BUSINESS ANALYTICS BY GARTNER

Business Intelligence & Analytics | Gartner's Maturity Model | Possible applications for analytics

OPTANO
a KEARNEY company

BETTER DECISIONS AND COMPETITIVE ADVANTAGES WITH ANALYTICS?

A corporate environment that is defined by globalization and dynamization makes specific demands on manufacturing companies and calls for new decision-making tools.

ANALYTICS AS AN ESSENTIAL TOOL

Markets have become far more volatile in the past few years. This circumstance presents particular challenges for the management of global supply chains. How can businesses avail of new methods and instruments in order to make sound and fast decisions so that they can successfully assert their position in volatile markets?

Business Intelligence (BI) and **Business Analytics (BA)** have proven to be vital tools in this context. In connection with **Big Data, Data Mining** and steadily developing **Machine Learning (ML)**, data analysis technologies have become indispensable when it comes to making sound decisions.

Data analysis as an essential tool for making fast and sound decisions

DEFINING THE RIGHT OBJECTIVES TO MAKE OPTIMAL DECISIONS

Technologies such as Big Data and Data Mining provide a large amount of available data. Businesses have to be aware of this treasure trove of data in order to generate sustainable added value.

WHY DATA ANALYSIS?

Company data from internal systems such as ERP or CRM as well as data from public accesible databases (e.g. weather data) can be applied for data analysis. In this way, a more detailed model of the work flows in a business can be created.

This makes strategic planning far easier and more certain/secure? In addition, resources and individual processes can be planned better. This means: competitive advantages thanks to optimal decision-making.

WHICH OBJECTIVES DO ANALYTICS PURSUE?

Analytics is a steadily developing science. The objective is to extract important information from available data and to use the results of the analytics for decision-making or optimization purposes. Very different objectives can be pursued here.

Gartner has developed a maturity model which distinguishes between four essential stages of analysis.

