



Experience the commitment®



# CGI in Aviation

The journey is as important as the destination





Aviation is complex, but uniquely important and vital to the growth of regional and national economies. Aviation is also at the forefront, and is often the driver, of many technology advances and customer experience innovation.

Day to day operations and rapidly changing business priorities mean that aviation businesses are constantly seeking to:

- Improve operational efficiency
- Deploy cost based initiatives that generate clear and quick savings in capital expenditures, inventory, labor and real estate and fleet resource efficiency
- Quickly access and analyze detailed financial information to make faster and better decisions
- Respond intelligently to changing business needs through rapid identification of profitable flights and routes, and understand the immediate and long term impact of personnel, fleet, facilities and customers
- Ensure survival by utilizing the most effective and appropriate channels to pursue, develop and retain top value customers who are demanding more from aviation companies
- Proactively identify situations, both cyber and physical, which pose a potential security risk
- Make greater use of data to provide strategic decision support and tactical analysis.

So, how can a company respond to these demands? Technology is one of the keys... leveraging your information assets, bringing best of breed technologies together and working with partners who have done this before. It is hardly surprising therefore that CGI services and solutions are at the heart of many international airlines, airport operators and aviation regulators. From application management, cloud services and ITO to business consultancy and security, we work with you to ensure that you meet your operational and commercial goals.

We bring four decades of aviation experience and an uncompromising commitment to innovation and quality. Our reputation within the aviation industry is one of an organization that understands the industry and its stakeholders, and delivers on time and on budget. Our approach enables us to leverage the considerable experience of 68,000 members across the globe in aviation projects and related areas. We have a wealth of project delivery talent, together with enviable cross industry application experience and a solid partner ecosystem. We understand the way the industry works and are focused on finding business improvement opportunities in aviation and delivering benefit to you, your stakeholders and your customers.

Theo Quick  
Director – Global Transport & Logistics Industry



## Our industry expertise

CGI works across the aviation sector from airports and airlines to air traffic control and regulation.

### Airports

With four decades experience in aviation, we have worked with major airport groups such as Heathrow Airport Holdings Ltd. (Formally BAA), Gatwick Airport Ltd. Amsterdam Airport Schiphol, Aéroports de Paris, Hong Kong, Kuala Lumpur, Swedavia, Finnavia, and ANA Aéroportos de Portugal.

Our capability includes:

- Airport operational systems, including 'GO' – our next generation airport management system
- Asset & real estate real-time management solutions
- Passenger services such as self-service check-in, passenger information, way finding and boarding
- Security solutions from biometric border control to cyber security
- Retail solutions for the front and back offices
- Master systems integration in support of airport transformation projects.

We understand the unique aspects of delivering services to airports and how their systems are critical to safe and efficient operation.

### Airlines

CGI supports many of Europe's carriers including Air France KLM, Aer Lingus, Lufthansa, BA, TAP, Iberia, Finnair and Ryanair.

We have a track record in developing innovative solutions for our airline customers. From strategic planning to the delivery of innovative solutions, such as on-board duty free retailing systems, we are a trusted partner to airlines across all aspects of their business.

Our expertise covers:

- In flight retailing
- Advanced staff rostering
- Cargo revenue management
- MRO

- Revenue accounting
- Applications management and outsourcing
- HR services including payroll
- Cyber-security & threat analysis.

### Did you know?

CGI provides in-flight and back office solutions for some of the industry's largest catering and duty-free companies, such as, Newrest Group and Alpha LSG.

### Aviation services

The aviation industry relies on a wide range of supporting services from baggage handling and catering to logistics and rail services.

We have worked with many of these specialist service companies providing a wide range of solutions including:

- In-flight and back-office retail solutions
- Innovative loyalty solutions
- Vehicle tracking solutions, using GPS and RFID
- Intelligent parking solutions
- Public transport solutions, such as journey planning and ticketing
- Advanced telematics, such as our EMO system which monitors vehicle emissions and driver behavior to reduce emissions and fuel costs
- Mobile workforce solutions to improve operational efficiency.

### Did you know?

CGI provided the Privium service at Schiphol Airport which uses iris recognition to speed passengers through border control.

## Travel services

A lot of hard work goes into leisure – and don't you know it. That's why we have lots of ideas to minimize your effort and maximize your profits.

We work with tour operators, global distribution system (GDS) providers, hotel companies, retailers and every other kind of travel and leisure organizations to improve efficiency, cut costs and increase customer satisfaction.

Our capability includes:

- End to end ticketing and reservation systems
- Web and mobile retailing solutions
- Integration of social media, such as Twitter and Facebook with client systems, to engage with customers in different ways.

### Did you know?

CGI works with major GDS providers, such as Amadeus, to develop efficient and innovation systems.

## Air traffic control

We have long been associated with air traffic control within Europe and we are familiar with the safety and regulatory impact of systems.

Our reputation for quality and our expertise in systems engineering has helped us to deliver systems which control European airspace to the highest requirements.

We have also been a leader in mission-critical software systems for the space industry for over 40 years and we are at the heart of how advanced satellite navigation will change air traffic control now and in the future.

Our expertise includes:

- Central control and monitoring systems
- Systems such as EGNOS, that validate GPS navigation messages, ensuring their safe use by the aviation industry
- Control facilities and satellite control systems

- Implementation and support of back-office systems used by the air traffic control industry.

## Regulators

### Did you know?

CGI implemented the central control and monitoring systems for NATS.

Regulating a global industry such as aviation has its challenges. Whether it's coordinating and ensuring air safety standards, encouraging competition or protecting consumers, the role of the regulator is paramount in this safety critical industry.

We support regulators in maintaining the systems needed to monitor and regulate the aviation industry.

Our experience includes:

- Supporting the application estate for the UK's Civil Aviation Authority (CAA)
- Providing expert advice and risk assessment to the UK CAA on the capital investment plans of NATS
- Providing back-office systems
- Delivering both internal and external training services
- Working with regulators from diverse markets including rail, telecoms and utilities
- Providing shared services
- Handling major change and transformation programs
- Managing stakeholders and encouraging innovation.

### Did you know?

CGI delivered the Galileo satellite constellation control facility which controls 30 satellites - Europe's most significant new satellite control system in the last ten years.

## Maintenance, repair and overhaul

Maintenance, repair and overhaul (MRO) of aircraft is demanding, safety critical and quality focused. The processes involved in providing line or base maintenance services and the repair or rotation of mechanical parts present a challenge, to both the engineering and IT solution providers.

We work with some of the world's largest MRO and aircraft engineering organizations including Lufthansa Technik and KLM Engineering.

Our capability includes:

- Integrated services and solutions
- Quality management methodologies and tools to ensure process compliance and safety
- IT application management and outsourcing services
- Business consulting
- Continuing airworthiness process reviews
- Maintenance program management optimization
- MRO system evaluation
- Regulatory compliance & e-forms.

### Did you know?

CGI delivered our IQ MOVE solution for Lufthansa Technik which visualizes processes and enables certification and audit control.

## Aircraft manufacturing

CGI has over 30 years working with many of the world's leading aircraft and engine manufacturers such as Airbus Group, Bombardier Aerospace, Rolls-Royce, SAFRAN, Dassault Aviation, Volvo Aero Corp.

We are a leading provider of business consulting and IT services across the manufacturing value chain comprising repeatable approaches and solutions for end to end supply chain optimization, manufacturing execution, transport management and ERP. And our

IT management capabilities include the operation of company-wide infrastructure, application suites and business processes, globally.

We have 2,800 supply chain experts across multiple CoEs that team up with more than 7,000 professionals specialized in the manufacturing industry to help drive innovation and optimization for clients across the globe. Our experience in implementing complex, multinational manufacturing solutions also enables us to offer repeatable solutions, so our clients benefit from both critical mass and economies of scale.





## The connected airport

The aviation industry is seeking scalable solutions that take advantage of information and communications technology to increase efficiencies, reduce costs, and enhance the customer experience.

Not only are airports, airlines, people and associated infrastructure becoming more connected, so are the devices, systems and the information needed to facilitate these connections.

Everyday consumer devices and business assets are capable of communicating using sensors and actuators embedded in physical objects – from runways and buildings to baggage systems and vehicles. All potentially linked, wired or wireless via networks that can connect to the internet.

This new connected world is referred to as the Internet of Things (IoT) and along with technology innovation its growth is supported by new commercial models for data storage, and integration. The IoT creates new analytical and automation opportunities bringing together normally fragmented process and siloed systems to harness your most important asset... information.

So what could this mean for an airport?

### Analytical discovery

- Track behaviour to monitor behaviour, persons, things, data, space and time
- Allow presence based advertising; event driven response through facial recognition; security and border control queue monitoring

- Analyse situations and have real-time awareness of physical environment using CCTV & crowd analytics
- Enable sensor driven decision analytics e.g.: assist human decision making with deep granular analysis and visualization; site planning using 3D visualization and simulation; asset performance monitoring and mobile workforce scheduling
- Control complex autonomous systems e.g.: automate control in open environments; use of swarm robots to clean up hazardous materials; autonomous snow clearance; collision avoidance systems and autonomous consolidated logistics.

