

Load and Refresh

Once **visualintegrator** has transformed the data into the final form for the Analytical Application, it is loaded into the production Information Warehouse. A metadata layer using the clients business terminology is automatically overlaid onto the Information Warehouse, avoiding any need for information consumers to understand the technical database structures. This occurs on each instance of the Information Warehouse refresh, and again, is an automated process which does not need to be manually written during the development of the application.

Systems Administration

During operational use within the **Exploit** phase, the build process occurs each time the Information Warehouse is refreshed. Each refresh is monitored for quality, integrity and performance. **visualintegrator** deploys a set of systems administration tools to achieve this.

Monitors

• Performance monitor

visualintegrator retains histories of the number of records processed through the different activities of the ETL processes, and their processing times for each occasion the Information Warehouse is refreshed. While each refresh may be different in some respects, this monitor provides an immediate and visible qualitative comparison between current and previous refreshes. An audit log details record numbers and processing times by Dimension and Fact tables. Total data input is reconciled to data inserted and data updated in each ETL step, every record being accounted for.

• Integrity monitor

This tool performs a reconciliation check between key control totals. For example, total sales identified in a sales operational application are equal to those found in the Information Warehouse, or stock values from individual regional warehouse stock control application balance to country totals. Deviations would indicate incorrect dimensional data.

• Quality monitor

This is a check on the quality of data held within tables. For instance a check might be made that all sales branches are linked to a sales region. The Performance Monitor would indicate that all data has been loaded correctly, whilst the Quality Monitor will check that sales of each branch are rolled up to the correct region.

• Alerting

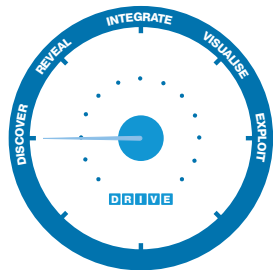
visualintegrator is designed to work without operational management. However, with data being sourced from a multitude of operational applications, often remotely placed, the data errors that are identified by the Monitors can occasionally occur. The alerting mechanism uses "traffic lights" to classify any anomalies identified by the Monitors and then proactively advises the system administrators to investigate deviations. Alert messages can be communicated via various channels or paging devices using server based mail utilities.

• Analytical Reporting

Is through best of breed Business Intelligence tools from Business Objects or Cognos, together with standard and ad-hoc reporting features, which are part of standard and custom built **visualmetrics** Analytical Applications, and are not components of **visualintegrator**.

DRIVE Implementation Methodology

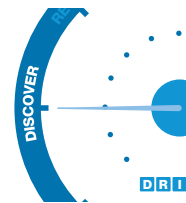
A customer chooses a standard application because it brings the benefit of a tried and tested solution, reduced project risk, and a lower product and implementation cost. This results in faster exploitation of value and stronger ROI to the business.



While a standard Analytical Application removes the traditional need for highly detailed functional analysis, it does not take away the key need of ensuring that the solution is implemented in such a way that it properly supports the business process. As the standard Analytical Application may not exactly fit the detailed needs of the customer, there may be a need to modify functionality to meet individual businesses' operational needs.

With this in mind **visualmetrics** developed an accelerated form of its **DRIVE** project methodology to implement standard Analytical Applications. We call this **@DRIVE** (Discover Reveal Integrate Visualise Exploit).

The objective of the **Discover** phase is to uncover the changes needed to achieve a full alignment of the Analytical Application with the customers' Methods. This includes any organisational and process changes the customer needs to consider as well as functional and technical modifications needed to the standard Analytical Application. The analysis will include functions across the business which contribute to, or benefit from the solution. This is a customer dependant process, driven by **visualmetrics** with assistance from the client.



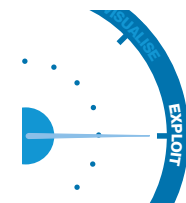
In the **Reveal** phase, documented functional and technical modifications are fed back to the customer. Through this, an optimum solution is identified, and a list of organisational, functional and technical application changes are defined and agreed. Responsibilities, sponsorship and commitments are understood, and the project is launched from feasibility into execution. This activity is jointly carried out by the customer and **visualmetrics**.

Having understood fully how the organisation can make best use of the technology investment, the next task is to **Integrate** the Analytical Application with the existing operational applications and configure it for best use. This work, which includes engineering any programming modifications, is delivered almost exclusively by **visualmetrics**. Through this we automate the delivery of information into the Analytical Application from the operational applications, a process we call the Information Supply Chain.



