

Human side of BI implementation

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ABSTRACT

The proliferation and refinement of Business Intelligence (BI) software is reflective of the exponential growth occurring in the “information age” and the “digital revolution”. However, the adoption rate of BI among global organizations and specifically the human users in those organizations has not met the expectations of the marketers of these BI tools and puzzled many that analyze and monitor the technology and business world.

While the technology vendors have refined their tools addressing ease of use, real time data, mobility and intuitive use; management science has focused on the implementation of these tools within a complete system. Organizational culture has not changed at the same rate as technology, and human behavior may be a contributing factor that needs to be considered for a successful implementation. In a hind-sight case study reflection, personal observations are shared about implementation techniques that may help address the slower than expected adoption of BI.

INTRODUCTION

For the purposes of the Midwest SAS Users Group conference, and the BI Applications/Architecture track, we've taken a very wide definition of BI. I'll define BI as the SAS® Enterprise BI Server platform and capabilities that support the many solutions that sit on top such as Customer Intelligence, Performance Management, Risk Management, etc. These solutions are needed by organizations to compete and survive in today's global business world. My remarks relate to the human side of organizations attempting to implement these solutions and are applicable to however BI is defined.

If BI will give you the information you need, when you need it and in the right format as SAS says on their webpage, and IT will spend less time responding to requests and business users will spend less time looking for information; then why isn't everyone using it? BI technology has been around for the last decade, but fully functioning applications are not as prevalent as one might think.

In a blog categorized as Business Intelligence Architecture, Reality Check; James Standen writes “It seems that the level of adoption of business intelligence tools as a percentage of users is much lower than typically thought.” (Standen 2009) Standen references The Data Warehouse Institute (TDWI) commentary on the latest business intelligence survey published by the business application research center (BARC), “although your BI vendor might be telling you that baseline adoption is 20%, it turns out it's a lot less.” (Standen 2009)

Standen cites Nigel Pendse, a principal with BARC and the primary architect of BI Survey, “In any given BI-using organization ... just over 8 percent of employees are actually using BI tools. Even in industries that have aggressively adopted BI tools (e.g., wholesale, banking, and retail), usage barely exceeds 11 percent.” (Standen 2009)

Cindi Howson is the founder of BI Scorecard, an independent analyst firm that advises companies on BI tool strategies and offers in-depth business intelligence product reviews. Howson, referencing a more recent 2011 Successful BI Survey, reported that the BI adoption rate “has been stubbornly flat at 25 percent of employees.” (Howson 2011)

SLOW ADOPTION OF BI LINKED TO SOCIAL CHANGE, NOT TECHNOLOGY

“Google” (www.google.com) the slow adoption rate of BI and you can find lots of technology industry references and many opinions about why. Is the BI tool really not up to all the hype? Is the reason just technology? If so, vendors continue to work on making the tool easier to use with many improvements over earlier versions. There is actually a term in use called BI 2.0, which refers to a second generation that can serve up real time data. Hold on, BI 3.0 has now gone to mobile devices and can even learn from its users; similar to the Amazon suggestion of which book you might also want to buy because others who bought your book also bought these.

The consensus is that the implementation of BI is critical. I'm not talking about setting up the IT architectural platform, which is complex; but rather re-molding your organization or business to take advantage of the capabilities of the BI tool. Although there are many facets of this, a general term of Performance Management may embody most of them; and a key component is a change in how things are done. Humans are wired to not embrace change for change's

sake. They will change and can change quite fast when they see value or advantage. So why aren't they adopting the great new BI tool?

Gary Cokins, principal consultant of global business advisory services involved with performance management solutions with SAS, writes "The impediments are all social, such as human nature resistance to change, fear of knowing the truth, lack of executive leadership, lack of training, and so on. The key to success for implementing performance management is organizational change management and behavior modification" (Cokins, April 24, 2012).

I'd like to share some personal observations of my involvement in developing a new way of doing business in an organization. While working for the North Dakota Game and Fish Department, I interacted with the Executive Team, the IT staff and the business users. I feel my observations validate some of the current thinking about BI implementation or Performance Management. I no longer work for this agency, but I continue to have an interest in this area and have followed some of the internet dialogue on the subject.

