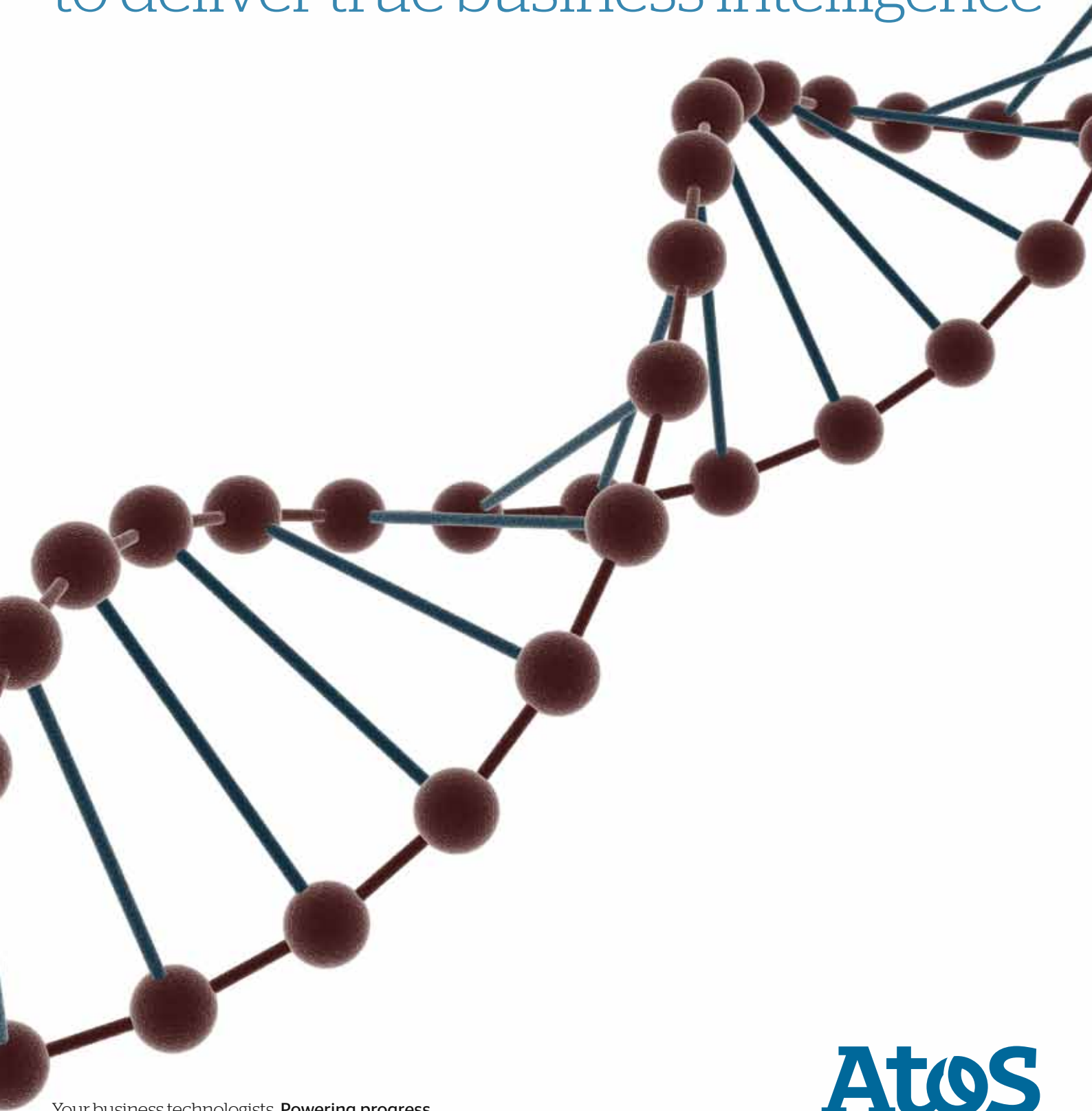


# redesigning the data landscape

to deliver true business intelligence



Your business technologists. Powering progress

**Atos**

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# The changing face of data complexity

The storage, retrieval and management of data has driven the IT strategy of many businesses for years, with investment in data warehouses, business intelligence solutions and sophisticated analytical tools helping organizations to extract the knowledge needed to make faster, more informed and consequently better decisions. But, as the complexity and volume of information that flows in and out of every business continues to grow, will these systems be able to cope?

