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A Recipe for Airline Success

*Using Technology to
Capture Essential Gains
in Airline Productivity*

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EXECUTIVE SUMMARY

Over the past 30 years, profitability in the airline industry has rarely exceeded the average cost of capital employed despite steady increases in passenger traffic and destinations. In the coming years, it is likely that airline profits will be throttled further by the global economic downturn, high fuel costs, and the prospect of ever more stringent environmental regulations.

In order to survive and prosper in these conditions, airlines must rationalize their processes and increase asset utilization to a greater degree than ever before. This will require business-driven IT transformation—that is, the fundamental redesign and integration of business systems and processes within and across airline functions.

Accomplishing this task will not be easy. Airlines will have to carefully manage the internal demand for IT services, implement project delivery methodologies that focus on business process design and change management, and adopt a sourcing strategy that enables them to match suppliers to project goals on the basis of the capabilities and degree of collaboration required. Those that do will be able to significantly raise their business performance and earn improved returns on their IT investments.

AIRLINES' COMPLEXITY CHALLENGE

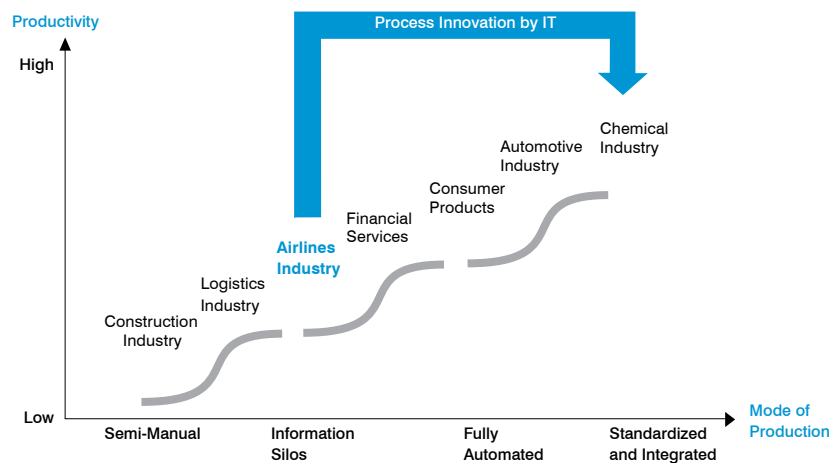
Typically, airlines feature highly complex business processes, supported by specialized IT systems that reside in functional silos and lack cross-functional integration. In fact, more than 60 percent of airlines' software is custom-built, versus less than 40 percent in other industries. By and large, airlines have not adopted the ERP systems that other industries, such as automotive and consumer products,

have deployed to radically streamline and integrate their processes. Instead, airlines have mostly custom-built their applications to conform to their processes and have not changed this approach with new applications (*see Exhibit 1*).

The typical airline pays a steep price for maintaining its process complexity and IT legacy systems. For example, an airline that has not renovated its processes and systems for flight planning and dispatching requires up to five times as much staff time to dispatch its fleet as an airline that has redesigned and automated these processes using state-of-the-art IT systems.

The price will get higher yet as the coming wave of airline mergers exacerbates the costs of inefficient processes and legacy systems. As airlines seek the cost savings and other synergies that these mergers promise, their CIOs and IT organizations will need to integrate disparate legacy IT systems. This is a costly and high-risk undertaking, which explains why many merged airlines are still saddled with a portfolio of business models and IT systems operating in parallel, while the synergies they targeted remain only partially realized.

*Exhibit 1
Airlines Can Capture Productivity Gains by Using IT to Standardize and Integrate Processes*



Source: Booz & Company

Highlights:

- Airlines can no longer afford the steep price they have been paying to maintain process complexity and legacy IT systems.
- Business-driven IT transformation delivers outsized performance gains because it redesigns and integrates processes and systems.
- Demand management, process-oriented and change-focused project management, and savvy sourcing practices are the three key ingredients of successful transformation.