Training and roll-out of the Analytical Application to the users takes place during the **Visualise** phase. It is now that the information delivered by the solution becomes visible to the broad base of users for the first time. **visualmetrics** assists the customer's internal project team during this phase to ensure maximum knowledge transfer.

Exploit is the post implementation phase where benefit and value is driven out of the solution. It is a process primarily run by the customer's project team as it seeks to ensure that the targets set, which have been set, are achieved, and ROI realised. **visualmetrics** acts in a secondary reference and support role as the Analytical Application beds in, and familiarity with it grows.



To derive benefit from the investment, the focus of the implementation must be on ensuring full alignment of the application to the improved business process. **DRIVE** is first and foremost about business process improvement. It is more than solely a technical implementation. While the scope of **DRIVE** is focused on fast and cost effective support from project initiation to implementation, at **visualmetrics** we recognise that Methods inevitably change over time as market conditions and internal procedures change. As new methods diverge from the initial configuration of the application, degradation of benefits takes place. We therefore complement the **DRIVE** service with the **visualsupport** service which maintains the maximum business benefit over the lifetime of the application.

visualmetrics Glossary

Analytical Application: a s application using a BI toolset and based upon a domain of data, which allows an organisation to track, monitor and effect business performance through analysis of its Metrics.

Business Intelligence (BI): software tools from companies such as Cognos and Business Objects which are employed in the overall delivery of CPM based solutions and Analytical Applications.

Corporate Performance Management (CPM): the process of understanding and effecting the quality of an organisation's performance, based upon the interplay of BI, Metrics and Methods (also otherwise known as BPM: Business Performance Management or EPM: Enterprise Performance Management).

Data Warehouse: an off line database, which retains all the aggregated and restructured data that delivers the CPM solution through an Analytical Application.

Information Supply Chain: a suite of software programmes which automates the time based and selective extraction, transformation and loading of relevant data for reporting purposes, into the Data Warehouse.

Methods: the process that an organisation employs to fulfil its operational activity. When qualified by Metrics and reported via a BI tool set the results are used to meet CPM objectives.

Metrics: business measures which are quantifiable, including their associated business rules, (also otherwise known as KPIs: Key Performance Indicators).

Reporting: a broadly generic term which includes Business Intelligence, Analytical Applications, Business Performance Management and Key Performance Indicators.

Balanced Scorecard: a management system that enables organisations to clarify their vision and strategy and translate them into action. It provides feedback around both the internal business processes and external outcomes in order to continuously improve strategic performance and results. It retains traditional financial measures to assist in creating future value through investment in customers, suppliers, employees, processes, technology, and innovation.

automate



visualintegrator | The Data Creator for Analytical Applications

About visualmetrics

visualmetrics is a Business Intelligence (BI) solutions provider that develops and delivers best of breed Analytical Applications, utilising BI tools, to its focus markets. Based in United Kingdom and founded in 1997, **visualmetrics** also offers consultancy services to construct custom applications tailored to a client's specific requirements.

visualmetrics has developed specialist project methodologies for the delivery of its solutions - **DRIVE** for custom Analytical Applications and an accelerated form, **@drive**, for standard applications. These services span the full application life cycle from functional specification to application support and enhancement, ensuring that project risk is managed and ROI is maximised.

visualmetrics maintains partnerships with leading product, application and service partners in the BI market. **visualmetrics** sees its value not only in assisting its customers to exploit data as information on which to base decisions, but as intelligence to promote insight into businesses performance.

Our clients include market leaders such as DHL, Unipart, Balfour Beatty Utilities, CIPD and Places for People.

visualmetrics has developed a suite of Analytical Applications, based on their length and breadth of industry and technical experience:

-  **visualrevenue** for finance
-  **visualavenue** for property management
-  **visualaffinity** for contact centres
-  **visuallogistics** for logistics
-  **visualintellect** for human resources
-  **visualperformance** for sales
-  **visualcontract** for contract service provision
-  **visualcontrol** for budgeting and planning
-  **visualintegrator** for data delivery automation

Executive Summary

visualintegrator is a software integration toolset which reduces the risk, cost and time of building Analytical Applications, that monitor and help manage corporate performance. **visualintegrator** integrates data from both transactional applications and functional information databases, allowing data to be selectively extracted, cleansed, organised and fed into the Information Warehouse. **visualintegrator** was developed by **visualmetrics** to address this challenge by extensive automation and simplification of the process of building and maintaining Information Warehouses and Analytical Applications, maximizing project ROI.

visualmetrics has a complementary rapid implementation methodology, **@DRIVE**, which de-risks the implementation and provides a fast Return on Investment (ROI). This enables **visualintegrator** to deploy business information across relevant management interest groups within the organisation to ensure that '**exceptional answers** are given to **critical questions**' of enterprise KPIs. **visualintegrator** will empower the IT function to optimise its development and maintenance of critical KPI-based applications.

