Review of Marketing / Business Analytics Infrastructure in SELECT India-based Organizations

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Abstract

The paper provides details of a detailed survey carried out in five Indian organizations operating in different industries – oil and gas, food products, stock trading, hospitality and industrial chemical. Diversity of industry was maintained to ensure some level of representativeness of the study to the typical India based organization. Study pertained to both the marketing and operations functions and was focused on how business data was managed and used for decision making.

One unique feature about these organizations was that none of them were of the profile of an active Analytics driven organization which would have a natural appetite for data science and data mining output. This was a deliberate strategy to the direct the study beyond the existing boundaries of what is perceived to be an "Analytics focused organization".

The major finding is that unlike popular perceptions, most organizations have a repository of useful information that can be utilized to support decision making. However, there are structural constraints such as top management commitments, culture, internal power and control, perceived value of analysis, near term priorities and exigency that impede organizational capabilities of developing processes for better analytical output. Also, focus seems to be erroneously targeted on analytical techniques and not on evaluating information value to decision making.

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As a sequel to our earlier survey of organizations in India on their Analytics process capabilities[i], we under took a more detailed study of five India headquartered organizations across industries to assess their readiness to adopt data driven analytics as a support for decision making. While we made attempts to broaden our reach of organizations, the descriptions below are based on organizations that allowed us to conduct the study. This relatively deeper study of organizations was meant to complement our boarder survey of perceptions of industry leaders that we have reported in an earlier paper.

In most cases, we approached the head of the business and/or function to allow us access to their operations. What follows is our impression on the nature of information available (dependent on the business) and also the kind of use the data is put to for business requirements.

We must add that most organizations that were approached responded positively to our request for a meeting, they provided a broad overview of their databases and current initiatives with databases, and debated further use of the data. However, many organizations were reluctant to share data and experiment with possible enhancements to their currently available capabilities. This position necessarily hampered our ability to fully gauge the potential for a typical organization in India to leverage its data for decision making. Nevertheless, the insights developed are worthwhile and presented below.

An Upcoming Hospitality Chain

Focus on organizing Business Data for enhancing the quality of insights

A relatively new hospitality chain with facilities in less than 30 locations across India was studied. The chain maintains two prominent data bases of its customers that is used for decision support – transaction (bookings) data for revenue management, accounting and operational monitoring and, b) Loyalty database that is used for tracking repeat customers for generating marketing, promotions and customer retention initiatives.

Both these initiatives are managed separately and there is no data integration across these two platforms to manage the information holistically (Figure 1).

What does it take to manage information holistically? Theoretically, it may require someone to utilize their planning processes to connect the disparate pieces of information and build a roadmap to leverage the information source for greater organizational use. The reality is that most organizations (and this one too) do not have personnel to spare and who have enough time to conceptualize such a solution. They are preoccupied with their near term operational responsibilities to apply their mind on longer term value additions. The feeling is that that "we shall cross the hurdle when we encounter it….". It was apparent that there is no felt need for such

initiative and if required a technology consultant would be hired at a later date to build the infrastructure.