THE OPPORTUNITY: BUSINESS-DRIVEN IT TRANSFORMATION

Simply cutting IT costs will not save an airline. Instead, airlines need to consider how to use IT to improve their business performance. A simple example illustrates why this is so: Using IT systems to improve flight planning and scheduling can achieve a 2 percent reduction in fuel consumption—which has the same bottom-line impact as a 20 percent reduction in IT spending. Further, the net present value of the reduction in fuel consumption is much higher because the reduction requires far less effort to implement than does the 20 percent cut in IT costs.

A focus on business performance should be a given in IT initiatives—but it is not. Many airlines are currently pursuing major systems-replacement initiatives. Too often, however, the business cases for these initiatives rely heavily on IT cost reductions and ignore opportunities to create tangible business value. Further, the functional specifications for the new systems are heav-

ily biased toward the current way of doing things and don't include changes in processes and organization to improve business performance. The effects of this approach include inflated project costs (because new systems must be reprogrammed to fit existing processes), poorly defined system integration requirements, and a notable lack of enthusiasm for project ownership among business managers. The result is poor implementations and project failures. It is not until airlines use new technology to dramatically restructure their current processes and streamline the complexity of their overall systems, as well as complete their integration effort, that system transformations can significantly improve business performance and contribute more to the airline's bottom line than pure IT cost reduction. But business-driven technology transformation programs require a diligent planning and mobilization phase, in which the business makes the most of IT's ability to improve and simplify its operating model. Such programs also require critical skills that are often missing in IT departments, including the capacity to engage in an effective dialogue with the business to ensure a focus on business improvement. These discussions should focus on the priorities and options available, project-delivery capabilities, and mechanisms for demand management (e.g., prioritization processes, rewards for joint business/IT success).

SIGNIFICANT PRODUCTIVITY GAINS THROUGH BETTER IT

The reward for airlines that can muster the will and skill needed to successfully undertake business-driven IT restructurings is a substantial reduction in operating cost, as well as enhanced asset utilization in fleet, crew, and slots. There are also revenue gains to be found along the entire value chain of an airline, including pricing, sales, and distribution; planning, scheduling, and operations; passenger services; maintenance; and the back office (see Exhibit 2).

Initiatives in certain areas of the value chain, however, offer more potential than others. These include pricing and revenue management; network planning, scheduling, and operations control; flight planning; and passenger services.

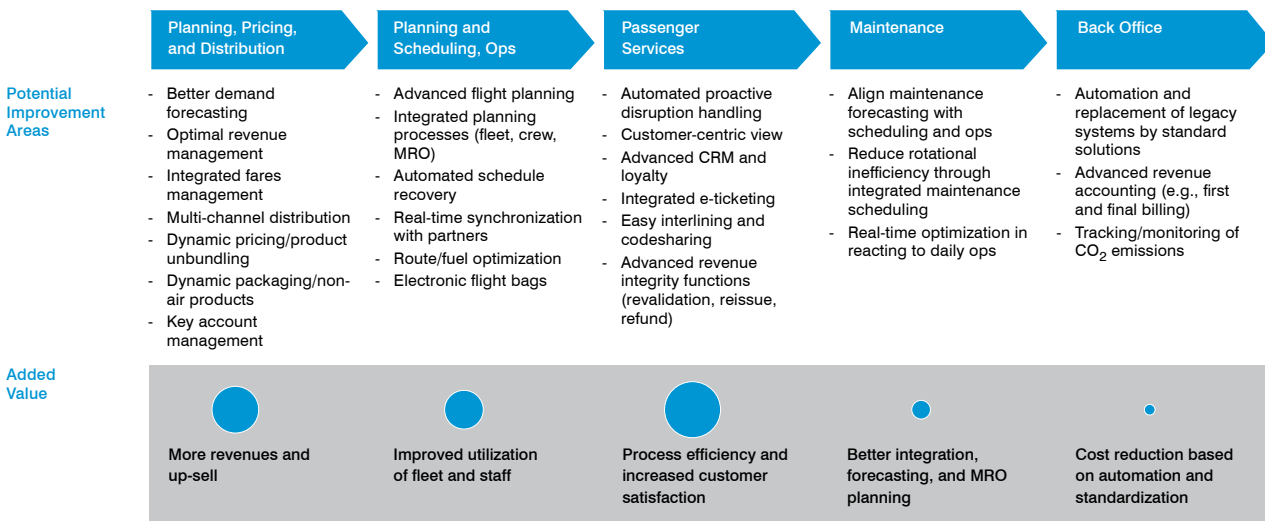
Pricing and Revenue Management: In quest of fast revenue gains, many airlines have implemented pricing and revenue management (RM) systems that are either managed poorly or not supported by properly tailored business processes and data. The result is inaccurate forecasting and incorrect decision parameters. In extreme cases, such RM systems can actually reduce margins and seat load factors. Conversely, the successful introduction or improvement of a revenue management system can generate additional revenues of 2 to 4 percent. To capture these gains, airlines must first develop their RM capabilities and align their RM processes and tools. Only then can they evaluate and get full value from more sophisticated optimization models (e.g., O&D, O&D/PNR, Hybrid) and more complex steering methods (e.g., intraday price steering vectors), which enable more granular approaches to revenue management.

