



ATMANIRBHAR BHARAT KI AUR ... ek aur Kadam

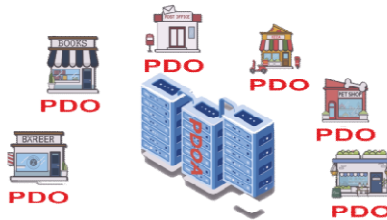
Broadband at your fingertips

PM-WANI

PM-WANI Wifi - PDO for everyone

Prime Minister's Wi-Fi Access Network Interface

Entrepreneurship Opportunities for Small and Micro Businesses
Local Manufacturing and Supply Chain for Wi-Fi Equipment



How to become a **PDOA**

Govt. of India

How To Become A PDOA

Introduction to PM-WANI

Broadband is no more a buzzword of technical meetings and forums; it has become a necessity of every individual aspiring to connect with the fast-evolving information world. Governments around the world have recognized the importance of its far-reaching impact on social and economic development of people and public broadband networks are being set up in every part of the globe now-a-days.

As per the latest statistics, the internet broadband density in the rural areas stands at 38 per 100 users. For the development of the rural areas, it is essential that for improving literacy and economic growth, this gap should be bridged.

In-line with this, Govt. of India had launched the PM-WANI Scheme in December 9th, 2020 to take forward the goal of National Digital Communications Policy, 2018 (NDCP) of creating a robust digital communications infrastructure.

PM-WANI unbundles the ecosystem of Wi-Fi operations and deployment and enables multiple players to be a part of the ecosystem for offering affordable broadband. The end user can buy coupons of smaller denominations ranging from Rs.2 to Rs.20 for broadband access.

The PM-WANI framework envisages provision of Broadband through Public Wi-Fi Hotspot providers and will consist of the following elements:

Public Data Office (PDO)

PDO will establish, maintain, and operate Wi-Fi Access Points and provide last-mile connectivity to deliver Broadband services to subscribers. ***PDO need not pay any license fee or perform any kind of registration.***

The PDO needs to arrange access point, power source for powering up the access point and internet bandwidth from ISP/TSP's such as BSNL, MTNL, RJio, Vodafone or Bharat Broadband Nigam Limited.

Any tea-shop or *kirana* shop owner who has a customer base and has space for installation of access point can become a PDO.

Public Data Office Aggregator (PDOA)

PDOA provides user interface for the user to buy a plan and keep track of the data consumption of the user. **PDOA need not pay any license fees.** PDOA needs to perform a simple online registration process at Saral Sanchar Portal (<https://saralsanchar.gov.in/>), followed by signing up at Central Registry(<https://pmwani.gov.in>).

App Provider

App Provider, who will develop an application to register users and 'discover' and display PM-WANI Wi-Fi hotspots in the proximity for accessing the internet service and also authenticate the potential Broadband users. Startups and wallet providers can become App Providers.

App Provider **need not pay any license fees.** App Provider has to perform a simple online registration process at Saral Sanchar Portal (<https://saralsanchar.gov.in/>), followed by signing up at Central Registry (<https://pmwani.gov.in>).

Central Registry

Central Registry will maintain the details of App Providers, PDOAs, and PDOs. To begin with, the Central Registry will be maintained by the Centre for Development of Telematics (C-DoT).Central Registry is responsible for the certification of PDOA and App Provider software.

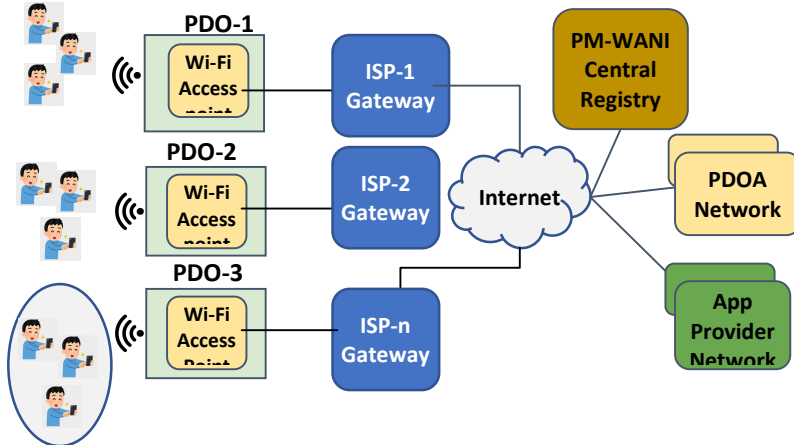
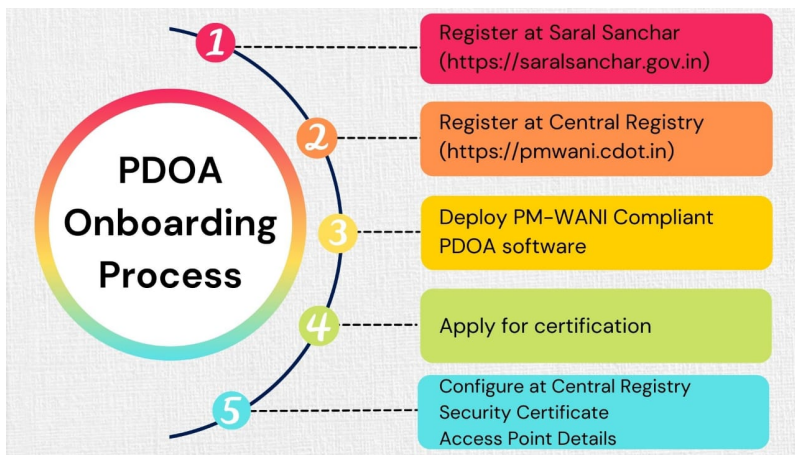