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Today we are faced with exponential growth in the information that we need to store, much of it unstructured, making it more difficult to accommodate within traditional business intelligence (BI) models. Every year we add new layers of data, requiring new formats and an expansion of the physical media needed to contain them.

At the same time we are struggling to take advantage of the value that data holds, using the analysis of single, larger data sets to identify trends and detailed insights more effectively. This 'big data' problem is pushing existing BI systems to their limit and there is the real possibility that they will become victims of their own success, unable to handle the volume needed to deliver business value. There's a danger that the intelligence within that data will be lost in the complexity needed to store it.

However, it's not just the volume of data that is changing, but also the nature and complexity of the information that the data contains. Take the exponential growth of social networks with their global, 24-hour reach and availability. Look at how mobile devices (and in fact devices throughout the home and business such as smart meters) are now collecting and in many cases sharing information on a massive scale – and consider geographical data, adding a further layer of information by telling us not just the what and the when, but also the where. A new approach is needed.

## Enabling business performance

Any business intelligence system should provide the foundation for further services, the means to an end rather than a goal in itself. Thus it must address the needs of the business, based on a detailed understanding of the goals and objectives of the organization, to provide:

- ▶ An improvement in your cost base as your business moves towards more effective decision-making, driving greater efficiency which in turn leads to business agility and competitive advantage
- ▶ Reduced total cost of ownership as redundancies and duplications are rapidly identified, leading to a reduction in IT costs and freeing capital for investment elsewhere
- ▶ Greater agility, as collaboration becomes easier, leading to faster time to market at a lower cost, while also driving better relationships across the supply chain
- ▶ Security and compliance enhancements, making it easier to open up the potential of globalization at much lower risk

- ▶ Transformation readiness, simplifying the process of implementing major change
- ▶ Better intelligence and reporting through in-depth analysis and pattern recognition of structured and unstructured data
- ▶ The ability to accommodate and interpret new data sources such as those linking location with other information (geographical data) or complex, dynamic relationships (social media) to deliver predictive data and social analytics
- ▶ Solutions based in the cloud, delivering on-demand and mobile services.

We will work with you to define the right technology for your current needs, ensuring that you are able to optimize your business intelligence processes to make faster, more informed decisions. As a result our solution will be flexible enough to adapt as the data model of your business, and that of your industry, evolves.



### **A system on the edge**

- ▶ Current BI systems are reaching their limits
- ▶ Big data and greater complexity are overwhelming them
- ▶ A new model is needed to accommodate the changing data landscape.

### **The drive for business value**

- ▶ Greater efficiency and lower cost
- ▶ More advanced and in-depth analysis
- ▶ Easier access combined with greater security.

### **A multi-layered structure**

- ▶ Delivers agility and removes silos
- ▶ Expands capacity but reduces complexity
- ▶ Puts intelligence back in the hands of the user.

### **Delivered by an expert partner**

- ▶ Proven approach for handling massive, complex systems
- ▶ Strong alliances with leading industry specialists
- ▶ Global capability with sector expertise.

# Structured methodology for greater insight

Business intelligence is no longer about simply delivering the storage and processing power to handle increasingly large volumes of data. The technology needs to be powerful but also more subtle in the handling of the various streams of information held within the system, with the results interpreted more effectively to deliver the best outcome for the business.

This means adding the ability to perform complex pattern recognition, implement predictive analytics and cross-match structured and unstructured data to identify trends that were perhaps previously concealed.

