A large, light blue decorative graphic on the left side of the page. It consists of a thick, curved line that starts from the bottom left and arcs upwards and to the right. Inside this arc are several smaller, solid light blue circles of varying sizes, arranged in a roughly circular pattern.

## Delivering Business Value through Operational Intelligence

### Implementation Considerations and Challenges

## Executive Summary

In tough economic times, the business operations look to Information Technology to provide the information required to support decisions to streamline operations and improve the efficiency and effectiveness of all business processes. At the same time, IT budgets are under pressure and hence most IT departments have limited discretionary budget and resources. Any new initiative has to leverage the existing IT environment, enhance the value of existing business and operational systems and deliver significant business value and rapid return on investment.

Optimizing the business performance requires timely, consistent, relevant performance information directly available to all decision makers so they can make more informed, quicker, better decisions to positively affect operational results and business outcomes. This is a relatively new category of IT capability that is called Operational Intelligence.

Effectively delivering Operational Intelligence requires:

- Connecting to and extracting the key performance metrics from all applicable business and operational systems within your environment;
- Calculating and presenting both Key Performance Drivers (KPD metrics), which are those factors that affect performance, as well as Key Performance Indicators (KPI metrics) which are the measures of key outcomes or results;
- Processing information in right-time – making performance metrics available immediately after the underlying data sources change and ensuring that decision makers have access to current snapshots, recent information and historical trends;
- Combining both time-series data (from operational and production systems) with transactional data (from business and financial systems) to provide a holistic view of performance;
- Delivering KPI and KPD metrics in an intuitive, interactive user interface that is easy enough for all decision makers to use;
- Ensuring users have direct access to contextual information and best practices related to the performance metrics;
- Providing the users with the ability to easily “drill into” the performance metrics to obtain more detailed, actionable information and to identify the root cause of operational issues; and
- Enabling users to collaborate and share knowledge gained during their analysis.

Cost-effectively delivering the above is challenging, particularly in today’s era of limited IT resources and so new approaches, technology and delivery methods are required.

myDIALS is an innovative, Software-as-a-Service (SaaS) operational intelligence solution that can be rapidly deployed, embodies visualization and analysis best practices, and can be embedded with knowledge and expertise directly related to your vertical industry, specific business processes and value streams. myDIALS uses unique technology to:

- Interface to disparate systems through a variety of mechanisms such as web services, APIs, SQL calls, importing spreadsheets / delimited files;
- Combine and correlate time-series and transactional data; and
- Process information in “right-time” immediately after the underlying data changes.

The myDIALS interactive dashboard is intuitive, presents metrics in context, enables knowledge sharing and collaboration and requires minimal user training.

## WHITE PAPER

The business value delivered by myDIALS includes:

- Rapid time to value due to the speed with which myDIALS can be deployed;
- Access to best practices embedded within myDIALS;
- Quick and broad adoption by all decision makers;
- Consistency of the data (“single version of the truth”);
- The ability for users to collaborate and share knowledge.

The value delivered to the IT department includes:

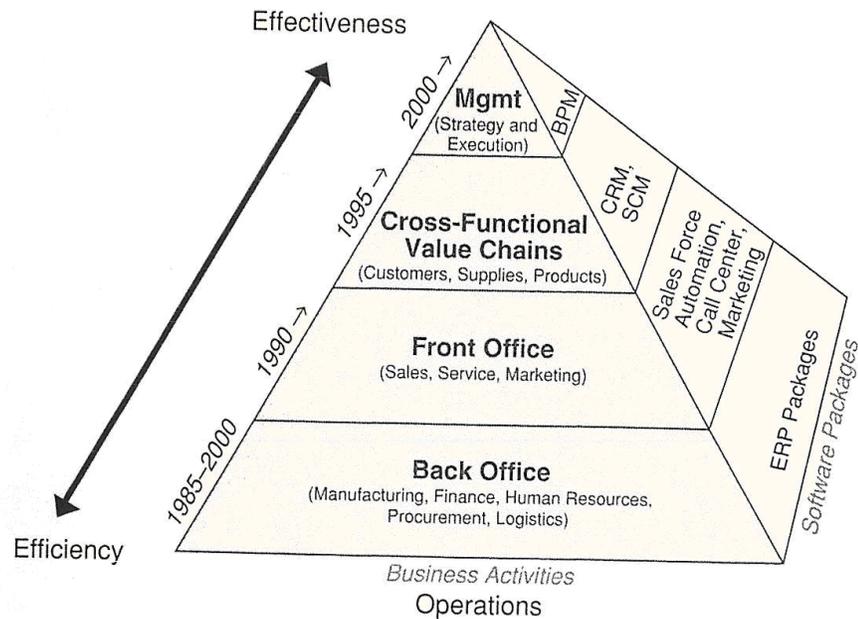
- Leveraging the existing IT environment and infrastructure;
- Deriving greater business value from the existing business and operational systems;
- Speed of deployment and rapid time to value delivered to the business;
- Minimized development, support and maintenance effort;
- Low cost and risk of the software subscription fee model;
- Reduced demand from users for ad-hoc reports.

