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# A Framework for Evaluating Performance Management Software

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It is generally recognized that large scale “Change Initiatives”, such as Performance-Based Management, require not only the commitment and leadership of senior management but a sound technical infrastructure to provide both feedback and a communication vehicle across the organization. The evaluation, comparison and selection of software technologies, however, can be very challenging and is often like trying to hit a moving target. This is particularly problematic in the field of performance management (PM), which has become a recent focus for not only a wide group of academics, consultants and analysts but for a whole host of technology vendors that consider their software solutions an extension to PM.

Recently, Landmark Decisions Inc. was involved in a study to evaluate and rate existing PM technologies as they might apply to a PM Framework proposed for Science Based Departments and Agencies (SBDA)<sup>1</sup>. This work was commissioned by the Science & Technology Performance Management Network, a working group of S&T managers drawn from over 20 Federal departments and agencies and coordinated by NRC.

This study attempted to qualify those vendors that had a legitimate claim to be in the PM space and also tried to classify the wide variety of solutions into some fundamental groupings that define a “PM Model Continuum” seen in management practices today. This is an important consideration since performance management is truly more of an experiential approach and its success relies heavily on the culture within an organization as opposed to strong technical and/or data competencies. A good PM tool should both help facilitate the implementation of PM within an organization and grow with the business as the PM approach becomes more widely accepted across the enterprise.

The initial research uncovered more than 65 software vendors that claimed to have offerings in the PM space. With this extensive array of PM software, it became necessary to develop a robust evaluation framework to not only assess the feature/functionality of a PM vendor solution but to evaluate the flexibility of the software for handling the different types of PM models/approaches that exist today. This article reviews the four basic types of PM models, the five types of PM vendors in the market today and an evaluation criterion that can be used to rate and/or compare PM technologies.

## **Developments in the PM Software Market**

The software market for performance management solutions has grown almost exponentially over the past few years. As management concepts such as Balanced Scorecard, Results Based Management, Accountability Accords etc. have grown in popularity with senior managers and executives, technology vendors have been quick to either develop or modify their products to at least have an offering of some type that caters to the basic premises of what is termed “Performance Management” (PM). Unfortunately, PM must still be considered an evolving concept and, although early adopters have been working with many aspects of PM for the past 15 years, there are still very few standards or adopted terminologies that are common with more mature management practices. This often makes implementing PM a challenge as most players (including people within organizations and people within the PM vendor community) may have different interpretations and connotations around the specific definitions of a PM framework.

The following framework for evaluating commercially available technologies that purport to enhance the implementation of

PM in organizations, has been based upon Landmark’s understanding of the types of PM software and our appreciation for what a PM solution’s main objective is; to communicate up, down and across the organizational hierarchy, on what’s important (i.e. goals & activities) and how well these mission critical objectives are being achieved (i.e. measures and scorecards).

The field of performance management has evolved from a simple collection of “Key Performance Indicators” (KPI’s) considered critical to the senior management team of organizations to advanced strategic planning models, that include both financial (i.e. budget) and operational (i.e. resource) components, to help organizations map and monitor their requirements for achieving success.

In reviewing both the current concepts of performance management and the technology solutions available, we have been able to classify the types of PM models into four major categories (as shown in Figure 1). These categories can be defined as:

### *Dashboard Models*

PM solutions that collate KPI’s into readily available reports that show how well the

organization is doing on previously determined metrics considered critical to overall success. The systems generally report on the more “lagging” metrics of success (i.e. fiscal, customer, internal processes) and are not necessarily linked to any strategic vision for the organization. As such, dashboard models, although powerful in their abilities to “drill down” and/or present graphical analysis of key measures, often lack the linkage to drive change in an organization.

### Scorecard Models

Scorecard models have become widely popular based on the leading edge work of groups like Kaplan and Norton's Balanced Scorecard Collaborative<sup>2</sup> and the Centre from Business Performance at the Cranfield School of Management<sup>3</sup> (UK). Scorecard models propose that an organization look beyond short-term KPI's and results into more proactive measures that will actually drive performance in future. These are generally linked to high-level strategic objectives that are derived from the organizational strategy and as such, scorecard models help organization achieve strategy. All scorecard models work on the principle of “balance”; a balance of short term and long term objectives, a balance of areas of focus (often called perspectives), and a balance of leading and lagging indicators to measure success not only today but hopefully, in the future.