Figure 1: PM-WANI Network Elements

What does a PDOA do?

A PDOA is an aggregator of multiple access points (PDOs) who are the Wi-Fi service providers in the last mile. This is similar to the way services are offered by Ola who aggregates multiple taxis or Oyo who aggregates multiple hotels. The PDOA will earn revenue from PDOs by offering them the features of plans, accounting, authorization and a captive portal to the PDO.

What are the steps for PDOA Onboarding?



Where do I get more details of the onboarding process?

1. Visit <https://pmwani.gov.in>.
2. On the main tab Downloads option is present.
3. User Manual is available for PDOA and App Provider.
4. Click on Download.
5. The User Manual gives the complete details of the onboarding process.

Who can provide PM-WANI Compatible PDOA Software?

PDOA can procure any PM-WANI certified PDOA software stack available in the market. C-DOT also provides PM-WANI compatible PDOA software.

How is the PDOA certified by the PM-WANI CR?

Initially a PDOA gets a provisional certificate based on self-declaration document. After Provisional certification service can be started by the PDOA. However, PDOA is required to get itself certified through a lab created for this purpose.

What security compliance needs to be followed by the PDOA?

Following security conditions are defined in the WANI framework and the same need to be complied by PDOAs:

- a) PDOA shall make necessary provisions for storage of user data for one year to ensure compliance with legal provisions, as required.
- b) The user data privacy will be ensured by PDOAs. Complete user data and usage logs will be stored within India.
- c) Subject to terms and conditions of the Registration, PDOA will take all necessary steps to safeguard the privacy and confidentiality of any information about a third party to whom they provide the service.

What is the Business Model for a PDOA?

PDOA's main investment will be a creation of complete backend system for hosting internet plans/coupons, authorization and accounting (AA), payment collection, WANI token handling module and storage for log to ensure Lawful Interception (LI) compliance. The solution to achieve these functions can either be developed by PDOA in an ownership model or sourced from market on subscription basis under service model from any of the platform as a Service (PaaS) provider. Similarly, the software solution can be hosted on own server or hosted on cloud through cloud service provider on subscription/rental basis.

Under ownership model PDOA needs to arrange the following infrastructure/resources to provide its services to PDOs getting aggregated to its platform, under PM-WANI framework:

- Own server to host PDOA software
- Own PDOA software stack
- Internet Bandwidth so that solution can be accessed on the internet
- Payment Gateway Account for customers to make online payment
- Domain Name to access the solution on internet

- SSL (Secure Sockets Layer) Certificate for secured communication
- Manpower to run the operations

Typical costing of these elements is as follows in Table 1 below

Table 1: Typical costs (in Rs.) per annum in own infra model

Item	Cost of item/Service	Depreciation /Amortization	** Cost of Capital (12%)	Total Cost per annum
Server cost with OS and storage (One time cost) Life: 5 years	100000	20000	12000	32000
Bandwidth with redundancy (Recurring cost as Service)	15000	NA	NA	15000
PDOA Software Stack (onetime purchase cost)Amortized over 10 years	400000	40000	48000	88000
Payment Gateway [#] , Domain Name and SSL Certificate (Recurring cost)	6000	N/A	600	6600
Manpower Cost for operations (Recurring cost)	300000	N/A	36000	336000
Total Annual Cost for PDOA in Ownership Model				477600
Break-even cost per month for PDOA in Ownership Model				477600/12 = 39800

*Opportunity cost of entrepreneur's skill and time is not included. Also, it is assumed that infrastructure is utilized exclusively for PDOA operations. If the infrastructure is also used for other purposes, break-even cost will reduce.

