

# Choice Case Study

## Design, Supply, Installation, Relocation and Commissioning of Datacenter for Nationalized Bank

### Project Background

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Choice Solutions Limited was short listed by NABARD for a techno-commercial bidding process to design, supply, install, relocate and commission a state-of-the-art data center at NABARD Head Office at Bandra Kurla Complex in Mumbai.

The existing data and network was supported through a basic legacy Tier I server cum electrical room hosting the core switch, servers, storage and UPS. NABARD having embarked on a journey to roll out new IT initiatives, wanted a multi fold increase in its computing power along with high resilience. NABARD was advised by its existing IT service providers - a leading Indian IT organization as well as an international IT organization - that relocating its fiber cables was not feasible. As such NABARD considered rebuilding of the new Data Center at the same site around the existing equipment. Further, NABARD was considering a Tier II design for its Data Center due to limitation in the existing building infrastructure. Further, NABARD follows a strong "Green" initiative and most of its facilities are BEE certified. The headquarters itself is certified by Indian Bureau of Energy Efficiency (BEE) as Four Star.

### About the Client

NABARD is an apex development bank established in 1982 by a special act of Indian Parliament with main focus on uplifting the rural India economy by increasing the credit flow for elevation of agriculture & rural non-farm sector. NABARD has been accredited with "matters concerning policy, planning and operations in the field of credit for agriculture and other economic activities in rural areas in India".

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*Executing the project without obstructing the client business was a key concern*

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### Project Challenges or Requirements

At the tender stage, all the bidders were expected to study the proposed space and identify all issues & constraints. The SI's were to propose up to two best techno commercial solutions on a lump sum contract basis. With the selection criteria being based on 70% of technical proposal, NABARD was clearly seeking the best solution at a minimal cost, with the lump sum clause ensuring that there was no cost escalation risk to the organization.

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*As services and beam structure above the gypsum false ceiling could not be identified till the gypsum false ceiling was removed. It may have affected the height needed for building the data center.*

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A significant challenge anticipated during execution of the project was that the work had to be carried out in a live & business critical environment which was not fault tolerant. A significant implementation risk was identified during site analysis, the services and beam structure above the gypsum false ceiling could not be identified till the gypsum false ceiling was removed.

It was identified that Air Conditioning ducts, sprinkler piping and beams could limit the total height available for building a proper Data Center, as the drawings for the structure and services were not available for proper assessment.

## Project Scope

- i. As Is” Analysis of existing DC design, with special focus on space constraints.
- ii. Design and Implement the Tier II solution for:
  - Physical Layout of the DC, Electrical/UPS room and NOC
  - Shell with minimum 90 minutes fire rating, and providing the required raised access floor and false ceiling.
  - Low Tension (LT) Electrical system tapping power from existing main panel.
  - Precision cooling solution for Data Center and Comfort cooling for other areas.
  - Biometric Access Control system
  - Fire/Smoke detection with regular and VESDA systems.
  - Fire Suppression system with FM200
  - CCTV system
  - Rodent Repellent system
  - Water Leak detection system
  - BMS to integrate the systems
  - Server & Network Racks
- iii. Operate and maintain the Data Center for 1 year on 24/7 basis
- iv. Provide maintenance for 5 years post the 1 year warranty
- v. Execute the project within 75 days. It was envisaged that the IT equipments would not be shifted from their location and construction would be done around, under and above the IT equipment and at same time ensure a minimum risk to the ongoing critical operations.

## Choice Role and Solution Offered

Choice Solution Ltd. carried out a thorough investigation of the space and client requirements. The internal risk assessment workshop identified ways to construct the Data Center around the IT equipment. However the risk to NABARD business operations was high and a strong mitigation strategy or alternate solution was identified as a need.

A further detailed evaluation was carried out by Choice Solution Ltd. on feasibility to relocate the IT network thereby mitigating the above risk. The feasibility study included identifying suitable alternate space.

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*Thorough investigation of the space and client requirement was carried out*

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*Feasibility of relocating the IT equipment & network was also worked out*

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Two technical solutions were prepared, the first one focused on basic functionality with a strong cost focus. The second solution was considered more optimum for meeting the NABARD requirement, as in addition to giving full consideration for meeting the demands of power efficiency and modularity it also took into consideration future expansion of the data center, which was much beyond the current tender requirements. Existing investments into UPS and comfort AC was protected by finding reuse in the designs.



*Picture 1*

*Tier II datacenter  
(Pre completion)*

*The data center was setup within a specified timeframe as required by the client without leading to business loss for the client and option for future expansion.*

Post thorough evaluation of all bids, NABARD opted for the second solution provided by Choice Solutions Ltd. An important consideration was that Choice Solutions Ltd. was the only SI who had considered the implementation from a Business Risk and Continuity perspective.

The detailed level of considerations in the proposal prompted the impressed client to write *“I could finally go through your DC proposal in detail, you have not left a single stone unturned.”*

### **Solution Offered**

The key activities undertaken by Choice Solutions Ltd. include:

1. Mapping the existing layout, services plan. Special attention was paid to the services above false ceiling. The floor sprinkler and AC duct headers were found as impediments to achieving the required height and had to be shifted to allow introduction of raised access floor.
2. The IT equipment, fibre network and existing comfort ACs were relocated within a 24 hours window to the alternate space identified.
3. The overall space was carved out into a separate Data Center, UPS cum Electrical Room and NOC. The Data Center structure was prepared with a 2 Hours Fire Rating.
4. The Power and Cooling structure from the tapping point onwards was implemented as per Tier III data center architecture. This provided an easy road map for improving reliability and uptime as and when NABARD requires, without involving any rework in the Data Center space.
5. Full consideration was given to further expansion of the data center space and system design so as to enable NABARD to grow beyond the immediate plan. The modularity of the Choice design ensures that there is no expensive retrofit or rework of the structure required.
6. Once the Data Center was completed within the scheduled time limit, the IT equipments were relocated back into the new state-of-the-art Data Center and made operational again within a 24 Hours period.

