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THE NO-PAIN ROUTE TO ANALYTICS

Enabling speedy decision making through 'Analytics-as-a-Service'

Sundarababu Vasudevan
Data Scientist and Analytics consultant
Wipro Limited

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Introduction

There is a new corner office and it belongs to the Chief Analytics Officer (CAO). This CAO is the outcome of growing data volumes. For businesses with access to large data streams, analytics holds the key to making fast and accurate decisions. CAOs can now use data for a variety of purposes. It can help manage operational efficiencies, discover customer needs, identify new markets, give shape to new products and value-added services and develop defensible differentiators. In other words, the onus to support the organizational business strategy now falls upon the CAO. And assisting CAOs with this goal is the science of analytics.

Every business function in an enterprise recognizes the need of actionable insights from data. That is why analytics is being recognized as a key-driver of decisions and as a business differentiator. In a competitive environment, every decision counts. CAOs are tasked with making this decisions-which in turn makes it easier for the enterprise – for anyone,, anytime and anywhere. If the CAO fails to deliver actionable insights, it could mean loss of business momentum, customer attrition and erosion of market share.

CAOs are therefore careful when they embark upon the analytics transformation journey. They know it requires the ability to balance the business landscape with technological developments. But can they undertake this journey on their own leveraging resources residing within the enterprise in terms of people, processes and technological skills? The answer is tricky. This paper proposes an 'Analytics as a service' model comprising an end-to-end analytics service that covers platform, analytics, domain experts as well as visualization to deliver actionable insights for quicker decision making.

Can Traditional EDW Support the Chief Analytics Officer?

Some enterprises may believe they can continue to rely on existing and proven enterprise data warehouses (EDWs) and management techniques to consolidate their data and run it through their analytical engines. But CAOs know that traditional EDWs are rigid and hard to change.

Traditional warehouse platforms and methodologies are reactive – they chiefly deliver reports; they don't understand business change, are not flexible, are forced to be more technology oriented, don't incorporate methodologies that align with business lifecycles, cannot scale for demand and don't execute with agility.

Data in existing EDWs is aggregated, making it almost impossible to access at granular levels that analytics demands, leading to performance issues.

Access to data in most EDWs require operational clearances which means that data scientists may not have access to relevant or complete data sets across functional/divisional silos. For example, marketing data may not be shown to finance data scientist. Rigid functional siloes in which data is trapped (like product development, production, sales and marketing, finance, supply chain etc.) can pose a serious challenge.

Above all is the daunting fact that EDW appliances are expensive and as the data volume grows, so do IT investments.

Looked at another way, the CAO has a formidable challenge to bring—and maintain—the enterprise's data and analytical practices up to speed. But the larger question before every forward-thinking CAO is: what is a better platform for changing and unpredictable business needs?

Need for 'Analytics as a Service'

As a result of these challenges, enterprises tend to avoid using existing EDW platform for their analytical needs. Even if they want to expand the capabilities of their EDW platforms, it is extremely difficult and expensive. But, the danger of not doing so is self-evident: loss of strategic and operational insights and missed business opportunities.

However, current technological developments have begun to provide relief to troubled CAOs. The advent of open source and cloud has dramatically changed the data analytics landscape.

Big Data demands that enterprises implement analytical platforms that provide greater agility. But the prevailing perception is that these solutions (let's call them Data Discovery Platforms) are complex and expensive. Luckily, this is not the case. When architected meticulously using commodity hardware on cloud that leverages open source technologies and agile methodologies, Data Discovery Platforms are quick to develop, easy to use, reduces time to insights and costs way less than traditional BI systems.

Data Discovery Platforms alone don't ensure the speed to analytics. These technologies are sophisticated. Many of the traditional ETL (Extract, Transform, Load) functions are performed using complex custom Map Reduce Code.

For an enterprise, meeting all of the above requirements is difficult in terms of people, processes and technological skills. It is therefore important to engage a partner who can provide an end-to-end analytics service that covers platform, analytics, domain experts and visualization through a flexible commercial model.