CASE STUDY

My experience spanned several decades and was modeled after the "Management By Objectives" (MBO) concept promoted by the Harvard Business School in the 1980's. Our strategic planning, information management system for the North Dakota Game and Fish Department was an effort promoted by the federal government to state wildlife agencies for better management and accountability of federal funding. Unfortunately they only promoted the concept and not the "how to".

Peter Drucker is credited with the MBO concept much earlier than the 1980's, but it continued to get kicked around in management science circles for decades and was adapted for governmental agencies and nonprofits. A colleague of mine from Wyoming modeled a prototype where the strategic plan focused on outputs not actions; setting up agency programs as a business line (Figure1). This direction setting with quantifiable, measurable outputs addressed the strategic or Where do we want to go phase. We went through several iterations of the Inventory (Where are we?), Strategic (Where do we want to go?), Operational (How do we get there?) and Evaluation (Did we make it?) phases.

Although planning has always carried some garbage with it, I recall my friend and colleague saying planning is easy, implementation is a bitch. Doug Crowe was referring to the operational phase of "How do we get there?" Business science was still evolving and Kaplan and Norton hadn't yet formulated their Balanced Scorecard and strategy maps when we tackled the operational or implementation phase the first time. In hindsight this was our weakest link. We approached by looking at all the things we were currently doing and related as best we could to our strategic outcomes.

In 2005 I was very optimistic when I was able to install the SAS BI platform and I thought that this tool would tremendously help our evaluation phase efforts and finally make everything great. I was baffled that many users continued to rely on structured reports when shown they could slice, dice, graph and compare budget and actuals data for dollars, employee work time and vehicle use by strategic programs, work activities, geographic locations and time hierarchies in addition to the traditional accounting categories.

In hindsight I am able to relate to several key concepts that I feel are important in making a BI implementation successful. These are:

- Alignment with business – strategy maps.
- Leadership – Communication (cascading down).
- Rapid prototype – iterations.

ALIGNMENT WITH BUSINESS – STRATEGY MAPS

Defining a strategy map (Figure 2) for your organization is an important step in identifying what drives your business. It's not the scope of this paper to get into detail about strategy maps, but it is important to identify what drives your business and display that in an easy to understand way. In my case we had identified specific measurable outcomes, but we hadn't condensed that or incorporated it in a high level way to an overview of cause and effect linkages.

As mentioned earlier, our weakest link was the operational or implementation phase. Years later, employing the strategy map model, I feel we greatly improved our system by identifying cause and effect linkages or drivers of our outputs. The point is to not focus on what you have been doing in the past. Instead focus on what makes a difference or drives your desired outcomes.

A second advantage of the strategy map is it helps determine KPIs. We have all heard the phrase what gets measured gets done. Now, thanks to technology, we can measure everything. Cokins writes "if there is an excessive number of KPIs, then it becomes apparent that many are performance indicators (PIs) rather than KPIs, where the

adjective 'key' of the KPI is the operative term. An organization has only so much resources or energy to focus. KPIs are what distinguish the signal from the noise - the measures of progress toward strategy execution" (Cokins 2007).

Cokins continues, "A clue that a balanced scorecard is failing to drive change can be found by counting the number of project-based key performance indicators (KPIs) relative to the number of process-based KPIs. A scorecard comprised mainly or exclusively by process-based KPIs is not an efficient engine of change; it merely monitors whether progress from the traditional drivers of improvement, such as quality or cycle-time improvement, is occurring. Process improvement is important, but innovation and change is even more important" (Cokins 2007).

There is a difference between performance indicators which tell you about what is happening and key performance indicators which tell you why it is happening. The cause and effect linkages identified in the strategy map development process are critical.

When we did incorporate a strategy map into our development efforts, we didn't have as much ownership in that process as in the development of our strategic plan. The original strategic plan and subsequent revisions had extensive staff and public involvement. The strategy map and identification of KPIs was done primarily by the executive team. My belief is that continued refinement efforts over time would have paid dividends towards eventual success of our BI implementation efforts. One caveat of extensive staff involvement is that it needs to be continued once started.