** Cost of capital is rate of interest on the capital employed/invested in the business by the entrepreneur.

Payment gateway transaction charges are not included

Disclaimer: These costs are indicative and may vary based on market dynamics. Entrepreneurs are requested to use this only as a guidance.

In case PDOA decides to opt for a service/subscription-based model typical costs will be incurred as shown below in Table-2.

Table 2: Typical costs (in Rs.) per annum in Subscription/Service based model

Item	Subscription Cost per annum	** Cost of Capital (12%)	Total Cost Per Annum
Cloud Cost inclusive of Hardware/OS/Bandwidth/storage (as Service)	100000	12000	112000
PDOA Software Stack (as Service) @Rs 4000/- per month	48000	5760	53760
Payment Gateway [#] , Domain Name and SSL Certificate (Recurring cost)	7000	840	7840
Operation Manpower Cost (Skilled) @Rs 20000/- per month	240000	28800	268800
Total Annual Cost for PDOA in case of Rental model			442400
Monthly Cost for PDOA in case of Rental model			442400/12 = 36866
<p>*Opportunity cost of entrepreneur's skill and time is not included. Also, it is assumed that infrastructure is utilized exclusively for PDOA operations. If the infrastructure is also used for other purposes, break-even cost will reduce.</p> <p>** Cost of capitalis rate of interest on the capital employed/invested in the business by the entrepreneur.</p> <p># Payment gateway transaction charges are not included</p> <p>Disclaimer: These costs are indicative and may vary based on market dynamics. Entrepreneurs are requested to use this only as a guidance.</p>			

What revenues are expected?

PDOA sells internet plans through its portal. Whenever a user tries to access a WANI compliant public Wi-Fi hotspot (PDO access point), he/she is directed to the concerned PDOA portal. The portal offers various plans in terms of coupons and the user can select the value of the coupon desired to be purchased. Therefore, user makes payment to PDOA for accessing the access point of a PDO. After purchasing a plan from PDOA a user can log into access point hosted

by a PDO. As the money is collected by PDOA from users by selling them a plan online, PDOA retains a share of this revenue based on the agreement between a PDO and PDOA. PDOA pays back this money back to PDOs based on the usage of internet by users from the access point of a PDO. PDOA retains a share of revenue for delivery of its services to PDOs. This share is mutually negotiated between a PDO and PDOAs per the agreement. The revenue share between PDOA and PDOs vary for each PDOA depending upon the services and support provided by the PDOA to PDOs. The number of PDO served by the PDOA is directly proportional to the PDOAs revenue. Assuming a certain minimum revenue per PDO (**Please refer PDO booklet for reference**), revenues for the PDOA is shown in in Table 3 below. A typical share of 90: 10 between PDO and PDOA is assumed to calculate the revenue of a PDOA.

Table 3: Revenue (Rs.) projections for a PDOA

	No. of PDOs served	Total revenue generated per month	Share of PDOA per month (10%)
Nos of PDO in first 3 months	100	$4050 \times 100 = 405000$	$405000 \times 0.1 = 40500$
Nos of PDOs in first 6 months	500	$4050 \times 500 = 2025000$	$2025000 \times 0.1 = 202500$
Nos of PDOs in 1 year	5000	$4050 \times 5000 = 20250000$	$20250000 \times 0.1 = 2025000$

As can be seen the PDOA can break even and cover all its costs, including 12% on funds deployed for PDOA business, if it serves approx.100PDOs. More the number of PDOs served by a PDOA, more will be its earning and profit.

Other Booklets of PM-WANI

- **PDO Booklet**https://pmwani.gov.in/assets/landing-page/booklets/Booklet_PDO_English.pdf
- **APP Provider Booklet**https://pmwani.gov.in/assets/landing-page/booklets/Booklet_APP_English.pdf

