ISSN: 2395-7852

International Journal of Advanced Research in Arts, Science, Engineering & Management

Volume 10, Issue 3, May 2023

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

Impact Factor: 6.551

International Journal of Advanced Research in Arts, Science, Engineering & Management (IJARASEM)

| ISSN: 2395-7852 | www.ijarasem.com | Impact Factor: 6.551 |Bimonthly, Peer Reviewed & Referred Journal|

| Volume 10, Issue 3, May 2023 |

Integrated Business Planning and Business Intelligence

Dr. Krishna Kumar Verma

Associate Professor, HPKV Business School, Central University of Himachal Pradesh, Dharamshala, Himachal Pradesh, India

ABSTRACT: Integrated business planning (IBP) is a process for translating desired business outcomes into financial and operational resource requirements, with the overarching objective of maximizing profit and / or cash flow, while cutting down risk. The business outcomes, on which IBP processes focus, can be expressed in terms of the achievement of the following types of targets:

- Revenue & demand
- Service levels
- Inventory levels
- Profits & margins
- Cash flow

KEYWORDS: IBP, financial, profit, cash flow, revenue, integrated, business, planning, cash flow

I.INTRODUCTION

Integrated Business Planning is defined in different ways. One challenge in developing a common definition of IBP is that there is no universally agreed way of describing different degrees and forms of integrated processes. Mature IBP processes enable organizations to bring together different elements of planning into a single process. This includes, but is not limited to, the following:[1]

- Supply & demand
- Finance & operations
- Functions & business processes
- Strategy / Outcomes & business processes
- Financial and non-financial measures
- Cash flow, costs and revenues[2]

The role of IBP is to balance these different objectives in a way that achieves the best overall result. One way of accomplishing this is with prescriptive analytics. These tools are often employed in these processes to mathematically optimize parts of a plan, a classic example of which is inventory investment. The most mature IBP processes try to mathematically optimize all aspects of a plan.[3]

The term integrated business planning is an outgrowth of sales and operations planning (S&OP) a term referring to processes that balance demand with manufacturing resources.[4]

There has been a lot of focus on integrated business planning in the context of sales and operations planning. Gartner refers to a 5-stage S&OP maturity model, wherein IBP is referred to as the Phased 4 & 5.[1] Integrated Business Planning however is broader than S&OP. It is an approach that combines Enterprise Performance Management (EPM) and S&OP to provide incremental capabilities that neither provides individually. In so doing,[5] IBP platforms address long-standing challenges that financial and operational professionals have struggled to overcome. The result: opportunities for step change improvements to how manufacturers plan, manage and govern their business.[2] Here,

the focus is on strengthening the financial integration and reconciliation of plans, as well as increasing the responsiveness of the supply chain using ad-hoc reports and what-if scenario analyses.[3] To better predict customer demand, machine-learning technology helps to identify correlation patterns and automate the detection of demand changes. [4]

Integrated Business Planning requires the following capabilities to be enabled:[6]

a) Enterprise Model

- Ability to create a demand chain model
- Ability to create a supply chain model
- Ability to create a finance chain model[7]

b) Integrated Planning

- Ability to create a plan across multiple functions
- Ability to create predictive and collaborative plans[8]

c) Enterprise Optimization

- Ability to create optimized plans across multiple constraints
- Ability to create financial integration across optimization

II.DISCUSSION

IBP has been used to model and integrate the planning efforts in a number of applications, including:

- Product profitability
- Customer profitability
- Capital expenditures
- Manufacturing operations
- Supply chain
- Business processes (human and information-based)
- Business policy
- Market demand curves
- Competitive strategy

All of the above can be summarized as Enterprise Optimization use cases.[9]

Some argue that IBP is not any different from S&OP. Patrick Bower has described IBP as a marketing hoax, [5] a name developed to create confusion and sell consulting and system services. The main proponents of IBP are consulting companies. In response to this criticism, it has been asserted that IBP is not a marketing hoax, [6] but an important part of Enterprise Performance Management (EPM) system.[10]

Another criticism is that IBP is not academically defined[7] and is supply chain biased in its definition. The lack of academic standard leaves room for interpretation to what IBP is, which is confusing practitioners. In a 2015 S&OP survey, [8] 32% of participants answered that there is no difference between S&OP and IBP, 20% "did not know", and 71% of participants answered that there is a need for more industry standards around S&OP.[11]

It has been called out that IBP has a lack of governance and in need of an industry group to create a unified definition. Due to the lack of academic and industry standards, there has been an attempt to create an open source definition for IBP:

