

INFORMATION SUPERIORITY

*THE KEY TO INTELLIGENT
MILITARY DECISION SUPPORT*

INFORMATION SUPERIORITY

THE WORLD IS UNPREDICTABLE....

Military decision-makers are faced with constantly changing conditions, intentions and events - nationally and globally. The geo-political landscape is changing rapidly, powers are deploying ever-more sophisticated forms of technology and forces are required to do more to ensure they are ready.

Yet, surprisingly many militaries continue to rely on outdated support systems, including paper-based files, spreadsheets and legacy software solutions to plan, execute and manage military training and operations.

SUCCESSFUL CAMPAIGNS ARE WAGED FROM THE BACK OFFICE AS MUCH AS THEY ARE STAGED ON THE FRONTLINE

You can have the most cutting-edge military hardware available, but if your operations management software is outdated you could be severely compromising your efforts.

On the flip side, modern systems can generate an abundance of data, but obtaining any insight from that all of that information can take days and weeks to mine, analyse and present. In today's environment, this is simply too slow.

The ideal then is to provide decision-makers with up to the minute data and insight in a format that is easy to comprehend so that they can make optimal decisions at speed.

A comprehensive Decision Support System (DSS) allows you to harness the petabytes of data flowing through your organisation, rather than simply reacting, or delaying decisions.

With a well designed DSS there is never an overload of unfiltered information - just the specific facts and reporting required to optimise operational efficiency and safety across the entire organisation.

In this document we'll explore some of the features of Decision Support Systems and how they are set to transform base operations in the coming years.

THE RISE OF DECISION-SUPPORT SYSTEMS

Decision support systems aren't new per se. In his 1990 monograph Major R.L. Johnson, from the School of Advanced Military Studies in Fort Leavenworth, Kansas broadly outlined the DSS concept and the potential to enhance operational level command and control:

"The speed, complexity and data base of military operations require that military Commanders be able to deal with large amounts of information. The ability to act quickly is directly related to the capability to process this flood of information. Any tool that can facilitate the decision making process enhances command and control. Such a tool is called a decision support system"

What is new, is that recent advances in machine learning, data and decision support science has evolved to the point where organisations are now able to realise the potential of decision support systems to build, what Brigadier General, Patrice A. Melancon of Tyndall Air Force Base, calls the 'digitally integrated base of the future'.

HOW DOES A MODERN DECISION SUPPORT SYSTEM WORK?

A DSS can process and interpret multiple sources of incoming data from a data lake, which is a centralized repository that allows you to store all your structured and unstructured data at any scale.

The DSS then produces precise and targeted reports in real time. When actioned appropriately, this real-time situational awareness can result in optimised decision making, increased levels of safety, efficiency and collaborative insight– all critical for contemporary defence forces.

A DSS also offers higher levels of transparency and accountability. Not only can you track the location of personnel around the clock, you also have discretionary access to a complete data record of tasks, activities, maintenance, missions and operations. This leads to superior assessment, monitoring and scheduling, with options for better fit-for-purpose work practices and training.

HOW DOES A DSS CREATE ADVANTAGE?

While information is critical to effective military operations management, too much unstructured information is a burden. When non-integrated, siloed information is delivered in large volumes, it is nearly impossible to process in any systematic or productive way. As such, it becomes an obstacle to clear decision-making.

A gold standard DSS solves this problem by delivering appropriate amounts of relevant information to the right people, at the right time, in a secure, comprehensive and intuitive way. In a well-designed and correctly configured system, the information provided is filtered,

relevant, updated, timely and easy for users to manage. Most importantly, it makes sense to the end user and aids the 'job to be done'.

This is the coveted information advantage gained by military forces using the best available decision-support programs. As a result, they are primed to outdo adversaries in terms of speed, accuracy, efficiency, operational readiness, decision-making and – ultimately – predictive capability across the entirety of the base – from maintenance and support crews through to air traffic control. The key here is to rapidly de-silo and present information.



A Common Operating Picture (COP) via easy-to-read dashboards, provides greater situational awareness and control.

