



People centric BI and KM: Relationship and Integration

Introduction

Knowledge management (KM) and business intelligence (BI) systems have been around. KM systems are people centric. People create, share, disseminate, use and apply knowledge. Although BI includes various tools and technologies, the most decisions and actions are taken and implemented by people. Analysis includes tasks like querying, searching, exploring, drill-down, visualizing, modelling and mining. The analysis and subsequent decisions and actions based on the same are not automated in many cases but are analyst driven. Various tools like OLAP (online analytical processing), dash-boards, score cards, ad-hoc queries etc. are used. Gartner report on BI platforms, 2010 [1] shows most of the BI users today use (or consume) various reports (simple, static and parameterized), dash-boards, score cards and ad-hoc queries. According to this report, data mining has been used by 9% of the users. It means most of the BI happening today where people are the key. Although people play crucial role in both the systems, the distinguishing fact is: in KM systems people use knowledge from various knowledge sources and apply them to address the problems while in BI systems the insights and decisions are mostly data driven (see figure 1).

Relationship between BI and KM

Conventionally KM and BI systems are treated separately however they complement and are related to each other. The definition of intelligence can be used to relate and connect them together. Oxford dictionary defines intelligence as “the ability to acquire and apply

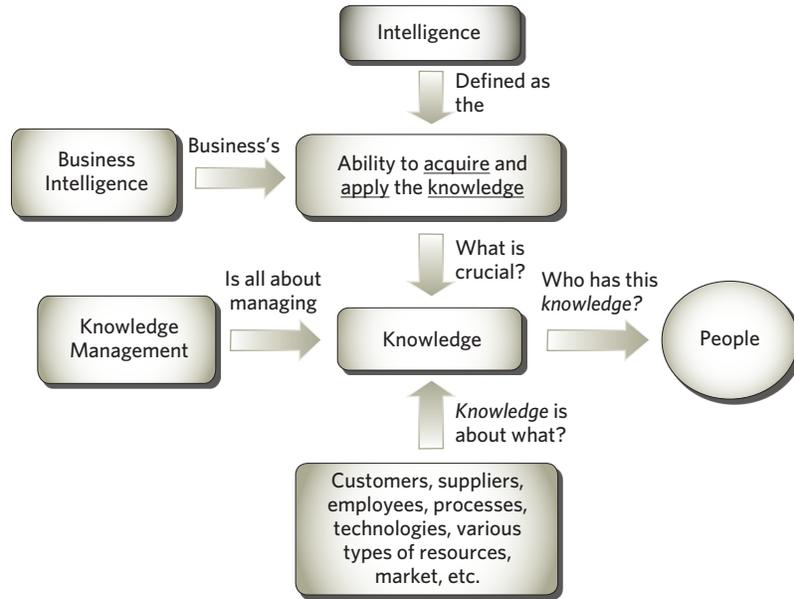


Fig. 2 : Connecting KM and BI by defining intelligence

knowledge and skills” and knowledge “as facts, information, and skills acquired through experience or education” [2]. Definition of knowledge makes “skill” as subset of knowledge. The intelligence can be defined as the ability to acquire and apply knowledge. Business intelligence combines words business and intelligence, it reflects the ability of business to acquire and apply knowledge. KM is all about managing knowledge: creating, codifying, storing, sharing, disseminating, using and applying knowledge. So “knowledge” connects BI and KM, KM facilitates and enables organization to acquire and apply knowledge. People in the organization are treated as knowledge assets. They possess lot of knowledge about the culture,

processes, technologies, customers, suppliers and various resources. However, most of what they possess is in tacit form. One of the major tasks in KM is to make it explicit so that it can be disseminated and reused on a larger scale. Figure 2 shows how BI, KM and people are interconnected.