### Automation and control

- Optimize processes to automate control of closed systems e.g.: continuous, precise adjustment in security lanes, car parks, onward/inward travel options, baggage and check-in
- Optimize resource consumption e.g.: control consumption to optimize resource use across network; smart FEGP energy grids that match loads and generation capacity.

CGI is at the forefront of this innovation. We partner to bring new cloud solutions, leading analytical and visualization tools to support this rapidly growing market.

We are the first systems integrator in the world to have implemented a real client solution in transportation using the service.





**Transport Operators:**  
Increase public transit utilisation by adjusting routes and capacity according to usage trends

**Parking:**  
Provide citizens with an easier payment process by integrating car-based systems and car park sensors for automation

**Road:**  
Reduce fuel consumption by using sensor data to identify potential driver improvements or machine malfunction

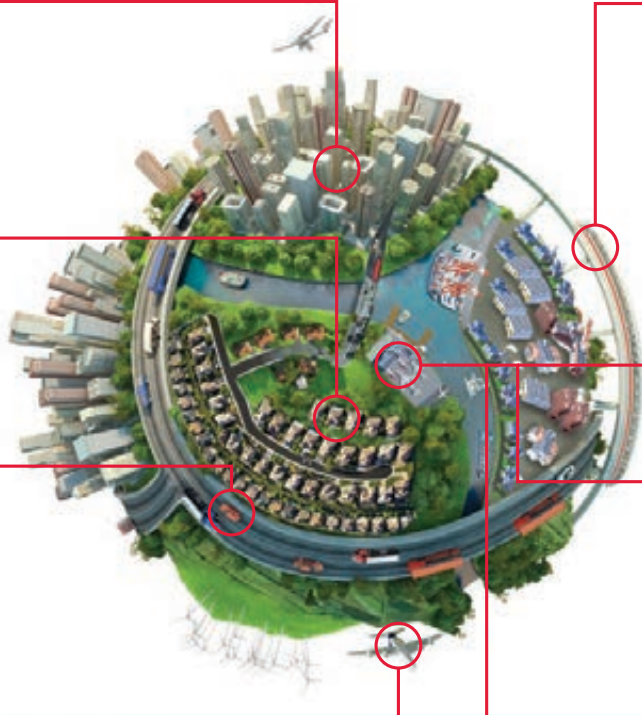
**Airlines:**  
Identify ways to reduce pollution by capturing and analysing emissions data

**Rail:**  
Reduce maintenance costs by receiving notifications before equipment breaks down

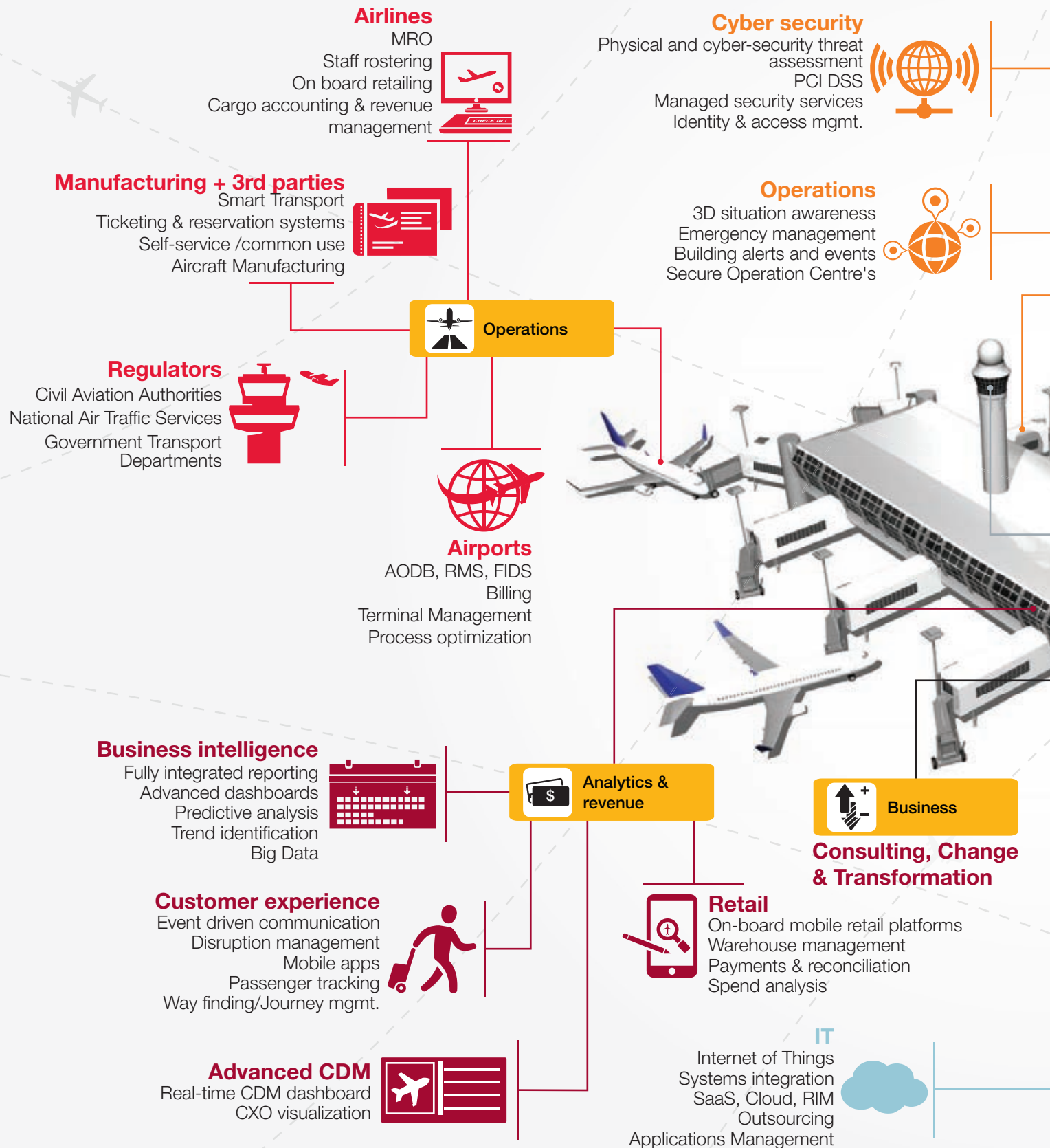
**Airports:**  
Facial recognition at car-park prompting premium security lane/departure lounge offer

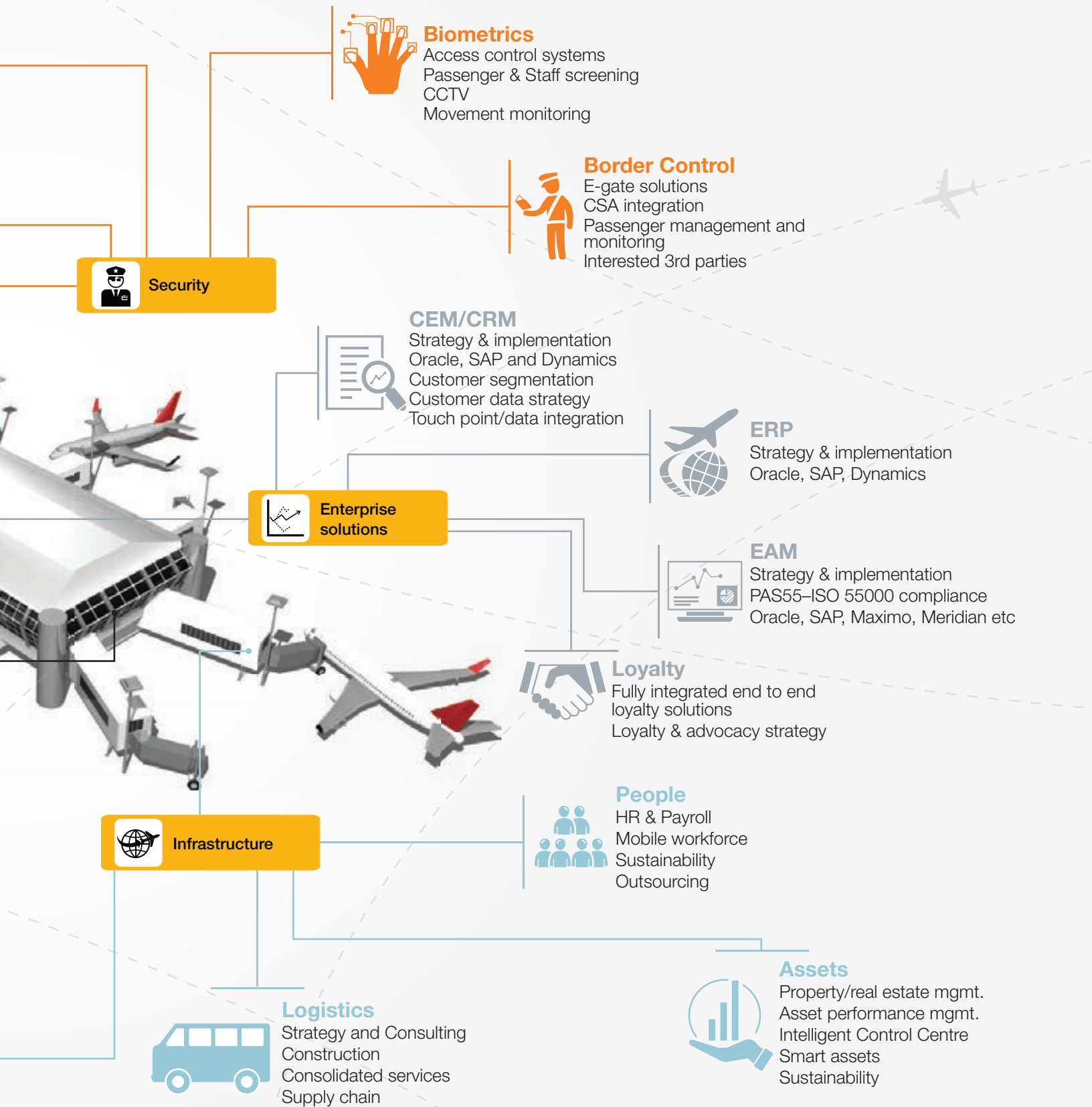
**Airports:**  
Proactive re-routing of passengers through interactive wayfinding linked to CCTV

