AVIATION OUTLOOK

ICF INTERNATIONAL | 11.13

Welcome to the first issue of ICF SH&E's Industry Outlook

At SH&E's 50th anniversary, with the last five years as a unit of ICF International, we are taking the opportunity to share some of our current thinking across core areas we serve—airlines, airports, aircraft markets, aerospace, MRO (maintenance, repair, and overhaul), and safety and security. Welcome aboard.

Introduction

Today's Skies, Tomorrow's Horizon

The aviation industry remains in a perpetual state of change, as the past 40 years have shown well. But there's one constant: Passenger demand, in all its manifestations, still drives industry dynamics. Look no further than Asia, now a serious global player in every aviation segment. The region's growing GDP means more people have the income and interest to travel. And that opens up unprecedented opportunities for airlines, airports, investors, and suppliers.

This is no big surprise to followers of historical trends. Regional air travel demand tends to grow at rates somewhere near 1.5 times that of a region's GDP growth. Some forecasts anticipate more of the same for the entire industry in the next 20 years. But ICF SH&E's long-term annual air travel growth projections of 3.9 percent (on GDP growth of 3.1 percent), based on methodology, analysis, and perspective from engagements worldwide, are a bit less bullish.

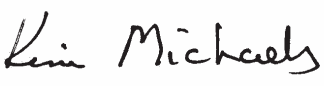
Why? Global economic uncertainties certainly factor into our forecast. So do lower-than-anticipated growth in Western Europe, the maturation of developed markets, high fuel prices, infrastructure bottlenecks, and the growing availability of alternatives to air travel, including high-speed rail and videoconferencing.

In more mature markets where GDP and passenger growth are lower, aggressive companies are seeking advantages by focusing on the customer experience. They are learning more about prospective air travelers, what they want, and how best to serve them. The emergence of hybrid carriers, airport revitalizations, increasing fuel efficiency, and new advances in comfort are a few examples of the industry's response.

Of course, there are no "solo flights" in the aviation industry these days. Challenges and trends have significant implications for all stakeholders—airports, airlines, equipment and service suppliers, financial institutions, and governments.

The following pages offer a few expert perspectives on some of these challenges and trends, their implications, and what major shifts are expected across the aviation ecosystem. These shifts could touch off a wave of change—and those who can anticipate and innovate will be best positioned to both see and seize the opportunities. We hope you enjoy the view.

