

Future of Business Intelligence

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Abstract

As more and more data are being defined and consumed by the business intelligence system, the importance of business intelligence is rapidly growing among organizations. Although we have made huge progress in consuming and automating data in business intelligence over the past two decades, that does not mean that there are not trends and influences that are true inflection points in the industry. Every two or three years, a few trends in the industry significantly shake up business intelligence applications and the four trends that tell the organizations how to consume business intelligence applications. This paper will talk about future trends of business intelligence.

Key Trend in Business Intelligence Market

Most of us are familiar with Gartner Hype Cycle (Figure 1), which is the methodology used to tell status in the life cycle of a product. As shown in Figure 1, any technology that starts with a technology trigger phase has great expectations around it; then there is a trough because it is harder than people thought it would be, and slowly technology gets into the productivity area, which is called the “plateau of productivity.” Today in business intelligence, we are in the productivity area, where business intelligence has passed the entire inflation peak and disappointment troughs, but that does not mean that there are not trends and influences that are true inflection points in the business intelligence industry [3].

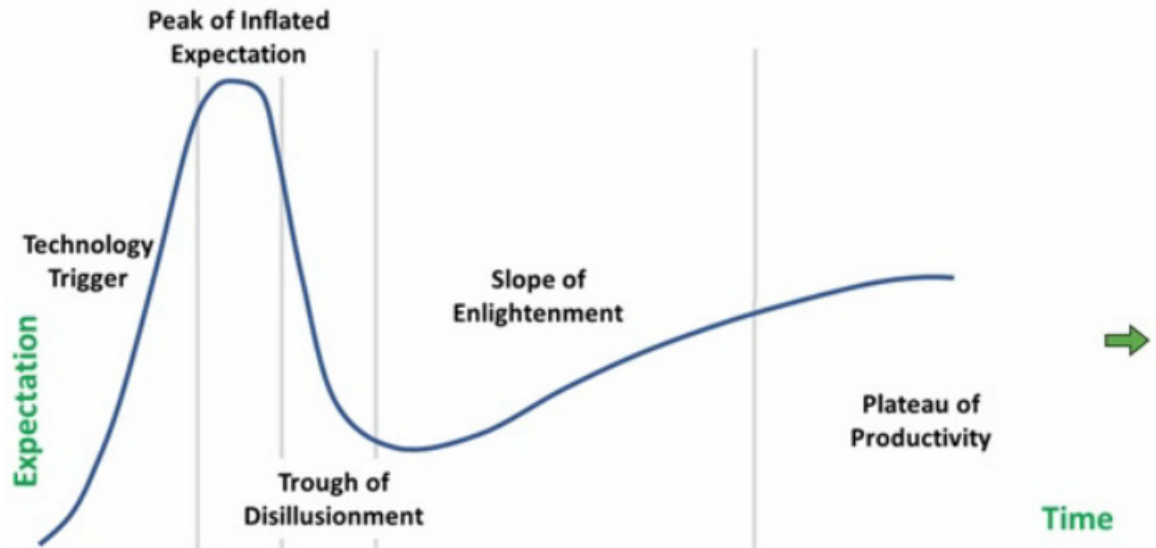


Figure 1. Gartner chart [1]

Every two or three years, trends in the business intelligence industry significantly change the behavior of how people access business intelligence applications [2], when different users in different industries started to be involved in business intelligence applications (Figure 2).

