Sydney (Kingsford Smith) Airport

Managed FM Business Solution

PART B: 1B POTENTIAL INITIATIVES FOR CONTRACT EXTENSION No.3038

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Potential Initiatives

Efficiency through Technology (E)

The following initiatives are primarily aimed at realising benefits in gains in efficiency through technology.

Smarter decisions through analysis
Field based systems to improve efficiency and response
Real-time reporting

Leverage Analytics

S V Q E

Continuing to leverage and expand the established systems and data foundations to provide FM Business Intelligence in a timely and actionable format.

Strategy	Potential Benefits
1. Expand Work Centres and Dashboards to further support management of Asset Performance and Data Quality *For example:* • *Reliability Engineering Work Centre* • *Business Analyst Work Centre* • *Non-Aero Commercial Assets* • *Management Dashboards* • *Executive Dashboards* *(See Appendix A: Maximo Work Centres)* Complexity: Medium Duration: 6M	**S V Q E** • *Improved Asset Reliability* • *Identify areas for efficiency improvement through analysis of asset health and work order completion rates* • *Increase efficiency by quick identification of work backlogs in need to action* • *Support management teams with increased visibility into FM performance trends* • *Enable management decision making backed by actionable information*
2. Increase Analytics Services *For example:* • *Enhanced asset reliability analysis by implementing Asset Health module* • *Enhanced project compliance statistics;* • *CMMS support for close out of projects and transfer to FM of assets thru defects management, as built and PM information being input into system*	**S V Q** • *Improved Asset Reliability analysis* • *Support management teams with increased visibility into Contractor performance trends* • *Enable management decision making backed by actionable information* • *Improve asset data quality*

3. Evolve Preventative Maintenance to Predictive Management *For example:* • *Leverage both historical & live data, through advanced analytics, to more accurately predict specific asset performance (Asset Health)* Complexity: Medium Duration: 6M	**S V Q E** • *Reduce expenditure on Preventative Maintenance* • *Reduce Corrective Maintenance incidents* • *Increase asset performance by identifying sub-standard asset or contractor performance requiring action*
4. Implement Insight Analytics *For example:* • *Leverage big-data to gain insights (See Appendix B: IBM WATSON Analytics)* Complexity: Medium Duration: 8M	**S V Q E** • *Provide Insights into what we don't know we don't know* • *Support data retrieval and discovery to address future analytics requirements*
Foundation Components	COGNOS PowerBI WATSON Analytics Integration Foundation

Expand FM Mobility

S Q E

Enhance process efficiency, transparency and responsiveness by deploying field mobility solutions for key user groups.

Strategy	Potential Benefits
1. Mobility for DMMs *For example:* • *providing mobile access to the tools and information that they need to do their jobs* Complexity: Low Duration: 4M	**S V Q E** • *Increase the efficiency and effectiveness of the DMMs* • *Reduce delays in DMM work tasks* • *freeing DMMs to spend more time dealing with issues away from their desks* • *Increase service quality*
2. Field Mobility for Contractors *For example:* • *Targeted, role-based app to increase live data capture of Contractor activities* Complexity: Low Duration: 5M	**S V Q E** • *Provide transparency for contractors' activities including, when they arrive and when work statuses change* • *Increase Contractor performance by providing up-to-date job information in a timely and clear manner*
3. AGL and Car 2 Field System *For example:* • *Targeted, role based app to increase allow geo-location of both reporting and resolving asset issues on the airfield* Complexity: Medium Duration: 4M	**S V Q E** • *Increase efficiency of AGL and Car 2 teams by supporting mobile issue capture and tracking* • *Increase effectiveness of issue capture and reduce resolution times with geo-tagging of issues*
4. Increase integration of Sydney Airport Staff *For example:* • *Integration of service requests made by Airport staff and contractors, including auto reference numbers, more accurate location ID's, asset based questions, etc.* Complexity: Low Duration: 3M	**S V Q E** • *Increase efficiency* • *Improved responsiveness* • *Reduce manual processing delays*
Foundation Components	Field Mobility Integration Foundation Maximo Updates

Enable Real-time Reporting via IoT

S V Q E

Leveraging the Internet-of-Things (IoT) connectivity to contextualise device data; monitor streaming data to detect situations; filter data for analysis; store data for insight analysis.