Figure 1

Integrated Data Systems (illustrative)
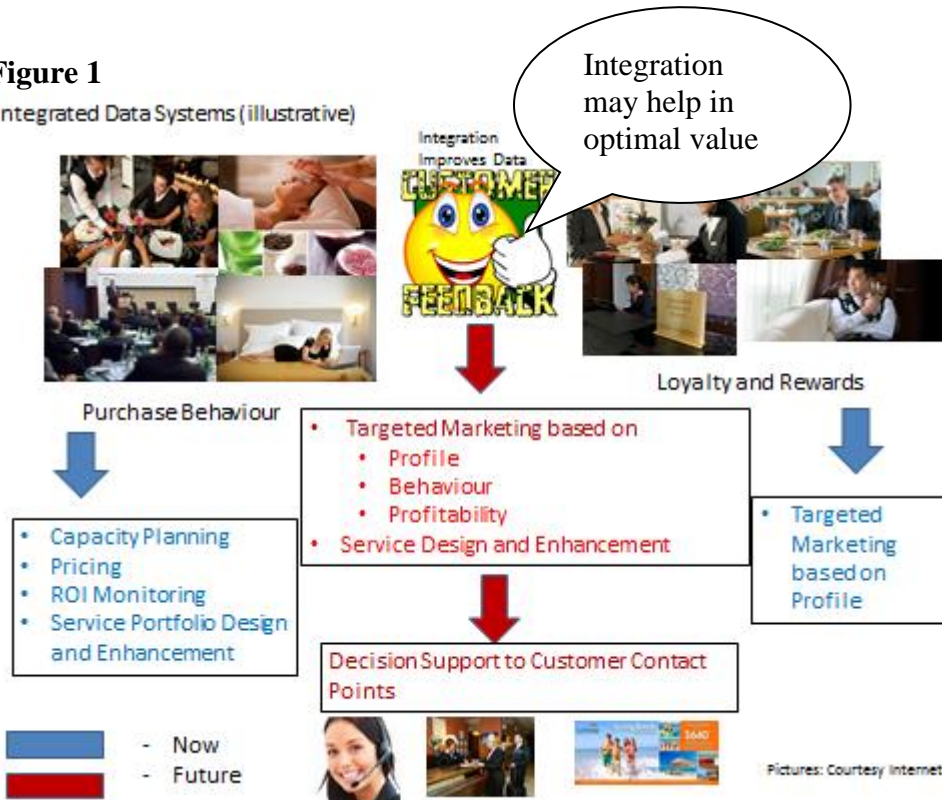
An Oil Refinery

Throughput Dash Board for a Decision Maker: Building a more effective monitoring system for the decision maker

This refinery (like many) has invested in the distributed control system (DCS) to monitor crude oil refining process operations. This system monitors, displays and stores various stage wise process parameters along with the plant throughput. A template of the monitoring of the throughput is given below (Figure 2). This kind of a monitoring report can be created at appropriate periodicity based on the suitable requirement of the decision makers.

However, the DCS also stores various process parameters (pressure, temperature etc.) on a continuous basis. In most cases, the data is used in real time to monitor the refining process. However, what is important is that the process data are stored as a time series which can be used to create appropriate aggregate diagnostics. Associations between changes in process parameters (on a periodic basis) can be correlated with variance in output on equivalent time intervals to develop plausible associations (may be causality). Of course, our survey rarely came across such diagnostics.

Instead, most process data from the DCS is used by operations managers to monitor plant productivity (Figure 3). For productivity review sessions, the data is not looked into formally,

but we understand that the personnel responsible for managing operations provide a view based on their experience to senior management. A plausible reason for this "reluctance" to create a diagnostic report which associates variance in throughput with variance in refining process parameters could be that such reports are not demanded by "higher authority". Asymmetry in information availability (and knowledge of information processes) may also create differential power equations within organizations, which many would not like to disrupt without a necessary demand for the same.