**Airports:**  
Autonomous airside vehicle for improved consolidated logistics



# CGI aviation capability matrix





### Biometrics

Access control systems  
Passenger & Staff screening  
CCTV  
Movement monitoring



### Border Control

E-gate solutions  
CSA integration  
Passenger management and monitoring  
Interested 3rd parties



### Security



### CEM/CRM

Strategy & implementation  
Oracle, SAP and Dynamics  
Customer segmentation  
Customer data strategy  
Touch point/data integration



### Enterprise solutions



### ERP

Strategy & implementation  
Oracle, SAP, Dynamics



### EAM

Strategy & implementation  
PAS55-ISO 55000 compliance  
Oracle, SAP, Maximo, Meridian etc



### Loyalty

Fully integrated end to end loyalty solutions  
Loyalty & advocacy strategy



### Infrastructure



### People

HR & Payroll  
Mobile workforce  
Sustainability  
Outsourcing



### Logistics

Strategy and Consulting  
Construction  
Consolidated services  
Supply chain



### Assets

Property/real estate mgmt.  
Asset performance mgmt.  
Intelligent Control Centre  
Smart assets  
Sustainability

## Our Service areas: Customers

### Getting to the airport

Good connections to and from airports are vital. In a CGI survey 62% of customers said traffic or public transport delays getting to the airport were one of their biggest concerns about using air travel.

CGI works with airports, airlines, highways authorities and public transport operators to take the stress out of the journey.

Our Smart Travel solutions include:

- Journey planning – our Navici real-time multi-modal journey planner, used throughout Europe and North America, enables customers to plan their journey to and from the airport using real-time travel information. It covers multiple modes of transport and incorporates way finding at interconnections.
- Smart ticketing – CGI is a leading provider of smartcard and e-ticketing solutions to public transport and rail operators.
- Informed traveler – our informed traveler solution monitors the customer's journey and provides real-time alerts to keep them informed as they make their journey.

#### Case Study – Helsinki Journey Planner

The Helsinki Regional Transport Authority selected CGI to implement a door-to-door Journey Planner to help people find the most efficient and carbon neutral way to get from A to B.

We implemented the Navici journey planning solution which finds the best options using any travel combination from walking and cycling to trains and ferries.

The journey planner has won several awards and has been rated Finland's second most valued Internet brand.

- Parking and electric vehicle (EV) charging – CGI's parking and EV solutions enable customers to book their parking or EV charging point in advance and provide innovative payment options.

### Booking, ticketing and check-in

Online and self-service booking and check-in has been one of the biggest industry changes over the past decade – in fact, in a CGI survey, online booking was identified as the largest single improvement to the passenger experience. However the same survey identified further areas for improvement as mobile technologies continue to advance.

Our experience in this field ranges from working at the heart of the industry's global distribution systems (GDS) through to the implementation of new self-service and mobile technologies for both airlines and airports. Our experience in smart ticketing solutions is helping our clients to unlock the following key benefits:

- new and innovative web and mobile channels
- insight into the end to end ticketing and reservations process.

#### Case Study – Air France KLM Check-in and Electronic Booking

Air France KLM needed to stabilize the support and operation of their electronic booking and online check-in applications. These systems allow customers to go online to book and pay for their flight tickets, rent a car, book a hotel room, select their seats and print their boarding cards. CGI was selected to provide ongoing application management, including the further development of the services.

## Customer engagement

In the competitive world of aviation, passenger loyalty is a key element of your business plan.

We work with major airlines, airports and specialist loyalty scheme providers, such as Air Miles and Miles & More, to create and retain passenger loyalty. We help our clients achieve increased revenues, improved customer satisfaction, greater brand differentiation and reduced costs, by helping them understand their individual customers' behaviors and enabling them to deliver a personalized customer experience across all touch points.

Our expertise includes:

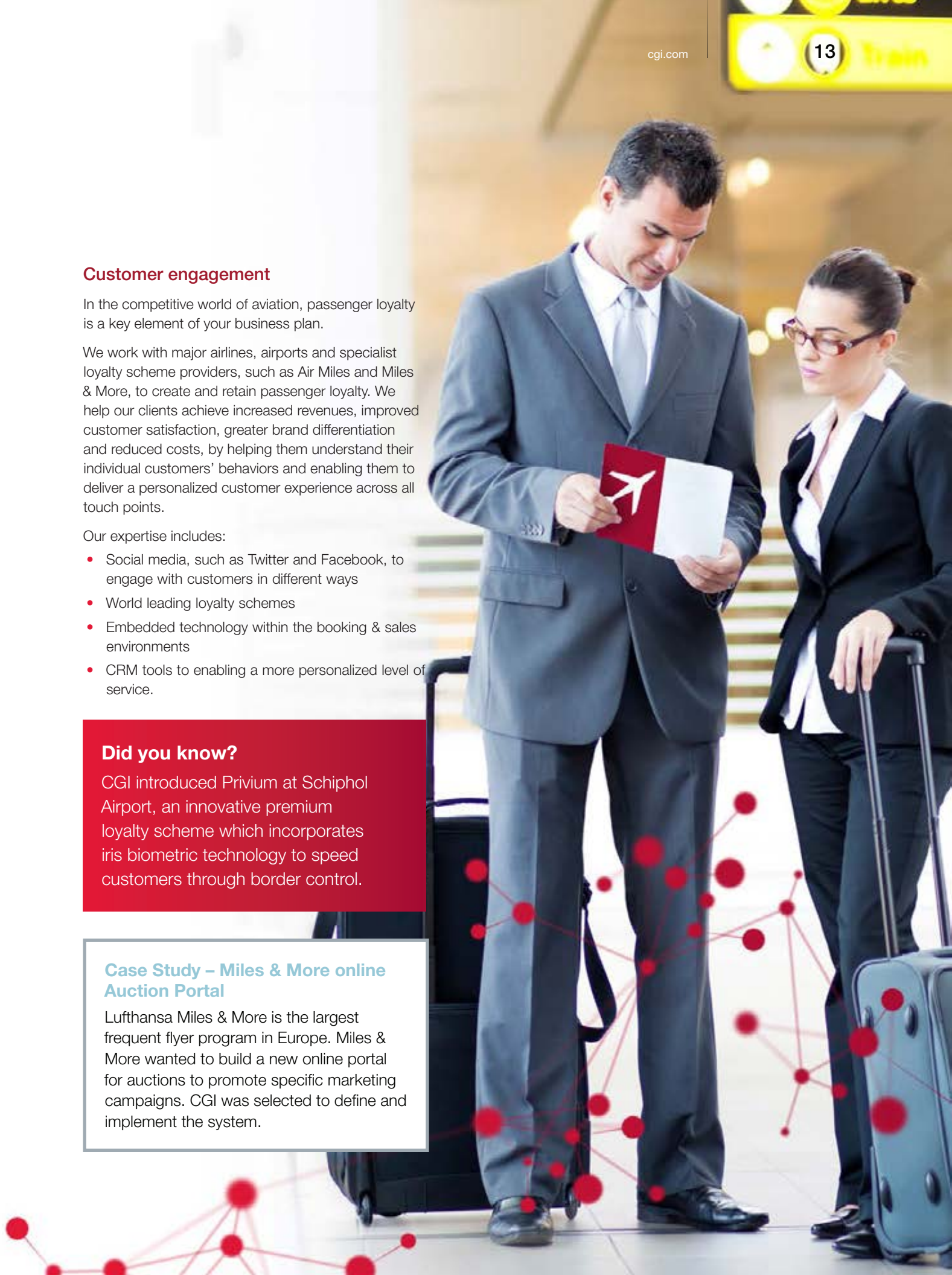
- Social media, such as Twitter and Facebook, to engage with customers in different ways
- World leading loyalty schemes
- Embedded technology within the booking & sales environments
- CRM tools to enabling a more personalized level of service.

### Did you know?

CGI introduced Privium at Schiphol Airport, an innovative premium loyalty scheme which incorporates iris biometric technology to speed customers through border control.

### Case Study – Miles & More online Auction Portal

Lufthansa Miles & More is the largest frequent flyer program in Europe. Miles & More wanted to build a new online portal for auctions to promote specific marketing campaigns. CGI was selected to define and implement the system.



## Customer experience

Customer experience, before, during and afterflight, is an essential differentiator used by customers when determining travel plans.