Operational Scenario

In increasingly fast moving business environments access to business intelligence delivered by Analytical Applications is often seen as critical to arriving at the correct business decision. Traditional methods of producing corporate reporting were heavily dependent upon manual effort in collating data from disparate systems. These labour intensive procedures were slow to deliver, prone to error and inflexible to user requests which were outside the standard reporting portfolio. For these reasons Analytical Applications built on corporate Information Warehouses became key to delivering faster, focused and user controllable reporting.

Whatever the market or business, the IT manager always has to balance the demands of the business to provide flexible, fast and accurate information – in the right timescale, to the correct degree of detail and to the appropriate users – against the need to do so at optimum cost and without impact on other business areas.

While the reporting front ends are built around standard BI toolsets, the data sources often lie in large business critical transactional applications. Their

integrity must be safeguarded to maintain the smooth running of the business. The challenge is to provide the flexible user driven reporting needed without impacting the integrity of these core systems, and to implement quickly in a reliable infrastructure that is easy to maintain and change. As an established Business Intelligence solutions provider, **visualmetrics** developed **visualintegrator** to meet these challenges.

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Features and Benefits

Optimisation

- Only data that is identified as needed by the Analytical Application is extracted
- Extraction takes place at a time that minimises impact on operational schedules

Automation

- Selective capture of data from operational systems takes place automatically at preset points in batch schedules
- Analytical, managed and ad-hoc reports are updated with new information

Data Integrity

- Data is validated and cleansed before entry to the Analytical Application
- Alert mechanisms signal any new data created to maintain data integrity
- Each record is reconciled before and after each ETL step, to ensure no data is missed

Product Independence

- Standard product offers choice of Microsoft and Oracle database technologies
- Standard product offers choice of Business Objects and Cognos BI technologies

Risk Management

- Design removes risk of heavy Analytical Application reporting being placed on the operational systems
- Standard reporting is delivered directly from the Analytical Application, not the operational system
- **@DRIVE** methodology underpins functional and technical application scope
- Proven ETL model eliminates the risks inherent in a bespoke solution

Flexibility

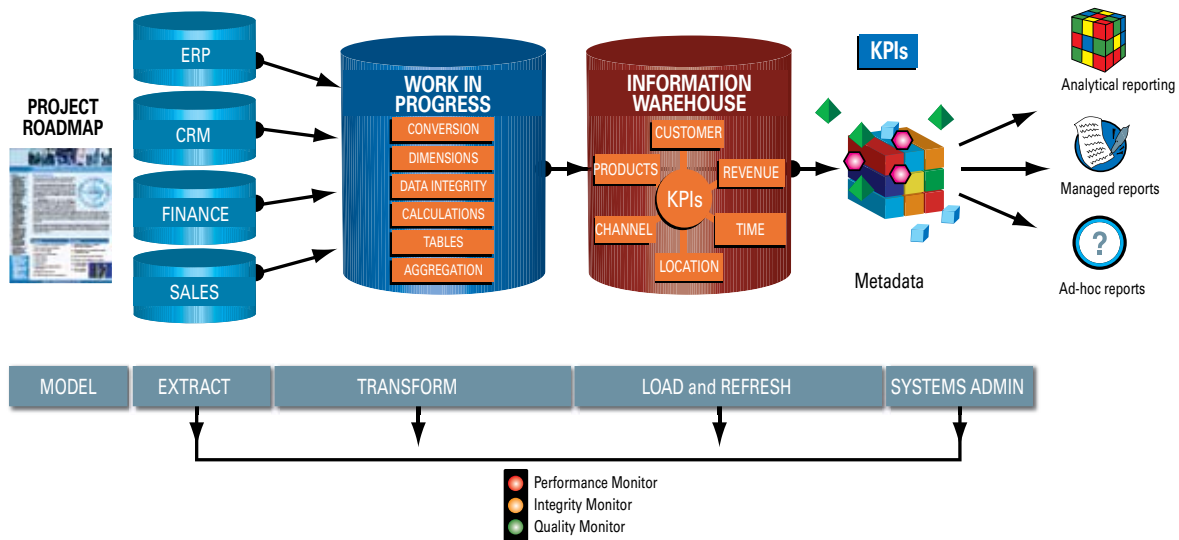
- Design permits easy plugging and unplugging of new data sources
- Drill down into the Information Warehouse for exceptional and specific detail reporting
- Calculated business measures are easily added
- ETL process and database design can handle any Analytical Application from any data source
- Analytical Applications created using **visualintegrator** can be easily joined to make a Balanced Scorecard

