

Uniformance Executive

Product Information Note

Uniformance Executive is a real-time manufacturing intelligence software that provides decision makers at all levels of the organization with relevant, timely performance information enabling them to make decisions and take actions in line with business goals.

Challenges in achieving manufacturing operations excellence

Manufacturing companies employ a variety of information systems that allow employees to do their day to day functions. Vital information for decision making can come from diverse automation systems or business systems such as DCS, PLCs, MES, ERP, LIMS, PIMS, batch management systems, and historians. Manufacturing personnel have to make decisions based on diverse information from these systems. The information on these systems is held in silos and are of different formats like spreadsheets, reports and disparate databases. For end users, it is not easy to monitor the overall state of operations from these siloed information systems. It is quite challenging to assemble this wide variety of data and assimilate them to provide a meaningful information for day to day decision making, Users often miss any early signs of problem that could have been averted if it was seen before.

Manufacturer’s ability to make critical decisions based on real-time information is critical to stay competitive. Manufacturing intelligence is all about effectively exploiting the data for day to day decisions that can result

Fig 1: Manufacturing Intelligence



Taking right decisions at the **right time** with the **right information**



Linking **business goals** to operational decisions and **actions**



Visibility of information anytime anywhere across functions & enable **collaboration**

FEATURES & BENEFITS

Data Integration

- OPC HDA DAS plug-in for OPC data
- OLE DB DAS plug-in to connect to any relational database systems
- Custom DAS Plug-ins
- Honeywell Applications DAS Plug-ins
- Sentinel, Dynamo, PAR

KPI Management

- Define, monitor and track KPIs
- Organizes KPIs by assets, groups, types etc.
- Comes with broad set of Industry KPI library
- Manages targets and Limits
- KPI Templates
- Supports flexible scheduling and recalculations

Contextualization & Visualization

- Asset Model
- Range of visualizations to create rich and interactive dashboards
- Full range of sorting and filtering options
- Highly performant dashboards making information access faster
- Works with Uniformance Insight to deliver real-time visualization

Collaboration

- Annotations
- Export to PDF, EXCEL and Word
- Content sharing
- E-Mail notification
- SharePoint/Nintex Workflows
- Discussion forums and tasks

Technologies

- Thin client HTML 5
- Supports all browsers
- Responsive UI to support any devices-tablets, laptops and mobile phones
- https support

in increased bottom line through greater efficiency, productivity and operations excellence

Uniformance Executive Solution

Having the relevant information with contexts in a more collaborative and visual environment can reap immense benefits to the users by helping them to identify problems, determine improvements and drive actions. Through better collaboration and information intelligence, manufacturers can improve plant operations, reduce downtime and increase production performance.

Uniformance Executive makes it easier for the users to access critical data that spans across various functions and systems and to make agile decisions with the help of visualization, collaboration, workflow and integration capabilities. It combines information from multiple sources such as historians and business applications, providing users a holistic view to measure, analyze and collaborate to improve the production and operations. It also helps to capture the company's best practices and enable a continuous improvement cycle.

Key features of Uniformance Executive include:

Visualization- presents context based information in a web portal for effective and efficient decision making.

Collaboration - effectively engages the right people for making the right actions by integrating with various systems

Workflows- help manage routine and unexpected tasks, as an integral part of the system

Data modeling - establishes context to describe how the data from different data sources relates to each other.

KPI Management – Effective metrics management by defining, measuring, categorizing and tracking Key Performance Indicators [KPIs]

Data Integration – provides support to connect to any data sources (including DCS, historians, MES, ERP systems and other applications)

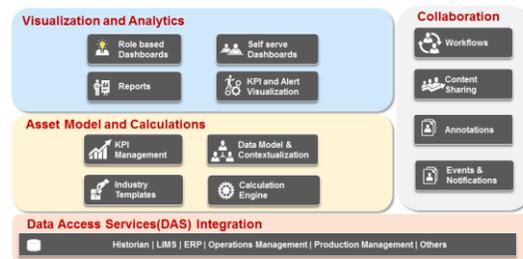


Fig 2: Uniformance Executive Solution Architecture

Benefits

Uniformance Executive delivers a wide range of benefits and significant savings for the business: Improving operating efficiency leads to proven benefits such as reduced energy and maintenance costs and improved product quality and can deliver up to 4% improvement in operating margin.

