

OUTCOME BASED SERVICE

Assuring optimum building performance with transparency and accountability.

“Outcome Based Service is capable of delivering a superior picture of the current building performance as compared to traditional planned maintenance. It promotes improved fault identification and impact assessment to better cater to customer outcomes.”

Case Study





Executive Summary

Honeywell is evolving its Service offering to focus on translating client KPIs to improved and tangible results. The new offering, Outcome Based Service utilises analytics to drive optimised building performance.



Outcome Based Service monitors your building 24/7 and therefore provides robust fault identification.



Sensors and set points report back continuously helping systems operate at optimal conditions and faulty sensors can be identified.



The enhanced fault finding capability reduces unnecessary plant operation and therefore helps boost energy savings, reduce running costs, and increases the longevity of plant.



By monitoring sensors and conditions more closely, the building will provide a better internal environment and improve occupant satisfaction.

Identified anomalies per month



Identified anomalies ahead of time



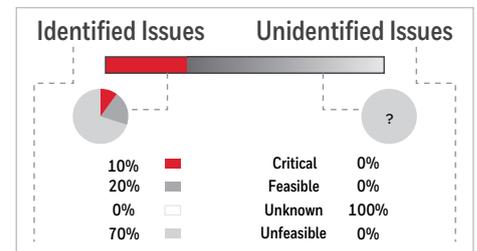
The Solution

Outcome Based Service versus Planned Maintenance

Outcome Based Service is the next generation of Honeywell Service offering. Planned Maintenance (PM) is focused on the regular inspection of building assets on a fixed schedule. These schedules could be adapted as required. However, their fixed nature meant that equipment was inspected regardless of whether there were current or anticipated problems.

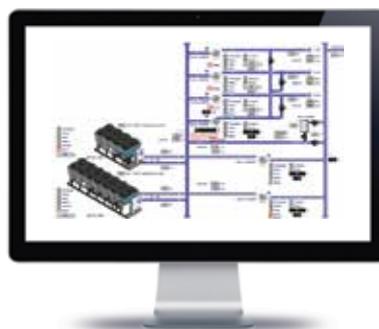
Outcome Based Service makes extensive use of automated building monitoring and analytics. By monitoring and analysing building performance 24/7, we are able to:

- Develop tangible maintenance KPIs that drive outcomes which are important to our customers
- Move to a flexible maintenance schedule that focuses on maintaining overall performance.



Rather than ensuring that a specific asset is visited a pre-determined number of times, Outcome Based Service focuses on the goals of comfort conditions being met, energy targets being achieved, and the right dynamic balance being struck between ongoing performance optimisation and reactive maintenance works.

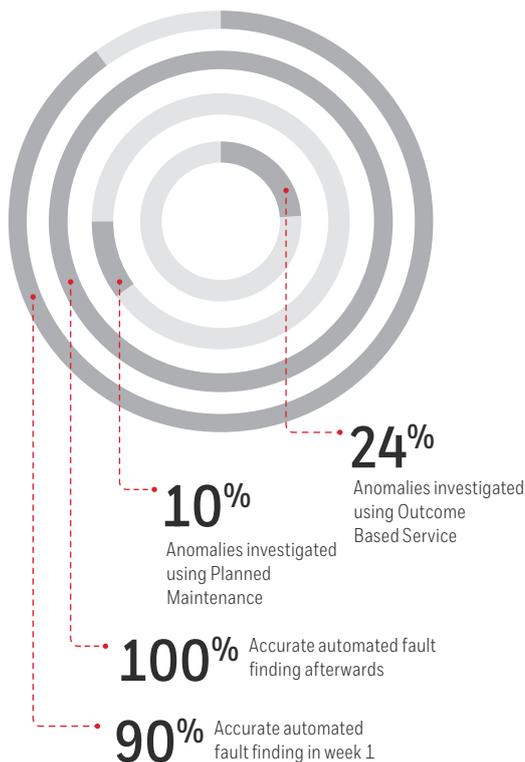
In our Outcome Based Service trial, technical staff were able to identify a much larger range of potential problems and evaluate them significantly faster, reducing the impact on the performance of the building.





Outcome Based Service – The Facts

Honeywell has undertaken a significant research and development effort in order to design, implement, and successfully validate the new approach at a commercial office tower in Melbourne Australia. Using a suite of fine-tuned algorithms to monitor the air side system, our service team was able to scrutinise these building assets 24/7, identifying multiple faults and misconfigurations ahead of schedule and lay the groundwork for a system that will achieve what is truly important to the building owners-occupant satisfaction and enhanced energy efficiency.