Enterprise Impact Through LoBs

A CAO understands the profound organizational changes being led by the data deluge on the entire set of users (end users, super users, business analysts, data scientists and subject matter experts). Its effect cannot be trivialized or overlooked. LOBs have typical questions such as, "What can my business do to prevent customer attrition?" or "How can I identify my bottom 10% customers and ensure their cost-to-serve matches the ROI of the segment?" In addition, they want possible hypothesis to test. In a traditional BI world, the access to data is easy through SQL queries and need not require a deep technical expertise. Now, business users have to rely on IT to provide the data and the transformation dictated by functional needs. They know the data, they have the questions, but they don't have the technical depth to perform the required analytics. The IT staff is in a similar situation – with an understanding of the analytics platform but with no understanding of the business data.

Hence, establishing a new operating model (see Figure 1: 'Analytics as a Service' – Operating Model) between business and IT can go a long way in accurately identifying and understanding data that matters to the enterprise, thereby ensuring faster time to insights. It is also imperative for the Data Discovery Platforms to have reusable analytical libraries across the business functions which act as accelerators.

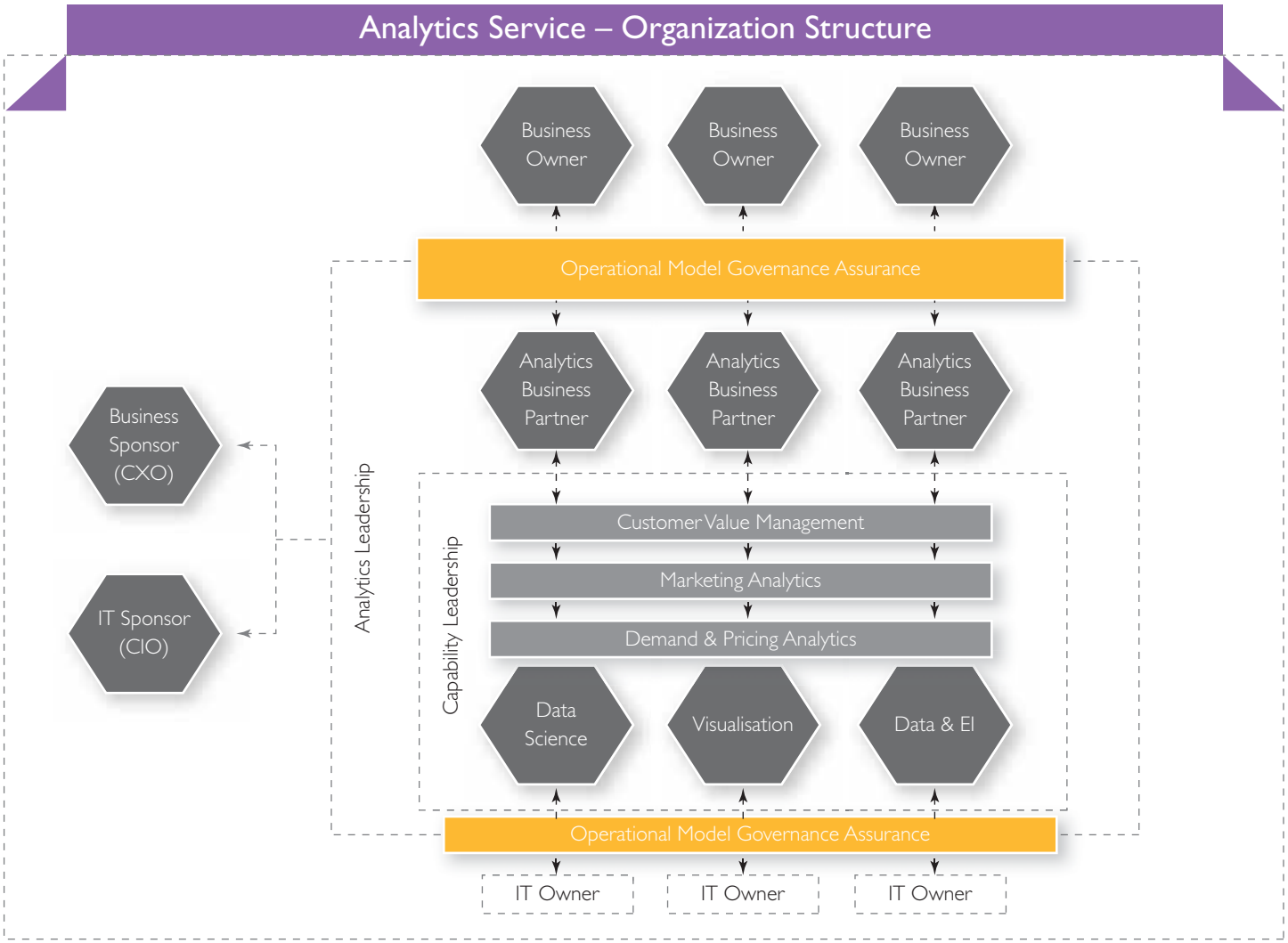

Figure 1: 'Analytics as a Service' – Operating Model

Proposed Solution to Enable 'Analytics as a Service'

The Data Discovery Platform, as discussed, available on cloud and constructed on open source technologies can be a potential solution to enable 'Analytics as a Service'. This platform has next generation capabilities such as Batch Analytics, Real Time Analytics, Text Analytics and Ad Hoc Analytics.

Organizational data (structured, semi-structured and unstructured), needs to be brought into this platform for exploratory analytics. A unique Analytical Data Mart can capture and store the data in the form of dimensions, events and facts. These form the crux of the exploratory analytics.

Backed by this unique and powerful architecture, business users can represent any journey map like customer journeys, customer taste graphs, product lifecycle and production lifecycle on a near real-time basis with significant events being captured and acted upon in real-time or near real-time.

