

**Marine Corps Adaptive Maintenance Enterprise**

**Implementation Plan**

**(Draft v0.09)**

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## 1. Introduction

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*“The only strategy that makes sense in the face of unpredictable change is a strategy to become adaptive” (Haeckel, 1999).*

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As an adaptive enterprise, Hendrick Motorsports (HMS) orients its business processes around one objective: *to win*. To this objective, Hendrick evolves its heightened capacity to sense and respond to unknowable change in variable environments. Several key characteristics highlight Hendrick’s capacities supporting pro-active life-cycle sustainment of their race capabilities. First, HMS supports direct communication between engineers, maintainers, drivers and team leaders. Second, data-system integration across the organization enables the collaborative networking of information at all levels. Hendrick’s capacities both for robust modeling and simulation, and for continuous innovation depend upon the integration of mass aggregates of disparate information through a single cloud-based platform. Third, HMS centers its culture around one motto: *win each race*.

Much like Hendrick Motorsports, the US Marine Corps must sense and respond to rapidly shifting factors in variable environments. Unlike HMS, however, the USMC requires life-cycle management for a larger density of in-service ground equipment than does Hendrick. Additionally, the USMC lacks a direct communication channel connecting integrating end-user requirements into logistics and technical capabilities. To communicate lessons learned, operators and maintainers must submit ideas and requests either locally, up the formal chain-of-command, or at Headquarters for maturation through the Defense Acquisition System. Whereas Hendricks maintains a process of continuous innovation and life-cycle sustainment, the USMC system responds to end-user and strategic requires at a much slower pace — instead of sustainment through robust design, potential Marine Corps solutions require multiple years to mature, if they are approved at all.

Even with the milestone short-cuts within the integrated Defense Acquisition System that allow for the rapid procurement of existing capabilities from industry, the delivery of capabilities to the deployed war-fighter significantly fail to meet USMC needs for both relevance and timeliness. Furthermore, the lack of networked knowledge throughout the organization encourages a culture of domination, where communities are fragmented and improvement efforts, isolated. Through a collateral business process of robust and continuous sustainment, the USMC will generate an internal ability to rapidly transform war-fighter requirements into immediate capabilities, while also supporting existing capabilities as end-user requirements shift over time. Further, by releasing solution prototypes in alignment with each next-deployment, the Marine Corps will generate tested knowledge to inform the joint-capability acquisition of capabilities supporting all of the Defense service branches.

Like Hendrick Motorsports, the Marine Corps must rally around a single focus aligned to the organization’s strategy: *to be a force in readiness*. Furthermore, the practices that apply to Hendrick Motorsports lend themselves as a corresponding model for USMC management of in-service ground equipment. To evolve its capacity to sense and respond, the Marine Corps must shift its industrial-model constraints of an efficiency-oriented organization and emerge as an Adaptive Enterprise, better able to respond to unanticipated change. To do this, the Corps must evolve innovation-supporting business processes that not only support robust and continuous innovation, but also protect against fragmentation, insularity and domination.

The Marine Corps requires an immediate, adaptive capability supporting robust and continuous innovation aligned to each deployment cycle. Using the analogy of the NASCAR race-cycle tied to the USMC deployment-

cycle, the projects under the Rapid Sustainment and Development Initiative demonstrate that incorporating a networked, collaborative framework into the USMC organization supports capability life-cycle sustainment, data-driven decision-making and a sustainable capacity for rapid, continuous innovation. By releasing solution prototypes aligned to each next-deployment, the Marine Corps increases both its readiness and its adaptability. The actions of generating and testing new knowledge quantifiably refines requirements for rapid acquisition, which not only benefits all service branches, it lends significantly to sustained global war-fighting advantage.

### 1.1. The Vision for Adaptive Mx

The 2016 Marine Corps Operating Concept (MOC) requires the MAGTF to come quickly together to conduct operations, and then to disaggregate – i.e. to be adaptive. The entire Marine Corps enterprise must orient to MAGTF readiness. Key to our Corps’ unique contribution to the lethal defense force is our ability to continually improve the value of logistics activities to our operating forces. To support Marines in the future Operating Environment, our processes can no longer afford to be merely efficient. They must bridge the here and now with the needs on the horizon – they must be adaptive. The USMC’s current modernization efforts help to make the MOC a reality. As the efforts of the war-fighter must pivot to adapt to an increasingly unpredictable environment, our enterprise must continuously evolve its ability to maintain core capabilities essential to the MAGTF.

