

Business Intelligence (BI) Tools



Irrespective of the size of the organisation, having your data spread across multiple third party and/or internal systems may give you some hard tremors in terms of monitoring of data and taking decisions based on it. The concern is especially important in this day and age where the regulatory environment is extremely stringent. Professionals like chartered accountants who play lead roles as advisors as well as in execution capacity need to devise innovative and effective ways to deal with this situation. This article explains features of 'Business Intelligence Tools' that play a key role in planning and decision making process of an organisation and discusses opportunities for the chartered accountant professionals in this segment. Read on...

The concerns which are most daunting upon the chief operating officers on outsourcing front in current era include:

1. Data being spread all over the place due to multiple systems, and
2. Post-processing and monitoring of output.

One of the natural ways thought upon to resolve the above concerns involves either maintaining all the systems in-house or enforcing a single vendor policy. None of these options seem feasible in the wake of cost, resources and expertise. Developing systems internally takes a huge drain on cost and efforts of the organisation. More importantly, it diverts the very purpose of the organisation's existence. Surely, companies do not exist to exhaust all its resources on operational issues. Having a single vendor policy

also does not seem too exciting, given the fact that no single vendor possesses expertise on all the required parameters and domain. It is only apt to reach out to specialised vendors for specific requirements.

Having debated over the above options for some time, modern day executives have resorted to what is called a 'Business Intelligence Tool' or the more common way of referring 'BI tool' to address these requirements. BI in its pure form integrates technology and functional features to form a robust reporting and monitoring tool. BI tool is a known concept in the technology world but seldom an area of focus for professionals like chartered accountants due to its limited outreach and scope in early days. The recent phenomenon of technology has resulted in digitalising every area of an organisation thereby blending technology with functional performance and outcomes. This has made it inevitable for finance professionals to get their hands dirty on this subject.

The way to think about a BI tool is that it works like an aggregator plus an automation tool making different systems talk to each other with a lot of customised features. The so called intelligence is



CA. Ankit Shah

(The author is a member of the Institute who may be reached at anky.09@gmail.com.)

built to consolidate the data from various systems and deliver them in a manner most suited to an organisation. The core objectives that go into making of a BI tool include:

- a) Consolidation of data,
- b) Post processing of data,
- c) Alarms and red flags checks on output, and
- d) Elimination of manual dependency.

A BI tool has been exposed to various functions within an organisation, most of which are used in an interrelated manner. Some of the most evident themes which have arisen from a BI use case have been described below:

Risk Management and Compliance

With the sophistication of Indian financial markets and a growing intellectual class of investor community, risk management has never been of such prime importance as today. This includes all types of risks viz., market risk, credit risk and operational risk. Any risk management function involves three primary aspects i.e., identification, measurement and monitoring of risk. While the identification and measurement aspects are taken care by an internal or third party risk systems, it is the monitoring aspect which the BI tool is most apt for.

Market Risk: Financial risk plays crucial in every organisation and is directly aligned with front office. It involves keeping a tab on various trading/investment related risk parameters including exposure, value at risk (VaR), sensitivities, stress tests, etc.

Risk analytics systems measure these parameters on top of which there is an incremental need to develop a robust risk monitoring system. This is to ensure that risks are maintained within permissible limits and prompt actions are taken as and when required. This is required to cater to various elements like compliance, capital adequacy and regulatory limits. A BI tool gets integrated with the mainstream risk system and a hand shake is created to allow swift flow of output to a BI tool. Pre-set thresholds are inbuilt within the tool allowing ongoing monitoring of exposures and risks as market movements occur. This allows the risk manager and front office team to be pro-active in handling worsening situations and avoid monetary losses to that extent. In addition to the above, back-testing is another important area where BI tools can help whereby cross monitoring of mark-to-market PnL and VaR is performed to confirm the VaR model validation.

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Credit Risk: This involves keeping a track of exposures and risk arising out of various counterparties. In an OTC market setting, it is eminent to maintain counterparty limits based on the risk tied to them and to avoid concentrated exposures with a single counterparty.

