

National Data Exchange Platform, Bhutan

Enabling Trusted Government Interoperability
using WSO2



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Our journey with WSO2

From system integration to national-scale digital interoperability

1. 2016 started with wso2
 - a. Initial adoption of wso2 for the department integration
2. Growing integration
 - a. More systems and APIs were connected across the Nation
3. Scaling interoperability
 - a. WSO2 became a key platform for secure data exchange
4. Modernizing NDE
 - a. Migration to moder scalable architecture
5. Nation Data Exchange
 - a. Nationwide integration



Digital Transformation

Digital Government Vision

To create a citizen-centric, secure, and interoperable digital government where public services are delivered seamlessly through trusted data sharing, reducing manual processes and improving service efficiency.





Bhutan's Digital Drukyul Initiative



Connected Government

Building a digital government where systems talk to each other.



Access For All

Increasing access to online public services for every citizen.



Data In Motion

Data should move — not citizens.

As Bhutan advances this initiative, fragmented government data became a key bottleneck to delivering seamless digital services.



The Need

A secure, standards-based Platform to:



Connect

Government system across agencies



Exchange

Enable real-time data exchange



Secure

Ensure secure and trusted sharing



Build

The foundation for a connected digital government



What is National Data Exchange ?

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National Data Exchange (NDE) is Bhutan's digital connectivity platform that enables secure and seamless sharing of information between government agencies and authorized organizations





Challenges Before NDE Platform

Government agencies operated independently



Data Silos



Duplicate Information



Manual Verification



Multiple Integration



Security concerns



Point to point APIs



Difficult Maintenance



Why We Built NDE???

Objectives

- One secure integration platform
- Reusable APIs
- Central governance
- Standard security
- Identity management
- Audit logging
- Monitoring
- Faster service delivery



Implementation model

WSO2 Components	Number	Load Balancer
API Gateway	2	Yes
IAM	2	Yes
MI	2	Yes
APIM	2	No-internal Traffic



Live Use Case: Financial Onboarding

Scenario: Enable secure and real-time customer verification for banks

PROCESS FLOW

1. Customer applies for a banking service (account opening / loan application)
2. Financial institution sends a verification request through NDE APIs
3. NDE authenticates the institution and securely routes requests to authorized data providers
4. Customer information is verified via NDI, the Tax System, and other authorized government systems
5. Verified data is securely returned to the financial institution
6. Bank completes digital customer onboarding



Live Use Cases: Benefits

-  Faster digital KYC verification
-  Reduced manual document submission
-  Secure and consent-based data sharing
-  Improved customer experience
-  Reduced fraud and duplicate data collection



Benefits of using NDE

- Faster service delivery
- Reduced manual verification
- Standardized APIs
- Better governance
- Improved security
- Reduced duplicate integrations
- Easier onboarding of new agencies
- Centralized monitoring
- Improved interoperability



NDE at Scale

Connecting Systems, Services, and Citizens

190+

Production APIs



All government agencies
connected

230+

Staging APIs



Millions of API calls annually

2

New MIs added



Every existing system
integrated



Products recently migrated



Future Roadmap



Onboard financial institutions and insurance



WSO2 products in major projects requiring huge data transaction volume



Renewing the contract this year

Thank You

Together for a Connected
Digital Bhutan

