

OCC of the Future

Whitepaper

A Target Operating Model for the Airline
Operations Control Center of Tomorrow

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Why Today's OCC Must Evolve

Airline Operations Control Centers (OCCs) play a critical role in ensuring operational efficiency and directly contribute to reducing costs by optimizing resources and minimizing disruptions.

However, they are under pressure to adapt to a rapidly evolving aviation landscape. Passenger volumes have returned to pre-COVID levels, pressuring airlines to optimize operations while maintaining service quality.

In an industry characterized by tight profit margins, enhancing efficiency is no longer just a competitive advantage but a necessity for financial sustainability. Increasing weather disruptions and geopolitical uncertainties result in unexpected costs and are making operations more unpredictable, necessitating a shift towards more agile and responsive OCC capabilities.

To succeed in this environment, OCCs must undergo fundamental transformation – modernizing their workforce, infrastructure, and decision-making frameworks to meet the demands of tomorrow's aviation landscape.



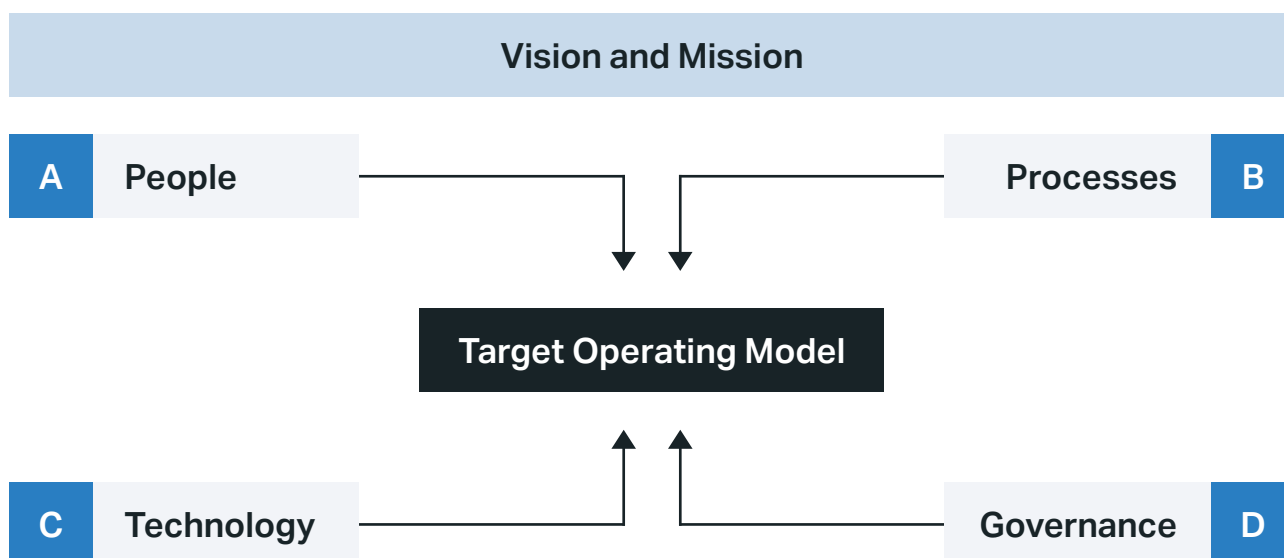
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Current Challenges Facing Airline OCCs

The Four Pillars of the Target Operating Model



People

OCCs face a growing need for a workforce equipped with advanced analytical and technical skills. As AI, predictive analytics, and automation become more common, OCC staff must possess strong data literacy to effectively leverage these tools. However, many airlines struggle to recruit and retain personnel with the necessary expertise, resulting in a skills gap that hinders the full potential of these technologies.

The deeply ingrained nature of legacy workflows and traditional organizational cultures often lead to resistance to change. Many OCC teams remain hesitant to adopt new methodologies, slowing down the transition toward more efficient and data-driven decision-making. Structures are often rigid and lack the flexibility to adapt to unforeseen disruptions, creating challenges to manage high operational loads without slower response times.

As airlines expand their networks, OCCs must scale accordingly while ensuring that personnel are ade-

quately trained to handle increasing complexity. To meet the demands of a volatile aviation landscape, OCCs must evolve into agile environments where cross-functional collaboration and dynamic resource allocation are the norm.