In summary, the rapid time to value, low cost and low risk inherent in the SaaS model helps to deliver significant business value and ensure a successful project, while minimizing the impact to the IT department’s resources and budget. The configuration and maintenance of myDIALS can be undertaken by myDIALS employees, a myDIALS partner, or your IT department after minor training.

# Introduction

In today's business climate, business decision makers require relevant, timely information to help improve the efficiency and effectiveness of business processes which leads to better business outcomes. You have spent significant money, time and resources building an IT infrastructure and the business, financial and operational systems to support the business. Now the business leaders are looking for more. You may be receiving increasing requests for ad-hoc reports, or more timely information, or more concise performance metrics all of which are needed in short timeframes to help with important operational decisions.

This new era of decision support systems is labeled Business Performance Management (BPM), Corporate Performance Management (CPM), Enterprise Performance Management (EPM), or Operational Performance Management (OPM) by the various industry analyst groups. The relationship between this new category of capability and the existing business and operational systems can be best described by the following diagram:



Performance Dashboards, Wiley 2006, Wayne Eckerson, Director Research and Services, The Data Warehousing Institute

## Supporting Performance Management with Operational Intelligence

Operational Intelligence is the capability to deliver the most relevant performance information directly to decision makers in a form that is actionable and in a time frame (right-time) to enable them to make informed operational decisions that lead to better business outcomes. The performance information must include both the Key Performance Indicators (KPI metrics), which measure outcomes and the Key Performance Drivers (KPD metrics), which are the underlying drivers that affect results.

To be effective, Operational Intelligence must present performance metrics that are comprehensive across a business process or value stream, can be easily understood by decision makers, and in a way that the user can easily interact with to further analyze and identify the root cause of operational issues and opportunities. A highly visual, interactive dashboard that is widely accessible and tailored to the individual needs of each user provides these Operational Intelligence capabilities.

## Leveraging Existing Business Systems and IT Investments

Given the increased pressure to deliver more business value more quickly, any Operational Intelligence system should integrate with and leverage the existing IT environment including the business, financial, sales, HR, production, supply chain, logistics and distribution systems. By extracting relevant metrics from these various systems, a holistic view of operational performance across functional and disparate systems can be provided, which is necessary to understanding the overall drivers of performance and business outcomes. This increases the value delivered to the business by these underlying systems with only modest additional investment.

You already have a secure, performing IT infrastructure, so implementing an Operational Intelligence capability must leverage that infrastructure, be very quick to deploy and not require significant resources to maintain and support. A web-based SaaS offering can achieve these goals, while providing data security and secure, controlled access for all users.

## Best Practices for Metric Visualization and Analysis

Business decision makers may not have the same technical or data structure understanding as business analysts and IT staff members. Therefore the user interface has to be very intuitive, easy to navigate, guide the user through the analysis and present information with context and associated knowledge to help understanding.