### Performance Logic Models

The third level of performance management models are defined as Performance Logic Models. The term “Logic Model”<sup>4</sup> is well established in the area of program evaluation and generally refers to a systematic visualization (i.e. diagrams, flow charts, maps) of the relationships between operationally managed elements (such as resources, inputs and activities) and longer term objectives (often termed outputs, outcomes and/or impacts). Within the GOC, logic models have been widely used and are the central component of the Treasury Board Secretariat's “Results Based Management and Accountability Framework” or RMAF<sup>5</sup>. Many departments have expanded the use of RMAF's beyond the mandatory Grants and Contributions submissions to address not only program management but overall departmental management.

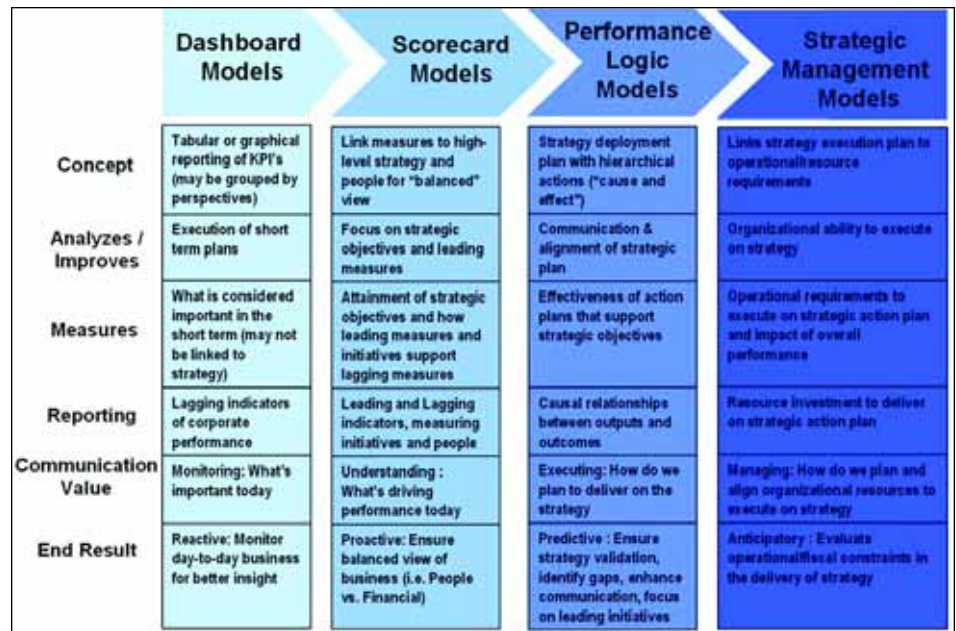


Figure 1.

More recently, Treasury Board has introduced the Program Activity Architecture<sup>6</sup> (PAA), which is now the central component of all departmental planning/funding and is entrenched in the new Management Resources and Results Structure<sup>7</sup> (MRRS) and the Expenditure Management Information System (EMIS), a mandatory reporting requirement beginning this year. The PAA also follows a Logic Model approach.

A Performance Logic Model will use the same graphical representation of “what causes what” as seen in basic logic model diagrams but supplement this through the derivation of performance measures designed to provide relevant feedback on each component within the logic model hierarchy. In this fashion, the basic logic model is enhanced and can be used as the backbone for a results-based management approach that provides “line of sight” guidance and direct accountability for any or all levels of an organization. It also lays the foundation for more robust Strategic Management Models as discussed in the next section.

### Strategic Management Models

The most advanced level of performance management models are termed “Strategic Management Models” as they attempt to make defined linkages between the strategic planning and measurement process and the operational resource requirements neces-

sary to achieve success. Many organizations are coming to the realization that all the best performance reporting and/or strategic planning will not necessarily result in delivering stated objectives, unless these plans are “reality based” and incorporate the current and/or future resource limitations (including personnel, other physical assets and finances).

Strategic Management Models can be thought of as a cross between standard PM and activity-based management (ABM) concepts and provide the organization with the ability to “balance” resources across the diverse demands of the enterprise (both strategic & tactical). In this manner, Strategic Management Models can be used for advanced scenario playing, cost to deliver/serve analysis and also replace traditional budgeting<sup>8</sup>.