When addressing the customer experience you need to understand the different types of customer – this is not just about whether they are travelling for business or pleasure, but also how they feel about flying. A CGI survey identified the following types of customers:

- Customers who enjoy flying and the airport experience
- Functional flyers that see flying as a means to an end and want a quick and painless journey
- Stressed travelers who find flying stressful and airports busy and confusing.

The one area consistently highlighted by all three groups is access to clear and up to date information. In the 'mobile digital' age, customers expect more information and the ability to act on it, particularly when there is a delay.

### Case Study – Finnair.com

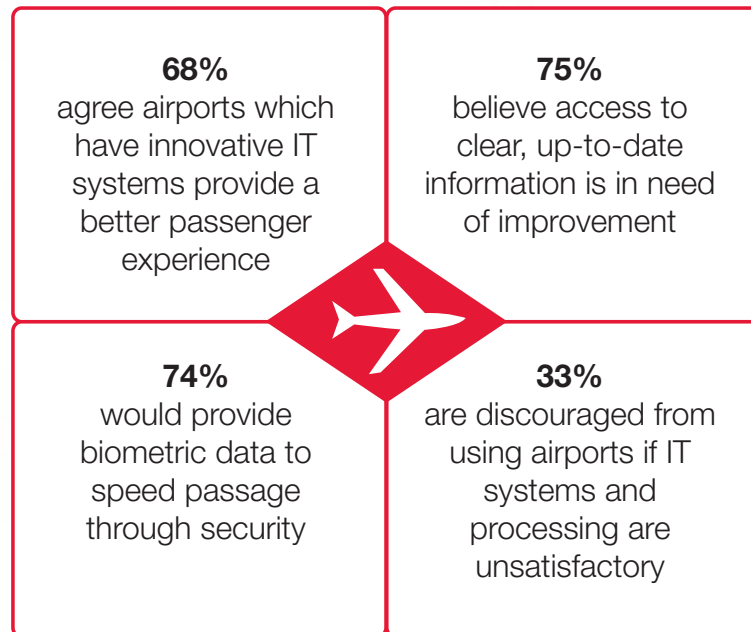
Customer satisfaction and service quality are central to Finnair's service concept and online self-service is key to this. The majority of Finnair's flights are booked through a web portal and they provide a strong portfolio of innovative solutions to customers, including mobile services, to access services from anywhere and at any time.

CGI was selected to redevelop the Finnair.com services using new advanced technology to provide an even better quality of service and reduce the complexity of the online experience.





Other findings included:



CGI is at the forefront of new innovations such as location based services and total itinerary management enriching the passenger experience.



### Applied customer insight

Gaining a greater insight into your customers will enable you to improve operational efficiency and improve the customer experience.

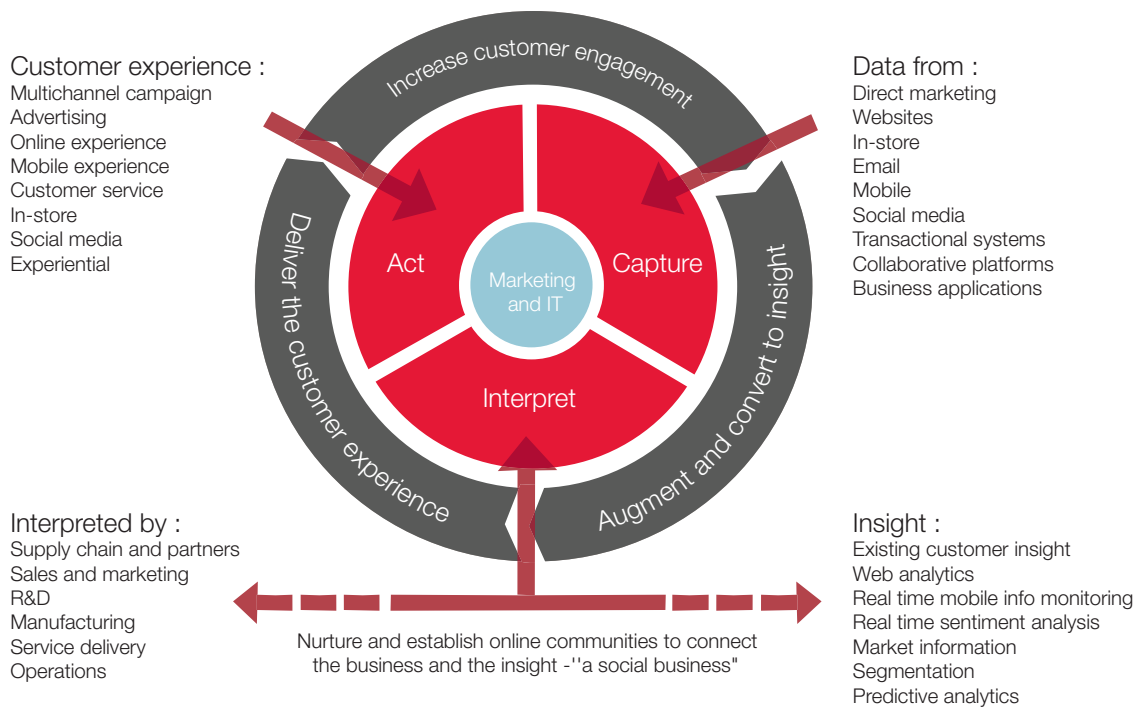
Applied Customer Insight (ACI) captures, interprets and acts upon real-time data acquired from multiple sources and applies insight collaboratively across the whole business operation. This delivers an improved customer experience, increased revenues, enhanced brand equity, customer loyalty and reduced costs.

The explosion of online social networking has created a very porous boundary between an organization and its customers, radically transforming how and when to engage with customers. Smart mobile devices have created an 'always on' customer base, providing a great platform to deliver a fantastic customer experience.

Allied to this, real-time location and presence information enables organizations to offer the right product, in the right place and at the right time.

We have successfully applied customer insight in many different industries, including aviation. We help our customers:

- Maximize revenues
- Identify and engage with new clients
- Increase profits
- Recognize the most lucrative channels and customers
- Reduce costs
- Apply insight and adapt strategies in near real-time.





## Our Service areas: Operations

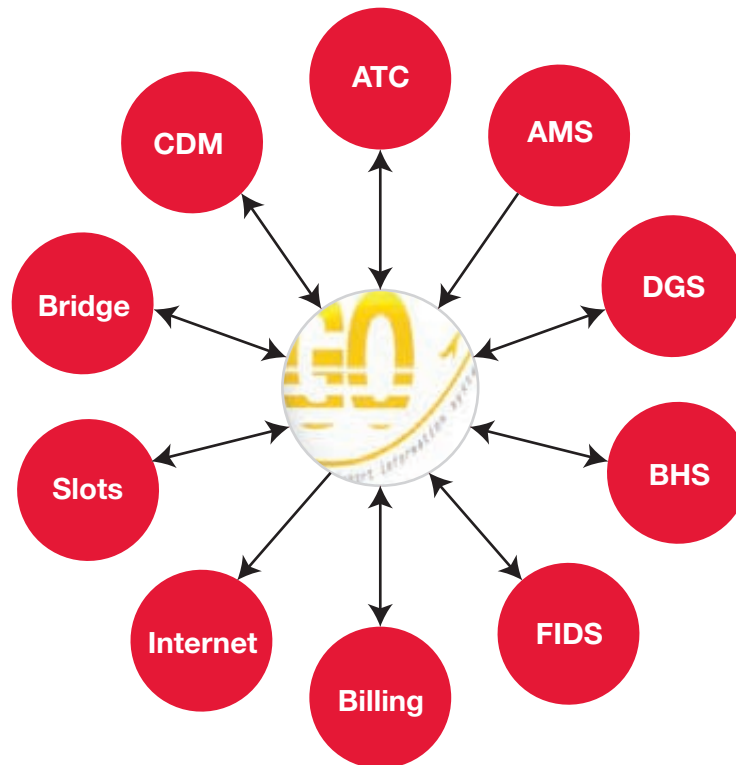
### Airport operations

In 1998, CGI began work on its first Total Airport Management system for Kuala Lumpur International Airport. Since then we have built experience in bringing together and providing support for all the systems which an airport needs for managing an effective operation.

This experience has culminated in 'GO' – our next generation airport management system which we have developed working in collaboration with ANA, the Portuguese airport group.

CGI's wealth of knowledge enables us to offer extensive support for airport operations management, including:

- Mobile management
- Access control
- Planning
- Vehicle management
- Dispatch
- Monitoring
- Data management
- Airfield management
- Terminal management
- Planning
- Optimization
- Billing
- Business intelligence



The scope of the GO AODB covers the entire airport operations, as shown in the diagram above.



### Case Study – ANA Airports Operational Management System – ‘GO’

ANA is the state owned operator of ten airports in Portugal, including Lisbon airport. In 2007 ANA commenced a transformation program to improve the passenger experience and enhance operational efficiencies by standardizing operational processes across all airports. A key element of this was the replacement of its varied local airport management systems with a single, common product.

ANA selected CGI as the Master Systems Integrator to implement and support the new airport operational system/database. Following a review of ANA's vision and requirements, it was agreed to design and develop a new Airport Operational System. CGI established a partnership with ANA, to develop a product, called GO, for managing airport operations that are at the heart of airport infrastructure. GO is now live in ten ANA airports providing significant operational improvements to its users.

