NPS-HR-22-203

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Modeling System Behavior of Individual Procedures at the Tactical Level of the Marine Corps Human Resource Development Process—Do HRDP Policy, Procedures, and IMS Support or Hinder Themselves?

March 2022

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Naval Postgraduate School

Prepared for the Naval Postgraduate School, Monterey, CA 93943

ACQUISITION RESEARCH PROGRAM
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The research presented in this report was supported by the Acquisition Research Program of the Department of Defense Management at the Naval Postgraduate School.

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ABSTRACT

In February 2021, the Marine Corps released its official guidance on the Human Resource Development Process (HRDP). The Marine Corps outlined the HRDP phases of Guidance, Planning, Production, Assignment, and Assessment as co-occurring and continuous operations. Each process within the phases produces vast amounts of qualitative and quantitative data for the Marine Corps. Using Monterey Phoenix to model both the HRDP and Information Management System (IMS) system behaviors supporting the HRDP, I evaluated the Marine Corps' IMS ability to support Talent Management 2030. First, processes designed in the industrial era and carried into the digital age should not persist. This study recommends IT IMS changes to deal with the legacy processes and methodologies from a bygone era. Secondly, this report provides a framework, tools, and examples to conduct process analysis across all administrative functions across the force, allowing Marine Corps leadership to capitalize on efficiencies already gained by Fleet Marine Forces.

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ACKNOWLEDGMENTS

I would like to take the opportunity to acknowledge my wife, Kristen. If it were not for her, I would have never accomplished all that I have, nor would I have ever become a student at NPS. She is my better half, and over the past ten years of marriage, she has supported me and my Marine Corps journey. We have moved across the country together, started a business, closed a business, loved, lost, grieved, and celebrated over the past decade. No words can express my forever gratitude, love, and affection for my wife. She is my greatest champion, loudest cheerleader, sounding board, superb editor-in-chief, and a grounded reality check. With her in my life, I am far more capable than I am alone.

Second, I would like to thank my advisors, Dr. Chad Seagren and Dr. Viviene Ming, who have had the pleasure of navigating me onto a thesis topic after months of futile academic adventures. Their patient persistence with me has allowed ideas to grow, morph, and mature into a single unified concept and was instrumental in arriving at my final topic. I apologize for the missed meetings, rambling emails, and every hurdle we had to overcome while completing a master's program and thesis during the COVID pandemic. On occasions, the path to the finish line has been tortuous, but the journey was worth it.

Third, to all the Marine Corps staff at M&RA, TECOM, CD&I, NS TMOD, civilians and Marines alike. Thank you, those who have ventured to take phone calls, respond to lengthy emails, and provide a cell phone number for ill-timed but important weekend calls. Without your knowledge and experience, I could have never grasped this topic's depths.

Last and by far not the least, I would like to thank the faculty and support staff at NPS who have helped me in classes, editing papers, experimenting with technology, and facilitating the pursuit of ideas wherever they may lead. The Graduate Writing Center staff, especially Michelle Morneau, have read and reread this thesis and offered refinements throughout the process. This thesis's eclectic journey would not have been possible without their efforts over the 21 months at NPS.

Thank You: To all those unmentioned who supported, helped, encouraged, or reminded me that reality exists and ambition and ability are not always the same. This thesis and my graduate education at NPS are products of your collective labor and communal support, while any errors, omissions, or fallacies are mine alone. Also, those at Starbucks whose steady caffeine supply kept me awake.

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LIST OF ACRONYMS AND ABBREVIATIONS

ASR	Authorized Strength Report
CD&I	Combat Development & Integration
DC	Deputy Commandant
DOTMLPF&C	Doctrine, Organization, Training/Education, Material, Leadership/ Communication Synchronization, Personnel, Facilities, and Cost
FLC	Formal Learning Center
FMF	Fleet Marine Forces
FOS	Family of Systems
HRDP	Human Resources Development Process
MAGTF	Marine Air Ground Task Force
MCTFS	Marine Corps Total Force System
MCTIMS	Marine Corps Training Information Management System
MCRC	Marine Corps Recruiting Command
MCRSS	Marine Corps Recruiting Support System
MMSR	Separation and Retirement Branch
MPP	Manpower Plans, Programs & Budget Branch
MP	Manpower Plans & Policy Division
M&RA	Manpower & Reserve Affairs
MMEA	Manpower Management Enlisted Affairs
MMOA	Manpower Management Officer Affairs
MMRP	Manpower and Performance Branch
MMRP-10	Records Research and Reconstruction
MMRP-13	Performance Evaluation and Review Board
MMRP-20	Official Military Personnel File
MMRP-30	Performance Evaluation Section
MMRP-31	Policy and Compliance
MSR	Manpower Staffing Requirements
MOL	Marine Online
OSF	Organizational System Framework
OSD P&R	Office of the Secretary of Defense Personnel and Readiness

OAWG	Officer Accession Working Group
PCA	Permanent Change of Assignment
PCS	Permanent Change of Station
POM	Program Objective Memorandum
PP&O	Plans Policy & Operations
PPBE	Planning, Programming, Budgeting, and Execution
PEF	Programs Enlisted For
PME	Professional Military Education
PMOS	Primary Military Occupation Specialty
QSN	Quota Serial Number
RAM	Reserve Affairs Personnel Management
RDM	Recruit Distribution Model
RS	Reporting Senior
RS's	Possessive Reporting Senior
RSs	Plural Reporting Senior
RSs'	Plural possessive Reporting Senior
TECOM	Training and Education Command
TFSD	Total Force Structure Division
TFDW	Total Force Data Warehouse
TFRS	Total Force Retention System
TFSMS	Total Force Structure Management System
TIP	Training Input Plan
T/O	Table of Organization
TOECR	Table of Equipment Change Request
TOS	Time on Station
TRNGCMD	Training Command

EXECUTIVE SUMMARY

The call to modernize the Marine Corps Human Resource (HR) Information Management Systems (IMS) and Human Resource Development Process (HRDP) is not new. Previously, the Marine Corps created the first pay and personnel administration system with the Marine Corps Total Force System (MCTFS). In response to the Defense Integrated Human Resource System, the Marine Corps embarked on creating the Total Force Administration System (TFAS) with Marine Online as the front end-user application to bring administrative matters closer to the authoritative source, the Marine. Additionally, in creating TFAS and Marine Online (MOL), the Marine Corps set out to gain further organizational design and processes efficiencies in consolidating Fleet Marine Forces (FMF) administrative personnel. This reorganization and consolidation formed Installation Personnel Administration Centers (IPAC).

The Department of Defense Global Force Data Initiative became the impetus for the standardization of Marine Corps data between Combat Development and Integration Command and Manpower and Reserve Affairs. Standardization efforts determined that the Billet Identification Code will be the Marine Corp's unique identifier and critical for force integration planning, forecasting, and reporting. Over the past twenty years, MOL has continued to expand its family of services. More IMS resources are available to the Marines to correct and modify their pay and personnel matters. The more user-driven these services become, the more the institution data will come directly from Marines with automated computer processes screening and validating the data.

The tactical, operational, and strategic HRDP will increasingly overlap, transforming operational administration and HRDP human-centric processes into automatic algorithms adjusted through iterative systems of machine learning and artificial intelligence, thereby eliminating the gap between strategic HRDP policies and decisions. The operational level of the HRDP in the envisioned talent Management system will become a software system, driven by data analysis and machine recommendation with human decision-making forming the heart of the Marine Corps neoteric HRDP.

Creating this system of systems requires a detailed and thorough analysis of the Sociotechnical system, processes, policies, procedures, and IMS that encompasses the institution's systems. Instead of a top-down approach, this paper analyzes the evolution of these Marine Corps systems to model the intended system concept as outlined by regulation and MCOs. After which, this report analyzes the emerging systems that exist with Marines yet outside the purview of the Marine Corps and its oversight. In doing so, this report details the symbiotic man-machine relationship within the scope of specific procedures and HRDP life cycles at the level, particularly the Performance Evaluation System.

The finding and recommendations of this analysis outline the specific data sources within the Marine Corps IMS and Total Force Data Warehouse and detail specific requirements, concepts, and abstraction for new systems. These recommendations for new IMS account for Marines' sociotechnical relationship within the system and all the requirements of overlapping MCOs and potential conflicts between them.

These recommendations include the logic formulas required for implementation and are written in pseudo-code for ease of implementation in the current relational database infrastructure using a sequential query language (SQL) or any system under development at the time of this report writing. Additionally, this report includes suggestions for improvements in existing IMS, Commanding General Inspection Programs Functional Area Checklist, and the Marine Corp business process models describing how an order or policy should function in practice. Such recommendations are made from Monterey Phoenix behavior modeling software and account for emergent behavior in the system's design, thereby incorporating forcing functions to constraint the systems' behavior.

This paper's intentions are not prescriptive but meant as an assistive introduction to a bottom-up process-centric system of a task as an analysis methodology utilizing a multidisciplinary approach to understanding the problem, previous attempts, and stakeholder perspectives in the light of its entirety. Moreover, this paper uses only publicly available tools. It provides all the schemas and code created during researching and writing this paper to democratize the analysis tools available to the FMF at the tactical level. This allows the Marine Corps to conduct a bottom-up analysis from across the FMF using free resources and leveraging its Marines' existing talent and experience. Today's Marines are

able and willing to assist in the co-creation of the Marine Corps' future IMS, tools, and administrative processes the Marines will ultimately utilize in the performance of their duties. This bottom-up approach aligns with the Marine Corps practice of front end analysis.

Furthermore, allowing Marines to take part in the process early prior to significant investments into IMS and software will create better procedures by capturing the best practices and ideas across the FMF. Institutional buy-in for the Commandant's vision of the future force and Talent Management 2030 is far more likely if the Marines participate in the creation process. This paper provides an example of the process, method, means of doing that immediately.

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I. AN INTRODUCTION

> All of our investments in data science, machine learning, and artificial intelligence are designed to unleash the incredible talent of the individual Marine.
>
> — General David H. Berger, 38th Commandant of the Marine Corps, Talent Management 2030

A. PURPOSE

There is no concise way to describe the Human Resource Development Process (HRDP) and the information technology (IT) that supports it across the Marine Corps and the Department of Defense. However, a simple explanation of the HRDP purpose frames the context of all decisions that the Marine Corps civilian and uniformed senior leaders must support. Ultimately the HRDP aims to **organize**, **train**, and **equip** Marines. Over time, separate Marine Corps departments have created various IT systems to enable the administrative processes required to organize, train, and equip Marines. As a result, Marines use those IT systems to execute day-to-day functions of the Marine Corps.

Ultimately all modernization efforts must align not just the primary process owners of Manpower and Reserve Affairs, Combat Development and Integration, and Marine Corps Recruiting Command, but the whole of the Marine Corps efforts to modernize at speed successfully. That includes information technology, physical infrastructure, information management systems, network architecture, policies, and software. Modernization of the Information Management System (IMS) supporting the HRDP will provide the tools and resources the Marine Corps needs, but decision-making models will remain only as helpful as the quality of the data permits. Data drives decision-making across all aspects of the Marine Corps and Talent Management 2030 (TM2030) initiative, and the HRDP requires improved accuracy, completeness, consistency, reliability, relevance, and timeliness in all data. An analyst requires access. Marines utilize the software provided, which dictates the quality of the data.

This study provides an in-depth analysis of the organizational systems, information management systems, the Marine Corps' outlined procedures for execution at the tactical level of the HRDP. The analysis' identified discrepancies between the Marine Corps outlined policies and the execution of those policies when considering the socio-technical relationship between Marines, the organization, and the IMS Marines must utilize to complete a large swath of processes that produce the data utilized for informing the HRDP decision-makers. These discrepancies are known as emergent behaviors, and their existence permits poor quality data to enter the Marine Corps IMS. Once there, potentially insufficient and inferior data becomes authoritative data. This authoritative data is leveraged for a whole host of models within the HRDP, leading to inferior recommendations and performance of the systems within the HRDP. The study's findings outline deficiencies within multiple DOD, DON, MCO, and IMS. Recommendations provide viable options of process improvements for those systems to adhere better to said statutes, orders, and policies.

1. The Status Quo

> Seven decades after its creation, the Marine Corps personnel system is overdue for a fundamental redesign. Our organization, processes, and approach to personnel and talent management are no longer suited to today's needs and incompatible with the objectives of Force Design 2030. Transitioning to a talent management focus, and system, is required. Without profound improvements made at speed, the deficiencies in the current system will result in the failure of broader service modernization efforts. (*TM2030*, 2021)

The systems that comprise the HRDP IT portfolio evolved over decades, managed through a myriad of organizations, stymied by proprietary software, and plagued with ad hoc solutions to an ever-expanding list of demands. Presently, the IMS backbone of the HRDP is the Marine Corps Total Force System (MCTFS), and this system provides the Marine Corps with approximately 14,000 data fields covering over 550,000 Marines totaling over seven billion record fields (P. Gallagher, January 13, 2022).

Modernizing the personnel management process from the industrial era model to a data driven modern talent management system requires more than collaboration across

human resource management professionals, data scientists, and information management professionals. Creating the Marine Corps' modern Human Resource Talent Management process requires more than an interdisciplinary approach. It will require a transdisciplinary approach from data science, information management, business process modeling & analysis, human resource management, industrial psychology, organizational change, acquisitions, public policy, and budgeting. Simply put, the Marine Corps must change how individuals execute all procedures across all functional areas.

Each functional area produces volumes of data that can drive modeling, simulations, and cost-benefit analysis at each level of the organization. However, good data only exist when it is timely, accurate, available, reliable, and valid. Supporting the demands of the existing HRDP and the future TM IMS require data across four general categories: personnel individual talent data (supply), individual and organization relationship data, required organization talent data (demand), and business operations data. This modern talent management IMS emphasizes the importance of descriptive relational and business operations data and their relationship dynamics.

Legacy systems exist throughout the DOD and Marine Corps. The services cannot divest from a legacy system to invest in a new system; at some point, the old and new systems will both simultaneously exist. A primary concern regarding these systems modernization is that modernization requires creating new integrated systems that will operate concurrently with the existing siloes. Continued operation and functionality cannot cease to transition systems. In an email dated November 29, 2020, Major D. Moberg, Manpower Information Systems Division, typed a synopsis of the Marine Corps HRDP IMS:

> Overall, the shortcomings of the current HRDP IT portfolio can be characterized as siloed, outdated legacy systems that don't share a common data source, yet are collectively relied upon to support the IT needs of the Human Resources Development Process. In many cases, these systems are not resident in the cloud, and are not integrated with each other. They are used by both M&RA manpower management and planning professionals and throughout the enterprise to patch together a force structure that doesn't comport with the requirements of a post-Industrial modern warfighting organization.

The processes, procedures, and Information management system tools (software) leveraged in the Marine Corps were all created around these industrial era systems. It makes no sense to maintain industrial-era processes and mindsets for the daily operations of the Marine Corps in the information age. While previous IMS necessitated that administrative functions and processes occurred at designated user terminals to interact with the system's data warehouse, that is no longer the case. Moreover, computing power and computer-based automation were prohibitively expensive until the past decade. That is no longer the case, and labor cost has far outpaced the cost of software-based solutions.

Future Force 2030 decreases the number of 01XX Marines at the battalion level. In doing so, the Marine Corps must automate at minimum a comparative amount of administrative functions those Marines oversaw. The choices are simple, eliminate administrative requirements or automate with IMS. Additionally, modernizing the HRDP necessitates better data, and individual Marines produce that data. So it stands that most if not all processes that enter data into any of the five IMS that support the HRDP need examination, process evaluation, and modernization of the policies, orders, procedures, and tools that Marines use daily. Daily business operations of the Marine Corps must rapidly modernize alongside the growth and implementation of the Talent Management 2030 initiative to create this modern Marine Corps. The effectiveness of administrative functions at the unit or individual level will drive TM 2030. It is straightforward, really—bad data in, bad data out.

2. Modernization Problems and Their Significance

In the DOD and the Marine Corps, the process of architectural design should enable both decision-makers and IT SMEs to communicate using the same language, concepts, and abstractions describing the organization's IT and human relationships that comprise a system. Too often, the process of architectural design is hand waved away by decision-makers as technical jargon. When dismissing architecture occurs, it results in siloed models within organizations, budget lines, authorities, or some other construct that exists in the stakeholder's minds but not in reality.

In effect, this is the fallacy of composition and the fallacy of division made manifest in human systems and information systems. Stovepiping IMS architectural design often results in models that are inconsistent in detailing the IMS, the environment, and the processes. Consequently, correcting these irregularities requires intensive manual deciphering and analysis via inspections; thus, analysis and process automation is all but impossible. However, ongoing and continuous analysis limitations often lead to duplication of effort, work redundancy, and manual process integration between different IMS (Farah-Stapleton et al., 2016).

Often the stakeholders have conflicting interests instead of complementary interests, and this quagmire creates a predicament of zero-sum trade-offs (Farah-Stapleton et al., 2016). In reality, it is not a situation of a zero-sum trade-off between programs and systems but a lack of understanding of the entirety of the systems that comprise accomplishing a specific task. When analyzing system environments and users separately, supposed contradictory objectives will exist nearly 100% of the time. Primarily, the stakeholders never agreed on a standard set of terms, language, definitions, and concepts when communicating across different lines of effort. In 2016, Dr. Farah-Stapleton, completed her dissertation at NPS and published her research with Dr. Mikhail Auguston, and Dr. Kristen Giammarco for Procedia Computer Science journal article E*xecutable Behavior Modeling of System and Software Architecture Specifications to Inform Resourcing Decision.* In her dissertation, she described this dilemma as an issue of definitions or, more accurately, poor communication in applying the connotation as opposed to the denotation of a word:

> "[A]rchitecture" is one of the most overused, misused, and disrespected words in the DOD vocabulary. Rather than viewing architectural analysis and architecture modeling as powerful tools to establish a "common mental model" of a system across a spectrum of stakeholders, models of architectures are viewed as check-the-block requirements for acquisition milestones and DOD directives. The notations and tools are considered, in many cases rightly so, oversold promises that, in actuality, require an expensive shadow workforce for their creation and maintenance, with a fraction of return on investment. This is an unfortunate situation that has evolved due to cottage-industry mentality, and the demands of well-meaning bureaucratic processes. (Farah-Stapleton, 2016, p. 22)

When analyzing the task Marines' perform, the process of analysis and modeling must account for the system, the environment, the process, and the Marines' dynamic relationship with all of them into account (Kirchmer, 2011). Process analysis of individual tasks within the HRDP life cycle forces the Marine Corps to form specified requirements reusable concepts and agreed upon abstractions of these systems. Without task analysis at the granular level modernizing to a talent management system and the associated human resources, information systems upgrades will become disjointed retrospective of the task performed by Marines.

3. The Impetus for a Different Approach

The motivation for this paper delineates from three colossal questions, how are the Marine Corps IMSs designed to work? How do Marine Corps Orders outline processes and procedures? Do all the Marine Corps' IMSs fully support MCO requirements and outlined procedures or hinder the adherence to regulations? Answering such a broad question is not feasible across the institution, although examining a few vital systems within the Marine Corps HRDP is possible. This paper provides the conceptual framework to facilitate further analysis across the Fleet Marine Force (FMF) by limiting the examination to a few MCO and programs. Validating the analysis, process, methods, and tools utilized in examining the orders within this paper will provide a viable tool for the Marine Corps for future analysis of MCOs, programs, and supporting IMS.

In reviewing and researching the myriad of different modernization efforts within the Marine Corps and DOD, it became evident that most modernizations efforts have failed. Initially, this paper set out to better understand why some modernization efforts have failed and why others have succeeded. In that research, it became clear that a systematic failure in how different organizations went about their modernization efforts occurred. The systematic failure typically stemmed from a failure to communicate. When communication occurred, the parties involved spoke different languages using organizational lingo and tribal knowledge to advocate their perspective without ensuring that the other parties did not misunderstand but understood each other.

The most costly venture in modernizing the DOD Human Resources Information Management System (HRIMS) was the Defense Integrated Military Human Resource Personnel System (DIMHRS). While the DIMHRS failed at the DOD level, the Marine Corps used the initiative to improve existing systems, develop new ones, and refine the procedures for completing many administrative tasks for Marines. In addition, the Marine Corps used the momentum of the DIMHRS to modernize the institution's approach to the administration systems and practices that comprised the HRDP at the tactical level and created the Installation Personnel Administrative Centers (IPAC). More importantly, for the first time, many administrative matters were pushed closer to the source of information, the Marine.

In doing so, the Marine Corps began to close the gap and streamline getting accurate data into the IMS. This very act is something that General Berger seeks to repeat while building a more robust talent management system. On a far smaller scale, the Marine Corps has set out to achieve similar goals before. Through those attempts, it became apparent that no one person can truly understand any system perfectly related to each other system with the Marine Corps HRDP IT enterprise or their governing orders.

Of the current modernization efforts across the DOD and Marine Corps, many approach the modernization problem from a top-down perspective far removed from the particulars. This paper offers a bottom-up approach to the problem of modernization. In contrast, in the Marine Corps Planning Process and DOD acquisitions system, comprehensive organizations' bottom-up refinement is at the tail end of the process. As a result, any significant refinements to the design of an IMS are substantially more costly after software and systems development and deployment (Farah-Stapleton et al., 2016).

