Performance Management and Key Performance Indicator (KPI) Data Capture

Logistics, Maintenance and Industrial Operations (NAVSEA 04)
1 Background

The NAVSEA 04 Directorate (Logistics, Maintenance and Industrial Operations) has recently institutionalized a Closed Loop Business Planning process that forges strong links between strategy and operations. This Business Planning process begins by developing strategy statements that can be translated into specific initiatives and objectives. Operation plans and resources are then aligned to these strategic objectives. Ultimately, performance management ensures that SEA 04 continually monitors and learns from internal results and external data within the operating environment.

A Performance management system will ensure that SEA 04’s “success is measured by the results we produce for our customers and stakeholders, and by our capability to improve those results over time” (RADM Mark Hugel, Mr. John H. James, Jr., 2009-2010 NAVSEA 04 Strategic Guidance). SEA 04 needs to understand the “health of the organization” as it relates to the key areas of the 2009-2010 Strategic Guidance on a consistent and continual basis; starting with a baseline of relevant Critical Success Factors (CSFs) and Key Performance Indicators (KPIs).

The intended application of a successful Performance Management System within NAVSEA 04 includes:
- Monitoring the overall performance levels of the organization (the “Health of the Organization”)
- Setting a strategic direction and using measurements to ensure adherence to this direction
- Using average or absolute performance levels to perform detailed operational planning of activities and processes
- Basing planning on “up-to-date” performance data
- Exploiting performance measurement for altering the behavior of individuals, groups or the whole organization and thus used to promote desired changes
- Using performance management to determine what processes need improvement
- Sharing data with employees and customers, as an approach to documenting that performance is taken seriously
- Benchmarking

A Performance Management System does not automatically assume an elaborate IT-based system. In some cases there will be an IT system; for others, it may simply mean collecting consistent customer satisfaction data every 12 months (as with the SEA 04 External CVM process). The approach proposed to NAVSEA 04 within this White Paper will focus “90% of the “performance management system” on the context of measurement, its focus, and the integration and interactivity of measurement; the final 10% of the performance management system will focus on technology” (Spitzer, 2007)

2 Overall Approach

The overall approach for NAVSEA 04 Performance Management and Data Capture includes an end state goal of “accurate data capture into a central repository on a consistent basis; utilized for metrics reporting on the “Health of the SEA 04 Organization in the areas of Customer, People and Process.***
In order to reach this end state goal for performance management, it is recommended that SEA 04 understand and follow eight (8) specific steps of the performance management design process (Anderson, 2007).

The Overall design process* for Performance Management recommended by The Bradford Management Group (TBMG):

1. Understanding and mapping business structures and processes.
2. Developing business performance priorities.
3. Understanding the current performance management system.
4. Developing Key Performance Indicators (KPIs).
5. Deciding how to collect the required data.
6. Designing reporting and performance data presentation formats.
7. Testing and adjusting the performance measurement system.
8. Implementing the performance management system.

Before addressing the proposed methodology for each of these eight (8) steps, there are a few "parameters of success" (Parmenter, 2007) that are recommended to be in place prior to developing a Performance Management System. These parameters include:

- Appointment of an external performance management facilitator. (TBMG)
- Buy in from the Senior Management Team (SMT): (SEA 04 Leadership Board)
- Critical Success Factors (CSFs) linked to the Balanced Scorecard (BSC) (see 2.4 below)
- No more than ten (10) Key Performance Indicators (KPIs) (see 2.4 below)
- A small elite Performance Management Development Team (PMDT) (04C Mgmt, TBMG)
- Use of existing systems, formats, templates for data collection the first 12 months (see 2.5 below)
- Collection of all performance measures in a "database"-available to entire Directorate (see 2.5 below)
2.1 Understanding and mapping business structures and processes.  (Complete)

This is the primary step of the performance management design process; the main purpose is to reacquaint the performance management system designers with the organization, its environment, and, not in the least, its business processes. To develop a performance management system, it must be seen in light of the strategy of the organization and its stakeholders. NAVSEA 04 has completed this first step through its 2008 Environmental Off-Site, 2008 Environmental Pre-Assessments (EPAS) with each Department, and the subsequent development of the three (3) NAVSEA 04 Priority Focus Areas; of which one is Business Operations Processes (BOP). The BOP Priority Area is focused on identification and efficiency improvement of key (common) Directorate level processes.