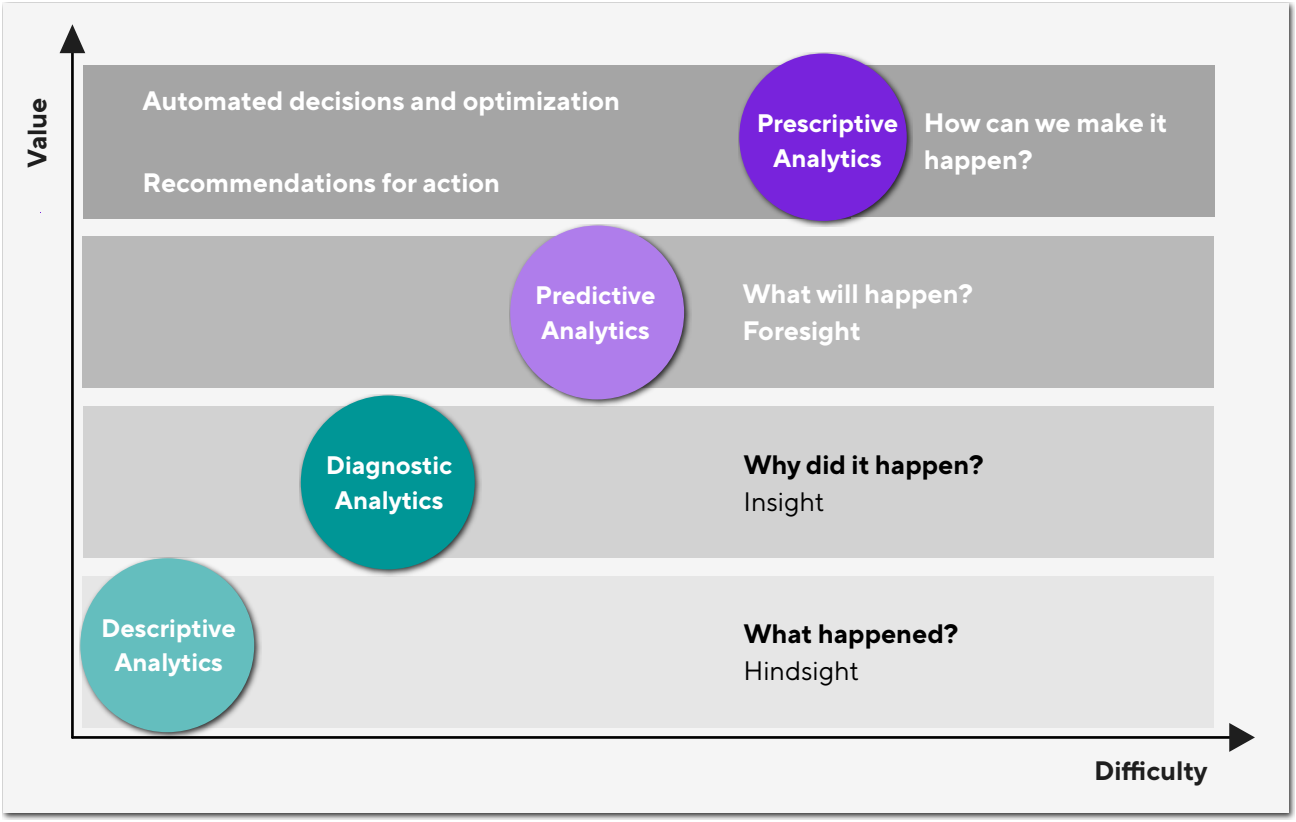
THE GARTNER ANALYTICS MATURITY MODEL - AN OVERVIEW

The Gartner maturity model is applied in order to differentiate between the various analytics stages. The more complex the analysis is, the more the value and competitive advantages increase.

GARTNER'S LEVELS OF ANALYSIS

In Gartner's maturity model, analytics are divided into four development stages: **Descriptive, Diagnostic, Predictive** and **Prescriptive analytics**.
The difficulty of the analysis increases the more advanced the development stage is.However, the value of the analysis results increases progressively. Distinguishing between **Business Intelligence (BI)** and **Business Analysis (BA)** is useful here. BI considers „only" historical and current data and therefore applies to the stages **Descriptive and Diagnostic Analytics**. **Predictive and Prescriptive Analytics** are applied as Business Analytics for forecasting purposes.

Diagram. 001 The Analytics Maturity Model according to Gartner



THE FOUR STAGES OF ANALYTICS ACCORDING TO GARTNER

In the maturity model, the analysis stages are also distinguished ,aside from their level of difficulty, by the human influence on the decison-making process. Here is an overview of all four:

STAGE ONE:
DESCRIPTIVE ANALYTICS
WHAT HAPPENED?

Descriptive Analytics summarizes historical data. Data which is available from various systems and databases is prepared so that data complexity is minimized. The result: reports, diagrams, dashboards but also KPIs which help human planners to interpret the data and make decisions.

Typical use cases are:
- Reporting KPIs
- Status monitoring

STAGE TWO:
DIAGNOSTIC ANALYTICS
WHY DID IT HAPPEN?

The diagnostic or explanatory analysis also works on the basis of historical data. It looks for the root causes and their impacts on company processes, thus providing a deeper insight into specific problems. Data analysis helps to determine **correlations** and identify patterns. In order to draw conclusions from these and identify correlations, **domain knowledge** is often required. Expertise such as entrepreneurial thought, industry knowledge and methodological skils play a decisive role. This means that deriving recommendations for action is a matter for the experts.

Typical use cases are:
- Identifying the effects of disruptions
- Determining the causes of quality defects

STAGE THREE:
PREDICTIVE ANALYTICS
WHAT WILL HAPPEN?

Its objective is to generate models from historical data and use these to predict unkown events or variations in the future. By forecasting future trends and states, it is possible to intervene at an early stage and optimize business processes. Predictive Analytics also requires **domain knowledge** to derive recommendations for action. However, predictions of processes and forecasted values create a transparency which makes it easier to weigh up the risks involved and creates an important foundation for decision-making.