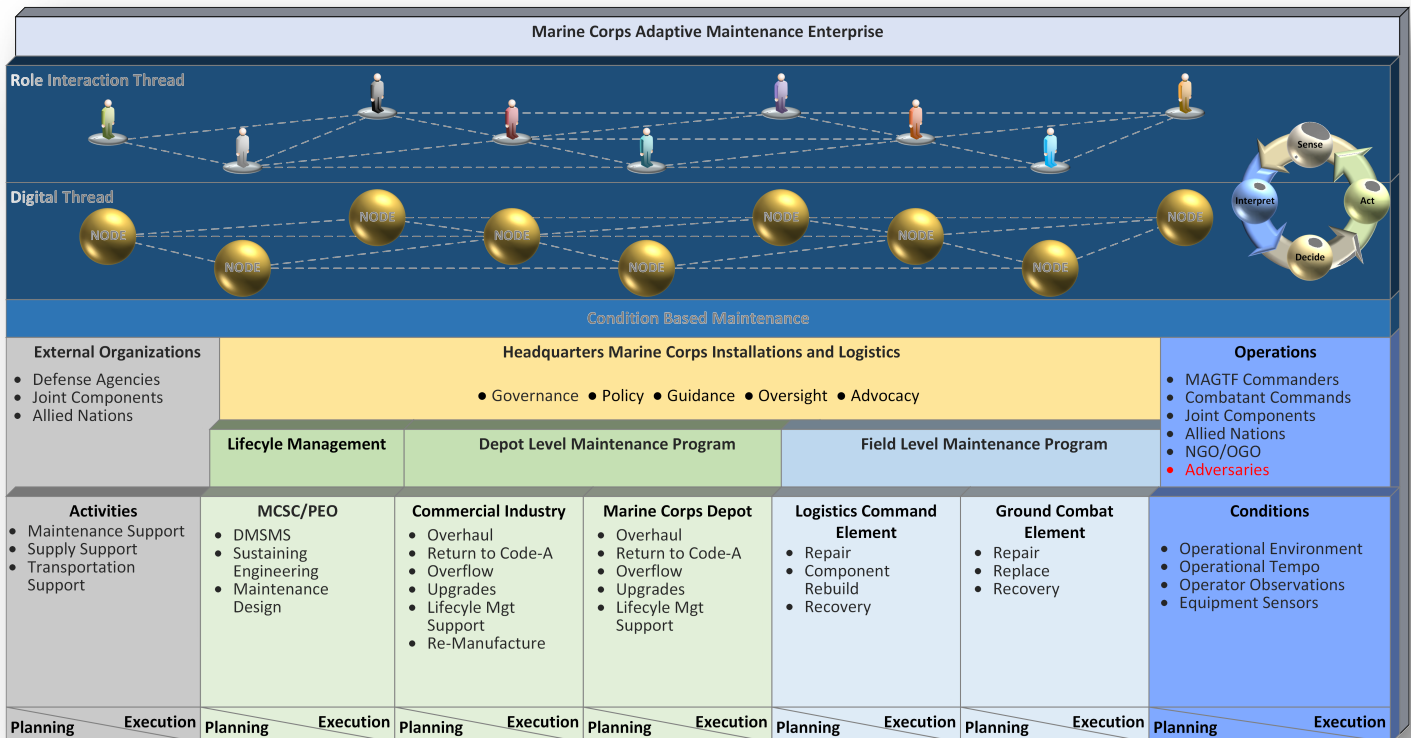


Figure 1 MC-AM<sub>x</sub> Enterprise Overview

Central to this evolution is the vision of the Marine Corps Adaptive Maintenance Enterprise (MC-AM<sub>x</sub>), where leaders, managers, maintainers, activities, and technologies form an integrated web, capturing the signals

necessary to respond proactively to war-fighter’s and weapon system’s needs. The modularity of maintenance and logistics communities grant an essential flexibility of the Corps to adapt to the signals entering into these feedback channels. Like migratory flocks who seamlessly shift as one system, once competing agencies, unified by their orientation to an autonomous MAGTAF, allow the signals entering into the adaptive loop to re-configure their roles and responsibilities in anticipation of the next proactive response. A singular purpose pervades all maintenance elements, functions, levels, deployment cycles, operational phases, agencies, technologies and information systems—*ready the MAGTF*.