At present, the many of the concepts around this resource based performance methodology are still evolving in both the academic and business management literature, yet we feel that this will become the next frontier of performance management technology solutions. From our recent study and ongoing reviews, it is apparent that no technology vendor currently offers a fully integrated solution, however there are quite a few players who have fundamental components for implementing Strategic Management Models. A few vendors do have this approach on their product development radars and there will most

likely be a truly integrated solution in this area over the next 6-12 months.

### Advancements in IT

The field of Information Technology continues to be the most rapidly advancing component of modern business management. The development and standardization of computer hardware and software has greatly enabled data interchange between systems but more importantly from information systems to people who can best benefit from the data. Today, web architected solutions are becoming the mainstay of the modern organization, enabling workers to access, monitor and interact with their business requirements, any time, any place.

In reviewing the fundamental technologies associated with PM softwares, it is apparent that there are a wide variety of solutions, ranging from desktop programs, to client/server-based applications, through to web-enabled or completely web-architected infrastructures. The underlying technical infrastructure is an important consideration as this choice can often limit the scalability of the solution (i.e. the number of concurrent users that can access/interact with the software) as well as the user-based and or role-based security levels of the solution.

The data repository and data collection/integration requirements of PM solutions can also differ considerably. Although many "open" systems do exist that allow advanced users to tie directly to the underlying data and then link existing data systems (via Extraction-Transformation-Loading (ETL) tools of the organizations choice), some systems are still restrictive in their use of either specific or proprietary database structures and/or data interface techniques.

Another consideration when examining the underlying technology is the existing technology "footprint" within the organization. There are obvious economic advantages in leveraging a current technology infrastructure (i.e. hardware/software) in addition to the generally higher acceptance by both end users (i.e. reduced training and education) and IT departments (technical standards used).

Current "Best Practice" on the technology side is considered to be completely web-architected applications sitting on a combi-

nation of open (i.e. published schema) relational and OLAP (multidimensional) databases. Web-architected must be distinguished from "web-deployed". In the later, information reports are either "published" to a web enabled format (i.e. HTML, XML) or there is a web based reporting tool that can access various data and meta-data (i.e. structural) elements. In contrast, completely web-architected solutions are built, used and maintained completely via browser based interfaces, thereby negating the need for client based software and generally minimizing the IT overhead associated with supporting these products. In addition, the latest web-architected solutions often rely on web standards such as java scripts, style sheets and/or XML, and as such, can more readily be customized to adopt an existing organizational "look and feel" or work within current information web portals.

### Types of PM Vendors

In considering the selection of PM software, it is important to understand the types of vendors that exist, what their history/legacy is and how these vendors are evolving. While there are still many niche vendors offering stand-alone PM solutions, there are also many larger and more integrated solutions provided by vendors that are working to expand their offerings in an area known as Corporate or Business Performance Management (CPM or BPM). Within this CPM sector, it is also useful to understand where each vendor has come from, generally as an Enterprise Resource Planning (ERP) vendor, a Business Intelligence (BI) vendor or a financial application (i.e. budgeting/planning) vendor. The final and most recent entrants in the PM space have been vendors long associated with Human Resource (HR) management. Given that much of the performance management philosophy is based on better communications and interactions, it is not surprising to see these types of vendors entering this market.

#### *Niche PM Vendors*

By far the largest category in terms of number of vendors, this group of technologies often offers the highest degree of innovation as the solutions are not necessarily encumbered by underlying technology

and/or pre-existing applications. As such, these vendors have offerings across the entire "PM Model Continuum" (Figure 1.) Most of these vendors offer comprehensive data integration strategies and often use commonly deployed software architectures (i.e. Microsoft .NET, XML, etc.) so should not necessarily be considered "technology orphans" as many larger, integrated solutions vendors would have you believe. Key elements to look for in this group are company viability (history, revenues, client references, support) and fit with exiting data sources. Key vendors in this arena include ActiveStrategy, Insightformation, performancesoft, Procos and QPR.

