architectural keys for enabling better performance management

white paper

The successful implementation of any performance management initiative — whether it be the replacement of a budgeting system or the introduction of a customer profitability solution — depends primarily on three key pillars: people, process and technology. Weakness in any one of these areas critically hinders the ability of an organization to move forward with improving their performance management capabilities.

The expertise and leadership of *people* come first in this trifecta. Leaders must create the vision and secure buy-in among key stakeholders. Senior management support is vital to establishing goals, setting accountabilities, and ensuring that the right team is positioned to lead on any given performance management project. Yet, great people can be completely stifled if the *process* is vague or ill-defined. The performance management process consists of the repeatable steps that are necessary to strategize, plan, monitor, analyze, etc., such that business professionals can both plan and execute in accordance with company goals. Unsuccessful performance management projects can often be linked to a failure to document the process inclusive of its deliverables. When people are aligned and the desired process is understood, *technology* can be applied to complete the picture. While technology is not the "silver bullet" to solve deficiencies in leadership and process, it is a critical enabler when these prerequisites are in place.

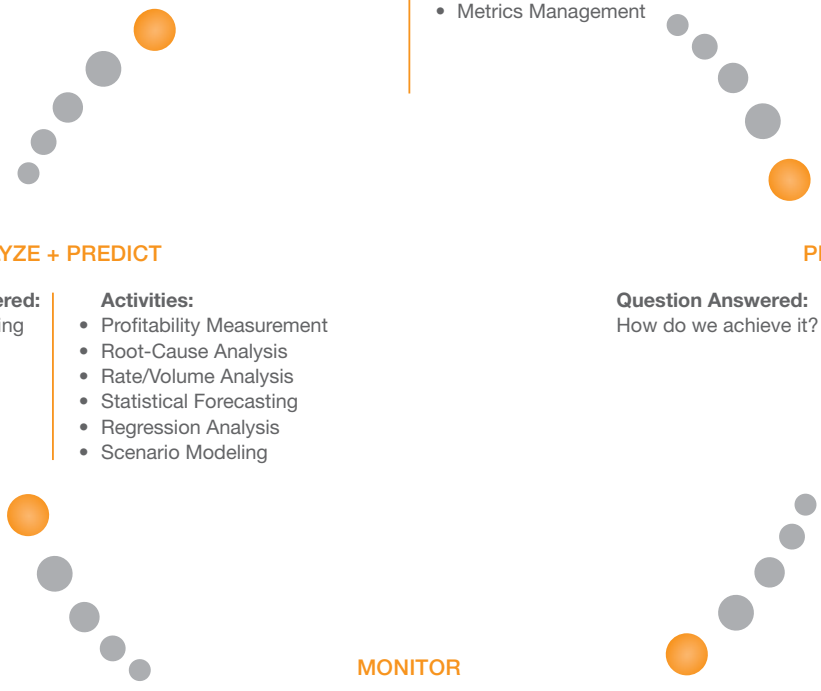
The presence of great leaders and well-defined processes requires an enabling technology that is robust and user-friendly, ensuring strong stakeholder adoption.

When it comes to performance management technology, there are numerous approaches and architectures being implemented in the market today. In this position paper we consider the performance management process and the three main criteria by which all performance management architectures should be measured. Technologies that satisfy these criteria greatly improve the organization's probability for success in achieving their performance management goals.

I. unified

The performance management process (PMP) is intended to be fluid; encompassing a series of cascading cycles that may begin in the boardroom and end in the mailroom. As illustrated below, PMP often begins with the development of broad strategies that cascade into more granular operational activities such as monitoring the profitability of an individual customer or the productivity of a particular nursing floor (in a healthcare context). Innate to PMP is this seamless flow; some have described it using the term "closed loop." Broader long-range goals and key performance indicators (KPIs) get translated into more granular metrics and plans that impact individual departments and employees. Organizations that do this well achieve a high degree of vertical alignment, where each person or entity within the organization understands their role in the context of the broader mission.

PERFORMANCE MANAGEMENT PROCESS



Performance management practitioners should employ architectures that provide a holistic, unified experience that encompasses the various performance management functions. This approach allows organizations to introduce a single platform experience that users can learn once and leverage often for a broad range of performance management needs, rather than consuming resources to integrate disparate applications (e.g. budgeting and profitability). The notion of unification has broad application (see left); the resulting benefits in terms of user adoption, total cost of ownership, and value generation are significant.

