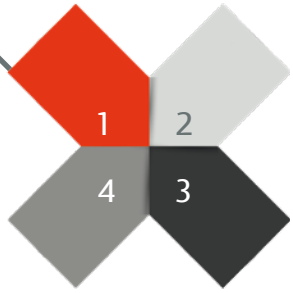
antares

BI travel guide

[We take you on a journey into everything related to Business Intelligence

1 Business Intelligence

2 BI matrix



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[1. Introduction

In today's world, companies face a variety of challenges, including the analysis and evaluation of ever-growing volumes of data caused by increasing business and environmental risks, transparent business models and changing customer requirements.

This requires prompt action at both operational and strategic levels. As a result, there is a growing demand for Business Intelligence (BI) to make sound and secure business decisions based on accurate and up-todate information.

„A BI software for data analysis, reporting and querying helps business users gain control of large amounts of data and extract valuable information."

Christian Maier, former CEO
antares Informations-Systeme GmbH

When choosing a BI software, companies face a complex task and usually find it difficult to navigate the market of numerous BI providers.

Due to digitalisation and the growing pressure to always and NOW perform, new trends and requirements are increasingly emerging in the BI environment, which flood potential users when searching for the right BI software. It can easily happen that decision makers and users lose the overview.

New BI topics such as Self-service BI, data lake, geo & location intelligence are some of them. In view of this, the question is: Which BI trends are important for companies today and which will be relevant in future?

In this BI travel guide, we take you on a journey around BI. We prioritise and clearly present important BI topics for companies that are important today and will remain relevant in the future.

1.a What is BI?

Business Intelligence comprises procedures and processes for systematic data analysis. This involves the collection, evaluation and presentation of data. The goal is to gain relevant insights that enable better and safer business decisions. This is done with the help of analytical concepts and corresponding IT systems or software, the so-called Business Intelligence solutions.

BI is a process that transforms data into information, which in turn is transformed into knowledge by applying experience. This classic approach therefore includes all processes and systems with which market, competition and company data can be systematically analyzed. In short, BI is understood as the decisionoriented collection, processing and presentation of business-relevant information.

1.b BI goals

The goal of Business Intelligence is the generation of success-oriented knowledge about the current status and future perspectives of your company as well as the respective business environment.

1.c BI challenges

The challenges of BI should not be underestimated. The biggest challenges from our practical experience are the following:

Networking of more detailed information

We see the networking of detailed information as a great challenge. Rapidly increasing amounts of data and the desire to gain more and more detailed information about products, risks, customers and markets are a great challenge.

The constant urge to network sales with production is a common occurrence in practice. Complex questions about production optimisation, such as „When is the best time to send out my field service?" should be answered in seconds.

However, answering such questions is associated with a high degree of complexity. The integrity and significance of the information requires analysis and development costs and depends on existing technical equipment as well as specific technology, database and BI know-how.

Interlocking of digitalisation and BI

Digitisation is the process of converting any type of analog signal into a digital format.

In practice, this means that manual or indirect business processes are transformed into online, network and computer-supported processes. According to a McKinsey study, the benefits of digitising informationintensive processes are enormous. Costs can be reduced by up to 90% and processing times improved enormously.

With the introduction of digitalised processes, the topic of BI is taking on a new importance in companies. On the one hand, data must be sensibly analysed and evaluated (Analysis & Reporting), on the other hand process data must be made available „just in time" (Monitoring).

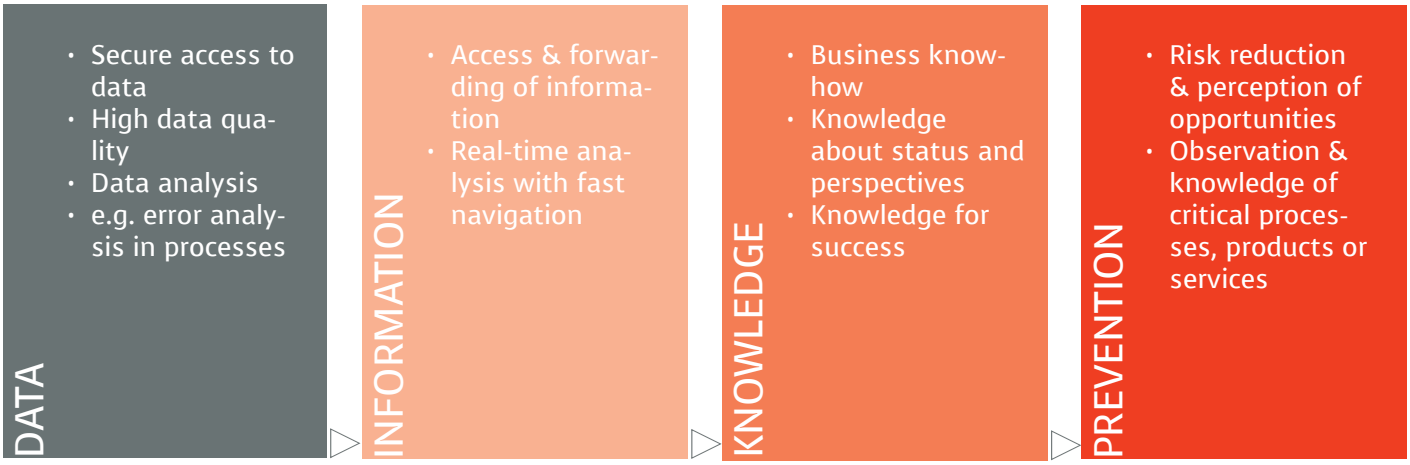
BI goes hand in hand with digitisation and must react to new digitisation processes. Many companies, however, view these two issues independently of each other, despite potential performance improvements.