LEADERSHIP – COMMUNICATION (CASCADING DOWN)

It is not the scope of this paper to define leadership. There is a wealth of information on the subject, both good and bad. Effective leaders have followers and the reason they have followers is that there is a commitment from those followers to help the leadership accomplish something. I believe that commitment implies much more than just following directions or doing what you are told. Commitment comes from understanding the leader's vision and how specifically the worker's job or what they do on a daily basis contributes towards achieving that vision.

The most effective organizations are the ones that have everyone pulling in the same direction; that is employees at all levels from upper management down to the lowest level worker. For this to happen, the leader's vision has to be communicated in an understandable way. The strategy map can help do this. Also, the operational contribution of each part of the organization needs to be understood at lower and lower levels within the organization. The term 'cascading down' has been used to describe this understanding of the strategy map and its translation into the individual contributions that each successive level brings.

I want to generalize about three groups or roles within an organization; the executive team, IT staff and business users (Figure 3). In my development efforts with the North Dakota Game and Fish Department, I interacted with all three groups. Although the arbitrary groups are a generalization, it is important that there is a culture of collaboration amongst workers at all levels. We need to avoid competitiveness or in-fighting among various factions.

I had occasion to work with or for over a half dozen different directors, each with their own executive teams. While their leadership styles were different, so to was their commitment to the planning effort. More progress was made when the executive team articulated a cohesive vision and in turn communicated this to the lower levels. This communication needs to be both explicit and nonverbal.

Cokins writes in a blog, "There is a tall brick wall between IT specialists and analysts. There will need to be a shift from face-to-face adversarial confrontation to a side-by-side collaborative relationship to remove this wall. Part of the problem is how IT and analysts view each other.

Analysts view IT as an obstructionist and uncooperative gatekeeper of data without the skills to convert that data into useful information. Experienced analysts want easy and flexible access to the data and the ability to manipulate it. They want a set of capabilities for investigation and discovery. IT typically tries to prevent this. Analysts view IT as bureaucrats who manage a set of technologies and whose main goal is to keep the lights on.

In contrast, IT increasingly views users as competitors who may solve problems but don't have to operate the solutions – they just make it harder to manage capacity costs by using too many IT resources. And IT sees users as a risky group that has low regard for data governance and security" (Cokins, March 27, 2012).

Does any of that sound familiar to any of you, whether you are an analyst or an IT person? I can certainly identify with those thoughts from an industry expert based on my dealings over the years with both groups. Much of the data in our North Dakota Game and Fish Department system was designed and collected by biologists (business owners) who fostered intense ownership feelings. It was framed to test or answer a hypothesis and there was concern that the data wouldn't be interpreted correctly, assumptions wouldn't be acknowledged or it would be used inappropriately.

Biologists were also autonomous and may have been forward thinking in terms of their own research, but they were not forward thinking in terms of the organization strategy map and how to make the organization effective. They were trained as specialists, not generalists.

On the IT side I saw the consolidation pendulum swing both ways in my 35+ years of state government. When I started agencies had their own hardware and staff, which eventually was consolidated back to a central agency that owned the hardware, hired the staff and provided the services for all other agencies. Then with the proliferation of the personal computer, followed by client-server, we went back some the other way. More recently we are moving back to consolidation.

Although I was able to implement the SAS BI server platform in 2005, it was in a test or sandbox configuration and not officially adopted by the central IT agency for the State of North Dakota. From their perspective, I can see that they can't support everything and there is a need to standardize. Unfortunately the North Dakota Game and Fish is a smaller agency and needed to compete with much larger agencies, who had much invested with other vendors. Much time was spent in a collaborative review and selection process at the state level, which took away from development and adoption efforts within North Dakota Game and Fish.

There was also historical politics involved as I recall one IT administrator jokingly refer to SAS as a four letter word. Perhaps this could be related to what Robert Cooley, who spoke at a recent Twin Cities Area SAS User Group and MinneAnalytics conference on Big Data, referred to as the SAS advantage. He stated that SAS took control from IT and gave it to the analyst. (Cooley 2012) While this may be advantageous in blurring the lines between IT and analysts, it can only be beneficial if both groups don't see each other as adversaries and are unified in working towards a common organizational vision.

Leadership and communication are important so that employees at all levels understand how what they do contributes to overall success. Everyone needs to understand their role and what information they need to make the business or organization successful. If they have access to a BI tool that will give them that information, they will use it. The strategy map is an understandable way to communicate to everyone.