Knowledge is an integral part of intelligence although most of the time knowledge is derived from data and information. Knowledge differs from information because knowledge is actionable, while information needs to be interpreted. Some literatures refer knowledge as information plus know-how. If know-how is not available, there is possibility of misinterpretation or can be subjective based individual's expertise. For example, spreadsheet packages like MS-Excel provide data analysis utilities like regression analysis. The outcome of regression analysis is summary report: a sort of information about regression model built by the utility. This report contains general regression statistics, ANOVA and also *t stat*, *p-value*, etc. for every independent variable. However, one

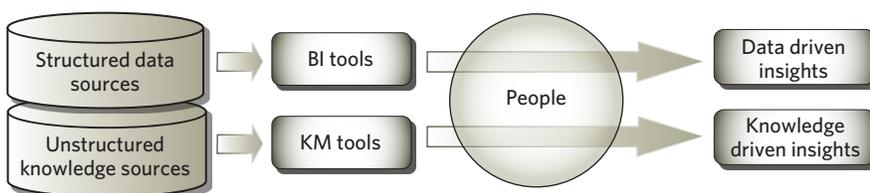


Fig. 1 : People centric BI and KM

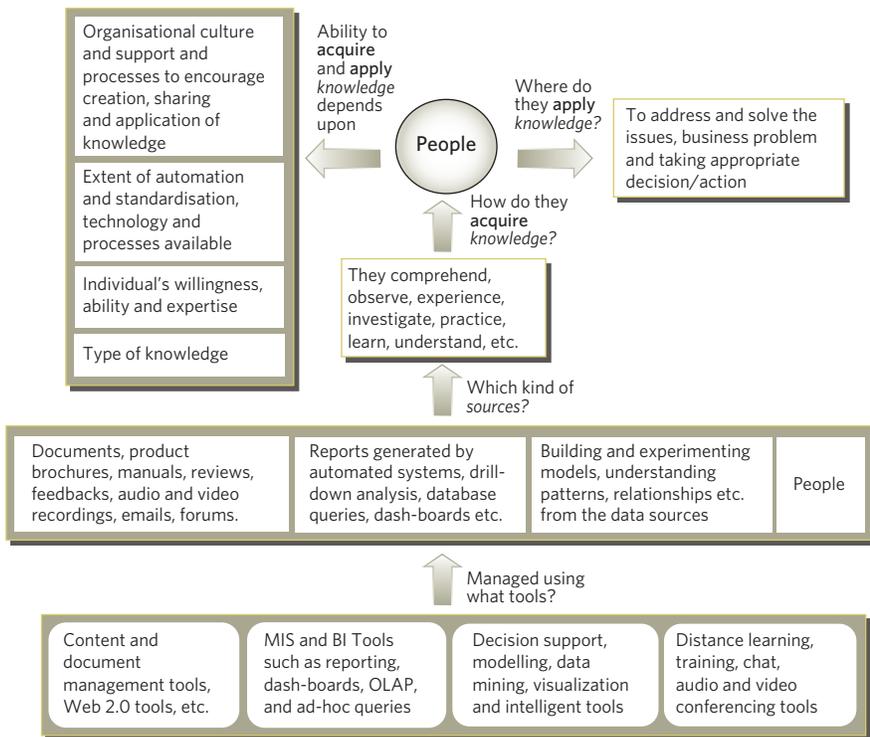


Fig. 3: Integrating BI and KM

needs to have *know-how* about regression models and various terms used such as *r-square*. Know-how is required to interpret those results, what are their possible values, what is significance of each in order to understand the accuracy and reliability of the model created. However, the final equation in the form of $Y=F(X)$ derived out of analysis may be treated as some kind of knowledge expressing relationship between independent and dependent variables. The model subsequently used for prediction by the managers.

