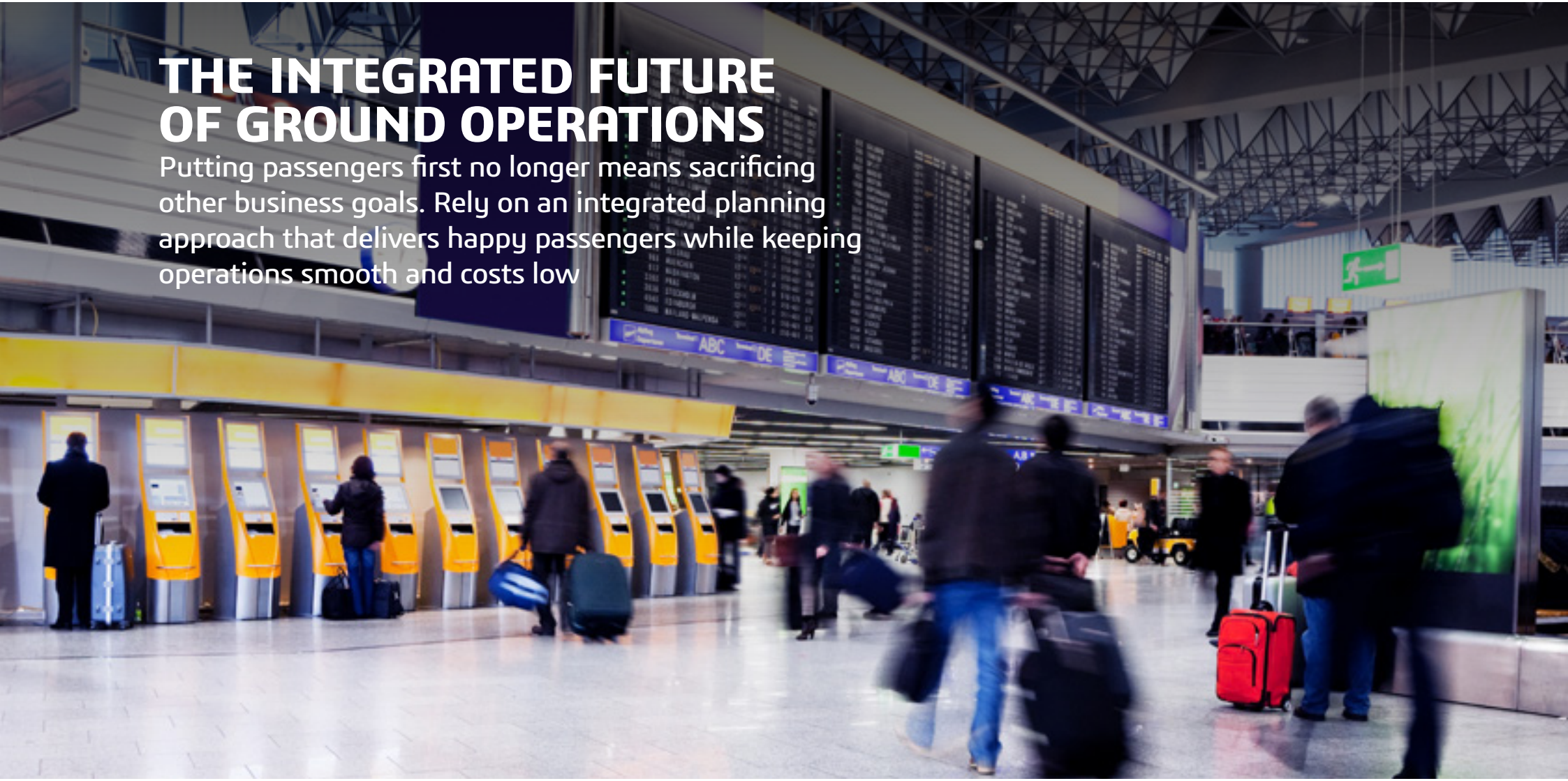
DELMIA | Quintiq

3DEXPERIENCE

THE INTEGRATED FUTURE OF GROUND OPERATIONS

Putting passengers first no longer means sacrificing other business goals. Rely on an integrated planning approach that delivers happy passengers while keeping operations smooth and costs low



DASSAULT SYSTEMES

01

Can you ensure the satisfaction of your current and future passengers?