WEBSTER O'BRIEN

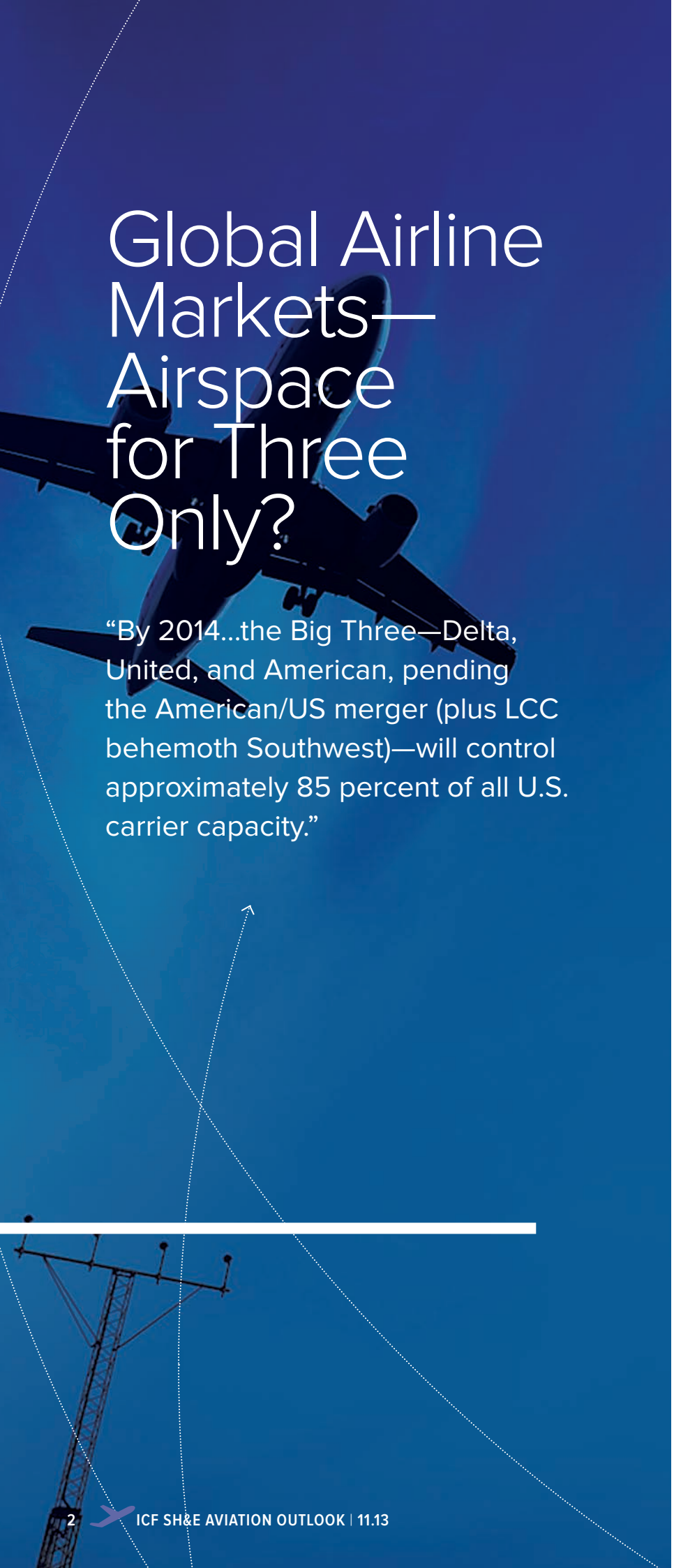


KEVIN MICHAELS

November 2013

Author biographies appear on pages 14 -15.

Global Airline Markets—Airspace for Three Only?



"By 2014...the Big Three—Delta, United, and American, pending the American/US merger (plus LCC behemoth Southwest)—will control approximately 85 percent of all U.S. carrier capacity."

FROM THEORY TO REALITY

"Room for three only" has been the universal prediction since the 1980s as flying became affordable and airplanes could take you nonstop almost anywhere. By 2014, in the United States at least, it will finally happen. The Big Three—Delta, United, and American, pending the American/US merger (plus LCC behemoth Southwest)—will control approximately 85 percent of all U.S. carrier capacity next year. They will even deliver a return on invested capital.

Europe also has its Big Three, led by Air France-KLM, British Airways, and Lufthansa. But matters there are far from settled. The inability to decisively consolidate, truly reduce costs, thwart the market power of the LCCs like Ryanair, and withstand the sixth-freedom effect of the Gulf carriers means there is a long way to go before a successful touchdown.

"Room for three" trends are also easy to see elsewhere: three Global Alliances, three Latin American Airline Groups, three Chinese Airline Groups—the list goes on. Even the South Pacific has its Qantas, Virgin Australia, and Air New Zealand trio.

The management science concept that "three" is the magic number of competitors in a mature market has been around for decades. Why three? It's not too many to perpetually fight and not too few to get greedy. And markets, especially in North America, have been deemed mature for a while. But it took the confluence of many events to break the barriers to the inevitable march towards consolidation, attrition, and the sturdy three-legged stool.

BARRIERS TO CONSOLIDATION AND ATTRITION: SWEPT AWAY IN THE UNITED STATES

The catalysts that finally felled the barriers came in at gale force in the past decade:

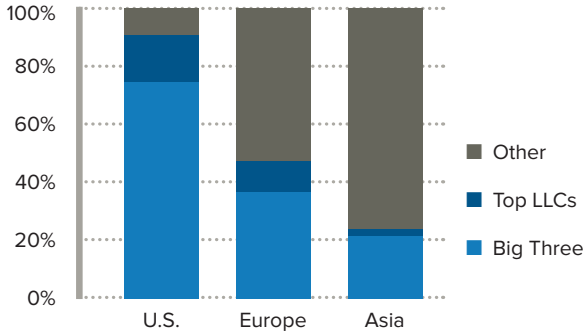
- Fuel, which had floated $20 per barrel for two decades, quadrupled, and it became more than 40 percent of the operating cost for large legacy airlines.
- The demand for new aircraft became insatiable in Asia and the Middle East, and older aircraft became obsolete because of their fuel consumption.
- The LCCs grew up and took on the legacy airlines on their own turf for their once-loyal customers—even adopting some of the same products and tactics.

Of course, the 2008-09 global recession provided the appropriate motivation to achieve real progress and not just re-arrange deck chairs on a sinking ship.

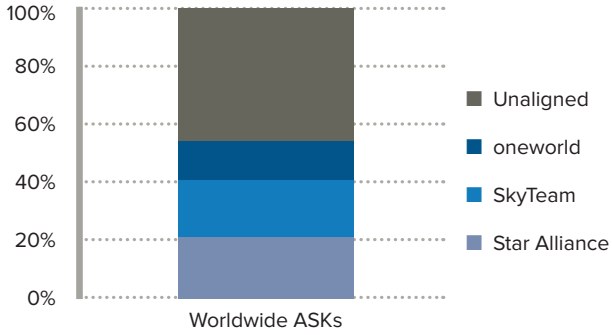
So the traditional barriers were swept away:

- The aircraft manufacturers and lessors did not have any interest in propping up failing airlines to get some or any utilization out of their assets and assembly lines. There was plenty of demand in Asia and the Middle East.
- Labor's influence and desire to live as independent Island Nations decreased as fuel and the recession became the tidal wave that swept over their holdouts.
- Political/national reasons to maintain separate airlines were not factors in North America. And the consolidating airlines were comfortable assuring host cities that their hub positions would remain after consolidation.