#### *BI Vendors*

BI vendors have excelled in their ability to manipulate and analyze data and this is certainly a key element of a good PM software offering. Many of these vendors have leveraged their existing technologies to exploit the PM market and as a result, may require organizations to purchase "add-ons" that extend the analytic capabilities of their offerings. They may also have more proprietary data tools/structures that could clash with existing technology standards within an organization. In addition, these vendors typically offer more of the Dashboard or Scorecard type models referred to earlier. These vendors should be considered if an organization has some existing BI components and requires most robust data analysis and/or reporting. Leading vendors in this category include Bitam, Cognos, CorVu, Pilot Software and SAS.

#### *ERP Vendors*

This group of vendors have a well-established client base that are using their transactional systems for financial, HR and/or operational management. The newer PM tools generally sit above these detailed transactional processing systems and rely on some of the data and/or reporting capabilities of these tools. Generally sold as an add-on, these PM offerings generally rely on having an existing "footprint" of vendor products within the organization and may be a good choice in those circumstances. Ironically, even though these types of vendors make up some of the world's largest software companies, they are not generally considered "thought leaders" in the area of

PM and generally lag behind other vendor groups. ERP type vendors include Oracle, PeopleSoft and SAP.

#### *Financial Application Vendors*

In many organizations (including the public sector), the push for overall business performance is often being led by the finance groups as an extension to financial and/or regulatory reporting. Vendors that supply financial planning and analysis tools to support the budgeting, consolidation and/or reporting cycles have generally extended themselves into some degree of performance management reporting. Like the ERP and/or BI vendors, many of these PM solutions are based on existing architectures and/or products so some of the same concerns may apply. One distinct advantage with this group of vendors is the close connection between strategic and financial/operational planning that these product suites may offer. Leading vendors in this category are GEAC, Host Analytics and Hyperion.

#### *Human Resource Management Vendors*

It is interesting to see the entrance of more traditionally HR focused software vendors into the PM space. Many of these solutions offer very comprehensive personnel support tools such as performance appraisals, collaborative work sharing and/or knowledge management. Although currently weak in the area of detailed reporting or advanced analytics, these solu-

tions cover many of the “softer” elements associated with PM implementations and cater more to the individual performer as opposed to organizational performance. Some vendor examples include IC Community and Synegy.

#### **PM Technology Evaluation Criteria**

In trying to determine “Best Practices” in PM technology, it is important to look at what a PM technology should offer to both the implementation and ongoing sustainability of any PM framework. PM technology should be considered as a catalyst towards engaging more people in the change initiative; promoting discussion and feedback from all levels of the organization. Too many implementations have waited until very late in the development/deployment process to utilize technology. In many cases, problems with communication and organizational understanding can disrupt and even destroy efforts to advance performance management principles. Good PM technology should help address these issues even during the design and implementation process.

The evaluation criterion developed by Landmark Decisions consists of seven major categories; Reporting Functionality, Collaborative Support, Analytic Capabilities, Software Model Design, Technical Architecture, Implementation Aids, and Product/Company Qualifications. By establishing a simple grading system (i.e. 1

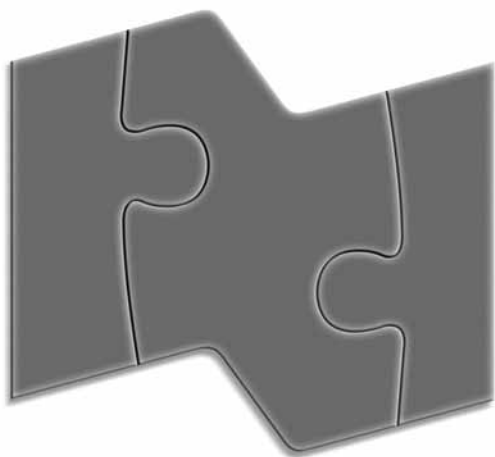
= lacking, 2 = average, 3 = exceptional), it is possible to rate and/or compare different PM software. These ratings can be further enhanced by overlaying a priority or weighting matrix that is developed based on an organization’s unique needs, culture and environment.

#### *Reporting Functionality*

All software products have varying degrees of reporting functionality and user-friendly interfaces. The functionality of this component often determines how (and even if) a software will be widely used in an organization. Key elements include “look & feel”, graphing/trending capabilities, mapping of objects (i.e. logic model diagrams), traffic lighting, exception reporting and/or filtering, active alerts (i.e. notifications via e-mail), the use of visual indicators, functionality of tables and matrices, personal views, and hard copy reports.