A BI solution monitors these exposures highlighting exceptions on each trade and counterparty. Counterparty exposure is also a very important element of regulatory compliance wherein most local and global regulations impose some kind of counterparty check limits to be maintained. This includes regulatory bodies and provisions like RBI, EMIR, AIFMD, UCITS, BASEL, etc.

Operational Risk: This relates to maintaining internal controls within an organisation and deals with aspects within and outside of investment spectrum. Operational risk covers widest dimensions of an organisation and is a necessity for all the functions. It relates to processes like expense management, payroll, HR policies, procurement, audit, fraud, etc.

BI tools can cover the objective aspects of these controls by maintaining a check list and monitoring the flow of information. Needless to say, this will involve integration of multiple systems which is again a pre-requisite with any BI solution.

Artificial Intelligence

A sophisticated version of BI solution includes incorporating artificial intelligence or what we term as *algorithms*. A traditional version of BI tool is expected to throw output and alarms to help facilitate a decision making process for management and executives. This process can be further supplemented by a feature to take decisions when an exception occurs. This can be achieved by artificial intelligence.

A simple example of such feature would be in a trading scenario wherein if the exposure increases above x% of overall portfolio, it automatically

triggers a wind down of position in the market. While this concept is fairly advanced, it is appreciated that incorporating an exhaustive level of decision making is neither possible nor feasible for any organisation. Having said that, the idea is to relieve the senior management from taking standardised decisions or what we call 'rules of thumb'.

Technology and BI

As with any other system or product, technology is the single most important element

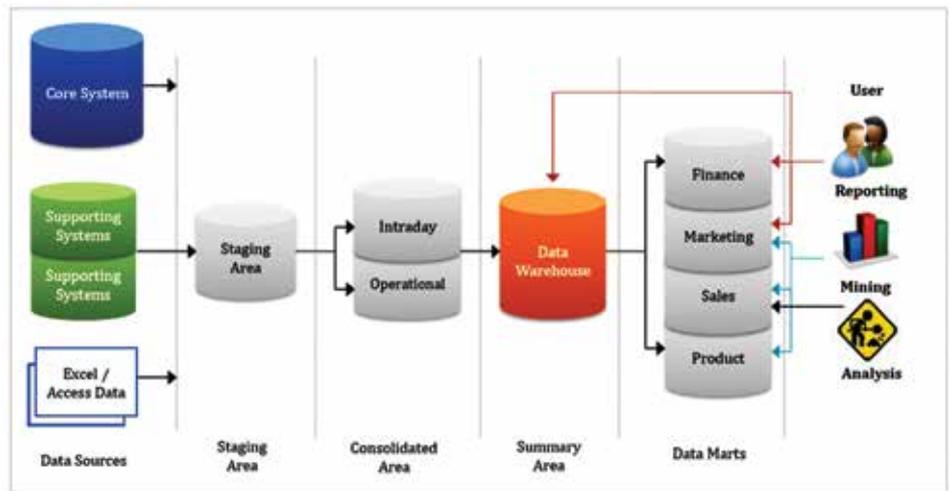
which drives the success of any BI solution. In a world where technology choices are in abundance and constantly evolving, it is often a difficult decision to select a technology which is most suitable to a particular use case.

While for some the choice of technology is more in terms of licensed software vs. an open source platform, it is although recommended to go with the technology which can optimise the end goal. The broad technology stack is split across companies like IBM, SAP, Oracle and Microsoft. Additionally, there are multiple open source platforms to choose from including, Pentaho, Jasper, Hadoop and R programming. Open source technologies are those which do not incur any licensing requirements and results in lesser overheads in terms of system maintenance. Open source technologies allow even the smaller companies to leverage the BI route by having a cost effective set-up.

Most companies already have some sort of subscription to commercial technologies and it only makes sense to leverage those technologies by extending its usage to create BI tools. Having said this, technology choice calls for a balancing act on part of the management. It is never a straight forward decision to balance the business requirements with technology keeping in view the analytical requirements and cost considerations. Again, there is a trade off in terms of processing speed, ability to handle data volumes, integration compatibility, and visual appeal and so on.