Any great company will recognize that ultimately, it's in the customer experience business. It's no different in the aviation sector. Airports and airlines that are not attuned to the needs of their customers are easy to spot – by the passengers themselves right on the ground.

By the year 2036, passenger volume is expected to nearly double to 7.8 billion[1]. As the number of passengers increase, the challenge is for airlines and airports to ensure smooth operations and high passenger satisfaction. The resources needed in ground operations to satisfy passengers are put under even more pressure.

Business as usual cannot be an option. Operational complexities will intensify as travelers grow in number – ultimately, passenger experience and margins will suffer. Airports and airlines need to start thinking about the kind of operations the future calls for, in order to serve passengers efficiently while keeping costs low.

The future is about integrated ground operations. It's an advanced planning approach that recognizes the key areas that drive the passenger experience: Fixed resources, ground crews, passenger flow and technology. The approach understands that these groups of resources are inextricably interconnected and limited, which leads to the need for fully integrated resource planning on a single software solution. Only then will airports and airlines be able to capitalize on opportunities for better passenger experience and operational efficiency. These opportunities are unlocked by cross-utilizing resources and identifying new ways to organize operations.

Preparing for a successful future starts now. How can airports and airlines equip themselves to satisfy passengers of the future? Read on to discover the key drivers and how they can be incorporated for sustainable growth – in 2036 and beyond.

[1] 2036 forecast reveals air passengers will nearly double to 7.8 billion [IATA, 2017]

02 Unlock the full potential of your ground operations

Fixed resources

At the most popular airports, it's not uncommon to find airlines battling for runway slots and terminal gates. Because of limited flight operations at airports, airlines need to negotiate the right to use the gates and issues of logjam are common.

Then there are times when airbridges are unavailable. Remote stands are used during peak periods, when demand outweighs availability and planes are forced to park at a distance. If the stand allocations are not planned according to predicted demand, connecting passengers will suffer – a stand that is too far from the gate will mean that passengers need to rush to the next boarding gate.

All of the above could lead to unfavorable consequences: Flight delays and missed connections due to inconvenient positioning of gates and stands. The result? Frustrated passengers and possibly massive compensation costs.

The integrated future of ground operations brings a smarter approach to planning your fixed resources, so that they align with the planning of crews. Serving a growing number of passengers requires full integration and continuous optimization of assets to meet the needs of all stakeholders. Expanding the amount of stands and gates can be one solution, but it requires time and investment. What airports and airlines can start doing is to make best use of their existing fixed resources, and be prepared to handle all disruptions effectively.

Take a plane that arrives late due to a delayed departure. Planners need to respond immediately by adjusting stand and gate allocations. At the same time, planners need to take into account the limited capacity of each resource and the knock-on effects on other flights, while still meeting demand. The planning of fixed resources drives the use of other resources in ground operations. A gate change would mean that fuel, baggage and gate agents would need to be replanned. For this, nothing less than full visibility and solid decision support will suffice.

Ideally, planners should also have access to real-time information from other systems such as the airport operational database (AODB) and be able to view all possible options before adjusting the plan in a way that best aligns with business goals.

Ground crews

Managing your ground workforce is a tricky puzzle, and undersupply is a common challenge – often planners encounter insufficient ground handlers to support true flight demand. Should a flight arrival be delayed due to bad weather, many planners would struggle to respond effectively and quickly. Reassigning employees first requires insight into how it will impact other areas of operations. Planners will also need to ensure sufficient staff are available to service the arriving passengers when the delayed plane touches down later on.

When human resources is not handled well, passengers end up paying the price. What they'll remember most about their experience at the airport are likely to be the long lines at check-in counters and security-screening checkpoints as well as delayed or lost baggage.

Planners have to maintain a balancing act between taking care of employee preferences, ensuring the smooth operations of an airport and making sure that none of the rules and constraints in place are violated. This balancing act can quickly become overwhelming.

And in the face of growing passenger volume, airports and airlines will be under even greater pressure to take action – to either improve the efficiency of workforce usage or hire more staff. The first option makes better business sense, but how can it be achieved? Workforce management will need to be optimized to ensure that the right personnel are at the right points to address changing demand throughout the day. It means that planners have to be able to align shifts to real-time demand.

Integrated, dynamic planning is key. It enables planners to quickly shift resources around different sections of the airport to reduce wait times for passengers. This is made possible by working with full visibility across resource groups, based on the same set of data and rules. Add to that the flexibility to pull resources from other areas when needed, and planners will be well equipped to respond to disruptions swiftly, anytime.