HOW DSS CAN SOLVE OPERATIONAL CHALLENGES

By adopting a modern DSS you optimise functionality, reduce risk and promote system-wide efficiencies:

PROBLEM:

Disconnected Silos

Miscommunications, scheduling conflicts and safety risks emerge where there is no single view of the massive amounts of data generated both within and between bases, forces and units."

SOLUTION:

Free-Flow of Information

Centrally stored data allows the targeted flow of relevant information across systems and departments, base-wide. This boosts interoperability, improving inter-base and across-base communications. Information is shared among the right people, at the right time, encouraging well-coordinated responses rather than uninformed silo reactions. An intelligent decision-support platform provides a COP via easy-to-read dashboards, giving the operator greater situational awareness and control. Simplicity and functionality cut through unfiltered information to reduce error.

PROBLEM:

Lack of Visibility

The threat of accidents and near-misses is an unfortunate reality for every military base. Missed telephone calls, overlooked emails and compartmentalised information all increase the risk of miscommunication and potential for error.

SOLUTION:

Real-time Picture

Safety is optimised when you know the exact location of all your personnel, assets and equipment at any given time.

- Track your personnel and fully manage your force's operational readiness.
- Monitor operatives working on dangerous or sensitive equipment.
- Use instant notifications and real-time updates to provide fast, precise, base-wide situational awareness, keeping all key stakeholders in the loop.
- Make informed decisions to address real-time situations.

PROBLEM:

Inability to Forecast

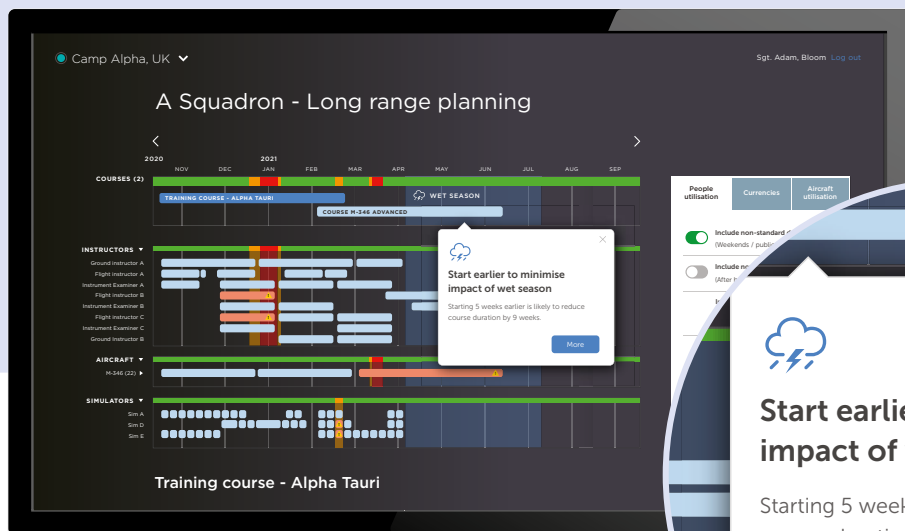
It is challenging to plan effectively and budget efficiently when historical data and real-time information are scarce. Data may be piecemeal and incomplete or too much to process, from multiple sources. This means decision-makers are unable to increase production at short notice or meet task objectives, leading to inefficient use of limited resources.

SOLUTION:

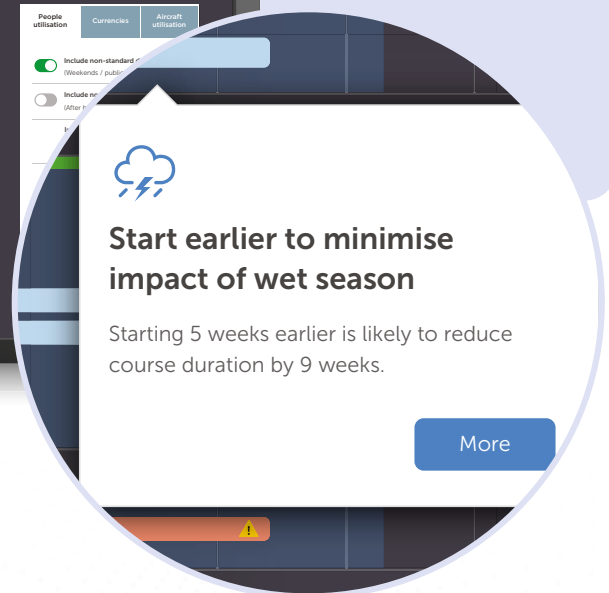
Forward Planning

Centralised decision support optimises decision-making by identifying and eliminating inefficient practices.

- Test a number of scenarios to determine the most effective outcome.
- Optimise use of resources, people, assets and operations.
- Drill down into high-level Key Performance Indicators (KPIs) and get fast, detailed, configurable reports.
- Combine and connect different teams across the base, using a single operating system to support the schedule.
- With a strong and complete data set, automate the system to gain further efficiencies (planners, schedulers, resource usage).



The ability to connect with other data sources and ingest their information is a force multiplier.



PROBLEM:

Skill Management

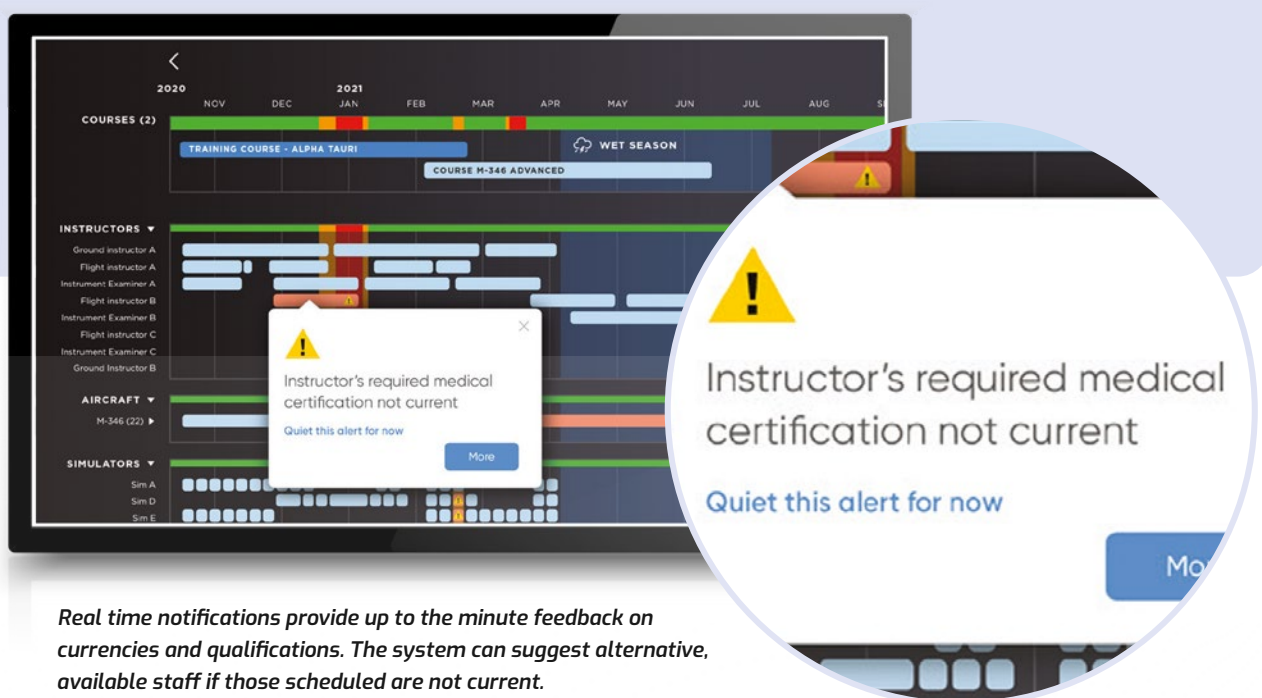
Personnel qualification and currencies management is critical to ensure that your pilots and other highly trained specialists' skills are up-to-date. A pilot with lapsed credentials is unable to undertake training missions – inconvenient and costly – while posing a potential safety risk in the field. In the bigger picture, qualified personnel constantly leave, start and change jobs due to promotion, relocation, or retirement. Legacy and manual qualification and currency management systems make it difficult to predict and fill skills gaps across the career lifecycle.