2.2 Developing business performance priorities.  (Complete)

This step leverages the information defined in step 2.1 as a baseline for developing critical focus areas for the organization. NAVSEA 04 has identified three (3) key Priority Areas of: Workload Forecasting (WLF), Workforce Management (WFM) and Business Operations Processes (BOP). These three Priorities align within the Directorates longer term focus on improving Supporting Business Processes within CUSTOMER, PEOPLE and PROCESS Initiatives.

2.3 Understanding the current performance measurement system.

A key part in developing a performance management system is first understanding the current (as-is) performance management system and any key data points and/or metrics that are being collected already and can be reused in the new performance management system. To accomplish this task, the following steps are recommended:

2.3.1 NAVSEA 04 Departments will identify key data points that are currently collected for performance assessment. The Performance Management Development Team (PMDT: see parameter bullets above on page 4 for membership of PMDT) will provide a template for each Department to use when identifying their key performance management data points. This template may include (Parmenter, 2007):

- Description of performance measure
- Explanation of how the performance measure is calculated
- Person responsible for the performance measure
- System where data is sourced from or to be gathered
- Refinements that may be required to produce “real-time” information
- Which BSC (and SEA 04 Strategic Initiative) the performance measure impacts
- Recommended display of the performance measure (type of graph, table, etc.)
- How often it should be measured

2.3.2 As mentioned in bullet six (6) above, each Department was originally to be asked to show alignment to the six (6) Balanced Scorecard Perspectives and the three (3) SEA 04 Strategic Initiatives. The three (3) SEA 04 Strategic Initiatives can be found in the 2009-2010 NAVSEA 04 Strategic Guidance and include: CUSTOMER, PEOPLE and PROCESS. The six (6) Balanced Scorecard Perspectives should follow industry best practices. The industry best practice recommendations include: Financial, Learning & Growth, Customer Focus, Internal Process, Staff Satisfaction and Environmental/Community (Parmenter, 2007). NAVSEA 04 can already align the six industry standard BSC Perspectives with the three Directorate Initiatives (See Figure 3).

<table>
<thead>
<tr>
<th>Balanced Scorecard (BSC) Perspectives</th>
<th>NAVSEA 04 Strategic Initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Financial</td>
<td>PROCESS</td>
</tr>
<tr>
<td>2. Internal Processes</td>
<td>CUSTOMER</td>
</tr>
<tr>
<td>3. Customer Focus</td>
<td>PEOPLE</td>
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<tr>
<td>4. Learning &amp; Growth</td>
<td></td>
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<tr>
<td>5. Staff Satisfaction</td>
<td></td>
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<tr>
<td>6. Environmental / Community</td>
<td>TBD</td>
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</tbody>
</table>

Each BSC Perspective is defined below:
- **Financial**: Utilization of assets; Optimization of working capital
- **Internal Process**: Delivery in full on time, optimizing technology, maintain effective relationships with key stakeholders
- **Customer Focus**: Increase Customer Satisfaction
Learning & Growth: Empowerment, increasing expertise, and adaptability
Staff Satisfaction: Promote organization culture and unity, retention of key staff, increase recognition and training opportunity
Environmental / Community: Value Proposition to the Community We Serve

For each “as-is” performance measure currently collected by SEA 04 Departments, each can state how it aligns to the BSC Perspective and SEA 04 Strategic Initiative. This Figure 3 alignment is also key for identification of Critical Success Factors (CSFs) in our next design process step (step 2.4).