While examining every system and process is impracticable, examining a more widely known system in detail provides a framework for the Marine Corps HRDP stakeholders to delegate a massive Organization-wide review of every system, process, policy, and order. In describing one order, one policy, and one IMS, this thesis demonstrates the level of interdependency and contradictions in managing the myriad of Marine Corps programs. Akin to a cartographer's endeavor; The process of this thesis serves as an azimuth for others to follow.

> A map does not just chart, it unlocks and formulates meaning; it forms bridges between here and there, between disparate ideas that we did not know, were previously connected.
>
> — Reif Larsen, The Selected Works of T.S. Spivet

B. RESEARCH QUESTIONS

IMS are tools that should support a specific purpose and requirement while facilitating increased organization efficiencies as a whole –The whole is greater than the sum of its parts. Model's help decision-makers understand processes; understanding and visualizing the entirety of a system allows for increased awareness prior to design decisions, small or large. A decision in the IMS development process has ramifications that far outlast any decision in policy and, once implemented, are far more costly to correct.

1. Primary Questions

> 1. How do the policies, procedures, and information management systems tools (Software) support the Marine Corps HRDP modernization efforts towards a data-driven talent management system?

Independent of each other, procedures, IMS, and the Marine Corps' policies support modernization efforts. However, this thesis finds that when evaluated in light of each other and collectively the day-to-day procedures of Marines, using the Marine Corps IMS does not wholly support the Marine Corps' policies and ongoing modernization efforts. Causing this calamity is simply a lack of detailed understanding. The policymakers do not understand day-to-day procedures or how IMS functions. Those executing the directed procedures of a policy do not understand the policy's intent or how the IMS can better support them. The Marine Corps looks outward to technical experts and SMEs in information management, business process analysis, or talent management fields under the misconception that SMEs do not need to understand the Marine Corps culture and mores. Everyone representing these three interest groups communicates using their own organizational language, vocabulary, and connotation. They are effectively miscommunicating because they lack a comprehensive means of clear and concise communication across organizational boundaries and fields of expertise.

2. How can models of Marine's interactions with existing Information Management System tools (Software) provide stakeholders with a better understanding of IMS tools (Software) effect at the tactical level?

While socio-technical systems and relationships are studied and evaluated during the development and deployment phases of releasing software, protracted studies over time rarely occur. Over time these systems normalize and settle in place after the effects permeate the organization. In examining, the Marine Corps Performance Evaluation System (PES), the supporting IMS, and the Marine Corps evaluation metrics of the PES, I find numerous examples of emergent behaviors. These emergent behaviors result from Marine's perceived inadequacies of the IMS resources provided to execute the requirements of the Marine Corps PES. Marines have since created and disseminated tools outside the Marine Corps purview that undermine the Marine Corps intended process for the PES when used incorrectly. Furthermore, this research found that continuous process analysis and evaluation in necessary to understand the socio-technical systems that develop over time.

2. Secondary Questions

1. How can modeling and analyzing the IMS and procedures Marines utilize daily to provide better abstractions and specificity for Marine Corps HRDP IMS modernization requirements?

Presently, the Department of Defense Architecture Framework V2.02 (DODAF) requires that an architecture model must describe: "activities, systems, organizations, personnel types, facilities, locations, materials, and installations" (Department of Defense, 2010). Traditionally, compliant DODAF models complete these requirements separately, in tandem or an alternative combination but rarely if ever are all requirements in one model. The modeling of the behaviors at the tactical level of the HRDP and comparison to prescribed processes outlined in MCOs and Commanding General Inspection Program (GCIP) checklist identified specific requirements for IMS modernization. In describing the behavior of specific procedures within Marine Corps programs, this paper's research and conclusions identify and outline specific requirements of MCO and policies. As a result, future designs of IMS with this paper identified requirements that will work with human

behaviors to encourage adherence to CGIP and MCO's underlying intent and by design remain assistive, not inadvertently proscriptive.

C. BENEFITS OF THIS STUDY

Marine Corps talent management is not an end unto itself. However, it is a strategic decision to change how the Marine Corps does business and leverage its personnel's skills, traits, personalities, experience, education, background, and interests to achieve its objectives. This study has three overarching goals:

First, identify the Marine Corps information management systems that Marines utilize throughout to execute tactical level requirements of the HRDP. Second, to offer concrete concepts of how this modern talent management system will collect and aggregate data through improved processes, procedures, and tools. Third, provide working examples of processes, procedures, and tools to analyze further and model all MCO, policies, programs, and IMS.

Finally, this paper provides a means for the Marine Corps to democratize the process analysis to the Marines and units across the FMF at the execution level. Never has an organization allowed for this level of bottom-up refinement to occur within the problem framing phases.

Lastly, these three goals illuminate a path forward to identifying the necessary modernization steps for orders, processes, policy, and procedures required. This study elaborates on why processes, procedures, and IMS are fundamental requirements to create the Marine Online (MOL) family of systems that support a talent-focused Human Resources Development Process. The DODAF outlined procedures specify that the architectural requirements are data-centric rather than product-centric (Department of Defense, 2010). Therefore, the Marine Corps must treat process, procedures, policy, and product as modeling data. Modeling the policies and practices of Marines' execution of MCOs enunciates the process, procedure, policy, and product data required for DODAF compliance. Endstate: the individual Marine can implement these deliverables concepts, templates, and digital resources immediately, providing the Marine Corps a democratized source process analysis of tactical level HRDP and supporting IMS.

The limitation of this study and all recommendations regarding adopting technology, new applications, models, and procedures is that recommendations made will be outpaced by ever newer technology, models, and systems by the time any recommendations are adopted. Additionally, Marine Corps policy and procedure limit the implementation of any recommendations. Therefore, this study does not conduct a cost-benefit analysis and focuses explicitly on IMS that Marine Corps have full authority over. This study also leverages the author and other NPS students' personnel experience without conducting an in-person process analysis of Marines' interactions with said system. The forgoing of in-person process analysis was due to the commonality of these systems to Marines.

Those daily business operations of managing the personnel, resources, and the systems of the Marine Corps are functional if utilized. Therefore, this study's premise is that the Marine Corps would implement these recommendations in their presented order. The system's interconnected dependencies dictate a certain level of adherence to the order outlined. The Marine Corps cannot modernize part of the systems that encompass the HRDP without addressing all the industrial era processes procedures within it. The procedures required to execute the same policy differ between industrial-era methods and 21st-century digital processes with computers.

This study does not analyze all aspects of the HRDP and does not intend to do so either. Instead, this report and its recommendations focus on how specific processes, procedures, and IMS tools (software) directly produce data required to manage the HRDP. The Commandant's call for more and better data necessitates modernizing the daily business operations required to keep the Marine Corps operating.

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II. RESEARCH METHODS

While researching the topics within this report, a trend was observed in many published papers, journal articles, and professional military educations theses. A singularity of approach occurs in many publications, where authors approach the topic of human resources so that studies often omit critical components that would have made their arguments more complete. Often this analytical method includes the history of the interweaving concepts. Considering that the history of IMS in the private sector often leverages case studies with successful results while omitting the many more failures that lead to eventual success. This paper uses the specific methods and models outlined in the following four sections to analyze the Marine Corps HRDP. Additionally, historical context is interweaved between the methods and particulars to help the reader understand how the present state of affairs regarding the DOD and Marine Corps IMS evolved and came into being. As the adage goes, those who do not learn from history are bound to repeat it.

A. REFERENCE MODEL OF OPEN DISTRIBUTED PROCESSING (RM-ODP)

At the fundamental level, information systems exist to help solve problems. Therefore, the respective stakeholders must understand any proposed IMS to accomplish that. When stakeholders achieve a common operational picture and understanding, the information systems and technological infrastructure requirements become concrete specifications for the proposed system or system of systems. In the absence of actual specifications, the stakeholders will continue to speak in different and vague languages.

The purpose of the RM-ODP is to provide a conceptual framework for stakeholders to identify their specific requirements across five points of view to enable clear and concise communication and coordination in the development, testing, deployment, and maintenance of an IMS (Kilov & Cordeiro, 2001). The enterprise, information, computational, engineering, and technology points of view apply to all stakeholders equally and force stakeholders to emphasize structure over content. In addition, this process

will lead to the joint discovery of conceptual similarities between seemingly dissimilar stakeholders, as outlined below.

> (1) The Enterprise Viewpoint is concerned with the purpose, scope, and policies of the system.
> (2) The Information Viewpoint is concerned with the semantics of information and information processing.
> (3) The Computational Viewpoint is concerned with the distribution of system functions on components.
> (4) The Engineering Viewpoint is concerned with the distribution mechanisms that support component interaction.
> (5) The Technology Viewpoint is concerned with the technologies that realize the system. (Kilov & Cordeiro, 2001)

In utilizing the RE-ODP, this thesis outlines the organizational viewpoints consideration, requirements, and limitations to arrive at conceptual requirements of the IMS. In creating conceptual requirements across the organization, one can reuse concepts in creating the organizational structure of the IT systems. The benefit of unifying all the viewpoints with this approach allows the IMS managers to identify artifacts of relevance or extraneous nature relative to the organizations' policy and intended design. The analysis of the outlined perspectives will create a specified requirements list. The specified requirements list synthesizes all the requirements of all viewpoints and allows a comparative examination of the current system specification. This requirements list is fundamental in achieving the following:

- To provide clarity and understandability for all stakeholders who could use the same explicitly defined constructs instead of handwaving or slide shows;
- To provide for traceability between and maintainability of specifications (and of products and services that ought to satisfy these specifications) instead of relying on folklore or on tacit knowledge of gurus;
- To define the relationships between software artifacts visible to the business and the appropriate fragments of business specifications explicitly;
- To understand, before it's too late, the damage to a business that implementing a particular IT service or system will inflict, and correct it. (Kilov & Cordeiro, 2001)

The requirements list resulting from this process and model will then drive the recommendations of this paper considering the organizational system framework and

business process modeling also utilized. Identifying the requirements for the entire organization is the first step in developing an executable plan from abstract guidance and vision statements. Abstraction in specification allows leaders to understand the concepts in plain language and the system's requirements. A precise requirement allows the subject matter expert (SME) to validate that the requirements will accomplish the specific technical requirements. Dr. Kiloz and Cordeiro simplify the specification to two factors. "Abstraction and precision are the most important characteristics of a good specification" (Kilov & Cordeiro, 2001).

This thesis uses the RM-ODP method to analyze previous updates to various policies and orders within the Marine Corps and evaluate the required software modification or workarounds the Marine Corps has implemented. Evaluating previous policy iterations against the tools the Marine Corps provides will identify gaps when concurrent planning between the departments overseeing a policy does not coincide with the department that manages the IMS. The various IMS that the Marine Corps utilizes to support the HRDP have a varying relationship, and when compared to policies, the systems enable the stakeholder's increase and oversight fragments.

B. ORGANIZATIONAL SYSTEM FRAMEWORK APPROACH

The Organizational System Framework (OSF) provides an analytical tool for assessing the HRDP stakeholder's roles, responsibilities, authorities, and organization design regarding regulations, policies, and statutory requirements. This approach is founded on systems theory and comprises input, processes, output, and feedback.

- Input can be thought of as the direction provided in governing regulations, policies, and statutory requirements.
- Processes would be the organization's execution and implementation of regulations, policies, and statutes.
- Output is the results of the implementation and execution of any given process.
- Feedback is the formal metrics established to evaluate the effectiveness and efficacy of the processes and their results. (*Center For Disease Control*, 2020)

The HRDP has multiple independent stakeholders with unique data requirements for specific processes. Additionally, the same data input does not represent the exact data requirements of the input policies, regulations, and statutory obligations. Therefore, stakeholders' analysts will clean and prepare the same sourced raw data differently to adhere to their organization's procedural requirements and produce the necessary results. The output from these processes becomes an input for the following procedure or model in the HRDP sequence. These stakeholders also share input data to simultaneously leverage the same IMS and overlapping processes. When analysts use the OSF model, the results show shared inputs, linked processes, outputs with all stakeholders assessed and evaluated based on the system's total performance or a specified subset.

My thesis uses OSF to outline the interweaved departments and the respective policies concerning the whole system. Through detailing the organizational relationships, overlaps or shared responsibilities, and redundancies in policy execution. Identifying deficiencies between disparate organizational policies; these policies' variances provide dissimilar responsibilities to the same subordinate organizations and undermine institutional efficiencies in achieving strategic goals. The OSF best visualizes the relationships and requirements defined by the RE-ODP as specification. These visual representations assist in discussing scoped specifications for stakeholders while omitting irrelevant details. Different stakeholders implicitly have different viewpoints, and the details of any provided specification relevance change. (Kilov & Cordeiro, 2001)

C. BUSINESS PROCESS ANALYSIS AND REENGINEERING

"Every system has an architecture, whether or not it is documented and understood" (Woods & Rozanski, 2011). Any organization's business improvement methodologies are only as good as the tools and techniques that support them. While the Marine Corps TM 2030 represents the ideal after the radical redesign of the HRDP, the reality is that the transition to the ideal will occur through incremental business process improvements (Cheung & Bal, 1998). Making incremental improvements toward institutional-wide conceptual changes to business operations requires understanding each process conducted within the organization. The Marine Corps uses orders and the Commanding General

Inspection Program (CGIP) Functional Area Checklist (FAC) to validate the supporting establishment and operational forces' adherence to outlined procedures. In the absence of the Marine Corps introducing forcing functions to restrict units' or compel adherence to an MCO, the CGIP is the only means to validate compliance. The metaphorical stick and carrot are the CGIP's only incentives for ensuring that defined business processes occur.

Business process modeling (BPM) allows for the quantitative and qualitative analysis of policies' intended processes against the organization's IMS digital and physical procedure's actual execution. The intent behind any business process analysis and subsequent modeling is to describe empirical objects and events objectively and logically (Grossmann & Rinderle-Ma, 2015). There are two distinct models to represent phenomena and theory. These models are not specific to any software or modeling language and apply across different business modeling software. The terms and the definitions referred to for this paper are from *Fundamentals in Business Intelligence* by Wilfried Grossman and Stefanie Rinderle-Ma (2015) and are as follows:

- Models of phenomena: Phenomena, defined as features of a certain business process, interesting from an analysis point of view, are represented in such a way that within the representation, questions about reality can be formulated and analyzed.
- Models of theories: Resembling the definition of a [scientific, business, or social theory], this approach first defines a formal structure, and the model is understood as an interpretation of this formal structure.

Traditionally these two models are applied in two distinctive approaches, reverse engineering, and forward engineering. In Vivek Kale's 2019 *Enterprise Process Management Systems*, Kale (2019) describes these approaches as follows:

- Reverse engineering employs descriptive models to model an existing system. Reverse engineering is a process of analysis in which the system is seen by means of a model.
- Forward engineering employs prescriptive models for modeling the envisaged system. Forward engineering is a process of synthesis wherein the system is developed starting from a model.

While trying to address the gap between business process modeling and information systems, Kale further elaborates that aligning business processes and information

management systems necessitates using a methodology to design supporting information management systems based on the "process architecture of the organization" (Kale, 2019).

BPM notation (BPMN) varies from software to software and organization to organization. For example, Figure 1 is from MCO 6110.3A Marine Corps Body Composition and Marine Appearance Program (MCBCMAP); it is a process flow chart using a variation of BPMN to describe a process within the order.

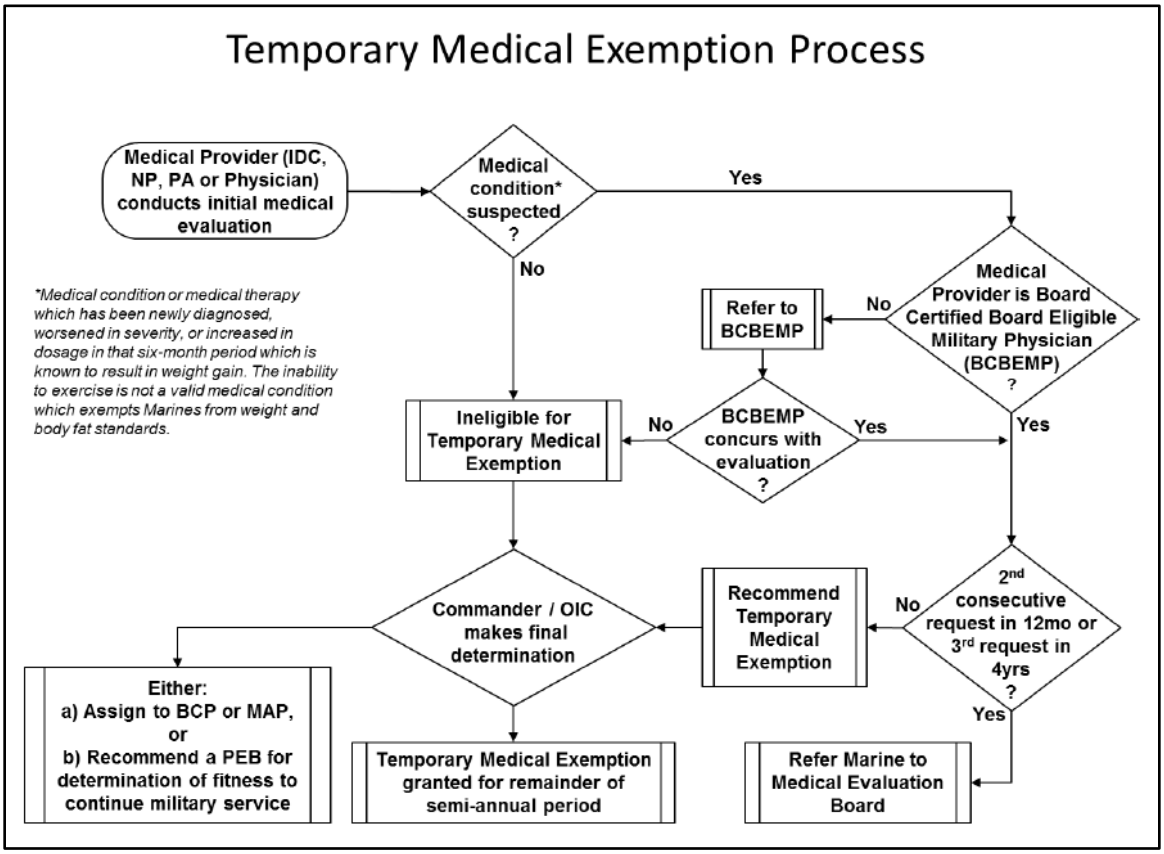

Figure 1. Temporary Medical Exemption Process Chart. Source: Combat Development and Integration Command (2021).

When reviewing the process flow chart in Figure 1 provided by MCO 6110 MCBCMAP, one can assess the meaning of the three types of graphics. Diamond boxes: represent decisions, Rectangle boxes: actions, and rounded rectangles represent a person. However, after taking a closer look, it became apparent that the graphics do not have a

specified meaning, as Commander / OIC is a Diamond when it could also be a rounded rectangle. While the effects of inconsistent notation are mitigated through deductive reasoning in this example, inconsistent BPMN for larger enterprise-wide processes or models is not easily deciphered.

The Marine Corps uses CGIP Functional Area Checklist (FAC) to validate adherence to specified business processes, and these inspections are manually intensive. To further integrate IMS into the business processes of the Marine Corps as defined in MCOs, reverse engineering of the existing systems must occur first. After which, forward engineering can detail the process required of Marines and how IMS will support those processes through proper system designs. Reverse and forward engineering of any system is not predicated on any particular modeling language or tool but is a method for analyzing systems with the available tools (Kale, 2019).

D. MONTEREY PHOENIX BEHAVIORAL MODELING SOFTWARE

"Monterey Phoenix (MP) is a formal language, approach, and tool for modeling mission, system and process behaviors" (*About - Monterey Phoenix - NPS Wiki*, n.d.). Specifically, MP is accessible to the readers of this thesis. First, the provided models can be validated or modified using Monterey Phoenix-Firebird, hosted by the Naval Postgraduate School and publicly available. Second, MP does not require users to have an extensive programming background or expertise in formal modeling methods. Third, any SME across military occupations or backgrounds can leverage MP to model the behavior of any system to "conceive, communicate, validate, and control behaviors they had not previously noticed were possible" (*About - Monterey Phoenix - NPS Wiki*, n.d.). Finally, anyone can check the models, assumptions, and recommendations within this paper online within minutes to validate or refute my thesis' analysis.[1]

Through leveraging MP, this thesis will analyze the behavior of three different systems of behavior: First, model policy, orders, and GCIP functional area checklists

[1] MP-Firebird is available publicly at https://firebird.nps.edu. MP-Firebird is an academic version of MP analysis software that provides beginners with a behavior modeling capability that is suitable for those with no prior modeling experience ("MP-Firebird - Monterey Phoenix," NPS Wiki, n.d.).

outlined system of behavior; second, model the IMS tools system of behaviors; and third, model Marines interaction in utilizing the IMS tools in adherence with the CGIP appropriate checklist. While modeling policy, orders, CGIP checklists, and IMS is clearly defined and possible, modeling Marines' behavior in utilizing IMS to execute policy and adhere to the CGIP checklist is limited to generalizations. This generalization is due to the unit's discretion in their SOP for executing many Marine Corps Orders and policies. Such discretion in business operations processes impedes organizational standardization and efficiency in those processes that generate source data for the MCTFS. These models will identify unexpected emergent behaviors and gaps between policy requirements and their real-time execution. Gap analysis validates recommended IMS changes or justifies developing new IMS to support intended behavior.

