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Research Paper

7 Business Intelligence Questions To Answer

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Many Corporate cannot articulate the R.O.I of their Business Intelligence investments

By now, the lion share of corporates have poured tens of millions of dollars in their Big Data Infrastructure; deploying massive storage facilities, Data Warehouses (DW), Data Marts (DM), Business Intelligence (BI) Software and Business Process-Analytics integration software.

In the coming 5 years, we will witness the capital investments stretching further towards Artificial Intelligence (AI) and Advanced User Interfaces. On the AI front, we are witnessing the deployment of cognitive analysis, genetic algorithms, neural networks and various machine learning disciplines.

On the Advanced User Interface front, we are witnessing the deployment of Virtual Reality, Augmented Reality and Virtual Agents / Chatbots with Natural Language conversing capabilities.

As we traverse this tumultuous scene, we asked various Business and IT executives the fundamental "Return On Investment – ROI" questions of-

- What returns did your BI investment deliver and has it at least covered the seed investment made?
- How do you envisage the returns on your BI investment evolve in the coming 3 years?

Despite the rudimentary – *and innocent* - nature of these questions, we did receive a fair share of smirks, frowns, fishy gazes and evasive remarks. With few noticeable exceptions, the majority of responses pointed out specific successful use cases, rather than, an overall ROI storyline (current and future). Many respondents *rightly* defended BI as a survival necessity, a no brainer and a core business service, but yet shied away from giving an ROI storyline.

It will be naïve– *if not offensive* – to assume that this phenomenon (i.e. lack of holistic ROI tracking of BI investments) is due to BI market hypes, a corporate governance inertia or sheer hastiness. Rather, we believe the phenomenon manifests a yawning communication gap between Business, IT and Vendor communities. While all communities gather around a business case at the start of the BI program, the business case focus soon dissipates as the program racks up delays, budget overruns, scope changes or simply move beyond a pilot phase.

On a *Eureka* flashing moment, we identified the need for a simple, practical and business-centric framework to drive and track BI investments. The framework needs to be agonistic to the industry at which the corporate operates or the level of BI maturity the corporate has. Hence, we developed the "7 Business Questions Your BI Should Help Answer" framework depicted in Figure 1 overleaf.

We will examine each question from three different perspectives:

1. What Metrics/Insights should be generated?
2. Why such Metrics/Insights are important?
3. What BI Capabilities will help generate these metrics/insights?

Once communicated, understood and practiced, we hope the framework will help the Business, IT and Vendor communities to align their priorities, optimize their investments and calculate the BI ROI at any stage of the BI implementation journey.

Figure 1: 7 Business Questions BI Should Help Answer

What Drives Profitability Today?

1. What are the revenues contributions of our segments, products and markets?
2. What are the costs associated with our segments, products and markets?

How Sustainable Is Our Profitability?

3. What segments, products and markets profitability are pared by competition?
4. What segments, products and markets profitability are pared by customer dissatisfaction?
5. What segments, products and markets profitability are pared by need erosion?

What Growth Opportunities Are There?

6. What opportunities exist to grow existing margins?
7. What opportunities exist to grow uptake of existing business?

Q1: What Are The Revenue Contributions Of Our Segments, Products & Markets?

Your Profit is a function of product margin and product uptake

What Metrics/Insights should be generated?

- Breakdown of various revenue streams across customer segments, products and markets. Ideally, the breakdown should drill down into an individual customer, product and market.
- Historical trends and averages of consolidated revenues across customer segments, products and markets.

Why such Metrics/Insights are important?

- Optimize the allocation of capital investments and operating expenses across high-margin segments, products and markets combinations to maximize the overall profitability of a Line Of Business or the Corporate.
- Focus sales and customer service efforts on high-yield customers to ensure high retention and recurring business.

What BI Capabilities will help generate these metrics/insights?