Capacity by Flag Carrier Region



Worldwide Capacity by Alliance



Source: OAG July 2013 and ICF SH&E Analysis

EUROPE'S UNCLEAN SLATE

The playing field in Europe, however, is much muddier:

- Labor and national interests have required the consolidating groups to create a spider web of "virtual" mergers.
- The LCCs largely created today's intra-Europe market, which the legacy carriers—with their historical high-touch/high-fare products and focus on feeding their long-haul, profitable, international routes—had never contemplated accessing.
- That very same legacy airline cash cow, the long-haul routes to their former colonies, is under fire from the well-funded, well-run, aggressively driven Gulf airlines.

So while the Big Three in Europe have shown the boldness of vision in their acquisitions, they have yet to:

- Execute full mergers with the associated cost reductions and clarity of governance and controls
- Take on the European LCCs on the LCC turf—choosing instead to go only as far as making attempts to protect their historical business and high-yield customers
- Develop the decisive strategy to withstand the relentless onslaught of the Gulf carriers.

Are they doomed? Will they ever prevail? The answers depend on their ability to come out with a better product than their competition—one that is cheaper, more convenient, more reliable, and more feature-rich. They have done it once before, when they prevailed over all the other European National Champions, and they can do it again. They have all the tools:

- Customer access and retention ability through their Global Alliances
- Girth and well-functioning European hubs
- Friendly customers and governments
- Aircraft and access to incoming next-generation airplanes
- Experienced managers and sophisticated analytical tools.

Finally, wholesale changing of the guard in any industry has always been timed with the appearance of disruptive technology. In the airline business, this has been new generation aircraft with different economics and mission capabilities. The next decade will see completely new products, including Neo/MAX, the A350/787, and even products from Bombardier, Mitsubishi, and others. The winners for the next 25 years will be the airlines that translate the capability of those airplanes into competitive advantage.

SAMUEL ENGEL, SUBODH KARNIK, AND DAVID STEWART

One Part of the Sky—the *Non*-Big-Three Carrier Strategy

So the inevitable question for the other 600+ airlines is this: How do you thrive without becoming a "Big Three" player?

We put our answers into this list of drivers:

1. **Be a clear "niche" player**, with a niche that is understood by your employees, your competitors—especially the Big Three—and your customers.
2. **Be paranoid.** Never, even for a moment, forget that your disappearance is good for your competitors.
3. **Benefit from the Big Three.** Join an alliance. Cooperate with a Big Three player. From a revenue perspective, a niche player will benefit more than it gives to an Alliance.
4. **Worry about fleet.** Fleet (aka capital) is the forum where investors and the airline managers speak the same language. Perform quick "fit" evaluations of your fleet at least twice a year.
5. **"Variabilize."** Turn fixed costs into variable costs. Contract IT services on a per-passenger basis. Contract maintenance on "power-by-the-hour" arrangements. Ascribe high value to flexibility during lease-versus-buy decisions.
6. **Beware of the cost impact of "bundles."** Rent or purchase only what you need and be careful about "bundled, higher-tech, and cheaper" vendor offerings.
7. **Implement formal planning and cash management processes.** They don't have to be technology-enabled, but having the formality of watching cash and establishing a baseline expectation for every planning decision is critical to continually improving.
8. **Know your customer.** Take time to think about your customer and why he/she wants to fly with you. Commission surveys, read customer feedback, and leverage the data available in your airline or externally.
9. **Define your product and broadcast it to your employees.** Be clear about the acceptable "clean/safe/reliable" threshold for your airline. Celebrate the success of maintaining that threshold.
10. **Connect customers and employees.** Don't forget that airlines are in the service business. Employees respond best when they understand what satisfies customers, and they perform at their best when they know that they are making customers happy. Find ways to have your employees understand how their actions make customers happy.

As Herb Kelleher, the legendary head of Southwest, used to say back when Southwest was a "niche" airline: "Southwest has been like a little puppy that gets fat off the table scraps of the big airlines." For decades, Southwest delivered the product that customers wanted, in the niche that they had chosen to operate. That niche strategy has now produced America's number-one airline by enplanements—which may no longer be a niche, but it's also not one of the Big Three.

SUBODH KARNIK

Global Aircraft Markets—Shifting Demand and Continued Growth

"Asia's aviation market is growing at a faster rate than the Western region ever did. And it's already approaching Europe in terms of fleet size."

Feel that? The center of gravity in aircraft markets is shifting East. Twenty-year forecasts show explosive demand-driven growth moving from Western markets toward China, Indonesia, and India. In fact, Asia's aviation market is growing at a faster rate than the Western region ever did. And it's already approaching Europe in terms of fleet size.

A combination of factors is responsible: relatively fast economic expansion in the region, the recent emergence of LCCs, and early efforts at market liberalization. It's no surprise that investments are soaring in Asia, as well. A Chinese consortium has been working to buy the world's second-largest leasing company, and a Japanese consortium recently purchased RBS Aviation Capital.

Approximately 60 percent of world wide fleet growth will be organic; the rest will be replacements.