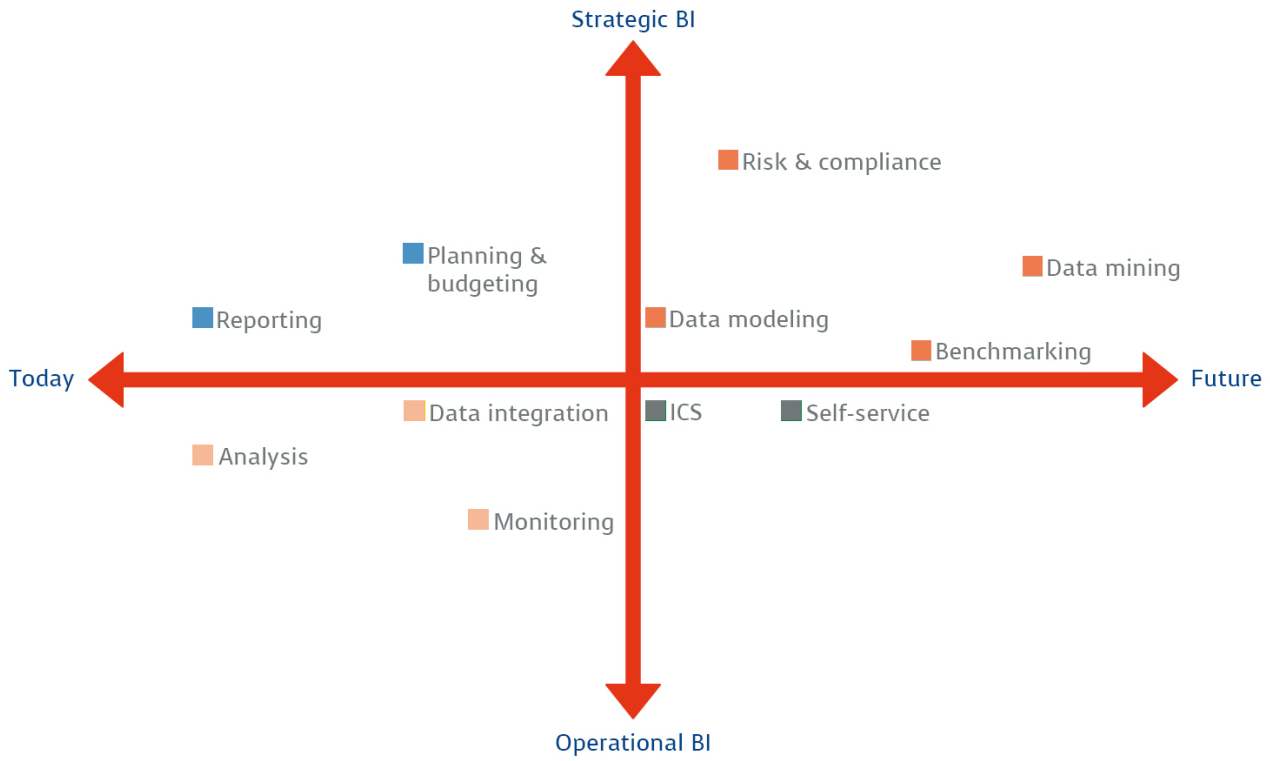
In the following description you can see the goals of BI presented in the context of the classic process:

[2. Structure & meaning of the BI matrix

Based on our 30 years of experience in the BI market, we weight existing, important and future relevant BI topics in the following matrix.

The BI topics we have selected are categorised into strategic and operational BI as follows, as well as thematised in terms of their current and future relevance.





2.a Strategic & operational BI

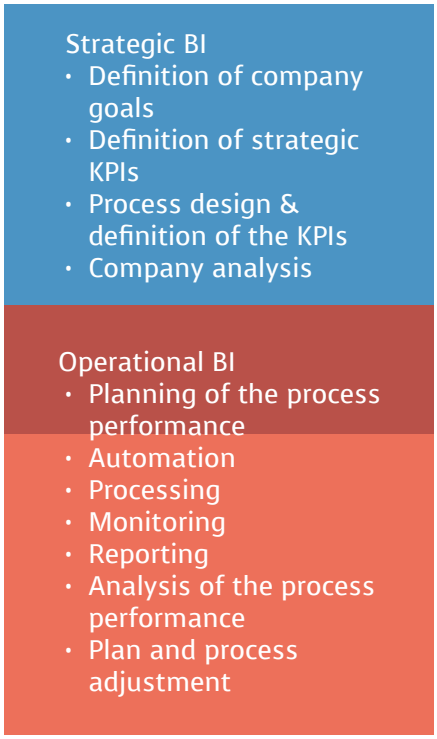
The fundamental difference between strategic and operational BI is that operational BI primarily analyses past events, undesirable developments and problems. It also uses reporting tools.

Strategic BI, on the other hand, is a future-oriented, global approach to optimising business processes. BI can be split into two levels.

The strategic level is used to define corporate goals and key figures as well as to change processes. The operative level, on the other hand, is concentrates on the observation, control and optimisation of processes.

The goals at the strategic level are implemented concretely at the operational level.

In the following illustration both layers are shown as interlaced circles. The strategic indicators are derived from the company analysis and goals. They form the basis for the design.



Reporting and the subsequent analysis of process performance provides the actual data, which is compared with the targets. If discrepancies occur, adjustments are made - either to inefficient business processes or to the corporate strategy. If revisions in the corporate strategy are necessary, adjustments are made at the operational level.

2.b BI topics

Important components of a BI solution are the following topics:

I - Data mining

What is data mining?

Data mining uses findings from the areas of computing, mathematics and statistics to analyse data sets in a computerised way. Analysts use artificial intelligence, among other things, to examine large data sets for new cross-connections, trends or patterns. Data mining automatically extracts the correlations and makes them available to higher-level goals. The recognised patterns help to facilitate the decision-making process for specific problems.

Data mining tasks

The methods applied for data mining have specifically defined objectives and are arranged into individual tasks. These tasks can be broken down as follows:

- Classification: Ordering of certain classes to individual data objects.
- Forecast: Prediction of previously unknown features based on other features or previously gained knowledge.
- Deviation analysis: Identification of objects that do not comply with the rules of dependencies of other objects.
- Segmentation: Combining objects with shared characteristics into groups.
- Dependency analysis: Finding the correlations between individual characteristics of an object or between different objects.

II - Data integration

What is data integration?

The wide range of information collected and evaluated by a company is rarely stored in a single database or in a specific format. The analysis software deals with the holistic view of the company based on this diverse information.

Data Integration is a process in which data from multiple databases is pooled for use in an application.

