



Case Study: Integrating IT and technology alongside Airport Terminal Architecture



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TECHNOLOGY
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ARCHITECTURE

Rheinberry's services were requested by a commercial building architecture practice to provide IT specification and assurance capabilities for a new terminal at a major international airport in Asia. By integrating our collaborative methodology with the lead contractor's architectural approach, Rheinberry established a shared framework for the seamless specification and design of cutting-edge technology working alongside physical architecture design.

Our Approach and Contributions

We approached this challenge in 3 ways:

- Collaborative integration of IT architecture and Terminal Design methodologies
- Phased IT Specification and Design Methodology
- Operational Considerations

Strategic Integration of IT and Architecture Methodologies

Rheinberry planned this activity collaboratively with our client, aligning our IT methodology with their physical architecture development process to ensure a

unified vision from concept to execution. Risks were mitigated by establishing integration workshops to reduce design conflicts and to ensure alignment between IT systems and physical infrastructure. This led to clear and detailed tender documents being written to streamline contractor understanding and minimise errors.

Phased IT Methodology

Our 5-step methodology was adapted to incorporate the following:

1. Framework, Discovery, and Assessment

The methodology starts by assessing IT needs and

requirements, existing systems, and future scalability. This allows the identification of actionable insights into technology gaps and opportunities, ensuring alignment with the goals for the new terminal. This includes a design plan for all integrated IT systems, network details and security.

2. IT Design Development

The IT design is initiated with the creation of a high-level roadmap focussing on the key IT systems and interfaces the new terminal will require. This roadmap is continuously maintained to accommodate evolving designs sympathetic to the physical architecture. Alongside the roadmap, additional collaborative and integration strategies are proposed to help mitigate challenges and risks associated



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with overlapping (and sometimes competing) IT and physical architecture priorities.

3. Technical Specifications

Once the IT design, roadmap and any associated planning is agreed, high-level specifications for hardware, software, and networking systems are created. It is important to ensure consistent terminology and alignment of specifications with physical architecture designs in conjunction with the airport's goals and objectives. This is accomplished through structured review sessions with stakeholders, refining specifications based on their inputs.

4. Knowledge Transfer and Support

Prior to handover, a scheme for knowledge transfer must be agreed to ensure seamless knowledge transition. This is essential to assure procurement processes are properly supported with technical advice, evaluation criteria, and any supplier selection recommendations.

5. Implementation Guidance

An essential element of success is ongoing advisory services – focused on ensuring systems are procured and implemented in accordance with the design and specifications. Collaboration with contractors and physical architecture teams is critical to assure timely resolution of

implementation challenges. This guidance and strategic oversight also helps ensure long-term scalability and sustainability of the technology stack.

Innovative Operational Solutions

In conjunction with the above, our work introduced advanced IIoT-enabled systems for real-time monitoring and management across many aspects of terminal technology, coupled with AI-driven analytics platforms to optimise passenger flow, resource allocation, and energy management, along with biometric authentication systems to enhance security and streamline the passenger experience.

Intended Outcomes and Impact

Rheinberry's contribution to the commercial building architecture practice's proposal addressed the airport's objectives of:

- **Increased Efficiency:** Our design supported the streamlining of operations through integrated IT and physical architecture.

- **Enhanced Passenger**

Experience: Introduction of advanced technologies to reduce wait times and improve navigation and wayfinding within the terminal.

- **Future-Readiness:** Design of scalable IT infrastructure to support passenger growth.

- **Sustainability:** In today's world, it is essential that solutions are energy-efficient to reduce the environmental footprint of airport operations.

Conclusion

Rheinberry bring experience in designing and implementing IT systems for complex infrastructure projects. Our role in the new terminal project highlights the opportunities that can be unlocked through integrating advanced IT systems specifications in conjunction with physical architecture designs. By prioritising collaboration, innovation, and scalability, Rheinberry delivered a roadmap for achieving a solid technical blueprint for a new terminal. Our commitment is to focus on delivering high-quality, sustainable, and future-proof solutions.

For stakeholders seeking transformative IT solutions aligned with infrastructure development, Rheinberry offers a trusted partnership to achieve strategic objectives. Let us collaborate to shape the future of transportation hubs with intelligent, integrated, and impactful designs.

info@rheinberry.com