WHITE PAPER

Building new age analytical solutions

Abstract

Enterprises have been leveraging analytics to derive insights and make business decisions for years. In a digital and interconnected world, the data and analytics needed for decision support are different from what was used earlier. This means enterprises must re-imagine analytics and evolve new ways of building solutions. The paper talks about how enterprises can build future analytics solutions and usher them into the market.

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Enterprises from every industry have used information to support and enrich their operations for decades. In recent years, there have been fundamental changes, which have created a perfect storm in the analytics world and disrupted the old order.

1) Digitization has created an explosion of data of different types – structured, unstructured, internal, and external – such as social data, machine data, and enterprise data. This information holds tremendous insights, which are valuable for decision support. Traditional systems are not equipped to handle such data.

2) The traditional approach to designing data warehouses and reports which involved preparing and transforming data and making it available for predefined reports introduced tremendous complexity, high data latency, and redundancy over the years. This is severely impacting agility and proving to be inadequate for analyzing new-age data.

3) The emergence of new technology, such as in-memory computing, data science, artificial intelligence and machine learning, is presenting opportunities to rethink analytics and how solutions are built. Organizations have started to adopt Augmented Analytics.

The convergence of the above demands re-imagination of analytics and the way solutions are built.

Thus far, enterprises have mostly taken a reactive approach when using analytics – looking at historical data for insights into which processes they must improve and what changes they must make. They have typically relied on reports from a business intelligence system that takes its data from various transaction systems. With massive advances in the capabilities of data-related tools and technologies, enterprises can now use analytics to not just understand the past, but also see into the future. In other words, they are progressing from describing and diagnosing historical events to predicting future occurrences and prescribing future actions.

There is no clear order or proven approach yet and this paper presents my view into the future of analytics. The shift to this "new-age" analytics is driving three important advancements:

Operational Intelligence is embedded within the business processes

Take the example of a large consumer products company, which supplies to retailers spread across many locations. The logistics team runs a number of reports to understand open orders, inventory levels, and production levels at different locations, and decides how best to fulfill the orders. Today, by embedding analytics in operational processes, this decision can be automated and interventions can also be built in. The objective of operational intelligence is to reduce the lag between insights and execution. The typical use cases include cases where decisions and actions can be pre-defined based on conditions reflected in data.

Exploratory Analytics leveraging concepts of Augmented Analytics allows greater freedom of use

While in the past, analytics solutions worked mostly with structured enterprise data to uncover patterns and based on that, answer pre-determined questions, the analytics of the future needs to be much more flexible and adaptive in order to answer ad hoc queries based on a huge variety of structured and unstructured data gathered from a range of internal and external sources. This is the realm of exploratory analytics, where the solution will be called upon to answer one type of question on a given day and a completely different one the next. In this scenario, users are not presented with a set of questions, but rather, allowed to frame their own, which the system answers by pulling data from different sources.

Augmented Analytics will significantly help in enabling this. Example - A marketing manager should be able to analyze the effectiveness of new campaigns not just from sales figures but also external data such as social media data, and identify influencing parameters. The traditional approach would involve designing data acquisition, modeling and insight generation through BI tools. There is a degree of self-service and flexibility here. However, in the new approach, the entire process of data enablement and insight generation is driven by Augmented Analytics and Artificial Intelligence, empowering "citizen data scientists" to arrive at accurate insights. Here, disparate data enablement will be done with more flexibility (Augmented Data Enablement), the models will be auto-generated and insights will be derived using Natural Language Generation and Processing.

Predictive and Prescriptive Analytics improves decision making

The emergence of Artificial Intelligence, Machine Learning and Deep Learning is improving the scope and accuracy of predictive analytics. Banks, for example, can now analyze hundreds, even thousands, of variables – including behavioral parameters – to spot suspicious patterns of activity and thereby prevent fraud.

In addition, AI-enabled analytics uses learning from past experience to prescribe the best course of action to the enterprise. Again, taking the example of the consumer products industry, the solution, upon observing a steady increase in inventory, might recommend a bulk sale, cutback in production, or moving stocks to locations where they are required, as appropriate.

Moving to new-age analytics requires technology, process and people enablement.

Operational intelligence, for instance, will require processes to be reimagined to reduce manual intervention and the creation of solutions that automatically initiate action based on certain data. This will call for significant change management. From a technology standpoint, components such as SAP S/4 embedded analytics can be of help here. Additionally, technologies that will help integrate business-authored content securely and a scalable platform to run such analytics in processes are critical.

For exploratory analytics, the enterprise would need to provide access to data from different sources, both internal and external, and structured as well as unstructured. Establishing a data governance and quality assurance mechanism is very important. The technical components involved in this include a data

lake/ Hadoop-HANA, self-service tools and data virtualization and quality tools.

Process enablement required for predictive and prescriptive analytics is mainly about nurturing citizen data scientists within the organization. The technology to be provisioned includes predictive tools and libraries, and AI/Machine Learning solutions.

Break boundaries between IT and business

Traditional process of development will not be effective in new world and it would need to be in close collaboration between IT and business to ideate solutions, build quick prototype and implement. The frameworks such as design thinking can greatly benefit as it can help bring innovative ideas focused on business value.

As new analytics becomes pervasive in enterprises, areas such as data governance, data cataloguing, security and controls will play crucial role in ensuring that data and information is available to right stakeholders on demand along with right control.

The preceding discussion already hints at the benefits of new-age analytics. Accurate and timely decisions – based on predictions built on real-time data from a variety of sources – is clearly one of its biggest advantages. Agility is another; since decisions are embedded within business processes, they are executed much faster than before. The rise of exploratory analytics reduces the business organization's dependence on the IT department. Last but not least, predictive and prescriptive analytics improves the organization's ability to identify challenges and opportunities early.

About the author

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Nitin Kulkarni leads SAP Analytics Competency Creation at Infosys. He has over 17 years of experience Business Intelligence (BI) with focus on SAP BI and HANA. He has helped customers create BI solutions and roadmap in various roles such as Architect, Program Managerand Advisor in multiple engagements. He is currently focused on Big Data and Analytics solutions in SAP ecosystem.

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