Simply put, data integration is a significant connection between data and knowledge. This helps companies ensure that their various databases are linked together.

Analytics software relies on precise data conversion to create dashboards, visualizations and reports that reflect accurate, consistent information across the company.

Challenges of data integration

If the data quality is not maintained, expensive postprocessing can be expected. The large amount of data confronts users with major volume and diversity challenges.

In practice, in-house applications are regularly developed to transfer data from different sources into a streamlined format. However, as soon as the quantity and diversity of data increases, the user becomes overwhelmed with the data management requirements. This then calls for complex coding and elaborate hardware investments.

There are advantages and disadvantages for any data integration effort. The most effective solution depends on the resources and requirements of your own company.

Advantages of data integration

Optimal data integration frees you from manual analyses and forecasts. It reduces the likelihood of errors during data conversion.

III - Data modeling

What is a data model?

A data model refers to the logical relationships and data flow between different data elements involved in the information world. It also documents the way in which data is stored and retrieved.

Data models show which data is used and which format is required for different business processes. Data models simplify the communication business and technical development by accurately representing the IT system's requirements and by designing the answers needed to meet these requirements.

Data components

A data model can be concrete or abstract. It includes the following main components:

1. Data types 2. Data elements 3. Data sources 4. Event sources 5. Links

Data models are represented by the data modeling notation, which often occur as a graphical format. Their main focus is on supporting information systems, addressing the format and definition of the various data.

Information stored in data models is of great importance for companies. These explain the relationships between database tables, foreign keys and the events involved.

The three basic styles of a data model:

- Conceptual data models
- Physical data models
- Logical data models

IV - Analysis

What does data analysis mean?

Data analysis is often referred to in connection with statistical studies. In a general sense, data analysis means obtaining information from the data presented.

Data is restructured, rearranged and presented using different techniques in order to present the findings as a way of solving problems. Data analysis can therefore be classified as an own process or technique in the wider context of process improvement.

Data analysis is a self-contained process that helps to improve business processes. Nowadays, businesses rely on data analysis software in order to highlight and better understand their business processes with the help of data-analytical actions. Only in this way can business risks be reduced and prevented from the outset.

V - Reporting

Reporting is a key factor for success. The rapid availability of relevant information is a modern requirement for effective company management. Employers react instantly to market opportunities and negative sales or cost developments to be successful in the long term. For this reason, adequate reporting plays an important role in competent company management.

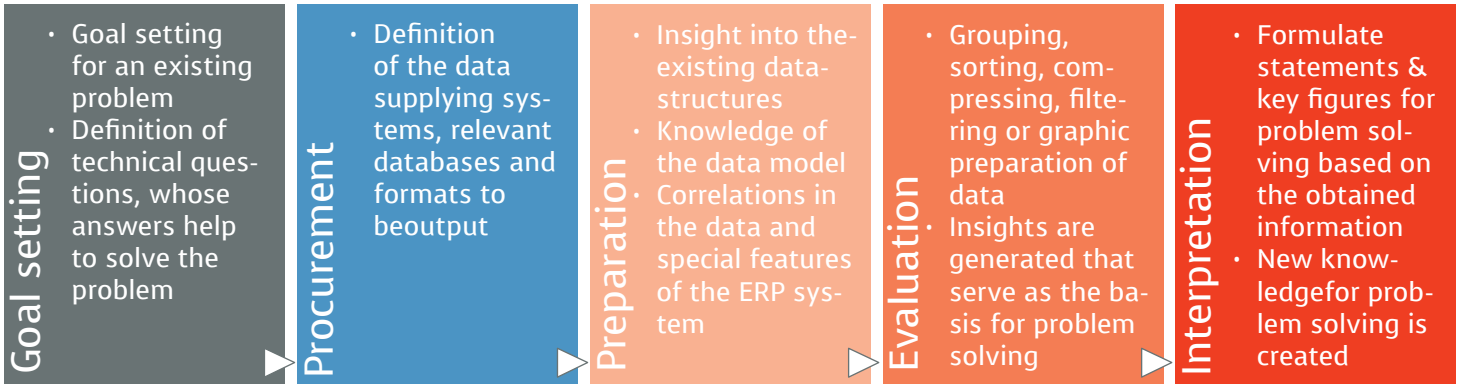
Reporting tasks

Reporting deals with the analysis of business development. To do this, controllers, among others, draw comparisons between actual and target values. They identify whether individual departments are meeting budget requirements or not.

In the reporting system, expert employees regularly prepare reports for the management, such as reports on the development of sales.

These standard reports provide the department heads and other managers up to the executive board/CEO with essential information in a timely manner.

Process of data analysis



The aggregated and evaluated data of the standardised report enables managers to fulfil monitoring and management tasks.

In addition, the operational reporting system offers authorized employees the opportunity to generate additional evaluations on current issues at any time.

VI - Monitoring

The present consensus refers to monitoring/continuous observation of corporate performance.

What is data monitoring?

Data monitoring is a standard business practice in which critical business data is routinely checked for quality requirements. The aim here is to ensure high data quality and maintain the specified standards.

Why use data monitoring?

Data monitoring enables companies to proactively maintain a consistently high standard of data quality. By routinely checking the data stored, companies can avoid the need for lengthy data preparation.

How is data monitoring done?

Data monitoring proactively checks new data against rules (before the data is saved). If data quality problems occur, a warning about the rule violation is sent to the administrator. These rules can be created and edited as needed to enforce new data quality targets.

What are the advantages of data monitoring?

Data monitoring increases business agility by enabling new initiatives with data to be executed immediately without time-consuming data preparation phases.

VII - Planning & budgeting

Planning and budgeting are used to specify monetary targets for the coming fiscal year and to set up a roadmap to ensure that the planned figures are met. Subplans are coordinated and the underlying conditions as well as possible future developments are analysed. The budgets drawn up serve as an orientation for the management.

Weaknesses of traditional budgeting

Rigid fixation on the accounting period
- No sufficient foresight into the future.
- Link to strategic goals remains unnoticed.
- Past orientation instead of future orientation.