BI Workflow

Showcased below is a typical BI framework:



Source: MindCraft Software Pvt. Ltd. (MindCraft is a leading BI solutions provider in BFSI segment in India.)

Dashboard Reporting

Bulky spread-sheet reports are a thing of past. Management, investors and executives heavily emphasise the need for eye detailing dashboards by reporting key parameters. A BI tool can be tuned to squeeze key reporting parameters by creating a dashboard structure. This is achieved by using what is called an Extract-transform-load (ETL) process, which transforms the source data into user friendly logic and format. What's more is that these dashboards can be a by-product of data from multiple report sources.

Dashboard reports include a combination of mathematical logic, formatting and data massage. Some of the noteworthy features include:

- Data Sorting– e.g., reporting top five values of each parameter
- Data Visualisation– charts, graphs, pie charts, etc.
- Variance Analysis – key differences in values based on time scale or segment, e.g., YTD, QTD analysis
- Trend Analysis

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- Slice and Dice—carving reports across rows and columns based on pre set dimensions

Another important feature of dashboard reporting is the ability to incorporate *ad hoc* or on the fly reporting mechanism. Increasing number of BI tools include an ability of a drag and drop feature to create on the fly MIS. Users can select reporting parameters from a list of parameters and tune the formatting as suitable.

Real Time Analysis

Much of the trading or market driven indicators require a need for a real time tracking in order to take timely actions. This is true for areas like risk management, compliance, capital usage limits, *etc.* Many of these objectives can be achieved by integrating add-ons or connectors to the core front office or data application system and creating a hand shake with the BI tool. This includes front office trading systems to absorb trade feeds and data platforms like Bloomberg or Reuters or any open source public data source like yahoo finance to track the market movements.

Way Forward

The BI market is already clocking about \$15 billion market currently and expected to grow at a rapid pace for the years to come. According to Gartner, world's leading information technology research and advisory company, the BI market is expected to reach over \$20 billion by 2018. Having described the above use case, it is clear that BI is not just an efficiency tool but a very strong cost reduction tool as well. In the growing wake of cost reduction exercises by organisations, a BI tool investment goes a long way in achieving this objective. Lack of manual intervention is the single most important flux point of saving cost with a BI solution.

Currently, IT and technology companies dominate the offerings in BI segment. This trend is fast changing with growing number of boutique analytics and techno-functional companies entering this segment in a big way. The USP these companies

bring over a traditional IT company is the functional or domain expertise within the area of specific domain like capital markets, insurance, banks, manufacturing, pharma and e-commerce.

Another important aspect going forward is the aspect of sophistication which comes with a BI solution. There is an increasing trend of adding additional features to the BI suite like artificial intelligence, enterprise level integration, access controls, commentary features and so on. These features raise the benchmark of what a standard BI solution can offer. Having said this, firms need to be careful and vigilant in deciding the extent of automation and intelligence they would want to incorporate in such solutions. At the end of the day, it is the people who run the organisation and the flavour of subjectivity, instinct and experience can never go out of fashion while making some key decisions.

The final trend observed during recent times is translation of these tools in to more compatible instruments like mobiles and tablets. Executives often have an urge to showcase various metrics and performance while being on the move. This is also true to business development and sales staff who demonstrate these capabilities to their prospects while on field. This brings a need for multi versions of GUIs to facilitate these features.

Opportunities for CAs

To summarise the things, chartered accountants can play a major role in implementation and execution of such BI tools in a BFSI segment. It is of common knowledge that these BI tools are techno-functional in nature and much of the expertise from the functional stand-point is crucial for its success which is where CAs step-in. This includes areas of BI in capital markets, finance, analytics and BFSI in general. The so called logic or rules are of crux for the successful implementation of these solutions in addition to the technology stack.

CAs in practice can also propose formulation of these tools and play a lead role as a consultant in drawing success of the tool. The BI tool is of immense help during audit exercise to give a single point clearance of all the functions in an organisation. Needless to mention, audit checks can also be automated from an internal control perspective to trigger an exception whenever it arises. ■