Mature aircraft markets should not despair, since the installed base still commands a huge market share and needs replacement to stay competitive. For example, while North American carrier fleets are among the largest in the world, they are also among the oldest. Though some 1,500 passenger aircraft will be delivered over the next 20 years to meet the forecasted 1.8 percent passenger traffic growth, over 3,300 aircraft will be delivered to replace retiring aircraft.

WHAT'S NEW, WHAT'S NEXT

Incumbent manufacturers are altering global competition with new and next-generation aircraft—including the 787, A350, A320neo, and 737 MAX. These models promise to considerably improve fuel efficiency, costs of operation, and reliability. Turboprop and regional jet manufacturers are also developing next-generation aircraft focused on improved economics and up-sizing, further blurring the line between regional and mainline aircraft.

There hasn't been an influx of aircraft like this since the 1990s. Understandably, owners and investors share angst about possible overproduction, especially amid historic economic lows. Despite anticipated pressures on those aircraft last off the line, a mass reduction in overall average aircraft age or value is unlikely.

BENEFICIAL ARRANGEMENTS

But an evolution in leasing and ownership structures means operating lease product now accounts for 40 percent of the market, pushing upwards of 50 percent in the next decade. Operating leases give carriers added fleet flexibility, while operating lessors reap good returns, with a more favorable cost of capital than airlines experience.

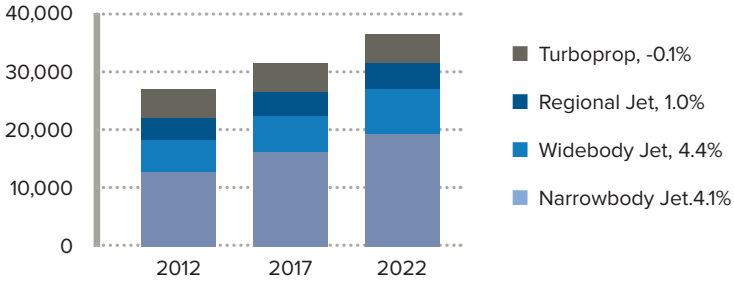
Financing on attractive terms has been plentiful from export credit agencies, and the recovery in the financial system is seeing a migration toward true commercial debt. U.S. capital market financing continues to be available and attractive to both airlines and lessors who have been able to access it which has recently included several non-U.S. airlines.

RISKS AND REWARDS

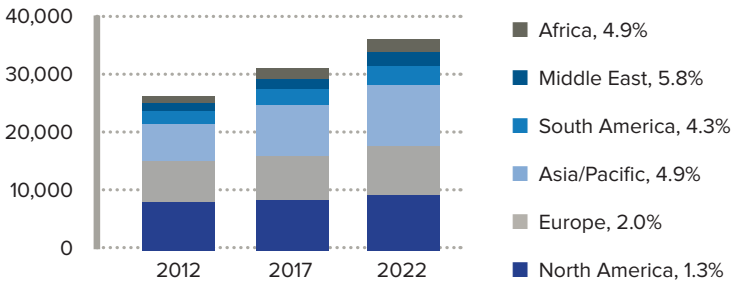
A changed perspective reveals attractive investor opportunities—including those next-generation aircraft—and for those seeking greater returns while accepting some higher risk, depressed values on used narrowbody aircraft. Those anticipating a strong economic comeback may find value in such assets via lease revenues and solid residual value performance.

JOHN MOWRY AND GARY WEISSEL

ICF SH&E Air Transport Fleet Forecast by aircraft type



ICF SH&E Air Transport Fleet Forecast by region



Global Aerospace and MRO Markets—Restored Stability and Long-Term Growth

The aerospace industry, led by rising air transport production rates, fared better than other capital goods sectors in the global recession, and ICF SH&E expects this trend to continue over the next decade. This positive outlook for civil aircraft production is underpinned by a unique mixture of economic factors, including high fuel prices and low capital costs. With fuel now making up 30 to 40 percent of an airline's cost structure, the benefits of operating new aircraft outweigh the costs of financing new equipment.

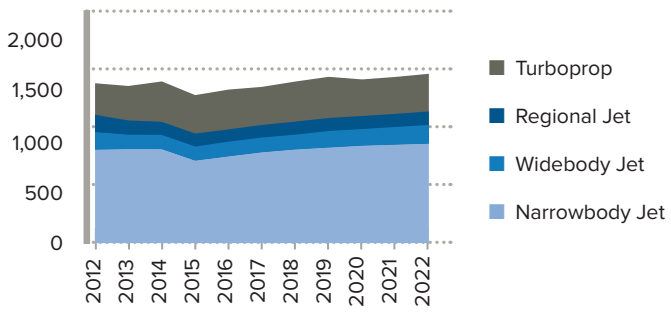
ICF SH&E expects air transport aircraft production, currently 1,600 units per year, to reach 1,700 by 2022—contingent on the successful execution of new aircraft programs, including the A350, C-Series, A320neo, and 737 MAX. The outlook is also positive in business and general aviation aircraft—growing from 1,037 to 1,526 per year—as it slowly recovers from a major downturn. The outlier is military fixed-wing aircraft production, which will decrease from 480 to 365 per year over the next decade as a result of shrinking defense budgets and evolving mission requirements. Rotary wing aircraft will fare much better than fixed wing, growing from 1,428 to 1,726 units per year, and unmanned aircraft will take on an ever-larger palate of military and civil missions.