Strategy	Potential Benefits
1. Integrate BMS (SCADA) data and other data sources to enhance Asset Health visibility *For example:* • *Consolidate Asset data, (historical and real-time), including data from external data systems, weather data, etc.* • *Deploy micro-monitors to gather data on key non-SCADA assets e.g. pumps, etc.* • *Integrated Condition Monitoring* • *Dynamic Condition Triggers* Complexity: High Duration: 12M	**S V Q E** • *Enable Asset Health management* • *Support Predictive Maintenance* • *Reduce unplanned downtime* • *Minimise Asset failures* • *Maximise use of resources* • *Increase Asset reliability* • *Improved Safety and risk management*
2. Integrate Energy Management/Sub-Metering Data *For example:* • *Integrate with new smart meters, zone lighting, etc.* • *Provide Energy & Water Centre dashboards* Complexity: High Duration: 12M	**S V E** • *Support sustainable energy/water management* • *Improve on-billing data* • *Benchmarking and performance tracking*
3. Evolve Corrective Maintenance to Dynamic Responsive Maintenance *For example:* • *Utilising Dynamic Condition Triggers to create SRs and notify First Response before/on failure* • *Provide dynamic in-field notifications* Complexity: Medium Duration: 6M	**S Q E** • *Increase responsiveness* • *Enable proactive asset and maintenance decisions*

4. Integrate Contractor's systems to provide near real-time information *For example:* • *Contractors that have accredited mobility systems already in-place can be directly integrated with Sydney Airport for real-time data* Complexity: Medium Duration: 4M	**S V Q E** • *Enable Real-time Performance Reporting* • *Increase responsiveness* • *Increase Contractor performance* • *Increase Transparency/Value*
Foundation Components	COGNOS WATSON Analytics PowerBI Integration Foundation Field Mobility

Quality of Service

The following initiatives are primarily aimed at realising benefits in gains in the quality of service.

- Quick response to service requests
- Technical competency and knowledge of airport assets
- Non-aero - increased emphasis and focus on improving service levels

Expand Next Level Service S V Q E	
Building on current performance to further increase service levels in key areas for airport stakeholders.	
Strategy	**Potential Benefits**
1. Aerobridge Priority service *For example:* • *Dedicated Intelligent Call Handling* • *Integrated Condition Monitoring* • *Dynamic Condition Triggers* • *Active Field Notifications* Complexity: Low Duration: 4M	**S V Q E** • *Increase responsiveness to service requests* • *Increase Aerobridge availability* • *Efficiency through Technology* • *Improved Safety and risk management*
2. Non-Aero Building Service *For example:* • *Self Service* • *Onsite co-ordination resources* • *Non-Aero specific Work Bench and Analytics* Complexity: Medium Duration: 3M	**S V Q E** • *Increased emphasis and focus on improving service levels for non-Aero* • *Technical competency and knowledge of airport assets* • *Efficiency through Technology* • *Enhanced utilisation of resources*
3. Enhanced Terminal Presentation *For example:* • *Enhanced Audit functionality and workflows* • *Integrate to Safety & Risk Management systems* Complexity: Medium Duration: 3M	**S V Q E** • *Increased emphasis and focus on improving contractor service levels* • *Ensuring value – getting what we pay for and paying for what we get* • *Improved Safety & Risk Management* • *Efficiency through Technology*
Foundation Components	Maximo Updates xRM/IVR System Updates Integration Foundation Mobility

Sustainability, Compliance and Risk Management

The following initiatives are primarily aimed at realising benefits in gains in sustainability, compliance and Risk Management.

- Improved safety
- Diversity of employment
- Greater focus on energy/water savings

Safety, Compliance & Risk Management

S V Q E

The implementation of technology and processes to support Sydney Airport's sustainability targets and reduce cost for energy and water usage over time.

Support the Corporate Safety Improvement Plan, by extending the Asset Management system to include the Plant & Equipment Register, enhance and further integrate safety and compliance related FM processes & systems to the corporate Safety, Compliance & Risk Management systems.