### Airline operations

We support many leading European carriers including Air France KLM, Lufthansa, TAP, Ryanair and Finnair.

We are at the forefront of providing the customer experience off-airport. Our expertise includes booking and ticketing for airlines - including the development of self-service sales and check-in websites.

Developing and supporting the IT systems which help these groups operate efficiently, securely and effectively, we can showcase pioneering projects as well as provide 'business as usual' services.

From intelligent rostering to revenue accounting, we are at the forefront of airline operations.

### Case Study – Air France KLM Cargo/Martinair Revenue Accounting System

Caraib is the Air France KLM SAP based solution supporting Cargo and Mail Revenue Accounting. Martinair and AF/KLM agreed to harmonize revenue accounting business processes and to migrate to one sales & revenue accounting system.

CGI carried out a high level pre-study to understand the impact of the CARAIB implementation for Martinair. The service defined the high level definition of the CARAIB configuration and interfaces and assessed the macro-level consistency, timing and architecture of CARAIB for Martinair.

## In-flight retailing

In flight retailing has traditionally had many challenges. Manual on-board sales create inefficiency, stock losses are high due to lack of audit trails, money may be missing due to fraud and managing third party bonds is time consuming and expensive.

We are a global leader in in-flight retailing solutions.

Our Pro Logistica solution has been developed together with many catering and duty-free service providers and has proven itself to be robust and highly reliable in everyday use.

Pro Logistica is a single integrated solution covering:

- Warehouse management
- Packing
- On-board sales
- Payments and reconciliation
- Full audit trail enabling loss and theft control for both products and money
- A rich set of operational and MIS reports.

### Case Study – KLM Tax Free

KLM Tax Free had an outdated IT environment. They wanted to build a comprehensive and centralized system to manage an expanding business and to reduce the number of standalone applications. They also wanted quick and reliable access to data in real-time.

KLM Tax Free replaced its old systems with CGI's Pro Logistica platform, providing real-time warehouse, packing and reconciliation management to support on-board retail. Utilizing Pro Logistica, KLM efficiently controls processes that enable accurate sales forecast and minimized waste.

### Case Study – Newrest Group

Newrest wanted to enhance efficiency by moving to a single integrated solution instead of multiple standalone applications. They also needed to remove manual processing and automate the management of large volumes of information.

CGI's Pro Logistica has now been implemented for ten airlines in seven countries, enabling a more accurate operation with increased efficiency and productivity.







## Security

Security is so much more than the visible x-ray machines within an airport. The interconnected world is home to international cyber criminals and terrorists, who may attack 24 hours a day, in the physical or digital world. We are the foremost provider of information security services in Europe and have been advising clients on security matters for over 40 years.

Security is changing. New technologies such as e-passports have been introduced which provide opportunities to increase security whilst minimizing queuing. Automated gates and the use of biometrics are bringing significant advantages but also challenges in terms of privacy, security, interoperability and systems integration.

Immigration authorities, airlines and airport operators trust our innovative developments to take care of their security agenda.

### Case Study – Privium Biometric Border Control

CGI was selected as system integrator for the Privium service at Schiphol Airport. Privium users are provided with a smartcard which holds their biometric information. When they pass through border control they use a special lane where their iris is scanned to validate identity.

This was the first biometric iris recognition border control solution in Europe. It demonstrated that biometrics was both affordable and did not compromise security. Frequent travelers passing through Schiphol airport have reduced wait times. Customer service has also been enhanced.



Our security professionals have supported the aviation industry with:

#### Security operations

- 3D situational awareness
- Real-time emergency management
- Building management alerts & events
- Secure operation centers.

#### Cyber security

- Physical and cyber-security assessments
- PCI-DSS financial security
- Managed security services
- Identity and access management
- Data security.

#### Biometrics

- Biometric border control, such as the Privium iris recognition system at Schiphol Airport
- Staff security solutions, providing identity and competence management
- CCTV and passenger movement monitoring.

#### Border Control

- E-gate solutions
- CSA integration
- Passenger management & monitoring
- Interested third parties.

### Case Study – ANA Staff Security System

ANA wanted to enhance airport security by replacing multiple separate staff security and identification cards into a single multi-function ID card covering physical access, identification, driving license, and attendance.

CGI was selected to design and implement the new multi-function smart ID card system across all of ANA's airports. The solution uses a card with iris biometric recognition to identify employees. Fixed and portable card and biometric readers are used throughout the airport.



## Air traffic control

We have long been associated with air traffic control within Europe and we are familiar with the safety and regulatory impact of systems.

Our reputation for quality and our expertise in systems engineering has helped us to deliver systems which control European air space to the highest requirements.

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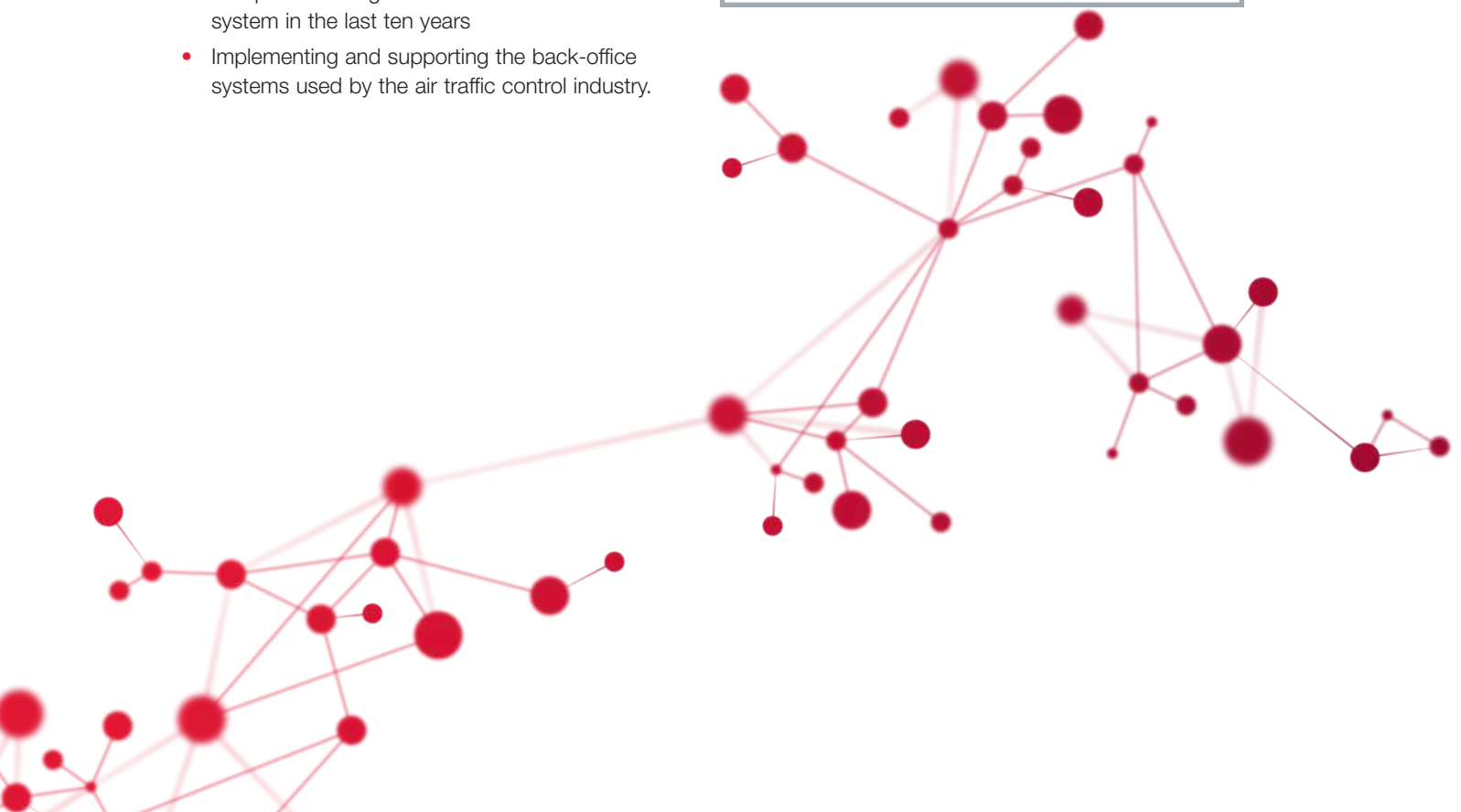
Our expertise includes:

- Implementing the central control and monitoring system for NATS
- Supplying systems, such as EGNOS, that validate GPS navigation messages, ensuring their safe use by the aviation industry
- Delivering the Galileo satellite constellation control facility that will control all Galileo's 30 satellites – Europe's most significant new satellite control system in the last ten years
- Implementing and supporting the back-office systems used by the air traffic control industry.

### Case Study – NATS NERC Central Control & Monitoring System

As part of the implementation of the New En-Route Centre (NERC) in Swanwick, NATS wanted to manage and control its Air Traffic Control systems from a single centralized location. Prior to this, system control engineers faced difficulties in operating multiple systems with a variety of different user interfaces. NATS also wanted fault reports logged in a standard format in a single message log.