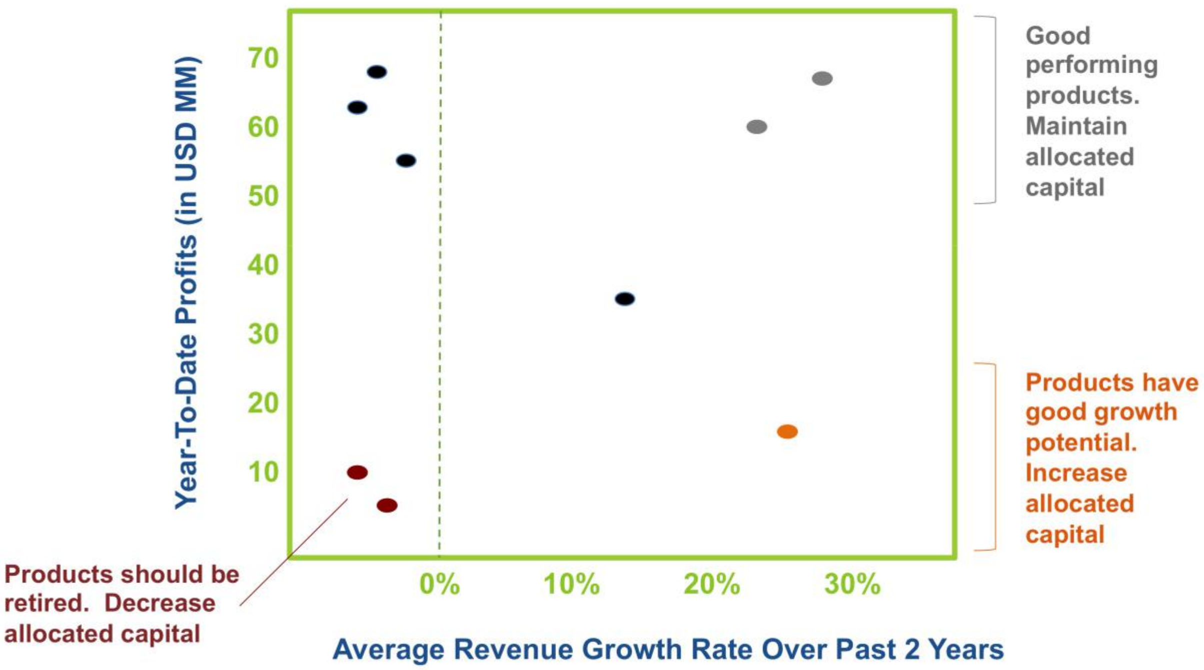
- Data Marts collecting, cleaning and re-structuring the data drawn from multiple systems to be later easily and confidently tapped by the business community.
- Multi-Dimensional Reporting Cubes consolidating the transactional data which match a specific business criteria (e.g. Product X sold in North region during first quarter of the year) and, then calculating basic metrics of averages, totals and standard deviation.
- Allocation Rules Engine defining the corporate policies of allocating revenues and cost to various segments, products and markets.
- Graphical Reporting Tools.

Q2: What Are The Costs Associated With Our Segments, Products & Markets?

This question would mirror the metrics, importance and BI capabilities of Question 1 with the exception that the data processed pertains to capital and operating expenses of segments, products and markets.

The allocation of revenues and costs across segments, products and markets will allow the corporate to examine the granular profitability of these business elements. A business manager can then use the Dashboard in Figure 2 below to align the capital allocation across various business elements based on each element's profitability.

Figure 2 : Illustration Of Capital Allocation Optimization Across Segments, Products and Markets



Note: Dots could represent individual segments, products or markets

Q3 - Q5: Where Are We Suffering & Why?

BI should measure revenue leakage, reveal root causes and identify customers at risk of churning

What Metrics/Insights should be generated?