These requirements can be addressed through the use of:

- A familiar web browser based interface;
- A very clean and inviting layout with highly- visual presentation;
- A wide variety of presentation styles so that the most appropriate visualization can be selected for each metric;
- Immediate access to descriptive and contextual information based on the specific information of interest;
- Navigation and action controls that only appear when required and that are icon-based and intuitive;
- Presentation of valid actions that can be taken and valid “drill paths for more detail” based on the specific information the user is viewing at the time;
- A clear representation of the drill path used to obtain the more detailed information so the user is aware of what they are viewing and how they navigated to that information;
- Easy-to-understand time periods and time shifting;
- The ability to “visually select and filter” information based on a chart, series, bar, segment or point related to a particular metric and dimension of interest;
- Clearly identified targets/goals and zones that indicate performance quality;
- The ability to easily and quickly change context of all information to any combination of dimension members (such as location, product line, customer type etc.);
- The ability to search for a specific dimension member;
- The ability to capture or export performance information either as a picture or data set to enable communication or additional analysis;
- The ability to capture and share knowledge gained by users as they analyze performance and identify causes , opportunities or changes;
- Email alert notification that contains information about the condition detected as well as supporting and contextual information.

## myDIALS Overview

myDIALS delivers operational intelligence through an intuitive, interactive dashboard using the Software-as-a-Service (SaaS) model. myDIALS connects to and extracts metric information from the various disparate systems within your environment using a variety of mechanisms, and then calculates and displays Key Performance Indicators and Key Performance Drivers (KPI and KPD metrics). myDIALS holds metric history so that trend lines and period over period comparisons are available to help understanding of performance trends.

WHITE PAPER

myDIALS provides an inherent structure to the information presented that starts with one or more dashboards that contain information related to a specific business process, value stream or function. A dashboard can contain one or more “ribbons” which are a logical grouping of metric information. Each ribbon contains one or more “dials” that visually depict one or more KPI or KPD metrics.

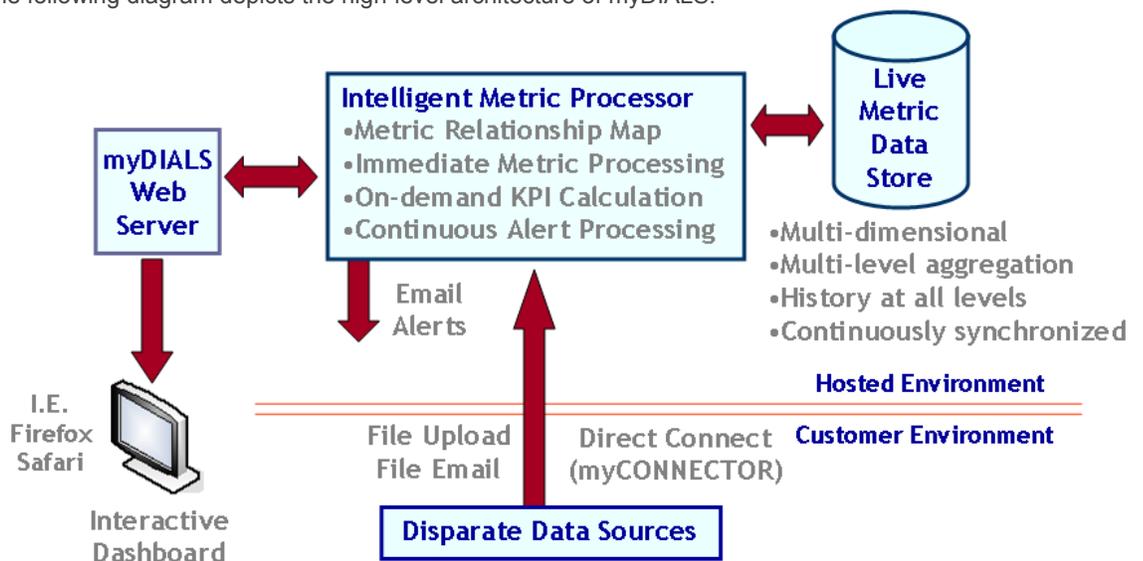
The metrics and dimensions can be easily configured using the intuitive myDIALS administration environment or if you prefer, can be manipulated directly in the XML configuration file that contains all the specifications. Users can be quickly added and limited to which dashboards, metrics and dimension members they are authorized to view. To speed deployment, users can be assigned to a “Group” that have similar requirements and authority, and then incremental capabilities or limitations can be applied for each specific user.