CGI successfully delivered the Central Control and Monitoring system to NATS covering voice communications, radar, building management services, support information database and air traffic control workstations. We also delivered the user interface design and safety and hazard management.





# Our Service areas: Assets

## Asset management

Aviation is an asset intensive industry. We support airports and fleet operators to optimize their assets. Our solutions range from the successful set up of capital project management through to effective use and proactive maintenance of new and legacy assets. Our customers benefit from savings made in both time and money, gain levels of control and insight as well as enhancing the effective value of their business.

Our asset management offerings include:

- Intelligent and smart assets which reduce costs through remote condition monitoring and control
- Intelligent control centers providing real-time proactive asset management
- Enterprise asset management (EAM) systems such as Maximo and SAP to enable asset optimization for whole life costs
- Mobile workforce solutions to improve workforce efficiency including the use of augmented reality (AR) technology
- Real-time processing and integration enabling operational and business processes to improve business agility

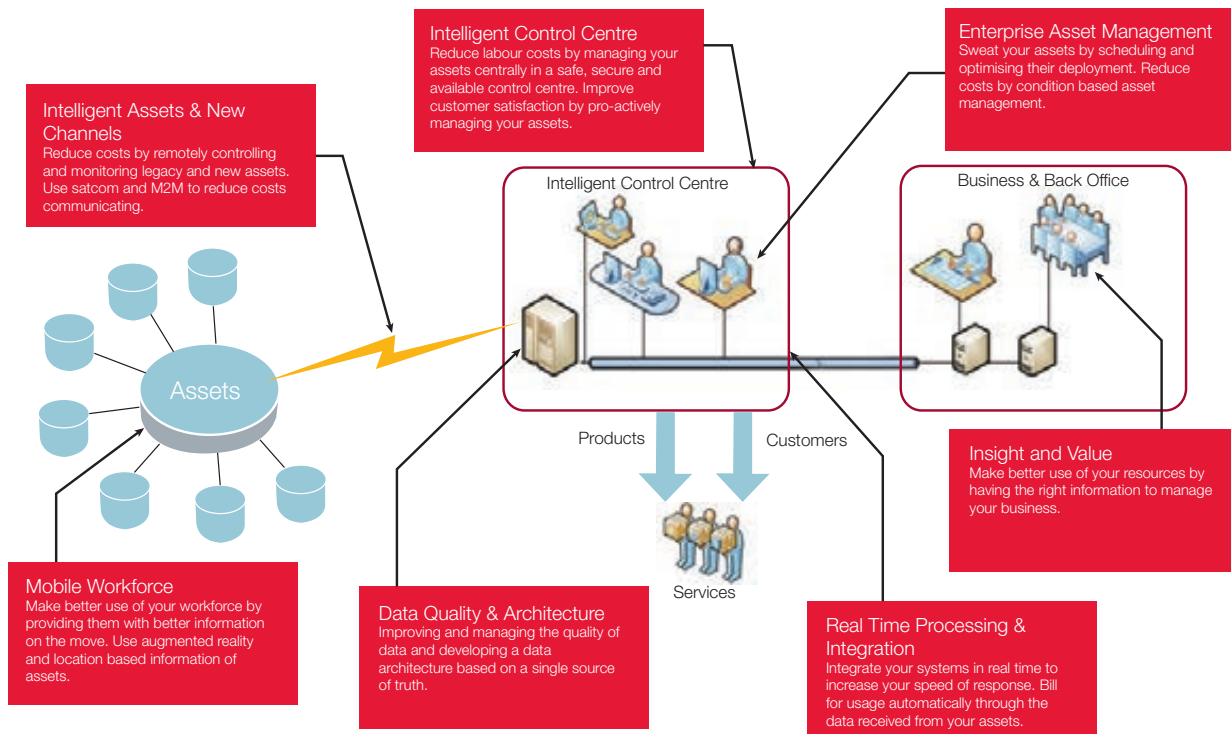
- Insight and value enabling more informed decisions on business operation of assets.

### Case Study – KLM Vehicle Tracking

KLM is responsible for a common pool of vehicles at Schiphol Airport. Due to the size of the airport they wanted to manage the location of their vehicles more effectively. This would create efficiencies through a lower vehicle pool size and greater asset optimization.

CGI was selected to develop and implement a real-time RFID-based solution to track and monitor vehicles at the airport. The CGI solution combined RFID with sensors, wireless communication, GPS and GEO-ICT.

The real-time visibility of all vehicles has enabled better asset and human resource management.





## Property management

Airports are continually evolving and in recent years the concept of an 'Airport City' has become a realization, as a broad range of aviation and non-aviation businesses are attracted to the airport. Managing airport terminals has also become more complex as airports undertake large capital programs to improve efficiency and enhance the passenger experience.

We have significant experience in providing property management solutions which:

- Support the operation
- Control costs and provide full audit capabilities
- Maximize retailing revenues
- Manage customer relationships and contracts
- Reduce environmental impact
- Provide regulatory reporting.

### Case Study – Aéroports de Paris SAP Real-Estate

Aéroports de Paris wanted to increase revenues from the airport estate, align the assets to meet customer needs and facilitate financial communication to stakeholders.

CGI implemented a flexible real estate solution based on SAP including a GIS based user interface to enable staff to see a "map based" view of the airport estate.

This solution increased efficiency, revenues, security, and reliability through integration with Aéroports de Paris' central information management system and back office functions.

## Maintenance, repair and overhaul (MRO) and engineering

Maintenance, repair and overhaul (MRO) of aircraft is a demanding, safety critical and quality focused specialism. Whether providing line or base maintenance services, or repair of rotating mechanical parts in the hangars, the processes involved present a challenge, not only to the engineer performing the task, but also for those delivering the IT solutions.

We work with some of the world's largest MRO and aircraft engineering organizations including Lufthansa Technik and KLM Engineering.

Our capabilities include:

- MRO process knowledge such as master data management or maintenance program management
- Implementing quality management methodologies and tools to ensure process compliance
- Provision of safety elements like the IQ MOVE solution we delivered for Lufthansa Technik which visualizes processes and enables certification and audit control
- Pioneering the use of RFID technology to track assets and certify the calibration of tools, thereby leading to lower lead times

- Providing IT application management and outsourcing services.

### Case Study – Lufthansa Technik Process Re-Design

Lufthansa Technik is the world market leader in the MRO of commercial aircraft, their engines and components. To maintain their market leadership Lufthansa Technik wanted to redesign their operational processes. This would ensure process compliance for engineering and support processes in case of major incidents in flight operations. They also wanted to reduce editorial effort for process documentation.

CGI's solution for Lufthansa included the conceptualization and design of a new process and quality management methodology with an integrated requirement management solution called IQ MOVE. We also implemented a web-based process management system.



## Our services

### Systems integration

We have over forty years' experience as a Systems Integrator in the aviation sector covering passenger management, airfield management, asset management and operations management.

Our experience includes:

- Kuala Lumpur International Airport where we were the Master Systems Integrator (MSI) for the total airport management system in support of a five-fold increase in air-traffic
- ANA Aéroportos de Portugal where we are MSI for a new airport operational system
- Heathrow Airport Holdings Ltd (formerly BAA) where we delivered some two hundred projects including the implementation of an enterprise service bus, integration testing for T5C and airline terminal relocations
- Amsterdam Airport Schiphol where we were the MSI for the first biometric border control system in Europe and SI for an innovative RFID and GPS based airfield vehicle tracking system.

### Case Study – ANA Airport Operational Systems

ANA selected CGI as the Master Systems Integrator to implement and support a new airport operational system/database. Following a review of ANA's vision and requirements, it was agreed to design and develop a new Airport Operational System, GO. The system is now live in ten ANA airports providing significant operational improvements to its users.

### Case Study – Heathrow Airport/ British Airways T5C Systems Integration Testing

In 2010 Heathrow Airport Holdings Ltd (formerly BAA) selected CGI to manage the end to end systems integration testing for the new T5C satellite terminal at Heathrow prior to its official opening in 2011. Testing covered both British Airways and Heathrow systems including check-in, passenger conformance checking, boarding gate checking, baggage, flight information displays (FIDS) and passenger way finding, airport operational systems (including IDAHO), track transit system (TTS), airside access doors, lifts, security, alarms and the building management system. The service monitored the complete passenger and bag journey for direct, transferring and arriving customers.



### Case Study – Amadeus

Amadeus is the leading Global Distribution System (GDS) and the biggest processor of travel bookings in the world. CGI has worked with Amadeus for many years delivering systems integration on a wide range of services. CGI has a dedicated team involved in the development, integration and support of solutions such as CRM and business intelligence.



## Business consulting

We support clients from many industry sectors to deliver improvements, enabling them to run their business in a more efficient and sustainable way.

We have an in depth insight into the aviation industry and the challenges faced by airlines, airports and aviation services sectors. We champion sustainable business ecosystems and deliver real business value through technologies.

Our business consulting experience in aviation includes:

- Running the security awareness program for a global airline group
- Managing the business change component of an ERP program for a major airport
- Defining the information strategy and business processes for an MRO organization
- Improving customer retention and retail revenues
- Providing expert advice and business risk assessments for aviation regulators.

## Sustainability

Sustainability is a key issue for the aviation sector, not just in terms of the environmental responsibilities but also the benefits aviation can bring in terms of delivering sustainable supply chains and global economic growth.