Network Planning, Scheduling, and Operations Control: Typically, airlines manage these functions separately, using different processes, databases, and IT systems

for planning, execution, and decision making. This leads to inefficiencies caused by numerous handoffs and poorly integrated aircraft, crew, slot, and MRO scheduling. Today, advanced planning tools and integrated processes can be used to combine network planning, flight and crew scheduling, operations control, and flight dispatch. The resulting improvements in asset utilization, fuel consumption, and overall process cost, as well as the faster, smoother reactions to service disruptions, yield significant operating cost reductions.

Flight Planning: Modern flight planning and dispatch systems can help airlines capture fuel savings of as much as 2 percent of total fuel costs and improve staff productivity. These sophisticated systems allow the automatic recalculation of the optimal route and fuel intake for individual flights prior to their departure. A number of airlines have already introduced the tools featured in these systems to improve their flight planning and create a platform that can support interactive paperless flight plans. But again, leveraging the benefits of new flight planning and

Exhibit 2
Key Improvement Areas and Potential Areas for Advanced IT Solutions



Source: Booz & Company

dispatch systems requires more than the technology. It requires a wealth of near-real-time information, including aeronautical data, aircraft performance data, and current weather reports, as well as changes in the behaviors of users, particularly pilots.

Passenger Services:

Most airlines are still working with reservations, inventory, and departure control systems that were designed during the 1960s and '70s. In addition to incurring operational costs that are rising as much as 10 percent per year, these outdated legacy systems do not meet their airlines' present-day needs or their future aspirations.

Modern passenger service system (PSS) solutions provide true customer-centricity and enable increased business benefits, including cost reductions, thanks to leaner, zero-touch processes and automated disruption handling. They also protect and enhance revenue thanks to improved revenue integrity, sales channel integration, and inventory functionality.

An increasing number of airlines—large and small—are starting to replace their old PSS solutions with newer software. And some alliance carriers are jointly implementing such systems to capture the additional benefits inherent in the provision of seamless service across airlines.

The most important lesson gleaned from these recent PSS replacement initiatives is that IT-led programs often fail. New passenger service systems are not “technology replacements” as much as “technological revolutions.” They require a shift from a transaction-based design built on passenger name records (a “PNR-centric” design) to a more flexible, customer-centered design. Such a shift requires a great deal of insight into the core of an airline's everyday business. Thus, PSS replacement programs need to be jointly managed by IT and business managers.

Taking on the Scheduling Conundrum

Network planning, scheduling, and operations control are the cornerstones of an airline's on-time performance and major determinants of its cost efficiency. But airlines typically experience major problems in this area that stem from inefficiencies in schedule design and the difficulties of irregular operations (bad weather, unplanned maintenance, aircraft-on-ground, etc.).

Schedule designs for critical processes such as rotation/slot planning, maintenance, and crew planning are often inherently flawed because long- and medium-term planning mechanisms are based on data that is too high-level or is inaccurate. This creates the need to replan operations in the short term, typically three days before departure. (At some airlines, more than 70 percent of operations require short-term replanning.)

These unaligned short-term plans make operations control extremely difficult, especially when the daily challenge of schedule disruptions is added to the mix. During disruptions, operations control staff must pull together information from multiple sources and systems and make fast decisions in order to deliver on the airline's promise of service quality and punctuality. Each of these decisions has a direct impact on the airline's efficiency, effectiveness, and resilience, as well as the overall performance and profits of the airline and its network.