Strategy	Potential Benefits
1. Implement an Energy & Water Centre *For example:* • *Present smart meter and micro-monitoring data* • *Energy & Water specific dashboards* • *Specific analysis* Complexity: High Duration: 12M	**S V E** • *Support sustainable energy/water management* • *Visibility of Energy performance* • *Improve on-billing data* • *Benchmarking and performance tracking*
2. Expanded Plant & Equipment Register *For example:* • *ensure a plant and equipment register is maintained and updated and provides a single source of truth, details who is responsible for an item, where it is located and what it includes and maintenance details and inspection history.* Complexity: Medium Duration: 6M	**S V Q E** • *Supports the Corporate Safety Improvement Plan 2016-17* • *Reduce Risk* • *Increase Compliance* • *Improve management of contestability data* • *Improve transparency of contractor performance*
3. Improve Safety Integration *For example:* • *Ensure that Safety is a part of each process* • *Integrate processes/systems with corporate Safety & Risk Management systems* Complexity: Medium Duration: 3M	**S V Q E** • *Improved safety visibility* • *Improved safety responsiveness* • *Improved safety data accuracy, transparency and timeliness* • *Reduce duplication of effort* • *Efficiency through Technology*

4. Enhanced Project Compliance *For example:* • *Enhanced Audit functionality and workflows* • *Hot Works Permit Management* • *Integrate to Safety & Risk Management systems* Complexity: Low Duration: 3M	**S V E** • *Increased emphasis and focus on improving contractor service levels* • *Improved Safety and Risk Management* • *Efficiency through Technology*
Foundation Components	COGNOS WATSON PowerBI Integration Foundation Mobility

Quick Win Projects

While the potential initiatives identified by unitiFM range in complexity and scope, we have isolated several that could be implemented in the short term to realise quick benefits. These projects include those to create the DMM Mobility App and the Contractor Mobility App.

DMM Mobility App

- Design, configure and deploy Maximo EveryPlace to enable DMMs to have access to be able to assess and approve Work Orders while in the field.
- This will contribute to the Sustainability, Compliance and Risk Management; Value; Quality of Service; and Efficiency through Technology strategic objectives, by:
  - Increasing the efficiency and effectiveness of the DMMs
  - Reduce delays in DMM work tasks
  - Freeing DMMs to spend more time dealing with issues away from their desks
  - Increasing service quality

Work Breakdown

Below is a list of key Activities that will occur across the Program, assumptions and inclusions.

Milestone	Activity	Detail	Assumptions and inclusions
M1	**Business Process Review**	• Review current business processes • Workflow Definitions • Process/Procedures/Signoffs/Etc.	• Planning, Facilitation and Follow-up for: • 1 Process workshop to understand current/ future processes with key staff • Occurs over 1-week period
M1	**User Requirements**	• Define User Stories - describes the desired functionality from the user perspective	• Planning, Facilitation and Follow-up for: • 2 Workshops to define user stories • Occurs over 3-week period
M1	**Reporting Requirements**	• Not required for this application	• Not required for this application
M1	**Agile Development Backlog Planning**	• Solution Backlog Prioritisation - a prioritised features list containing all desired features • Release Backlog - the list of features intended for the current release	• Planning, Facilitation and Follow-up for: • 2 workshops • Occurs over 2-week period
M1	**App Design**	• Design App Interface for DMM's to be able to remotely: • Receive, Review and Update WO • Approve and Workflow WO	• Planning, Facilitation and Follow-up for: • 2 workshops • Occurs over 4-week period
M2	**System Development/Configuration**	• Configure/Enhance Modules: • Maximo EveryPlace WO Module	• Scope for Release 1 will be verified as part of Release Backlog planning • Release 1 configuration/enhancement occurs over 4-week period
M2	**Testing**	• System testing, including: Unit Testing; configuration testing and Integration Testing • UAT (SydAir)	• Develop test plan • SydAir to undertake User Acceptance Testing over a 5-day period
M3	**Data Loading**	• Not required for this application	• Not required for this application
M3	**Change Management**	• Project Management • Communications (SydAir) • Stakeholder Management (SydAir)	• SydAir are responsible for communications with staff and contractors and managing contractors through the project
M3	**Training**	• Materials • Delivery	• Up to 2 training sessions over 2 concurrent days in the same week

Contractor Mobility App

- Design, configure and deploy an integrated mobile solution to enable Contractor Technicians to have access to be able to respond to Work Orders while in the field. Including, viewing, responding, updating the status while on-site.
- This will contribute to the Sustainability, Compliance and Risk Management; Value; Quality of Service; and Efficiency through Technology strategic objectives, by:
  - Providing transparency for contractors' activities including, when they arrive on-site and when work statuses change
  - Allow attendance verification by recording the location and time of responses
  - Increase Contractor performance by providing up-to-date job information in a timely and clear manner.

Work Breakdown

Below is a list of key Activities that will occur across the Program, assumptions and inclusions.