When did you first get involved with BI / Analytics

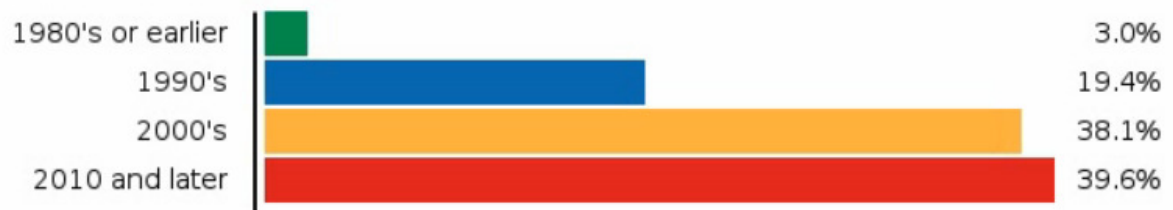


Figure 2. Analytics [1]

According to [2], four trends tell how organizations will consume business intelligence applications in next few years:

1. 33% of BI functionality will be consumed via handheld devices (2013).
2. 30% of analytic applications will use in-memory functions to add scale and computational speed by 2014.
3. 40% of spending on business analytics will go to system integrators, not software vendors, by 2014.

- 15% of BI deployments will combine BI, collaboration, and social software into decision-making environments (2013).

Dashboard 1.0

Today, users experience applications over the Web and mobile devices. These can combine data, multimedia, and transactions all in one application that people consume. They are really not aware if it is analytics or a transactional application. For example, Figure 3 shows a REDFIN application on an iPad where multiple sources of data are displayed on a one-page dashboard.

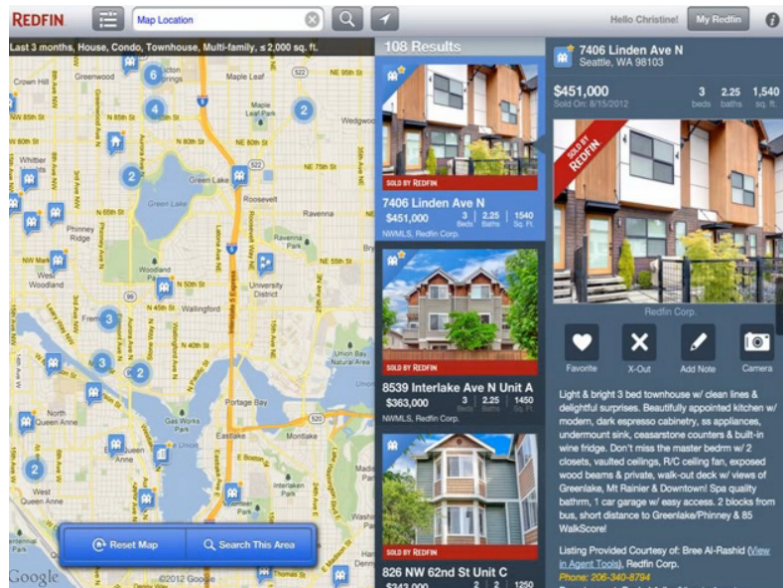


Figure 3. Dashboard [1]

Current Business Intelligence Applications

A average dashboard or Web dashboard that is produced by the business intelligence team today consists of graphs, charts, and several lists of drill down capabilities (Figure 4).