SUPPLY CHAIN CHANGES

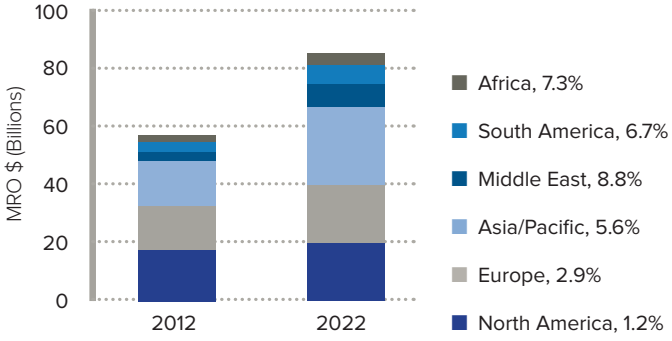
While new aircraft programs grab the headlines, there are several important trends shaping the aerospace supply chain:

- OEMs continue to adopt Tier I supply chain models, pushing system and supply chain responsibilities down to a smaller, but better integrated, group of suppliers.
- Globalization is reshaping where manufacturing takes place, with emerging economies—led by Mexico and China—taking on greater activity; the Southeastern United States is also a hotbed of manufacturing investment.

ICF SH&E Air Transport Production Forecast



ICF SH&E Air Transport MRO Spend Forecast



- Investment in new materials is ramping up as suppliers respond to the need for lighter, more fuel-efficient aircraft.
- Consolidation in the lower tiers of the supply chain is creating a new breed of material solutions suppliers.

There is one more fundamental and longer-term challenge facing aerospace suppliers: sustainable growth. Some form of global carbon taxation is on the horizon, and operators will be under greater pressure to achieve carbon-neutral growth, beyond simple fuel cost implications. This means that manufacturers will continue to invest in fuel-saving technologies, and we can anticipate more aircraft re-engining and green modification programs.

MAINTAINING THE FLEET

While the outlook for production is generally bright, the MRO (Maintenance, Repair, and Overhaul) sector is undergoing its own changes—headlined by $56.8B in air transport spending. In the larger context, maintenance is approximately 8 percent of a typical airline's cost structure and one of the larger categories of controllable costs. It is also a key determinant of operations and dispatch reliability.

Looking to the future, ICF SH&E anticipates 4.1 percent annual growth, with the MRO market reaching $84.7B by 2022 (in 2012 nominal dollars). Fast-growing Asia/Pacific will underpin this growth with an additional $11.2B in maintenance spending anticipated by 2022. The Chinese MRO market alone will grow by a staggering $4.6B.

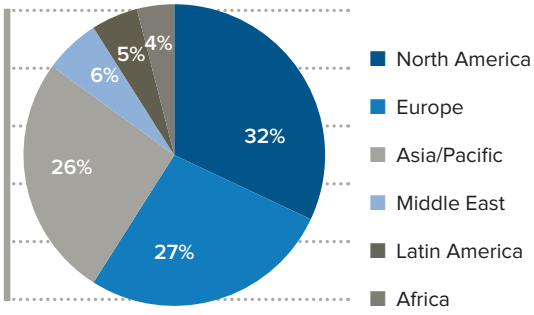
Beyond these shifting demand patterns, there are several other key trends that will shape the air transport MRO market:

- Increasing customer interest in integrated solutions combining cost-per-hour maintenance costs and asset management support where suppliers own rotable assets
- Growing interest in alternatives to OEM new parts, including surplus parts, PMA* parts, and DER** repairs; this interest will grow as the availability of surplus parts increases with 600 to 700 aircraft retirements per year anticipated over the next decade
- Continued interest by large airlines to spin off their major maintenance assets into quasi-independent or fully independent organizations
- Continued and growing interest in "green retrofits" like winglets, lightweight interiors and fuel-saving maintenance practices like engine washing.

KEVIN MICHAELS

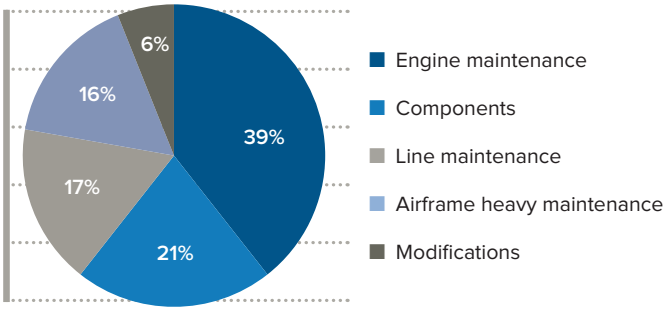
* PMA: Parts Manufacturer Approval
** DER: Designated Engineering Representative

