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Beyond Buzzwords:

Making Airport Digital Transformation Deliver ROI and Operational Resilience

New York – Los Angeles – Frankfurt – Dubai

Designing a Sustainable and Value-Driven IT Landscape

Introduction

In modern enterprises, IT landscapes often resemble patchworks of legacy systems, point solutions, and siloed data stores. As organizations grow, their system landscape complexity increases, making it difficult to maintain, scale, or innovate efficiently.

A sustainable IT system landscape provides a strategic blueprint to structure, integrate, and evolve systems in a coherent, cost-effective, and future-ready way. A sustainable IT landscape provides the foundation to leverage technology and harness the power of data and AI efficiently."

What is a Sustainable IT System Landscape?

A sustainable system landscape is a comprehensive framework that maps current and target systems, integration patterns, and lifecycle management. Its core objective is to align systems with business capabilities while minimizing redundancy, reducing complexity, and improving maintainability. Sustainability in this context refers to architectural resilience, operational efficiency, and long-term cost-effectiveness.

01 Plan for a Realistic Lifecyle

- Planning a sustainable IT system landscape requires understanding the typical lifecycles of both hardware and software. Enterprise hardware, such as servers, network equipment, and workstations, generally remains fully functional for 8 to 12 years, depending on workload and maintenance. Software systems, including operating systems, enterprise applications, and databases, typically have a supported lifecycle of 5 to 7 years, after which updates and vendor support may no longer be available.
- Hardware refresh cycles should be proactive, replacing systems before performance degradation or vendor end-of-life creates risks. This includes considering preventive maintenance, incremental upgrades, and eco-friendly disposal to reduce costs and electronic waste. Budget planning must account for hardware replacement, software licenses, integration services, training, and data migration.
- Software lifecycle management involves regular upgrades, patching, and decommissioning outdated applications. For cloud services, lifecycle considerations include subscription renewals, usage optimization, and version updates. Infrastructure-as-Code and automated deployment pipelines can help manage both on-premises and cloud resources efficiently, ensuring consistency, version control, and rapid refresh cycles.
- Neglecting lifecycle planning leads to technical debt, where significant time and budget are consumed maintaining outdated systems. To prevent this, organizations should integrate lifecycle management into IT governance, schedule refreshes according to business priorities, and continuously monitor system performance. A well-managed lifecycle strategy ensures a sustainable, resilient, and future-ready IT system landscape.

02 Technology ROI and Business Value

- Technology investments should always be justified by a clear business case. Any system, platform, or tool must deliver measurable benefits or fulfill legal requirements, such as cost savings, improved efficiency, enhanced service quality, process digitalization, or an improved passenger experience. Before initiation, organizations should quantify these benefits using key performance indicators and metrics to ensure the investment meets operational and business objectives.
- A business case defines the problem, expected improvements, and the value generated. For example, automating a manual process can reduce labor hours, speed up operations, improve accuracy, and create measurable efficiency gains. Digitalization projects should aim to **improve key KPIs**, such as **reducing processing times**, **increasing utilization of resources**, and **raising the transaction volume handled per resource**, all of which contribute to a smoother, more reliable passenger experience.
- Return on Investment (ROI) is a critical metric to evaluate whether a technology initiative is worthwhile. ROI is calculated as the net benefit of the investment divided by its cost, providing a clear indication of financial impact. However, it is not always possible to precisely quantify every benefit. In many cases, savings, efficiency gains, and passenger experience improvements need to be estimated based on benchmarks, estimations or pilot projects. Transparent assumptions and conservative estimates help make the business case realistic and credible.
- In a sustainable IT system landscape, ROI ensures that technology aligns with strategic and operational goals. Every system or platform should be assessed for its ability to **deliver measurable improvements in key KPIs** and **enhance the passenger experience**, with investments prioritized based on the highest impact. Integrating ROI evaluation into the lifecycle and planning process supports smarter technology decisions, reduces waste, and maximizes the value delivered by IT assets.

*McKinsey & Company's report Unlocking Success in Digital Transformations (2018) - The survey found that only **16%** of respondents said their digital transformations "successfully improved performance and sustained those improvements long-term."*

Changing the Approach

01 IT Strategy - Planning for Success

The low success rate of digital transformations highlights the importance of planning before execution. To improve the likelihood of achieving anticipated benefits, organizations should adopt a structured approach that starts with a detailed IT Strategy.