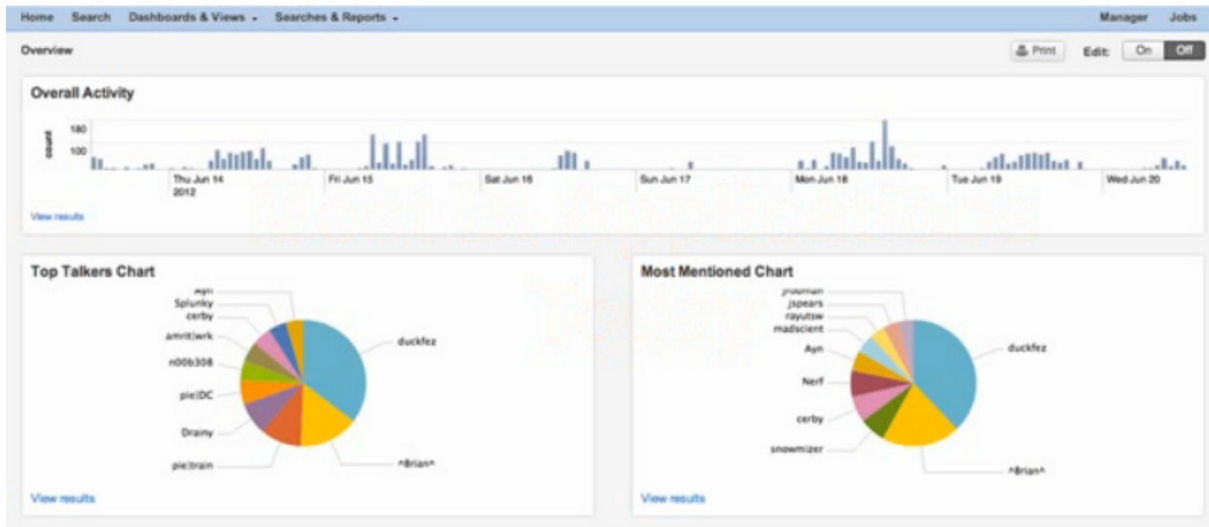


Figure 4. Current BI applications [1]

Obviously, there is a huge difference in user perspective, and we wonder in the industry why user adoption rate is higher; it is simply because there is a huge difference between the class of applications that users enjoy on their mobile devices and on the Web and the class of application that organizations are pushing out to the users in terms of analytics.

Dashboard 1.0 in the 1990s and 2000s was just simply data consolidation. Instead of having 20 different reports in a folder, users took those reports and put them in a single dashboard or grid and graphs (Figure 5).

Dashboard 1.0 was very useful at that time because users did not have to run several different reports to get the information on one page, but, fundamentally, those reports worked independently because there was no connection between them, and there was no work flow or guided navigation.

Dozens of Reports

Frequently Used Together



1990's

Dashboards

Consolidates Dozens of Reports



Figure 5. Dashboard 1.0 [1]

Dashboard 2.0: The Evolution of Information Driven Application

The following four key attributes of Dashboards 2.0 make it fundamentally different than prior versions:

Concept of Application

Users do not need to navigate to a folder to view this application; they go directly to the application itself. This is a self-contained application that contains information from multiple sources. It also has very high density of information. Examples of this kind of applications are large retail organizations that send thousands of applications via email to their store manager every day, and store managers do not really know if they are analytical applications. They just interact the same way they interact with other Web-based and mobile applications.

Business Process Workflow

Dashboard 2.0 is not all about taking data and presenting to business users; it is built around business workflow and user requirements. For example, the sales enablement application is for sales representatives in the field, and the CFO application is for the CFO of a company. Therefore, everything is built around a guided business workflow

instead of having several reports that may confuse the user. More importantly, the key aspect is the ability to transact within an application. The whole function of analytics has always been the ability to take some action on the analytics, and finally business intelligence is at the point where we have the technology today to take those actions (Error! Reference source not found. 6).