To achieve this you need to consolidate and align your existing data warehouses and databases, removing any remaining siloed areas and ensuring a free flow of information across your entire business intelligence infrastructure. Part of this involves the careful development of a metadata model that helps define the way in which data is stored as well as an insight into its quality. By ensuring that there are clear and coherent structures to contain the data within any BI implementation, your company will lay the foundation for a robust and flexible

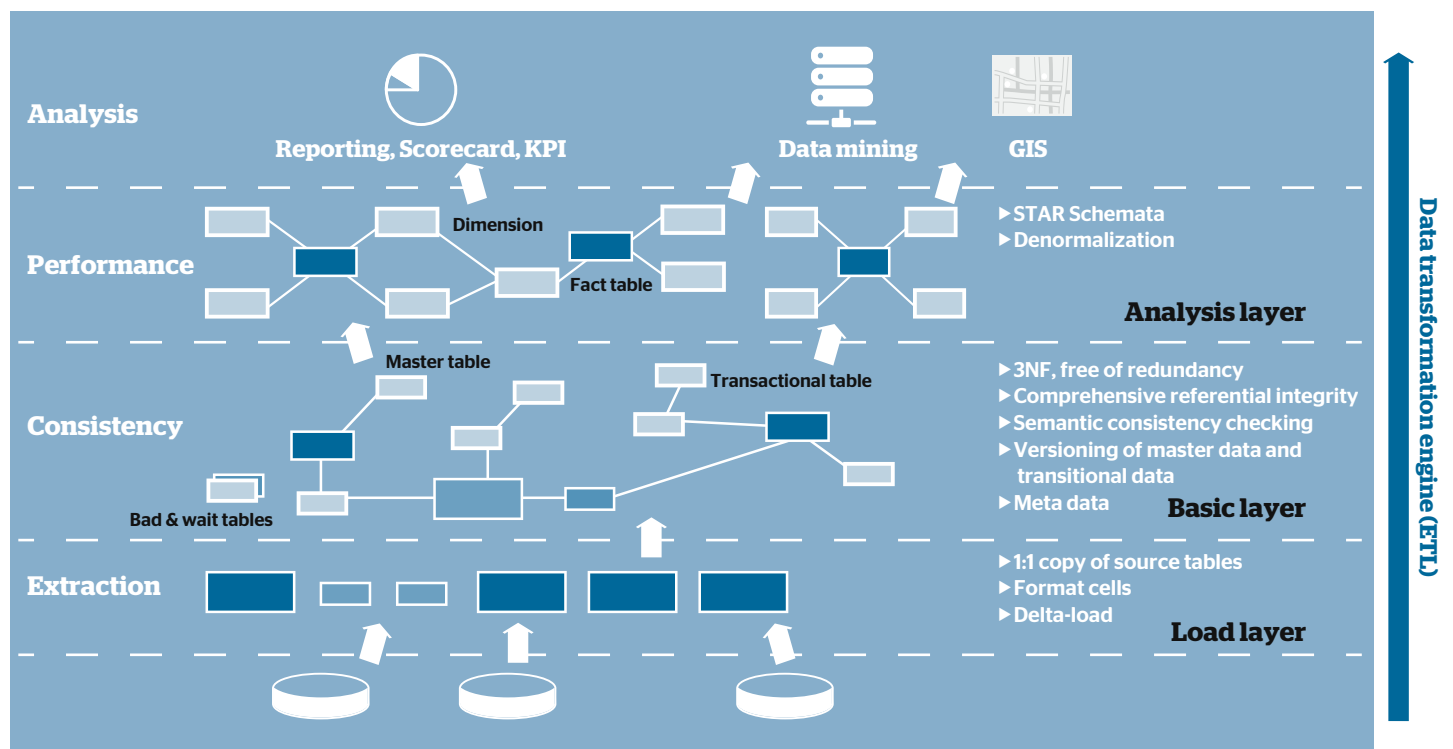
approach that will support the advanced analytical and interpretive functions required by the new system. This metadata backbone will also provide the infrastructure to accommodate different forms and types of data in virtually any volume. Once this has been achieved it is possible to move towards a more layered approach to data management and analysis.

## A multi-layered structure for the new data warehouse

Our methodology segments the business intelligence solution into distinct areas. This provides the flexibility to modify the way in which different forms of information (structured or unstructured, complex or simple) are handled.