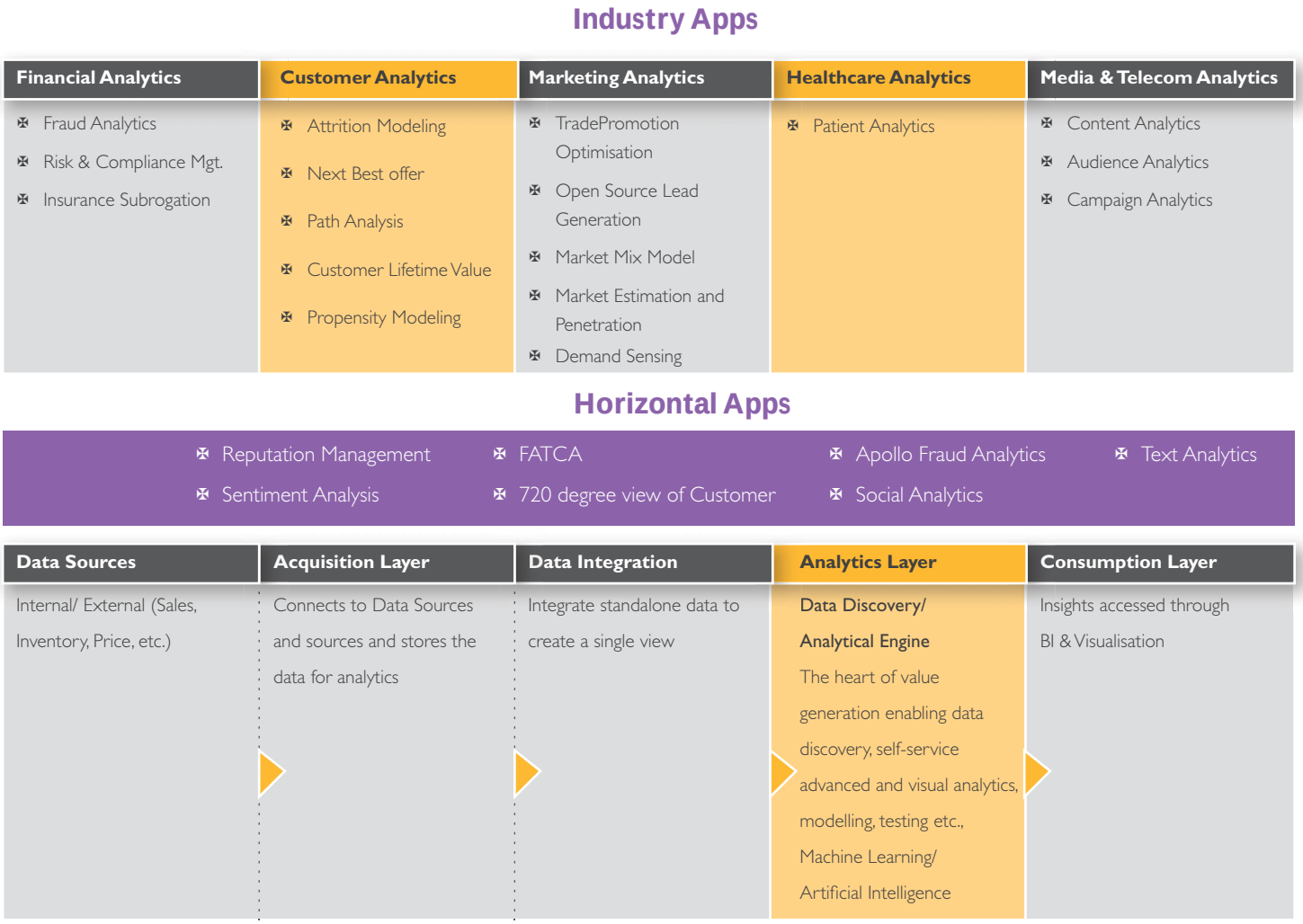

Figure2 : Proposed Data Discovery Platform

A typical Data Discovery Platform packages Machine Learning algorithms that work on the analytical data mart to unearth patterns and outliers hidden in the data. Such a platform (see Figure 2: Proposed Data Discovery Platform) should provide several accelerators and applications that create a robust foundation with reusable analytical libraries and ways to adapt and accelerate innovations across the enterprise.

A simple interface to the Data Discovery Platform enables Self-service Analytics for business users. Usability is an important aspect of the platform. For example, such a platform should be able to provide a set of Map Reduce functions for Descriptive Analytics. The platform should hide the complexities while providing a simple interface to query data in an iterative fashion and test the hypothesis in real-time without IT support.

Key Facets of 'Analytics as a Service'

'Analytics as a Service' provides unique capabilities to the CAO that are becoming critical as data volume, velocity and variety grows. These include:

Reduced Time-to-Insights – or the ability to adapt to rapid business needs and adjust data delivery and visualization accordingly.

Agile methods and teams – to iteratively build and rollout business and technology capabilities without business having to wait until the entire data ecosystem is ready to receive insights from analytics. For instance, adopting data stewardship rather than data governance allowing enterprises to think strategically and act tactically on decisions around data and metadata.

Data Integration – from across the enterprise – and from a growing number of external sources – into a single, golden source of truth. The single source determines how confidently analytics can be used to gain business advantage.

Cost engineering – to help amortize initial fixed costs of setting-up an analytics platform over the duration of the engagement and ensure lower running costs year-on-year.

The growth in data has certainly not reached a plateau. If anything, there are signs that it will continue to grow. There is no way to tell what data is going to be important a few years or even a few months from now; there is no way to predict how an enterprise may want to query its data. CAOs don't want to spend months—and precious dollars—each time re-architecting and implementing new analytical systems. Instead, the 'Analytics as a Service' model assures them of speed and agility where it is wanted most in today's business – in the analytics department.

About the Author

Sundarababu Vasudevan has over 19 years of experience as a Data Scientist and Analytics consultant. He has played various roles in the past, including business development, consulting for some of the leading Fortune 500 companies, and leading complex product development initiatives. In his current role within Wipro Analytics, he is leading the Analytics Consulting group and heading the 'Data Discovery Platform' initiative.

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