SOLUTION:

Career Management

A centralised and easily accessible enterprise digital hub that is integrated with other HR systems allows you to manage all military personnel progression throughout their career, including maintaining qualifications and currencies. This reduces the risk to operations and greatly improves the efficiency and effectiveness of your team.

- Optimise and monitor the training pipeline.
- Optimise workforce qualifications to ensure maximum availability.
- Identify personnel's strengths and weaknesses and adopt the necessary career management measures to suit organisational needs.
- Streamline your workforce and tap its full potential.



Real time notifications provide up to the minute feedback on currencies and qualifications. The system can suggest alternative, available staff if those scheduled are not current.

PROBLEM:

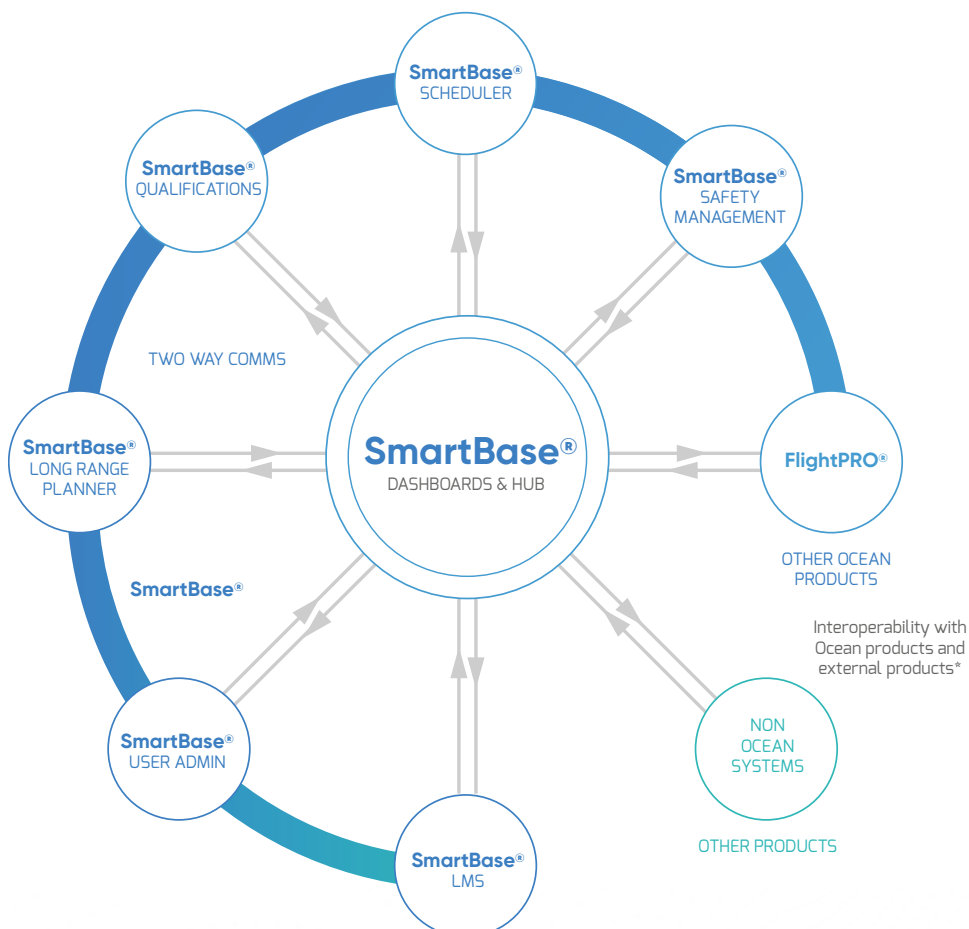
Systems Mismatch

Many military bases are experiencing a 'systems mismatch'. While the equipment they deploy may be advanced and sophisticated, the administrative software supporting them is legacy and outdated. Reliance on older-generation support programs are also siloed and do not necessarily 'speak' to one another.