A holistic planning philosophy, where all organizational functions participate in providing executives periodically with valid, reliable information, in order to decide how to align the enterprise around executing the plans to achieve budget, strategic intent and the envisioned future.[12]

III.RESULTS

Business intelligence (BI) comprises the strategies and technologies used by enterprises for the data analysis and management of business information.[1] Common functions of business intelligence technologies include reporting, online analytical processing, analytics, dashboard development, data mining, process mining, complex event processing, business performance management, benchmarking, text mining, predictive analytics, and prescriptive analytics.[13]

BI tools can handle large amounts of structured and sometimes unstructured data to help identify, develop, and otherwise create new strategic business opportunities. They aim to allow for the easy interpretation of these big data. Identifying new opportunities and implementing an effective strategy based on insights can provide businesses with a competitive market advantage and long-term stability, and help them take strategic decisions.[2]

Business intelligence can be used by enterprises to support a wide range of business decisions ranging from operational to strategic. Basic operating decisions include product positioning or pricing. Strategic business decisions involve priorities, goals, and directions at the broadest level. In all cases, BI is most effective when it combines data derived from the market in which a company operates (external data) with data from company sources internal to the business such as financial and operations data (internal data). When combined, external and internal data can provide a complete picture which, in effect, creates an "intelligence" that cannot be derived from any singular set of data.[3]

Among myriad uses, business intelligence tools empower organizations to gain insight into new markets, to assess demand and suitability of products and services for different market segments, and to gauge the impact of marketing efforts.[4]

BI applications use data gathered from a data warehouse (DW) or from a data mart, and the concepts of BI and DW combine as "BI/DW"[5] or as "BIDW". A data warehouse contains a copy of analytical data that facilitates decision support.[14]

The earliest known use of the term business intelligence is in Richard Millar Devens' Cyclopædia of Commercial and Business Anecdotes (1865). Devens used the term to describe how the banker Sir Henry Furnese gained profit by receiving and acting upon information about his environment, prior to his competitors:

Throughout Holland, Flanders, France, and Germany, he maintained a complete and perfect train of business intelligence. The news of the many battles fought was thus received first by him, and the fall of Namur added to his profits, owing to his early receipt of the news.[15]

The ability to collect and react accordingly based on the information retrieved, Devens says, is central to business intelligence.[6]

When Hans Peter Luhn, a researcher at IBM, used the term business intelligence in an article published in 1958, he employed the Webster's Dictionary definition of intelligence: "the ability to apprehend the interrelationships of presented facts in such a way as to guide action towards a desired goal."[7]

In 1989, Howard Dresner (later a Gartner analyst) proposed business intelligence as an umbrella term to describe "concepts and methods to improve business decision making by using fact-based support systems."[8] It was not until the late 1990s that this usage was widespread.[9]

Critics see BI merely as an evolution of business reporting together with the advent of increasingly powerful and easy-to-use data analysis tools. In this respect, it has also been criticized as a marketing buzzword in the context of the "big data" surge.[10] According to Solomon Negash and Paul Gray, business intelligence (BI) can be defined as systems that combine:

- Data gathering
- Data storage
- Knowledge management[16]

with analysis to evaluate complex corporate and competitive information for presentation to planners and decision makers, with the objective of improving the timeliness and the quality of the input to the decision process."[11]

According to Forrester Research, business intelligence is "a set of methodologies, processes, architectures, and technologies that transform raw data into meaningful and useful information used to enable more effective strategic, tactical, and operational insights and decision-making."[12] Under this definition, business intelligence encompasses information

management (data integration, data quality, data warehousing, master-data management, text- and content-analytics, et al.). Therefore, Forrester refers to data preparation and data usage as two separate but closely linked segments of the business-intelligence architectural stack.

Some elements of business intelligence are:[17]

- Multidimensional aggregation and allocation
- Denormalization, tagging, and standardization
- Realtime reporting with analytical alert
- A method of interfacing with unstructured data sources
- Group consolidation, budgeting, and rolling forecasts
- Statistical inference and probabilistic simulation
- Key performance indicators optimization
- Version control and process management
- Open item management

Forrester distinguishes this from the business-intelligence market, which is "just the top layers of the BI architectural stack, such as reporting, analytics, and dashboards."[13]