By moving data through these four stages we can effectively provide a limitless number of handling pathways, delivering the flexibility needed to extract, process and interpret almost any volume of information from any source. Ultimately this maximizes efficiency and agility whilst delivering the best possible intelligence.

Our layered approach delivers the ability to create a flexible solution that can meet your business needs. High performance tools support the deep analytical processes essential to coping with the largest and most complex data sets with results provided through a range of 'anytime, anywhere' reporting solutions.





## Extraction

The data is brought into a structure that can be handled by the system regardless of source. The data format is verified, enabling any issues to be flagged and resolved at this stage before 'polluting' the data pool. Care is taken at this stage to minimize the risk and impact on any legacy systems to ensure that you can operate on a 'business as usual' basis throughout the transition.

## Consistency

This is when the 'housework' of data processing is performed, creating a consistent, non-redundant master data set - the 'single point of truth' - that can be taken into the engine of the BI system for processing.

## Performance

At the heart of the solution is the processing of the data in preparation for the more advanced analytical platforms of the new model. As this has already been verified and brought into a consistent structure this function is able to operate at optimum efficiency. This stage also ensures that the data warehouse architecture is open and, wherever possible, platform independent to simplify the implementation of future developments.

## Analysis

To support the needs of the user the outputs are then optimized for data mining, Geographic Information Systems (GIS) and other analyses, providing the basis for reporting but also to support other workflows and processes. This is where the final value of the data is realized.

# Hidden value: seeing beneath the surface

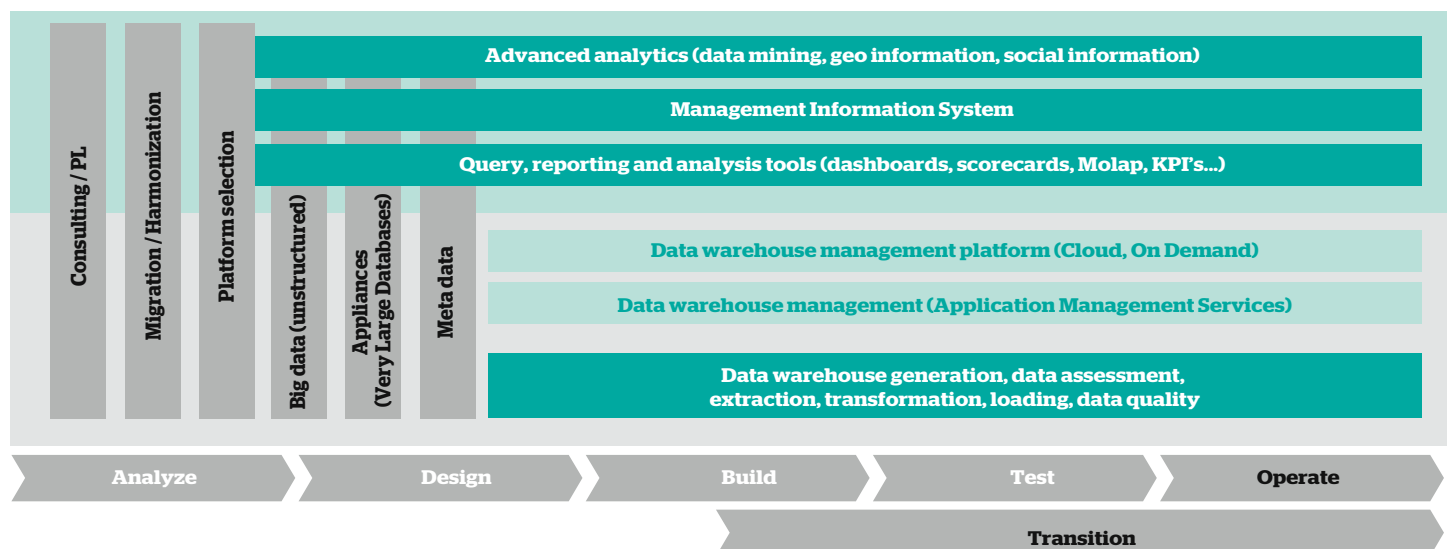
Data alone is worthless. It is only when you can see the connections, analyze relationships and determine the meaning within each item or set that it becomes valuable. For example, the use of geographical information has become a part of everyday life for most people, with thousands of smartphone applications making effective use of location-based services.