MP's event-based and relationship hierarchy allows for behavior modeling of systems using "only two basic relations: precedence and inclusion, making it a candidate modeling language for business process analysis" (Auguston et al., 2015). MP schemas utilize ROOT events representing a system's parts ("components and connectors using common architecture descriptions") (Auguston, 2020). Composition operations specify the interaction between the described behaviors (event sharing, precedence [before & after], inclusion [nested]) (Auguston, 2020). "Precede" and "Include" relationships partially order individual events; otherwise, the events may overlap in time (Auguston, 2020).

Furthermore, MP models generate visualizations for each possible trace event of a described model allowing analysis to understand not just the system's desired behavior but all unintended behaviors. Instead of a single flow chart, an MP schema will produce Type 1 probabilities for each possible scenario out of the total number generated (*About - Monterey Phoenix - NPS Wiki*, n.d.). This enables an analyst to quickly ascertain the probability of any given result from the system while accounting for all possible traces through the system behavior model (Auguston, 2020). MP used two types of probability, Type 1 and Type 2; type 1 is the most common and is embedded into all MP schemas automatically, thus requiring some basic understanding of any user:

> Type 1. Probability of the whole event trace as an element of the set of all valid traces. The rationale for probability calculation rules is in considering

> the work of MP trace generator as a Monte Carlo process. We can use probability during trace derivation when we encounter either an alternative event pattern (have to choose an alternative) or an iteration pattern (have to choose the number of iterations). (Auguston, 2020)

In addition to automatically generating probabilities for all possible event traces within a process's behavior system, MP can create multiple diagrams visualizing the different relationships or specific activity diagrams (Auguston, 2020). For example, business (or operational) processes are "the logical organization of people, materials, energy, equipment, and procedures into work activities designed to produce a specified result (work product)" (Auguston et al., 2015).

Traditional BPM typically uses a singular flow chart to encapsulate all processes, behavior and interacting systems into one place (Grossmann & Rinderle-Ma, 2015). As a result, BPM often attempts to oversimplify concepts in addition to inconsistent graphics. Unfortunately, using only one chart makes the document harder to read while obscuring the specific details the document intends to convey (Giammarco, In Press). Regrettably, Marine Corps Orders, policy, and CGIP checklists describe the procedures, processes, and desired products using natural language and flowcharts. As a result, these process descriptions are frequently incomplete or have deficiencies and errors (Auguston et al., 2015).

The Commandant's Planning Guidance introduces the Marine Enlisted Commissioning Education Program (MECEP) as one of the Marine Corps' more arcane processes of the institution (TM 2030, 2021). This thesis expands on the Commandant's example later in Chapter V, Process Matters. In lieu of examining the Commandant's MECEP process and application packet example, this paper uses a far more common process in the Marine Corps to show the layers and intricacies of executing Marine Corps programs and policies outside of having a wholly contained process in an IMS (*TM2030*, 2021). One such process is the Marine Corps Body Composition and Military Appearance Program, established in 2008 by MCO 6110.3; it provides policy and procedural guidance to units across FMF (Combat Development and Integration Command, 2021). Using traditional flow charts omits or conflates pertinent processes within the Marine Corps far more complicated programs and policies managed by different orders and IMS.

1. An Examination of BPM use in Marine Corps Orders.

The following demonstrates the reason for BPM and the value of using Monterey Phoenix for BPM for the Marine Corps. For example, in MCO 6110.3A Marine Corps Body Composition and Military Appearance Program (MCBCMAP), the procedures outlined in the text do not describe the same process as the MCO's procedural flowchart (Combat Development and Integration Command, 2021). Figure 2 is a copy of the first two inspection items from the CGIP checklist for inspecting and confirming a Command's adherence to the Marine Corps Body Composition and Military Appearance Program (MCBCMAP) guidelines.

Inspectors General Checklist BODY COMPOSITION AND MILITARY APPEARANCE PROGRAM 6110 This checklist is applies to all levels and types of commands.	
Subsection 1 - GENERAL	
0101	Has the unit established a Force Fitness Instructor (FFI) or command physical training representative (CPTR) that is responsible to the commander for the development, implementation, management and supervision of the organizational Marine Appearance Program (MAP), Body Composition Program (BCP), and Remedial Conditioning Program (RCP)? Reference: MCO 6110.3A with Change 3, encl 1, par 2c(2)
0102	Do Commanders/Officers in Charge ensure Marines receive a medical evaluation from an authorized medical provider (Independent Duty Corpsman, Nurse Practitioner, Physician, or Physician Assistant) prior to being assigned to BCP or MAP? Reference: MCO 6110.3A with Change 3, encl 1, par 2a(2)

Figure 2. Commanding General Inspection Checklist Body Composition and Military Appearance Program. Adapted from Newbold (2021).

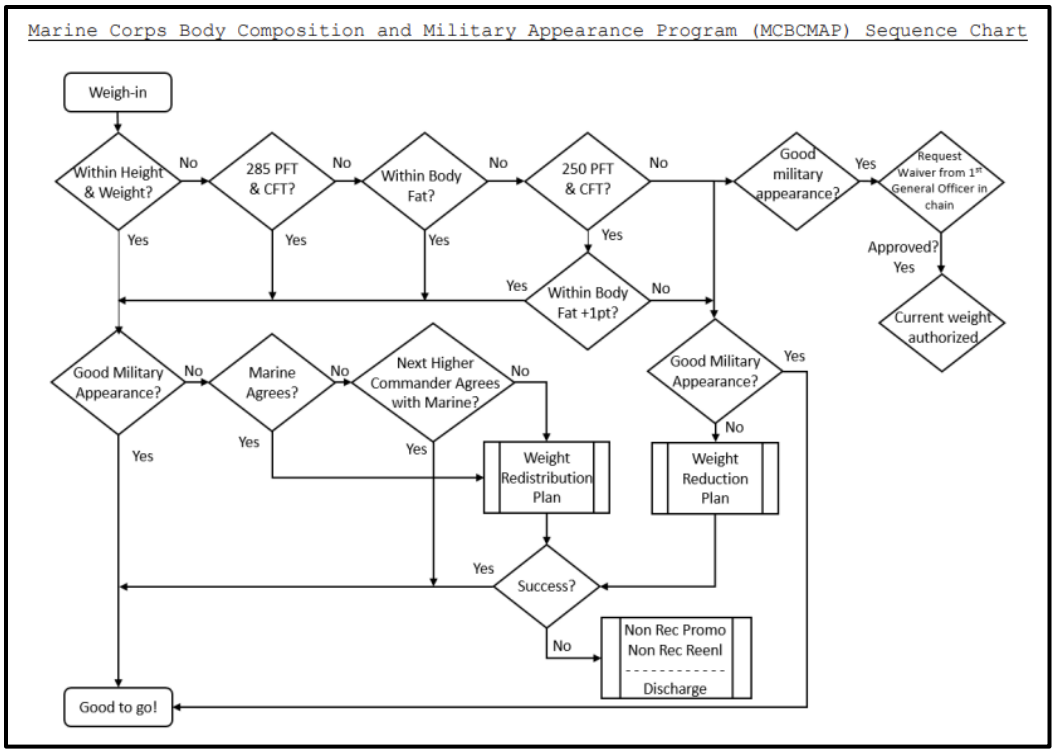

Figure 3. Marine Corps Body Composition and Military Appearance Program (MCBCMAP) Sequence Chart. Source: Combat Development and Integration Command (2021).

Directly below the CGIP checklist is Figure 3, an example flow chart from the MCBCMAP. However, nowhere on the flowchart refers to when inspection item 0102, "Commanders/Officers in Charge ensure Marines receive a medical evaluation from an authorized medical provider," should occur; the event is not on the flow chart (Titopace & Souza, 2021).

If only using the MCBCMAP Sequence Chart above, it is impossible to delineate when a Marine should receive the medical evaluation referred to in CGIP FAC question 0102. For example, question 0102, asks the following "Do Commanders ensure Marines receive a medical evaluation from an authorized medical provider prior to being assigned to BCP or MAP?" (Titopace & Souza, 2021). However, the MCBCMAP supplies guidance between the MAP and BCP assignment processes. Specifically, in Figure 3, the diamonds labeled "Good Military Appearance?," one must ask who makes that assessment according to the Sequence Chart? (Combat Development and Integration Command, 2021).

If the evaluation is for a MAP assignment, then it is first the Sergeant Major or Executive Officer; if for BCP assignment, then it is the Commanding Officer (Combat Development and Integration Command, 2021). This distinction is essential for compliance for the MCBCMAP, the Commanding Officer's assessment results in a formal assignment, and the formal assignment requires the Marines receive a medical assessment. If it is the Sergeant Major or Executive Officer, their decision does not result in an assignment to MAP, and completing a medical evaluation is not required for their decision (Combat Development and Integration Command, 2021). The decision cannot assign a Marine to MAP only recommend. However, if the Sergeant Major or Executive Officer decides the Marine is in good military appearance, no further action is required.

Furthermore, the NAVMC 11620 BCP evaluation has a designated space for the medical officer's evaluation and determination, whereas NAVMC 11621 MAP evaluation form does not (Combat Development and Integration Command, 2021). This distinction seems small and arbitrary but for a Marine going through the BCP/MAP evaluation process, deciding when specific events must occur and who shall complete said requirements matters. Such a decision can, at worst, have a career-ending implication or, at best is, an inconvenience. Further elaboration of such potential ramifications occurs when examined in the Process Matters section of this thesis. Those small nuances in how different Marine Corps units establish their MCBCMAP SOPs result in differences across the Marine Corps application of the MCBCMAP across the FMF.

That inconsistency is unacceptable for the institution and each Marine. In the MCBCMAP order, the guidance explicitly states that inconsistent policy application undermines the program: "the effectiveness and long-term viability of the MCBCMAP are dependent upon uniform application and enforcement by commanders and compliance by all Marines" (Combat Development and Integration Command, 2021). The room for interpretation in the MCBCMAP is neither intentional nor uncorrectable; the shortcoming resulted from using inadequate methods of understanding the system of behaviors when designing the MCBCMAP processes. As a result, that system of behavior has undesirable emergent behaviors.

As a result of poor process management and a lack of behavioral system analysis, the Marine Corps lacks forcing functions outside of intensive manual processes and procedures which are better automated. This lack of an automated support system has resulted in subpar performance across the Marine Corps in managing the MCBCMAP. Further, the results show how poor MCBCMAP has spillover effects into other functional areas.

In October of 2021, Marine Corps Administrative Analysis Team (MCAAT) reported their inspection trends from across the Marine Corps. It showed deficiencies with effective processes and management of the body composition program (BCP) (Salvadorramos, 2021). For example, in FY2021, MCAAT observed the following trends across the FMF after inspecting units' MCBCMAP:

- NAVMC 11621 for initial BCP assignment missing member's or CO's signature.
- Date assigned in MCTFS does not match date assigned by CO as annotated on NAVMC 11621
- Initial BCP assignment extending beyond 6 months without a CO determination
  Page 11 entries are not properly accounting for all months the member was negatively recommended. (Salvadorramos, 2021)

Omitting one step of the MCBCMAP is not a result of poor order writing or inspection programs but from the lack of BPM analysis in an administrative process design and conceptualization. That is why using BPM and MP to analyze the existing systems within the Marine Corps is so incredibly important. Understanding the detailed process of how Marines execute the policies and procedures of MCOs is critical to designing IMS that support or hinder the process.

2. How MP Models Behavior

The power of MP comes directly from the software's ability to generate a scope-complete model quickly showing every event trace scenario individually and the combined view of events relationships. Associate Professor Kristin Giammarco and Professor emeritus Mikhail Auguston from NPS Graduate School of Engineering and Applied Sciences provided the diagrams and instructional schemas used in this paper to introduce

how MP functionally models behaviors. The instructional material and guides for MP are publicly available at https://firebird.nps.edu. In addition, Professor Giammarco provided an analogy for an interview with Rebecca Hoag covering MP's applicability across various fields and public accessibility through NPS.

Giammarco provided the following anecdote:

> The precocious [Marine] can get quite creative with instructions. [One] could [order a Marine] to do something, and though they will do it, they may do it in a way that you did not anticipate. You just did not realize your assumptions at the time of initial instruction. It is the same for system behavior. All those scenarios MP presents help you think about all the possible ways your behavior logic could be carried out. (Hoag, 2021)

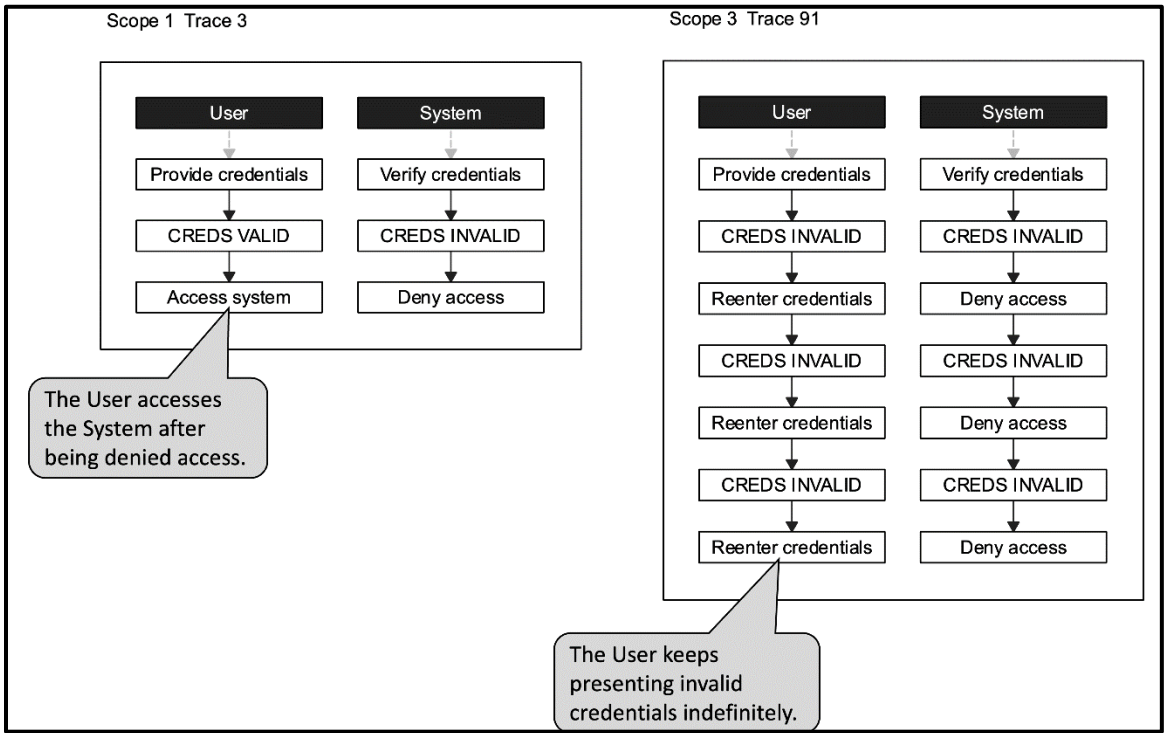

Figure 4. Example of Trace Model Without Event Sharing. Adapted from Giammarco (2022).

Figure 4 shows a trace overlay of a behavior system without any event sharing occurring between any of the behavior systems. Figures 5 and 6 will introduce how MP modeling concepts are depicted. Figure 7 shows the same model as Figure 4 while using

the MP capability of event sharing. Specifically, Figure 7 is a MP trace diagram that shows the same instance using event sharing to describe a system's behavior. (Giammarco, 2022)

Understanding how a process can go right and all the ways it can go wrong is a powerful tool when designing processes and procedures for IMS architecture to establish digital SOPs that ensure compliance to regulations or orders while simultaneously not restricting Commanders' ability to adapt a unit-specific SOPs as required. The end-user interfaces with the IMS. Their interaction with the system is a socio-technical exchange that dynamically changes the model's behavior as a user learns to use the software and create new processes that previously did not exist.

Figure 5 visualizes the overview of the basic grammar relationships within MP. Events are what happens inside a system, and in MP, events can either precede or include each other. Figure 5 Basic Relationship example on the left below shows an event preceding another event, including another event. Figure 5 right side diagram, Event Hierarchy shows the Root Event as the first event or owner of all the subsequent events. Root events are commonly but not always a person or things that do some process. Instead, think of the Root event as a person or thing; that person has to make some decision (composite event), the choices or actions that the person will take are the Atomic Events.

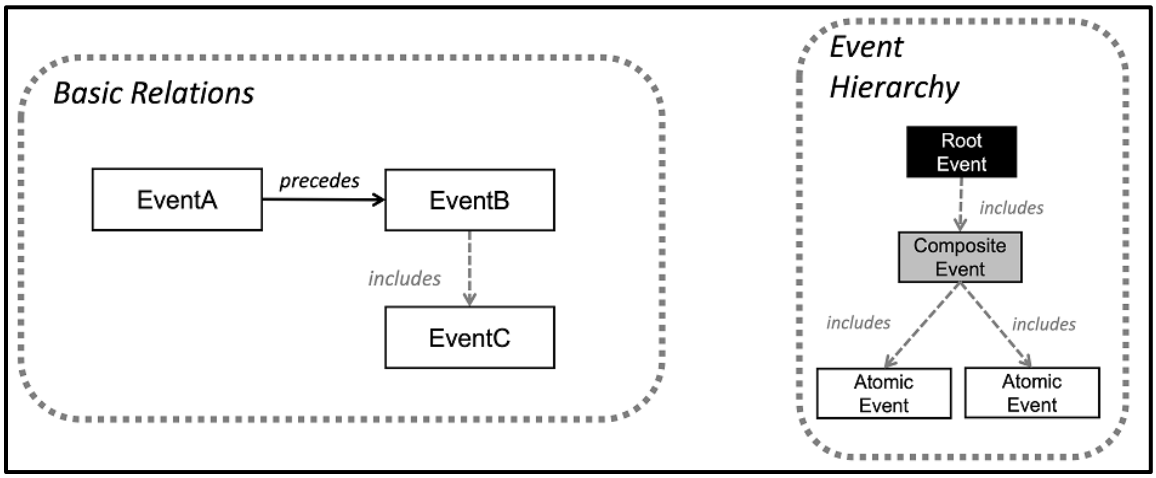

Figure 5. Examples of MP Relationships and Code. Source: Auguston (2020).

The left side of Figure 5 shows the most fundamental relationships within an MP schema, 'Precede' and 'Include.' The right-hand side of Figure 5 shows the event hierarchy; the root event is usually the initiating event of a system containing a combination of composite and atomic events. An atomic event can precede another atomic event or composite event but contains no events inclusive to itself.

In Figure 6 are six basic examples of different types of event combinations. From the top, left to right: First, A person could do something (event) and then do something else. Second, a person could do one thing or another thing (either or). Third, a person could do or not do something (an optional event). Fourth, a person could do something multiple times in a row. Fifth, a person could do one thing then another in either order but do both things. Sixth, a person could do the same set of things multiple times.