Poor cost-benefit ratio
- Lengthy coordination processes and a high level of detail force the use of personnel resources - not only in controlling but also in the departments involved.

Low appreciation of the planning
- Shortly after the adoption, the planning is already outdated again.
- Dynamic environmental conditions aggravate this problem.

Approaches for modern budgeting

Better Budgeting
- Permanent further planning development.
- Improving the efficiency of existing systems and methods.
- Cautious reduction of planning details.
- Improved IT support of the budgeting process.
- Introduce regular forecasts

Advanced Budgeting
- Implement short-term measures aimed at increasing planning quality while reducing the resources used.
- Integration of external benchmarking variables into planning, which is accompanied by an increased use of relative planning targets.
- Significant reduction of planning details and a stronger link between strategy and operational planning.
- Integration of non-monetary variables into planning and implementation of a rolling forecast process.

Beyond Budgeting
- Abandonment of fixed planning specifications.
- Relative targets replace fixed budget sizes.
- Decentralisation of responsibility and thus foregrounding flexibility, creativity and performance incentive in the company.
- Budgeting processes change, demand and promote a change in corporate culture.

VIII - Benchmarking

Basics of benchmarking

In the economy, benchmarking is an important instrument for improving one's own market position and a requirement for a good existence in the competition between companies. Especially since companies today are facing increasing competitive pressure. In order to carry out a comparison of performance efficiently, the instrument benchmarking serves the economy.

Types of benchmarking

Basically, there are three approaches to benchmarking, from which essential criteria can also be derived for a software application usage:

Partial benchmarking
- Key figures and/or performance indicators are set and compared side by side.
- Effect connections are not considered here.
- The use of software is limited to simple reporting.

Multidimensional
- Parametric and non-parametric frontier and average approaches.
- With these approaches an impact analysis is aimed at.
- The data envelopment analysis (DEA), for which special software exists, seems to be a future-oriented approach.
- Most existing ERP systems can be extended via ETL processes.

Data mining
- Generate meaningful key figures, whereby above all external benchmarking and the procurement of key figures from outside the own company experiences enormous enrichment.
- Drawing new insights for management, especially process optimisation, from the data treasures.
- Data mining has hardly been covered by common ERP systems so far - a special software is usually used for this purpose.

Benchmarking is thus the search for the best practices that lead to top performances and provide a good opportunity for a company to learn from the experiences and results of others. This promotes the further development of the own company.

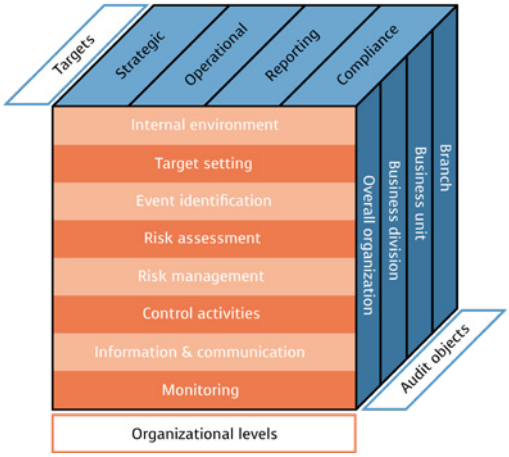
IX - Internal control system (ICS)

What is an internal control system?

The ICS is software-supported, internal process control along with the documentation and monitoring of corporate activity in companies. Malicious and negligent activity in companies is prevented using an effective internal control system. Thanks to complete documentation of process controls and workflow-supported monitoring, an ICS ensures that your business processes run efficiently, transparently and safely.

ICS elements

The requirements that an ICS has to fulfil are described in various frameworks. The most popular among them is the "Internal Control Framework – COSO". This framework represents the internationally recognised standard for company-wide risk management. This forms the basis for building a more comprehensive risk management system with an ICS system.



In 1992, COSO (Committee of Sponsoring Organizations of the Treadway Commission) first introduced the COSO model, a recognised standard for internal control. This control model served to document, analyse and design the Internal Control System (ICS) and was supplemented by the COSO ERM Framework in 2004, also known as COSO II.

COSO II consists of eight components, which are to be considered from two different dimensions. In the first dimension, the components relate to the various organisational levels, while in the second dimension - depending on the objectives - they focus on aspects of strategic processes, operational business activities, reporting and compliance.

ICS goals

- Functionality and efficiency in business processes.
- Reliability of operational information.
- Asset management and compliance.
- Detect and prevent errors and irregularities and reduce possible effects.

X - Risk & compliance management

The number of nationally and internationally applicable standards for the various business areas is constantly growing, making corporate decision-making processes more difficult. Often a lack of (or poor) risk management is often the reason for corporate risks which lead to insolvency, loss of receivables or job cuts.

Risks don't have to be dangerous. Conscious, controlled risk management is an opportunity to secure your company's existence in the long term and even generate a competitive advantage.

Compliance means "dutiful behaviour". It serves to ensure the development, activities and documentation of an organisation in this compliant form.

The knowledge of all obligations of the company, the entrepreneur and his employees (compliance with laws, regulations, contracts, standards, etc.) has priority.

In practice

Our aim is to identify and eliminate as many risks and loopholes in a company's processes as possible in advance. In practice, it can be increasingly observed that companies secure their actions through certification of general standards, such as the DIN ISO standards in recent years.

Management systems (Risk vs. compliance management) are often established as separate systems that are independent of one another, which can actually lead to additional expenditure and loss of information.

Integrated management system

An integrated governance, risk & compliance management system remedies this by removing these isolated systems and eliminating redundancies. Quality management, risk and compliance, integrated management systems and auditing are closely linked. Digitisation is not only increasing the requirements for the technical solutions to be developed. Companies and employees must also expand their skills in order to meet future requirements in the digital age.

Our tip:

With the help of an integrated management system, non-compliance, claims and liability cases can be avoided using preventative measures. Furthermore, potentials can be tapped into to optimise competitiveness as well as customer satisfaction and loyalty. In many companies, it has become apparent that both financial and human resources are wasted to cure problem cases. It is much more important to know the causes of the problems and to eliminate them before they can become problem cases.

[3. BI compass

The use of Business Intelligence for decision support is not a one-off project, but an ongoing process consisting of several phases.