For consumers this information helps them navigate a new city, find the nearest bar or restaurant or even locate nearby friends. The same tools are powerful sales-enablers for many businesses serving consumers as they are able to exploit this information as part of their marketing strategy, for example targeting promotions at customers as they enter a store or restaurant.

However, other businesses are now realizing the potential of geographical information systems (GIS) to enhance their business processes, particularly when mapping geospatial and management data to provide a previously unavailable view of the organization's efficiency.

This is also true of the data held within social media and other collaborative networks as well as the more complex information that can be mined from within big data or the productivity gains of data access on the move.

The analytical methods made possible with these systems deliver new insights into complex data warehousing solutions, perhaps providing a visualization of sales figures based on a sophisticated analysis. This can then be graphically illustrated to give a much more easily interpreted representation of the information contained within the data.





## Expanding the horizon of business intelligence

As business technologists we apply our detailed knowledge in every sector in which we operate, focusing first on business advantage backed by our technology leadership to support sound business decisions.

With more than 15 years' experience in developing market-specific solutions we have optimized our BI offerings to deliver the most effective results for the needs of your business within the specific context of your industry. Advantages of our approach:

- ▶ **Worldwide BI capacity with near and offshore capabilities**
- ▶ **Expertise in very large data volumes**
- ▶ **Partnership with Oracle, SAP, Microsoft, IBM and SAS**
- ▶ **Consolidation and migration skills within our BI team**
- ▶ **Consulting of analytical aspects and physical aspects**
- ▶ **Proven methods and tools for implementing complex solutions**
- ▶ **Geographical information skills aligned with BI.**

Atos provides the consultancy and design skills to ensure smooth implementation and integration with your existing systems, managing long-term evolution of your business intelligence solution to suit the changing needs of your business.

## Maximize your commercial advantage

As a specialist in developing new business intelligence solutions we can help you consolidate your existing data to create a system that drives improved business performance: providing anytime, anywhere on-demand access to the information you need. By improving your existing processes and developing a structure that can store and interpret all forms of data (geographical, social, big data) we are able to help you recognize new patterns, open up new opportunities and maximize the commercial advantage of the information within your business.

## Government department for road toll collection uses GIS to manage motorway traffic

The German Federal Office for Freight Traffic gave Atos the task of creating a data warehouse to monitor the toll collection company responsible for all processes relating to administration of the motorway toll system.

To achieve this, an integrated system was developed to handle distance-related toll collection across the entire toll-based motorway network. This highly complex process involved the creation of a complete set of route data for each journey, collected by an on-board unit on every freight lorry. Each of these individual journey metrics then had to be checked against specific key performance indicators set by the German Government.

Using the Atos multi-level database system incorporating a fully featured GIS it was possible to handle more than 15 million records per day. With flexible reporting and visualization of key performance figures using both maps and spatial analysis.

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# About Atos

Atos is an international information technology services company with annual 2011 pro forma revenue of EUR 8.5 billion and 74,000 employees in 48 countries. Serving a global client base, it delivers hi-tech transactional services, consulting and technology services, systems integration and managed services. With its deep technology expertise and industry knowledge, it works with clients across the following market sectors: Manufacturing, Retail, Services; Public, Health & Transports; Financial Services; Telecoms, Media & Technology; Energy & Utilities.

Atos is focused on business technology that powers progress and helps organizations to create their firm of the future. It is the Worldwide Information Technology Partner for the Olympic and Paralympic Games and is quoted on the Paris Eurolist Market. Atos operates under the brands Atos, Atos Consulting & Technology Services, Atos Worldline and Atos Worldgrid. For more information, visit: [atos.net](http://atos.net)

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