The less tangible human factor benefits can be even more significant:

- Capture the knowledge of your experts within a repeatable set of actions
- Identify opportunities and avoid problems that previously passed unnoticed (and could lead to significant environmental or safety infractions)
- Improve personnel productivity
- Move from looking for and analyzing data to taking action on it more quickly
- Collaborate across functions and geographic boundaries
- Reduce staff requirements by up to 50% in a remote location for improved efficiency, availability and job satisfaction

Features and Functions

Uniformance Executive is a software for enterprise-wide metric management, collaboration and workflow management. It moves beyond simple data access and display to

Manufacturing intelligence is all about effectively exploiting the data for day to day decisions that can result in increased bottom line through greater efficiency, productivity and operations excellence

Adopting Uniformance Executive provides an opportunity to transform your business by significantly increasing knowledge sharing and collaboration. Uniformance Executive delivers measureable bottom line improvements

providing context – a unified view of data assets that seamlessly combines information from multiple sources. Continuous performance monitoring triggers notifications and tasks or workflows, enabling sophisticated dashboards and dynamic handling of problems and opportunities in near real time. Harness data from everywhere and deliver it to everyone so you can collaborate across business units and take the right actions to achieve intelligent operations. Uniformance Executive is built on open industry standards and embeds Honeywell’s domain expertise to solve key challenges.

• Visualization and analytics

Uniformance Executive’s visualization layer helps in bringing real time manufacturing data and business data together in one place and provide users analytical capabilities. This allows users to gain insights from the data by spotting trends and other relationships that otherwise may not have been seen when looking at hundreds of spreadsheets or reports. It leads to more effective, real time decision making. Uniformance Executive hosts Visualizations in its native web portal. Optionally, it can leverage Microsoft SharePoint as web portal to host the dashboards. Both standard and enterprise versions of SharePoint are supported. Various visualization features are explained in below sections:

• Role based dashboards

Uniformance Executive delivers effective visualizations of business performance to each user role empowering decision making at all levels of the organization from CEO to Plant Engineer. The benefits of well-designed Dashboards are they display the right information of the key performance indicators as per the user’s role in the organization and show trends of the KPI’s helping in the better analysis to take better decisions faster. Dashboards built using Uniformance Executive allow the users to visualize and analyze huge amount of data easily

with the help of variety of charts, pivot tables, KPI widgets, tabular view components and drilldown into complex data for the insights of need. Dashboards focuses on KPI Performance and Deviations and provides following features:

- Deviations are highlighted
- Multi-functional displays
- Multiple tabs of data
- Multiple time ranges
- Active drill-in and drill-down
- Displays optimized for user experience
- Fast refresh from high speed data cubes
- Standard templates across entire organization



Fig 3: Typical visualization display showing several widgets in one dashboard

• Widgets

Displays are built from one or more widgets. On the dashboard, user can add data visualization widgets and arrange them anywhere on the canvas. Drag and Drop interface allows you to browse all of your measures and dimensions, and then plot them onto a chart, grid or other advanced visualizations for instant analysis. Uniformance Executive provides an array of predefined best practice data visualization configurations you can simply use to compose your dashboard.



Fig 4: Typical visualization showing bar charts and gauges and several widgets in one dashboard

Uniformance Executive supports range of visualization widgets, styles and themes, including sunburst charts, pie gauges and bullet graphs, to create interactive dashboards. Table below summarizes 25+ different widgets that are available out of the box.

| Summary | | | |
|---|---|--|--------------------|
| ✓ Tables | ✓ Charts | ✓ Spark lines | ✓ State indicators |
| ✓ Gauges | ✓ Tree maps | ✓ Maps | ✓ Data labels |
| Gauges - Details | | Charts - Details | |
| <ul style="list-style-type: none"> • Linear • Radial (circular) • Pie gauge • Bullet graphs • Circular gauges support semi-circle, quarter-circle, or custom angle layouts | <ul style="list-style-type: none"> • Column/bar • Stacked column/bar • Multi-level pie • Sunburst • Line • Curved line • Scatter plot • Bubble • Area • Curved area | <ul style="list-style-type: none"> • Stacked area • 100% stacked bar/area • Box plot • Range • Curved range • Range column/bar (Gantt like) • Candlestick and stock • Waterfall • Pareto • Histogram | |

Fig 5: List of visualization widgets that are available out of the box

• Powerful analytics and reports

Asset hierarchy enables asset based drill down and slicing of the data. Multi-dimensional data model enables powerful filtering of information. Calculations can be applied on top of KPIs to get deeper insights. Full customizable reports can be generated on demand, on a schedule or for e-mail.



Fig 6: Drill down for supporting information and cause and effect analysis

• Self-Serve dashboards

Pre-defined dashboards are often not enough to cover all the data needs of the end users. Often there is a need for end-users to access data they are authorized to and create dashboard to do adhoc analysis of certain problems. With Self-serve dashboard capability end users can easily and quickly perform data discovery and on-the-fly

data analysis without having to involve organization’s IT team. Power users can view, create, interact and share dashboards and reports. So, with Uniformance Executive users have freedom to customize dashboards with data.

• KPI Management

KPI management is a key foundation for Uniformance Executive, providing a comprehensive system for calculation and management of KPIs and deviations for presentation to dashboards.

