Case Study 3: Business Intelligence and Analytics

Ernesto Mancia

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Instructor: Rodney Heisterberg

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Problem Statement

As the volume of transactional data continues to increase, organizations must begin developing strategies and investing in the technical systems needed to sustain an information advantage (Gnatovich, 2007). Such strategies should emphasize the importance of having a reliable and well integrated Enterprise Information Management (EIM) framework that provides:

- A trustworthy data foundation for Business Intelligence (BI)

- Agility to access real-time information for operational BI

- A single, consistent view of the organization (On, n.d.)

With a compressive EIM framework in place, organizations have the potential to strengthen the effectiveness and reach of any Business Intelligence and Analytics (BI&A) software package.

Challenges & Opportunities

At their core, BI&A software packages provide the tools needed to transform databased low-level transactional information into high-level analytic insight (Figure 1).

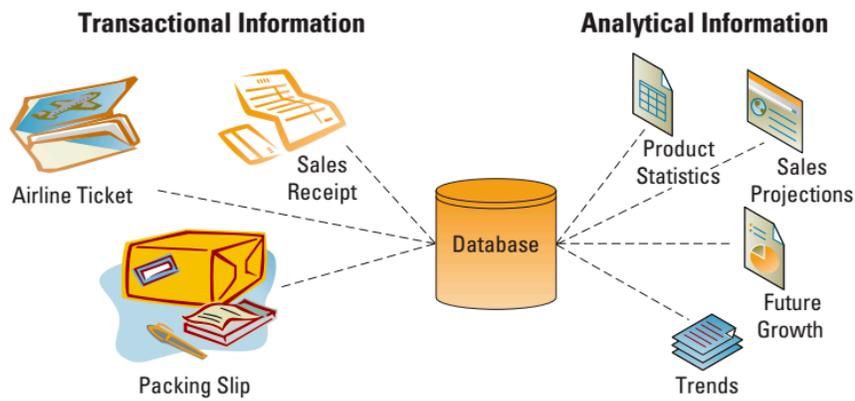**Figure 1: Transactional versus Analytical Information**

Figure 1. Baltzan, P. (2015). Business Driven Technology. New York, NY: McGraw-Hill Education.

The basic/essential features of any BI&A package usually include: reporting, interactive dashboards, OLAP, predictive (statistical) modeling and data mining. Recently, with the introduction of the "cloud", BI&A systems have also started the move beyond a structured historical view of database content into a real-time view of unstructured web, mobile and sensor-based content (Figure 2). This shift from small to big data has introduced advanced and unique data storage, management, analysis and visualization technologies (Hsinchun, Chiang & Storey, 2012). Most of these data processing and analytical technologies have already been incorporated into the leading corporate BI&A platforms offered by the major developers such as Oracle, SAP and NetSuite.

Figure 2. Business Intelligence and Analytics: Key Characteristics

	Key Characteristics
BI&A 1.0	DBMS-based, structured content • RDBMS & data warehousing • ETL & OLAP • Dashboards & scorecards • Data mining & statistical analysis
BI&A 2.0	Web-based, unstructured content • Information retrieval and extraction • Opinion mining • Question answering • Web analytics and web intelligence • Social media analytics • Social network analysis • Spatial-temporal analysis
BI&A 3.0	Mobile and sensor-based content • Location-aware analysis • Person-centered analysis • Context-relevant analysis • Mobile visualization & HCI

Figure 2. GNATOVICH, R. (2007). making a case for business analytics. Strategic Finance, 88(8), 47-51.

As organization begin to leverage, in real-time, all these various internal and/or external data points, their internal decision makers (management) are being challenged to make complex strategical decisions within a shorter time window (Baltzan, 2015). In order for management to

fully trust and embrace such sophisticated BI&A systems, they must feel confident in the

analytical data. Regardless of the BI&A technology being employed, an organization must first

make sure that no back-end quality issues exist. To promote trust and adoption in a BI&A

system, an organization should focus on implementing a EIM framework that promotes data

integration, data quality and data transparency. By providing management with a single, audited

and easy to digest version of the truth, they can quickly overcome any decision-making

challenges (Figure 3).