Annex I: List of DOT Field Officers

STATE/UT	Authorized person Name	Designation	Email Id	Telephone No.
Andaman and Nicobar Islands	Sh. Rakesh Kumar Sharma	DDG (Tech.)	ddgt.wb-dgt-dot@gov.in	033-24402027
Andhra Pradesh	Sh. G V Rama Krishna	DDG (Tech.)	ddgt.vjap-dgt-dot@gov.in	0866-2496499
Arunanchal Pradesh	Sh. Rajesh Kumar Maheshwari	DDG (Tech.)	ddgt.shillong-dot@gov.in	9422217211
Assam	Sh. G K Sutar	DDG (Tech.)	ddgt.as-dgt-dot@gov.in	361-2736999
Bihar	Sh. A.K. Sinha	DDG (Tech.)	ddgt.br-dgt-dot@gov.in	612-2506139
Chattisgarh	Sh. R.K. Singh	DDG (Tech.)	ddgt.mp-dgt-dot@gov.in	755-2555854
Dadra and Nagar Haveli and Daman and Diu	Sh. Roshan Lal Meena	DDG (Tech.)	ddgt.gj-dgt-dot@gov.in	9414001115
Delhi (Gurgaon, Ghaziabad, Noida, Faridabad)	Sh. Y.K. Singh	DDG (Tech.)	ddgt.dl-dgt-dot@gov.in	011-26484080
Goa	Sh. Vikram Malviya	DDG (Tech.)	ddgt.mh-dot@gov.in	9425001499
Gujarat	Sh. Roshan Lal Meena	DDG (Tech.)	ddgt.gj-dgt-dot@gov.in	9414001115
Haryana	Sh. O.P. Manhas	DDG (Tech.)	ddgt.hr-dgt-dot@gov.in	1722538060
Himachal Pradesh	Sh. Brij Mohan Setia	DDG (Tech.)	ddgs.hp-dgt-dot@gov.in	0177-2625065
Jammu & Kashmir	Sh. Kailash Chandra Panday	DDG (Tech.)	ddgt.jk-dgt-dot@gov.in	191-2470133
Jharkhand	Sh. A.K. Sinha	DDG (Tech.)	ddgt.br-dgt-dot@gov.in	612-2506139
Karnataka	Smt. Sunita Cherodath	DDG (Tech.)	ddgt.ktk-dgt-dot@gov.in	080-26642626
Kerala	Smt. Sobhana V	DDG (Tech.)	ddgt.krl-dgt-dot@nic.in	484-2207255
Lakshadweep	Smt. Sobhana V	DDG (Tech.)	ddgt.krl-dgt-dot@nic.in	484-2207255
Ladakh	Sh. Kailash Chandra	DDG (Tech.)	ddgt.jk-dgt-dot@gov.in	191-2470133

	Panday			
Madhya Pradesh	Sh. R.K. Singh	DDG (Tech.)	ddgt.mp-dgt-dot@gov.in	755-2555854
Maharashtra	Sh. Vikram Malviya	DDG (Tech.)	ddgt-mh-dot@gov.in	9425001499
Mumbai	Sh. Ajay Kamal	DDG (Tech.)	ddgt.mb-dgt-dot@gov.in	022-28573530
Manipur	Sh. Rajesh Kumar Maheshwari	DDG (Tech.)	ddgt.shillong-dot@gov.in	9422217211
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Mizoram	Sh. Rajesh Kumar Maheshwari	DDG (Tech.)	ddgt.shillong-dot@gov.in	9422217211
Nagaland	Sh. Rajesh Kumar Maheshwari	DDG (Tech.)	ddgt.shillong-dot@gov.in	9422217211
Odisha	Sh. U.V. Ramana	DDG (Tech.)	ddgt.dot.od@gov.in	9972279970
Puducherry	Sh. Shri S. Sudhakar	DDG (Tech.)	ddgt.tn-dgt-dot@gov.in	044-28251118
Punjab	Smt. Rekha Singh	DDG (Tech.)	ddgt.pb-dgt-dot@gov.in	172-2218094
Rajasthan	Sh. Ram Gopal Yadav	DDG (Tech.)	ddgt.rj-dgt-dot@gov.in	0141-2712620
Sikkim	Sh. Rakesh Kumar Sharma	DDG (Tech.)	ddgt.wb-dgt-dot@gov.in	033-24402027
Tamil Nadu	Sh. Shri S. Sudhakar	DDG (Tech.)	ddgt.tn-dgt-dot@gov.in	044-28251118
Telangana	Sh. K. Raja Sekhar	DDG (Tech.)	ddgt.ap-dgt-dot@gov.in	040-27722713
Tripura	Sh. Rajesh Kumar Maheshwari	DDG (Tech.)	ddgt.shillong-dot@gov.in	9422217211
Uttrakhand	Sh. Arunkumar Verma	DDG (Tech.)	ddgc.ddnupw-dgt-dot@gov.in	135-2735577
Uttar Pradesh (East)	Sh. Anil Kumar Ranjan	DDG (Tech.)	ddgt.upe-dgt-dot@gov.in	0522-2725501
Uttar Pradesh (West)	Sh. Anupam Varshney	DDG (Tech.)	ddgt.upw-dgt-dot@gov.in	9868130902
West Bengal	Sh. Rakesh Kumar Sharma	DDG (Tech.)	ddgt.wb-dgt-dot@gov.in	033-24402027