Key performance Indicators or KPIs, are used by many companies to track how the business is doing against targets. Typically KPIs are defined for business goals such as safety, reliability, quality, operational efficiency and so on. To be useful, KPIs should be measurable, actionable, compared to targets, and for a specific period of time. Companies often define a hierarchy of KPIs where primary KPIs define overall business objectives, while secondary and tertiary KPIs lend support.

KPI module collects data from throughout the organization every hour, day, week, or month; collects targets; compares results data to targets; and presents a clear, consistent, business-wide view of what is going on and which metrics need attention. Record and store all key indicators and calculations for long-term retention and reporting. KPI module features:

- Tracks performance metrics and KPIs over multiple time horizons
- Manages KPI status indicators and generates alerts and notifications
- Manages Targets and Limits
- Uses KPI Templates for standardization
- Organizes KPIs by assets, groups, types etc.
- Supports flexible scheduling and recalculations

Annotations: User annotations let users write comments attached to any data on the dashboard to communicate with other users viewing the

Intuitive user interfaces of Uniformance Executive help users to quickly comprehend the information through easy to understand visualizations and in place data drill downs

Uniformance Executive provides decision makers at all levels of the organization with relevant, timely performance information enabling them to make decisions and take actions in line with business goals.

- Maintains a complete history of KPIs with audit trail

• KPI library

Honeywell experience and domain knowledge is embedded in the KPI module as inbuilt industry standard KPI library. It enables faster enterprise wide deployment and metrics standardization across the organization.

Repository of KPIs for all major functional groups are available out of the box. It consists of Leading and Lagging indicators based on roles and functions. For example, KPIs for Executive Management, Plant Management, Process Safety & Operations.

| KPI | Category |
|-------------------------------|---------------|
| Number lost time accidents | HSE |
| Number environmental issues | HSE |
| Unit effectiveness | Operations |
| Unit material balance | Operations |
| APC constraints at limit | Operations |
| Critical process parameters | Operations |
| Alarm rate | Operations |
| Unplanned downtime | Reliability |
| Operating envelope exceptions | Reliability |
| Variable cost | Economics |
| Energy/ton of product | Energy & Loss |
| Heater efficiency | Energy & Loss |
| Quality giveaway | Quality |

Fig 7: A glimpse of KPI categories from KPI library.

• Data Model and processing

Uniformance Executive is driven by a model that organizes information, supports navigation, and provides an abstraction layer between data and displays. Data made available at the right time with the right context leads to accurate analysis and decision making. IX provides data modeling functionality through data cube with multidimensional model that is based on measures and hierarchies. Data model features:

- Honeywell’s Common Asset Model (CAM) provides business context across applications
- KPI hierarchies enable drilldown and cause and effect navigation

- Data Cubes generated from the KPI Hierarchies and CAM properties provide dimensions and measures for filtering, sorting and grouping
- Data Cubes allow data analytics and drilldowns direct from the dashboards.
- User configurable dimensions are supported
- Manual data input supported

• HMI Graphics and real-time visualization

Uniformance Executive leverages Uniformance Insight which provides a graphical display builder to build HMI Graphics. The typical dashboards show the KPIs and their trends. For further analysis of root causes, the system enables user to drill down to the next level of detail of any poor performing KPI. Eventual problem often may lie in a process equipment which can be shown as a process graphic with current equipment status and performance values using real –time HMI graphics. Users also can drag and drop tags from Historian for Trending Process parameters.

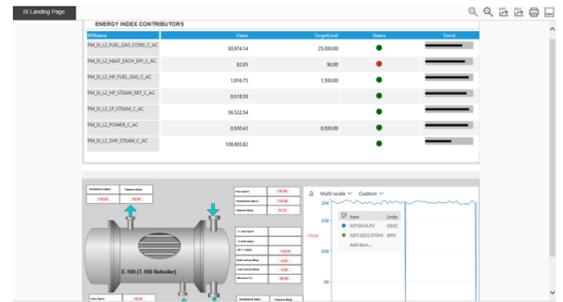


Figure 8. A sample graphics combined with real time data and KPIs on one single dashboard

• Collaboration

Uniformance Executive makes use of SharePoint Server capabilities for collaboration and let users to collaborate across functions to solve problems quickly.

Discussion forums help to initiate discussions with peers and experts right from the dashboard. It also lets users to capture the knowledge from your discussions and investigations using collaborative tools.

same data. For example, user may want to add a personalized remark to a data point on a data visualization to provide background information or to raise a concern.

Content Sharing: Users can share the current context of the dashboard to other users to discuss on any specific issues through URL sharing. Users can export dashboards to pdf, PowerPoint and share with others.