Results from Outcome Based Service trial on 4 floors of a commercial building over a 3 week period.

The Trial and its Findings

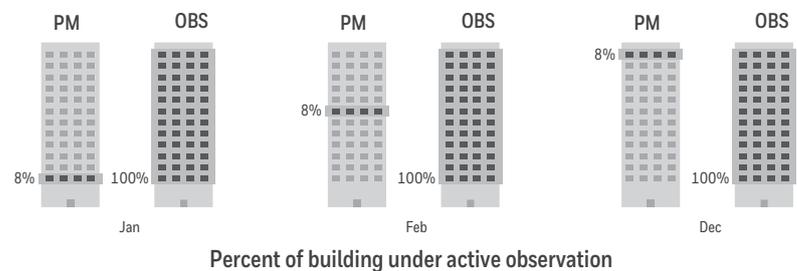
Honeywell completed a one month trial of Outcome Based Service across four floors of a commercial building, focusing on air side systems and occupant comfort. The focus was placed on the air side systems, given their importance in achieving occupant comfort.

During the trial, maintenance was carried out in two ways, i.e. using the traditional PM and new Outcome Based Service methodology. This allowed us to test whether the new method captured all the potential issues that were identified using the traditional service model.

The following outcomes were achieved:

The new service model driven by Outcome Based Service, makes extensive use of automated building monitoring and analytics. The 24/7 monitoring and analysis of building performance achieved the following:

- A number of faulty sensors were identified ahead of schedule; these would have only been picked up during the next maintenance cycle in a number of months.
- Various assets were identified that were left in manual mode.
- Optimisation opportunities for economy cycle operations were identified which will lead to reduced energy consumption.
- VAV boxes leaking airflow were found which lead to increased energy consumption and potential reduction in occupant comfort.



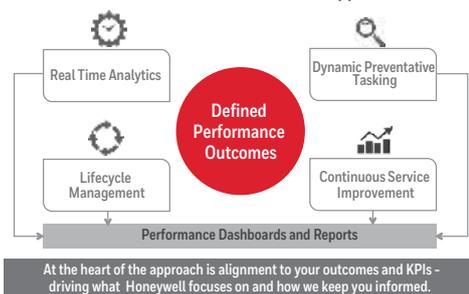
The trial showed that Outcome Based Service is capable of delivering a superior picture of the current building performance as compared to traditional planned maintenance. It promotes improved fault identification and impact assessment to better support customer outcomes.



A Revolution in Service

Honeywell Outcome Based Service is a truly revolutionary change in the way servicing is conducted, helping save time and money and improve building performance.

The Revolution –What does the new service approach look like?



Do Less

- Checking items that work
- Checking low impact items
- Repetitive manual work
- Reacting to issues
- Communicating activity
- Unnecessary scheduled checks

Do More

- Investigating warning signs
- Checking high impact items
- Automation
- Prevention of faults
- Developing technology roadmap / predictable costs
- Communicating results
- Delivering on outcomes and achieving KPIs

The Benefits

Traditional maintenance service revolves around fixed schedules; a method that will naturally lead to delayed rectification of problems and premature maintenance of equipment that still shows acceptable performance.

Outcome Based Service addresses these optimisation opportunities by utilising building analytics to monitor assets 24/7. This continuous monitoring allows Honeywell to align our actions with customer KPIs rather than to the adherence to fixed schedules:

- Focus on maintaining comfort conditions.
- Identify optimisation opportunities to improve energy consumption.
- On time fault reporting.
- Optimise plant life cycle and promote optimal balance of operation costs and capital cost.

As shown in the comparison below, problems are fixed as they occur rather than according to a predefined schedule:

Traditional Approach - Static Tasking New Approach - Dynamic Tasking

8 problems this year:

- 3 found and fixed quite soon.
- 2 found and fixed after months.
- 3 won't be found/fixed until next year.

8 problems this year:

- All found with automated detection.
- Issue quickly resolved.