2.3.3. As the Performance Management System and KPI discussion evolved it was decided that KPIs will not align directly with the six (6) BSC Perspective as mentioned in 2.3.2 above; moreover, SEA 04 KPI’s will align directly with the six (6) “Results” categories of Malcolm Baldrige (as utilized in the 2009 NSPA-NAVSEA Strategic Performance Assessment). The Organizational KPIs & Dashboard structure in Figure 4 (below) articulates the six (6) Result Categories.

Once Organizational KPIs are defined, Strategic KPIs will be utilized for reporting the Health of the SEA 04 Organization in the three (3) Strategic Guidance initiative areas of Customer, People, and Process.
Performance Management (PM)
NAVSEA 04 KPI & DASHBOARD CONSTRUCT

Figure 4
2.4 Developing Performance Indicators

The first consideration when developing performance indicators is to ensure the relevance of such indicators. Data for data’s sake, and performance indicators (metrics) for performance indicators (metrics) sake, is not the intended goal. SEA 04’s performance indicators must be quantifiable measurements, align with organizational goals, and reflect the Critical Success Factors (CSFs) of the organization. Key Performance Indicators usually are longer term considerations. The definition of what they are and how they are measured should not change often. The goals, however, for a particular KPI may change as the organization’s goal’s change, or as it get closer to achieving a goal (Reh, 2008).

2.4.1 Critical Success Factors (CSFs)

Critical Success Factors (CSFs) are the actual “metrics” that SEA 04 will report on, target, and ultimately maintain and/or improve within the organization. The relationship between CSFs and KPIs (see 2.4.2 below) is paramount. CSFs identify the issues that determine organizational health and vitality. When an organization first investigates CSFs, they may come up with 30 or so issues that can be argued are critical for the continued success/health of the organization. The second phase of “thinning them down” is easy, as the more important CSFs have a broader influence cutting across a number of BSC perspectives (reference Figure 2 above for SEA 04 BSC perspectives). Better practice suggests that organizational CSFs should be limited to between five (5) and eight (8) regardless of the organization’s size (Parmenter, 2007).

The performance management facilitator (TBMG) will facilitate a CSF development exercise with the SEA 04 Leadership Board and provide benchmark examples of industry CSFs. This exercise will ensure that all proposed CSFs address all six of the BSC (Balanced Scorecard) perspectives. By design, if the CSFs address the six BSC perspectives, then the CSFs will also address the three SEA 04 Strategic Initiatives. Once the final CSFs are decided, SEA 04 will have officially identified its key metrics for measuring and reporting the Health of SEA 04 in the areas of Customer, People and Process.

2.4.2 Key Performance Indicators (KPIs)

Once SEA 04 identifies its CSFs/Metrics, it will then need to develop performance measures (Key Performance Indicators) for each of the Critical Success Factors (CSFs). The KPIs will be influenced by the organizational CSFs and the vital activities existing at the workplace that are creating success or failure. No matter how complex the organization (whether a public body, a hospital, or a diverse manufacturer), team, department and division performance measures should not be consolidated to become the organizations performance measures (Parmenter, 2007).

The performance management facilitator (TBMG) will facilitate KPI development exercises with the SEA 04 Leadership Board and provide benchmark examples of industry KPIs. These exercises will ensure that appropriate KPIs include financial and non-financial measures, are measured consistently, will be acted on by the Senior Management Team (SMT), will be understood by all staff, will have responsibility tied to an individual or team, will have a significant impact (most of the CSFs and more than one BSC perspective impacted), and will have a positive impact (affects all other performance measures in a positive way).

Other attributes associated with the Key Performance Indicators within SEA 04 will include:

- Name of Performance Measure (name of KPI)
- Calculation of Measure
- Person Responsible
- System in which the data is going to be gathered
- Link to Balanced Scorecard Perspective (BSC)
- Recommended Display (eg. Type of graph)
- Frequency of Measurement (eg. Daily, monthly, quarterly, etc.)
- Link to Critical Success Factor (CSF)
- Team(s) interested in using measure
- Suggested Performance Target (this may involve professional estimating techniques*)
- Required Reliability/Accuracy (+-5%, +-10%, +-20%, etc.)
- Estimated time to gather information (for Workload Forecasting (WLF) purposes)
- Implementation issues
- Training required to collect data (if any)
2.5 Deciding how to collect the required data.