An integrated and dynamic approach equips you for things to come. The future may see new automation technologies that enable airlines to turn an aircraft more quickly, through automated safety checks and automated guided vehicles. To take advantage of this, planning systems would need to be more responsive to coordinate personnel in alignment with the automated processes.

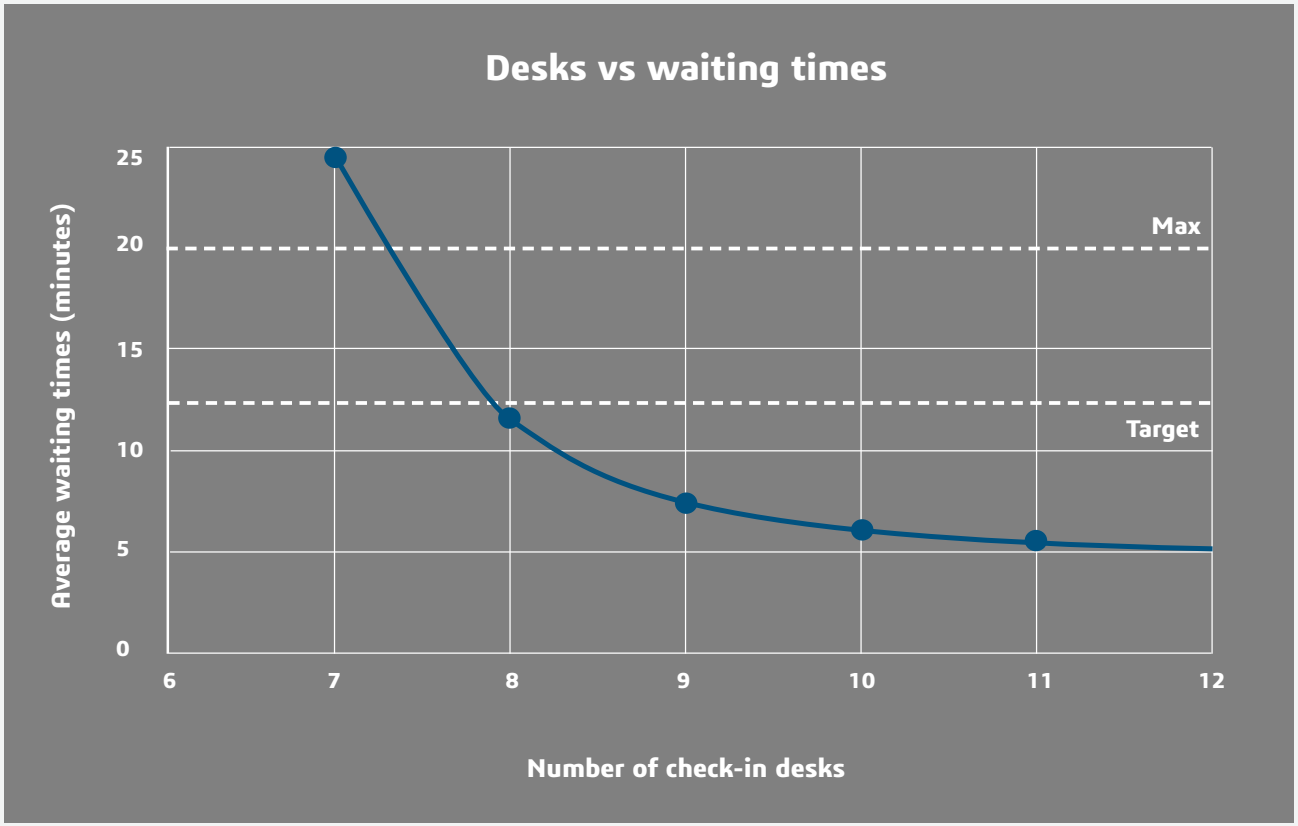
Passenger flow

Resources at every checkpoint need to be viewed and planned in an integrated manner, so that passenger flow through the airport can be optimized to align with business goals.

Passengers start their airport journey at the check-in counter. A poor check-in experience can bleed into other sections of the airport. Long waiting times will impact passenger arrival times at security control. If the security check takes too long, passengers spend less time shopping and dining because they're rushing to get to the boarding gate. This ends up causing a two-tiered effect: It puts a dent on airport revenue and negatively influences the on-time performance of airlines.