Integrating BI and KM

Fig. 3 shows an integrated view of KM and BI. People acquire knowledge from various sources. Content and document management systems are major knowledge sources. Knowledge sources do not mean they always contain actionable knowledge, they may have data, information and contents from which knowledge can be derived. Some of these knowledge sources may be the reports, results and outcomes generated through BI tools. Integrated approach can help to get better insight. For example, in churn analytics, typically analytics team uses BI tools to predict propensity of customer to churn out, often analysing the demographic profiles and transactions

he or she has done. This is data driven approach. However, there may be other factors that may cause the customer to decide to quit. A more accurate and meaningful insight about whether a customer is likely to churn or not can be arrived at by analysing interactions the customer has done with the firm and on social networks as well as based on happenings in the market. Interactions may include feedback, number of calls to call centres, number of friends on the network and complaints registered by the customer. Market information may contain various offerings and campaigns by competitors, regulatory compliance announcements, reviews by the customers on public forums etc. This needs to integrate information from various sources internal as well as external. All these interactions and market information will be part of KM systems and experts are required to analyse the same for example to understand complaints by the consumer. This means integrated approach can help in better business intelligence which is data and knowledge driven.

Organization, knowledge creation and application

The acquisition and application

of knowledge by the people within the organization depends upon various factors. Most important one is the culture of creating, sharing and application knowledge especially the tacit one. Some of the important factors that can contribute are summarized below.

1. Organizational support and processes to encourage knowledge creation, sharing and application by all stakeholders including customers. This may include motivating them, having proper incentive structure, appreciation and awarding, recognizing the right people based on type of knowledge required and so on.
2. Automation can be a key, more and more automation means data, contents, interactions are available in digital form. Automation of touch points makes it possible to collect as much as data and information at the source. For example, if feedback system is automated through interfaces like IVR (interactive voice response) where the caller has to select from available options, the responses are available in structured and consistent format. These responses can be analysed in real time and actions can be taken quickly.
3. Availability of technology and processes for knowledge creation, sharing and application. Bringing in standardization, structure and semantics across the organization in collecting and sharing data and contents has lot of advantages. Everybody in the organization use common vocabulary, it not only saves issues of integration but rescues analytics team from subsequent steps required such as cleansing, pre-processing, transforming before analysis using various tools. Web 2.0 and semantic web tools, technologies and standards can be adopted within the organization. Most of these are open standard, universally accepted and widely used, lot of open source tools are available and can help in seamless integration of internal systems with external ones such as social networking websites.
4. The type of knowledge created greatly impacts the reuse and thereby its application. It should be created in more explicit form (actionable)

such as business rules, manuals, FAQs, video recordings so that individuals can quickly go through them, understand and take decisions based. Websites like eHow.com contain more actionable knowledge compared to websites like Wikipedia. Contents in Wikipedia are more of descriptive form can be referred as implicit knowledge source. One needs to understand and comprehend. Figure 4 shows knowledge types and conversion. Converting tacit knowledge into explicit form is called as externalization while converting from explicit to tacit is called as internalization. Socialization means tacit to tacit conversion while explicit to explicit is called as combination. Figure 5 illustrates how BI, KM and Web 2.0 are integrated together to get more information about customers and improve customer service. It shows various people involved in and roles they play.

Use of meta-knowledge such as keywords, moods, tags, taxonomies, folksonomies (tags, book marks, etc. create by people) and ontologies value add to existing data, contents and knowledge. It helps not only to search data and contents efficiently and meaningfully but also to make more abstraction and

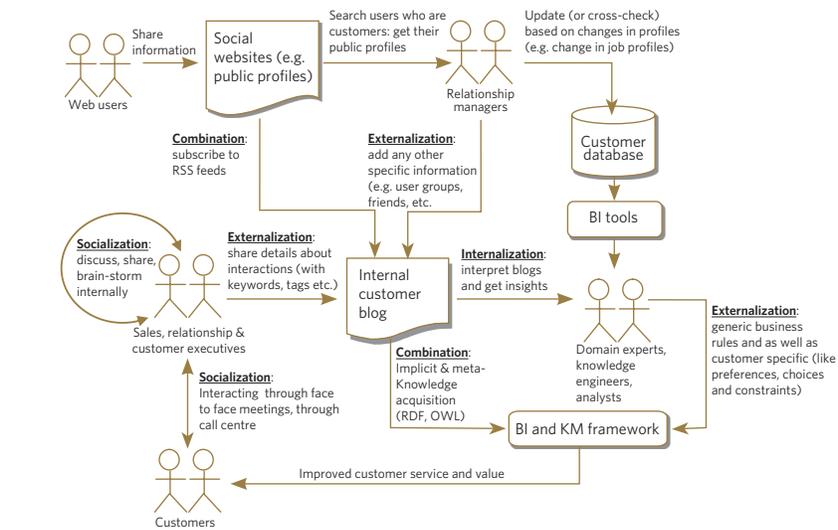


Fig. 5 : Using BI, KM and Web 2.0 to improve customer service [3]

generalization. For example, product taxonomies (like categorization) makes it easier to understand what a customer likes in general, any specific interests and possibly look for more cross-selling opportunities across the different types of products.