- Breakdown of customers already lost (i.e. customer attrition) across various products and markets. This is typically detected by various indicators such as- closed accounts, reduced consumption rates, returned products and/or surge in complaints filed through various channels including- a call center, an online store and social media.
- Causal analysis of "Customer Attrition" as indicated in the closure/return transactions or surveyed across a sample and later stored. Typically customers abandon products for one of three reasons-
  - Competition offering cheaper products or better products at the same price point.
  - Product is flawed or post-sale service is unsatisfactory.
  - Product is not required anymore. For example, as a community ages, it will consume less baby food and baby wear.
- Historical trends and averages of lost customers across products and markets.

Why such Metrics/Insights are important?

- Prevent continuous revenue leakage to competition
- Signal the need to re-design products, adjust prices or improve customer service processes.
- Understand customers' buyer's values (i.e. What makes a customer buy?).

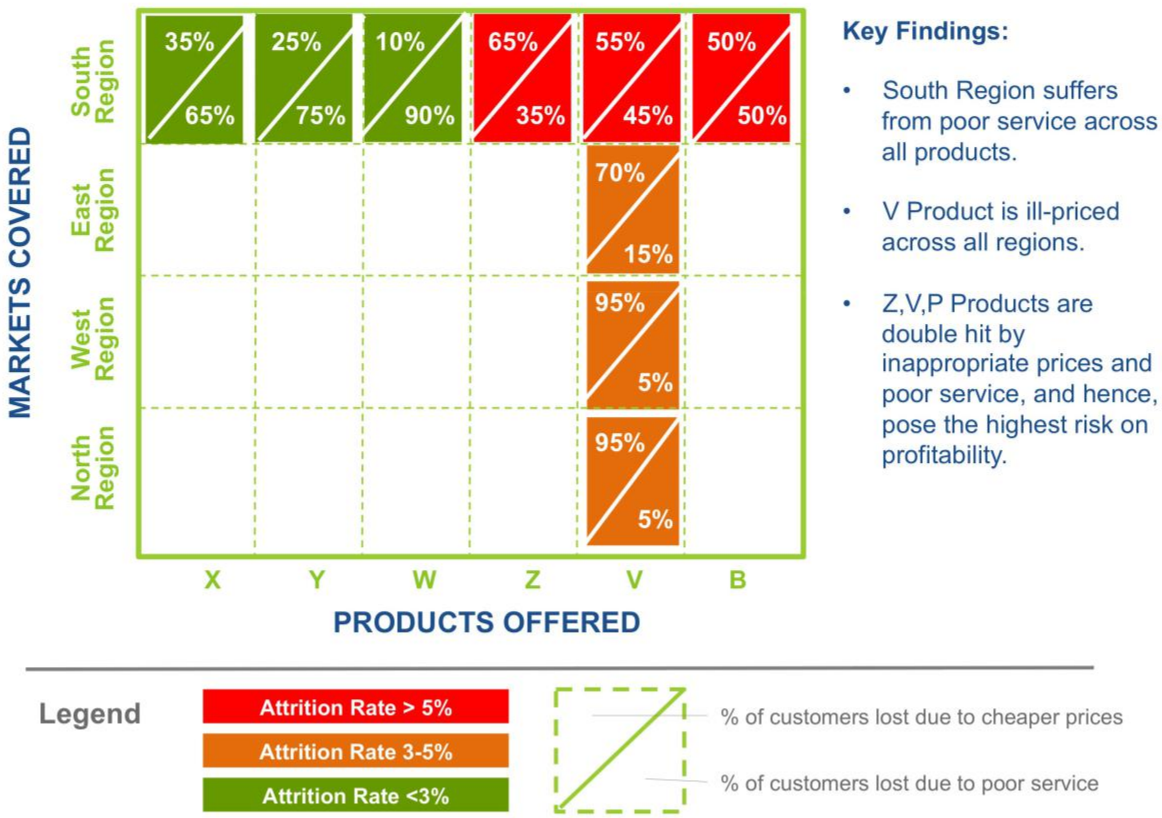
What BI Capabilities will help generate these metrics/insights?