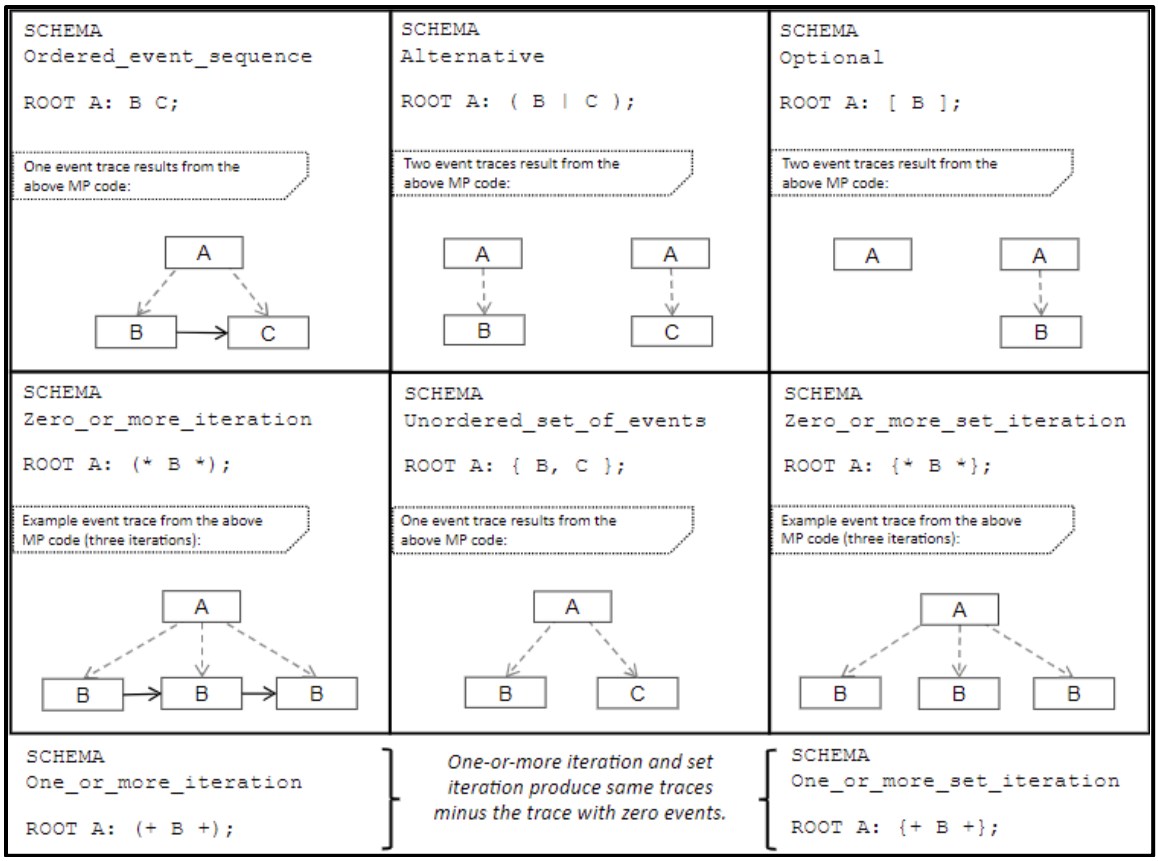

Figure 6. The Second Half of Example MP Relationships and Code. Source: Auguston (2020).

It is best when a Schema's written event grammar and syntax create a narrative describing a system of behavior that could be read aloud in plain English and understood by a layperson. That feature allows anyone to use MP across a variety of fields.

Giammarco describes Figure 7 and the applicability of MP constraints and sharing features: "Interaction constraints on pertinent events from the separate actor behavior models shape the trace output, trimming away the unwanted combinations. Two traces at scope 1 are shown on the left, and four traces at scope 2 are shown on the right" (Giammarco, 2022, Ch. 3).

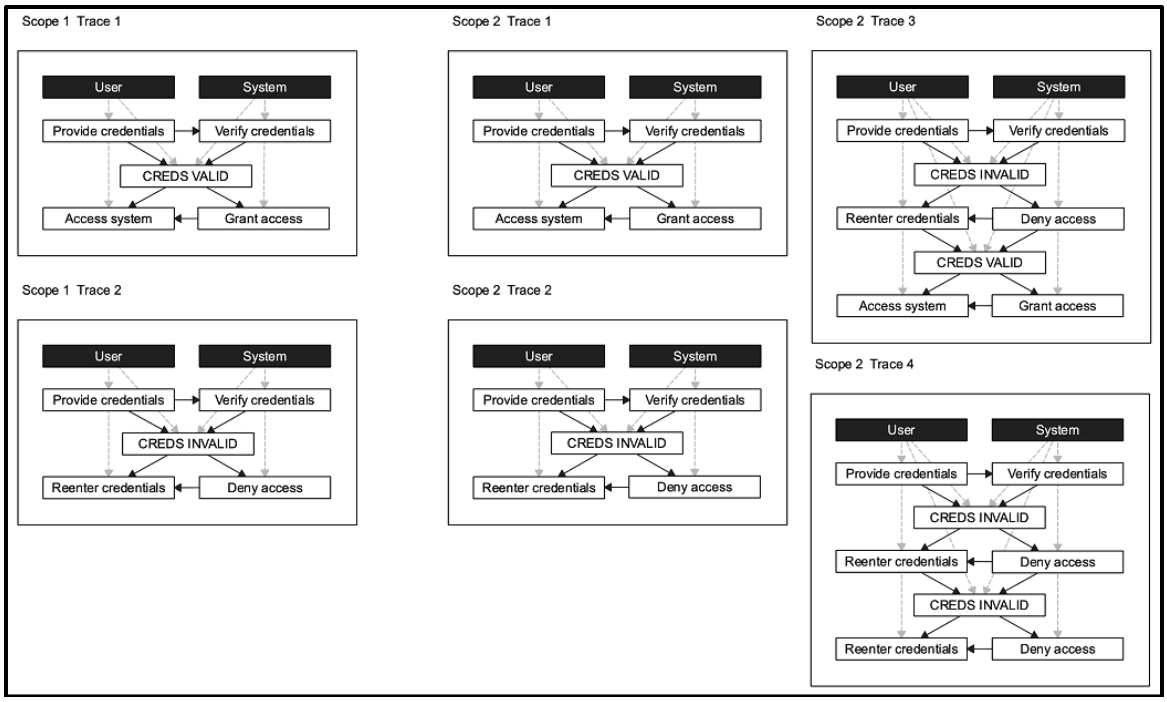

Figure 7. Example of MP Trace Model with Event Sharing. Source: Giammarco (2022).

Using MP models to describe the system, events, persons, and the environment is a far more comprehensive model of all the various elements of the socio-technical system that comprise the Marine Corps. While MP still has its limitations, MP can accomplish much of what was detailed by Col Lawrence Sweeny when overseeing the Defence Integrated Military Human Resources System (DIMHRS). In 2001 Col Sweeny determined that beyond naming terminology in the military, there was very little between military HR and non-military HR (Sweeney et al., 2001).

That is why in 2001, he advocated for the use of commercial off-the-shelf software, the adoption of existing HRIS, and the continued modeling of the technology, computational, enterprise, engineering, and information viewpoints. In addition, he endeavored to help standardize the Object Management Group Domain Special Interest Group in HR and the HR-XML Consortium (*About HR Open - HR Open Standards Consortium, Inc.*, n.d.; Sweeney et al., 2001). What he lacked in 2001 was a modeling language that could produce complete scope models of system behavior to assist in the integration of the DIMHRS. In 2001 BPMN occurred by hand on paper or manually in

computer software; the person completing the modeling had to envision any undesirable or desirable emergent behavior themselves. MP allows for process modeling and aggregation of viewpoints into a single model that traces all behavior possibilities.

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III. LITERATURE REVIEW

There is an abundance of literature covering the subjects in this thesis; the literature review is conceptually themed and linked together in the following manner. In order by section:

- Human Capital and Datafication—the following are asked and answered: What is data, how is data viewed, the legal, ethical views, and limitations on data.

- Talent and Personnel Management IT Infrastructure Requirements—After understanding the limitation on data and what data can be within the field of HR and TM, what does the published literature currently present as the requirements of the supporting IT systems.

- Human resource management and knowledge management—in the modern era, knowledge management and human resource management have begun to blur together. Where one begins and another end is challenging to identify clearly. How that pertains to a military transforming from an industrial era labor-intensive organization to a modern digital era is critical for the subsequent design of the supporting IMS.

- Barriers to information management system modernization—what barriers exist that prevent the wholesale adoption of tools and systems that can make a person's day-to-day experiences better than the status quo? Why do they exist, and what can or is done to mitigate such barriers.

- Past and Present IMS Modernization Initiatives—The military has embarked on many modernization initiatives before and all to a varying degree of success and failure. What lessons are gleanable from these attempts, what success stories provide examples to follow and what

failures provide valuable sources of information. What should the Marine Corps repeat, and what should the Marine Corps avoid.

A. HUMAN CAPITAL AND DATAFICATION

The human capital theory is much like the conventional concept of capital, and it is something that adds value to an organization. In today's modern economy, having any data is a capital investment, and having data on one's organization's human capital is doubly so. Presently, the private sector collects data by any means necessary; the 1974 Privacy Act protects personal data in the public sector. Jathan Sadowski makes the case that data is a form of capital, and with the Internet of Things (IoT), data can be collected passively without consent (Sadowski, 2019). He describes data without consent as data extraction. The military is a unique position where the service member provides the data the branches collect. Furthermore, the military can complete the total datafication of service members via "surveillance of people, processes, things, and the relationships between all of them" (Sadowski, 2019, p. 2).

Current public policy regarding data, its collection, storage, public availability, use, and privacy protection has been reviewed substantially by lawyers and IT professionals alike. Whatever data policies or datifications efforts the Marine Corps make must comply with local regulations wherever Marines are stationed (Congressional Research Office, 2019). If the data cannot be collected consistently with the same degree of accuracy for all service members, the institution risks violating the law while undermining the DOD's efforts (Norquist, 2020).

The inadvertent consequence of such datification within the military is that the data collected is not diversified enough to enable machine learning algorithms to provide decision-making tools that support policy. This 'digital failure' is the unintended consequence that is simple to imagine and understand, be it as simple as an image classifying algorithm misclassifying an image or a smart vehicle's software causing an accident (Allen, 2020). Better processes will lead to better data and decrease the likelihood of algorithms using bad data.

B. TALENT AND PERSONNEL MANAGEMENT IT INFRASTRUCTURE REQUIREMENTS

Within the field of talent management, discussing infrastructure and data production processes are rarely beyond handwaving; this habit is incredibly short-sighted, siloed, and reminiscent of an era before constant connectivity and exponential growth of data creation and collection devices. Infrastructure has expanded beyond government-furnished equipment and must include all data generation sources, storage systems, transfer networks, data management, hardware, and personal or government-provided end-user devices (Cochran, 2019).

IT infrastructure correlates positively with talent management in that "IT infrastructure provides the [capabilities] foundation for using the enterprises' resources for planning systems that included HR systems" (Benitez-Amado et al., 2013, p. 2). The relationship between infrastructure and talent management is two-fold; first, the "IT infrastructure has an operational facet, as it improved the firm's business operations"(Benitez-Amado et al., 2013, p. 3). Additionally, "IT infrastructure leveraging has also a dynamic facet, as it enables reconfiguration of the IT resource base to improve business processes further and meet future needs. This finding is rational because IT infrastructure provides the foundation for using sophisticated analytical tools that enable the firm's [performance]" (Benitez-Amado et al., 2013, p. 3).

At the intersection of IT and HR, we in IT infrastructure allow for the designing, testing, modeling, simulation, and implementing talent management concepts previously thought impossible for the military. Ali Talif described a dichotomy that exists simultaneously as IT capabilities increase flexibility and connectedness flexibility while also providing the means to increase organizational autonomy and control over how personnel executes their assigned work (2007). When considering the complete work type, these concepts of autonomy and control conflict with and benefit the organization's goals. Any organization must ensure that the organization's non-IT policies and procedures align and interact appropriately with the IT-related policies to enhance personnel performance (Tafti et al., 2007).

Tafti elaborates that it is essential to understand and review how the "organization adapts to take advantage of emerging IT capabilities and the effect these adaptions have on organizational routines, work processes, and work habits" (Tafti et al., 2007, p. 148). Turulja Leija et al. further defined these interactions in a 2018 paper on the international feedback cycle between Knowledge Management (KM), HRM, and IT. Their paper concluded that "IT capability enhances HRM capability which enhances KM capability. As a result, KM capability and IT capability enhance organizational business performance. In addition, there is an interaction effect of KM capability and HRM capability on business performance" (Turulja, 2018, p. 264).

C. HUMAN RESOURCE MANAGEMENT AND KNOWLEDGE MANAGEMENT

The limitations of their study identified that while the relationship between HRM and KM is intriguing: it is "quite hard to say where HRM meets KM, or where HRM stops, and KM starts when it comes to some organizational practices" (Turulja, 2018, p. 266). The analytics of this intersection has developed substantially in the twenty-first century. HR departments and organizations overall are creating more data than ever before.

The types of data available for TM and HRM exist throughout the HRDP; one of the limiting factors for implementing a data-driven TM system is the lack of interoperability and standardization governing the data that quantify talent. The DOD Modernizing Learning Initiative worked with the service branches, academia, and other branches of government to develop systems of standardization for the U.S. government. One such system is the Competency and Skill System (CaSS), designed to support all forms of competency and skills education, training, and talent management (Havis, 2021). The CAT or CaSS Authoring Tool is the first component of the CaSS' three major components and will complete the following objective:

> CaSS is to enable "organizations to define, manage, and share "competencies" in human readable and machine actionable forms, where "competencies" is a generic term that encompasses knowledge, skills, abilities, attitudes, traits, educational curriculum standards, learning objectives, and many other such objects that define what a person or group of people know and can do. (Havis, 2021, p. 1)

Storing the data produced across the Marine Corps' 140 different MOS and services requires standardization across many concepts. Therefore, a primary goal of the DOD Advanced Distributed Learning Initiative (ADL Initiative) is to ensure interoperability across the forces and the whole of government. In achieving that aim, the ADL Initiative has created over ten different open-source deployable resources that the DOD can integrate into HRDP/ TM/ LMS/ EDCOM IMS (*ADL Products & Servivces*, 2021).

D. BARRIERS TO INFORMATION MANAGEMENT SYSTEM MODERNIZATION

Studies of the DOD and the Marine Corps shortfalls across their IT infrastructure and personnel management practices are frequent and redundant in their findings and recommendations. For example, in 2017, the DOD commissioned a study by the National Academies of Science. This report found that the data analytics that support personnel and readiness decision-making are often disjointed, one-time efforts in response to immediate questions and often lack a plan to reuse the data or analytical methods (National Academies of Sciences, Engineering, and Medicine, 2017).

In 2011, evaluation of the DOD by Fredrick Brundick and Josh Dehlinger from Towson University Computer and Informational Science identified lessons learned that are equally applicable to the Marine Corps HRDP IMS modernization efforts. The authors identified one of the fundamental barriers to integrated IMS across the services or departments within a service, that being when data or "Everything is in the open, and there are political and budgetary ramifications. There is an old saying that knowledge is power, and the [global force management data initiative] is making the force structure of each Service available to the other Service" (Brundick & Dehlinger, 2011, p. 29). Sharing data, cooperating, and the inability to adapt to new requirements to achieve collective goals outside an organization's immediate goals represent institutional habits of inertia and inefficiency.

Streamlining processes and automating work previously completed by a human represents a threat to personnels' purpose within any organization. At the same time, individuals' non-adoption of emerging IT tools maintains the status quo and keeps legacy

systems alive (Richter & Sinha, 2020). Consequently, modernizing IMS, IT architecture, business operations, and processes must systematically review its organizational structure and staffing. The Department of Navy, DOD, and U.S. government have released data policies to address personnel resistance to sharing data. Most recently, on 24 June 2021, the DON Action to Data Advantage memorandum explicitly states, "All DON data shall be available for decision-making purposes at echelon and naval personnel shall not inhibit the free flow of data" (Harker, 2021, para. 3).

The idea that modernization of personnel management systems will lead to personnel reductions and changes in an organization's budget is not new. A 2021 report from the Brookings institute analyzed five federal agencies regarding their Robotic Process Automation (RPA). That report found that while the majority of "public sector organizations are hierarchical, function on command and control principals, are labor-intensive, and do not sufficiently employ digital tools for handling routine processes" (West, 2021, p. 1). Much of the IMS modernizations to support Talent Management 2030 are precisely that, RPA of routine and labor-intensive processes riddled across the Marine Corps. Future Force 2025 called for reductions in the 01XX administrative community.

E. PAST AND PRESENT IMS MODERNIZATIONS INITIATIVES

MR&A is motivated to modernize all aspects of the HRDP and the administrative functions that comprise the business operations of the Marine Corps. The M&RA Secretariat and MR&A Deputy Commandant action group (DAG) have already identified many functional processes for improvement (Hull, 2021). Those suggested areas of improvement provide an adequate focus for specific use cases for merging the RM-ODP, OSF, and MP to model the business processes required by implementing any IMS solution.

In 2001 in preparation for the DOD's development of the Defense Integrated Military Human Resource Personnel System (DIMHRS), the DIMHRS program manager Colonel Lawrence Sweeney and his co-authors Enrique Kortright and Robert Buckley published *Developing an RM-ODP-Based Architecture for the Defense Integrated Military Human Resources System.* At the time, the Space and Naval Information Technology Center led the DOD's billion-dollar venture into combining over 500 external interfaces,

with 18,300 data source collection points, spanned over 900 geographical locations, and supported 80,000 users and upwards to four million records (Sweeney et al., 2001). One primary concern for integrating the systems involved and the processes within each system was that the subject matter experts (SME) who knew and understood the day-to-day functions could not fully describe the required systems' behavior to software programmers during the development phases. No universal modeling language (UML) existed for SMEs to communicate their requirements universally to developers across the entire project. SMEs were not programmers but the practitioners of the 500 different systems.

As a result, only system architects could use UML. Nevertheless, more importantly, UMLs "ambiguities inconsistencies and lack of rigor have been a real obstacle in the development of a complete, consistent business architecture that traces back to requirements and to which the other viewpoints can be formally traced" (Sweeney et al., 2001, p. 111). The ultimate goals of the DIMHRS are the same as the Marine Corps' present goals for modernizing the IMS that support the HRDP. Where technology limitations hindered developing a complete RM-ODP model, an MP schema model generates scope complete event traces for all possible behaviors of a system. Incorporating the technical aspects regarding IMS of the RM-ODP with the OSF leveraged to describe the Marine Corps HRDP's planning and execution systems provides the conceptual framework of what to model. MP provides the means to model the conceptual framework. MP-Firebird is a publicly available web based modeling tool; dozens of articles and publications provide different case studies for using MP to the model system, software architecture, and workflow modeling. One of the added benefits of using MP is that MP contains usable code libraries that are easily transferred and applied to new systems, processes, or workflows.

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IV. MARINE CORPS HUMAN RESOURCE INFORMATION SYSTEMS

There are nearly 100 IMS or modules that comprise the Marine Corps HRDP IMS; most Marines will never directly interact with many of these systems throughout their career (Connelly, 2021). Most of the IMS Marines interact with, interaction is intermittent and sporadic in their career or just once. For example, a Marine will likely only interact with the Marine Corps Recruiting Information Support System by proxy through a recruiter or Officer Selection Officer. However, the information collected, contained, and then used by the Marine Corps in MCRISS has long career implications for the Marines, such as their initial military occupation specialty assignment. On the other hand, there are systems that Marine will use continually throughout their entire career regardless of length. That system is the primary means for each Marine to conduct many individual actions related to the HRDP. Marine Online is that system, and its commonality to Marines and importance to the HRDP warrants a detailed review of its evolution and current existence.

A. THE MARINE CORPS HRDP INFORMATION MANAGEMENT SYSTEMS REVIEW AND DEVELOPMENT

Over decades the Marine Corps pay and personnel system evolved from ad hoc solutions addressing one concern at a time to an enterprise-wide system that handled functions across a myriad of programs. Its evolution was slow and problematic at times but inadvertently did become the first military pay and personnel system to accomplish many DOD goals regarding system integration and automation. This section reviews the evolution of MCTFS.

1. Manpower Management System → Joint Uniform Military Pay → Marine Corps Total Force System

The Marine Corps established the Data Processing Division in 1960. They began their journey with data processing with one goal in mind: "to centralize the Supply Department, Personnel Department, and the Administrative Division" (*A Brief History of Headquarters Marine Corps Staff Organization*, 1971, p. 32). In 1964, other military

branches directly paid 25,000 Reserve Marines their agencies' pay accounts and would ask the Marine Corp for reimbursement at the end of the fiscal year (Appropriations, 1964). It is unclear if the Marine Corps paid for all Marine Corps Reserve personnel at that time or if other government agencies did (Appropriations, 1964). One year later, a single pay-system staffed by 136 personnel, predominately Marines, at the Marine Corps Headquarters Data Processing Center supported those 25,000 Marine Corps Reserve Marines (Appropriations, 1964). Then, in 1965, the Marine Corps consolidated the Reserve Component's centralized pay plan and accrual pay system using automatic data processing. Additionally, the mission of the Marine Corps Headquarters Data Processing Center now had to include the ability to support the Centralize Reserve Disbursing Office.

This obscure moment in data history for the Marine Corps set the service incidentally on a path to having the first and only Automatic Information System (AIS) for personnel and pay functions. The evolutionary sequence of the manpower management system (MMS) into the eventual Marine Corps, Total Force System, is as follows;

- 1972 MMS merged with the Joint Uniform Military Pay (JUMP) System as part of a measure to reduce cost at the Marine Corps Finance and Automated Services Centers;
- 1981 the MMS and JUMP were recreated to form the Marine Corps Reserve Manpower Management Pay System (REMMPS);
- JUMP/MMS for active duty and REMMPS merged and culminated into the Marine Corps Total Force System (MCTFS) for all active, reserve, and retired Marines (Polach & Young, n.d.);
- Finally, in September 1996, MCTFS came online, combining 34 system interfaces into the first DOD "totally integrated personnel and pay system within the Department of Defense" (Young & Lentivech II, 2001, p. 1). MCTFS incidentally achieved the DOD goals years before the DOD required an integrated pay and personnel system.