Quicker processing at all checkpoints leads to speedier passenger flow. This gives passengers ample time to dine and navigate through the duty-free outlets before their flight. A pleasant, painless experience also encourages passengers to travel more frequently – and more importantly, it makes it easy for passengers to determine which airport to fly from each time.

To optimize the passenger journey for favorable outcomes, airports and airlines need dynamic predictions of demand and insights on real-time data.



Say that you have 90 passengers arriving at a check-in point. According to service standards, it takes an average of four minutes to serve a passenger at check-in, which means that an agent can serve a maximum of 15 passengers per hour. If 90 passengers are queuing up, the math would come up to six agents handling six check-in counters.

In theory, you may only need six check-in counters, but this disregards how long people may be waiting in line. Logically, you can decrease the average waiting time by increasing the number of check-in counters. In practice, you would actually need eight check-in counters to serve the required people and to ensure you meet the target waiting time. Based on the target waiting time and the maximum threshold, you can quantify the impact your planning has on passenger waiting times — and on the overall passenger experience.

Technology

We've established that ground operations are characterized by complex interdependencies – check in, security, gate allocation and ground handlers. Which is why integration of planning across the multiple departments at the airport is important. When planning is done in silos, departments make completely separate plans without cross-referencing. This lack of alignment severely cripples operational efficiency, leading to unhappy passengers. And this challenge will only magnify as passenger volume continues to grow.

To be future-ready, airports and airlines must turn to technology that enables integrated planning of all resources. It allows planners to view the airport as a whole system and work across all time horizons. From a year ahead to day of operations, planners should be able to rely on the same integrated planning functionality – allowing them to develop new plans according to predicted demand, optimize assignments, and handle unexpected changes on the day itself.

In a business that places great value in punctuality, it's especially important to have support for disruption management on the day of operations. This requires access to constant and up-to-date information on the level of resources versus service levels. Planners can then decide on the allocation of important resources and determine its effect on the overall passenger experience. They should be supported to always take into account what's best for the entire day's operations, not just what's needed to solve a critical problem at that particular moment. Not only that, but shared real-time data would enable planners to make changes in one place, and have the information updated across the board.

With fully integrated operations, planners are able to monitor the passenger flow in real time. It provides a complete picture of how the flow influences the passenger experience. Planners can then evaluate the impact on individual KPIs such as average waiting time, employee overtime hours, rule violations and employee preferences.

When paired with optimization technology, integrated planning offers more accurate results. Optimization allows the system to apply specific rules and constraints across plans where applicable, ensuring automatic compliance and alignment with business goals. As a result, planners can focus on the immediate task at hand, knowing that all requirements have already been taken into account.

With the right technology in place, operations are smoother, response to delays quicker and passengers happier.

03

Business transformation – easier said than done

According to experts, 84% of organizations fail at digital transformation.[2]

Airports and airlines are unfortunately not immune to this. Many of them face challenges in making the move to a digitized and integrated planning approach. A major contributing factor to the high failure rates lies in vendors that sell point solutions disguised as end-to-end solutions.

In contrast, the DELMIA Quintiq solution offers a fully-integrated planning solution for ground operations. The DELMIA Quintiq solution is about ease of integration and fast realization of business benefits. It has helped some of the biggest names in the industry enhance operational performance and passenger satisfaction. The next page takes a quick look at how DELMIA Quintiq has delivered value to three customers in ground operations.

[2] Why 84% of companies fail at digital transformation [Forbes, 2016]

Copenhagen Airport

> Using multiple systems to roster staff across all departments and plan their assignments was a very complex process. This application offers greater visibility and flexibility for handling real-time events

Kristian Durhuus
COO at Copenhagen Airports

The airport uses DELMIA Quintiq to plan its 11 departments on a centralized system. These departments essentially function as small, independent divisions, each handling specific areas of operations such as security, cleaning, passenger services, vehicle maintenance, technical maintenance and bus drivers.
The solution gives the airport clarity over its operations, enabling visibility of employee numbers in specific areas of the airport.

Dubai Airports

> We aim to deliver a world-class experience to the airlines that use our airports and the passengers that they carry. The solution will enable us to maximize utilization of our current fixed resources and prepare for future expansions

Frank McCrorie
SVP Operations at Dubai Airports

The solution enables Dubai Airports to plan its fixed resources efficiently at Dubai International and Dubai World Central. The resources include 212 airport stands, 142 gates, 526 check-in counters and 28 baggage belts. The solution is able to handle 40 flight updates per second and take advantage of information from multiple sources to improve its automation process.