Processes

The complexity of modern airline operations requires efficient and adaptive processes, yet many OCCs continue to operate with outdated disruption management frameworks. With an increasing number of disruptions caused by weather, geopolitical events, and airspace restrictions, traditional response mechanisms often fall short of delivering timely and effective solutions. Many OCCs operate in silos, where teams work independently rather than in a coordinated manner. This fragmented approach leads to inefficiencies, delayed responses, suboptimal resource allocation, and may hinder OCCs to scale their operations in line with growing networks and customer demands. Many operational procedures were designed for a more predictable and stable environment.

As a result, OCCs often struggle to keep pace with today's rapidly changing aviation landscape, where quick decision-making and operational agility are critical. Further, they are under increasing pressure to optimize operations from a cost perspective. Fuel-efficient routing, crew scheduling optimization, and cost-effective recovery strategies for disruptions must be balanced against maintaining operational performance and customer satisfaction. To address these issues, airlines must modernize their operational frameworks, fostering closer integration between departments and ensuring processes are designed for maximum adaptability and financial sustainability.

Technology

Many airlines continue to rely on fragmented IT systems that lack real-time data integration. These outdated platforms make it difficult to coordinate decision-making, leading to delays and inefficiencies. Artificial intelligence and predictive analytics offer immense potential for proactive operational control, yet their implementation remains limited. Without these advanced tools, OCCs are forced to operate reactively rather than proactively, missing opportunities to anticipate and mitigate disruptions before they escalate.

OCCs also face financial pressures when investing in technology. Implementing AI-driven analytics and automation solutions requires significant upfront capital, and airlines must balance the cost of adoption with the long-term benefits in efficiency and reliability. As a result, there is a pressing need for OCCs to adopt integrated digital ecosystems that provide comprehensive real-time operational visibility while ensuring cost-effective deployment of new technologies.

Governance

Governance structures ensure that OCCs operate smoothly and in compliance with industry regulations, but several challenges persist. One key issue is the inconsistent integration of stakeholder communication. While standardized frameworks such as A-CDM and SWIM are widely used to facilitate coordination between airlines, airports, and air traffic control (ATC), the practical implementation of these systems remains inconsistent.

Many stakeholders operate on different IT platforms with varying data formats, leading to inefficiencies and gaps in real-time information exchange. This slows down coordinated responses to disruptions and impacts overall operational performance.

Another challenge stems from increasing regulatory pressures related to sustainability. Airlines must now incorporate emissions tracking, fuel efficiency measures, and noise pollution management into their OCC operations, adding complexity to day-to-day business. The growing reliance on digital tools makes OCCs more vulnerable to cyber threats, necessitating robust security frameworks and strict compliance with data protection regulations. OCCs must also navigate increasing financial oversight, as airlines seek to control costs while maintaining compliance with evolving industry standards.

Addressing these governance challenges will require stronger industry-wide collaboration and investment in standardized digital infrastructure.



The Vision for the OCC of the Future

The Vision for the OCC of the Future

People	Processes	Technology	Governance
Workforce Skills & Training	Cross-Departmental Collaboration & Standardization	Predictive Analytics & AI-Driven Operations	Organizational Oversight & Decision-Making Frameworks
Agile & Cross-Functional Teams	Scenario-Based Decision Support	Real-Time Monitoring & IoT-Enabled Systems	Compliance with Industry Regulations
Change Management	Dynamic Resource Allocation	Integrated Digital Ecosystems	Risk Management and Cybersecurity

As airline operations evolve, the OCC of the future must transform into a dynamic, data-driven hub that ensures operational efficiency, customer satisfaction, and sustainability. The Target Operating Model envisions an OCC that is flexible, agile, and resilient in responding to disruptions, driven by cutting-edge technology and collaborative processes.

Future-ready OCCs will be characterized by proactive, data-driven forecasting and decision-making, fully integrated real-time systems, and a highly adaptive workforce equipped with enhanced technological skills. A strong emphasis on sustainability and a customer-centric approach will ensure that airlines meet both regulatory requirements and customer expectations.