Implications

Though the term business intelligence is sometimes a synonym for competitive intelligence (because they both support decision making), BI uses technologies, processes, and applications to analyze mostly internal, structured data and business processes while competitive intelligence gathers, analyzes, and disseminates information with a topical focus on company competitors. If understood broadly, business intelligence can be considered as a subset of competitive intelligence.[14] Business intelligence and business analytics are sometimes used interchangeably, but there are alternate definitions.[15] Thomas Davenport, professor of information technology and management at Babson College argues that business intelligence should be divided into querying, reporting, Online analytical processing (OLAP), an "alerts" tool, and business analytics. In this definition, business analytics is the subset of BI focusing on statistics, prediction, and optimization, rather than the reporting functionality.[16] Business operations can generate a very large amount of data in the form of e-mails, memos, notes from call-centers, news, user groups, chats, reports, web-pages, presentations, image-files, video-files, and marketing material. According to Merrill Lynch, more than 85% of all business information exists in these forms; a company might only use such a document a single time.[17] Because of the way it is produced and stored, this information is either unstructured or semi-structured.[18]

The management of semi-structured data is an unsolved problem in the information technology industry.[18] According to projections from Gartner (2003), white-collar workers spend 30–40% of their time searching, finding, and assessing unstructured data. BI uses both structured and unstructured data. The former is easy to search, and the latter contains a large quantity of the information needed for analysis and decision-making.[18][19] Because of the difficulty of properly searching, finding, and assessing unstructured or semi-structured data, organizations may not draw upon these vast reservoirs of information, which could influence a particular decision, task, or project. This can ultimately lead to poorly informed decision-making.[17]

Therefore, when designing a business intelligence/DW-solution, the specific problems associated with semi-structured and unstructured data must be accommodated for as well as those for the structured data.[19]

Unstructured and semi-structured data have different meanings depending on their context. In the context of relational database systems, unstructured data cannot be stored in predictably ordered columns and rows. One type of unstructured data is typically stored in a BLOB (binary large object), a catch-all data type available in most relational database management systems. Unstructured data may also refer to irregularly or randomly repeated column patterns that vary from row to row[20] or files of natural language that do not have detailed metadata.

Many of these data types, however, like e-mails, word processing text files, PDFs, PPTs, image-files, and video-files conform to a standard that offers the possibility of metadata. Metadata can include information such as author and time of creation, and this can be stored in a relational database. Therefore, it may be more accurate to talk about this as semi-structured documents or data,[18] but no specific consensus seems to have been reached.[20]

| ISSN: 2395-7852 | www.ijarasem.com | Impact Factor: 6.551 |Bimonthly, Peer Reviewed & Referred Journal|

| Volume 10, Issue 3, May 2023 |

Unstructured data can also simply be the knowledge that business users have about future business trends. Business forecasting naturally aligns with the BI system because business users think of their business in aggregate terms. Capturing the business knowledge that may only exist in the minds of business users provides some of the most important data points for a complete BI solution.

IV.CONCLUSIONS

There are several challenges to developing BI with semi-structured data. According to Inmon & Nesavich,[19] some of those are:

- Physically accessing unstructured textual data – unstructured data is stored in a huge variety of formats.
- Terminology – Among researchers and analysts, there is a need to develop standardized terminology.
- Volume of data – As stated earlier, up to 85% of all data exists as semi-structured data. Couple that with the need for word-to-word and semantic analysis.
- Searchability of unstructured textual data – A simple search on some data, e.g. apple, results in links where there is a reference to that precise search term. (Inmon & Nesavich, 2008)[19] gives an example: "a search is made on the term felony. In a simple search, the term felony is used, and everywhere there is a reference to felony, a hit to an unstructured document is made. But a simple search is crude. It does not find references to crime, arson, murder, embezzlement, vehicular homicide, and such, even though these crimes are types of felonies".[20]

To solve problems with searchability and assessment of data, it is necessary to know something about the content. This can be done by adding context through the use of metadata.[17] Many systems already capture some metadata (e.g. filename, author, size, etc.), but more useful would be metadata about the actual content – e.g. summaries, topics, people, or companies mentioned. Two technologies designed for generating metadata about content are automatic categorization and information extraction.

Business intelligence can be applied to the following business purposes:[20]

- Performance metrics and benchmarking inform business leaders of progress towards business goals (business process management).
- Analytics quantify processes for a business to arrive at optimal decisions, and to perform business knowledge discovery. Analytics may variously involve data mining, process mining, statistical analysis, predictive analytics, predictive modeling, business process modeling, data lineage, complex event processing, and prescriptive analytics. For example within banking industry, academic research has explored potential for BI based analytics in credit evaluation, customer churn management for managerial adoption[18]
- Business reporting can use BI data to inform strategy. Business reporting may involve dashboards, data visualization, executive information system, and/or OLAP
- BI can facilitate collaboration both inside and outside the business by enabling data sharing and electronic data interchange
- Knowledge management is concerned with the creation, distribution, use, and management of business intelligence, and of business knowledge in general. Knowledge management leads to learning management and regulatory compliance.[20]

