IT Network Infrastructure Revamp Project

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Project Role	Business Analyst & Change Manager
Organisation	Redacted
Project Duration	5 years (2020 - 2025)
Project Status	On-going
Report Classification	**Public Disclosure** for educational purposes
Intended audience	Change managers, PM, BAs, other professionals, students, and stakeholders in the field of IT management.
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Executive Summary

The Network Infrastructure Revamp Project is a multi-phase initiative aimed at upgrading the University's network infrastructure to support growing demands for bandwidth, security, and reliability. As the Business Analysis and Change Manager, I played a key role in ensuring the project's success.

Business Case

The organisation’s existing IT network infrastructure faced significant challenges, primarily due to aging hardware and insufficient capacity to support the increasing demand for high-speed connectivity. This legacy infrastructure was characterized by frequent outages, limited redundancy, and inadequate security measures, which hindered both academic and administrative functions. The reliance on outdated network switches and access points resulted in slow internet speeds and compromised cybersecurity, prompting the need for a comprehensive overhaul.

Project Objectives

To do a *complete overhaul of legacy infrastructure including outdated network switches and wireless access points across multiple campuses* with modern equipment capable of supporting higher bandwidths and enhanced security protocols. Key features of the new infrastructure include:

i. **Increased Capacity:** successfully Upgrade to 100G capable core switches to accommodate growing data traffic by Q3 2023.

ii. **Improved Redundancy:** Implementing a robust failover infrastructure including dual power supply modules in critical hardware to ensure continuous operation during failures by Q4 2024.

iii. **Extended Coverage:** Successfully deployment of planned wireless access points in all identified university buildings by December 2024, ensuring that at least 90% of users report improved connectivity and speed during peak usage times

iv. **Enhanced Security:** Upgrade the university’s firewall and security protocols by March 2025 to meet or exceed industry standards, thereby reducing potential cybersecurity threats by at least 50%, as measured by vulnerability assessments.

v. **Improved Performance**: Increase the capacity of the university's network to achieve a minimum of 200% increase in bandwidth, a 50% improvement in data throughput, a 20% reduction in latency, and ensure at least 98% uptime, enabling the network to accommodate at least 50% more concurrent users and providing seamless access for students and faculty during peak usage periods, as evaluated through monitoring tools and user feedback.

Project Timeline

- Phase 1 (2020-2021): Network Assessment and Design
- Phase 2 (2021-2024): Infrastructure Upgrade and Migration
- Phase 3 (2022-2025): Optimization and Enhancement

My Contributions as Business Analyst (BA)

In my role as the Business Analyst, I played a pivotal part in several key areas:

- **Project Charter Development:** I collaborated with stakeholders to define the project's scope, objectives, and deliverables.
- **Project Planning and Documentation:** Assisted the Network Manager in creating detailed project plans that outlined timelines, tasks, and resource allocation.
- **Tender Specifications:** Developed clear specifications for procurement processes to ensure that selected vendors met the university's requirements.
- **Stakeholder Engagement:** Conducted interviews and workshops to gather input from faculty and students, ensuring their needs were prioritized in the upgrade.

My Contribution as Change Manager (CM)

In my role as the project's Change Manager, my focus was on ensuring minimal disruption during the upgrade process:

- **Coordinated the entire change management lifecycle:** facilitating CM workshops, scheduled CAB meetings
- **Conducted Change Impact Assessments:** providing advice on project risks and mitigation strategies; vetted implementation and testing plans; as well as BCP and Disaster recovery plans.
- **Communication Strategies:** I developed a communication plan that provided regular updates to students and faculty about scheduled upgrades and potential impacts.
- **Feedback Mechanisms:** Established channels for ongoing feedback from users during each phase of implementation to quickly address issues.

Project Deliverables

i. **Network Switches and Routers Installation Report**: Documentation confirming the installation and operational status of all replaced 800+ network devices across all campuses (including L3 switches, access points, firewalls)

i. **Network Device configuration manual**: A comprehensive manual detailing all migrated or newly agreed upon network device configurations including enhanced network security and segmentation, DHCP and DNS Reconfigurations and the implementation of a robust Software-Defined Networking (SDN) architecture.

ii. **Bandwidth Performance Report**: A comprehensive report detailing bandwidth measurements before and after the upgrade, demonstrating the achieved increase in capacity.

iii. **Wireless Access Point Deployment Plan**: A detailed plan outlining the locations and specifications of all newly installed wireless access points, along with user feedback on connectivity improvements.

iv. **Cybersecurity Upgrade Report**: Documentation outlining the enhancements made to firewall and security protocols, including results from vulnerability assessments post-implementation.

v. **Infrastructure Documentation Package**: A complete package containing all documentation related to the upgraded network infrastructure, including cabling layouts, configurations, inventory register, and operational procedures for maintenance.

Risk Assessment & Mitigation Strategies

Risk	Description	Mitigation strategies/Solutions
Securing Management Buy-in	Securing initial management buy-in for the project was challenging. Convincing leadership of the need for a comprehensive network revamp required extensive advocacy.	• Presented compelling data on current network deficiencies (e.g., failing infrastructure, downtime statistics, security vulnerabilities, and user dissatisfaction) to illustrate the urgent need for a revamp. • Developed a vision that aligned with the organization's strategic goals, emphasizing how improved infrastructure would enhance operational efficiency, improve cybersecurity, support future growth, support research centers, innovation hubs, online courses, and blended learning experiences. • Highlighted potential ROI by projecting cost savings from reduced downtime, improved productivity, enhanced security measures, enhanced learning environments that foster student success, increased engagement in online courses.