People

The OCC workforce of the future will need to be highly adaptable, technologically skilled, and capable of handling complex decision-making in a fast-paced environment. With the increasing integration of AI, automation, and data-driven operations, OCC

personnel must be equipped with new competencies that go beyond traditional operational control roles.

Workforce Skills and Training

To master the transition into a technology-driven OCC, airlines must prioritize continuous training and development. A structured training program tailored to OCC personnel can enhance operational decision-making. Employees will need specialized training in areas such as analytics, automation, and data interpretation. Implementing AI and data analytics certification programs allows employees to interpret AI-generated forecasts and optimize resource planning using real-time data. As a result, OCC teams can react faster to disruptions and make data-driven decisions with confidence.

Airlines should collaborate with academic institutions and industry experts to develop certification programs tailored to OCC roles, ensuring that personnel can leverage new technologies and adapt to changing demands.

Agile and Cross-Functional Teams

Traditional OCC roles have often been siloed. However, the future OCC will require cross-functional collaboration, where teams can dynamically adjust their responsibilities based on real-time operational needs. Airlines should restructure their OCCs by adopting multi-disciplinary task forces rather than traditional isolated teams. Flight dispatchers, crew schedulers, maintenance planners, and customer service representatives will operate within the same digital environment, enabling teams to coordinate more efficiently during disruptions.

This approach will foster greater efficiency and responsiveness, particularly during disruptions. Airlines must implement agile team structures, enabling OCC personnel to take on multiple roles and integrate across departments.

Change Management

Technology will be instrumental in reducing cognitive workload and enhancing decision-making accuracy for OCC staff. However, employees may initially resist relying on technology for critical decisions, so the adoption of technology requires effective change management strategies to address resistance to automation. OCC managers should perform stakeholder and change impact analyses, develop change stories and plans, and communicate those proactively and sensitively, addressing approach, timeframe and effects.

Airlines must ensure that employees are engaged in the digital transformation process, providing them with the necessary training and confidence to build trust into decision-support systems. Over time, OCCs will see significant improvements in disruption response times.





Case Study

Transforming Crew Rule Management with AI

Problem An airline's crew planning faced increasing complexity due to a multitude of regulatory frameworks – from EASA guidelines and collective bargaining agreements to internal company policies. The decentralized base structure further compounded this challenge, introducing diverse local rules and fragmented responsibilities. A lack of transparency and traceability in rule management led to inefficiencies, high manual effort, and operational risks – especially as experienced staff retired and critical knowledge was lost.

Solution To tackle these issues, the airline partnered with M2P to launch a targeted initiative aimed at optimizing rule and knowledge management by leveraging an LLM-based AI-approach to rules search, interpretation and application. M2P assessed technology-driven solutions to simplify the identification, interpretation, and validation of rules, while also working to centralize rule sources and expose inefficiencies in legacy systems.

Result M2P designed a holistic target picture, prepared an actionable implementation roadmap designed to enhance transparency, reduce time spent on manual rule checks, and unlock significant cost savings – paving the way for a more efficient, scalable, and future-ready crew planning operation.

Ready for Your Success Story?

The rise of AI in airline operations presents immense opportunities for efficiency and innovation. To help our clients harness this potential, M2P's [Practice Group AI](#) brings deep expertise and industry insight, enabling us to identify and develop the most relevant, high-impact AI use cases tailored to each airline's operational needs.

Processes

The OCC of the future must evolve beyond traditional, rigid workflows and embrace dynamic, data-driven processes that enable real-time decision-making and cross-functional coordination.

By leveraging automation, AI-driven analytics, and integrated communication channels, airlines can enhance operational resilience and minimize the impact of disruptions.

Scenario-Based Decision Support

Future OCCs will leverage tech-powered systems to shift from reactive to proactive disruption management. OCCs must be able to evaluate multiple potential solutions in response to operational disruptions, each calibrated to specific priorities and constraints. The future OCC will incorporate scenario-based, intelligent decision-making frameworks, enabling ops controllers to compare multiple recovery strategies and select the one that best aligns with business objectives. Rather than presenting a single solution, tech-driven decision-support tools will generate several calibrated response scenarios based on airline-specific KPIs such as:

- Minimizing operational costs (e.g., fuel efficiency, crew overtime avoidance)
- Maximizing passenger experience (e.g., reducing missed connections, prioritizing rebooking)
- Ensuring regulatory compliance (e.g., adhering to crew duty limitations and air traffic restrictions)

This multi-scenario approach ensures that tools do not just automate decisions but enhancing human expertise by providing well-calibrated choices that optimize both operational efficiency and service quality.