Current MRO Spend Breakdown by Region

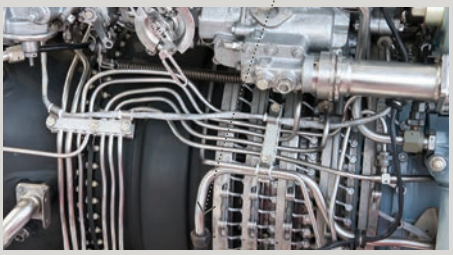


2012

Current MRO Spend Breakdown by Maintenance Component



2012



Global Airports—Turbulence on the Ground

The conventional wisdom has always been that airports are cozy monopolies. They are able to make EBITDA (earnings before interest, tax, depreciation, and amortization) margins of 30, 50, or, in the case of Australian airports, 70 percent—margins that other players in the aviation supply chain, like airlines and handlers, can only dream of.

High margins for airports are perhaps a reflection of greater capital intensity relative to other sectors such as airlines. Still, there has been a sense in the industry—perhaps justifiable—that in many cases the returns did not reflect the relatively less risky environment in which many airports operated. Several converging trends could be the cause. First, initially prompted by patterns in utility governance and by privatization, both public- and private-sector airports have been increasingly subject to independent economic regulation. Although this takes many forms, it often leads to a focus on the risk profile of airports and ensures through mechanisms such as the capital asset pricing model that returns are commensurate with those risks. Additionally, and in particular where airports have been privatized, there have been many political environments that are unfriendly to private-sector ownership. In some of these instances, regulators' highly confrontational approach to economic regulation has led to airports earning returns below their cost of capital.

Second, airlines have always regarded airport charges, though a relatively small proportion of their costs, as a proportion that is within management control—unlike fuel or similar expenses. Therefore, airlines have always been well organized and professional in turning "consultation" on charges into "negotiation." However, the maturing of LCCs has led to a much more sustained squeeze on airport charges. Low-cost airlines are highly adept at seeking the best yield for essentially footloose aircraft.

An airport such as Newcastle in the United Kingdom doesn't just compete for Ryanair traffic with Edinburgh, but more fundamentally with Krakow or Klagenfurt. Much of that competition revolves around the airport charges discussion. The result has been a secular dilution of yields both at regional airports with low market power and at more substantial hubs.

This has also led to significant differences in charges at the same airport: Sometimes LCCs are yielding as little as a third as what legacy carriers do for similar routes. Although LCCs make use of airport facilities in a simpler way than legacy carriers (no use of transfer facilities, for example), such differences often look hard to explain on cost grounds, and they illustrate the success of the LCC charges.

Well-attuned airport managers are astute at considering the wider impact on their airline communities of cutting aggressive deals with LCCs—clearly a delicate balancing act.

INNOVATION REQUIRED IN RETAIL

In many cases, the once inexorable growth in retail revenue at airports has slowed or even gone into reverse. LCCs often operate strict hand luggage rules—making duty-free sales more problematic—while at times they are less than cooperative with airports' enthusiasm for opening enough check-in desk counters to maximize dwell times airside. Unassigned seating can also lop off precious airside minutes.

Meanwhile, duty-free sales, particularly tobacco, are under pressure from various forms of regulation. Car parking revenues are being eroded by greater liberalism in permitting off-airport businesses, combined with cities' prioritizing of public transport access.

The fight back from airports has often been vigorous. E-commerce strategies both for retail and parking are vital. In the area of parking, dynamic yield management and the thoughtful branding of Web-based parking offers have enabled many airports to more than hold their own. And with the airport city concept becoming a widespread reality, airports have been successful in realizing the value of their land portfolios.

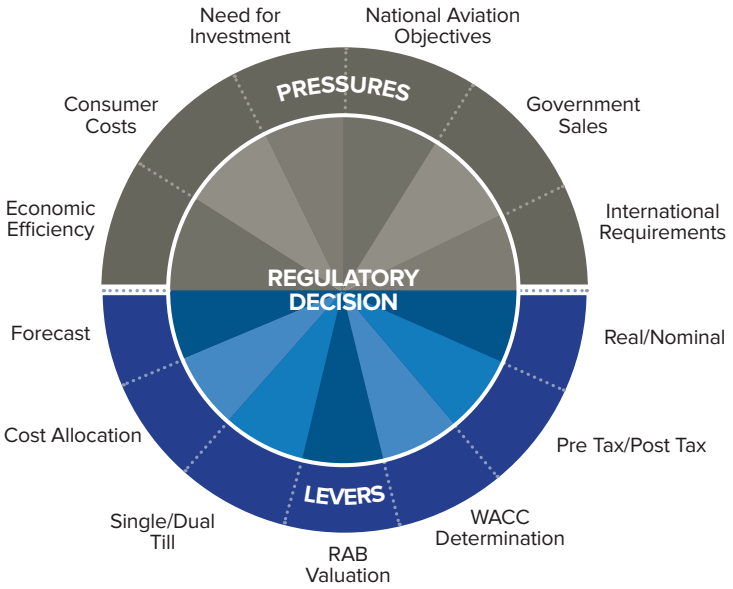
OTHER KEY DEVELOPMENTS

Green investment is a red-hot topic these days. Airports have been active and creative in implementing energy efficiency measures and seeking the goal of carbon neutrality for their businesses. In the longer term, airports are starting to approach sustainability as a key objective in setting master plans and making infrastructure investment decisions, with the Federal Aviation Administration funding a good portion of the effort in the United States.