The user interface is highly interactive, and AJAX technology is used to deliver a rich user experience while requiring no plug-ins or client downloads. The myDIALS’ user interface embodies and delivers the best practice visualization and analysis capabilities outlined in Section 4 above. Dashboard layouts, metric visualizations and alert conditions can all be easily specified in the myDIALS administration environment which is integral to the product.

Because of the ease-of-use and intuitive nature of the interactive dashboard, minimal training is needed before users are productive and deriving value. Administration capabilities can be controlled and selected capabilities can be added to specific users, such as the ability to add users or the ability to add new dashboards, ribbons or dials or to change existing dashboard layouts.

## myDIALS Architecture

The following diagram depicts the high-level architecture of myDIALS:





## WHITE PAPER

myDIALS is a SaaS offering that uses unique technology to ensure performance metrics can be captured, stored, calculated and made available for analysis and display immediately after the underlying data changes. The Live Metric Data Store is continuously synchronized and while it has all the multi-dimensional capabilities of an OLAP cube, it does not have the disadvantage of having to wait for a periodic “cube crunch” to achieve data synchronization.

When changes occur in the underlying data sources, the metric information can be immediately uploaded into the myDIALS metric data store, and the Intelligent Metric Processor uses the Metric Relationship Map to aggregate and store metrics at all levels in the dimensional hierarchy. Metric history is held at all levels in the dimensional hierarchy which means that only incremental changes are uploaded, speeding load times and minimizing latency of metric availability. KPI and KPD calculations are performed on-demand as a user views that specific information, and these KPI and KPD calculation results are not stored. This intelligent or hybrid processing approach provides optimal response times, the ability to show historical trends and flexibility if KPI or KPD calculation formulas change.

myDIALS is able to capture and process both time-series data as well as transactional / relational data and can correlate both data types. This ensures that metric information resident in business and operational/production systems can be combined to provide a complete view of performance across an entire value stream or business process.

The user interface is AJAX-based and hence can be used with standard browsers without the need to download or maintain plug-ins, client code or third party applications.

## Connecting and Gathering Information from Data Sources

myDIALS can gather information from the disparate data sources in multiple ways:

- Direct connect to data sources through myCONNECTOR;
- Email of a data file to a designated email address;
- Direct upload of a data file;
- Manual data entry through the myDIALS user interface;

The most robust mechanism for uploading data into myDIALS is a direct connection using myCONNECTOR. This consists of a very flexible platform and associated plug-ins that are distributed and loaded as a “virtual appliance” on a server. myCONNECTOR connects to the various data sources through a variety of mechanisms such as web services interfaces, APIs, publish/subscribe, SQL scripts, file reads, spreadsheet imports etc. myCONNECTOR then transforms the data as necessary; pre-aggregates to the lowest level of granularity, which can vary by metric; encrypts the data; and securely sends it to the hosted myDIALS server.

In some cases, it might be most effective to extract a data set on a regular basis and email that to the myDIALS hosted environment. The extract / email process can be automated, the data set can be one of a variety of formats and there are no restrictions on the data structure apart from it remaining consistent over time. myDIALS will automatically strip the attached file, load it, process it and immediately make it available for visualization and analysis.

The direct upload of a data file (either a delimited file or a spreadsheet) is an easy mechanism to push metric data into myDIALS. This is designed for smaller volumes of metrics that might not reside in an automated system, and the format of the spreadsheet or file must conform to the myDIALS specification. To make this easier, a blank template can be automatically generated by specifying which metrics and dimensions will be input this way.

The manual data entry is designed to support the capture of small numbers of metrics directly from users where this data doesn't reside in an automated system. Examples would include goals or perhaps safety incidents or stop codes in a manufacturing environment. The ability for users to manually input data can be individually restricted to ensure data integrity and security.

## Data Security Considerations

The myCONNECTOR configuration and data is protected from external (internet) access by the security policies and practices used by the company for other computers on the customers' network such as physical access, file system access and the firewall. myCONNECTOR submits data to the myDIALS servers through the myDIALS web services interface. All communication with myDIALS servers is encrypted using https “Secure Socket Layer” (SSL) certificates. Anyone “snooping” packets traveling between the connector and the server will only see strongly encrypted (1024-bit) data packets, not raw confidential data. SSL also helps ensure

## WHITE PAPER

that data is not changed whilst in transit between the connector and the server, and provides assurance the myDIALS web server is the destination.