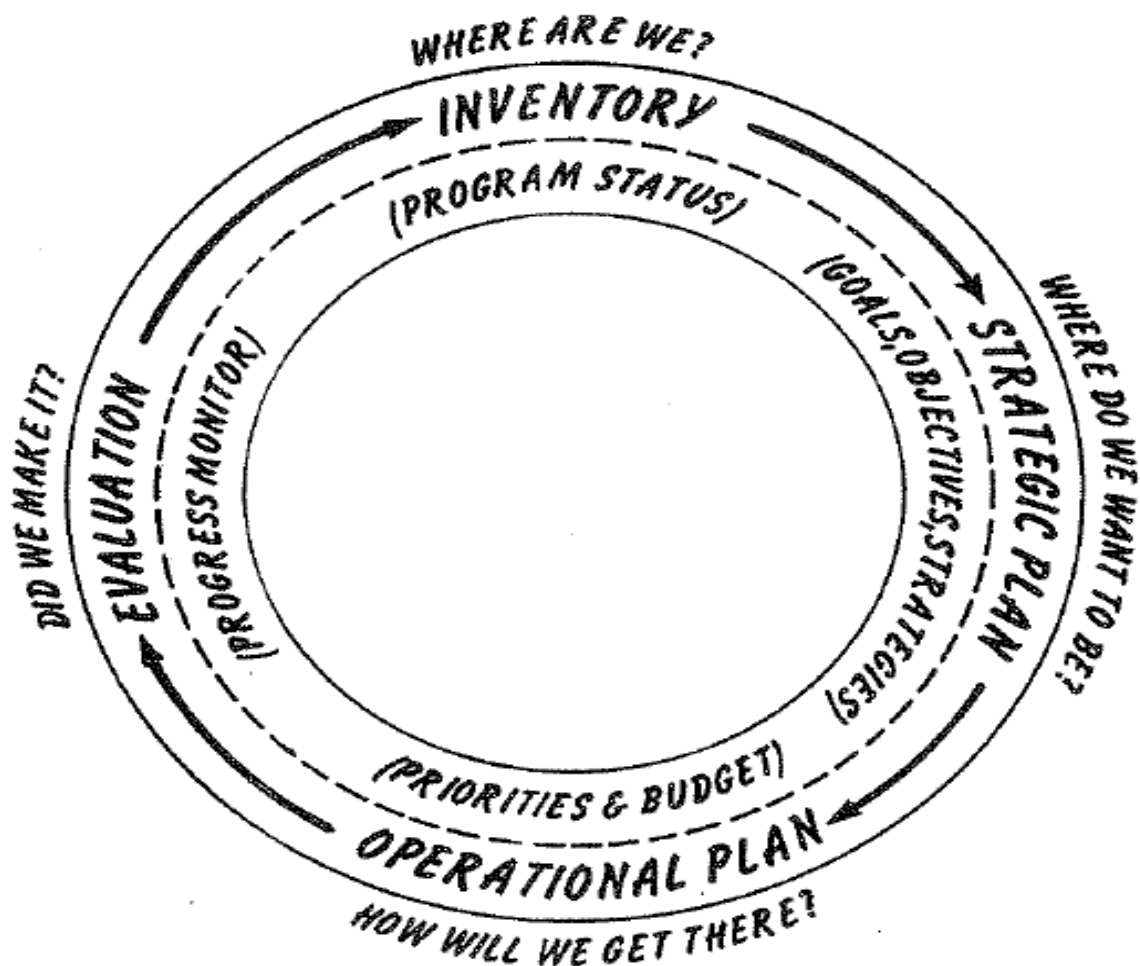


Figure 1. Prototype Planning Model – (from Crowe 1983, p. 7).