SOLUTION:

Advanced Interoperability

Next-generation platforms streamline access to the highest quality information, promoting intelligent decision-making. Advanced platforms are customised, configurable, modular and dynamic. What's more, they are interoperable. The era of 'walled garden closed systems' is over, DSS systems must now offer more connections and the ability to ingest and process data from many points in an ecosystem.



Modern DSS systems follow a 'hub and spoke' model, ingesting data from many sources.

OCEAN'S DSS APPLICATIONS

FLIGHTPRO COURSE FORWARD PLANNER MODULE

Ocean Software's Course Forward Planner (CFP) module is as an example of a DSS. CFP is a new module that has been developed to interface with an existing data base to mine fresh insights.

HOW IT WORKS

CFP takes flight training data and organises it into data streams. This provides structure, context and targeted delivery of the appropriate data/recommendations directly to the people and departments who need it to make informed decisions.

- 1 **User inputs resources:**
User feeds details of personnel, equipment and assets into course syllabus and configures variables (per course and plan).
- 2 **System recommends options:**
Program suggests various course scheduling options, highlighting the quickest/cheapest/smartest plan for different scenarios.
- 3 **User chooses suitable plan:**
User selects most appropriate plan for their needs. Course will autopopulate the system and allows for manual adjustment.

The system can be constantly updated. As new courses are added, the program may recommend date/time adjustments to better suit the course combination. Whenever dates are altered, cancelled or added, live data feeds back into the central system. New recommendations will then be provided to fit the changed circumstances.

THE RESULT

The customer gains the understanding and insight required to make informed decisions and optimise their resource usage - crews, assets and training schedules.

TAMS

TAMS (Task and Area Management System) is another example of a decision support system from Ocean Software that provides real-time management of airspace, training ranges or any other shared asset.

Originally designed as an airspace scheduling tool, this module is constantly being refined to provide centralised planning, booking and deconfliction functions on all military bases – a simple solution to complex and potentially unsafe or high risk situations.

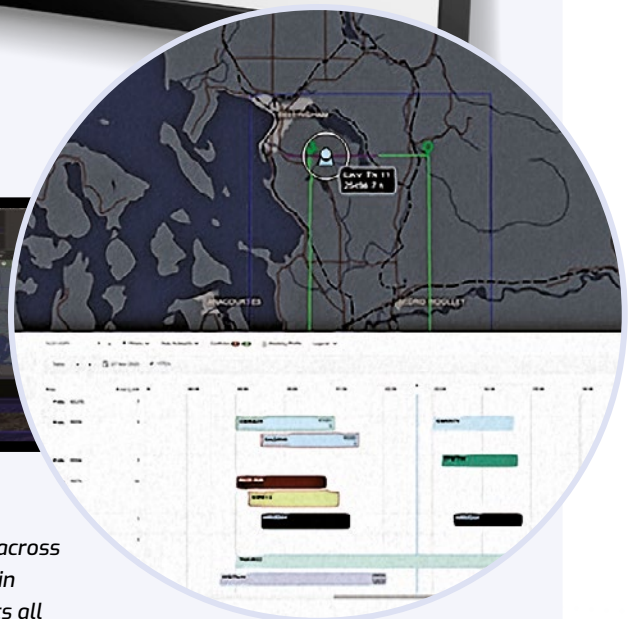
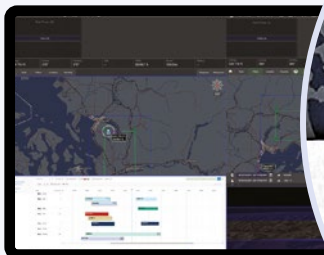
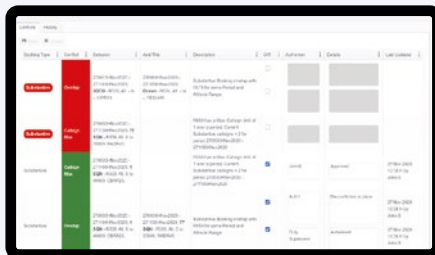
TAMS can be further extended with Geographic Information System (GIS) view and Automatic Dependent Surveillance-Broadcast (ADS-B) integration, providing real-time situational awareness. TAMS provides a common operating picture of airspace training ranges, runway and parking bay movements.