#### *Collaborative Support*

Since performance management is very much an exercise in communication and consensus development, having technology that promotes organizational collaboration is vital. Items investigated include the ability to post notes/comments to any element in a PM framework, discussion forums, notification of new entries, the ability to add attachments and/or links to supporting information, direct e-mail capabilities to element owners and other interested parties.



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### *Analytic Capabilities*

Much of the theory of performance management comes from hypothesizing “cause and effect” relationships that are believed to drive success (i.e. actions that support outputs to achieve outcomes and impact long term results). Having analytic capabilities to prove/disprove these hypothesis based on real data is critical in not only developing confidence amongst users, but in being able to ultimately isolate those true leading measures of performance.

Key analytic functionality would be the ability to chart/graph multiple measures over varying time frames, drill down capabilities, visualization of “cause and effect” relationships (either graphically or hierarchically), OLAP/multidimensional analysis, scenario playing, and even statistical tools to help analyze correlations between metrics and/or forecasting models.

### *Software Model Design*

In addition to the functionality features listed above, the fundamental design of the software model is critical in determining the ultimate flexibility that any technology exhibits. This is often an interesting dilemma for software developers since if they make the product open and flexible, it becomes harder for the average user to deploy and use; yet if they make the offering too rigid, it will most likely not meet the needs of an evolving user base. Key flexibility elements for PM softwares are; types of frameworks supported, limits on definitions of perspectives or numbers of groupings, how measures are defined (units, results, targets, scoring formula, dimensions, alerts, owners, attributes), types of users (i.e. administrators, builders, end users), ability to weight model elements (i.e. measures, goals/objectives, scorecards), how accountability is assigned/reported, how initiatives are tracked and if resource planning (including budgeting) supports the development of any PM model.

### *Technical Architecture*

The technical infrastructure of a solution has a tremendous impact on issues of scalability, security, data integration capabilities, supporting hardware/software requirements, and ultimately ability to “fit” within

the existing technology architecture of an organization. Key aspects to examine include; stand-alone vs. suite based tool, web-architected vs. web-enabled vs. client/server vs. desktop, ability to work within corporate information portals, underlying data repository requirements, data extraction (ETL) approaches and connectivity to data sources, security definitions (user and/or role based), versioning and audit trails (i.e. history of events/changes), special hardware/software requirements, and the openness of the application to allow user customization to develop the user’s organizational “look & feel”.

### *Implementation Aids*

More and more technology vendors are realizing that their softwares not only need to deliver on end user reporting and/or functionality, but need to assist designers and implementors in building the organizational models that the tool supports. In the area of performance management, key implementation aids would be checklists, user-friendly graphical tools to help develop cause and effect relationships, brainstorming tools (to capture ideas, linkages and promote consensus), and validation tools to ensure all model components have the required assignments and information.

### *Product/Company Support*

The last area of evaluation is that of the software company itself and the product history. PM technology investments can be in the hundreds of thousands of dollars so it is critical that the vendor and its product be able to prove its long-term viability. Unfortunately, for small and relatively new companies this can be quite a hurdle to overcome. On the upside, however, smaller and newer companies tend to be more responsive to the needs of their customer base and can more readily engineer customer requirements into upcoming releases. These are often the tradeoffs that must be considered when looking at a company/product history.

Elements to consider in this category are company background (years in business, revenues, area of focus), product genesis (developed, acquired), product support

(help desks, knowledge databases, user forums), certified implementation partners, quality of documentation, training offered, long term product vision, multi-lingual support, client references, use of the product by the vendor itself, and of course pricing (purchase/lease, ASP options, maintenance fees).

### **Conclusion**

The evaluation and selection of commercially available off-the-shelf (COTS) PM software can be a daunting task. An understanding of the evolving discipline of performance management and the various PM models, the extensive PM vendor/product community, and most importantly, the needs, culture and environment of the organization is key to making a good decision, both for the current and future requirements of the enterprise. Most organizations rely on a multi-disciplinary team comprised of executives, finance, key business users, IT personnel and often external advisors to help “narrow the field” and develop viable short-lists of suitable technology contenders. In this manner, the organization can be assured it is making an informed choice on the investment in both an approach and a technology that will help guide its future success for years to come. ■

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