Typical use cases are:
- Resource analysis
- Predictive maintenance

STAGE FOUR:
PRESCRIPTIVE ANALYTICS HOW CAN WE MAKE IT HAPPEN?

Prescriptive Analytics is the final stage in Gartner's maturity model. It has the task of specifying the possible decisions available in order to attain the predicted results and minimize any future risks as well as maximize opportunities. The aim of Prescriptive Analytics is to make immediate recommendations on which course of action to take, or - as the highest level of automation - to automatically implement actions and optimizations in completely automated companies. Prescriptive Analytics suggests, therefore, various options on how to proceed and forecasts the effect that specific decisions will have on the future, without this decision actually being made. To do this, it applies methods such as **simulation, mathematical optimization, algorithms** as well as **machine learning**.

Typical use cases are:
- The procurement of goods to avoid bottlenencks and high inventories
- Route planning for sustainable logistics

GARTNER'S MATURITY MODEL USING THE EXAMPLE OF SALES PERFORMANCE

Descriptive Analytics describes how a company's sales have developed in the past

Diagnostic Analytics diagnoses why sales have developed positively or negatively.

Predictive Analytics forecasts how the sales will develop in the coming months.

Prescriptive Analytics offers recommendations for action to ensure that the sales will continue to develop positively.

SUMMARY AND OUTLOOK

As described above, **Descriptive** and **Diagnostic Analytics**, which belong to **Business Intelligence (BI)**, focus on both the past and the present. **Business Analytics (BA)**, on the other hand, reaches far into the future with **Predictive** and **Prescriptive Analytics**. These higher stages of analytics use intelligent algorithms and technology which are based on **artificial intelligence (AI)**.

As an essential basis technology for AI, **machine learning (ML)** enables systems and machines to act and „think" without any explicit programming. In this way, **algorithms** and **mathematical models** „learn" from data. Based on empirical values, the models can improve their performance and thus make predictions about new data.

PREDICTIVE BLUEPRINT: PREDICTION MEETS PLANNING

OPTANO combines the best of both worlds. In its Predictive Blueprint ‚Predictive und Prescriptive Analytics work hand in hand.

EVERYTHING FITS TOGETHER

Predictive and advanced planning analyses; i.e. **predictive and prescriptive analytics**, each have their own use cases. Yet, there is often not enough data available for them to make future decisions, such as how customer behavior will develop over the coming years. This is why reasonable assumptions are often made instead.

TRAINING PREDICTIONS

The **Predictive Blueprint** is a **Machine Learning (ML)** function. It enables predictions to be trained and **regression analyses** to be conducted without requiring any prior knowledge of programming. In this way, we can learn from the past and extrapolate the future.

LEARNING FROM THE PAST

With OPTANO we can now directly apply the results of our **predictive analytics** in **prescriptive analytics**, that is, in the implementation of **optimization models** to plan the best decision. Thus, optimal planning is based on the best possible prediction of the future using our knowledge of the past.

WOULD YOU LIKE TO LEARN MORE?

Are you interested in a free-of-charge OPTANO demonstration or would you like to have an informal meeting about the possibilities mathematical optimization has to offer in your company? We're here to help!

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OPTANO provides innovative solutions, enabling businesses to plan faster, better and more easily. Thanks to mathematical optimization, OPTANO finds the optimal solution to any problem.

.OPTANO is customized to suit your specific needs. Whether you want to optimize your supply chain, your entire network or your production plans, OPTANO makes your planning process efficient, clear and flexible.

And that's not all: OPTANO supports you in your strategic decisions using Prescriptive Analytics. This means that you can consider various options in what-if scenarios and get sound recommendations for action - based on the sound analysis of your data and targets.

Visit us at **www.optano.com** and find out how we can take your planning to the next level together.

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