- Same BI capabilities as stated in Question #1.
- Basic cluster analysis capabilities such as- density models and distribution models. Cluster Analysis reveals groups of customer, products or markets sharing similar

or closely similar attributes. Then, each cluster can be further analyzed in terms of- historical growth/shrinking, products abandoned, etc.

A business manager can use the Dashboard in Figure 3 overleaf to examine where the lost customers concentrate (i.e. cluster) market-wise (e.g. zip code), product-wise (e.g. antiseptic liquid), time-wise (i.e. Q2 2017) or event-wise (e.g.1 month post sales). This allows the business manager to surgically isolate the root causes and impacted areas of the attrition issue at hand. Then, take the necessary corrective measures.

Figure 3: Illustration Of Customer Attrition Casual Analysis



Q6: What Opportunities Exist To Grow Margin Of Existing Business?

Sustainable business growth is bound to hunting high-margin products and tapping virgin markets

What Metrics/Insights should be generated?

To grow existing profit margins, a Business typically attempts any of two strategies; increase sales prices per unit or reduce the operating expenses per unit to achieve higher profit margins.

Increasing the sales prices requires the following metrics-

- Percentage of change in a product's uptake (i.e. consumption rate) for every 1% of price hike.
- Price hike breakpoint beyond which violent changes (i.e. sharp declines) in uptake are triggered and likely to neutralize the positive impact of price hikes.

Reducing the operating expenses per unit requires the following metrics-

- Spread between your transaction/unit cost and the competition's or market average.
- Excess (unutilized) processing capacity in terms of- number of transactions and their associated cost. This can be calculated by analyzing the seasonality of the transaction volumes, the additional resources deployed by the Corporate to cover seasonal peaks and the associated cost of additional resources.
- Forecasted resource and material cost based on prevailing market conditions (e.g. weather conditions, production gluts).

Why such Metrics/Insights are important?

- Achieve organic growth in profitability without fundamentally changing your operating model.
- Benefit from financial risk hedging tools (e.g. options, corridors) to cope with market changing conditions.
- Balance the customer perception of value with

product/service price.

- Balance the use of in-sourcing / outsourcing to optimize the utilization of resources.

What BI Capabilities will help generate these metrics/insights?

- Same BI capabilities as stated in Questions #1 and #5.
- Volatility analysis, Sensitivity analysis and Probability distribution models. These models help you to analyze the relationships between certain market conditions and resource/material cost then, predict the future resource/material price movements with a certain degree of accuracy.
- Scenario simulation capabilities.
- Additional data mart to hold external market- and competition-related data.

Q7: What Opportunities Exist To Grow Uptake Of Existing Products?

What Metrics/Insights should be generated?

The business tactics used to boost consumption are plentiful. In this paper, we focus on those positioned to benefit the most from BI.

What Metrics/Insights should be generated?

- Percentage of customers acquired compared to overall number of customers in a given market (i.e. market share).
- Wallet share (i.e. percentage of spending capacity) acquired for a customer segment.
- Number and size of potential sales opportunities of existing customers with the potential of buying more products.
- Number and size of potential sales opportunities of new customers acquired from competition.

What Metrics/Insights should be generated?

- Same BI capabilities as stated in Questions #1 through #6.
- Regression analysis models; which identify the common customer behaviors during past sales (e.g. women increase use of lotions as they age, people applying for a mortgage typically shop for real estate insurance, home improvement contractors and house cleaning services), then apply these behaviors to new prospects to predict their future buying behavior (or buying propensity).

In summary, we advise all BI stakeholders to link their BI investments to the "7 Questions" presented earlier. BI-driven improvements in answering these questions constitute the BI ROI. Every improvement can be tracked in terms of its impact on revenue enhancement, cost optimization and risk mitigation. ■

End Of Report