Figure 2

Representative dashboard for throughput monitoring: For senior management
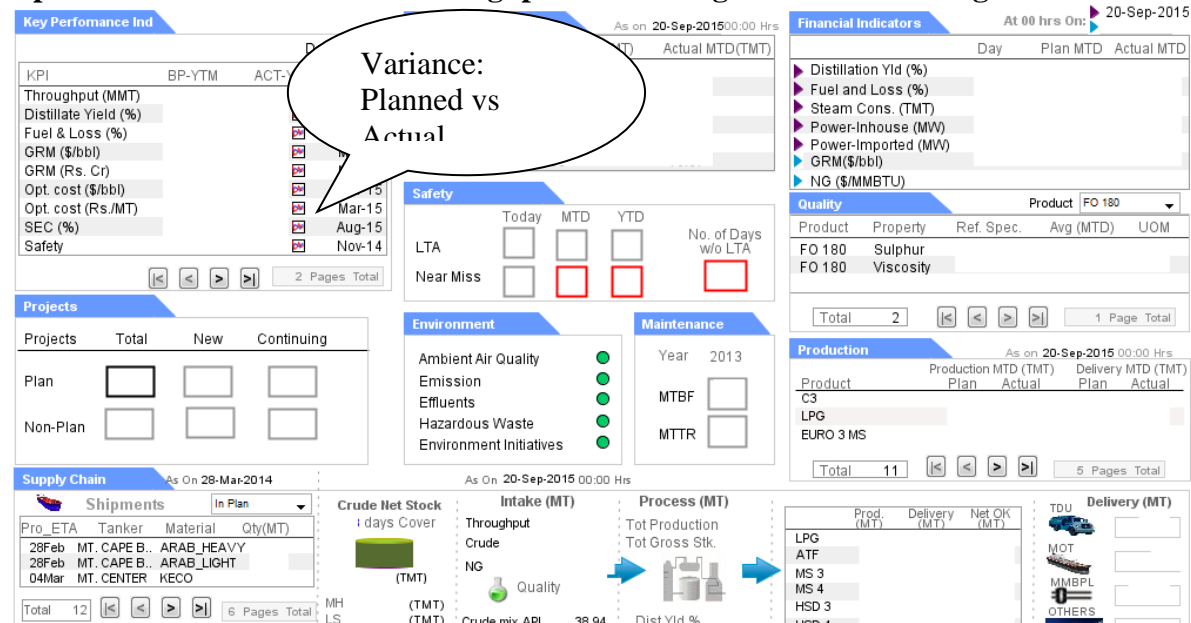
Our survey also revealed that the idea of attribution modelling (causality) using the DCS data would be of immense help to many plant / operations head. However, as stated earlier, there is some reluctance to change age old procedures and "ruffle feathers" in the process.

Figure 3   Real time monitoring of plant / process parameters: Dashboard
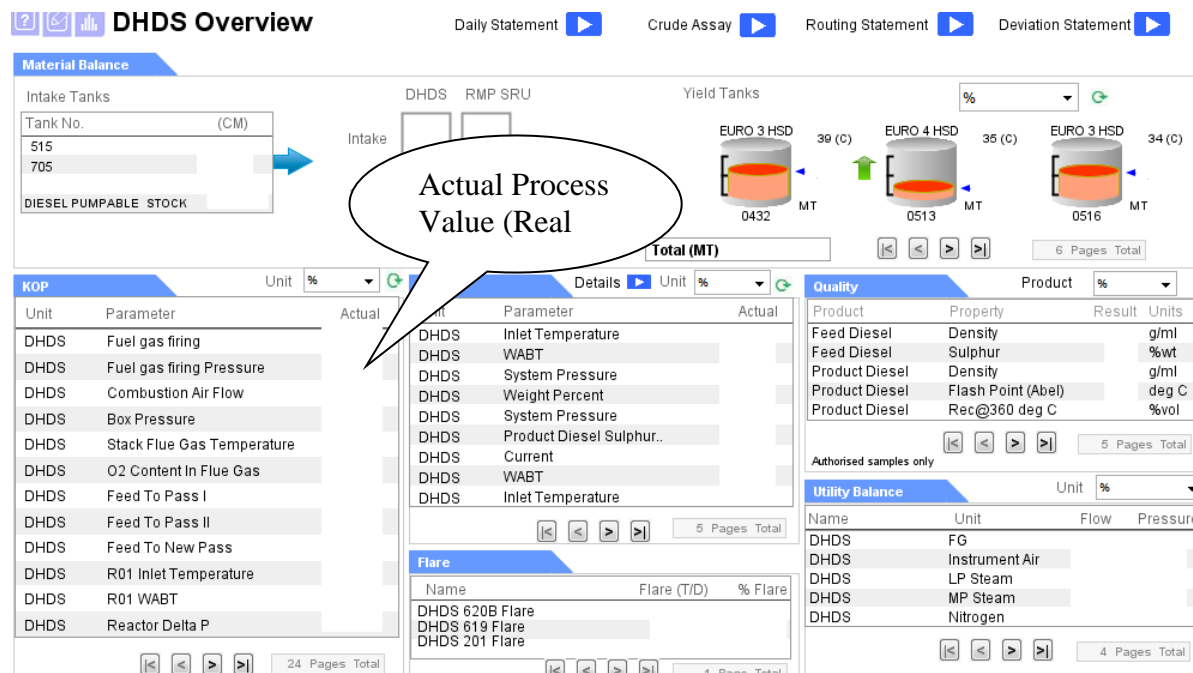
**A process industry manufacturing industrial chemicals**