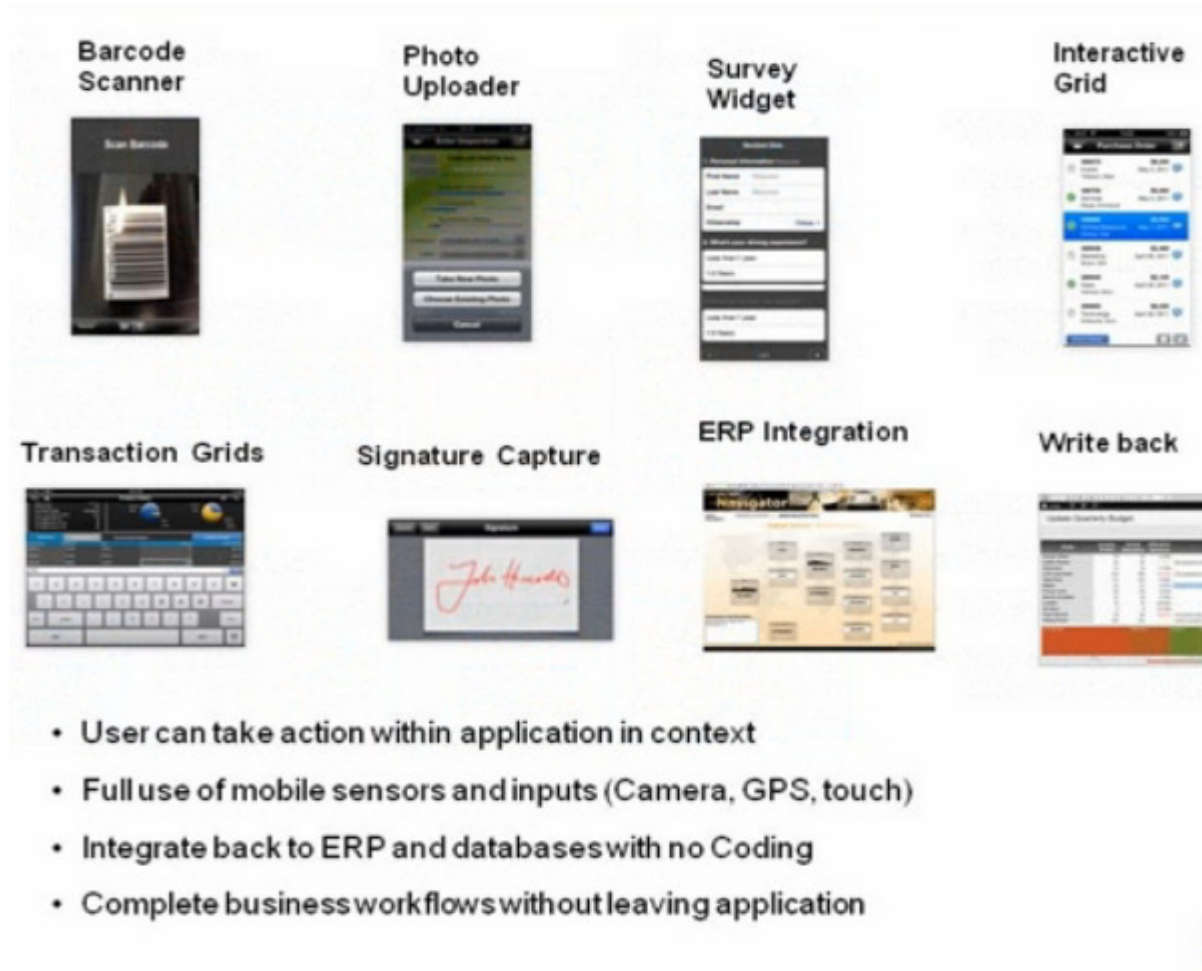


Figure 6. Business process workflow [1]

Mass Personalized Distribution

Unlike predecessors, these applications are not distributed to a few users, but thousands of personalized applications with auto role-driven customization are distributed throughout the organization. These applications have the ability to push high volumes of data with Web and mobile-enabled applications.

Multimedia and Other Content

This is the idea of structured and unstructured data. In the past, technology gurus have been smart enough to handle all the structured data from the databases and put them into purposed dashboards, but unstructured data and semi-structured data, such as log files, machine sensor data, social media, documents, audio-video, etc. are still out there and need to be integrated into dashboards (Figure 7).