VISUAL PLANNING AND SCHEDULING

TAMS provides an intuitive and visual way to plan and schedule airspace and base support capabilities, enhancing base and flight safety. Maximise the utilisation of shared assets and environments within congested airspace, base support areas and organisations.

DIGITISATION OF MANUAL PROCESSES

A paperless workflow allows you to realise significant efficiency gains. Visual reporting and a comprehensive audit trail allows you to optimise your operations. TAMS is scalable on private and public cloud infrastructure and secure access (security protocol).



A COMMON OPERATING PICTURE.

Interoperable with FlightPRO® and GIS. View and book available resources across bases and achieve situational awareness of shared airspace. Identify risks in planning and receive real-time conflict alerts and approvals. TAMS connects all stakeholders, military & non-military, for seamless joint ops planning.

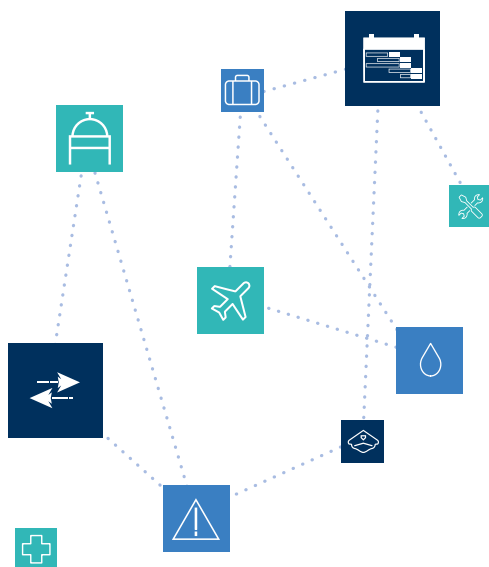
SMARTBASE

SmartBase represents the future of DSS systems. It centralises critical data to provide a single, Common Operating Picture, coordinating the functions of all key operational base services, stakeholders and departments. This offers consistency of data and high levels of interoperability.

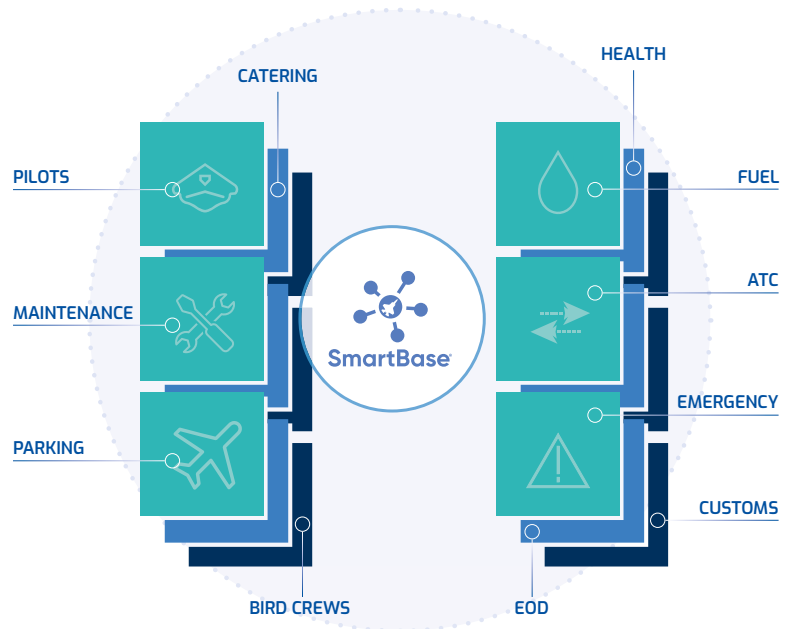
Data flows to and from its central dashboards via a series of interconnected and scalable modules. Highly flexible, it can integrate with and adapt to many existing systems. Rather than decommissioning your entire operating program, you can introduce and integrate SmartBase alongside it. As time goes on, you can make the transition in a relatively seamless way.