Technical Architecture

visualintegrator is built upon a set of predefined database tables and data extract processes. Utilising industry standard tools, and software development 'best practices', it enables the fast and rigorous creation, configuration and updating of the Information Warehouses that underpin the delivery of Analytical Applications. By automating key activities during the **Integrate** stage of **@DRIVE**, **visualintegrator** is the critical asset which shortens the development time. **visualintegrator** automates the ETL stages of Information Warehouse creation and enables a fast transition from the design to the completed build of the databases, schema and metadata layers of the solution. Systems administration tools deployed within the Exploit phase of **DRIVE**, audit the performance and integrity of the Information Warehouse refresh processes, on an ongoing basis.

visualintegrator helps automate and support the critical processes within these phases:

- Model and database creation**
- Extract process**
- Transform process**
- Aggregate process**
- Load process**
- Systems administration**



Model

Within the **Reveal** phase of **@DRIVE** a model of the Information Warehouse is defined and agreed with the client. The model consists of an Information Warehouse schema which identifies all the Dimension and Fact tables required for the solution, and metadata which interprets the technical schema data in terms used by the client organisation. These interpretations or views are held in a Business Objects or Cognos metadata layer.

visualintegrator Helps automate and support the critical processes within these phases:

• Schema definition

A generic database consisting of 40 WIP (Work In Progress) tables and 10 Information Warehouse tables are created by running a standard script. **visualintegrator** removes the need to create it manually.

• Metadata definition

A generic metadata model is created consistent with the field and table names of the schema. A **visualintegrator** editor maps the client's business terminology against the metadata and automatically applies these changes through to the schema. Manual metadata creation and naming is unnecessary.

Extract

The extract process captures all relevant data from source systems and makes it available to **visualintegrator** for transformation. Two activities are carried out:

source data capture

Source data is captured from operational applications and information databases. Sometimes a client organisation will make the data available to **visualmetrics** in a set of predefined files. Alternatively **visualmetrics** writes a series of SQL scripts to extract it, as part of its **Integrate** service.

source data load to WIP

Data is loaded using Microsoft DTS or Business Objects Data Integrator for Microsoft SQL/server or Oracle databases, into the WIP area, where all transformations occur before the final load to the live Information Warehouse. The **visualintegrator** architecture employs a predefined WIP database and a predefined set of connections which takes away the traditional need to design a database and tables. While it is still necessary to manually connect the tables to the extracted data, a mapping tool automates the writing of individual transformation scripts.

Transform

This is where all the transformations, integrity checking and construction activities occur, that produce the Information Warehouse in its final form, for use by the Analytical Applications. Once again dependent upon the technology infrastructure used the ETL toolset will be either DTS or Data Integrator. The following activities are carried out:

data conversion

Predefined tables and transformations allow an automatic process to replace the manual creation and conversion of source data to the correct data types.

dimensions creation

An automatic procedure adds Dimension records, or updates existing records, so replacing an otherwise manual procedure.

data integrity checking

Dimension keys are checked against Fact data to ensure that there is integrity between the two. An optimised process enables this to be run automatically and produces an audit log of inconsistencies. Again this replaces the manual activity of custom build integration.

calculation definition

While the predefined database enables the build and checking on the database, definition of Calculations - the KPI's used in the Analytical Applications - is normally client specific. However, the predefined schema contains pre-existing "place holders" which result in a faster and more rigorous completion of this activity.

table joining

Assigning and generating the integer keys between Facts and Dimensions is the final task in the production of the completed schema. The pre-existence of the schema and generic link processes automates this process, again bringing a significant advantage in time and quality over a custom build.