In order to visualise this process, we have assigned our BI topics already listed above to a respective phase. We have also supplemented them with important BI drivers, which are - due to digitalisation and internationalisation - increasingly becoming the focus of companies today.

3.1. Structure & content

1st phase: Data

During the first phase, the collected data is quantified and qualified. This means that the quality of the data is collected and the data is then analysed using mathematical methods.

2nd phase: Knowledge

Afterwards, findings are derived from the results of the analysis and visualised by means of reporting, which supports the business processes.

3rd phase: Strategy

The third phase is concerned with the evaluation of these findings. The basis of the evaluation are the objectives of the company, its planning and budgeting.

4th phase: Prevention

In the final phase, the findings are converted into concrete measures. These implementations in turn provide the input information for the next BI cycle.

3.2. Meaning of BI drivers

As BI drivers, we see relatively new BI trends, which are increasingly coming to the fore in the BI market and have a direct impact on and drive the aforementioned BI topics in companies.

I - Software ergonomics

What is software ergonomics?

Software ergonomics describes the user-friendly design of data processing programs. It answers the question: Is the software user-friendly and easy to understand? The development of usable software is performed within the framework of usability engineering.

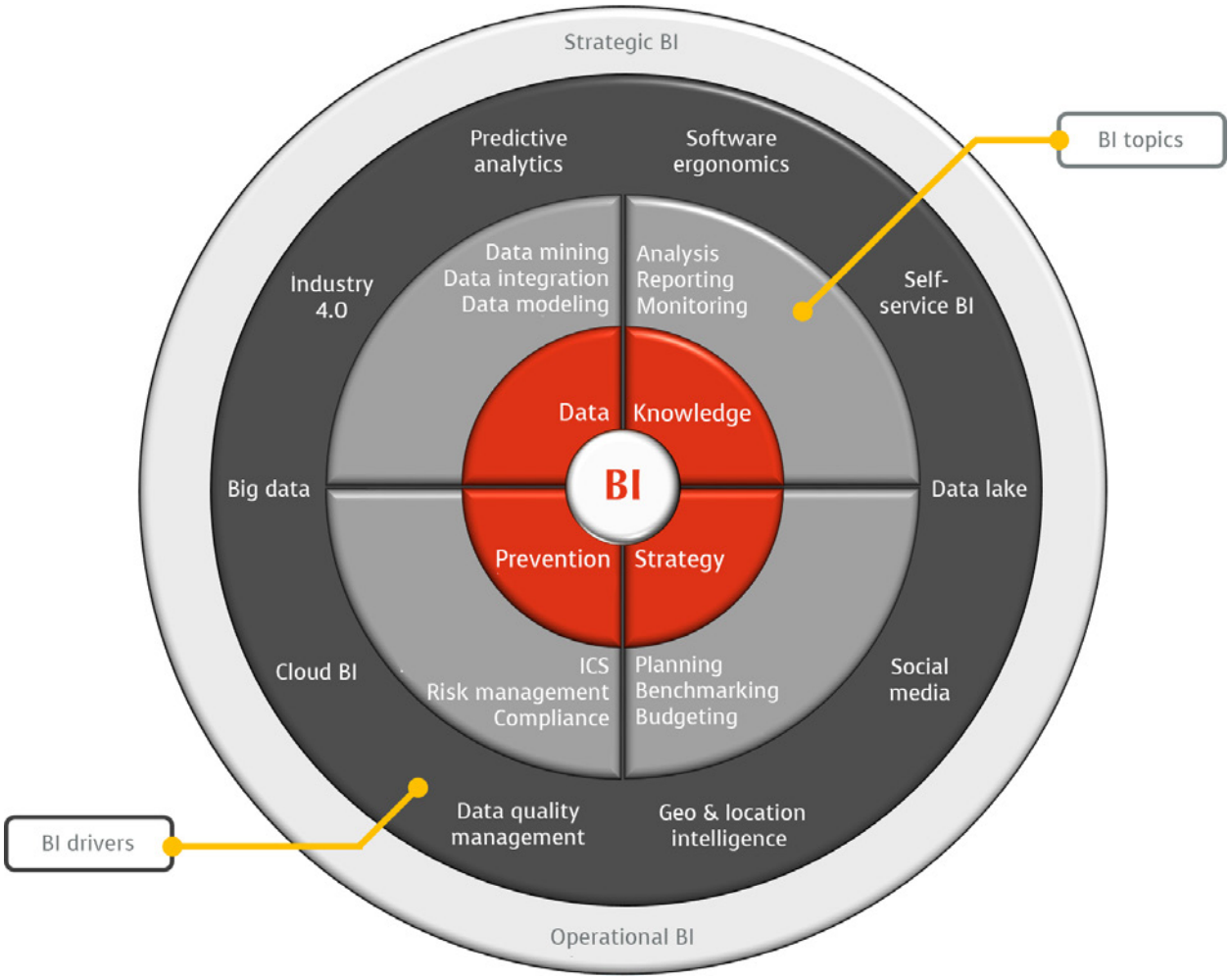
A decisive feature of software is its usability. A software has a good usability as soon as the user finds his way around and reaches his goals. It describes, how effectively, efficiently and satisfyingly the user works with it.

Evaluation of software ergonomics

A usability test is often used to evaluate software ergonomics. For this purpose, companies have selected test persons to test the software within a certain period of time and record which tasks cause difficulties or problems.

Our tip:

In the case of an unknown software or a demo version, it must be taken into account that the efficiency of the interaction with the software can often only be assessed after a longer training period. After a period of getting used to the software, it is usually possible to operate it much faster. Even with a fast motorised operation, one should be able to execute all functions without any operating errors.



II - Self-service BI

What is self-service BI?

Self-service BI describes independent access to company data by key users. Prior to the introduction of self-service BI, analysts were forced to directly contact the IT department with any data queries.

This created an additional workload for IT specialists and slowed down the work process. The implementation of self-service BI enables independent access and analysis by key users, thus reducing the workload on the IT department.

Our tip:

To enable this access, it is necessary to provide a suitable data warehouse, BI software and the application of reporting tools. The user interface should be intuitive to use, so that a reduction of the workload is guaranteed.