SmartBase employs the 'smart city' concept to unify all your operations in a central hub, on a shared schedule with the ability to integrate every aspect of your base activities management – assets, security systems, air traffic control, runways, catering, health, emergency services, maintenance, fuel, customs and parking.

With everyone and everything held securely inside the hub, your ability to make sound decisions is increased. All relevant data remains at your fingertips, in real time - complete decision support available 24 hours a day, for everything from daily operations to long-range planning. Now you can forecast on a daily, weekly, monthly, quarterly or annual basis.



SILOED SYSTEMS & DATA



BASE HARMONISATION

The central SmartBase database unifies warfighter and support teams like never before with real-time decision support.

HOW SMARTBASE CAN WORK IN MILITARY PRACTICE?

- 1 **Many maintenance crews still use inefficient and insecure paper-based manual processes to maintain sophisticated assets.**

SmartBase provides the fit-for-purpose tool required to centralise and digitise the process. This provides complete real-time situational awareness regarding personnel, operations and assets.

- 2 **Air traffic management relies on manual, legacy systems and processes to coordinate complex airspace management and supporting agency tasks.**

SmartBase creates a comprehensive, real-time digital bank of essential information. Staff have visibility on planned activities, allowing for more efficient airspace management and base support services.

- 3 **Asset management is compromised as users struggle to keep up with the demands of complex planning for new technology assets using Excel spreadsheets.**

SmartBase reduces operational risk with real-time tracking of operators, vehicles and assets across the base.

- 4 **Co-ordination of training is piecemeal and inefficient as older generation technologies leave gaps in coverage, for instance, different systems which don't talk to each other.**

SmartBase gives training a new dimension with centralised scheduling of tasks, instructors, students, classrooms, equipment and ongoing management of the training curriculum or syllabus.

- 5 **Management of human resources is limited by reliance on outdated and legacy systems.**

SmartBase integrates with existing HR systems to create a central bank of critical information. Sensitive data is securely held and analysed in one place. New

insights arise from flexible, dynamic reporting while efficiencies save both time and money.

SMARTBASE:

THE NEXT GENERATION OF DECISION SUPPORT

SmartBase has the advantage of being modular and flexible, able to scale up and down as required and integrate with existing systems. SmartBase also offers enormous potential by laying the foundation for Machine Learning (ML). As it crunches more data, the program learns more about your organisation's requirements - it has the potential to become predictive rather than just reactive. For example, if a flight commander calls in sick, an optimised system could suggest the best possible alternative schedule to accommodate the change and minimise disruption.

However, ML does not arrive fully formed. It evolves and expands along with the accuracy of its data input and the awareness of its users. In a truly smart decision support system, one continues to feed off the other, with both human and artificial military intelligence learning, developing and working together.

Future possibilities are endless. In the meantime, SmartBase offers you an intelligent, user-friendly and versatile platform to begin your transition to the future, transformed by quality decision support.

ABOUT OCEAN

Ocean is an Australian tech firm with a team of over 80. We are a top 20 defence industry SME in Australia, with solutions designed and deployed on Defence secure networks. Our software deployed in 14 countries, servicing Europe & the Middle East, North America and Asia Pacific. With over 25 years in defence and civil aviation we combine industry expertise with innovative technological solutions to provide next generation decision support systems.



538,200

Flights
scheduled
per year



787

Courses
offered
per year



828,000

Flying hours
managed
per year



3,602

Students
trained
per year



DEPLOYED IN
15 COUNTRIES



OVER 25 YEARS
IN DEFENCE



AUSTRALIA,
CANADA, UK



QUALITY ACCREDITED
& MICROSOFT PARTNER

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