Twenty-six years later, the Marine Corps is still using MCTFS, and this legacy system remains the workhorse of the Marine Corps IT/IMS that supports the HRDP. This legacy system provides the means to act as a single source point of data creation, modification, and deletion for the total force. The Marine Corps Total Force Data Warehouse (TFDW) stores the decades of personnel data dating to 31 March 1972 with the first quarterly snapshot of JUMPS and MMS Active Duty Marines pay and personnel information (*TFDWSequence Numbers_113292021_2024.Csv*, 2021). Marine Corps IMS evolved gradually to meet the emerging data required for the service, the Marines, and decision-makers. The Marine Corps became the first and only service to utilize a joint system for personnel and pay within the DOD. The United States Army, Navy, Air Force, and Space Force are currently developing or executing the phased deployments of their services' integrated pay and personnel systems. Historically The Marine Corps has led the DOD in the automation and integration of personnel systems. Prior to 2000 and the Y2K bug, the MCTFS was the first pay and personnel system certified as Y2K compliant (*Defense Military Pay Year 2000 End to End Testing*, 1999).

2. Marine Corps Total Force System → Total Force Administration System

The Commandant set an ambitious goal to effectively create the first modern human resource talent development process overnight within the DOD by 2025. (*TM2030*, 2021) As of Dec 13, 2021, the Marine Corps listed 139 modules/applications, systems, databases, and services currently part of its HRDP IT infrastructure. These 139 IT components comprise five services, eight databases, 27 systems, and 97 different modules/applications. Presently, no single Marine Corps authority dictates these IT components' exact specifications, requirements, procedures, or policies (Connelly, 2021).

There are four administration components within the Marine Corps, general, operational, manpower, and personnel administration. These facets are not mutually exclusive and overlap across nearly all MCO and policies within the HRDP. Conceptually, the Marine Corps administrative procedure is straightforward: "information will be collected as close to the source as possible and reviewed, certified, and reported in systems

of record with the minimum number of intermediate steps" (Manpower and Reserve Affairs, 2004).

B. TFAS, MOL, AND THE GLOBAL FORCE MANAGEMENT DATA INITIATIVE

In 1998 a DOD study and GAO report recommended that the DOD move to a single integrated pay and personnel system to combine the 90 plus separate automated systems for pay and personnel across the services (U. S. Government Accountability Office, 2008). This endeavor lasted over a decade and cost nearly one billion dollars. Having a single Defense Integrated Military Human Resource System (DIMHRS) to combine every pay and personnel system across the services utterly failed but did provide a treasure trove of lessons on how not to integrate 90 different automated IMS (Philpott, 2010). The decade-long pursuit of developing and implementing the DIMHRS across the DOD already had an example of a functioning and operational model of an integrated pay and personnel system, the Marine Corps Total Force System, and the Total Force Administrative System (TFAS).

1. Marine OnLine

The Marine Corps would be wise to take the same approach it unintentionally took in creating MCTFS. By planning how to make incremental changes and improvements to existing systems that can absorb other legacy systems functions while simultaneously modernizing the back-of-the-house maintenance and host operations to either cloud-based or third-party hosted enterprises. For example, when the Marine Corps is responsible for and owns the IMS application program interface (API) at its disposal, the software tools provided for Marines are substantially ahead of the other branches. Likewise, the total force administrative system (TFAS) and its web based interface, Marine Online (MOL), scaled release over 2004 and 2005 were remarkably ahead of its time for the military community.

The Marine Corps would be even wiser if the institutions greatly expanded the functions, capacity, and capabilities of the MOL family of systems, capitalizing on lessons already learned and existing orders and policy statements: "As accurate personnel information and effective administrative processes are key enablers of our ability to 'take care of our Marines' and maintain a force capable of winning our Nation's battles, it is

imperative that standard procedures be implemented where practical" (Manpower and Reserve Affairs, 2004).

Initially, the impetus for creating a front-end user-based API for MCTFS resulted from the Joint Chief of Staff— J8 Force Structure, Resources, and Assessment Directorate (J8) global force management data initiative (GFM-DI) launched in 2003. This initiative set out to standardize the services reporting mechanism, data format, and exchange systems across the total force through organizing services force structure data hierarchically across the joint forces. There were two goals for the GFM-DI: first, to address the technological and policy impediments to collecting and representing force structure data in a machine-usable and human-readable manner. Second, identifying and removing any organizational, policy, or technical obstructions prevented the aggregated data from being available to a disparate collection of users on a single authoritative server (Chamberlain & Boller, 2006).

Although MOL's family of services has expanded over the past 17 years, the MOL user interface has remained very similar since initially released. Marine Administrative Message (MARADMIN) 371/04 clearly stated what happens when administrative tools and processes are improved and automated: "TFAS and MOL improve Marine Corps administration by automating processes, decreasing redundancy, and moving data input closer to the authoritative source" (Marine Corps Manpower and Reserve Affairs, 2004). Improving the tools provided to Marines led immediately to the formation of the Installation Personnel Administration Center (IPAC), a review of the 01XX occupational field, and a reduction in the required structure to provide administrative support to the FMF.

All Marine messages *(ALMAR) 058/05* announced that 100% of the active force had MOL accounts and 93% of the total force only 36 months after deployment. More importantly, the ALMAR reaffirmed why process improvement is vital to the Marine Corps: "TFAS continues to improve Marine Corps administrative procedures by automating processes, decreasing redundancy of data input, reducing costs associated with administrative transactions, and ensuring the accuracy of the data resident in the MCTFS" (Marine Corps Manpower and Reserve Affairs, 2008).

Later, the defense integrated military human resources system (DIMHRS) would copy the standardization established by the GFM-DI. At its inception, the Marine Corps intended on TFAS acting as an intermediary and API for Marines with the DOD DIMHRS (Philpott, 2010). After ten years and over one billion dollars of federal expenditure, the DIMHRS failed to materialize a functional system. Funding for TFAS resulted from DIMHRS. In the absence of larger funding pools, the Marine Corps has only maintained and made required incremental improvements alongside implementing new policies.

MCTFS already functioned as a pay and personnel system. Therefore, one of the fundamental goals for developing TFAS and MOL was to meet these emerging DOD requirements in reporting force availability accurately and automatically. The Marine Corps pushed data creation close to the data source through MOL. In doing so, the Marine Corps chose to operate under the premise that the Marine and individual commands can better manage the creation, modification, and validation of many pay and personnel functions. The initial gains and momentum driving modernization and creating MOL have slowed, and module updates are usually tied to new policies and do not provide modules for existing policies.

2. MOL Module Development

Modules within MOL are the means by which Manpower Information Branch (MI) and Technology Services Organization (TSO) develop and deploy more and more capabilities to the MOL FOS. In doing so, MI and TSO have also modeled a method for further democratization of modernization concepts and initiatives for the Marine Corps administrative community. While not the intention of the MOL module model of development and deployment, it may provide a useful example for integrating the expanding capabilities within MCTFS and the MOL FOS.

a. Billet Identification Code Assignments and Backend Database Interoperability

In 2008, the Marine Corps completed its initial review of the proposed IPAC structure and then completed the phased movement of IPAC to the supporting establishment. MR&A mandated to unit commanders that by 1 October 2008, MOL is the

sole source to "report leave, proficiency and conduct marks, promotion recommendations, billet identification code (BIC) assignment and daily reporting of personnel" (Manpower and Reserve Affairs, 2008). That transition also changed the formal responsibilities of IPAC, unit commanders, and individual Marines.

Four years after the mandated MOL as the primary source for units to enter data into MCTFS, the Marine Corps began to develop significant deficiencies in data. For example, MR&A utilizes the reporting unit code (RUC) and monitor command code (MCC) as the unique identifier for all matters on pay and personnel, i.e., staffing and manning requirements for units. In contrast, CDI uses the BIC as the unique identifier for structure. As a result, the staff at MR&A and CDI had to identify a standard information key that would link manpower and structure (Manpower and Reserve Affairs, 2012). BICs comprise an eleven-byte string of characters comprised of two parts: a six-byte unit identification code (UIC) and the five-byte numeric string representing the billet. Utilizing the BIC meets the technical requirements of the GFM-DI specified by the JCS J8. (Manpower and Reserve Affairs, 2012). However, at the time of the MARADMIN, elaborating the intricacies and importance of proper reporting of assigned BICs, less than 62% of Marines had a BIC reported in MCTFS (Manpower and Reserve Affairs, 2012). Additionally, this ignored all erroneous BIC assignments.

Properly aligning BIC assignments at the battalion level affects the supporting establishment's ability to assess the required manning levels of the FMF, the staffing shortages, and forecast personnel requirements accurately. When manpower management (MM) cannot assess if a unit has the correct personnel, the efficiencies data provides assignment processes breakdown. Data must be accurate and available. When the assignment process breaks down, units begin engaging with the monitors directly instead of allowing their higher headquarters to consolidate all the units' requirements and communicate with MM. Engagement with all regiments is different from engagement from all the battalions. Six years after releasing *MARADMIN 182/12* in 2012, the Marine Corps still struggles with accurately maintaining the BIC at the battalion level. In February of 2018, BIC misalignment within I Marine Expeditionary Force (I MEF) exceeded 9,571 personnel (I Marine Expeditionary Force, 2018).

The misalignment trends with I MEF consisted of the following: "no BIC information/assignment, erroneous BIC information, BIC fields left blank with/without billet descriptors, or multiple personnel reported under the same BIC. Incorrect BIC assignments, erroneous reporting procedures, or missing data in MCTFS" (I Marine Expeditionary Force, 2018). The Commanding General's MEF message stated the following justification and explanation:

> In order for us to be postured to fight, maintain forward presence throughout the globe and to successfully execute the comandant's planning guidance; we must have the right marine, in the right unit, and in the right billet. The cg i mef expects that all i mef personnel are assigned to an appropriate bic to ensure a more accurate sight picture of unit manpower needs. This will ultimately reflect better visibility for developing future staffing and manpower plans to support combat and contingency operations. (I Marine Expeditionary Force, 2018)

When BIC reporting became mandated within MOL, the Marine information management system support division initially suggested the following potential tools and features: ease of the user interface (UI) improvements, reduce or eliminate possible typographical errors, provide embedded BIC alignment failsafe to reduce or eliminate human error (Manpower and Reserve Affairs, 2012). These never materialized. This study will model the system and procedures associated with assigning a Marine to their BIC in the recommendations section. Inadvertently, the absence of adequate tools allowed administrative processes at the tactical level to affect the HRDP within the planning and execution phases. In MOL, the BIC module, which allows leaders to assign BICs, remains nearly identical to its initial release, as shown in Figure 8.

Figure 8. Screenshot of the MOL BIC Module UI for BIC Assignment. Source: Technology Service Organization (2022a).

This module is one aspect that has not changed, but MOL has expanded. Subsequent MOL module additions and modifications have provided more capabilities at the unit level while retaining physical industrial era practices by failing to automate and integrate a myriad of administrative functions fully. Therefore, the outstanding appraisal of updates to the MOL family of systems is not exhaustive. Furthermore, it does not include the supporting operations of the Manpower Information Systems Support Activity (MISSA) and the various developers providing software solutions for the MCTFS family of systems (Personnel Administration School, 2020).

b. Outbound Interview and Inbound Interview Module

For example, the most recent module update added the inbound interview in the travel module for Marines. This module's development directly resulted from the CPG and is necessitated in anticipation of the 01XX reductions from the Future Force 2025 (Manpower Management Division, 2021a). Phase V, scheduled for January 2022, makes "mandatory the implementation of the initial travel interview" (Manpower Management Division, 2021a). The MARADMIN's caveated the schedule and phased deployments of the module as tentative and subject to adjustments (Manpower Management Division, 2021a). This module will introduce automation associated with the permanent change of station (PCS) travel claim process. While this is an improvement in existing procedures and policies, it only addresses one aspect of onboarding a new Marine and completing administrative requirements regarding pay and entitlements.

Focusing on the Marine Online family of services is critical since most Marines' interactions with MOL affect the HRDP or administrative matters. Additionally, MOL has the potential to become the Marine Corps solution for talent management at the tactical level through introducing tools and procedures that consolidate orders and streamline the procedures from the existing industrial-era methods requiring hard copy paperwork for processes. Complicated paper processes and manual entry of data absent of a standardized system across the FMF represent one of the most taxing practices within the Marine Corps. The absence of a service-wide tool dictates that each unit will utilize an in-house SOP to adhere to MCO and regulations. Marine Corps Orders typically allow Commanders' discretion for processes at the battalion level and below. At the same time, this is beneficial in many aspects of the Marine Corps; in practice, it undermines all administrative matters and degrades the quality of support provided to the Marines.

MOL family of systems comprises a large swath of the Marine Corps HRDP supporting IMS. At present, the MOL family of systems has modules that manage all four components of administration: general, operational, manning, and personnel. In addition, the MOL family of systems encompasses much of the enterprise that runs the Marine Corps day to day operations—outlined below is the relational map. The mapping of the IMS of the HRDP does not describe physical connections between servers but the logical relationship and interfaces of the services, modules, systems, and databases and organizational relationships to those systems that comprise the HRDP within the Marine Corps.

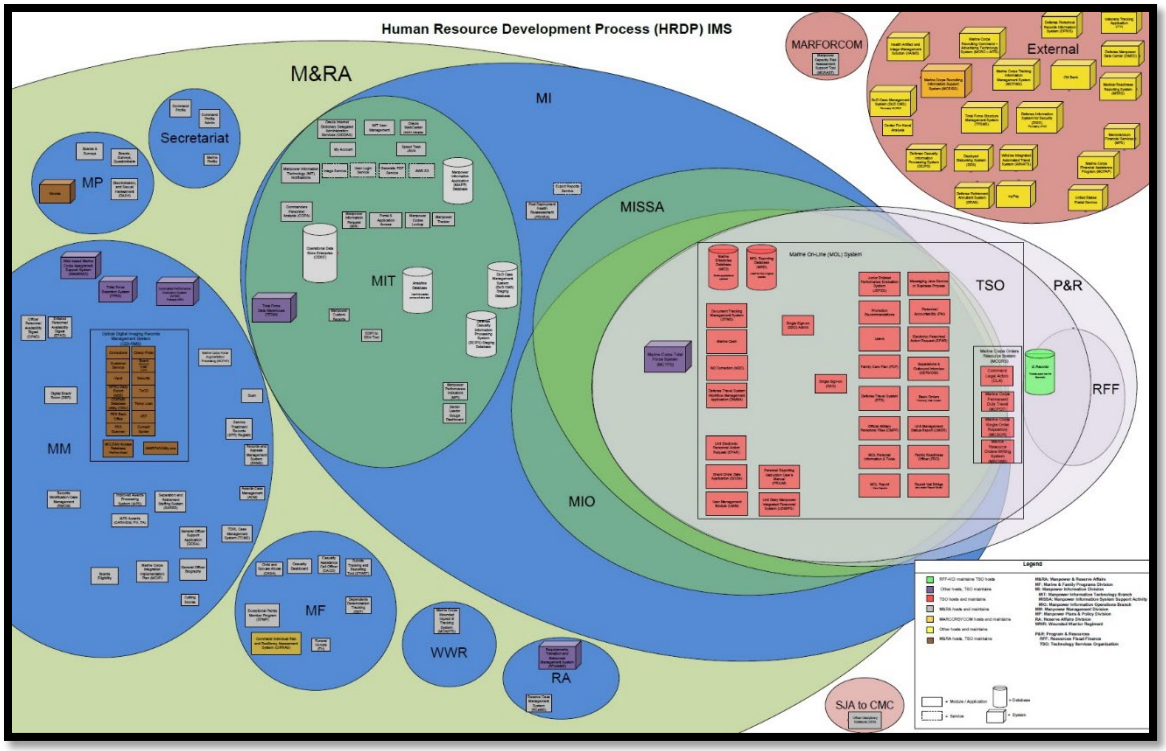


Figure 9. Human Resource Development Process (HRDP) SV-1
Modified from Connelly (2021).

The HRDP outlined in Figure 9 above shows the entirety of the HRDP supporting IT architecture as of 13 December 2021 (Connelly, 2021). Further complicating this already intricate IT architecture, M&RA hosts only 72 of these components and only maintains 55. Simply put, M&RA only has complete control over 51% of all identified IT components that support the HRDP and talent management for the Marine Corps. An additional 12% is hosted by M&RA and maintained by TSO. TSO hosts and maintains the next most considerable portion of the HRDP IT structure, comprising 24% of the HRDP IT network.[2] [3] The TSO and M&RA working relationship has prevented these differences in responsibility or funding from degrading services to Marines. In total, this leaves an

[2] Server hosting is responsible for the management of the required hardware resources to ensure that content can be accessed and used.

[3] Server maintenance is the responsibility for maintaining the database, software, module, application, or service software system, including but not limited to the application program interface, database indexing, general admin, and user access control.

additional 13% of the HRDP IT supporting architecture completely outside M&RA control and arguably leaves the largest stakeholder in the planning, executing, and evaluating of the HRDP beholden to other organizations inside and outside the Marine Corps. Therefore, 37% of the IT components that support the HRDP are outside any direct control and authority of M&RA.

Presently, there is no policy specifying which deputy commandant is responsible and has the authority to ensure that all services, applications, and systems functionally interact, meeting all stakeholders' requirements for any specific system. Marine Corps Recruiting Command, Training and Education Command, Marine Corps Systems Command, Manpower, and Reserve Affairs, & Technology Services Organizations have three general relationships with any IMS:

1. Only host,
2. host and maintain,
3. only maintain components.

Through cooperation within the Marine Corps, the Marine Corps can achieve interoperability between these systems. While that is an achievable feat in the Marine Corps, it is not achievable across the DOD's 2,900 plus systems, and valuable data remains untouched across the services (Sweeney et al., 2001). This arrangement is a policy problem, a legislative problem, and a budgeting problem; increasing interoperability across the DOD IMS requires substantial funding and specified requirements from each organization. A pattern of evolving ad hoc solutions to meet emerging requirements over an IMS lifetime created the intertwined relationships of requirements, separate funding, and responsibility for the different IMS across the Marine Corps and the DOD.

V. PROCESS MATTERS

The HRDP is comprised of processes from the highest levels of the Marine Corps to the most tactical level. Organizations design IMSs to support those processes. It remains doubtful that the development of new IMS that support automation and streamline processes is achievable without first understanding each and every process that the IMS intends to support. Without first understanding the existing processes within the current IMS and outside those IMS, it is exceedingly difficult to design better IMS. Equally crucial to understanding processes within an IMS is understanding the processes of people.

IMSs should support processes, processes executed by people, and by other IMSs. The Marine Corps Force Reserve knew that processes mattered but, more importantly, individual processes mattered the most. As a result, the reserve community had a unique challenge on its hands, to standardize processes for individual reserve augments to the Active Duty FMF. Processes that are universal in an organization should be standardized to the maximum extent possible but remain flexible enough for unique situations as they occur.

Traditionally, such standardization across the Marine Corps is limited to battalions for internal battalion SOPs, regiments for the battalions in the regiment that require regimental support, so on and so forth across the FMF. The Reserve component of the Marine Corps has the same issue. However, it is far more complicated by the nature of Independent Duty Assignments (IDA) dispersed employment within the Active component. This dynamic creates a challenging situation where Marine Corps Forces Reserves Command (MARFORRES) must create and integrate standardized procedures for an administrative process for individuals whose circumstances are all unique.

A. A POOR PROCESS ANYWHERE HAS RAMIFICATIONS EVERYWHERE

To fully understand the intricacy and nuances of the Marines Corps administration takes a career; understanding how Marine Corps administration is a complex sociotechnical system (STS) does not. An STS consists of many people with different resources and

equipment that must cooperate to accomplish any given task. The Marine Corps administrative system is a mature STS inherently resistant to radical change, such as TM2030. Instead, change occurs incrementally within the STS with the system's non-core elements that depend on the system's core components (Bonen, 1979).

In the DOD and Marine Corps, the acquisition and development system spend substantial time analyzing and summitting a publication's requirements, policy, and intent (Baxter & Sommerville, 2011). If software development results from policy to support the defined requirements of the policy, to ensure adherence to the regulations, the military will tightly control the development process. This control ensures software compliance as understood by the analysis before the software development. Once an organization introduces software to support the existing system, they change it. Socio-technical relationships are the iterative process of changing the dynamic relationship between software and its people.

At the organizational level, strategic planning guidance documents outline the Marine Corps' vector; at the operational level, the HRDP stakeholders formulate plans and execute them to breathe life into TM2030. In the end, it translates into the actionable processes that Marines must execute. In the business lexicon, it is personnel management and personnel administration, and in the future, it is talent management and automated administration. Presently, for example, the personnel management procedures that Marines interact with to reenlist, execute PCS orders, or attend a formal school are all work-intensive processes requiring an administrative specialist at all levels and the chain of command (Hull, 2021).

Although business process automation is necessary to support the FMF with fewer administrative resources and personnel, it is crucial when accounting for the information and work required to develop and deploy a modern talent management system. In *High Performance through Process Excellence*, Mattias Kirchmer declares how and why "Business processes are the critical link between strategy and execution" (pg. 9, 2011).