The execution strategy adopted by Choice Solutions Ltd. allows the client to take advantage of the numerous benefits with regards to the architecture of this project.

## Client Benefits

The client would be able to take advantages of the following benefits from the proposed architecture of this project.

i. **Scalability and Modular Design:** The design allows for growth much beyond the initial plan. In the inaugural presentation made by the CGM-DIT to the NABARD Chairman, it was stated that the new Data Center is now expected to sustain growth for the next 30 years.

ii. **High Power Efficiency:** Relevant equipment was selected for use in the Data Center with full consideration to power efficiency. The designated PUE for the Data Center (including the UPS / Electrical Room and NOC) at the planned IT load is 1.59 as against the average rating of 1.80-1.89 as identified by Uptime Institute study.

iii. **High Service Uptime:** The Data Center infrastructure standard was massive upgradation from Tier I to Tier III. Dual power paths were introduced to enhance reliability and a static switch was introduced for dual power paths for single corded equipment. TIA 942 standards were applied to minimize the risk of interference between power and data and also for ensuring a full scale power network architecture within the Data Centre.

The Data Center tier rating is presently limited to Tier II only in terms of the base building infrastructure (Transformer and DG).

iv. **Protection from Equipment Failure:** There is complete redundancy for UPS, PACs and the power delivery path from the tapping point onwards.

v. **Investment Protection:** A modular approach ensures a future potential for growth much beyond the initial vision – as a matter of fact for next 30 years, protected as per the CGM-DIT's presentation.

vi. **Client Satisfaction on Delivery Date:** A detailed project plan was agreed upon with the client alongside the risk and the risk mitigation strategy. All contributing and potentially affected parties were kept informed well in advance of all critical activities. This ensured that the entire project work was completed within the stipulated timeline.

The detailed planning, follow-up and communication ensured Choice Solutions Ltd. could complete the activities as per plan and without any events therefore ensuring project success.



*Picture 2*

*Tier II data center  
(Pre completion)*

*The data center is as good as a Tier III datacenter and Tier II only in terms of the base building infrastructure (Transformer and DG).*

## Benefits to Choice Solutions & NABARD

1. The NABARD project has provided a prestigious project reference for Choice Solutions Limited.
2. The number of constraints, potential issues, unknown factors above the false ceiling and a high potential business loss to the client tested the planning, risk identification & mitigation strategy adopted by the Choice family as well as the execution capabilities.
3. The project was executed without any glitch as even a single incidence could have spelt major loss for the clients business.
4. A miscalculation or improper risk assessment could make the project unviable in a lump sum scenario. Adding any high buffer is always unviable in a competitive bid scenario. In the end, the fact is that the project went off successfully and accolades from the client speak of effort put in by Choice Solutions Ltd.
5. If we take up the case of the customer, they were able to leverage the skills of the Choice consulting and delivery teams.
6. Right technology was introduced that best met the project requirements of modularity, scalability and addressed all site specific constraints while at same time prevented waste of any existing equipment.
7. What was being considered as an ongoing 75 days of very serious business risk was completely mitigated by relocation done within a specified time.
8. The project execution worked for the best interests of both the customer (NABARD) and Choice Solutions Ltd.

Picture 3

### Tier II data center

The data center is been setup in a totally secured environment with all protection protocols adhered to.



### Client Testimonials

"It was a great experience in working with you and your team"  
 – Mr Neeraj Kumar,  
 CGM, DIT, NABARD

"The overall experience is very much satisfactory and enriching"  
 – Mr Ashutosh Sardana,  
 Manager, DIT, NABARD

Picture 4

### Inauguration

The new state-of-the-art data center was inaugurated by NABARD Chairman, and has gone live in June 2012



## About Choice Solutions

Established in 1991 Choice Solutions Ltd. is a leading IT and Facilities solutions provider. Choice Solutions Ltd. business comprises of Six different practices, namely

### IMS

- Desktop, Server, Network, Storage, Support, OS, Assets, Apps, Non IT
- Hardware - A-Add, M-Modify, I-Install, C-Change, R-Repair
- Assets, Security, Software Distribution, Upgrades

### Networking

- Packaged Services Monitoring & Management
- Products, Security, Design, Deploy, Maintain
- Auditing & Compliance, SOC

### Datacenter

- DC Audit, Monitor & Manage, Training
- Assess, Design, Built, Deploy, Disaster Recovery

### Consulting

- Business Consulting, CIO & Technology Services, Physical Security, Power Devices, IT Consulting
- DC Consulting, ERP, CRM & Custom Apps

### Cloud Computing

- Cold Site – Backup, Disaster Recovery
- Hot Site – HaaS, Software, Manage
- Public Cloud, Private Cloud, Hybrid Cloud
- CaaS, License Software, IaaS
- Disaster Recovery

### Power

- Power Audit, Equipment Management
- Physical Security, Power Devices
- Power Saving Devices
- Design & Audit
- Renewable Energy Products