Modern IT systems, featuring decision support and other tools, allow airlines to integrate dispersed planning processes, ensuring that all departments work from consistent planning data and automating operations control processes and decision making. These systems enable airlines to find the most efficient scheduling solutions, improve performance, and significantly lower process costs.

Capturing these benefits requires more than a new IT system—it also requires radical process change and strong change management. And it demands the involvement, experience, and support of staff in all business functions from long-term planning to flight-event control. When all of these conditions are met, then integrated, centralized planning data can be combined with decentralized decision making to solve scheduling problems in ways that provide optimal benefits locally and to the business as a whole.

THREE INGREDIENTS OF BUSINESS-DRIVEN IT TRANSFORMATION

Because state-of-the-art software plays a critical role in airline productivity improvement, unlocking its full value requires expert IT departments capable of collaborating with business managers to shape technological transformations. To successfully implement business-driven IT transformation, three elements are needed: effective demand management, a new project delivery approach and skill set, and advanced supplier management (see Exhibit 3).

the most important link between an airline's business managers and their IT department. It is a two-way link: Airline business managers must understand that they have to play a strong role in ensuring that the future IT application's landscape and processes are suitable for their business needs, just as they take care of, for example, selecting aircraft types; at the same time, IT needs to develop a stronger business understanding and become a partner in both process innovation and standardization.

Building a Strong Demand Management Capability:

Demand management, as the central process for managing internal demand for IT services and capabilities, is

It is essential that demand management be properly regulated. When it is unregulated, IT projects are funded whether or not they have a clearly

Exhibit 3
Improvement Levers of Business-Driven Transformation

	FROM IT-DRIVEN TRANSFORMATION	TO BUSINESS-DRIVEN TRANSFORMATION
Demand Management	<ul style="list-style-type: none"> - IT reacting to short- and medium-term business needs - Project pipeline driven by availability of budget and affordability - Frequent escalations regarding resource allocation and service quality 	<ul style="list-style-type: none"> - Long-term IT architecture vision closely aligned with business goals - Business and IT collaboration at project screening, prioritization, and delivery - Transparency in projects, service levels, cost, and resource consumption
Project Delivery Approach	<ul style="list-style-type: none"> - Custom development of software against business requirements - Focus on functional specification and programming of specific business requirements as add-ons to existing systems - Development within functional silos 	<ul style="list-style-type: none"> - Retooling toward a package implementation approach (leverage best practices embedded in COTS software) - Focus on process redesign, systems integration, and change management capabilities - Use of IT to break down silos and implement cross-functional processes
Strategic Sourcing	<ul style="list-style-type: none"> - In-house resources dominated by technical skills, often with outdated skill set - Selective sourcing, trying to cut best deals driven by procurement (or directly by the business departments) 	<ul style="list-style-type: none"> - Strategic sourcing capability being built - Ensuring strong internal core, but leveraging external supplier market to gain access to critical skills - Use of incentive-based, performance-driven model to capture ongoing value, recognizing that external suppliers need to be strategic partners

Source: Booz & Company

defined business case and scope—with the result that priorities are scrambled, high-potential projects are delayed, and IT is perceived as slow and misaligned. When demand is poorly regulated, multiple governance forums and steering committees impede IT decision making, and the function is perceived as overly bureaucratic.

A strong demand management capability is supported by four pillars: (1) a long-term, business-driven IT application architecture vision; (2) alignment processes that allow the business and IT functions to effectively collaborate during project screening, prioritization, and delivery; (3) performance measures that create transparency in projects, service levels, costs, and resource consumption; and (4) the ability to effectively make difficult trade-offs.

Deploying a New Project Delivery Approach and Skill Set:

At the core of any systems renewal project, the project delivery methodology plays a critical but often unheralded role. In airlines, this methodology too often focuses on functional specifications and programming instead of business process redesign and change management.