The IMS's interconnected nature and relationship with the HRDP are readily apparent. What is not apparent is how those relationships and the processes on the other

end affect individual Marines. That effect is one aspect of the STS between Marines and the Marine Corps IMS software applications. For example, new tools are created from the available resources when a tool is not adequate for the task. If the Marine Corps does not provide and supervise those resources and tools, they exist outside of the Marine Corps' ability to control. A system engineer would say this is undesirable emergent behavior.

Marines may create their tools to accomplish the job at hand. When a Commander approves and disseminates that process or tool to a unit, it becomes a standard operating procedure (SOP) and enters the scope of the Marine Corps. In the absence of an SOP, Marines can use their discretion. Marine Corps leadership encourages leaders to make decisions at the lowest level possible and independently arrive at solutions for problems. Regarding administrative matters regulated by orders, policies, MARDMINS, and CGIP checklist, a deviation from guidance could advance or undermine institutional goals.

Understanding processes and modeling behavior systems are precursors for developing better procedures to reduce emergent behavior and ensure consistent policy application across the FMF. For example, promoting a Marine is the same on the east and west coast; every administrative process should be the same across the Marine Corps since the entire FMF follows the same guidelines and policies. However, the experiences of any Marine contradict that idealized fantasy. Marine Corps policies and guidance require consistency across the force, but even the 38th Commandants Planning Guidance acknowledges that is not the case. In TM2030, General Berger calls for modernizing HR systems and uses the following example and narrative to describe the problem:

> The Marine Corps Enlisted Commissioning Education Program (MECEP) for instance. Like they would have 20 years ago, today's Marine will type their application, using the proper memorandum format, combine it with various attachments, including hard copies of records that are digitally available, and route it for approval and endorsement, in hard copy. With approximately 65 individual pieces of paper, the opportunity for error and subsequent delays to processing is considerable. (*TM2030*, 2021)

General Berger's anecdotal story of a Marine Enlisted College Education Program application packet shows how arcane and byzantine Marine Corps administrative processes are. Convoluted and confusing orders exist throughout the Marine Corps, requiring leaders

to spend more time unraveling the web of requirements and mandatory compliance. Navigating policies, guidance, and orders is time not spent developing Marines; addressing how HQMC synchronizes policies and aligns procedures is essential to creating autonomy and efficiencies at the tactical level.

1. A Note Regarding Checklist

To navigate Commandant Bergers' example, Marine Corps Recruiting Command publishes a checklist annually for all the requirements of a MECEP application. A checklist is a process written out, and when a person has a checklist to refer to, that checklist reduces their cognitive load. They no longer need to think about what is next, what is required, was this done correctly. Marine Corps administrative processes are highly complex and broken into subspecialties to allow individual skill mastery in one function. There is always a trade-off, though, and skills in another functional area deteriorate.

In 2013 Atul Gawande published his book *The Checklist Manifesto: How to Get Things Right.* He examines The Problem of Extreme Complexity in his book and even dedicates an entire chapter to it. For example, when preparing for surgery, a patient should receive antibacterial treatment no more than an hour before the first incision and not less than 30 seconds if intravenously administered (Gawande, 2013). Columbus Children's Hospital conducted a study in 2005 and reviewed appendectomy patients' surgery and medical records (Gawande, 2013). The study found that this single step is often skipped, "more than one-third of its appendectomy patients failed to get the right antibiotic at the right time . Some got it too soon. Some got it too late. Some did not receive an antibiotic at all" (Gawande, 2013, p. 98) As a result, the hospital developed a checklist to reduce surgical infections.

The hospital director of surgical administration was an aviator and approached the problem as a pilot, and "he designed a preincision 'Cleared for Takeoff' checklist," where a nurse would simply "verbally confirm that the team had the correct patient and the correct side of the body planned for surgery—something teams are supposed to verify in any case"(Gawande, 2013, p. 98). The last step was to check that the patient had received the correct antibiotics (Gawande, 2013). In total, a nurse would write the checklist out on a

whiteboard in the operating room prior to surgery to confirm that the team had completed those three checks (Gawande, 2013).

Surgeons are highly trained and educated professionals. Telling them to use a checklist and requiring it did not encourage using the checklist. Their behavior did not change. To address this, the surgery director had a small metal tent made with 'Cleared for Takeoff' printed on it; this tent was placed inside the surgeries kit of the surgical instrument (Gawande, 2013, p. 99). This small mental reminder changed surgeons' behavior, and the surgery would no longer begin until the nurse "gave the okay" (Gawande, 2013, p. 98). This checklist diffused power from the surgeon to the nurse and forced a minute cultural shift in surgical teams (Gawande, 2013). Three words, "Cleared for Takeoff," changed behavior, "in three months, 89 percent of appendicitis patients got the right antibiotic at the right time. After ten months, 100% did. The checklist had become habitual—and it also became clear that team members could hold up an operation until necessary steps were completed" (Gawande, 2013, p. 100).

Checklists matter; they save lives and are used in various industries, from construction, surgeries, aviation, software development, and within the DOD. Checklist. Moreover, a checklist is already how the DOD validates adherence to policy, most notably the Commanding Generals Inspections Program Functional Area. The checklist concept is straightforward; changing behavior to encourage experts and masters of their craft to incorporate a checklist is far more nuanced. Using a checklist often increases performance, efficiencies, standardization, while making one first requires understanding the process.

2. FAST Process Standardization

In 2017, MARFORRES set out to standardize administrative procedures for every unique situation possible for an IA across the FMF. Additionally, MARFORRES Assistant Chief of Staff G-1 directorate announced the Reserve Independent Duty Administrative Course (RIDAC) release to educate Reserve Marines on the administrative processes unique to IDA. G-1 Operations Officer LtCol Jason B. Hill explained the problem during an interview in November 2017 and stated:

> Historically, Marines on independent duty receive very little formal education on the reserve component or reserve administration—typically at MOS school—and usually long before actual field application. The main goals of these programs are to educate administrators, standardize administrative processes, and to modernize day-to-day administrative operations. (Lee, 2017)

As a result of creating the RIDAC course, MARFORRES both standardized and modernized reserve administration, supporting over 30,000 Reserve Marine across 300 plus MOS, across 184 locations (*Marine Corps Reserve*, 2021). Originally, the public release of the Functional Administration Support Tool (FAST) described it as the " 'Turbo-tax for administration' " (Lee, 2017). Over the five years since the release of FAST, the tool has generated on average 14,500 tailored functional process checklists annually and: "Administrators will save countless hours by not having to sift through dozens of orders, regulations, and checklists to find the answer" (Lee, 2017) (D. Raimondi, February 10, 2022). Further supporting these standardizations efforts, MARFORRES published Standard Operating Procedures for Personnel Administration, MARFORRES Force Order 1001.5a updates directing the use of FAST (Lee, 2017).

MARFORRES collaborated with the NPS Center for Educational Design, Development, and Distribution (CED3) for a year to develop the FAST and RIDAC. Over 70 personnel administrators provided their experience and knowledge across all functional areas of reserve administrations to design the system (*Ridac Process*, n.d.). Through a year-long analysis of the MCAAT checklist, MCOs, regulations, and CGIP, the NPS Marine team developed a question-dependent decision support tree. The support tree works by asking specific questions that continuously refine the requirements of the appropriate orders and regulations required to generate a specific process checklist.

FAST checklist generation sequence follows the outlined step below:

1. Enter MCC (text box requires an existing MCC)
2. Select process (18 functional processes are available for selection)
3. Refine Options (refinement options' derive from step 1 process selection)
4. Enter data (this is universal for all process checklists)
   a. Grade (dropdown menu; E-1 → E-9, W1→W5, O1 →O10)
   b. The Marine's name (test box; Last, First, MI)

c. EDIPI (textbox, integers only, must contain ten characters)

d. Is the Marine checking-in for duty an Active Duty/Active Reserve or Reserve Marine? (Option Bubble)

5. A sequence of process-dependent questions, where each question changes on each preceding response in the decision tree.
6. Continue Button
7. Get action items. (Creates the functional administrative checklist for the Marine)
8. Email or Print (either or not both)
9. Provide Feedback (optional)

3. FAST and Information Management Systems

In Appendix E, the snapshots of the entire FAST sequence visually depict the described steps for a reserve administrative function. This process and the resulting checklist's accuracy depend on the constant maintenance of the Master Checklist File, which functions as a process repository of all processes contained in FAST. Maintaining the accuracy of a singular file to create CGIP and MCAAT compliant checklist for Reserve Marines administrative requirements simplifies the standardization process for the Marine Corps Reserves. So much so that the entire FAST Master Checklist File is maintained and updated by one person. That support ratio is only possible through the dissemination and utilization of FAST are the reserve forces.

Integrating the FAST checklist process into the Marine Corp HRDP systems and transforming the current FAST interface into a MOL module requires understanding the current HRDP IMS technical specifications. MCTFS is a TelNet system that still relies on 3270 Reflections software on the end user's host system for direct view access.[4] TFDW is the Marine Corps pay and personnel data repository. It is a relational database and contains longer-term data storage. SQL is the predominant language leveraged for querying the Organization Data Store Enterprise (ODSE). MARFORRES production server supporting FAST leverage Amazon Web Services (AWS) for hosting, Amazon's Elastic Compute Cloud (EC2) for scalable cloud computing, and can scale to any number of users

[4] For more information regarding TelNet, 3270, and the Marine Corps use of Reflections software see the Defense Information System Administration Multi-Host Internet Access Portal user guide for Marine Corps Reflections available at https://miap.csd.disa.mil/docs/MIAP_USMC_User_Guide_V1.doc

accessing FAST without compromising services.[5] Now, EC2 runs on CentOS7, which is a free, open-source Linux-based distribution.[6] FAST deploys using Docker to run all apps and their respective databases in each container separately.[7] Each database container stores all the required data and generates it in a separate column to ensure that the container is deleted or stops to prevent accidentally deleting any data (Frye, 2021). Figure 10 depicts the described relationships between the containers, volumes, databases, and the user's front-end website.

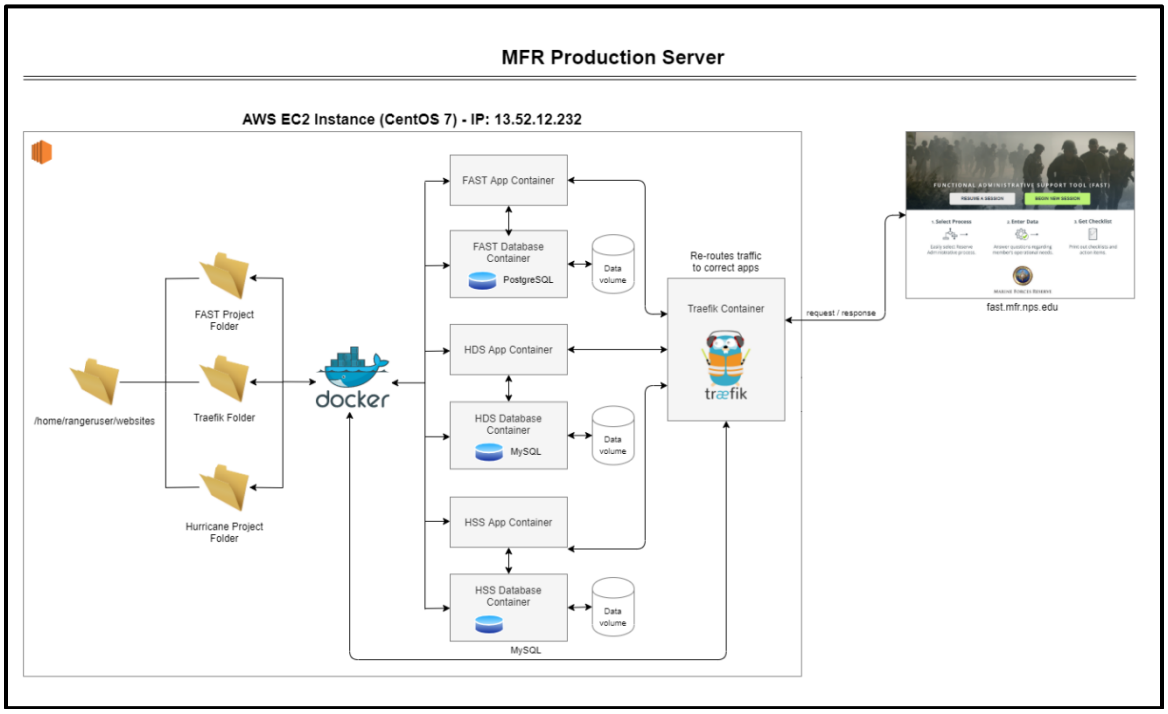


Figure 10. MFR Productions Server Relational Diagram. Modified from Frye (2021).

[5] For more information regarding Amazone Web Service and the Elastic Computing Cloud refer to the AWS EC2 user guide available at https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/concepts.html

[6] For more information about CentOS Linux refer to the About CentOS web page available at https://www.centos.org/about/

[7] For more information about Docker, containers, images, or compartmentalized development see the Docker about us web page available at https://www.docker.com/company

In Figure 10, the organization diagram showing the logical relationships between the various containers and components that comprise the development environment for FAST as hosted by NPS. Because FAST uses Docker for the development, testing, and hosting processes, refining and expanding the capabilities of FAST is achievable without jeopardizing services to the reserve community.

4. Interoperability Concepts for MC HRDP IMS

FAST is nearly an idealized version of BPM and accurately demonstrates what a fully understood and documented system can accomplish. FAST creates a checklist; those checklists get printed or saved and then executed by a Marine at the unit. FAST is containerized web-based application that uses PostgreSQL for relational databases on the backend. FAST uses Traefik for integrating with existing AWS and EC2 infrastructure to deploy a microservice application, in this case, FAST.[8][9] ODSE is a relational database that integrates with MCTFS, cycles daily, and is accessible for frequent data reads and queries using IBM Cognos. The conceptual framework and organization of the FAST Master Data File, along with the FAST digital architecture, allow for FAST Docker containers to spin up on Marine Corps IMS infrastructure. This statement does not say that modifications of code and packaged scripts will not occur, but that FAST could run on Marine Corps infrastructure at the basic level.

Integrating FAST into the MOL FOS and developing FAST to leverage BPM support functions for HRDP IMS could help the Marine Corps standardize administrative procedures beyond current unit SOPs. Additionally, using this system with the MOL FOS would allow Commanders to have a business process management system for every administrative functional area that operates per the appropriate CGIP checklist and MCO—making FAST into an enterprise-wide BPM support system. Appendix G, the FAST Action Checklist, contains the example checklist generated from the responses captured in Appendix F, the FAST Process. The following information is provided:

[8] For more information about Traefik refer to their welcome to Traefik Labs documentation page available at https://doc.traefik.io/

[9] For more information about PostgreSQL database packages and development packages refer to the PostgreSQL Wiki available at https://wiki.postgresql.org/wiki/Main_Page

1. MCC: H99 (Naval Postgraduate School)
2. Grade: O3
3. Name: Gaylord, Focker
4. EDIPI: 1234567891
5. Dependents: Yes
6. Married: Yes
7. Component Code: Active Duty
8. ER Code Present: No ESR reported (Electronic Service Record)
9. Member to Member marriage: No
10. Less than 100% SGLI to their spouse: No
11. Is Marine's legal state of residence in: MO, NJ, NY, WV, OR, CT, IL, MT, OH, AR, or AZ?: Yes
12. Member located in the state of legal residence: No
13. Member has greater than 6 years and six months of cumulative Active Duty: Yes
14. Marine received a DFR advising the Marine of a required CSB election: None of the above.
15. Marine PEB or DES?: No
16. Marine electing to receive CSB, refuse, or already decided: Refusing
17. Does the Unit have Optical Digital Imaging Professional (ODI) available?: Yes
18. Has the command issued two types of ODI user accounts (User and Releaser)?: Yes
19. Do the user and releaser have access to OMPF?: Yes
20. Do the user and releaser have access to Unite Management Status Report (UMSR)?: Yes
21. Is this an initial scan or updated information?: Updated Information

Of these 21 questions, many could be answered automatically via software. However, such automatic features require connection and integration with MCTFS, MOL, and ODSE. Nevertheless, a simple review of the questions demonstrates how automation could look.

Question 1: This is not necessary and is not required unless attached at an IPAC or administratively to command with multiple MCCs. Question 4: requesting the member's EDIPI, provides the information for the following questions,

- 2-Grade,
- 3-Name,
- 5-Dependents,
- 6-Married,
- 7-Component Code,
- 8-ER code status,

- 9-member to member,
- 10- SGLI 100% to the spouse,
- 11-State of legal residence,
- 12-located in the legal state of residence,
- 13-time of cumulative Active Duty,
- 14-DFR advisory,
- 15-PEB or DES,
- 16-CSB election (known if already decided and submitted in MCTFS, otherwise ask).

Question 17: Is ODI Software available at the unit? This question could be automated per MARADMIN 615/21 *Marine Corps Enterprise Information Technology Service Management Service Asset* and configuration management directive for remedy records. Questions: 18, 19, 20 could be automatically known if in the future MCTFS contains a permissions and access table for the unit. Such a table would help simplify all the separate IMS, System Authorization Access Request (SAAR) record-keeping, and tracking requirements across various systems and functional areas.

Question 21: could be answered automatically via software reviewing the Marines file.

In a digital era, the Marine Corps and Marines are no longer have to conduct an audit with printed paper and wet-ink signatures. If the Marine Corps does continue to use antiquated methods, of course, there is an inherent risk of forgery of anyone's signature. Whereas certifying a digital document requires dual identification. It requires something the Marine has, Common Access Card (CAC) and something they know, their Personal Identification Number (PIN). In addition, legacy processes and procedures introduce vulnerabilities that digital methods have reduced.

Moreover, additional layers of authentification are possible with a digital process. Secondary means of authentification using personal phone numbers or email addresses previously registered in person and regularly audited. This secondary layer for dual authentification is common practice with personal email accounts with Gmail, Yahoo, Apple, or Microsoft, but to name a few examples. It uses the concept of something the user has, e.g., cell phone, tablet and something the user knows, PIN, screen lock, or something the person is, such as a biometric reader.

The process of printing paperwork to audit it in person with an administrative Marine is a legacy industrial era process that has persisted well into the digital age. Administrative Marines could make a mistake, and typographical errors could occur when entering an address for another Marine's response if they decided to update their Record of Emergency Data (RED). Luckily, the particular process of validating the service member's RED in person transferred into the MOL FOS. Many more processes and procedures could digitize, or the Marine Corps could eliminate a process if they are too byzantine or arcane.

To determine what should fall to the wayside as a human process, what software should automate, and what a Marine should complete themselves requires process analysis. FAST is the most recent example of what good process analysis will lead to, but FAST falls short of automating the processes and still requires Marines to execute the checklist. Next, this paper will conduct the same thorough analysis that created FAST. However, instead of solely administrative processes, the analysis will include the sociotechnical aspects of the Marine Corps PES.

FAST has shown promise in standardizing administrative processes, yet there is no wholesale FAST adoption. Presently, FAST is not listed on Marine Online under either the Resources tab or the Few good links tab. Additionally, while MARFORRES has mandated the use of FAST for the reserve forces, the active component has yet to incorporate FAST into the resources available for Marine Administrators formally. Further expansion and adoption of FAST can encourage better adherence to Marine Corps Orders and policies by eliminating any ambiguity in the processes involved in executing a policy. Mistakes are far more manageable when remembering every step and procedure relies on a digital tool and not a Marine alone. A FAST checklist for MCBCMAP could mitigate many of the errors and trends identified by MCAAT. Many of the trends in the results of the MCAAT inspection were errors of omission and poor process validation at the unit level.

B. MARINE CORPS PERFORMANCE EVALUATION SYSTEM

1. Evaluation Life Cycle

Logically, there is no more critical IMS tool provided to Marines than the APES. However, modeling the behavior of a sociotechnical system within and including APES shows that while the system works as prescribed, there are significant deficiencies. Instead of detailing identified deficiencies, it is essential to understand the PES evaluation life cycle. Within the first 30 days of a Marine reported on (MRO) assignment to a reporting senior (RS), "the MRO and RS will meet to establish and formalize a billet description for the MRO" (Manpower and Reserve Affairs, 2018, p. 15).

In preparing the fitness report, the RS must carefully review the PES guidance on that Marine's unique circumstance. The written portion is not pertinent to the analysis of this paper. Instead, analysis of the process is the focus. An RS must check for any date gaps or overlaps in the MRO fitness report history to ensure the occasion begins the day after the last Fitness Report ended. After completing each evaluation, the RS must route the completed Fitness Report to the Reviewing Officer (RO). An RO will either concur, disagree, or return the Fitness Report for corrections. If and when the Fitness Report is returned and has the RO's comments and markings, the RO routes the Fitness Report to Manpower Management Records and Performance Branch (MMRP-30) no later than 30 days after the Fitness Report occasion ending date.

2. MRO, RS, and RO Relationships

For example, suppose a Sergeant is getting a Fitness Report evaluation. In that case, the Sergeant is the MRO, the Sergeant's Lieutenant (supervisor) is the RS for the Sergeant, and the Lieutenant's supervisor (Captain) is the Reviewing Officer (RO) for that Sergeant's Fitness Report.