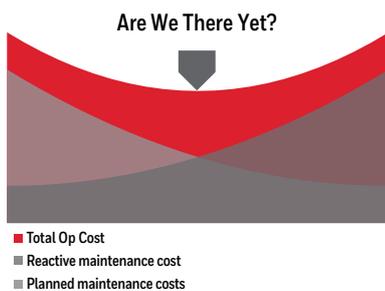
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
AHU01	✓						!	■	AHU01							!x	↘	
AHU02		✓						!	AHU02								!x	↘
AHU03			!x	↘					AHU03		!x	↘						
AHU04			!	!x	↘				AHU04		!x	↘					!x	↘
AHU05				!	!x	↘			AHU05			!x	↘					
AHU06						✓!	■	■	AHU06							!x	↘	
AHU07				!	■	■	!x	↘	AHU07			!x	↘					
AHU08	!	■	■	■	■	■	!x	↘	AHU08	!x	↘							

- ✓ checked OK
- x checked fault found
- ! problem occurred
- ↘ fault fixed
- time when fault exists



Balancing reactive and planned costs

- For any target performance outcome, there will be an optimum balance between planned and reactive maintenance efforts.
- Outcome Based Service will assist in finding this 'sweet spot' that delivers desired outcomes at the lowest cost. By analysing the asset performance data, Honeywell will be able to help optimise budget allocations across operational functions and also advise on the value assessment of potential new capital outlays.

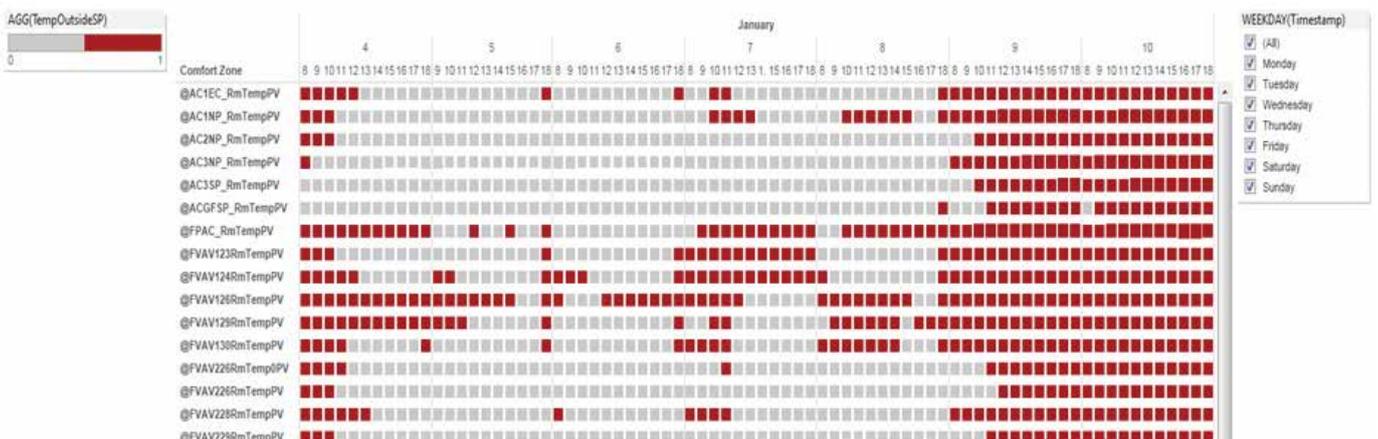
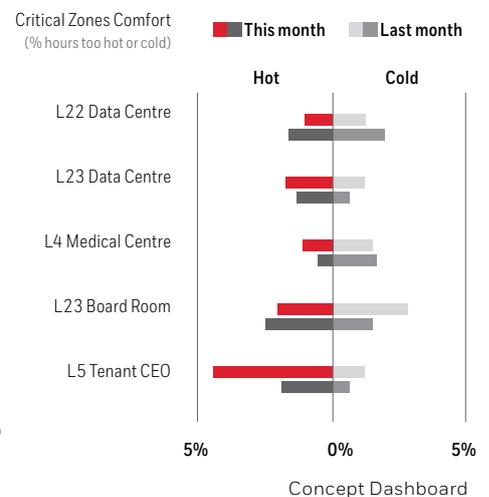


The Analytics

Outcome Based Service is driven by building analytics which lends itself to graphical representation. Honeywell has developed detailed views of performance metrics and higher level views for stakeholders who require less technical detail.

Power of Analytics

Modern building management systems, such as Honeywell Enterprise Buildings Integrator, collect an enormous amount of data from buildings each minute. Building Analytics is the process of translating that data into information that is meaningful for the technical team and facility management. Honeywell is developing its analytics suite in close consultation with technical staff and engineers. By capturing the site relevant knowledge of our expert staff, we are able to provide data that is correctly filtered, without wasting time on non-critical issues that do not lead to better client outcomes.





Honeywell Building Solutions

Sub Saharan Africa Head Quarters
Waterfall Park, Treur Close
Midrand, 1685, South Africa
Tel: +27 11 695 8000
www.honeywell.com

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