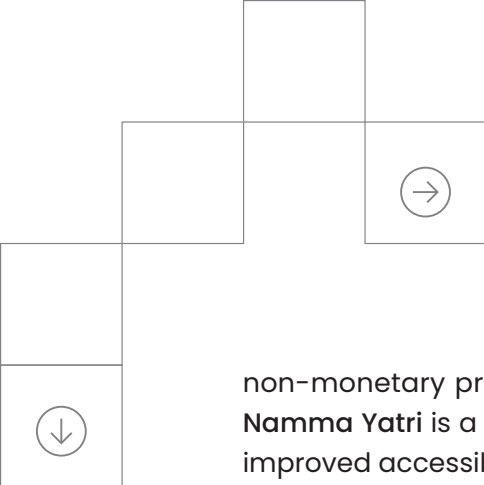
The process guidelines and educational content for service providers have been co-created with persons with disabilities. It is a continuous work in progress to make the network more purple-friendly through content creation, software testing, support centres,

"The app did not have this feature of calls being disabled before. The driver would call me every time and it used to be very irritating! I would text the driver but they would cancel my ride. Now it has become much more seamless. Even for payment purposes, I am able to show information on my screen and the transaction is smooth."

— Narasimha
(A person with hearing impairment)

"Drivers would often cancel my ride requests because they were worried whether my wheelchair would fit into their autos and also if it would scratch their vehicles. Now drivers are sensitized to working with persons with different kinds of disabilities."

— Dinesh
(A person with locomotor disability)



non-monetary provider incentives and experimentation with vehicle modifications. **Namma Yatri** is a successful demonstration of how a purple-aware open network has improved accessibility, service quality and convenience.

4.2. Iterative Community Centric Approach to Enabling Inclusion

How did the disability-inclusive features of the **Namma Yatri** open network come to fruition? **EnAble India**, a non-profit organization working towards the livelihoods and economic independence of PWDs, along with **JusPay** (**Namma Yatri**'s developers) was behind it all. It's a community-informed and community-driven initiative, where PWDs are involved in every step of the journey. There were multiple rounds of community meetings, feedback sessions and one-on-one engagement that covered various aspects:

1. **User Feedback on Accessibility Features:** It was an initial month-long process where the development team worked closely with PWDs to understand user flow and the barriers that limit user experience. Accessibility features were then updated and tested. This process was repeated by a group of accessibility testers who had different kinds of visual, hearing and locomotor disability.
2. **User Feedback on Experience:** There was proactive participation and increased referrals provided by PWD users during regular community meetings. They also provided feedback on their experience booking an auto and interactions with drivers. The community is also actively involved in creating user interface process guidelines shared on GitHub.
3. **Educational Material for Sensitization:** PWDs also provided inputs in developing sensitization content for drivers. These were short videos that aimed to normalize differences and nudge drivers to effectively engage with users with [vision](#), [physical](#) and [hearing](#) disability. Drivers view these videos every time they get a request for a purple ride.

“Our community of users have been closely interacting with developers with our suggestions, to make the experience better. This has given all of us a great sense of ownership.”

— Dinesh
(Person with locomotor disability and accessibility tester for Namma Yatri)

“I have learnt how to interact and support PWDs by watching the Purple Rides driver training videos.”

— Irshad Ali
(Auto driver on NammaYatri)

“I am comfortable providing purple rides now. For deaf people, I use the chat option and for the blind I figure out and go to the exact spot where they are. I urge everyone to not cancel purple rides anymore.”

— Allah Baksh
(Auto driver on NammaYatri)

4.3. Principles for Making Open Networks Purple Inclusive

To make networks and digital platforms accessible, making them purple-aware, recognizing disabilities and customizing user experiences are only the initial steps. Namma Yatri's success with the Purple Rides initiative is a great lesson for others who aspire to make their platforms and networks accessible. What are some of the lessons learnt?

1. **Shared Vision:** When everyone involved, including the development team and the disability community, share a vision and are committed to working together to enhance accessibility, it sets the stage for success.
2. **Community-Centric Approach:** It is crucial that the community takes charge and guides the development process by offering insights through various stages of the product. They can spread the word through their networks and help enhance usability through their engagement.
3. **Engagement with Diverse Stakeholders:** Bringing together all the key players—like drivers, accessibility testers, community organisations, product managers, and protocol developers—creates a space for meaningful collaboration and feedback.
4. **Incremental Thinking:** Making progress in stages is key. Namma Yatri started by using existing templates and listening closely to user feedback to improve accessibility. Till now, they have addressed three types of disabilities and plan to expand their support to others over time.
5. **Understanding Population Needs:** Disability is a social construct. This construct compresses the diverse lived experiences of people with disability to a very narrow definition. It is often at odds with reality. When Namma Yatri asked users if they needed specific assistance, 1,000+ responses revealed a wide array of conditions—such as pregnancy, flat feet, heart disease, arthritis, cancer, back pain and much more. This simple question sheds light on the various challenges people face when they travel. As we innovate, it's important to shift from a narrow disability-centric view to a heterogeneous 'difficulty' based view of disability. It will account for the lived experiences of people and drive true inclusion.