Conclusion

Automation has greatly helped the organizations in automating manual function and people centric business processes. Enterprise systems such as

ERPs and CBS (core banking solution) make it possible to have seamless business processes spanning across various functional areas. These systems facilitate various delivery channels: Web, SMS, IVR and having more customer touch points and customer interactions. Huge amount of data and contents are generated by these systems. As many and many business are becoming e-businesses, the competitive and sustainable advantage lies in how fast organizations get insights from what they have as well as from external knowledge resources such as Web 2.0. Organizations get better ROI on existing IT investments by having proper KM and BI systems in place. However, these systems are people centric. People play very vital role. If they are knowledgeable, they can possibly take advantage of every opportunity they come across and proactively look for more opportunities. Employees can serve the customers well if they have right knowledge about them, products and services, processes and various resources. Organizational culture and support for knowledge creation and use, having right people and knowledge, right technology and processes in place can give competitive advantage.

References

[1] Rita Sallam and Kurt Schlegel. *Using Gartner BI Platform MQ to Standardize Your BI Capabilities*. Available at <https://www.gartner.com/it/page.jsp?id=1332842> access in October 2011
 [2] <http://www.oxforddictionaries.com/definition/intelligence> accessed in October 11.
 [3] R M Sonar (2011). *Next Generation Business Intelligence: A knowledge-based approach*, Vikas Publishing House, New Delhi.

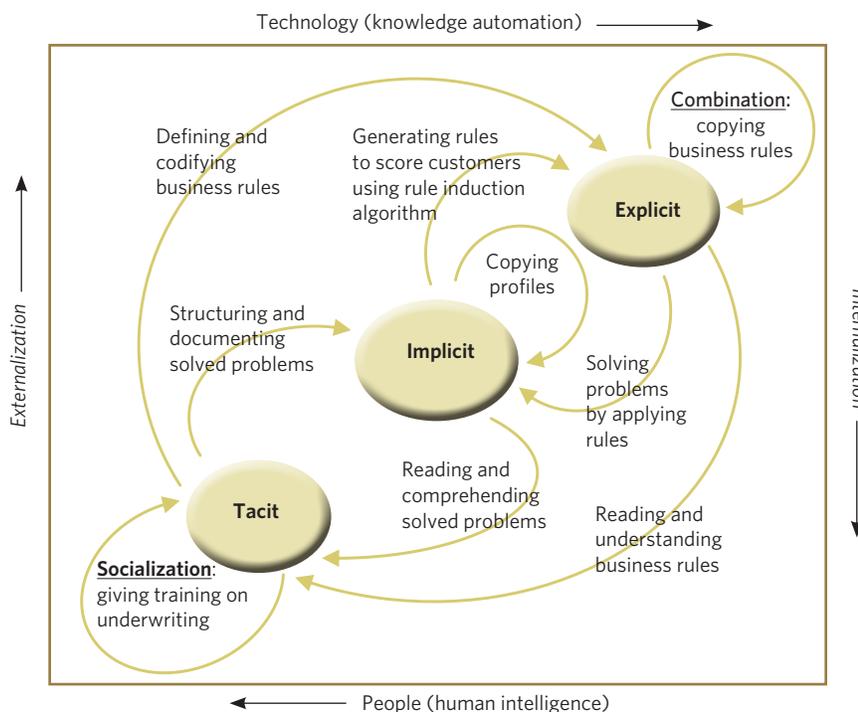


Fig. 4 : Types of knowledge and conversion [3]