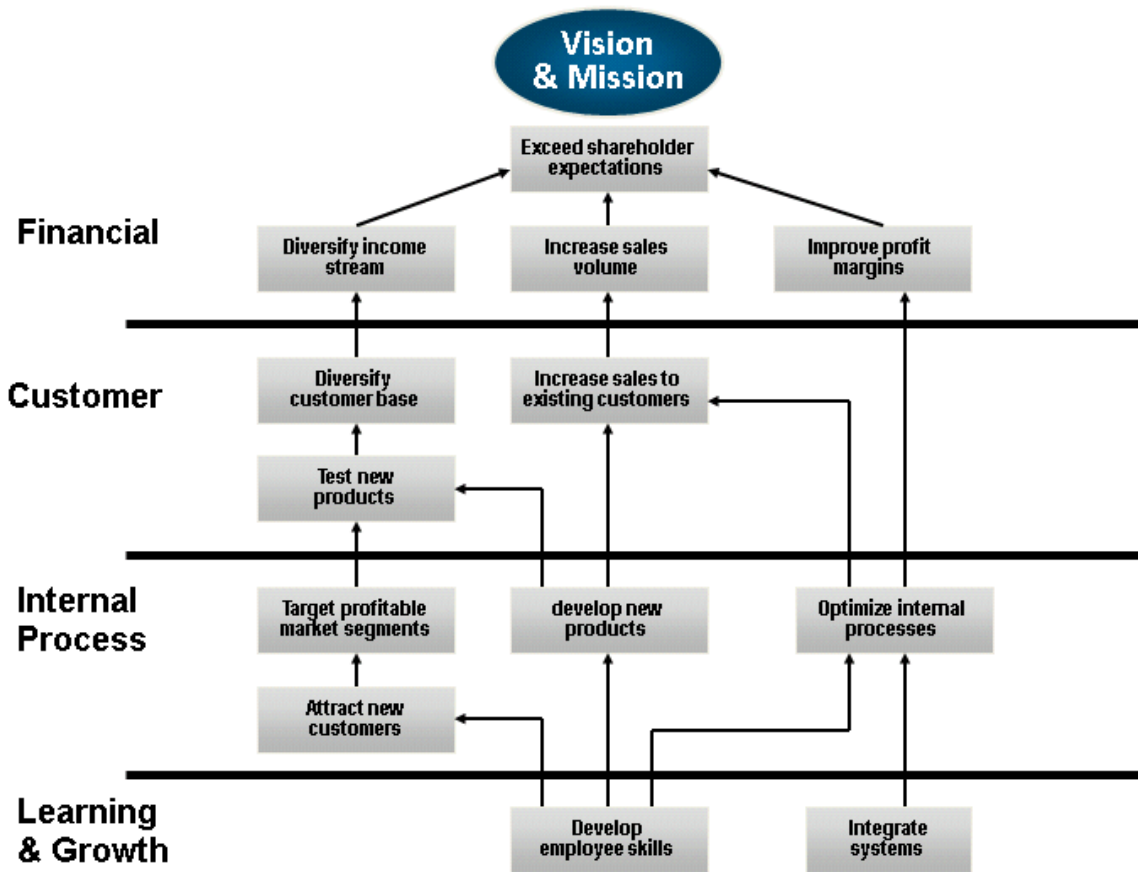


Figure 2. Example of a strategy map – Copyright Cokins (2004) permission to use granted.