The main purpose of this activity is to arrive at solutions for collecting the necessary data for the defined performance indicators (see Section 2.4). These solutions will range from manual data collection, to automatic data collection, to picking the required information out of existing IT Systems. The functional process for capturing data on a consistent schedule is articulated; as well as the system and technical requirements for said collection.

2.5.1 Functional Process for Data Capture (Governance Structure)

The Functional Process for Data Capture will speak to the short term and long term processes that are necessary for successful institutionalization of the Performance Management System. Short term processes will consider short term system and technical recommendations (see section 2.5.2) and short term data reporting in the first twelve (12) months. For NAVSEA 04 the short term will include the data capture process utilized in FY2009 and the reporting process utilized at each of the four (4) QSRs (Quarterly Staff Reviews) in FY2009 (Department level inputs). Long term processes will consider long term system and technical recommendations (see section 2.5.2) and long term data reporting decisions (see section 2.6). Initial functional process development for the NAVSEA 04 Performance Management system will consider the proven success of the Norfolk Naval Shipyard (NNSY) Governance and Dashboard structures.

2.5.2 System and Technical Requirements for Data Capture

The Performance Management Database will be a central repository for all SEA 04 data and will help improve SEA 04 processes for managing, organizing, and validating directorate data. A central repository database will allow the data to be administered on an enterprise level, resulting in capability to perform extensive data analysis and develop accurate reports to determine Health of the Organization metrics. All of the requirements used to develop and design the central repository will serve as the foundation for the data used in reports, metrics dashboard and the BSC in order to align with SEA 04 Strategic Initiatives.

Listed below are four initial recommended solutions for the Performance Management Database:

- **Option 1:** Microsoft Access Database on Directorate Share Drive (short term)
- **Option 2:** DISA Site hosting NAVSEA Applications (long term)
- **Option 3:** Space and Naval Warfare System Centers (SPAWAR SC) hosting services (long term)
- **Option 4:** iNAVSEA Microsoft Office SharePoint Services (MOSS). (long term)

Option 1 requires a low level of effort to implement and is easily accessible by all SEA 04 Directorate staff. A basic database can be created in MS Access and saved in a folder on the directorate share drive. An Access database would serve only as a short term solution. MS Access supports capability to meet the immediate need to centralize the data, but as the data grows and additional capabilities are required for reporting, querying, etc., an advanced, robust, and intelligent database is necessary for a long term solution. MS Access also allows basic permissions structure that would restrict users to the data pertinent only to their departmental roles, however, the requirement for concurrent file access is limited. Option 1 presents a viable solution during the early stages of developing Database requirements and business rules within Performance Management metrics reporting. It is also important to consider that no additional cost to provide hardware, software and connectivity are incurred since Microsoft Access is included on the core build of all NMCI workstations, and Service Level Agreements (SLAs) will default to the NMCI Contract.

Option 2 will require teaming with the SEA 04L Department. 04L is currently in the process of consolidating their IT systems through their Ship Maintenance and Logistics Information Systems (SMLIS) project. The objective of this project is to consolidate and migrate their applications over to a managed services (Defense Information Systems Agency (DISA)) provider. The approach for Option 2 involves developing a database using applications, such as Microsoft SQL or Oracle, and contract DISA to host the database application and leverage in-place agreements with DISA hosting other NAVSEA systems. The advantage to this solution is a government agency will provide hosting services versus a non-governmental entity, thus keeping the data, hardware and software government owned and operated. Additionally, the feasibility for departmental cost sharing exists since the Performance Management Database is a solution for the entire directorate. Option 2 requires further research and discussion with 04L SMLIS Project Manager to explore the feasibility for an expanded DISA/NAVSEA agreement.