To produce a lethal fighting force, the defense department must organize for innovation. It must intentionally manage for change through the continuous assessment of and adaptation to the competitive environment. In seeking to enable the adaptive MAGTF, there is a need to capture and to integrate specific data signals from the operating environment, and across the enterprise to support tactical, operational, and strategic planning. The Rapid Sustainment and Development Initiative resolves this adaptive imperative through:

- Networked collaboration and information sharing;
- Capability life-cycle sustainment;
- Data-driven decision-making; and
- Rapid, continuous sustainment-innovation.

The MC-AMx Implementation Plan champions the Rapid Sustainment and Development Initiative in the design of an adaptive maintenance chain as a first iteration of an ongoing logistics modernization evolution.

**1.2. Marine Corps Adaptive Maintenance Enterprise Working Group**

The MC-AM<sub>x</sub> Enterprise Working Groups will interface between the operating forces, Headquarters, Marine Corps, and supporting establishments. Comprised of advocates, subject matter experts, and business process experts, this group ensures that stakeholders’ needs are addressed and met through innovative planning and execution. Further, they ensure process and policy coherence as required.

<b>FOCUS</b>		
<u><a href="#">Role Interaction IPT</a></u>	<u><a href="#">Process Interaction IPT</a></u>	<u><a href="#">Digital Interaction IPT</a></u>
<b>OBJECTIVES</b>		
<u><a href="#">2.4.1: Streamline Feedback Loop for Issues and Innovation</a></u>	<u><a href="#">3.4.1 Design ELMP for Continuous Process Improvement</a></u>	<u><a href="#">4.5.1 Automate Discrepancy Reporting</a></u>
<u><a href="#">2.4.2 Customer-centric Role Alignment</a></u>	<u><a href="#">3.4.2 Enhance EGEM</a></u>	<u><a href="#">4.5.2 Extend Access and MCCLL</a></u>
<u><a href="#">2.4.3 Empower Leaders</a></u>	<u><a href="#">3.4.3 Determine Depot Candidates</a></u>	<u><a href="#">4.5.3 Digitize RCMA Sessions and Track Changes</a></u>
<u><a href="#">2.4.4 Capture Value to War-fighter</a></u>	<u><a href="#">3.4.4 Manage Enterprise-wide Statements of Work</a></u>	<u><a href="#">4.5.4 Digitize Compliance</a></u>
	<u><a href="#">3.4.5 Enhance Cost-estimation and Accounting</a></u>	<u><a href="#">4.5.5 Network Social Exchange</a></u>
	<u><a href="#">3.4.6 Manage Innovation</a></u>	<u><a href="#">4.5.6 Collect On-board Sensor Data</a></u>
		<u><a href="#">4.5.7 Collect Equipment-usage Data</a></u>

		<a href="#">4.5.8 Collect System Configuration Data</a>
		<a href="#">4.5.9 Collect Training and Proficiencies Data</a>
		<a href="#">4.5.10 Collect Operational-factors Data</a>
		<a href="#">4.5.11 Interface all Log-IT Portfolio Systems</a>

**1.3. Document Layout**

This Implementation Plan is intended to facilitate an innate “learning” capacity across Maintenance Communities by which decision-makers digest and transmute signals into action directly responding to the needs of the war-fighter, as they emerge. This document specifies the scope of the role interaction, business process and digital thread Integrated Planning Teams. It also identifies the potential areas for risk and asserts specific assumptions and factors under which this Initiative will be deployed and sustained. Moreover, this document provides a framework for managing the overall product life-cycle of assets to ensure high-quality information is created, managed and reused effectively across all levels of Logistics planning. It is deemed to be a living document with the expectation that it will be modified, improved and expanded as the Customer DG Initiative matures.