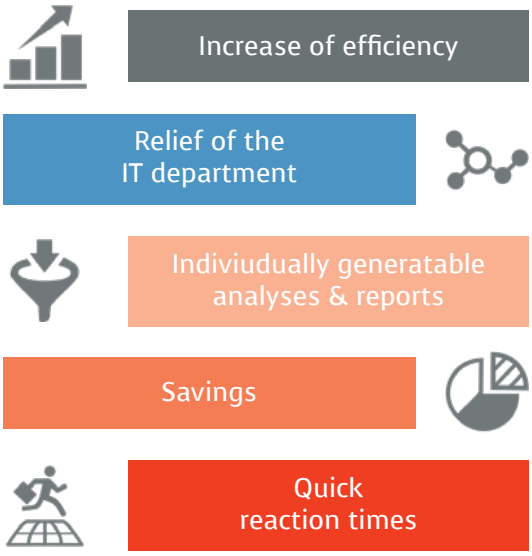
The introduction of a metadata dictionary can also contribute to a better understanding for non-specialist users. Self-service BI systems are often used in controlling, finance, marketing and sales, and wherever the analysis of company data plays a key role.

Requirements of self-service BI systems

When introducing self-service BI systems, care must be taken to ensure IT security for the companies. This can be achieved, for example, by training employees in the handling of data in the respective departments.

An other option is to introduce specific user rights to limit access to company data to selected personnel only. In addition, it should be ensured that data is processed uniformly, according to the company structure.

The advantages



III - Data lake

What is a data lake?

A data lake is a central storage repository that holds big data in a raw, original format until it is required. While hierarchically organised data warehouses place data in files or folders, in data lakes they are stored in a flat architecture.

The main differences:

1. Data storage

In short, all data is stored in data lakes, but not in data warehouses. During the development of a data warehouse, decisions are made about the usable data sources and necessary business processes. Data that is not required to answer specific questions or to produce a specific report is often excluded from the data warehouse to reduce costs and optimise performance. Data lakes, on the other hand, store all data - whether relevant or not.

2. Data types

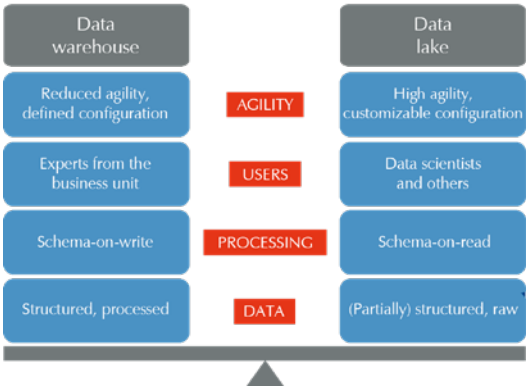
Most data warehouses store transactional data from systems or quantitative metrics, ignoring unstructured sources such as images, text or sensor data. Data lakes are more tolerant. They hold all data - regardless of its volume and different nature. The data is stored in its original form and is only converted when there is a concrete need for it. This principle is called „Schema-on-Read", in contrast to „Schema-on-Write".

3. Users

Data warehouses are often used by individuals who benefit from quick access to reporting data and effective delivery of analytical information to the management. Analyses based on data lakes can go even deeper. Typical users include data scientists, for example, who combine different types of data and develop completely new questions from them.

4. Changes

Today's business world is all about agility! However, many data warehouses are not designed for quick changes. The complex data loading process and the steps required to enable easy analysis and reporting make implementing changes expensive. The situation is different with a data lake. The data is stored in its original format and is always accessible, so users are not tied to a fixed structure like data warehouses, but can explore data in new ways and answer questions at their own pace.



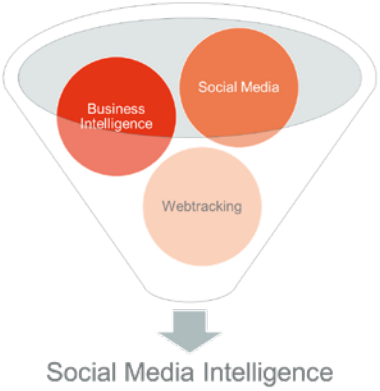
IV - Social media intelligence

Social media intelligence comprises the collection, evaluation and presentation of user-generated content on social media platforms. The goal is to collect and bundle information in order to derive management decisions regarding corporate strategy.

Social media intelligence does not refer to a single technology, but rather covers the entire process from the provision of data to the use of the findings.

Origin of terms

The social media channels of companies are often used for decision making. Web tracking bridges the gap between homepage performance data and data provided by social media channels. Business Intelligence is used to map overall web activities, such as on Facebook, Instagram and twitter. This results in a commonality that unites the areas of web tracking, social media and Business Intelligence.



Application areas

The field of application of social media intelligence is wide. The social media intelligence tools on the market cover the following application areas, among others:

- Competiton monitoring
- Trend & market analysis
- Opinion identification
- Customer relationship management (CRM)
- Product & innovation management

What is geo & location intelligence?

Standard BI software solutions give simplified answers to the "who, what and how much". However, the question of "where" is often not asked. As a result, an objective evaluation is only possible if all key influence factors and the spatial reference are taken into account.

Trend topic geo & location intelligence

BI applications or management information systems (MIS) are usually based on alphanumeric - but not on geographical representations. This is changing with the availability of new tools called mapping plug-ins or map components for BI.

Geo location intelligence starts with the tracking of information on a geographical map, so-called geocoding. In terms of data refinement, this data is now specifically enriched with business-relevant, external data (such as purchasing power, product affinity, socio-demographic key figures).

In practice

Some companies afford their own GIS (geo information system) or geo marketing departments, which often provide special, location-based analyses and map information. For corporate management, controlling, marketing or sales optimisation this spatial information is as relevant as performance indicators and numberbased information from established BI systems.

V - Geo & location intelligence

The benefits are measurable

ROI
- Added value through GIS, BI and data warehouse investments to integrate the systems.

Data quality
- Geo coding and data refinement increase the value and quality of existing customers.

Entscheidungsqualität
- Make better decisions based on a new perspective on business relevant data.