Many airlines use a custom software development approach to implement and renovate their IT infrastructures. In this approach, a long list of detailed and carrier-specific business require-

ments is fed into a software development engine, which must deliver the software exactly to specification. This approach is not only costly and geared toward serving existing processes; it is also inadequate in light of the growing number of commercial off-the-shelf (COTS) solutions for nearly all airline processes.

Mature COTS systems come with efficient standard processes that largely eliminate the need to build core systems from scratch. In non-differentiating processes—those used by almost all non-customer-facing functions in airlines—these standardized processes are more efficient and cost-effective than customized processes. Airlines need to retool their project delivery methodologies toward a package implementation approach that takes full advantage of these systems. Rather than defining detailed business requirements from scratch and expecting the IT system to deliver them one-to-one, project teams should focus on the management of the required change and, whenever feasible, adapt legacy business processes to standard processes embedded in COTS solutions.

Not following this approach can have dire consequences, as one large carrier discovered after it selected a standard package system to replace the old legacy systems in the areas of operations management. The airline insisted that the software provider comply with a long list of requirements that

were based mainly on its current processes, rather than taking a fresh new look and considering a change in its processes in order to take full advantage of the new software. The outcome was a huge budget overrun caused by the reprogramming needed to make the software conform to existing processes and less-than-optimal results from the new system.

Implementing this new project delivery approach requires a different skill mix in both the IT and the business departments. The focus must be much more on business process redesign and change management than on functional specification and programming. Also, the selection of the preferred systems provider becomes a strategic decision requiring careful elaboration, because the choice of the product defines, to a large degree, the viability of the future processes of the airline.

Leveraging the External Supplier Market through Strategic Sourcing:

There are three reasons that strategic sourcing capabilities have become so important in airline IT. First, because the choice of a software system defines the viability of the future processes of the airline to such a large degree, the selection of the system's provider becomes a strategic decision that requires careful consideration. Second, airline IT departments have lost many critically skilled employees in the turbulence and cost cutting that have occurred since 9/11. As a result, airlines need to leverage external

OPTIMIZE PRODUCTIVITY AND PROFIT- ABILITY FOR AIRLINE SUCCESS

sources to gain access to critical skills at competitive rates. Third, by gaining access to vendor expertise, IT departments can concentrate their focus on the core competencies of demand management and project delivery and better drive improvements in quality and efficiency.

One size does not fit all in sourcing strategies. The right strategy mixes strong internal talent with the capabilities of providers. And although the strategic sourcing of IT services is a proven cost-reduction and capability-building play, understanding which service providers to use and for what, where to drive for value, and how to manage the relationship is a necessity if the play is going to pay. IT organizations have a tendency to miss these nuances. They outsource in order to cut costs quickly, but struggle to find value beyond the initial deal. Worse, if they find themselves locked into an inflexible sourcing contract, they can lose the agility needed to react to changing business requirements and economic conditions.

Airline IT departments seeking to improve their application portfolios, build new business capabilities, and reduce costs need to structure their sourcing relationships with the long-

term view in mind. Effective departments recognize that external service providers need to be strategic partners, not just body shops, and use an incentive-based, performance-driven model to capture ongoing value.

These IT organizations are adroit when it comes to changes in the overall business environment. They can effectively dial down (by plugging in a vendor for low-cost commodity services, for example), dial up (by partnering opportunistically for access to innovation or global talent), or just say “no” when prudent. This finesse provides tremendous flexibility, but also requires strong capabilities in demand management and vendor governance in order to both oversee the pipeline of work and match it to the appropriate supply resources.

Building a strategic sourcing capability requires a different type of vendor manager. Such a manager realizes the strategic nature of selection decisions and the importance of collaboration with business managers. The vendor manager also must understand how to utilize service providers to attain the right balance of cost and capability, and how to see the big picture in order to leverage innovation when and where it counts.

The airline industry was one of the first to adopt and benefit from the promise of IT, and IT remains a critical business enabler for optimizing airline productivity and profitability. Achieving this optimization requires business-driven IT transformation, which depends on a combination of process redesign and technology. Although business-driven IT transformations are not easy to achieve, a clear focus on the fundamentals—a close dialogue between business and IT, the leveraging of standard solutions for non-differentiating processes, an understanding of the capabilities required, and savvy supply management—will greatly increase the chances for airline success.

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