**1.3.1. Inputs and Outputs**

Inputs and Outputs are the identified non-monetary resources, activities, and organizations required to accomplish the desired outcomes. These are the overarching means to achieving the desired end-state. Each IPT focus identifies the effort’s required Inputs (what we invest) and the Outputs (activities and organizations).

**1.3.2. Desired Outcomes**

Desired outcomes are the descriptions of what stakeholders want to achieve, to possess, to do, to be or what conditions should be met.

Stakeholders throughout the Marine Corps Enterprise participated in sessions to determine the desired outcomes for the alternative strategies relevant to the IPT focus areas. First, the participants ideated and documented proposed outcomes. For each proposed outcome the session participants evaluated the realism of the outcome. The participants eliminated unrealistic outcomes, and then rated the *Benefits* and *Ease of Implementation* of the realistic ones. Finally, our participants identified the top outcomes and *Prioritized* them.

*1.3.2.1. Benefit*

The session participant’s perceived value or impact of the desired outcome. The *Benefit* applies to their organization, their customers, and/or the Marine Corps enterprise. The value of *Benefit* is rated from zero (0) to five (5), lowest to highest.

*1.3.2.2. Ease of Implementation*



The session participants rated these outcomes by difficulty to perform or accomplish the desired end-state. *Difficulty* refers to challenges in cost, schedule, or performance. The value of difficulty is rated from zero (0) to five (5), most to least.

#### 1.3.2.3. *Desired Outcomes Ledger*

The ledger consists of a prioritized list of our stakeholders' desired outcomes.

### 1.3.3. Initial Risk Assessment

Risks are potential-future or currently-occurring events or conditions that may have a negative effect on achieving the desired outcomes.

Stakeholders throughout the Marine Corps Enterprise participated in sessions to determine the risk to the alternative strategies relevant to the IPT focus areas. For each desired outcome the session participants evaluated the reality of each risk. The participants eliminated unrealistic risks and rated the remaining along parameters of *Likelihood* and *Consequence*. Finally, the session participants identified the top risks and *Prioritized* them.

#### 1.3.3.1. *Likelihood*

The session participant's perceived probability that the event will occur. The perception applies to their organization, their customer(s), or the Marine Corps enterprise. The value of *Likelihood* is rated from zero (0) to five (5) with (0), lowest to highest.

#### 1.3.3.2. *Consequence*

The session participant's perceived impact to their organization, their customer(s), or enterprise to perform or accomplish the desired outcomes. The impact applies to cost, schedule, and performance. Impact is measured as a level of severity from zero (0) to five (5), more to less.

#### 1.3.3.3. *Risk Matrix*

The matrix is a tool to visually communicate the evaluation of the *Likelihood* and *Consequences* presented in the Risk Ledger.

#### 1.3.3.4. *Risk Ledger*

The ledger consists of a prioritized list of our stakeholders' identified and evaluated risk and associated activities.

### 1.3.4. Enablers

Enablers are potential-future or currently-occurring events or conditions that may have a *positive* effect on achieving the desired outcomes.

Stakeholders throughout the Marine Corps Enterprise participated in sessions to determine the risk to the alternative strategies relevant to the IPT focus areas. For each identified enabler the session participants evaluated their respective reality. The participants eliminated unrealistic risks and rated the remaining along parameters of *Likelihood* and *Consequence*. Finally, the session participants identified the top risks and *Prioritized* them.

#### 1.3.4.1. *Likelihood*

The session participant's perceived probability that the event will occur. The perception applies to their organization, their customer(s), or the Marine Corps enterprise. The value of *Likelihood* is rated from zero (0) to five (5), lowest to highest.

#### 1.3.4.2. *Consequence*

The session participant's perceived, positive impact to their organization, their customer(s), or enterprise to perform or accomplish the desired outcomes. The impact applies to cost, schedule, and performance. The value of the impact is rated from zero (0) to five (5), lowest to highest.

#### 1.3.4.3. *Enablers Matrix*

The tool to visually communicate the evaluation of the *Likelihood* and *Consequences* presented in the Enablers Ledger.

#### 1.3.4.4. *Enablers Ledger*

The ledger consists of a prioritized list of our stakeholders' identified and evaluated enablers and associated activities.