Milestone	Activity	Detail	Assumptions and inclusions
M1	**Business Process Review**	• Review current business processes • Workflow Definitions • Process/Procedures/Signoffs/Etc.	• Planning, Facilitation and Follow-up for: • 2 Process workshops to understand current/ future processes with key staff and initial contractor • Occurs over 3-week period
M1	**User Requirements**	• Define User Stories - describes the desired functionality from the user perspective	• Planning, Facilitation and Follow-up for: • 2 Workshops to define user stories • Occurs over 4-week period
M1	**Reporting Requirements**	• Determine reporting requirements for: • Contractor Activity Report	• Not required for this application
M1	**Agile Development Backlog Planning**	• Solution Backlog Prioritisation - a prioritized features list containing all desired features • Release Backlog - –the list of features intended for the current release	• Planning, Facilitation and Follow-up for: • 2 workshops • Occurs over 2-week period
M1	**App Design**	• Design App Interface for Contractor Technicians to be able to remotely: • View WO • Report WO In-progress while on-site (with GPS recorded) • Report WO Delays • Report WO Completion while on-site (with GPS recorded)	• Planning, Facilitation and Follow-up for: • 3 workshops • Occurs over 4-week period
M2	**System Development/Configuration**	• Configure/Enhance Modules: • Field Mobility • Maximo Integration • Reporting	• Scope for Release 1 will be verified as part of Release Backlog planning • Release 1 configuration/enhancement occurs over 12-week period
M2	**Testing**	• System testing, including: Unit Testing; configuration testing and Integration Testing • UAT (SydAir)	• Develop test plan • SydAir to undertake User Acceptance Testing over 5-day period
M3	**Data Loading**	• Not required for this application	• Not required for this application
M3	**Change Management**	• Project Management • Communications (SydAir) • Stakeholder Management (SydAir)	• SydAir are responsible for communications with staff and contractors and managing contractors through the project
M3	**Training**	• Materials • Delivery	• Up to 3 training sessions over 2 concurrent days in the same week

Foundation Technology Components

Field Mobility

- A combination of technology implementations to provide mobile access appropriate to the task being performed. *(e.g. DMM to authorise work while in the field, Contractors Technicians to confirm work order attendance and progress while on-site, Project Compliance staff to record project observations and work order audit results during on-site inspections.)*
- Reduce data entry errors and miscommunications by allowing users to simply do their work – even while disconnected.

Analytics

Several data management, reporting and dash-boarding and advanced analytics tools can be utilised with Maximo.

PowerBI

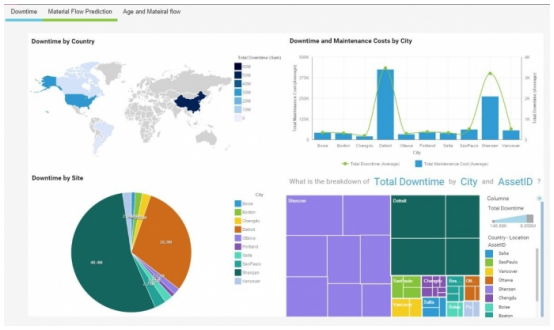
- Power BI assists in the transformation and management of data
- Improving data quality and consistency
- Enabling improved reporting

COGNOS

- A powerful enterprise reporting and business intelligence tool.
- Maximo integration extends the current suite of reporting tools that Maximo enables into a deeper level of Reporting.

WATSON Analytics

- Watson Analytics provides advanced, collaborative tools to conduct advanced, cognitive analysis of Maximo data.
- Data driven insights driving business improvement.
    - Improved Insights through Dashboards, reporting and key performance indicators.



WATSON Internet-of-Things (IoT)

- Condition-based maintenance (CBM) is a discipline that uses the Internet of Things to monitor asset conditions and trigger preventative maintenance actions.
- WATSON IoT enables the connection of disparate devices to provide real-time information for analysis and action.

Maximo System Updates

7.6 Feature Packs include functionality to support:

- Health & Safety Environment Manager.
- SCADA.
- Scheduler Plus.
- Asset Health Insights.

xRM/IVR System Updates

- IVR Update for CLI Routing
- xRM Update for Increased Service Request Data Capture and Integration

Real-time Integration Foundation

- Design and deploy the managed infrastructure foundation to underpin:
    - FM Service Contractor to Maximo integration
    - Integration of Maximo to other corporate systems
      e.g. Safety and Risk Management (Q-Pulse, etc.,)
    - Support of Maintenance fault reporting integration and automation
    - Mobility Systems Integration
    - SCADA Device Integration

GIS (Geospatial Information System)

- Implementing a spatial asset mapping service (e.g. GeoWeb) which can be integrated with Maximo to provide an FM GIS system.
- Enhancing Asset locations information for accuracy with reporting issues and maintaining the right assets.