Option 3 is very similar to Option 2, except hosting services are provided by Space and Naval Warfare System Center (SPAWAR SC). Hosting through SPAWAR also share similar benefits as hosting through DISA, but a current contract or agreement that shows other NAVSEA applications is hosted by them still requires further research. Details regarding costs and services can be determined based on the requirements submitted to SPAWAR. A follow on Business Case Analysis (BCA) can be used to determine which of the two Options best suits the Performance Management initiative based on cost, schedule, and performance measures.
Option 4 will address the short and long term requirement to centralize the data once it is collected and to ensure that the data is hosted inside NAVSEA. However, further research is required to determine the specific details of NAVSEA’s contractual agreement with Microsoft regarding their SharePoint Services (reference MOSS: Microsoft Office Sharepoint Services). Fortunately, MOSS does provide an enhanced Dashboard KPI reporting capability and will align well with White Paper Sections 2.4.2 (KPI Development) and 2.6 (Dashboard Reporting).

It is important to consider six initial attributes when narrowing down the three different options. Additionally, these six attributes need to support the general strategy of implementing a Performance Management system while considering cost, schedule, and performance impacts. The attributes are as follows:

- Government Ownership of Data
- Ease of Implementation/ Migration
- Data Administration
- Data Validation
- Hardware/ Software Support
- Accessibility

The initial design and construction of this database depends on the data collected, the relevance of each data point, and the relationship between the data. The functional business rules for data organization and query require development based on data found during the collection process. The PMDT should consider the addition of a database administrator and developer to their team during the data collection phase to successfully design and implement the database. It is essential to this effort to minimize any miscommunication between the developers and the users. Inclusion of the additional members to the PMDT will allow both the technical and operational sides to interact early enough in the process to indentify and mitigate risk.

### 2.6 Designing reporting and performance data presentation formats (Dashboards).

In this step, NAVSEA 04 will decide how the performance data are presented to the users; how they should apply the performance data for management, monitoring, and improvement; who will have access rights to performance data, and so forth. To some extent, the design of the presentation formats for the performance data can be compared to the design of the dashboard in a car, where you have to make judgments regarding ergonomics, the human mind’s abilities for perception and data interpretation, and what signals and cues the performance management system should provide (Anderson, 2007).

The end state goal is to provide accurate performance data that will speak to the “Health of the SEA 04 Organization”. Ensuring that Customer, People and Process improvement efforts are aligned with strategic priorities and with any performance shortcomings. There are several tools and techniques available for this type of analysis. Many of these techniques complement one another; each addressing different aspects of the performance data. NAVSEA 04 will consider the following tools/techniques for performance reporting:

- Trend Analysis
- Spider Charts
- Performance Matrix
- Criteria Testing
- Quality Function Deployment (QFD)

The NNSY (Norfolk Naval Shipyard) Governance and Dashboard Structure, and PEO LMW methodologies are considered a best practices and potential benchmarks for NAVSEA 04 reporting technique considerations.

If Option 4 of section 2.5.2 (System and Technical Requirements) is chosen, then MOSS (Microsoft Office Sharepoint Services) does provide an enhanced Dashboard KPI reporting capability and will align well with White Paper Sections 2.4.2 (KPI Development) and 2.6 (Dashboard Reporting). The overall Dashboard reporting Construct is identified in Figure 4 of this White Paper.

### 2.7 Testing and adjusting the performance management system.

The SEA 04 Performance Management System is tested so that elements that do not work as planned can be adjusted.
2.8 Implementing the performance management system.

The final process for official launch of the NAVSEA 04 Performance Management System is executed here. The Performance Management system is institutionalized on a consistent and continual basis throughout NAVSEA 04; following the Functional Process for Performance Management as referenced in Section 2.5.1.

3 Summary

In following these aforementioned steps for Performance Management, NAVSEA 04 can match the organizational mission, vision, initiatives and goals with quantifiable implementation success.

For further discussion or response to specific inquiries related to this Business Benefits and Technical White Paper on Performance Management and Key Performance Indicator Data Capture, please contact Bradford D. Blevins at bblevins@thebradfordmg.com or 347.329.1190.