Virgin Atlantic Airways

> With the solution supporting us to improve operational efficiencies, deliver cost savings and keep our staff happy, we'll be able to focus on innovating and creating new opportunities to serve our passengers even better

John Bell
General Manager UK Airports at Virgin Atlantic Airways

Virgin Atlantic Airways uses the solution to optimize planning of its ground staff at London Heathrow Airport Terminal 3. Using a demand-driven approach to staff planning that takes its lead from the flight schedule, the airline's planners can combine a future flight schedule with the predicted number of passengers to identify tasks that need to be covered.

04 What to look for in your new planning software

Need help in ensuring a successful transformation journey? Here are questions to ask when looking for the right planning software – one that can enhance your ground operations to satisfy passengers and scale as volumes increase.

Can the software cope with the complexity of optimizing multiple resources at my airport?

The only way to align the scheduling of all resources is to plan them simultaneously. This achieves maximum efficiency and utilization. Planning in silos limits your options and prevents your planners from seeing the big picture. Because your operations are closely linked, your planning needs to be linked as well.

Can the planning software help improve visibility of my resources?

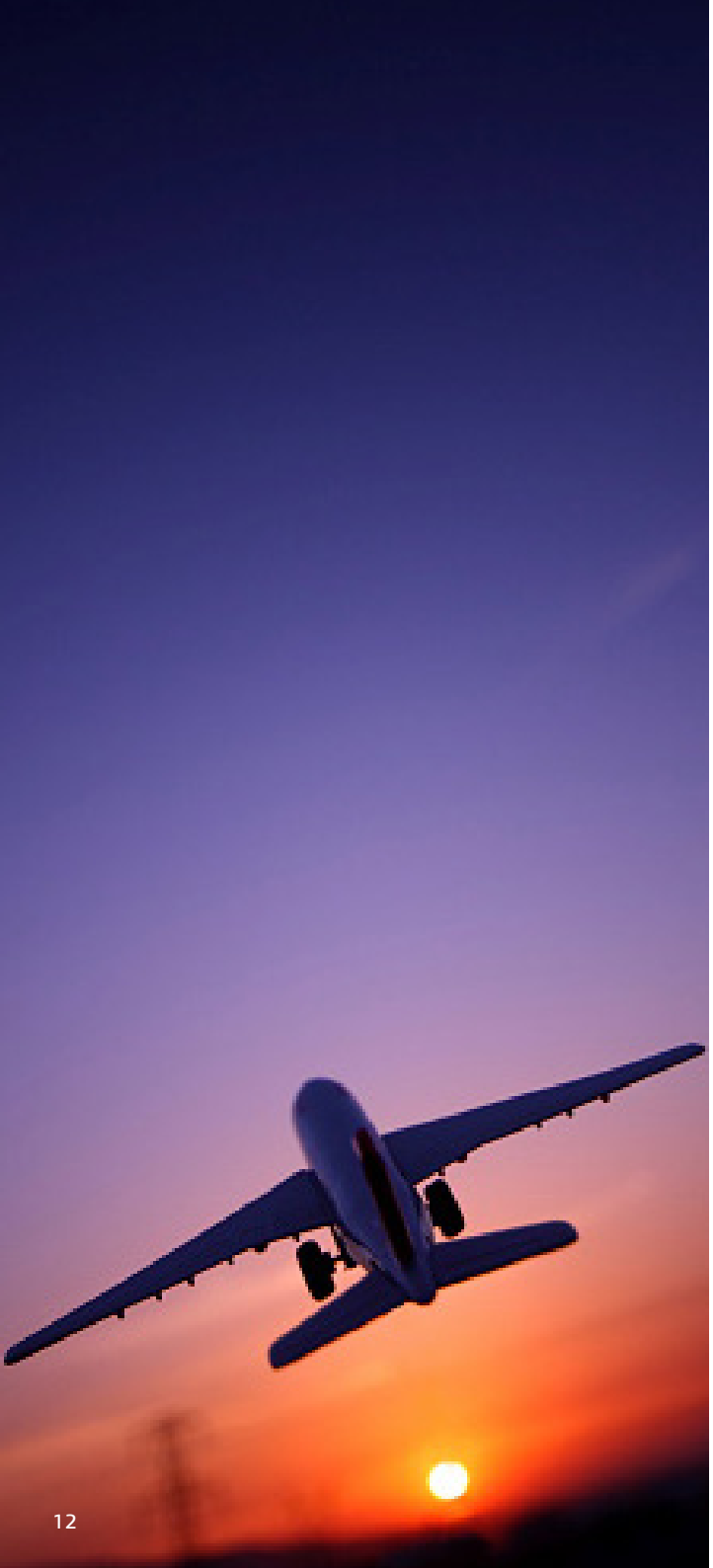
Irregular operations (IROPS) is an unfortunate part of the business, but it can be minimized. Your planners need to make thousands of decisions per day, often within minutes. For informed decision-making and optimized operations, accept nothing less than a system able to fully capture, analyze and apply big data.