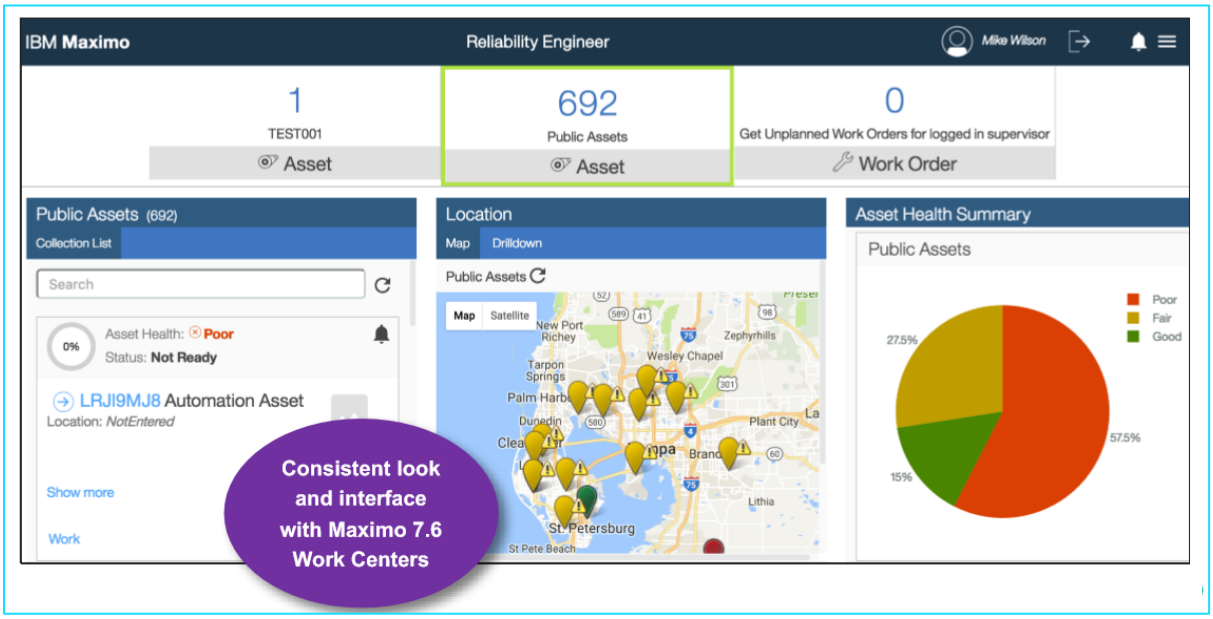
BIM (Building Information Management)

- Utilising the Architectural 3D virtual models created during Projects to provide accurate, high quality and dependable information as part of the asset commissioning process.

Appendix A: Maximo Work Centres

Work Centres are role specific consoles offering an intuitive interface which highlights key information and allows the user to complete everyday tasks without having to open multiple applications.

Reliability Engineer Work Centre



Business Analyst Work Centre

These two Work Centres would increase both the efficiency and effectiveness of these key roles at the Airport and ensure actionable analytics information is fully leveraged to improve airport FM operations.

Appendix B: IBM Watson Analytics

Watson Analytics offers you the benefits of advanced analytics without the complexity.