Workflows: Uniformance Executive leverages the SharePoint / Nintex workflow Engine to define and execute a workflow. A pre-defined workflow engages the right people to take appropriate actions to solve a problem. Guided workflows for specific abnormal conditions can close the loop with clear actions and escalation.

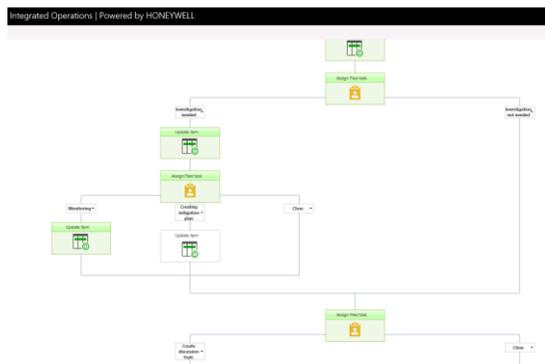


Fig 8: A sample workflow

• Data Integration

Uniformance Executive integrates to other systems through data access services (DAS).

Supported Connectors

- OPC HDA DAS plug-in for OPC data
- OLE DB DAS plug-in to connect to any relational database systems
- Custom DAS Plug-ins
- Honeywell Applications DAS Plug-ins

New data sources are regularly introduced: - consult with Honeywell for the latest information.

• Security

Uniformance Executive has a role-based security model built around Windows authentication. Capabilities, such as being able to view user interfaces are assigned to local groups on the server. Windows domain accounts and domain groups are assigned to these local groups.

• Platforms

Clients: Uniformance Executive can be accessed by any computer on the network through a web browser. Client computers require the following software plus appropriate security permissions. No other locally installed software is required.

Servers: Uniformance Executive is based on Windows Operating system leveraging IIS for Web server and SQL server for Database server.

Uniformance Executive gives you enterprise visibility into plant operations information (process data, lab data, operating plans, asset status, etc.) and enables cross functional collaboration on the findings, equipping staff to make better decisions.

Uniformance Executive R301 Technical Specifications

| PARAMETER | SPECIFICATION |
|-------------------------------------|--|
| DESKTOP CLIENT OPERATING SYSTEM | Microsoft® Windows® 7 x86 and x64 Microsoft® Windows® 8.1 x64 Microsoft® Windows® 10 x86 and x64 |
| DESKTOP WEB BROWSER | Microsoft® Internet Explorer 11 and above Google® Chrome 50 or later |
| SERVER OPERATING SYSTEM | Microsoft® Windows® Server 2012 R2 |
| INTERNET INFORMATION SERVICES (IIS) | IIS 8.0 IIS 8.5 |
| DATABASE | Microsoft® SQL Server® 2014 R2 Standard or Enterprise |

* Extremely large architectures should be planned using Honeywell services to ensure optimal hardware and system tuning

Additional Products to deliver higher value to customer

Honeywell offers integrated, best-in-class data, analytics and visualization products built on a common platform to meet complex customer challenges, deliver significant business value, and reduce total cost of ownership.

When Uniformance Executive is used with below products, information is easily visualized and explored for effective engineering analysis and process intelligence.



Uniformance PHD: It is a process historian that captures and stores real-time Process and Event data across the Enterprise.



Uniformance Insight: It is a tool to visualize Process Conditions and investigate Events from Any Web browsers through trends and HMI Graphics. When combined with Uniformance Executive Sentinel, it can deliver Templated HMI graphics and adhoc trending



Uniformance Asset Sentinel: Asset Sentinel is a real-time asset analytics solution that continuously monitors asset and process health, predicts and detects asset failure in advance. It helps industrial facilities to minimize unplanned losses and maximize uptime while reducing cost of operations and maintenance.

For More Information

Learn more about how Honeywell's Uniformance Executive can drive better operations decisions with real-time digital intelligence, visit www.honeywellprocess.com or contact your Honeywell Account Manager.

Honeywell Process Solutions

1250 West Sam Houston Parkway South
Houston, TX 77042

Honeywell House, Skimped Hill Lane
Bracknell, Berkshire, England RG12 1EB UK

Building #1, 555 Huanke Road,
Zhangjiang Hi-Tech Industrial Park,
Pudong New Area, Shanghai 201203

www.honeywellprocess.com

Support Services

This product comes with worldwide, premium support services through our Benefits Guardianship Program (BGP). BGP is designed to help our customers improve and extend the usage of their applications and the benefits they deliver, ultimately maintaining and safeguarding their advanced applications.

Honeywell provides a complete portfolio of service offerings to extend the life of your plant and provide a cost-effective path forward to the latest application technology. Honeywell services include:

- Software installation services
- On-site engineering services
- Migration services
- Scope expansion services
- Assessment services
- Performance baseline and tuning services
- Customized training

Honeywell®, Experion® and Uniformance® are registered trademarks of Honeywell International Inc. Other brand or product names are trademarks of their respective owners.