Off-the-shelf or tailor-made solution: Which is the smarter option?

A cookie-cutter solution is faster to implement, but it can't accommodate business growth and changes. On the other hand, a bespoke solution configured to your exact requirements can be difficult to set up. Look for a solution that gives you the best of both worlds – customizable software that already contains best practices in airport planning and optimization and can be modeled to fit your unique requirements.

Can I rely on the software to help manage disruptions?

The right software enables you to respond quickly to unforeseen circumstances. It should let you choose which business goal to prioritize. For example, to decide when returning to normal operations is more important than cost control. Moreover, the software should provide insights into the effect of your decisions across departments and stakeholders.



Can the solution ensure data integrity?

You don't want to risk vital and sensitive data becoming skewed. With an all-in-one planning solution, you're assured that all elements of a planning puzzle are in one system, available in one place and shared by all users. This enables an unprecedented degree of coordination across horizons and operations, from passenger processing to baggage handling to servicing, and beyond.

Does the solution help eliminate unnecessary manual planning?

Planning solutions that require lots of manual effort to create a feasible schedule are counterproductive. Look for an intelligent planning system that automatically generates optimal plans and allows for re-optimization when circumstances change – all the while taking into consideration your resource capacity, business rules and constraints.

How well does the software interface with existing systems in my organization?

Your planning software should communicate effectively with other existing systems to give you a full view of your resources and activities. This ensures efficient planning that doesn't overlook any critical details.

Will my planners find it easy to use the software?

A simple, intuitive user interface that is configurable to role-specific needs will enable your planners to swiftly find the information they need.

Ready to start?

We're ready to help. See how DELMIA Quintiq can significantly impact your airport operations efficiency, helping you deliver first-class passenger experience even as demand continues to grow. Visit **our website** for further information and a customized demonstration of our solution.

Our **3D**EXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

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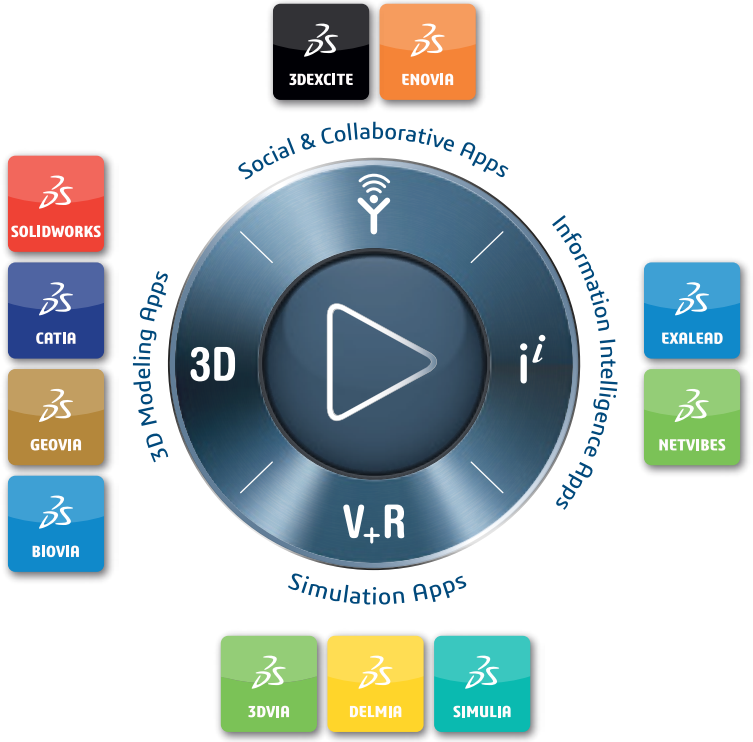

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