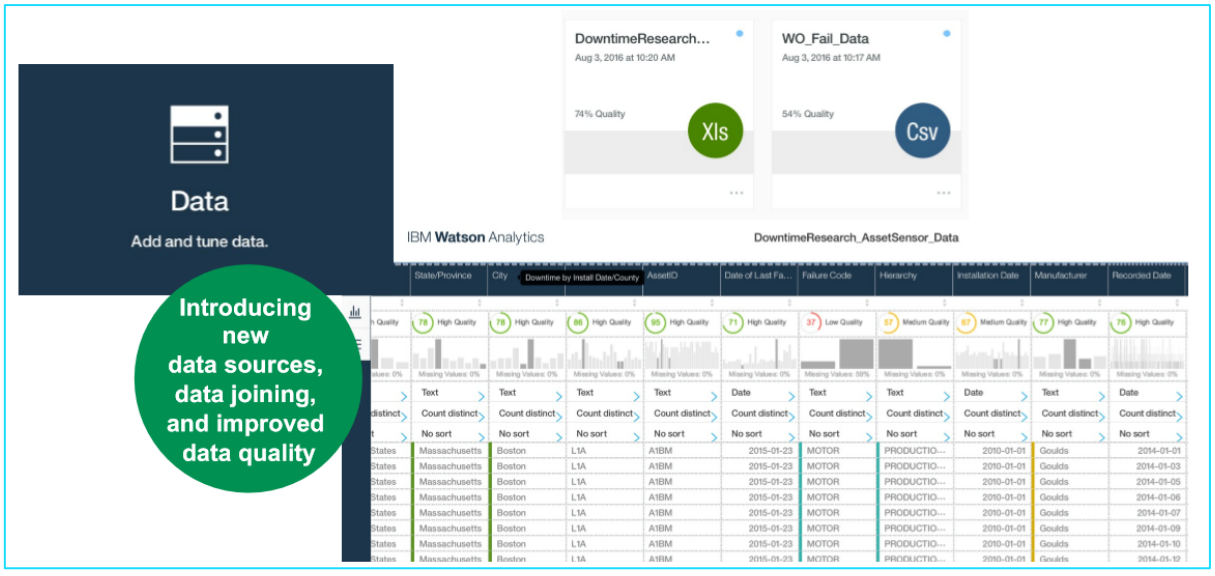
A smart data discovery service, it guides data exploration, automates predictive analytics and enables effortless dashboard and infographic creation. You can get answers and new insights to make confident decisions in minutes.

Watson Analytics offers four key capabilities:

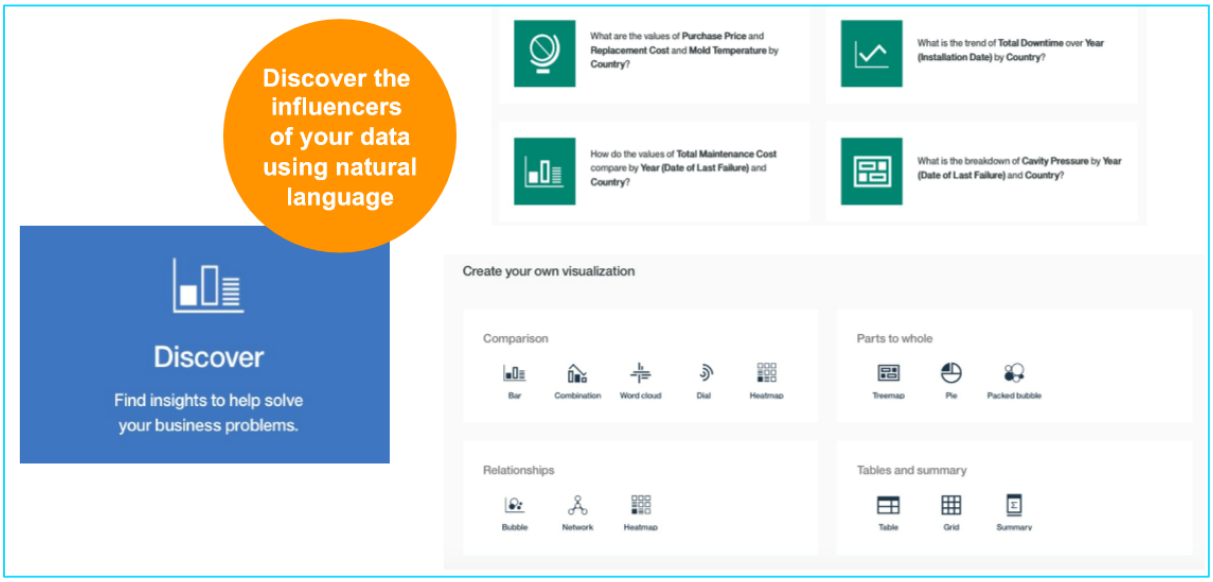
1. A Single Analytics Experience
2. Fully Automated Intelligence
3. Natural Language Dialogue
4. Guided Analytic Discovery

These capabilities provide the following benefits for Sydney Airport:

Data – the current data set can be added to and data from multiple sources can be analysed together. Watson Analytics also provides new and valuable insights in to data quality.



Discovery – find the actionable information that is locked away in your data and leverage new insights to solve current and future business problems.



Display – communicate key insights to keep everyone up to speed.