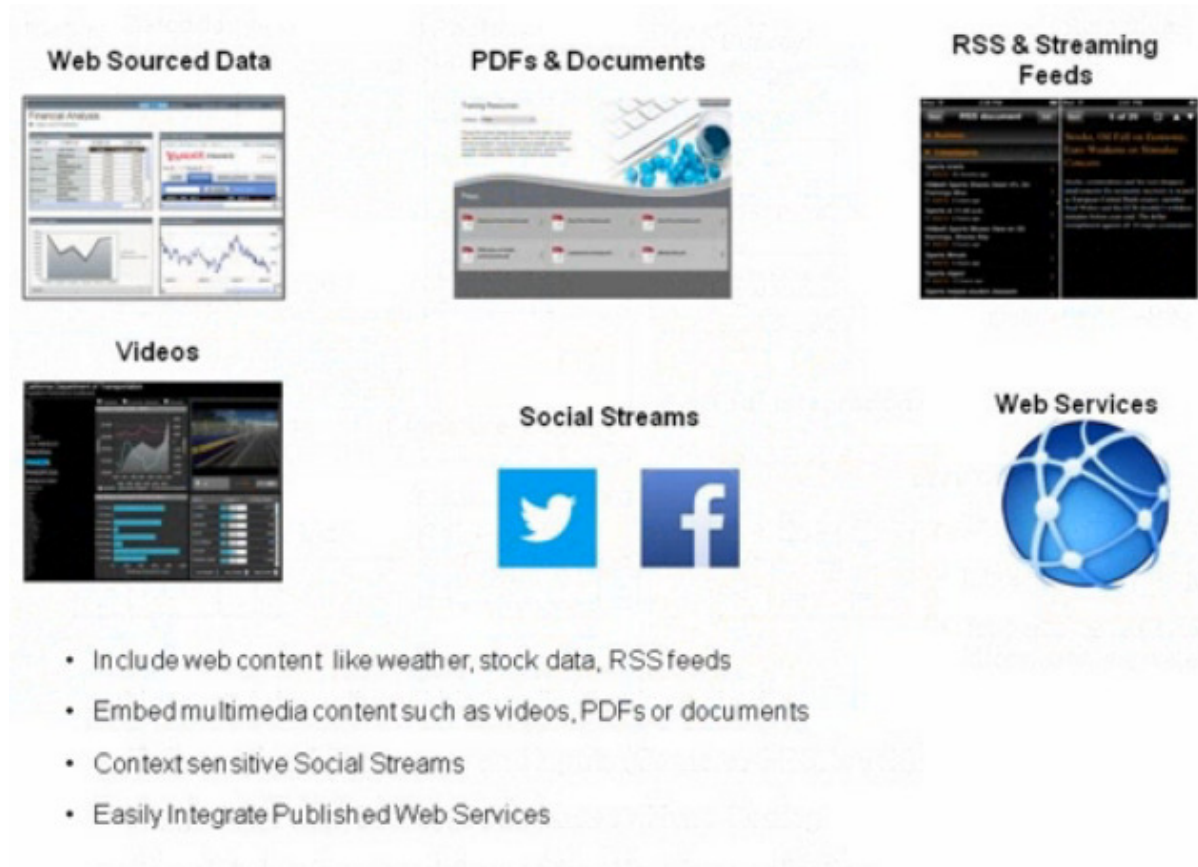


Figure 7. Multimedia and other contents [1]

Combining all four attributes into one application helps us to take the full benefits of all the attributes and improve the application to one easy-to-use application (Figure 8).



Figure 8. Dashboard 2.0 [1]

Below, Figure 9 shows current usage of different dashboards.

What kind of dashboards do you have today?

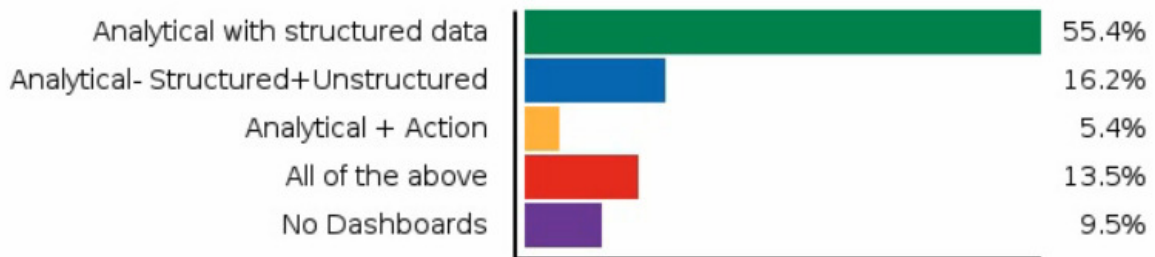


Figure 9. Poll of dashboard in use today [1]

Talking about dashboards is something that improves our technology and makes it easier. On the other hand, there are more new technologies that have improved due to business intelligence. One of these important systems is in-memory application.