“The goal was to have inclusive mobility because “the economy progresses when more people move”.

With control of mobility, PWDs can now take a ride when they need, which was a luxury they didn't have before despite being independent and supporting themselves and their families.”

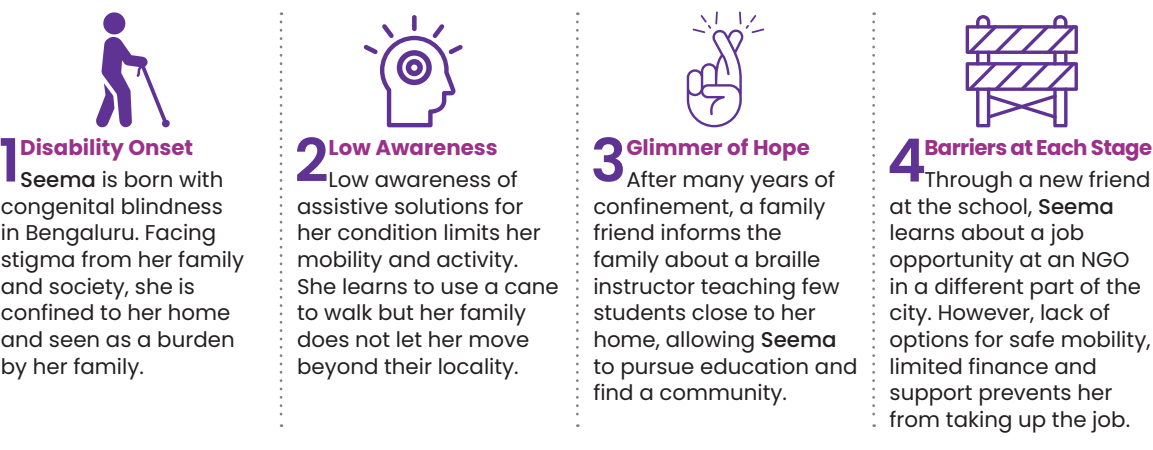
— Shanti Raghavan
(Founder of EnAble India)

5. Future of Purple Aware Networks

5.1. Imagining Use-Cases

Namma Yatri’s approach to making services accessible to PWDs can be extended to other existing and emerging Beckn-enabled open networks as well. The future of the purple economy will be characterized by an abundance of services built together with the community of PWDs. It will lead to their widespread adoption and improvement in the overall quality of life. To understand this better, let us look at **Seema**’s story, a person with a vision disability living in Bengaluru. We will look at her current situation and what changes in her future with purple-aware open networks.