Dynamic Resource Allocation

A future-ready OCC must have the capability to dynamically adjust resource allocation in response to real-time operational changes. AI-driven resource management tools will continuously monitor crew availability, aircraft rotations, and airport congestion levels, making automatic adjustments to keep schedules optimized and disruptions minimized.

For instance, if an aircraft arrives late due to unforeseen delays, an automated workflow will trigger instant reassignment of turnaround crews, gate assignments, and maintenance personnel to accelerate the departure process. This level of real-time adaptability will ensure flights depart as scheduled, mitigating potential knock-on effects across the airline's network.

Cross-Departmental Collaboration and Standardization

The OCC of the future will break down operational silos by integrating all key stakeholders—flight operations, crew management, maintenance, ground handling, and passenger services—into a shared decision-making framework. Instead of relying on fragmented communications, all departments will have access to the same real-time operational data, ensuring faster and more effective collaboration.

For example, if an aircraft swap is required due to a technical issue, the OCC's centralized collaboration tool will automatically update flight operations, crew scheduling, and passenger rebooking teams in real time. This ensures that maintenance crews are aware of the new aircraft assignment, crew rotations are updated accordingly, and affected passengers are proactively accommodated on alternate flights.



Case Study

Strategic Control for Better OCC Passenger Handling

Problem A low-cost carrier aimed to enhance the efficiency and reliability of its passenger handling but was hindered by fragmented processes and inconsistent performance across operational touchpoints. To tackle these challenges, the airline partnered with M2P to launch a strategic initiative focused on developing a comprehensive framework for the implementation of an OCC. The goal was to centralize decision-making, streamline daily operations, and optimize passenger handling.

Solution M2P began with a thorough assessment of current performance metrics and process effectiveness. This included a structured comparison between existing procedures and industry best practices, as well as an in-depth analysis of organizational and operational barriers that could impact OCC implementation.

Result A future-ready OCC concept that not only resolved existing inefficiencies, but also established a resilient foundation for disruption management, enhanced passenger experience, and scalable operational growth.

Ready for Your Success Story?

To help airlines assess the effectiveness and efficiency of their OCCs, our M2P experts apply the **OCC Health Check** – a proven methodology covering all relevant dimensions of modern airline operations – and provide strategic recommendations to elevate their performance to the next level.

Technology

Technology will be the foundation for the OCC of the future, enabling predictive decision-making, real-time operational visibility, and seamless coordination across all stakeholders. A fully integrated digital ecosystem will allow OCCs to shift from reactive problem-solving to proactive, data-driven operations.

Predictive Analytics and AI-Driven Operations

The future OCC will rely on AI-powered predictive analytics to anticipate disruptions before they occur. Machine learning models will analyze vast amounts of operational data, identifying patterns related to weather conditions, aircraft maintenance needs, and airspace congestion. AI-powered predictive maintenance systems can analyze sensor data from aircraft components, detect early signs of engine wear and send alerts to the OCC to schedule proactive maintenance, reducing flight cancellations caused by technical issues.

The use of advanced disruption management tools and digital twins will enable OCCs to simulate disruption scenarios and irregularities, testing response strategies to determine the most effective contingency plan in terms of e.g., rerouting flights or adjusting crew allocations. Tools will be fully integrated with the wider OCC system environment to allow for seamless deployment of optimal recovery scenarios, enabling airlines to optimize schedules in advance, minimizing delays and disruptions.

Real-Time Monitoring and IoT-Enabled Systems

Modern aircraft generate large volumes of data through onboard sensors, tracking engine performance, fuel efficiency, and system health. The OCC of the future will fully integrate this data into a centralized monitoring system, providing real-time visibility into every aspect of operations. IoT-enabled sensors embedded in airport infrastructure, ground handling equipment, and environmental monitoring

systems will offer continuous updates on runway conditions, aircraft turnaround times, and weather-related risks. IoT sensors installed on taxiways and gates can track aircraft movement and turnaround times, feeding real-time data into the OCC. This enables controllers to anticipate ground congestion and dynamically adjust gate assignments. Cloud-based systems will ensure OCC personnel have access to critical operational data from anywhere, enhancing remote decision-making capabilities. Mobile dashboards provide OCC managers with instant operational status updates while on the go. By consolidating various data sources, OCCs will have a live operational feed, allowing for quicker and more informed decision-making.