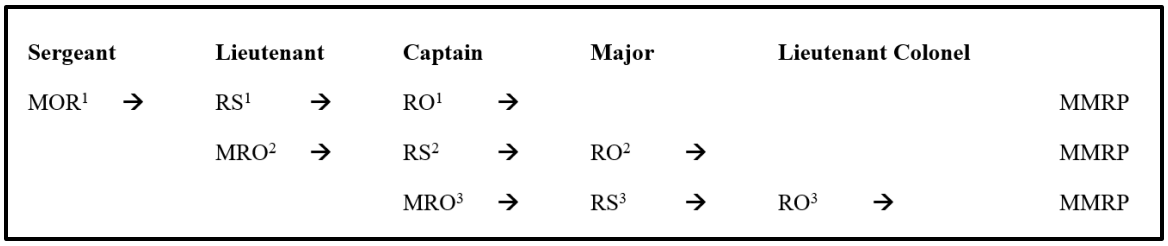


Figure 11. MRO, RS, RO Fitness Report Routing Relationships

The routing relationship described in Figure 11 is detailed and shows that each Marine is a Marine Reported On concerning their fitness report. Additionally, some Marines will act as an RS evaluating an MRO, and some will act as an RO and have RS responsibilities.

In preparing a Fitness Report, the RS must carefully review the PES guidance on that Marine's unique circumstances. Some substantial caveats and conditions cause commendatory or adverse Fitness Reports. Such conditions could be an award or nonjudicial punishment (NJP). In addition, the PES order provides direct guidance for directed comments for inclusion in the Marine's evaluation and Section I narrative.

To ensure that the fitness report is administratively correct, the RS must use either MOL or Marine Profile to verify all the data submitted in the MROW. The data is not auto-populated but manually entered and manually verified. Furthermore, the POS order recommends including the unit's senior enlisted leader (SEL) to assist in this process(Manpower and Reserve Affairs, 2018). An SEL is a trusted Staff Noncommissioned Officer (SNCO) who can provide insight into the officer's evaluation, ensure the accuracy of any factual statements, and review Section A for any administrative errors. Figure 12 is section A from the Marine Corps fitness report form.

3. Administrative Information

Figure 12 is the Administrative section of the Marine Corps Fitness Report NAVMC 10835. The data fields are filled by data the Marine previously entered in APES or manually entered on a subsequent screen inside APES. Little of the data automatically populates. When creating a new MROW, the MOL APES interface automatically populates

blocks 1.a-h, 2, and 3. Block 3 contains the occasion, from date, and the to date. A Marine must provide this information and locate their RS in the APES create MROW module. APES does automatically fill out Block 10 from the previously provided data.

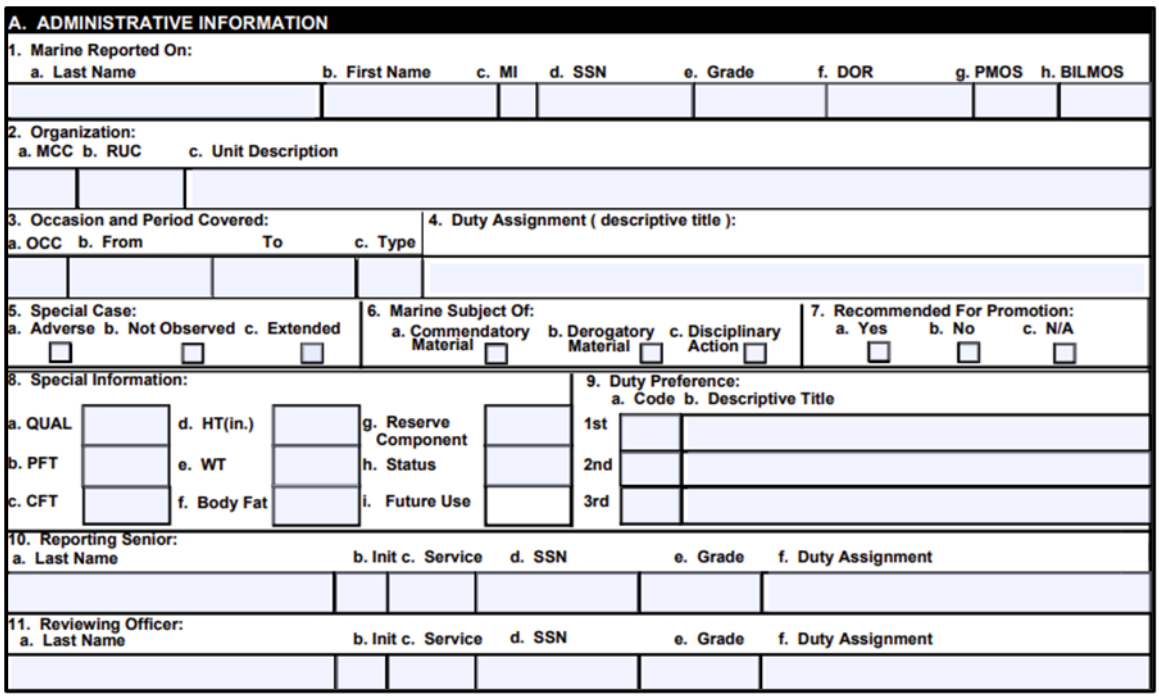


Figure 12. Section A NAVMC-10835. Source: Manpower and Reserve Affairs (2018).

Updates to the APES module could auto-populate blocks 5 through 11 from existing MCTFS data. At the same time, MCTFS experiences a latency between when events happen in the Marine Corps and when those events appear in MCTFS. Suppose the system's updates did not include demographic and personal data automation. In that case, it should, at a minimum, provide the MROW, RS, and RO an alert before routing if a field does not match MCTFS or conflicts with the occasion dates. Incorrect occasion dates could create a date gap or overlap for a Marine that would require more administrative work to correct. Basic logic in MCTFS and APES could eliminate human errors that produce date gaps and overlaps simply by automatically populating the beginning date for the new Fitness Report occasion as the last fitness report ending date plus one.

Commanders' responsibility is to ensure that all the Marines receive their fitness reports on time and are in accordance with the PES order (Manpower and Reserve Affairs, 2018). The PES order has outlined the 12 occasions for a Fitness Report, minimum observation time, and conditions for omitting or extending a Fitness Report to ensure consistent and timely evaluations (Manpower and Reserve Affairs, 2018). These occasions are event-driven and reflect the starting and ending of any Fitness Report. While most events are known well ahead of time, it is challenging to maintain cognitive awareness of all the specific fitness report requirements and apply those rules flawlessly for upwards of a hundred sergeants and above in a single command.

While not specified in the order, it is widespread that each command has some form of Fitness Report tracker, commonly in an Excel spreadsheet. Frequently, the Battalion Adjutant would maintain and manage such a tracker with the battalion and company-level SEL (Training and Education Command, 2020). This tracker also meets the CGIP question 0106, requiring that the command maintain a log annotating the fitness report inventory check for every E-5 to O-5 (Newbold, 2021).

Presently, Marines must complete most aspects of the Fitness Report manually, like the paper process that preceded it. A-PES introduced improvements through electronic routing and spell check and some limited automated checks. Basic event-based logic and modernizations could reduce the tedious nature of Fitness Reports and allow officers to focus on the more critical aspects of evaluating performance and assessing potential. None of the intricacies described is an emergent behavior; while inefficient, Commanders have no other mechanism but for staff to labor over spreadsheets.

In Section I, the RS will write their evaluation of the Marine using less than 1,250 characters; these word pictures are concise and specific. Figure 13 is a snapshot of the RS/ RO report provided in a Marine's OMPF. Those ROs writing Fitness Reports must manage their profile to prevent marking inflation and ensure their evaluation markings align with their section I word picture.

4. Managing and Tracking an RS/RO Profile

An officer RSRO profile is not accessible in the same module as the fitness report, requiring looking at the information separately. Below is a printout of a *Reporting Senior Fitness Report List* generated from OMPF. The document is the Marine Corps' provided tracking tool for a Marine Corps officer to manage their profile. The RS profile is essential to evaluating the Marine to help ensure that they do not inflate their evaluation of Marine's performance. Since evaluations are inherently subjective, the Marine Corps weighs any evaluation against the other evaluations within that same RS profile. This allows promotion or selection board members to evaluate a Marines performance against other Marines the evaluator has also observed. That relative comparison is an objective measurement for a subjective system of evaluations. OMPF has provided all of this officer's fitness reports on the RS list and organizes the reports from the highest fitness report average to the lowest, including end of active service reports and unobserved reports. Therefore, end of active service fitness reports and unobserved fitness reports do not count against an officer's average.

In Figure 13 is the observed Fitness Reports in this officer's profile are reported in descending order of both rank and average. This allows an RS to see where a Marine would fall out numerically in their profile.

Reporting Senior Fitness Report List
CAPT I AM SMITH
SSN: XXX-XX-XXXX
As of: 20220124

MRO SSN (Last Four)	Last Name	From Date	To Date	Occ	FitRep Avg
MSGT					
3148	AABERG	02-Jun-19	18-Dec-19	TR	3.61
				Average By MRO Grade:	3.62
GYSGT					
3148	BAALMAN	12-Dec-18	01-Jun-19	GC	3.61
3148	CADIGAN	14-Jun-18	10-Oct-18	TD	3.53
1239	D'ALFONSA	19-Sep-19	30-Apr-20	CH	3.46
3148	EASTBURN	02-May-17	25-Apr-18	TD	3.3
7426	FREDRICKS	31-Jul-17	31-Dec-17	CH	3.23
				Average By MRO Grade:	3.43
SSGT					
9150	GAFNER	31-Aug-17	31-Dec-17	CH	3.38
7364	HADDOX	02-Oct-17	31-Dec-17	CH	3.07
7399	IDLEMAN	16-Aug-17	15-Dec-17	CH	3
7340	JAFFA	16-Aug-17	31-Dec-17	AN	2.92
9890	KAHLE	12-Aug-17	29-Dec-17	TD	2.69
9628	LA COLA	15-Jun-17	05-Jul-17	TR	N/A
				Average By MRO Grade:	3.02
SGT					
7147	MACFADDEN	01-Apr-18	31-Mar-19	AN	3.23
1718	NAISER	30-Sep-17	31-Dec-17	CH	2.84
3091	O'HAIR	02-Aug-17	31-Dec-17	CH	2.84
8322	PEARLMAN	01-Aug-17	31-Dec-17	CH	2.69
7122	QUENNEVILLE	09-Jan-19	26-Apr-19	TD	2.69
7794	RABENSTEIN	17-Jan-19	23-May-19	CD	2.61
0441	STEVENSON	29-Jul-17	31-Dec-17	CH	2.61
0009	THOMPSON	25-Sep-17	31-Dec-17	CH	2.61
1023	UZZLE	01-Aug-17	31-Dec-17	CH	2.53
4569	VEITENHEIMER	26-Sep-17	31-Dec-17	CH	2.53
9889	WAGGONER	25-Sep-17	31-Dec-17	CH	2.46
3730	XUE	16-Aug-17	31-Dec-17	CH	2.3
7455	YOSHIMOTO	12-Aug-17	31-Dec-17	CH	2.3
8127	ZAKRAJSKI	01-Oct-17	31-Dec-17	CH	2
				Average By MRO Grade:	2.59

Figure 13. Reporting Senior Fitness Report List. Adapted from Manpower and Reserve Affairs (2018).

The RS profile in Figure 14 is a consolidated listing of the RS Fitness Report marking averages by rank. It includes the highest and the lowest markings of each rank and the total number of observed reports.

Reporting Senior's Profile

CAPT I AM SMITH

SSN: XXX-XX-XXXX

As of: 20220124

Grade	Average	# of Report	High	Low
MSGT	3.62	1	3.62	3.62
GYSGT	3.43	5	3.62	3.23
SSGT	3.02	5	3.38	2.69
SGT	2.59	14	3.23	2

Figure 14. Reporting Senior's Profile. Adapted from Manpower and Reserve Affairs (2018).

A consolidated report is also available that shows only an officer's averages. Above is one of those reports. Maintaining an officer's profile as an RS or RO is critical to ensuring that fitness Reports remain an accurate means for assessment. When writing a Fitness Report, an officer should first write the Section I comments and ensure it only reflects the discrete reporting period (Manpower and Reserve Affairs, 2018). After completing the write-up, one should go back through and mark the 14 attribute marks and ensure that the marks are in context with that officer marking philosophy. Furthermore, reviewing the officer's marks and comparing the markings to previous reports allows for any minor adjustments as required; the PES order provides an example and clarification:

> The purpose of going back through a report to compare attributes is to check one's work. For example, if an RS gave a Marine an attribute mark of "D" for performance, but for other Marines within the same profile with comparable performance the RS gave attribute marks of "C," then the RS would be able to identify the inflated mark and re-mark it to more appropriately align it with the his/her historical standard. Attribute comparison IS NOT a process to enable a RS to write to a profile. (Manpower and Reserve Affairs, 2018, p. 76)

Described above is the process verbatim as outlined in *Reporting Senior Checklist* of the PES order. The *Reporting Senior Checklist* is available for review as Appendix A of this thesis. An officer's Fitness Report profile and the list are not resources to help an

officer write to a profile but to manage their profile. Additionally, there are no visualization tools available to present an officer's profile to a Marine to help clarify any confusion or help communicate expectations during the mandated initial counseling. This deficiency in the Marine Corps provided tracking system has led officers to create an additional tracker to manage their RS RO profile. The Marine Corps deemed performance evaluation the utmost critical importance in the organization's HRDP; officers' behavior reinforces the importance of performance evaluations.

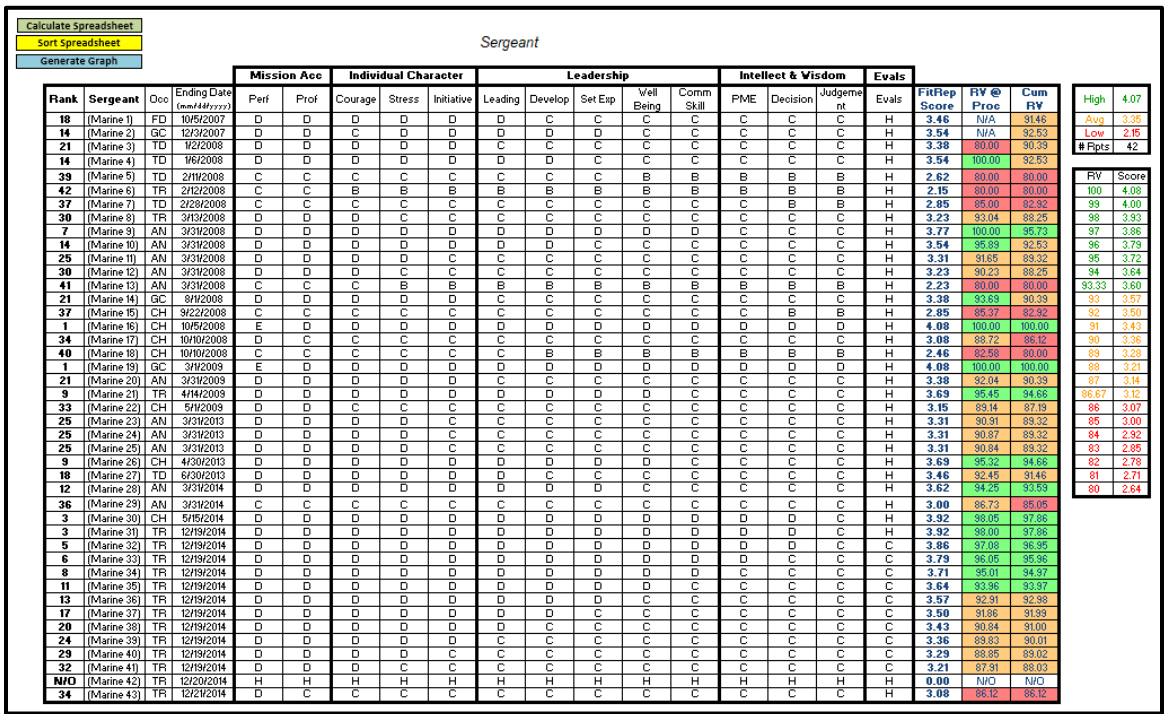
5. Tracking Methods External to Marine Corps Oversight

In 2014, then Captain Thomas Kulisz decided to create a better Fitness Report tracker than the Marine Corps. Now a LtCol, his justification remains unchanged eight years later. LtCol Kulisz articulates it as follows:

- Marines deserve leaders capable of managing their careers.
- Leaders deserve credible tools to do this accurately and fairly.
- As professional Marine Officers, it is critical to have an effective and accurate way to track your RS profile. This FitRep Tracker is what our Marines deserve from their leaders. (T. Kulisz, February 10, 2022)

Presently, the FitRep Tracker he created has been updated 21 separate times based on feedback provided by Marine Officers through direct correspondence over his website http://fitreptracker.wordpress.com. Notable features that Marines requested were graphing options and Fitness Report sorting functions. Unfortunately, the FitRep Tracker website did not record the number of downloads, and there is no way of substantiating how much officers use this particular tracker. However, this FitRep Tracker is popular enough among officers that in 2016, at the Basic Officer School, Quantico Virginia, Basic Officer Course Delta Company students received a version of it. Each Basic Officer Course company has 300 student officers. While there is no quantitative evidence available currently to validate how many officers use an external FitRep Tracker, is it well known that many officers do. Officers use an external FitRep Tracker for various reasons. However, LtCol Kulisz articulates that for many, it is because of the features, ease of use, and ability to see all the information in one place (T. Kulisz, February 10, 2022).

Figure 15 shows what the FitRep Tracker provides as a replacement for the Marine Corps tools. While this is only an example of what the tracker provides, it does consolidate all the information an officer needs when writing Fitness Reports to a single location, unlike the Marine Corps provided tools.