An X.509 certificate is used to verify the origin of the submitted data – i.e. that the data being sent to the myDIALS server is from the customer and not being “spoofed” by a malicious agent. Each myDIALS customer has a unique X.509 certificate deployed on the myCONNECTOR server, with this certificate used to sign the payload of submitted data. myDIALS generates these certificates.

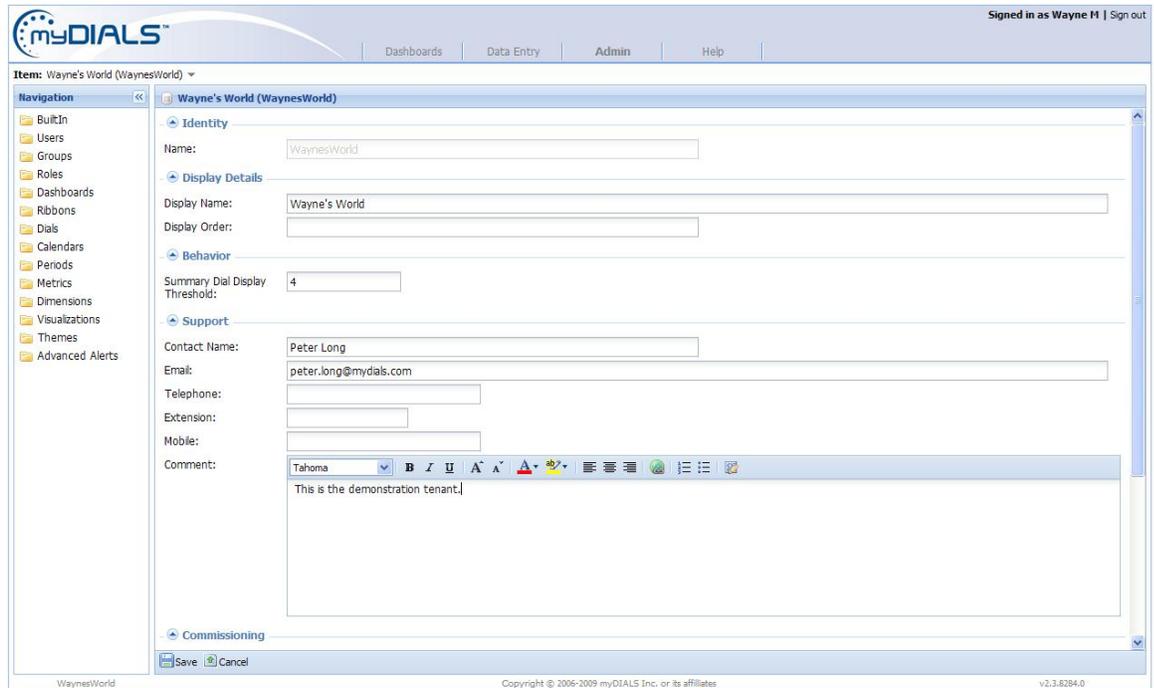
Each myDIALS customer (“tenant”) has a unique database on one of the myDIALS database servers. When the myDIALS web server receives new data it is decrypted, verified, processed and then saved into this database. Each customer’s data resides in a unique, dedicated database to provide complete quarantine between myDIALS customers. The database servers are located in a secure SAS 70 Type II certified data center; this provides physical security as only authorized data centre staff have access to the server room. The database servers are not directly accessible from outside the data centre, only the corresponding myDIALS web server and database administrator can access a customers' database. All customer data is backed up to a separate server on a daily basis.

All communication with myDIALS web servers is encrypted using https “Secure Socket Layer” (SSL) certificates. Anyone “snooping” packets traveling between the user’s browser and the myDIALS server will only see strongly encrypted data packets. Insecure (http) access to the myDIALS production servers is explicitly prevented.