1:

Elements of Unified Architecture

- **One code line/roadmap**
- **One user experience**
- **One login**
- **One metadata manager**
- **One user security model**
- **One report generation facility**
- **One computational engine**
- **One source of business logic**
- **One scheduler services capability**
- **One data repository**

When technology is evaluated through the lens of PMP, it is surprising to see that the majority of software vendors have focused predominately on individual components rather than the whole. They develop or acquire individual applications and organize their development efforts accordingly. The result is a patchwork portfolio of disparate applications that clutter the customer's IT landscape, unable to fully support an end-to-end performance management process. Synergies are lost — for example, a banker can't easily understand the profitability of the retail division when planning its expansion, or a healthcare planner can't seamlessly analyze payor mix in the context of reimbursement modeling when budgeting. The siloed nature of many technology platforms is a significant inhibitor to achieving the fluid user experience that's essential to PMP, moreover it places an undue burden on IT and Finance. Performance management technologies should reach beyond delivering integration — they should deliver unification in support of an end-to-end performance management process.

II. the right foundation

Architects of performance management solutions have a fundamental decision regarding data storage. Some vendors offer a mixed bag of OLAP (cube-based) and relational database structures, which creates complexity for administrators, report writers and end users. As an example, employee data (relational payroll data source) and summary salary and benefits information (general ledger data source) cannot be brought together easily in one report. PMP is best served using one database structure that's tuned to perform well for all performance management data types and activities, such as strategy development, planning (financial, staff, capital and sales), reporting, detailed variance analysis, profitability measurement, ad hoc analysis, and more. A well-designed, relational data model is optimal for the following reasons:

1. **Support for string (text) and/or date fields –** These non-numeric data types are vital for modeling purposes. For example, this is evident in payroll modeling (hire date, job code, review date, employee name) and in capital planning (depreciation method and service date). The inability of cubes to store such data types is a clear hindrance to building a robust business model where these data types play an important role.

2. **Support for large data sets –** Hospitals may want to analyze patient data, banks may want to generate cash flows for millions of loan records, and retailers or consumer goods organizations may want to plan at the SKU level. Well-constructed relational architectures can accommodate these large data sets; cube-based systems cannot.

3. **Scalability & performance –** Well-designed relational performance management architectures can provide near real-time response to any query. Cube-based systems are seldom near real time, given the need to "rebuild the cube" once leaf-level data is modified. The addition of new rollup structures, as well as historical data, tends to degrade performance of cube systems but has zero impact on well-designed relational architectures.

4. **On-the-fly dimension updating –** There are several use cases where on-demand dimension updating is required. The list of plan codes or dimension elements is not always completely predefined up front. For example, a planner might create a new strategic initiative that's never existed before and has no prior identification or place in the database. There are many end user scenarios where the data model needs to evolve "on-the-fly." Performance management architectures should support the real-time insertion of new dimension members by end-users.

Regarding the notion of "the right foundation," some vendors promote "cloud-based" computing as key to a successful performance management implementation. Gartner defines cloud-based computing as ". . . a style of computing where scalable and elastic IT-related capabilities are provided as a service to external customers using Internet technologies."
Cloud computing can help organizations deliver technology more flexibly and cost efficiently, but it must be evaluated within the context of the organization's culture, IT strategy and general readiness. There is nothing intrinsic to cloud computing that improves the performance management process per se. Solution providers should provide options to their customers in this regard and not be locked in to one approach or another.

III. sophistication without complexity

The nature of performance management is that it is both retrospective and prospective. The prospective or forward-looking aspect is the most difficult to manage. A well-constructed data repository can be created fairly easily for storing historical information, but the forward-looking and new data creation requirements (e.g. profitability or planning results) are more difficult to support and manage. The quality of profitability or planning data is a function of the robustness of the model that creates it.

For example:

- Healthcare organizations need a well-constructed, statistically based approach to planning that begins with in-patient and out-patient statistics.
- Bankers require robust mathematical models that are cash-flow-based when planning and analyzing their loan and deposit portfolios.
- Retailers often apply seasonal factors and comparative store sales growth drivers as a means to planning revenue.
- Manufacturers need to model their capacity constraints when doing demand planning.