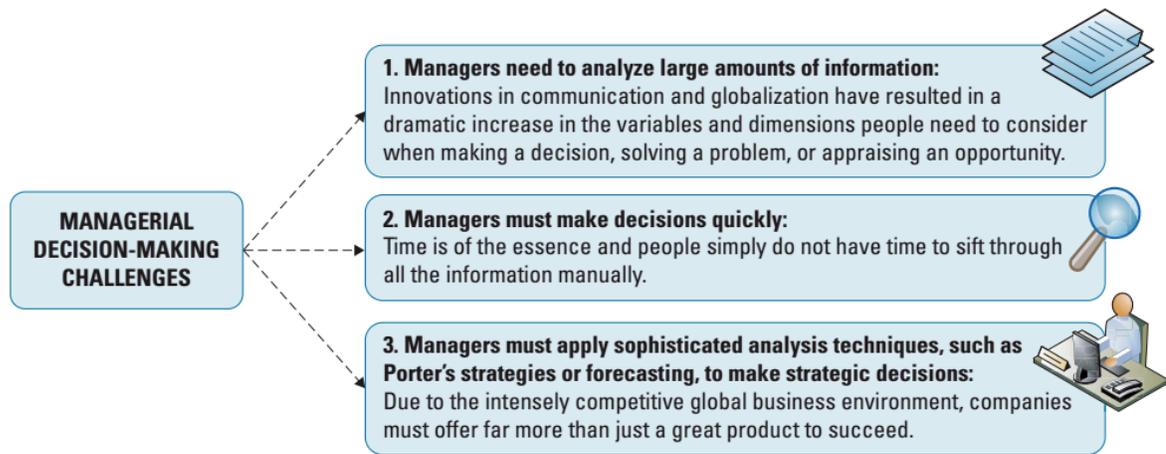**Figure 3:** Managerial Decision-Making Challenges

Figure 3. Baltzan, P. (2015). Business Driven Technology. New York, NY: McGraw-Hill Education.

Business Solutions

Older Business Intelligence (BI) systems were built around simply aggregating

transactional data and delivering reports to the business user. In order to ask and answer their

own questions in response to internal and external factors, users would need to heavily rely on

desktop applications like Microsoft Excel to do the analysis. The issue with this is that any

insight that the business user gains through the Excel spreadsheet tends to stay with the user,

which means all opportunities for organizational learning or process improvement runs the risk of being lost (Gnatovich, 2017).

Modern cloud-based BI&A systems mitigate this risk by encompassing all organizational information, and their primary purpose is to support the performing of managerial analysis tasks (Baltzan, 2015). They incorporate the techniques, technologies, systems, practices, methodologies and applications that analyze critical business data to help users better understand their business and market and make timely business decisions (Hsinchun, Chiang & Storey, 2012). One of the key goals of these modern systems should be to improve an organization's response agility and value chain. In addition to a strong EIM framework, a BI&A solution should help achieve these two goals by:

- Targeting the business user rather than the IT department.

- Being oriented more toward calls to action than to simply inform.

- Predicting unforeseen events and revealing new insights and unexpected discoveries.

- Allowing business user to ask and answer questions without a product development and augmentation cycle required from the IT department.

- By not being limited to the analysis of data pre-programmed into an internal data warehouse or cube (Gnatovich, 2017).

Vendors such as NetSuite, SAP and Oracle not only offer cloud-based BI&A solutions that meet or exceed the above requirements, but they also offer the cloud-based back-end systems required in an integrated EIM framework.

Business Intelligence and Analytic Software Packages

NetSuite's Business Intelligence solution emphasizes reliability and real-time access to analytical information in addition to the following key benefits:

- Real-time transparency into company performance across all business functions

- A single version of the truth with all of your data residing in a single source

- Self-serve, personalized experience with easy-to-use reporting tools

- On-the-go access via web browser and mobile devices (NetSuite: Business Intelligence, n.d.)

SAP's Analytics Cloud for BI solution also offers real-time business intelligence capabilities through the cloud (SAP Analytics Cloud, n.d.). Their website lists these additional benefits:

- Cloud-based authoring

- Hybrid data access

- Data visualization and storytelling

- Visualization design for business communications

- Data exploration and discovery

- Real-time business intelligence

- Embedded analytics

- Build-in social collaboration tools

Finally, Oracle lists their BI solution as a best-in-class analytics solution in addition to these other points:

- Intuitive cloud experience

- Advanced analysis and visualizations

- Interactive dashboards (Oracle: Business Intelligence, n.d.).

Based on the above website information, it's easy to see the overlap between what the various BI&A solutions offer. They all seem to offer a timely cloud-based experience with interactive and visualize analytics tools. When selecting a BI&A solution, organizations should first look to their back-end information ecosystem. A key component of any successful information strategy is "integration", so organization should look for a solution that can quickly and efficiently be integrated into their current EIM framework. Lastly, It's worth noting that NetSuite was the only one to touch on all the key requirements of a successful Enterprise Information Management (EIM) framework: trustworthy, real-time agility and a single consistent view of the organization.

Lessons Learned

Regardless of the BI&A solution that is implemented, garbage in will always be garbage out. An organization's first priority should be to implement a EIM strategic framework that addresses back-end data timeliness, integrity, consistency and transparency. Only after an organization and business leaders start trusting the underlying data can a BI&A solution be used to its full potential. Arming business leaders with trustworthy and accurate analytic information will only add value and supercharge an organization's BI&A investment.

Why I Care

Decision making is one of the most important and challenging aspects of management (Baltzan, 2015). Throughout my business career I will make structured, semi-structured and unstructured business decisions. That's why it's critical that I fully understand the spectrum of BI&A tools that would help me quickly and confidently access and analyze business data. Additionally, I need to understand the various data risks associated with the back-end data systems supporting a BI&A solution. Only then while I be able to tap into the real potential of all the internal and external analytical data available to me.

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