Integrated Digital Ecosystems

A future-ready OCC must eliminate fragmented IT environments and adopt cloud-based, centralized data platforms that integrate data from multiple sources. These platforms will merge flight data, crew availability, airport conditions, and passenger movement into a single, accessible interface. By enabling real-time crew and aircraft availability sharing, this type of ecosystem reduces re-accommodation time for passengers during disruptions, ensuring a smoother travel experience.

Typical examples for state-of-the-art, cloud-based OCC platforms are e.g., Lufthansa System's Integrated Operations Control Center Platform, Smart4Aviation's cloud-based solutions on AWS, and Wipro's TOPS Operations Platform (among others). Each platform demonstrates varying levels of maturity, functionality and adoption in the industry.

Mobile accessibility will ensure that OCC personnel can manage operations remotely when needed, maintaining business continuity in case of emergencies. With a fully integrated digital ecosystem, the OCC will be able to make faster, more precise decisions, reducing delays and operational inefficiencies while improving the customer experience.



Case Study

Turning Disruption into Opportunity

Problem A major European hub airline was struggling with inefficient disruption management and recovery. In such scenarios, **Orbit**, M2P's cloud-based Disruption Optimizer for airlines, serves as a powerful decision-support tool – acting as a virtual co-pilot that equips OCC teams with predictive analytics, scenario-based recommendations, and real-time actionable insights to enhance decision-making.

Solution To manage disruptions effectively, Orbit swiftly analyzes evolving situations and delivers optimized solutions with a single click. Orbit has the capability to seamlessly integrate all dimensions essential for disruption recovery in a single operation e.g., aircraft rotations and utilization, customer journey, fuel efficiency, crew legality and pairings, and cost. It automatically adjusts flight schedules and develops immediate action plans in response to complex disruption scenarios.

Result By leveraging Orbit to support operational decision-making, the airline not only improved day-to-day efficiency but also elevated the passenger experience and strengthened its resilience in the face of disruption.

Ready for Your Success Story?

Given the rapid emergence of advanced technologies, selecting appropriate solutions can be challenging. **M2P's Procure IT** team assists airlines in navigating this complexity, guiding effective technology procurement decisions. With extensive expertise spanning travel, transportation, logistics, and public sectors, M2P ensures airlines strategically select and successfully implement the best-fit technology solutions.

Governance

The governance of a future-ready OCC must ensure that all decision-making structures, regulatory frameworks, and risk management processes support operational excellence and resilience.

Effective governance will be essential to aligning OCC operations with broader airline strategies while ensuring compliance, cybersecurity, and stakeholder coordination.

Organizational Oversight and Decision-Making Frameworks

A well-defined governance structure ensures that OCCs operate efficiently while maintaining alignment with the airline's overall strategic objectives. Future OCCs must establish clear decision-making hierarchies, escalation procedures, and accountability frameworks to enable rapid, informed decision-making during disruptions. Governance models will vary depending on the airline's business model. While some airlines may centralize OCC decision-making to standardize operations globally, others may prefer a decentralized approach, allowing regional hubs to manage localized disruptions more effectively.

Governance structures must define who has the authority to override AI-generated recommendations, ensuring that human oversight remains integral to operational control. For example, in the event of a large-scale disruption, predefined escalation procedures will ensure that OCC managers coordinate with airline leadership, regulatory bodies, and airport authorities to implement a unified recovery strategy.

Establishing governance playbooks for disruption management will enable OCC teams to act decisively while staying within corporate and regulatory guidelines.