The industry is embracing greener technologies and fuels, investing in new ways to cut noise and air pollution as well as reducing energy consumption through the use of more effective monitoring and smart meters. At the same time we understand the need to manage the impact of regulation whilst minimizing risks and costs.

We are a recognized leader in sustainability – in fact Gartner rank us as #1 for Sustainability Advisory Services (SAS) in Western Europe.

We will work with you to build the business capability essential to achieving sustainability.

Our approach covers:

- Powering – supporting renewable energy, greener fuels, smart grids & meters, micro-generation and energy efficiency services
- Mobilizing – enabling greener supply chains, electric vehicles and efficient driving behavior
- Catalyzing – providing carbon accounting, new sustainable services, micro-finance, energy efficient lighting control, sustainable services via cloud and green IT
- Financing - enabling a cashless society, sustainability mobility payments, energy efficiency loans and risk assessments for current and new sustainable assets.





## ERP Services

We have an impressive track record in deploying and supporting ERP systems across the aviation sector including Heathrow Airport, Aéroports de Paris, Gatwick Airport, NATS, ANA, Air France and KLM.

Our knowledge of aviation and experience of how ERP 'fits' within the systems landscape of each type of player within the aviation sector gives us the ability to 'fast track' customers to successful deployment.

We are global alliance partners with the major ERP vendors such as SAP, Oracle and Microsoft:

- We have delivered more than 2,000 SAP- based implementations globally and our dedicated SAP business practice has 3,600 SAP consultants across 18 countries and four continents
- We have over 1,400 Oracle application specialists across Europe
- We have over 6,000 people in 18 countries specializing in the delivery of Microsoft-focused business solutions and services.

### Case Study – Air France KLM SAP

Air France KLM use SAP across their business. CGI has been engaged on a number of their key SAP projects including the implementation and support of their SAP HR environment and delivery of their cargo revenue accounting solution. These projects have enabled Air France KLM to reduce costs and improve operational efficiencies through functions such as employee self-service.







## Outsourcing

The aviation sector is a complex industry and outsourcing of non-core activities has become common practice.

CGI has significant experience of delivering outsourcing services to the aviation sector including IT outsource contracts at Finnair, Gatwick Airport and Swedavia, and HR outsourcing at Martinair and Schiphol Airport.

CGI's outsourcing capability includes:

- Applications management where CGI is able to provide application specialists to manage your operational and business systems
- Service management where we take end to end responsibility for the management of your IT service and third party suppliers using ITIL aligned standards
- Infrastructure management where we provide high availability services for your IT infrastructure
- HR outsourcing services where CGI is one of the largest HR & payroll outsourced service providers in Europe.
- Business process outsourcing including both front line and back-office business processes.

For situations where a total IT management approach is inappropriate, CGI tailors and integrates services to fit our customer's IT portfolio.

### Case Study – Finnair IT Outsource

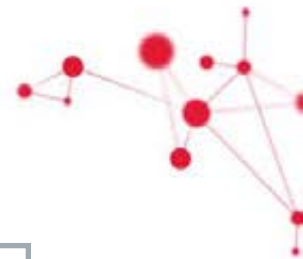
Finnair wanted to improve the quality and efficiency of its IT services and modernize its IT architecture. CGI provides a complete service for Finnair including workstation support services for 9,000 Finnair staff, service desk, maintenance, data security, and application and file server management.

### Case Study – World Duty Free Group

World Duty Free Group is one of the world's leading travel retailers, operating over 500 stores in 21 countries across 4 continents. It has developed its own unique commercial concepts, tailored to match the purchasing preferences of travelers passing through the more than 130 locations in which it operates.

CGI has a long term partnership with World Duty Free Group in Spain to provide the Application Maintenance for their Gamma System. Gamma is an internally developed commercial IT-system which provides inventory control functions and, specifically, extensive tax and custom control systems for transactions. Gamma provides a key competitive edge dealing with specific tax treatment of various products goods, provides online access to landlords and to fiscal authorities and is fully centralized in Spain.

CGI took a preeminent role in modernizing Gamma from a Cobol/CICS environment and move it towards Open Standards, and has been selected to roll out Gamma as the group's platform of choice for their Operations in the US, following the acquisition of the retail division of HMSHost in the US that added over 200 stores to the company's portfolio in the US.



## HR services

Get your people management right and you can harness the talent that drives organizations forward and ensure sustainability and growth.

Our framework of services is designed to optimize the efficiency and cost-effectiveness of your HR function and ensure you get the most out of your workforce. Our flexible approach means we can start the journey from wherever you are now and fulfill a range of different roles, depending on your needs.

You might want support in developing your HR vision. Or we can help you run a change program or evaluate new HR technology.

And because we're technology agnostic, we can deliver a range of implementation, systems integration or outsourcing services across a range of platforms, including Oracle and SAP.

Our HR services:

- Can help you transform your HR operation. We'll optimize your transactional processes – and continue to improve them

### Case Study – Martinair HR Administration

In 2008 CGI signed a five year contract to deliver payroll and HR services to Martinair. Six of Martinair's salary and HR experts joined CGI as part of the contract.

The salary and HR administration of the airline transferred to CGI in two steps. From 1 November 2008, salaries of flying crew members, ground staff and the management team were handled by CGI. From April 2009 a range of additional HR administration services transferred to the CGI service.

The service includes the delivery of an HR administration service desk plus a self-service system for the management team and the workforce.

- Allow you to make the best use of the employee data that flows through your HR processes, so you gain useful insights into your workforce
- Can save you up to 30 percent of your current HR total cost of ownership. We can help you to reinvest some of that saving, so you make further improvements to both your operating model and employee services
- Use business process management (BPM) to ensure effective control, integration and automation of your key processes. That means your processes are efficient, properly monitored and continuously improved.

### Case Study – Schiphol Airport HR Services

Schiphol airport provides employment for over 60,000 people of which 2,200 are staff of the core Schiphol Group, the Airport operator. The group had 130 different HR processes with multiple policies and wanted to improve the efficiency and effectiveness of their HR services and processes in addition to standardizing the HR approach across the business.

CGI was engaged for its deep expertise in HR services. We recommended a SAP solution to build on the ERP platform already in place. Using SAP's Employee Self Service (ESS) & Management Self Service (MSS), we upgraded the existing base SAP HR system and deployed these additional modules. The whole project took less than a year and provided self-service portals for staff to register details, seek standardized advice on policy and initiate processes such as leave requests etc. After deployment the running of the systems was outsourced to CGI.

## Cloud

Like other industries aviation continues to change and it is essential that businesses reduce costs, increase flexibility and lower time to market of new products. Real-time collaboration between organizations is also paramount in order to improve efficiencies and enhance the passenger experience.

Cloud services can help you achieve this, but you also need to understand and be prepared for issues such as security, complex integration, business transformation and service management. We'll streamline and combine your business systems in a workable format, using private and public cloud applications to lay the foundations for a hybrid cloud environment. We'll also work with you to harness that environment – transforming how you interact with ecosystems of customers and partners, growing your business.

Your profitability improves, yet never at the expense of the smooth running of your organization.

### Case Study – LfV Cloud Services

LfV is a public enterprise with 1,400 employees that operates air navigation services for civil and military customers at over 40 locations in Sweden.

As part of CGI's overall IT Outsourcing contract with LfV we provide a range of cloud services for LfV including 'Infrastructure-as-a-Service' (IaaS) solutions using CGI's private cloud environment and 'Software-as-a-Service' (SaaS) solutions in areas such as HR.

### Case Study – Widerøe in the Cloud

Widerøe is the largest regional airline in Scandinavia, with a staff of 1,500 and a turnover of NOK 3.5 billion. The company carries around three million passengers annually and flies to 48 domestic and international destinations, including summer routes.

Having had an excellent previous experience with us as a vendor, Widerøe selected CGI to provide a cloud platform developed in close partnership with Microsoft following their sale out of Scandinavian Airlines System (SAS) Group. They required a safe transformation and transition to a new sourcing partner offering secure, seamless and scalable services based on the company's new IT-strategy.

Benefits delivered:

- Pricing based on actual consumption
- Flexibility to integrate with other cloud solutions in the market
- Scalability based on business needs.



## We are CGI

We are a business and technology service company, employing 68,000 people. We provide business consulting, systems integration and outsourcing to clients around the world, including many of Europe's largest businesses. We create value for clients by successfully integrating people, business and technology. We are committed to long term collaboration applying insight to create innovative answers to client's business needs.