A similar situation prevails at another process plant that was surveyed. This plant produces industrial chemicals. A DCS is in place to monitor and record process parameters continuously. Daily and fortnightly throughput and variance from plan is reported to senior management similar to the one described in the earlier case. However, if an attribution to variance is to be enquired, it still has to be at a review meeting with operations personnel providing a perspective rather than an automated process generating a report on variance in process parameters from the DCS.

Why then is an investment in process control and monitoring system not used optimally? Again, the question begs for an answer, while none is forthcoming from the organization. The standard refrain is that "the time is not ripe to question age-old practices". Why rock the boat when no one is questioning current practices?

We must point out that there are evidences of employees getting trained in quality management issues and some are skilled to develop reports associating process variance with throughput variances for leakage monitoring in the system. Most of these attempts are however, still sporadic and the information system is not yet being utilized to build a culture to demand higher level diagnostics (Figure 4).

Figure 4

Illustrative Water Fall Chart depicting Attribution (Due to) Analysis
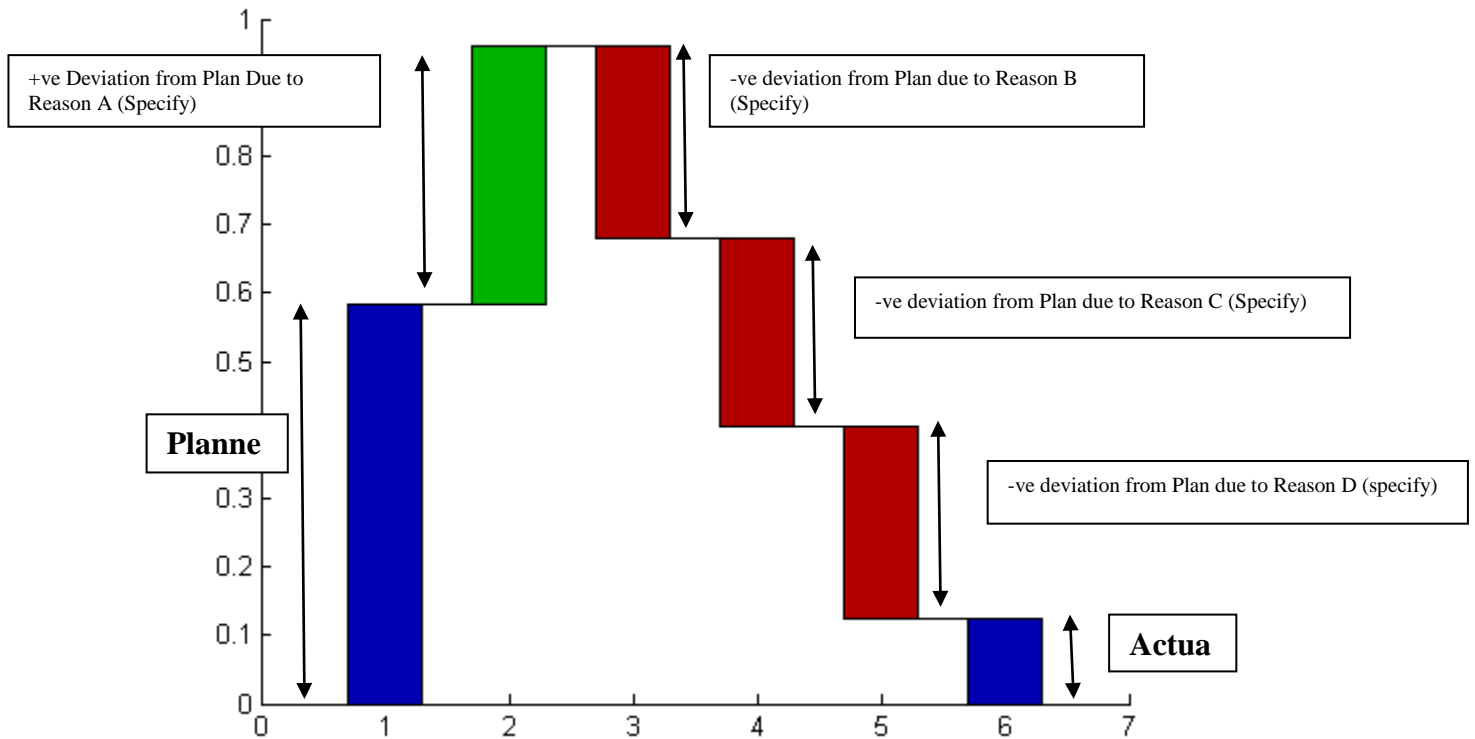
Actual = Planned + (due to Reason A) – (due to Reason B) – (due to Reason C) – (due to Reason D)