An IT Strategy provides the building blocks for successful digitalization: it defines strategic goals, aligns technology investments with operational priorities, and identifies the systems, platforms, and integrations required to achieve measurable improvements. By establishing clear objectives and a roadmap, an IT Strategy ensures that digital initiatives are purposeful and have a strong foundation for success.

02 Design Right to Avoid Change Request

In IT projects, ensuring the technical design is correct from the start is critical to prevent costly and disruptive change requests. Technical design encompasses system architecture, data flows, interfaces, integrations, and infrastructure requirements. Mistakes or oversights during this phase often lead to rework, delays, and increased costs.

Key aspects of designing right:

System architecture:	Interface and integration planning:	Data modeling and flows:	Scalability and performance considerations:	Technical validation and simulation:
Define and design the architecture for how the components interact.	Define, design and document all interfaces, APIs, and data exchange protocols to ensure compatibility with existing systems.	Design structures and flows upfront to prevent errors in reporting, analytics, or real-time decisions.	Ensure the system can handle peak loads without performance degradation.	Test workflows, integrations, and system behavior in controlled environments or prototypes.

> Designing right from the start, ensures systems are reliable, fit-for-purpose, and ready to deliver improvements in KPIs and passenger experience.

03 Change Management, the Business and Human Success Factor

Even with a strong strategy and technically sound design, initiatives can fail if stakeholders are unprepared. **Change Management** ensures employees, operational teams, and partners understand, adopt, and effectively use new systems.

Key components:

- **Stakeholder engagement:** Identify impacted groups and involve them early for buy-in.
- **Communication and training:** Explain benefits and provide hands-on support.
- **Process adaptation:** Align workflows to align with new systems.
- **Monitoring adoption:** Track usage, gather feedback, and adjust support as needed.

> Integrating Change Management with IT Strategy bridges the gap between technical potential and operational reality.

04 Legal and Partner Management

Even the best strategy and technical design can fail if legal frameworks, contracts, and partnerships are not properly managed. Ensuring the right agreements and relationships are in place is critical for operational, financial, and compliance security.

Contracts as a negotiation tool:	Contracts should clearly define deliverables, responsibilities, service levels (SLAs), and change management procedures. They also provide leverage to negotiate key aspects such as performance guarantees, risk allocation, pricing flexibility, and dispute resolution. Proper negotiation ensures the airport retains control and reduces future conflicts.
Compliance and regulations:	Ensure all systems, data handling, and operations comply with applicable aviation regulations, data protection laws, and industry standards.
Selecting the right partners:	Choose partners with the right mindset: collaborative, flexible, and committed to problem-solving. Mindset matters more than past experience because it ensures adaptability to complex operational requirements and evolving challenges.

> By actively designing contracts and partnerships, airports secure control over quality, performance, and risk.

Impact Stories

AODB & RMS - Machine Learning for Gate Allocation

The project applied a machine learning algorithm to optimize gate assignments at the airport. The system considered hard constraints (aircraft size, safety regulations) and soft constraints (passenger connections, retail revenue optimization, airline preferences).
By analyzing historical and real-time flight data, it dynamically suggested the most efficient gate allocations while reducing conflicts. Integration with existing operational systems provided actionable insights for operations teams.

Results:

- Reduced gate hold and delays by 25%
- Improved gate utilization by 15% while optimizing retail and operational outcomes
- Enabled faster operational decisions, improving on-time departures and passenger experience

AODB - Predictive ETA Integration

This project leveraged predictive ETA data to proactively manage gate and ground resources. Forecasting aircraft arrivals allowed the airport to minimize overlapping assignments and resource bottlenecks. Integration with gate allocation workflows ensured dynamic adjustments considering real-time operational priorities and commercial factors such as passenger flow and retail impact.

Results:

- Reduced resource conflicts by 35%
- Increased on-time departures and arrivals by 12%
- Improved passenger experience and connection reliability

Why M2P Consulting

At M2P Consulting, we work side by side with your teams to strengthen technology capabilities and drive continuous improvement across your organization. Our approach focuses on identifying and addressing gaps in IT performance, architecture, and governance to ensure sustainable and measurable results.

Ready to unlock the full potential of your technology investments? Schedule your discovery session today.

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