### CGI in aviation

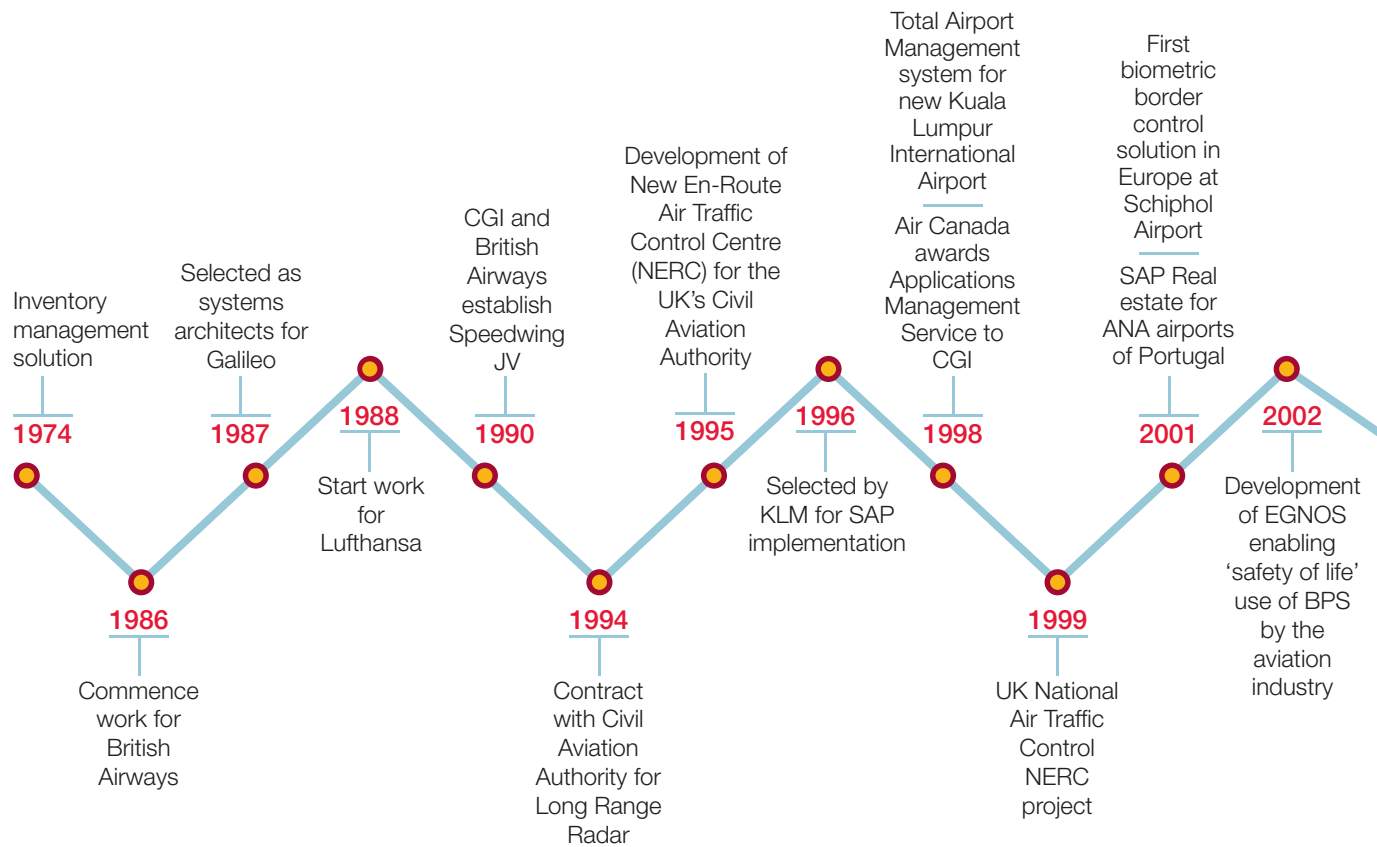
CGI is in its fourth decade supporting the aviation industry. We bring both specialist knowledge of the systems which are vital to the operation of airlines, airports, regulators and aviation services, together with an understanding of the way in which each member of the aviation community works.

Our expertise extends across:

- Passenger services from online booking through to travel information, enhancing the passenger experience
- Operational services enabling real-time operations in safety-critical environments
- Asset services from MRO to real-estate management, optimizing your investment in your infrastructure and aircraft
- Back-office operations including HR services and applications management.

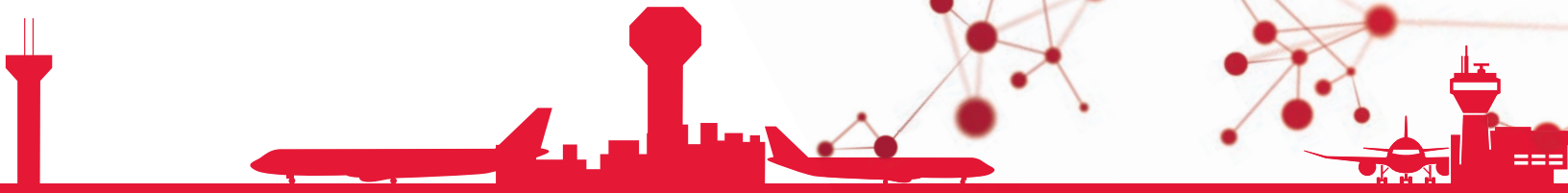
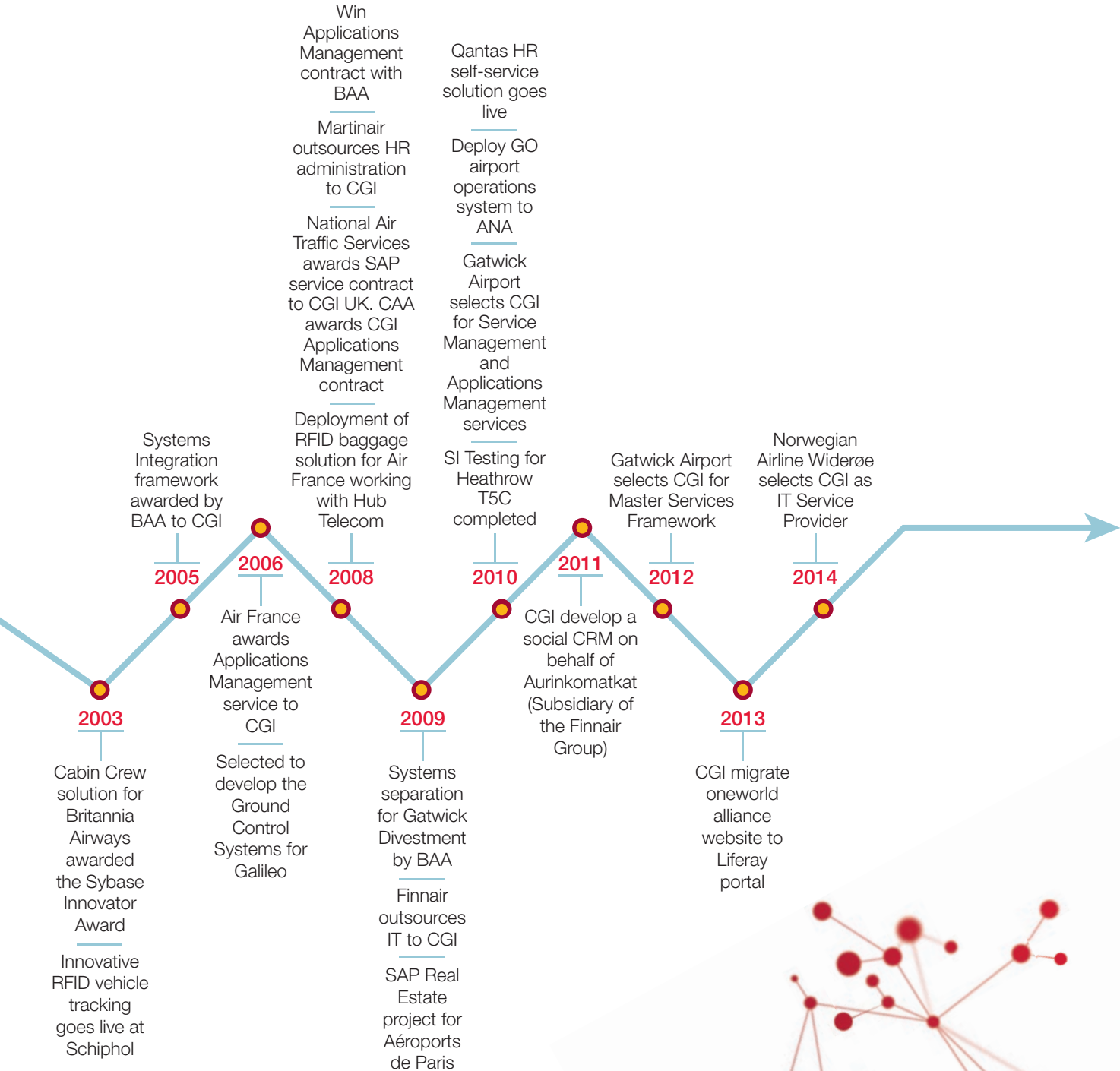


## Our history in aviation - notable achievements

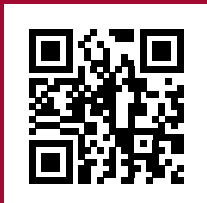


Some of the project references in this document were delivered by Logica, acquired by CGI in August 2012





E: [info@cgi.com](mailto:info@cgi.com)  
[www.cgi.com](http://www.cgi.com)



With 68,000 professionals operating in 400 offices in 40 countries, CGI fosters local accountability for client success while bringing global delivery capabilities to clients' front doors. Founded in 1976, CGI applies a disciplined delivery approach that has achieved an industry-leading track record of on-time, on-budget projects. Our high-quality business consulting, systems integration and outsourcing services help clients leverage current investments while adopting new technology and business strategies that achieve top and bottom line results.

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