A dairy products marketing organization

A full portfolio dairy product company has product variants that run up to more than a hundred stock keeping units, including milk, processed milk products and tertiary items like chocolates. Milk being a perishable item requires immaculate planning to ensure that wastage is minimized. Such precise planning would actually require a very sophisticated forecasting/planning model.

However, much to our surprise such concerns about the need for precise forecasting were put to rest by the management. Historical basis of planning was past consumption behaviour. Our hunch (never admitted by the management) is that in spite of a large operation, given that the per capita consumption of milk in India is still abysmal, production never exceeds the intrinsic consumption capacity. Hence, planning rarely leads to over production since supply is almost always lower than market demand. Additionally, the production cycle being daily, production planning can be recalibrated at a very high frequency to address stock piling issues, especially for highly perishable items.

Hence, from a market planning perspective this dairy organization still relies on experience and hunches and collective wisdom of its dairy union members and it has worked fine for them so far. Analytics may not have a very important role in such environments for now.

A stock trading platform

We discussed the marketing function of this platform in some detail with the senior most functionary of the Marketing Department.

We studied the data on transactions of stocks that are recorded on the trading platform. Useful information regarding stock brokers and the type of transaction that they affect is recorded daily that provides insights about broker activity and quantity/quality/nature of transaction. Currently, most of the analysis of this data is about monitoring trade and attrition (loss of volume, if any). Proactive analysis for providing consultative services to brokers on transaction quality and optimal business is not part of the deliverables for the trading platform managers.

Again, performance monitoring of the trading with the generated data is not considered to be a primary activity. Many potentially interesting and creative ideas were discussed about optimal utilization of data, but were summarily dismissed from an implementation point of view due to "legal constraints".

So what did we conclude?

The set of organizations surveyed till date are seen to have enough information resources to plan their analytical processes in alignment with their business decision support. However, environmental constraints seemed to slow down the adoption to derive the "edge" to an extent. The surprising element is that the adoption of analytic practices across industries is varied in spite of similar potential.

The causes for this variation are many:

1) Lack of necessity to do precise planning as in the case of the dairy products company.
2) No need to change the business reporting protocol since it may create unnecessary discomfort.
3) In some cases further investments are required to improve the data management infrastructure.
4) Overall, it was felt that while information is in "good" supply, the business environment was not feeling the need to mine the optimal value of the information.
5) Operational and near term commitments were hampering future development opportunities.
6) If no one is doing it, it is ok not to worry about it.
7) Not worth the toil, why bother?
8) No one has brought the technology from elsewhere like in FMCG, so how can one do it?