REFERENCES

1. "Gartner - Introducing the five-stage Sales & Operations Planning maturity model".
2. ^ "IBP Industry Week cite web".
3. ^ "Integrated Business Planning (IBP) - Camelot - Management Consultants". www.camelot-mc.com. Retrieved 2017-07-17.
4. ^ "SAP Integrated Business Planning (IBP)".
5. ^ http://www.jaguar-aps.com/wp-content/uploads/2019/06/IBP-is-a-Hoax.pdf

| ISSN: 2395-7852 | www.ijarasem.com | Impact Factor: 6.551 |Bimonthly, Peer Reviewed & Referred Journal|

| Volume 10, Issue 3, May 2023 |

6. ^ "Integrated Business Planning Is Not Just a Marketing Hoax". industryweek.com. Retrieved 2022-06-25. Manufacturers can achieve step change improvements to how they plan and manage their business by developing strategies that combine EPM and S&OP.
7. ^ "The rise and fall of S&OP". 27 February 2015.
8. ^ https://supplychaintrends.files.wordpress.com/2015/12/supply-chain-trend-sop-pulse-check-2015.pdf
9. ^ "A new definition for Integrated Business Planning". Supply Chain Trend. 2015-11-25. Retrieved 2022-06-25.
10. Dedić N. & Stanier C. (2016). "Measuring the Success of Changes to Existing Business Intelligence Solutions to Improve Business Intelligence Reporting" (PDF). Measuring the Success of Changes to Existing Business Intelligence Solutions to Improve Business Intelligence Reporting. Lecture Notes in Business Information Processing. Lecture Notes in Business Information Processing. Vol. 268. Springer International Publishing. pp. 225–236. doi:10.1007/978-3-319-49944-4_17. ISBN 978-3-319-49943-7. S2CID 30910248.
11. ^ (Rud, Olivia (2009). Business Intelligence Success Factors: Tools for Aligning Your Business in the Global Economy. Hoboken, N.J: Wiley & Sons. ISBN 978-0-470-39240-9.)
12. ^ Coker, Frank (2014). Pulse: Understanding the Vital Signs of Your Business. Ambient Light Publishing. pp. 41–42. ISBN 978-0-9893086-0-1.
13. ^ Chugh, R & Grandhi, S 2013, 'Why Business Intelligence? Significance of Business Intelligence tools and integrating BI governance with corporate governance', International Journal of E-Entrepreneurship and Innovation, vol. 4, no.2, pp. 1–
14. https://www.researchgate.net/publication/273861123_Why_Business_Intelligence_Significance_of_Business_Intelligence_Tools_and_Integrating_BI_Governance_with_Corporate_Governance
14. ^ Golden, Bernard (2013). Amazon Web Services For Dummies. For dummies. John Wiley & Sons. p. 234. ISBN 9781118652268. Retrieved 6 July 2014. [...] traditional business intelligence or data warehousing tools (the terms are used so interchangeably that they're often referred to as BI/DW) are extremely expensive [...]
15. ^ Miller Devens, Richard (1865). Cyclopaedia of Commercial and Business Anecdotes; Comprising Interesting Reminiscences and Facts, Remarkable Traits and Humors of Merchants, Traders, Bankers Etc. in All Ages and Countries. D. Appleton and company. p. 210. Retrieved 15 February 2014. business intelligence.
16. ^ H P Luhn (1958). "A Business Intelligence System" (PDF). IBM Journal of Research and Development. 2 (4): 314–319. doi:10.1147/rd.24.0314. Archived from the original (PDF) on 13 September 2008.
17. ^ D. J. Power (10 March 2007). "A Brief History of Decision Support Systems, version 4.0". DSSResources.COM. Retrieved 10 July 2008.
18. ^ Power, D. J. "A Brief History of Decision Support Systems". Retrieved 1 November 2010.
19. ^ "Decoding big data buzzwords". cio.com. 2015. BI refers to the approaches, tools, mechanisms that organizations can use to keep a finger on the pulse of their businesses. Also referred by unsexy versions -- "dashboarding", "MIS" or "reporting".
20. ^ Springer-Verlag Berlin Heidelberg, Springer-Verlag Berlin Heidelberg (21 November 2008). Topic Overview: Business Intelligence. doi:10.1007/978-3-540-48716-6. ISBN 978-3-540-48715-9.

IJARASEM

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

निस्केयर NISCAIR

International Journal of Advanced Research in Arts, Science, Engineering & Management (IJARASEM)

| Mobile No: +91-9940572462 | Whatsapp: +91-9940572462 | ijarasem@gmail.com |

www.ijarasem.com