		• Anticipated objections regarding costs or disruptions and prepared responses that acknowledge these concerns while emphasizing the risks of inaction versus benefits of modernization.
Funding Challenges	Securing adequate funding amidst budget constraints created uncertainty around project scope and timelines.	• Engaged university leadership early in the process to advocate for enough funding based on demonstrated needs and • Explored alternative financing options like grants or partnerships.
Deadline Stress	Intense pressure from leadership to complete project or resolve issues quickly often led to unrealistic expectations that risked compromising quality and thoroughness in execution.	• Communicated clearly about project timelines and potential risks associated with expedited decisions; • provided regular updates on progress while setting realistic expectations; • advocated for a balanced approach that prioritized quality alongside speed.
Vendor Management	Coordinating with multiple vendors for device procurement and support proved to be complex and time-consuming.	• Established clear communication channels, • Defined project timelines, • Designated a single point of contact to streamline interactions.
Delivery Delays	Unforeseen delays in equipment delivery due to global supply chain disruptions impacted the overall timeline significantly.	• Established buffer periods in project timelines to account for potential delays; • Maintained close communication with suppliers regarding delivery schedules; • Explored local suppliers as alternatives when necessary
COVID-19 Impact	The COVID-19 pandemic introduced unprecedented challenges such as delayed service delivery, export and import issues, remote work requirements and safety protocols that affected project execution timelines.	• Adapted project plans to accommodate remote collaboration tools; • Followed safety protocols for on-site work; • Maintained flexible scheduling to adapt to changing regulations and health guidelines.
Exchange Rate Fluctuations	Fluctuating exchange rates affected budgeting for imported technology components, leading to unexpected cost increases.	• Conducted thorough market research prior to procurement; • Negotiated fixed-rate contracts where possible; • Monitored exchange rates closely to make timely purchasing decisions that minimized financial impact.

Legacy System Integration	Integrating new infrastructure with existing systems and applications was fraught with compatibility issues that delayed progress.	• Conducted thorough discovery and assessment, • Developed customized integration plans, • Performed extensive testing, • Engaged third-party experts when necessary.
Network Downtime Minimization	Minimizing downtime during upgrades and migrations was critical, yet challenging due to the scale of the changes being implemented.	• Implemented phased rollout of upgrades, allowing for gradual adaptation by users, • Utilized maintenance windows, and • Conducted thorough testing and validation. • Established a robust disaster recovery plan, • Employed real-time monitoring tools to quickly identify issues.
Stakeholder Management	Managing stakeholder expectations and communication.	• Established regular project updates, • Conducted stakeholder feedback workshops, • Provided clear project documentation, • Created an FAQ resource to address common concerns.
Resource Constraints	Limited availability of resources such as budget, made it difficult to allocate personnel, efforts effectively across the project.	• Conducted cost-benefit analysis, prioritized spending, and leveraged cost-saving opportunities. • Prioritized tasks, • allocated resources effectively, • leveraged cost-saving opportunities.
Change Management	Ensuring seamless transition for 25,000+ users was overwhelming due to varying levels of tech-savviness among staff and students.	• Developed a comprehensive change management plan, • Conducted and document change impact analysis • conducted training sessions, and • provided support resources.
Procurement Delays	Delays in acquiring necessary equipment and services due to vendor backlogs impacted project timelines significantly.	• Streamlined procurement processes and • established strong relationships with vendors to expedite delivery.
Changes in Technology	Keeping up with rapid advancements in technology that may impact project specifications.	• Regularly reviewed industry trends • Adjusted project plans to incorporate relevant technological advancements. • Included flexibility in specifications to accommodate emerging technologies without significant delays and • Avoided vendor/technology lock-in agreements

Licensing Issues	Navigating licensing requirements for new software and hardware components.	• Collaborated with legal teams to ensure compliance with licensing agreements and • Negotiated favorable terms with vendors. • Acquired longer term licenses to minimise cost • Proactively monitor licenses to ensure compliance and timely renewals, minimizing the risk of service interruptions due to expired licenses
Skills Capacity	Ensuring staff had the necessary skills to manage new technologies effectively was a significant concern as existing expertise varied widely across departments.	• Motivated for targeted/ specialized training programs • Sought external expertise where gaps existed in internal capabilities. • Developed mentorship opportunities (job shadowing etc) among relevant staff members.

Project Artifacts

- Project Charter
- Network Design Document
- Risk Assessment Plan
- Tender specification
- Change Management Plan
- Testing and Validation Report

What Went Well

- Effective collaboration between IT teams and stakeholders
- Comprehensive risk assessment and change management planning
- Thorough testing and validation procedures
- Strong project governance and decision-making

Lessons Learned

- Importance of good stakeholder engagement and communication
- Value of iterative testing and feedback
- Need for flexible project planning and adaptability
- Benefits of upskilling and reskilling team members
- Importance of good risk management and sustainable planning.