The significant point to be made out of this survey across some organizations is that detailed analysis is still considered as irrelevant (overkill) in an environment when experience and instincts still work very well.

Be that as it may, it may just take one foresighted organization to break the "inertia" barrier for such a practice to become an industry standard.

The "trend" towards Predictive Analytics

Our enquiry also exposed us to interesting discussions in organizations on predictive analytics and how organizations were contemplating about the need for the same. There is a sense that a potential Analytics process in an organization may be a product based "solutioning" system that could be exogenously implanted to enhance business productivity. Unfortunately, this perception is far removed from reality. Data availability and, right data management capabilities in conjunction with a clarity on its potential use in business decision making, appear to be the first step towards building suitable predictive / attribution models.

Directions for future Enquiry

We are intrigued by the seemingly lack of motivation among many organization leaders to look beyond the normal operational usage of business database. Numerous attempts to enquire regarding how improvements can be brought into the analytical prowess have been met with guarded optimism and often times seemingly little enthusiasm. The lack of "self-criticism" that is observed in many domestic organizations is naturally bewildering and goes against the popular sentiments expressed in trade publications on the potential of Analytics in business organizations.

We propose a few postulates based on this rather subdued perception of Analytics adoption in Indian businesses. Our strong prior is that:

1) It has not caught the senior management's imagination and hence it is still low priority in many organizations. Nowhere did we find the senior executives very involved in discussions regarding their internal capabilities in analytics. This could be a reason for the lack of an appetite (culture) for analytics[ii].

2) The comprehension ability of decision makers to the value of analytics is still significantly vague. Hence, their ability to provide direction in developing this capability is stunted.

3) Some organizations may expect turnkey solutions to their problems and do not have internal resources to spare for development initiatives. They depend upon vendors who largely sell "product solutions" rather than "solutions to problems" and hence the issues remain unaddressed fully.

4) No one in the industry has taken significant steps to improve Analytical capabilities in their respective organization and hence it is not a priority (on competitive benchmark).

5) There is confusion over what is the true scope of Analytics – is it running regressions on numeric data or building more intangible capabilities to generate insights from data for supporting decision making? There are more than one explanation for what Analytics stands for and hence little clarity on what needs to be done.

6) It is new and reduces information control among a few savvy employees and therefore disrupts traditional operating style of the management and hence is not favoured by most employees unless there is an imposition from the top.

7) There is a significant disconnect between Analytics competent employees (centred around the IS function) and the business decision makers. Hence, there is no common talking platform to develop new and useful data driven decision support applications.

It appears that asymmetric information control, inadequate "felt" need, top management's unfamiliarity with the potential, near term exigent requirements and unrealistic expectations from turnkey solutions seem to be some of the reasons impeding the adoption of an appropriate analytics culture in some of these organizations.

Final Comments

The current findings are an attempt to evaluate the Analytics process competency in select organizations across industries in India. The findings are largely based on discussions and interviews with key management personnel and their direct reports. We have identified some areas in which there is potential to develop impactful analytics.

However, most organizations were reluctant to share sample data for research and further investigation of analytical potential. That is indeed a handicap to evaluate the true potential of business data for its worth in the organization. Not doing enough on their own and, not letting facilitate academic research on business data is certainly not a very optimal way of identifying opportunities for future growth. We do hope that this trend may reverse over time with the maturity of the discipline.

It must be pointed out that the current study is limited to a few organizations in India who are not really perceived to be "data driven" businesses. They were deliberately chosen to analyse the potential of information based decision making capabilities in typical organizations not associated with management of large data bases (like a bank, retail operations, telecom services). However, it did include a stock trading platform, a data generating entity but unconventional organization from the perspective of a study of analytics process.

[i] Banerjee, Arindam (2014), "State of Marketing Analytics in India: Prospects and Potential Challenges", Working Paper, IIMA, 2014-10-05.
[ii] Germann, Fark, Gary Lilien and Arvind Rangaswamy (2013), "Performance Implications of Deploying Marketing Analytics", International Journal of Research in Marketing, 30, 114-128.