Evaluate any industry and use case, it becomes clear that each one requires a true driver-based model to manage and plan organizational performance. From a technology perspective, the central question is “where should the model calculations reside and how should they be managed?” The answer from most performance management vendors is “in the database.” While the results must live in the database, there is an important distinction as to where the calculation logic should reside.

Our experience in working with hundreds of customers suggests there are serious flaws to relegating the bulk of your performance management calculations to the database, especially for organizations seeking sophistication in their models. An in-database approach typically means the use of script logic. Vendors and consultants who have adopted this approach tout the robustness of scripting languages. And while it's true that the use of script logic can achieve a great deal, it's not without cost — it is extremely difficult to create and maintain. Below is a portion of actual script logic from a leading software vendor, demonstrating how the summation of a particular measure for a trailing twelve month period might be calculated.

```
MEMBER [MEASURES].[ROLLING12] AS'IIF([%P_ACCT%].CURRENTMEMBER.
PROPERTIES("2/CPMB/ACCTYPE")="INC",SUM (LastPeriods(12,CLOSINGPE
RIOD([%TIME%].[LEVEL02])),-[Measures].[/CPMB/ SDATA]),IIF([%P_ACCT%].
CURRENTMEMBER.PROPERTIES("2/CPMB/ACCTYPE" )="EXP",SUM(LastPeri
ods(12,CLOSINGPERIOD([%TIME%].[LEVEL02])),[Measures]. [/CPMB/SDATA]),
IIF([%P_ACCT%].CURRENTMEMBER.PROPERTIES("2/CPMB/ ACCTYPE")=
"AST",([MEASURES].[/CPMB/SDATA],CLOSINGPERIOD([%TIME%]. [LEVEL02])),
IIF([%P_ACCT%].CURRENTMEMBER.PROPERTIES("2/CPMB/ ACCTYPE")
="LEQ",-([MEASURES].[/CPMB/SDATA],CLOSINGPERIOD([%TIME%].[LEVEL02])),-
```

The financial concept addressed above is fairly straightforward, calculating a trailing twelve-month value for a particular measure; the script logic associated with it is not. The body of logic above is for one measure — it represents one calculation. Imagine the extent of coding required to support hundreds of measures, hundreds of calculations!

Organizations that rely on this type of approach typically struggle with:

1. Overly simplistic or "dumbed-down" business models. The complexity and cost of creating and maintaining a robust business model is prohibitive.

2. Planning systems that function as data collection vehicles, not robust financial modeling environments.

3. Spending 2-5x the investment made in the software on consultants to implement the solution.

4. A much heavier dependence on IT.

5. Difficulty maintaining their systems on their own.

There are alternatives to script-based logic for delivering modeling sophistication. The proper use of Microsoft Excel is a viable alternative, provided its inherent weaknesses are properly addressed. Excel is the clear tool of choice for hundreds of millions of practitioners around the world today. Its syntax and calculation capabilities are robust, and even more importantly, the skillset is ubiquitous.

However, Excel's shortcomings as an enterprise tool are substantial and well-documented. The original design philosophy behind Excel was to empower the analyst, not necessarily the enterprise. The deficiencies of stand-alone spreadsheets in a corporate context include: lack of robust security, lack of file management and proper data storage, cumbersome aggregation/consolidation capabilities, dependency on macros, lack of scalability to support multiple concurrent users, and inadequate collaboration capabilities. Shortcomings of Excel notwithstanding, the ideal performance management architecture is one that retains what users love about spreadsheets and eliminates what administrators hate.

Stand-alone spreadsheets are chaotic, and relational databases on their own are unwieldy, but a thoughtful merger of the two yields something quite flexible and robust that can be managed by line-of-business (finance) professionals and readily adopted by large user communities. The goal should be a highly personalized performance management architecture that doesn't require a single line of custom code to meet 100% of the organization's needs.

conclusion

The performance management process is designed to support the activities of strategizing, planning, monitoring and analyzing at various levels so that the organization can progress in achieving its goals. The technical architecture necessary to support PMP must have certain design characteristics in order to be effective. The purpose of this whitepaper is to present our view of the technical underpinnings that enable a unified and robust performance management process that is sophisticated without being overly complex.

Axiom EPM

- Unified Performance Management
- Robust Relational Database Foundation
- On-Premise or Cloud-Based
- Managed Excel User Experience