High Performance In-Memory Applications

Performance management has always been the priority of an organization, and the focus was always on the hardware aspects of systems. This is first time organizations are focusing on the performance of BI systems. The magic bullet of performance is the RAM. The systems that build on in-memory RAM platforms are significantly faster

than the traditional disk-based systems. The speed difference between in-memory RAM systems versus traditional disk-based systems is the same as if the RAM has a speed of an F-18 fighter jet with max speed of 1,190 mph, and disk access speed is like a banana slug with a top speed of 0.007 mph. So there is a way to get in-memory performance, which is in-memory combined with multiple parallels. This is the setup that will give a business intelligence system the performance of seconds to run a dashboard application (Figure 10).

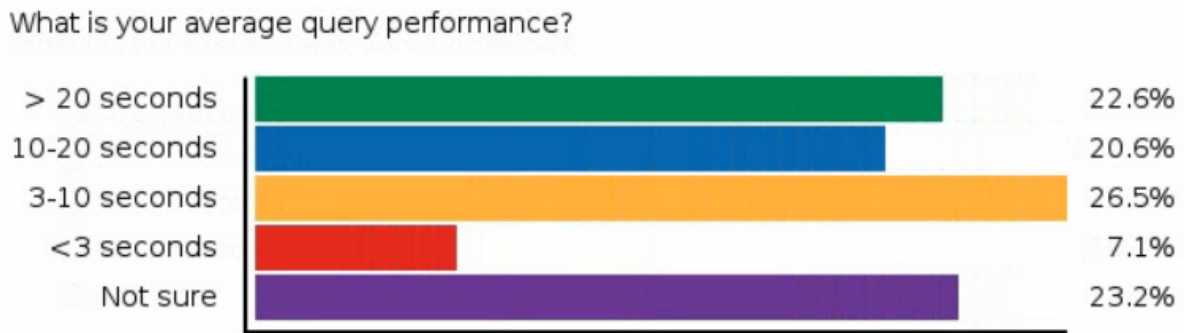


Figure 10. Poll on query performance [1]

There are four main reasons why in-memory BI is becoming more and more critical:

1. User expectations
2. Mobile expectations tied to user expectations
3. Dashboard 2.0 concepts
4. Big data expectations

The combination of these four reasons and requirements of speed has driven every business intelligence system to in-memory performance. While in-memory applications is among one of the important systems in business intelligence, there is also something very important and required in business intelligence: commercial grade.

Commercial Grade Business Intelligence

Commercial grade business intelligence is similar to enterprise grade business intelligence, which brings the class of technology that an organization needs to distribute information widely throughout enterprise users. THz commercial grade business intelligence concept is around for almost ten years with different names such as industrial strength, enterprise scale, etc. There is a new level of technology required when we want to commercialize business intelligence. Below is the stack from Gartner that predicts 30% of businesses will be monetizing data by 2016, meaning they will be selling their data to end users (**Error! Reference source not found.** 11).

When we look to monetizing our data assets we should be considering the following four aspects of the technologies:

1. Easier to build
2. Easier to deploy
3. Easiest to maintain
4. Cloud and virtualization ready

These four aspects are considered easier to use for our monetizing; it is so important for us to use technology like this because it has many different aspects that make work easier.



Figure 11. Monetizing data [1]

Conclusion

In conclusion, the emergence of dashboard 2.0 business applications, in-memory business intelligence, and commercial grade business intelligence for data monetizing are three major trends that we are looking at a future of business intelligence within next three to five years.

References

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Biographies

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