One of the most forward-thinking airport opportunities is investment in emergency preparedness and business resiliency. This means planning not just for the dramatic events that affect air travel, but also the more common ones that can affect passenger satisfaction and restrict shareholder value. In the changing aviation environment, resiliency is more than a buzzword—it's a survival strategy with far-reaching implications for all customers and participants in the global airport industry.

SIMON MORRIS AND CHRISTINA CASSOTIS

Pressures on Regulatory Settlements



Source: ICF SH&E Analysis

Safety and Security—Basics that Evolve and Endure

"A strategic approach to safety, security, resilience, and continuity of operations is gaining greater focus, including increased awareness of best practices."

When it comes to aviation safety and security, there's always room for improvement. Nobody's immune to the risks—which evolve at a breakneck pace—and what you don't know can cause serious damage.

Sustaining effective safety and security measures is no small feat in a global market where budgets are tight and competition is fierce. But shortcuts in safety and security are never the answer. Aggressive growth plans must be tempered with thoughtful safety and security considerations. And preference can't always go to the lowest bidder.

While there are no catch-all solutions, the aviation industry is getting positive results from the formalized Safety Management System (SMS) approach. SMS treats safety like any essential business practice, complete with organizational structures, accountabilities, policies, and procedures.

The concept is nothing new, though it has grown up considerably. Today, an effective SMS includes 13 proactive and reactive elements. These can be grouped into four basic building blocks of safety:

- Policy
- Risk Management
- Assurance
- Promotion

The good news: Most modern airlines and airports already have many of these elements in place. But combining them into a dynamic, pervasive system? That's the challenge.

SMS is more than a three-day seminar or a binder on a shelf. It's a sustained method of raising enterprise-wide awareness of the risk profile. To make a real impact, SMS principles must permeate actions, communications, policies, and attitudes from the boardroom to the mailroom—and everywhere in between.

PERPETUAL MOTION

SMS is a great step forward. But it's just one step—not a complete solution. Progressive airlines and airports are bolstering their safety and security efforts through routine audits that identify weaknesses before they become liabilities.

Professional audits reveal the complete spectrum of environmental, organizational, and behavioral risks. They provide defensible evidence of a company's commitment to protecting passengers and workers. And they allow companies to prioritize the use of limited resources.

The need to push beyond the bare minimum is underscored by rapid changes in technology.

This year's battery issue and subsequent grounding of the new Boeing 787 is an excellent example. It certainly isn't the first or last time a plane will roll out with problems. But it serves as a reminder that, even in a world of unprecedented technological advancements, risk is never far away. And we have seen this in several recent operator incidents as well, unfortunately, even while loss of life has been wonderfully low relative to the possibilities.

The bottom line: Nobody in aviation can afford to get complacent. The flying public has every right to demand that our industry does everything in its power to prioritize safety and security. And we have the responsibility to meet or exceed that expectation. A strategic approach to safety, security, resilience, and continuity of operations is gaining greater focus, including increased awareness of best practices, both from SMS and from the U.S. National Incident Management System. Today's aviation participants - airlines, airports, and business aviation alike -continue to seek to fulfill their responsibilities cost-effectively while ensuring the continuous improvement and progress that has long distinguished our industry.

LOU SORRENTINO

ICF SH&E's Industry Leaders

Our 10 authors speak for a team of 80 dedicated aviation staff providing nearly 300 client-service engagements each year.

Christina Cassotis,
Vice President, Airports

Christina Cassotis has advised senior management at major hubs worldwide for more than 16 years, working with clients such as Denver International Airport, Dallas Fort-Worth International Airport, and the Massachusetts Port Authority. Currently, the ICF vice president is applying her breadth of cross-cutting experience to focus on issues including revenue generation for airport systems, commercial pre-marketing strategies, green and sustainability planning, and crisis communications planning.

Kevin Michaels,
Vice President, Aerospace & MRO

Kevin Michaels has more than 25 years of aviation experience, including hundreds of consulting engagements for leading aviation and aerospace companies worldwide. Dr. Michaels is a globally recognized expert in the aerospace manufacturing and MRO sectors and has significant expertise in business-to-business marketing, customer satisfaction, and strategic planning. He was a founder of AeroStrategy and has previously worked at Rockwell Collins Government Systems and The Canaan Group.