Prozessqualität
- Optimised business processes through integration of spatial information.

VI - Data quality management

Data quality management comprises all measures which enable the asset-based view of company data.

Significance of DQM

Data quality illustrates the suitability of data to describe reality. It therefore answers the question of to what extent a model represents the actual situation. In particular, it outlines how reliable data is and how it can be used as the planning basis for corporate activities.

Decisions are made, market opportunities evaluated and negotiations conducted based on this data. A correlation between data quality and decision-making quality can be found here. Therefore, data quality is of major importance for decision-makers.

Drivers for DQM

Drivers for data quality management include IT compliance, process integration along the value chain and customer-oriented business models. Compliance with existing legislation, data protection, rights on data and related information technologies are of great importance.

The reasons for poor data quality are often lack of accountability, human errors, regional differences in interpretation or redundantly stored data.

Poorly processed or incorrect data cause financial losses in many companies. Data quality management prevents this.

Examples from the practice:

Telecommunications

End customer management is possible as soon as all contract and invoice data is consistent, up-to-date and quickly available - regardless of the sales channel.

Production

In strategic purchasing, core data on suppliers should be available consistently and correctly across different divisions. This creates transparency about hierarchical relationships, so that reliable analyses can be carried out for supplier evaluation and procurement sources.

Chemistry

As the number of regulatory and legal requirements grows, the demands on corporate reporting and risk management also increase. Registration and traceability obligations in the chemical industry cannot be realised without high-quality data.

VII - Cloud BI

Cloud BI makes analysis and reporting functions and their associated content available on the internet. Also known as "Software as a Service" (SaaS), cloud BI requires that all necessary components are made available and manageable independent of location. Usually through a third-party hosting service provider. Users then access all features and functions of the Cloud BI application over the internet, i.e. via public or private Clouds.

Companies find cloud BI to be a more cost-effective option than traditional, on-premise managed BI solutions, especially since there is no high initial investment in software licenses and associated hardware. The entire infrastructure is purchased, installed and tested by the hosting service provider. All hardware and software is monitored and managed at the provider's site. There are various purchase options for Cloud BI, depending on usage, including payment of a monthly subscription fee.

Benefits of Cloud BI

A Cloud BI approach essentially shortens the time to market and the payback period, since all components are often already installed at the hosting service provider's site. A further benefit is the increased flexibility. Companies can add new users and functions faster than with traditional BI applications. The environment can be expanded as needed and at any time without hiring more IT staff.

Cloud BI solutions enable increased flexibility withbetter cost transparency.

Subject: Security

Cloud BI raises questions about data security and storage location for companies. Company-critical data must be securely transferred to the Cloud and effectively protected against unwanted access. For this reason, regulatory requirements exist regarding the secure storage of data within the EU.

VIII - Big data

Big data stands for large digital data sets as well as their logging and evaluation. Big data is also a collective term for all of the associated digital technologies, architectures, methods and processes required.

Large volumes of data worldwide

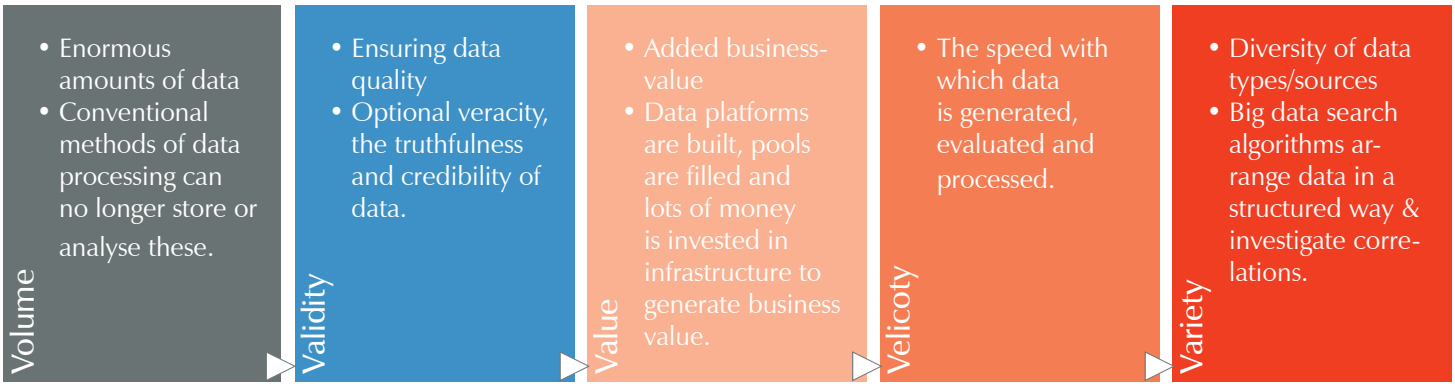
Experts believe that digital data volumes will increase ten-fold worldwide in the next years as a result of the internet, social networks and mobile devices.

The enormous amounts of data are usually checked for correlations using a search algorithm. This requires the combination of several disciplines, such as classical informatics, data science, machine & deep learning and artificial intelligence via mathematics and statistics.

Is it only about data volumes?

Big data primarily defines data quantities that are too large or complex, or which change too quickly. They may also be too poorly structured to evaluate them using manual and traditional data processing methods.

The 5 basic Vs of big data



IX - Industry 4.0

Digital transformation in the industry

When components communicate independently with the production plant and, if necessary, arrange for repairs themselves or re-order materials - when people, machines and industrial processes are intelligently networked, then we are talking about Industry 4.0.

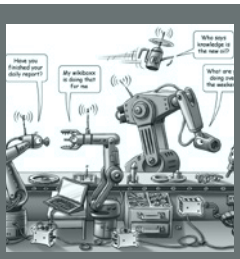
In Industry 4.0, production interlocks with the most modern information and communication technology. This allows products to be manufactured according to individual customer requirements. Industry 4.0 makes it possible to produce individual items at the price of mass goods and in the highest quality.

The technical basis for this are intelligent, digitally networked systems and production processes. Industry 4.0 determines the entire life phase of a product: from the idea to development, production, usage, maintenance and recycling.

More flexible, individual and efficient production

The use of digital technologies in industry will generate a multitude of new production processes, business models and products.