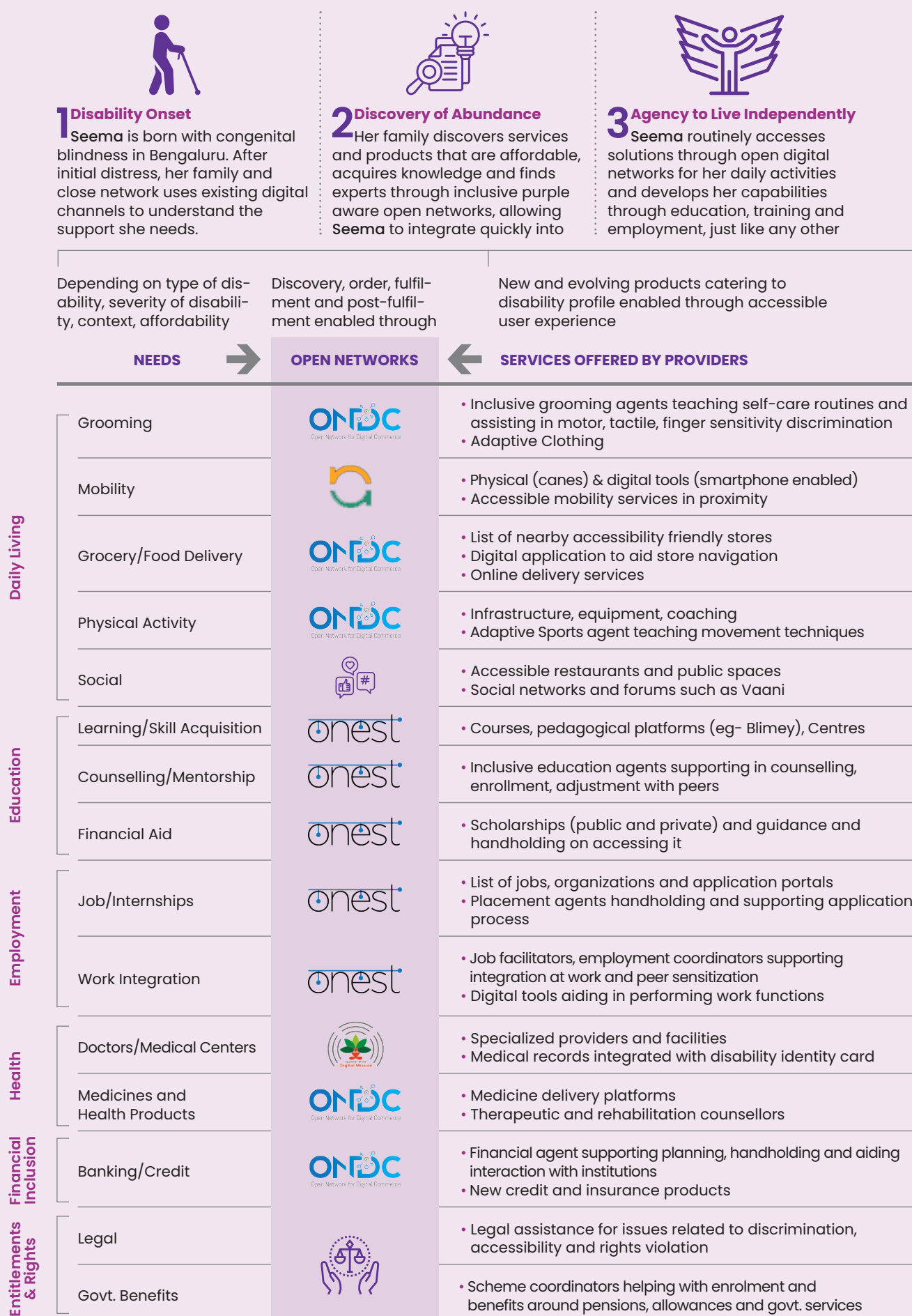
Figure 05: Status Quo

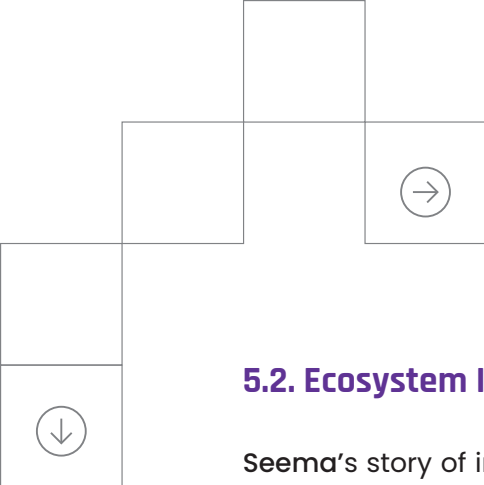


Seema’s life today in this context is characterised by

Low Agency Lack of autonomy since there is high dependence on family and close networks on information and access to any service.	Poor Quality of Life Support needed on basic day to day activities such as grooming, travelling and limited social engagement.	Thwarted Potential No support structure and services to enable her to access employment opportunities and be financially independent.
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Figure 06: Reimagined Experience





5.2. Ecosystem Impact: Mainstreaming Purple Economy

Seema's story of inclusion and autonomy can be the story of millions of people in the country soon. All it needs is a purple layer within existing and emerging open networks that are working towards the discoverability of services across sectors. The purple economy creates a new market for entrepreneurs to target, resulting in new industries and job opportunities, such as modern healthcare and prescription eyeglasses.

Inclusive purple-aware open networks will enable systemic change and further enable:

- A wave of innovation in products, tools and service delivery. It will put India on the map as the model of disability excellence.
- Open digital ecosystems and digital infrastructure that are inclusive and empower people with different capabilities and functionalities.
- The job, education and skills markets. These are then incentivised to grow swiftly to meet the requirements of millions of new seekers.
- A narrative shift from the welfare or charity model of PWD groups. This change in perspective will enable tapping into the economic potential of serving a growing and diverse market with unique needs.

6. Conclusion

The opportunity presented by the purple economy today is clear. There is a critical need to enable markets to not only discover but facilitate interactions between PWDs and service providers. Communities and open networks such as **Namma Yatri** can overcome information gaps and make services accessible. Other Beckn protocol-enabled open networks and emerging ones can be modelled on **Namma Yatri**'s purple rides. Their principles can be used to create a virtuous cycle of opportunities for PWDs in the market. The economic engine that will kick in through this will enable a flourishing purple economy, allowing India to lead the world in disability excellence.

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A person is using a hand-cranked stationary bike. They are holding a white cane in their right hand, which is resting on the bike's frame. The person is wearing a dark shirt and a ring on their left hand. The background is a blurred outdoor setting with trees and a building. The entire image has a purple tint.

**Making open networks
purple aware has the
transformative potential
to eliminate the systemic
exclusion of PwDs from
the larger economy.**

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