Compliance with Industry Regulations

Airline OCCs operate within a complex regulatory environment, balancing aviation safety, labor laws, passenger rights, and sustainability mandates. They must integrate compliance management into daily operations to ensure legal and ethical decision-making, e.g.:

- Adherence to aviation safety regulations (ICAO, FAA, EASA standards)
- Crew duty time and fatigue management to comply with labor laws
- Passenger rights laws (e.g., EU 261)
- Environmental mandates related to carbon emissions and fuel efficiency

Further, the rise of AI-driven operations necessitates clear compliance frameworks to ensure that automated decision-making adheres to regulatory standards. AI-based rerouting, for example, must account for airspace restrictions, crew duty limitations, and passenger compensation regulations. OCCs must implement regulatory compliance modules within their decision-support systems, ensuring that all AI-generated recommendations align with legal and operational constraints.

Airlines should establish audit mechanisms that periodically review OCC decisions to ensure adherence to industry regulations and corporate policies. A structured compliance governance board within the OCC can oversee regulatory adherence and recommend improvements to keep pace with evolving legislation.

Risk Management and Cybersecurity

As OCCs become increasingly reliant on cloud-based platforms, AI automation, and real-time data exchanges, cybersecurity and risk management will become critical components of governance. Airlines must implement cybersecurity frameworks to protect operational data, prevent unauthorized access, and safeguard against cyberattacks. Gov-

ernance structures must ensure that AI models are transparent, auditable, and secure.

This includes mitigating risks related to AI bias, data integrity, and system vulnerabilities that could lead to incorrect or non-compliant decisions. Airlines should adopt AI governance policies that establish clear accountability for automated recommendations, requiring periodic audits of AI-driven decisions to ensure accuracy and fairness.

To enhance operational resilience, OCCs must implement comprehensive risk management strategies, including:

- **Cybersecurity protocols:** Ensuring encrypted data exchanges between OCCs, airline partners, and external stakeholders to prevent unauthorized access.
- **Incident response plans:** Establishing predefined workflows to respond swiftly to cyber threats, IT outages, or data breaches.

- **Business continuity planning:** Implementing redundant systems and cloud-based backups to ensure uninterrupted OCC functionality during system failures or security incidents.
- **Regular cybersecurity drills and simulations:** Testing OCC preparedness for various cyber threats, including ransomware attacks and insider threats.

Given the growing importance of cybersecurity, airlines should collaborate with aviation cybersecurity experts, regulatory authorities, and technology providers to stay ahead of emerging threats. Governance frameworks should also define clear reporting structures for cybersecurity incidents, ensuring that OCC personnel can make informed decisions when facing potential threats while safeguarding critical data, and maintaining trust with regulators, partners, and customers.





Case Study

Building the Case for Integrated Control

Problem An airline was experiencing fragmented decision-making and operational inefficiencies due to unclear responsibilities, delayed planning inputs, and limited system integration within its existing OCC. As a result, decisions were often driven by intuition rather than aligned with strategic objectives – leading to delays, miscommunication, and redundant efforts.

Solution M2P conducted a strategic assessment evaluating the maturity for an Integrated Operations Control Center (IOCC). M2P's analysis revealed key gaps, including a lack of governance, insufficient process orientation, and heavy reliance on manual data gathering – all of which limited real-time situational awareness. In response, M2P developed a future-ready IOCC concept aimed at unifying operational coordination, integrating critical roles, and enabling proactive, data-driven disruption management.

Result A scalable foundation for operational excellence and clearly aligned governance across all operational functions.

Ready for Your Success Story?

With over 25 years of experience in aviation, M2P has assisted multiple airlines to re-design the **Target Operating Model (TOM)** of their OCC to enhance transparency, streamline processes, and adapt to rapidly changing industry challenges.

Conclusion

The transformation of the OCC is not a one-time initiative but rather an evolution. The journey towards the OCC of the future does not end with the implementation of AI, integrated digital ecosystems, or dynamic resource allocation. Instead, it marks the beginning of an ongoing process of refinement and adaptation.

As airline operations grow in complexity and external challenges continue to evolve, OCCs must remain agile. The Target Operating Model must be viewed as a moving goalpost, requiring iterative im-

provements and a culture of innovation to ensure long-term resilience and competitiveness in an ever-changing aviation landscape.

We at M2P Consulting understand those challenges and are there to assist your airline along the way – from concept to implementation. True to our promise of delivering impact through insights, M2P is prepared to turn challenges into great opportunities, and help our clients achieve sustainable growth and operational excellence.

Get in touch

Speak with our expert team to learn how we can help your organization.



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