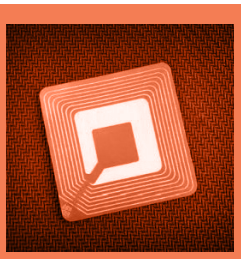
Industry 4.0 schematic



Intelligent machines exchange information with each other. They can organise themselves independently and coordinate processes and deadlines together. Production becomes more flexible and efficient. Machines communicate directly with all the company's IT systems. A flow of information to sales or the R&D department is possible.

Machines exchange data not only within the production facility. They are also networking with systems of suppliers and customers, which enables them to react to deviations. In the event of supplier failure, alternative suppliers are analysed with regard to their capacity utilisation and commissioned automatically.

Here the human being as the „augmented operator" remains the central component of production. He controls and monitors the production processes. With the help of IT-based assistance systems such as data glasses, he can „virtually" expand his view of the real factory (augmented reality).



With the aid of tiny RFID chips, for example, every Smart Product carries data about operating and product states. Depending on the intended use, this information is collected, updated and evaluated throughout the entire life cycle of the product, from the first production step to the usage by the customer and recycling.

In addition to the real production facility, there is a digital twin of the Smart Factory, including all products and resources. The digital representation allows all production processes to be virtually simulated. The screen then shows alternative production processes and the optimisation potential of the production lines.

X - Predictive analytics

What is predictive analytics?

Predictive analytics primarily deals with future and potential events. It answers the question of what will happen under any given circumstances. Data visualisation of the forecast results using accompanying software is usually carried out first. This is then interactively discussed, transferred and processed in teams.
The processing of all data that is collected in companies is challenging:

- Is all of the available data being used?
- What level of detail is considered in the analyses?
- How does data need to be modified to be "ready for predictive"?
- Which mathematical model suits the particular application?
- How can you prove that the predictive analytics approach works in an evaluation?

With the right data mining approach to better decisions.

Supervised Learning

Generate reliable predictions regarding defined goals based on existing data? With the supervised learning approach, the algorithms used learn the decisive and action-relevant levers of the operative business and create a mathematical model of the business reality.

Association or cluster analyses

With association or cluster analyses, information is condensed and previously unknown patterns, clusters or connections that are of great importance are recognised in your data. These findings provide employees with potential cause and effect relationships.

Machine learning

With today's machine learning approaches, it is easily possible to transform unstructured data such as images or text into a structured form in order to gain new and relevant insights in combination with structured data.

[4. Conclusion

In practice, it is often not data that is lacking, but rather its evaluation. Reliably evaluating the data, obtaining relevant information and thus deriving profitable measures is a major challenge for companies.

Smart BI solutions are often used to meet this challenge and get the best out of the data. However, with the many BI solution providers and BI trends on the market, a potential customer quickly loses the overview.

Many decision makers are confronted with the question: So which is the right BI solution?

This BI travel guide is designed to provide you with an overview of important BI topics and those that will be relevant in the future.

It reflects currently important BI topics such as analysis & reporting, planning & budgeting and also focuses on BI topics that are relevant for the future, such as data mining, benchmarking and risk & compliance.

More and more BI drivers that directly influence business processes are coming into focus. With the help of these drivers, users can formulate their BI goals and choose the appropriate BI software.

[5. Glossary

Data mining (Page 6)
Data mining uses findings from the areas of computing, mathematics and statistics to analyse data sets in a computerised way.

Data integration (Page 6)
Data integration is a process in which data from multiple databases is pooled for use in an application.

Data modeling (Page 7)
A data model refers to the logical relationships and data flow between various data elements involved in the information world.

Internal control system – ICS (Page 9)
The ICS is a software-supported, internal process control along with the documentation and monitoring of corporate activity in data-driven companies.

Industry 4.0 (Page 16)
Industry 4.0 stands for the fourth industrial revolution. After mechanisation (Industry 1.0), mass production (Industry 2.0) and automation (Industry 3.0), Internet of Things and Services is now entering production.

Predictive analytics (Page 17)
Predictive analytics primarily deals with future and potential events.

Risk & compliance management (Page 10)
Compliance means „dutiful behavior" and its implementation serves to ensure that the structure, actions and documentation of an organisation are ensured in this form.

Self-service BI (Page 12)
Self-service BI describes independent access to company data by key users without contacting the IT department.

Data lake (Page 13)
A data lake is a repository for data storage that holds huge amounts of raw data in its original format until it is needed.

Geo & location intelligence (Page 14)
Geo and location intelligence starts with the tracking of information on a geographical map.

[Introducing ourselves

What we do

We are a medium-sized, independent company specializing in professional software. Since our foundation in 1994 we have been developing and marketing strategic information systems.

Many years of expertise in the areas of analysis, planning and corporate management as well as governance, risk and compliance are guarantors for the development and expansion of the advanced antares software solutions.

Who we are

State-of-the-art technology, innovation and user-optimized solutions characterize our products. Passion, reliability and professionalism are the guidelines in dealing with our customers and partners. Competent and reliable support is our top priority. To ensure this, we work consistently on the further development of our established software solutions, provide professional project management and also offer comprehensive services - from training and webinars to coaching.

What we offer

We now count more than 300 companies of all industries and sizes among our customers, including well-known companies from the industrial, retail and service sectors. They all benefit from an experienced BI company with flat hierarchies, professional partnership and customer proximity.

What is our goal

Our goal is to provide our customers with a secure, user-friendly information base so that informed and confident decisions can be made.

[30 years of experience in the development of business Intelligence software solutions

Analyze. Plan. Control.

Integrate your data and make knowledge work for you. Gain important insights to make confident and profound decisions.

Governance. Risk. Compliance.

With our holistic risk and opportunity management software, you systematically identify, analyze, assess, monitor and control risks to seize business opportunities.

Individual BI software

We've been implementing BI software solutions for 30 years, helping you make better decisions across your business. Perfectly tailored to your needs and processes.

Software consulting

We offer a comprehensive portfolio of services, ranging from the compilation of your software requirements, implementation and accompanying user training to maintenance after completion of the project.

antares

[Software for reliable decisions

[Software for reliable decisions

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