## Configuring and Deploying myDIALS Dashboards

All dashboard and user configuration is done directly through an intuitive web interface accessed through the myDIALS hosted application. Dashboards and User access can be configured using the following process:

1. Define Metrics & Dimensions;
2. Create Dials to visualize each metric or combination of metrics;
3. Assign Dials to Ribbons to establish a logical grouping of KPI or KPD metrics;
4. Assign Ribbons to Dashboards with each dashboard representing a particular business process, value stream or function;
5. Create Roles (Permissions) such as standard user, power user, data entry user etc. that can be assigned to each user or Group;
6. Create Groups (including Dashboard Views and Roles) that users with similar positions and scope of authority can be assigned to;
7. Create Users by specifying their email address, role, group and any specific capabilities or limitations;
8. Initiate the sending of an invitation to each user which sends an email with the link, and a temporary password so they can logon and activate themselves.



myDIALS Administration

The resulting configuration is encapsulated within a XML file which can be exported, imported and directly manipulated if required for bulk changes.

## Rapid Measurable Returns

In these tight economic times, any IT project must deliver quantifiable returns quickly. Implementing an Operational Intelligence solution can deliver tremendous business value by enabling operational decision makers to make better, more informed decisions more quickly leading to improved performance and better business results. In addition, myDIALS delivers further, measurable value both to the user community and to the IT department.

For the user community the additional value includes:

- Rapid time to value due to the speed with which myDIALS can be deployed;
- Access to best practices embedded within myDIALS, which can be a combination of the knowledge of myDIALS employees, our partners and your company's expertise;
- Quick and broad adoption by all decision makers due to the intuitive nature of the user interface, including the visual presentation, ease of navigation, access to embedded knowledge and the associated contextual information, and the ability to visually select and filter interesting performance information;
- Consistency of the data ("single version of the truth") means that all users have access to the same data with KPI and KPD metrics calculated in the same way and hence users can collaborate on analyzing and improving performance rather than on which performance metrics are correct;

## WHITE PAPER

- The ability for users to collaborate and share knowledge they have gained while analyzing performance by making annotations directly on the points of interest on a dial.

For the IT department the additional value includes:

- Leveraging the existing IT environment and infrastructure;
- Deriving greater business value from the existing business and operational systems;
- Speed of deployment and value delivered to the business due to the SaaS model, the ease of configuration and the embedded best practices;
- Minimized development effort due to intuitive administration capabilities and the ability to configure the system without having to write code;
- Minimal ongoing support since there is no client code, plug-ins or downloads and selected administration capability can be assigned to specific "power users";
- Low cost and risk of the software subscription fee model;
- Reduced demand from users for ad-hoc reports since they can now directly obtain the information they require through the interactive dashboard.

## Conclusion

Operational Intelligence is a new category of capability that provides decision makers with the timely, relevant information they need to improve operational performance. With SaaS-based myDIALS, you can deliver these capabilities quickly and cost effectively, while leveraging your existing IT environment and increasing the return on your investment in business and operational support systems. myDIALS is easy to configure, and the viability and speed of wide-scale deployment will deliver significant business benefits and enhance the value delivered to the business by IT.

The speed of deployment coupled with the low cost aspects of the SaaS subscription model helps to mitigate risk and ensure a successful project that exceeds the expectations of your business community.



WHITE PAPER

## About myDIALS

myDIALS is pioneering a new industry standard in operational performance management with intuitive visualization analysis of Key Performance Indicators and Key Performance Drivers (KPI and KPD metrics) that combines operations and business performance metrics. Offering unparalleled usability for decision makers, the hosted software solution extracts metrics in right-time and calculates KPIs and associated KPDs across all business roles, processes and value streams.

In conjunction with its partner ecosystem, myDIALS delivers embedded vertical industry and value stream expertise, as well as improvement methodologies and guided diagnosis to help customers gain a deeper understanding of the factors that fuel their business. With myDIALS, companies can quickly resolve operational issues and capitalize on opportunities, while maximizing the value of their existing environment.

myDIALS is headquartered in Lafayette Colorado, with offices in Houston Texas, Oak Brook Illinois, Brisbane Australia and Perth Australia.

Visit [www.mydials.com](http://www.mydials.com) for more information.