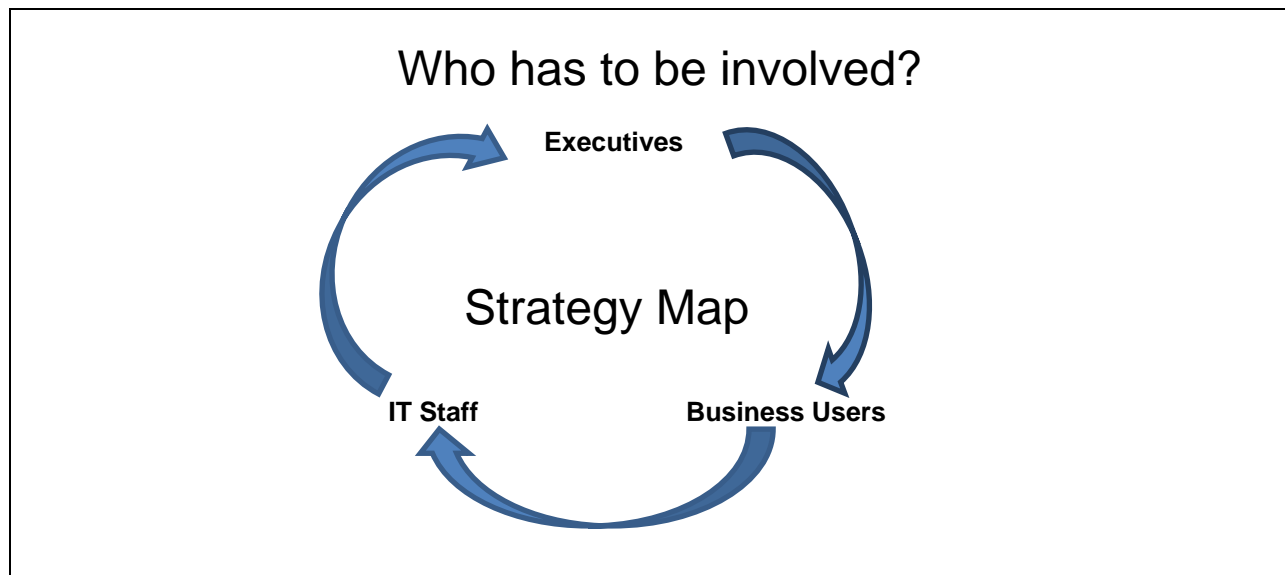


Figure 3. Executives supply the direction setting, the IT staff the resources and the business users the catalyst. The strategy map provides an important communication tool for collaboration.

RAPID PROTOTYPE - ITERATIONS

The final point that I feel is extremely important to successful BI implementation is to forego developing the perfect complete system and rapidly build a prototype to demonstrate usefulness. The prototype can then be refined through multiple iterations.

Again, to quote Gary Cokins, "I love Pareto's principle, named after an Italian economist Vilfredo Pareto. It is known as the 80–20 rule which is the law of the vital few factors. The principle states that for many events, roughly 80% of the effects come from 20% of the causes. This acceptance of focusing on the vital few factors rather than the trivial many gets things done more quickly.

W. Edward Deming was an American statistician and consultant best known for his work with Japan companies in the 1950s. He taught top Japanese management how to improve through various methods, including the application of statistical methods. Deming was an advocate of the repetitive cycle to plan-do-check-act with its acronym PDCA. Improvement is aided by learning curves meaning that feedback from experience is a staircase to refining a process, product or service until it is good enough – until it meets the specifications. Just don't define the specifications too tightly" (Cokins, February 14, 2012).

Cokins continues, "Perfection and precision are not in my vocabulary. I believe there are diminishing returns of incremental improvement for the extra effort of work to make the improvement. I like managers who advocate quick pilots, proof of concept experiments, and rapid prototyping with iterative re-modeling methods. My standard test question for time and effort on a project is, "Is the higher climb worth the view?" (Cokins, February 14, 2012).

Recently I had an opportunity to hear Mark Pitts from United Health Care speak at a SAS Technology Exchange about how he was able to build support for SAS software within a large organization by rapidly prototyping applications and gaining the confidence of organization leaders (Pitts 2012). What I took from Mark's presentation was that he was accomplishing what Gary Cokins was talking about.

Every organization is plagued with dirty data and I don't intend to minimize the efforts needed to address this. In hindsight, I feel that my efforts with the North Dakota Game and Fish Department might have been more successful had I spent a little less time on data cleansing and more on demonstrating prototypes. What I'm saying is that I was too paranoid of having bad data and this took away from time that could have been spent in more demonstration and promotional efforts. It was my personal bias to not show anything that wasn't absolutely defensible. The ability to build support for the usefulness of a BI tool should pay dividends in future iterations for addressing data cleansing.

CONCLUSION

In summary it appears that the slow adoption rate of BI is not technology or the tool itself, but the implementation of the BI tools. We are constantly reminded about the fast pace of technology change; Moore's Law, exponential doubling, etc. To successfully take advantage of this great new technology involves a change in the traditional way businesses and organizations have been managed. The human side or culture intuitively changes at a slower pace.

To embrace and adopt this technology, the humans in these organizations need to understand how this change will be good for them (relevance) and how the BI tool will help them contribute to the success of their organization and personal job fulfillment. The sharing of these insights among co-workers will further accelerate this change.

Build it and they will come? Make it relevant and they will use!

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