John Mowry,
Vice President, Asset Advisory & Management

John Mowry leads ICF SH&E's asset advisory team, providing specialized expertise as it relates to investments in aircraft, engines, and other aviation assets. He is an ISTAT certified appraiser and an expert on the aircraft and engine leasing businesses. Prior to joining ICF SH&E, Mr. Mowry designed and supported the manufacture of aircraft engine structures at GE Aviation. Mr. Mowry also worked with GECAS' engine leasing division where he developed rotable spare part asset management business plans.

Webster O'Brien,
Vice President, Aviation

Webster O'Brien has provided management and strategy consulting to the aviation industry for over 10 years. He now leads ICF's new business development efforts in aviation and heads the Aviation Decision Support unit within ICF SH&E. He has consulted to airlines, airports, investors, and other participants across a wide range of aviation issues in the Americas, Europe, Africa, the Middle East, and Asia/Pacific, frequently leading teams of analysts, consultants, and subject-matter experts.

Samuel Engel,
Vice President, Global Development

Samuel Engel is a recognized expert on airline economics and strategy, with special expertise in commercial planning. Airlines, investors, and governments rely on his analyses to support major investments, including fleet selection, route development, and mergers, and his expert testimony has supported multimillion-dollar decisions and settlements. Most recently, Mr. Engel led the successful restructuring of Gulf Air on behalf of the Government of Bahrain.

Subodh Karnik,
Vice President, Airlines

Subodh Karnik knows what matters in airline markets; he was president-CEO of Global Aero Logistics, the parent of World Airways, North American Airlines, and ATA. His recent work has included ownership restructuring, investor search, and acquisitions. He has also served as COO, CFO, and chief commercial officer at airlines including Northwest, Delta, Continental, Air Jamaica, Fiji Airways, and Fareportal, working on all major continents and in passenger, cargo, and commercial/military charter airlines.

Simon Morris,
Vice President, Airports

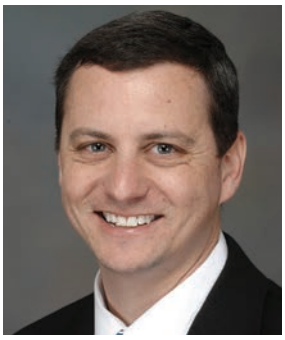
Simon Morris has over 20 years' experience in the aviation industry and his expertise primarily lies in business planning. He was previously with A.T. Kearney and LeighFisher as well as two airport directorships to the position of vice president for ICF SH&E. He is leading the London Airport team in projects worldwide, building on work in due diligence and comprehensive business and strategic planning for owners, investors, and private-sector interests.

Lou Sorrentino,
Vice President, Safety & Security

Lou Sorrentino has nearly 30 years of experience in the aviation and regulation fields. At ICF SH&E he heads the Aviation Safety practice and consults in areas such as aircraft and airport operations; safety, security, and quality; and civil aviation regulation and safety oversight. Mr. Sorrentino has developed numerous Safety Management Systems and has performed over 150 operational audits of airlines, corporate flight departments, airports, airport-related businesses, and civil aviation authorities worldwide.

David Stewart,
Vice President, Airlines

David Stewart's breadth of expertise from his 25 years in aviation makes him a go-to source for leading airlines and manufacturers for thought leadership on the latest issues, including the Middle East and Asia and low-cost airline operations and business models. At ICF SH&E he heads the Aviation and Aerospace practice for Europe, Middle East and Asia. He is a vice chairman of the ADS MRO and Logistics Network and a guest lecturer at the Cranfield School of Air Transport Management.



Gary Weissel,
Vice President, Asset Advisory & Management

Gary Weissel leads ICF SH&E's Asset Management team. He has over 24 years of experience in the aviation industry with expertise in asset management, program management, aircraft engineering, aircraft specification development and aircraft transaction support. He also provides support for a variety of general, commercial, and business aviation assignments and market studies. Mr. Weissel served as a senior program manager at B/E Aerospace's Seating Products Group, and he held various engineering and management positions at Delta Air Lines.

A Departing Thought 100+ Years On

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BILL GATES, FOUNDER, MICROSOFT

AVIATION OUTLOOK

ICF INTERNATIONAL | 11.13

ABOUT ICF SH&E

ICF SH&E, a leader in aviation consulting, serves clients around the world and across the spectrum of air transport. Founded in 1963, ICF SH&E includes nearly 100 aviation professionals with offices in the U.S., London, and Asia. The firm provides a complete range of advisory, technical, appraisal, analytic, management support, and strategic consulting services to the international aviation community and its related industries.

ABOUT ICF INTERNATIONAL

Since 1969, ICF International (NASDAQ:ICFI) has been serving government at all levels, major corporations, and multilateral institutions. With more than 60 offices and more than 4,500 employees worldwide, we bring deep domain expertise, problem-solving capabilities, and a results-driven approach to deliver strategic value across the lifecycle of client programs.

At ICF, we partner with clients to conceive and implement solutions and services that protect and improve the quality of life, providing lasting answers to society's most challenging management, technology, and policy issues. As a company and individually, we live this mission, as evidenced by our commitment to sustainability and carbon neutrality, contribution to the global community, and dedication to employee growth.

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