Calculate Spreadsheet | Sort Spreadsheet | Generate Graph

Sergeant

				Mission Acc		Individual Character			Leadership					Intellect & Wisdom			Evals			
Rank	Sergeant	Occ	Ending Date (mm/dd/yyyy)	Perf	Prof	Courage	Stress	Initiative	Leading	Develop	Set Exp	Well Being	Comm Skill	PME	Decision	Judgement	Evals	FitRep Score	RV @ Proc	Cum RV
18	(Marine 1)	FD	10/5/2007	D	D	D	D	D	D	C	C	C	C	C	C	C	H	3.46	N/A	91.46
14	(Marine 2)	GC	12/3/2007	D	D	C	D	D	D	D	D	C	C	C	C	C	H	3.54	N/A	92.53
21	(Marine 3)	TD	1/2/2008	D	D	D	D	D	C	C	C	C	C	C	C	C	H	3.38	80.00	90.39
14	(Marine 4)	TD	1/6/2008	D	D	D	D	D	D	D	C	C	C	C	C	C	H	3.54	100.00	92.53
39	(Marine 5)	TD	2/11/2008	C	C	C	C	C	C	C	C	B	B	B	B	B	H	2.62	80.00	80.00
42	(Marine 6)	TR	2/12/2008	C	C	B	B	B	B	B	B	B	B	B	B	B	H	2.15	80.00	80.00
37	(Marine 7)	TD	2/28/2008	C	C	C	C	C	C	C	C	C	C	C	B	B	H	2.85	85.00	82.92
30	(Marine 8)	TR	3/13/2008	D	D	D	C	C	C	C	C	C	C	C	C	C	H	3.23	93.04	88.25
7	(Marine 9)	AN	3/31/2008	D	D	D	D	D	D	D	D	D	D	C	C	C	H	3.77	100.00	95.73
14	(Marine 10)	AN	3/31/2008	D	D	D	D	D	D	D	C	C	C	C	C	C	H	3.54	95.89	92.53
25	(Marine 11)	AN	3/31/2008	D	D	D	D	C	C	C	C	C	C	C	C	C	H	3.31	91.65	89.32
30	(Marine 12)	AN	3/31/2008	D	D	D	C	C	C	C	C	C	C	C	C	C	H	3.23	90.23	88.25
41	(Marine 13)	AN	3/31/2008	C	C	C	B	B	B	B	B	B	B	B	B	B	H	2.23	80.00	80.00
21	(Marine 14)	GC	8/1/2008	D	D	D	D	D	C	C	C	C	C	C	C	C	H	3.38	93.69	90.39
37	(Marine 15)	CH	9/22/2008	C	C	C	C	C	C	C	C	C	C	C	B	B	H	2.85	85.37	82.92
1	(Marine 16)	CH	10/5/2008	E	D	D	D	D	D	D	D	D	D	D	D	D	H	4.08	100.00	100.00
34	(Marine 17)	CH	10/10/2008	D	C	C	C	C	C	C	C	C	C	C	C	C	H	3.08	88.72	86.12
40	(Marine 18)	CH	10/10/2008	C	C	C	C	C	C	B	B	B	B	B	B	B	H	2.46	82.58	80.00
1	(Marine 19)	GC	3/1/2009	E	D	D	D	D	D	D	D	D	D	D	D	D	H	4.08	100.00	100.00
21	(Marine 20)	AN	3/31/2009	D	D	D	D	D	C	C	C	C	C	C	C	C	H	3.38	92.04	90.39
9	(Marine 21)	TR	4/14/2009	D	D	D	D	D	D	D	D	D	C	C	C	C	H	3.69	95.45	94.66
33	(Marine 22)	CH	5/1/2009	D	D	C	C	C	C	C	C	C	C	C	C	C	H	3.15	89.14	87.19
25	(Marine 23)	AN	3/31/2013	D	D	D	D	C	C	C	C	C	C	C	C	C	H	3.31	90.91	89.32
25	(Marine 24)	AN	3/31/2013	D	D	D	D	C	C	C	C	C	C	C	C	C	H	3.31	90.87	89.32
25	(Marine 25)	AN	3/31/2013	D	D	D	D	C	C	C	C	C	C	C	C	C	H	3.31	90.84	89.32
9	(Marine 26)	CH	4/30/2013	D	D	D	D	D	D	D	D	D	C	C	C	C	H	3.69	95.32	94.66
18	(Marine 27)	TD	6/30/2013	D	D	D	D	D	D	C	C	C	C	C	C	C	H	3.46	92.45	91.46
12	(Marine 28)	AN	3/31/2014	D	D	D	D	D	D	D	D	D	C	C	C	C	H	3.62	94.25	93.59
36	(Marine 29)	AN	3/31/2014	C	C	C	C	C	C	C	C	C	C	C	C	C	H	3.00	86.73	85.05
3	(Marine 30)	CH	5/15/2014	D	D	D	D	D	D	D	D	D	D	D	D	C	H	3.92	98.05	97.86
3	(Marine 31)	TR	12/19/2014	D	D	D	D	D	D	D	D	D	D	D	D	C	H	3.92	98.00	97.86
5	(Marine 32)	TR	12/19/2014	D	D	D	D	D	D	D	D	D	D	D	D	C	C	3.86	97.08	96.95
6	(Marine 33)	TR	12/19/2014	D	D	D	D	D	D	D	D	D	D	D	C	C	C	3.79	96.05	95.96
8	(Marine 34)	TR	12/19/2014	D	D	D	D	D	D	D	D	D	D	C	C	C	C	3.71	95.01	94.97
11	(Marine 35)	TR	12/19/2014	D	D	D	D	D	D	D	D	D	C	C	C	C	C	3.64	93.96	93.97
13	(Marine 36)	TR	12/19/2014	D	D	D	D	D	D	D	D	C	C	C	C	C	C	3.57	92.91	92.98
17	(Marine 37)	TR	12/19/2014	D	D	D	D	D	D	D	C	C	C	C	C	C	C	3.50	91.86	91.99
20	(Marine 38)	TR	12/19/2014	D	D	D	D	D	D	C	C	C	C	C	C	C	C	3.43	90.84	91.00
24	(Marine 39)	TR	12/19/2014	D	D	D	D	D	C	C	C	C	C	C	C	C	C	3.36	89.83	90.01
29	(Marine 40)	TR	12/19/2014	D	D	D	D	C	C	C	C	C	C	C	C	C	C	3.29	88.85	89.02
32	(Marine 41)	TR	12/19/2014	D	D	D	C	C	C	C	C	C	C	C	C	C	C	3.21	87.91	88.03
N/O	(Marine 42)	TR	12/20/2014	H	H	H	H	H	H	H	H	H	H	H	H	H	H	0.00	N/O	N/O
34	(Marine 43)	TR	12/21/2014	D	C	C	C	C	C	C	C	C	C	C	C	C	H	3.08	86.12	86.12

High	4.07
Avg	3.35
Low	2.15
# Rpts	42

RV	Score
100	4.08
99	4.00
98	3.93
97	3.86
96	3.79
95	3.72
94	3.64
93.33	3.60
93	3.57
92	3.50
91	3.43
90	3.36
89	3.28
88	3.21
87	3.14
86.67	3.12
86	3.07
85	3.00
84	2.92
83	2.85
82	2.78
81	2.71
80	2.64

Figure 15. FitRep Tracker Example for an RS Fitness Reports on Sergeants. Source: Kulisz (2021).

Figure 15 is an example of what an RS profile would look like using the FitRep Tracker. It uses colors to highlight the high and low-value Fitness Reports and also provides multiple sorting functions to organize the reports for the RS, allowing for better readability for the individual user.

A far more popular feature is the FitRep Tracker's ability to graph and visualize all of an RS Fitness Report markings. Graphing all the Fitness Reports provides a simple means of seeing where a new Fitness Report falls out compared to the RS marking trend, report history, and averages. For example, Figure 16 demonstrates what the Sergeant RS example looks like when graphed using the FitRep Tracker.

A graph can easily communicate the information an RS needs to ensure that their markings align with their marking trend for any given occasion. Additionally, it is far easier to visually identify where a Marine falls out relative to an RS profile than when comparing a list of numbers in descending order.

In Figure 16, the graph produced using the same data as the example above. The solid line shows the RS marking trend at processing for each Fitness Report occasion. The Square shows the RV at processes, indicating where a Marine fell out when the Fitness Report was processed by MMRP relative to the RS's overall marking average.

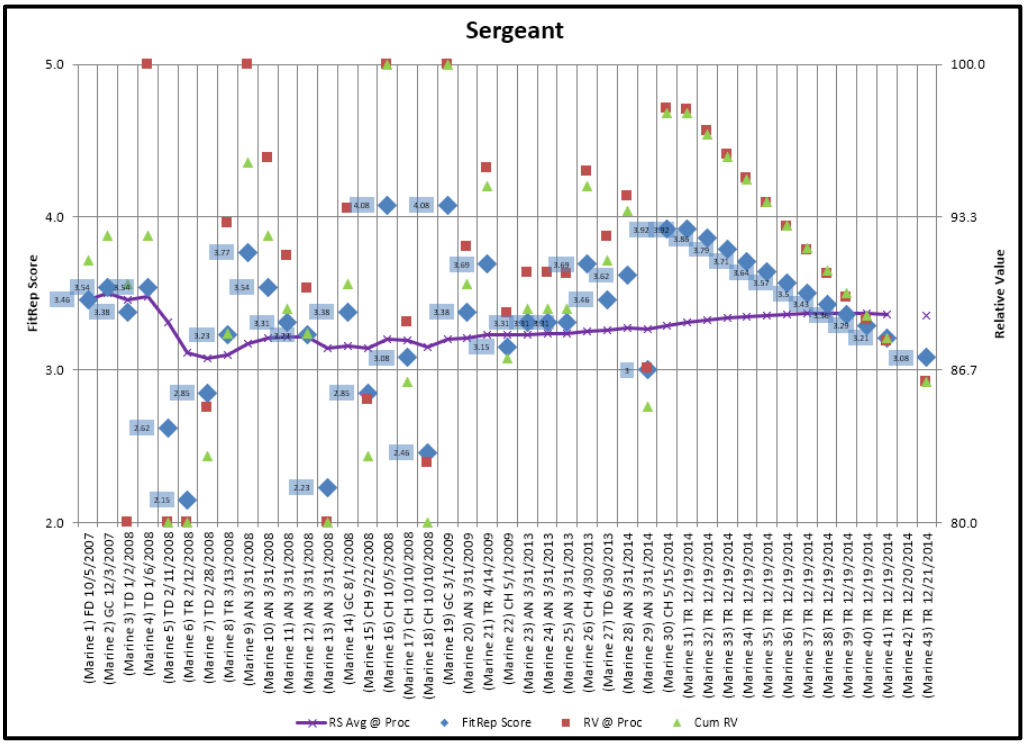


Figure 16. FitRep Tracker Example Graph for an RS Sergeant Fitness Report Profile. Source: Kulisz (2021).

The existence of the FitRep Tracker and its proliferation from officer to officer is emergent behavior with the socio-technical system (STS) that encompasses the Fitness Report life cycle. While the existence of the FitRep Tracker is not in violation of any part of the PES order –the when and how of an officer's utilization of the FitRep Tracker within

the Fitness Report process could be. An STS can reinforce the intentions and procedures within the PES order, or it can circumvent intended procedures and undermine the PES order's overarching intentions. MP models demonstrate the specified process within the PES order and the executed process within the Marine Corps. There are some significant differences, and over time the STS has created entirely new procedures in addition to the PES order.

6. APES and the HRDP

Suitable or deficient business operations and process management practices of the MCBCMAP directly affect the Marine Corps Automated Personnel Evaluation System (APES). Additionally, the issues or discrepancies with units' internal MCBCMAP directly affect the promotion process for Marines, retention for the Marine Corps, and leaders' ability to maintain Marine Corps Standards consistently. The Marine Corps performance evaluation system (PES) directly impacts every Sergeant to Major General; assessing current performance and future potential is the "most important component in manpower management" (Manpower and Reserve Affairs, 2018). General Krulak, 31st CMC, summarized it as such: "therefore, the completion of this report is one of an officer's most critical responsibilities" (Manpower and Reserve Affairs, 2018). Assessing Marines' 'talent' is fundamental to TM2030. So much so that the PES order specifies the following: "Requirements in this Order are binding on all commanders, OICs, and personnel serving as reporting officials.. Any deviation from instructions in this Order must be authorized by the CMC (MMRP-30)" (Manpower and Reserve Affairs, 2018, p. 11). If requirements are binding, it stands that no emergent behavior is acceptable nor authorized because the PES is a considerable component of the HRDP:

> Primarily, the PES supports the centralized selection, promotion, and retention of the most qualified Marines of the Active and Reserve Components. Secondarily, the PES aids in the assignment of personnel and supports other personnel management decisions as required.
> (Manpower and Reserve Affairs, 2018, p. 12)

7. Discrepancies and Potential Solution Concepts

There are other deficiencies when considering all the nuances of the PES order; while the order requires officers not to deviate from it, the mechanisms for inspecting are limited. First, when using MP to model individual behaviors and interactions during a single reporting period, there is significant duplication of work to ensure the administrative correctness of information the Marine Corps already has. Secondly, the gaps in the process show that specific steps are not inspectable.

Finally, current requirements in the order and the CGIP do not necessarily align and support each other. This misalignment is because requiring commands to produce and retain initial counseling paperwork would create an undue burden. It is possible to choose not to inspect requirements because the institution does not want to inspect them. Not inspecting for any requirement equates to the nonenforcement of the requirements.

The MP model below shows all the standard observed fitness report requirements with no adverse material or exceptional circumstances. The model highlights the potential for redundancies in the distribution of labor. Administrative requirements are checked nearly at each stage of the process when the Marine Corps already knows each Marine's rifle qualification, height, and weight, billet identification, MOS, billet MOS, PFT, and CFT score. MCTFS already has reporting codes for personal awards or administrative paperwork to warrant an adverse report.

Addressing any of these outlined deficiencies and making any changes would require cross-organizational dialogue between the Technology Services Organization (TSO), Marine Corps System Command (MARCORSYSCOM), M&RA, and TECOM. Each department owns a different IMS within the whole system, and the organizations that inspect those systems have no authority to direct the system owner to make the necessary updates. For example, MMRP-31 in M&RA manages the PES inspection program and is responsible for MCTFS. While TECOM and MARCORSYSCOM jointly manage MCTIMS (Monta, 2019). There is no single authority overseeing any modernization efforts, let alone any process analysis at the individual level.

When modernization efforts occur, they are often disjointed, undermining each other's objectives without close coordination and agreements to fulfill other organizations' requirements. The composition of the proposed oversight working groups should account for each stakeholders' enterprise, technology, computational, engineering, and information viewpoints. Each stakeholder's perspectives and priorities are different across these different viewpoints. When organizations consider all of these viewpoints collectively in light of each other, specific requirements and reusable concepts materialize. Defining achievable program specifications is impossible without collective agreed-upon specificity and abstract concepts in requirements across stakeholders.

Figure 17 shows the individual trace of all the sequences required for a standard Fitness Report. The example in Figure 17 shows the Marine Online Family of Systems as a potential swim lane. Since the Marine completes all the actions taken, the RS, RO, or SEL, no actions entirely occur within MOL. The trace shows that the entirety of the process is entirely manual; nothing is automatically completed for the Marine. This lack of automation is not for lack of capability but a lack in demand signals in the Marine Corps for a better APES. The present system and status quo seem adequate, but only because the Marine Corps does not evaluate all the requirements of the PES manual with CGIP FAC. As the adage goes—you inspect what you inspect.

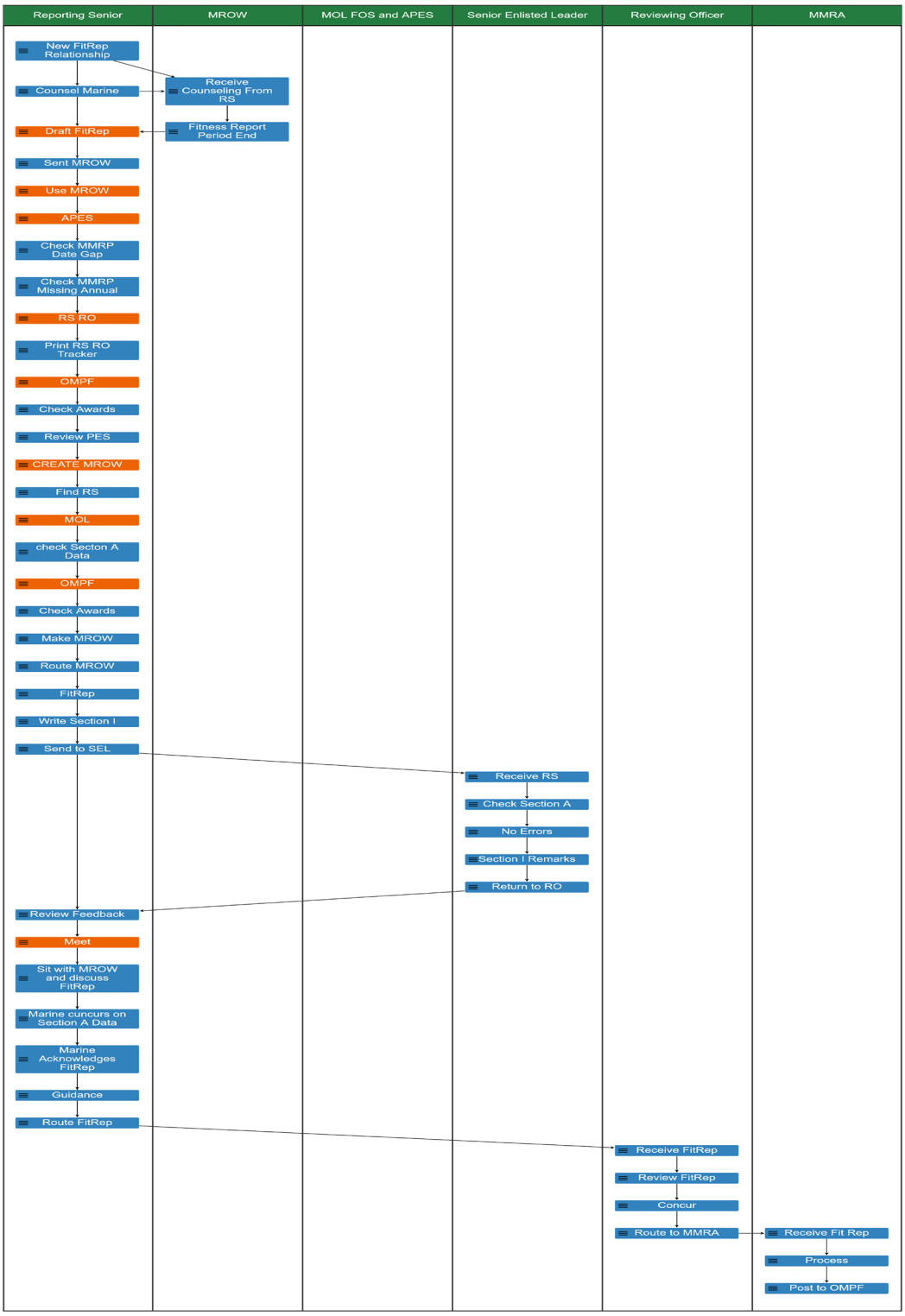


Figure 17. Monterey Phoenix Trace Model of the Fitness Report life cycle. The Schema is available in Appendix I.

Nowhere in the Marine Corps PES process does the Marine Corps outline, describe, dictate or specify the use of a Reviewing Officer worksheet (RO worksheet). As a result, the RO worksheet has emerged resulting from many ROs' not having enough meaningful contact with the MRO during a reporting period. An RO worksheet is thought of as a tool to help facilitate their portion of the fitness report process. In the absence of guidance from the Marine Corps, emergent behavior within the fitness report life cycle has evolved different across the Marine Corps.

Over time Marine Corps personnel at each echelon of command have created their own version of an RO worksheets. Any variation in these RO worksheets demonstrate different priorities for the respective organization and allow an RS to partially write comments for both the Section I and Section K of the fitness report. Ultimately, while Section K comments fall on the RO, different RO worksheets allow an RS to write suggested Section K comments. Such suggested comments create an opportunity where an RS may write all the comments within a Marine's Fitness Report.

Figure 18 shows how much these worksheets can vary from command to command, with some ranging from the bare essentials and others requiring details ranging from PME and graduate level education. These differences visibly demonstrate the variations across the Marine Corps in executing the requirements of the PES manual.

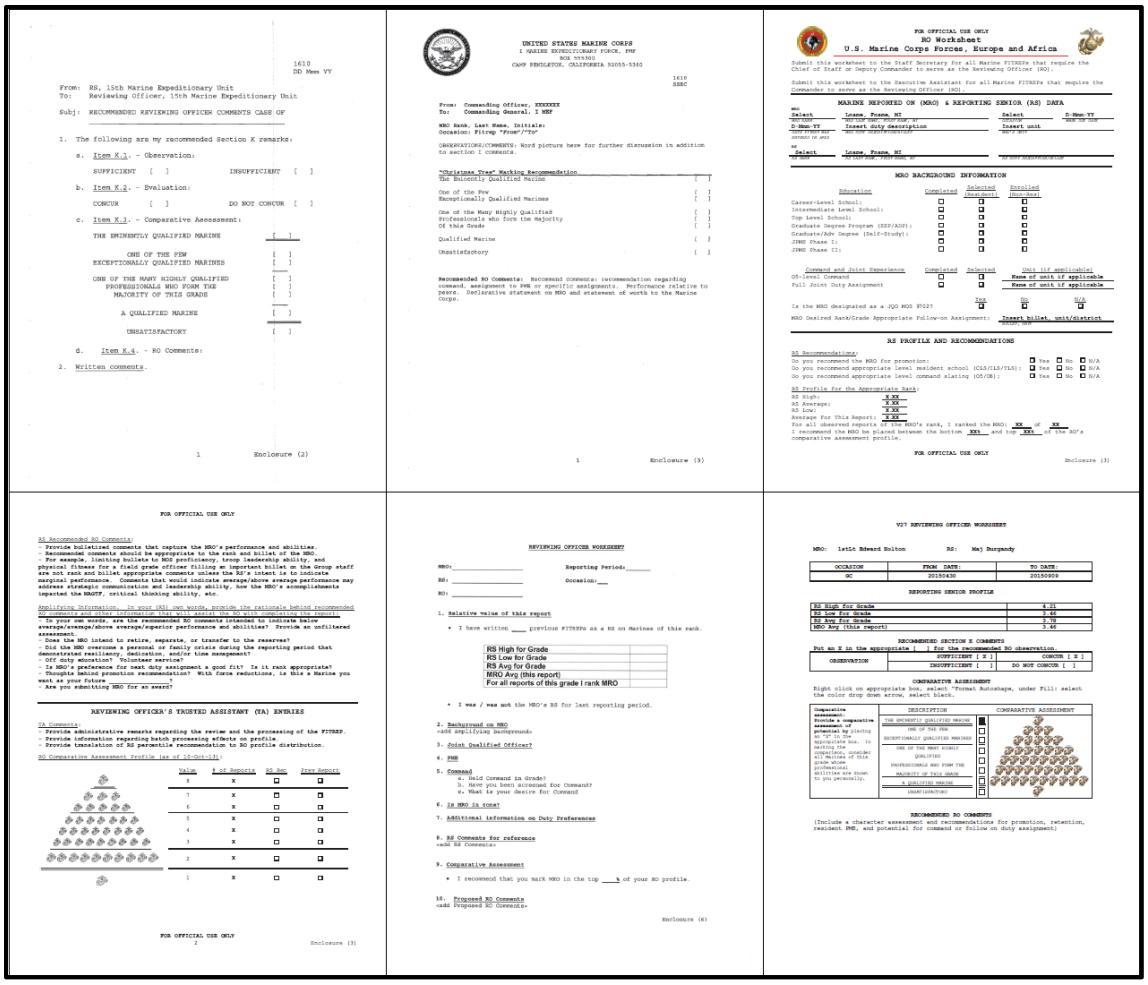


Figure 18. Snapshot of four different RO Worksheets. Sources: 15th Marine Expeditionary Unit (2011), Marine Corps Forces Command (2019), Marine Corps European and Africa Command (2017), and 2d Battalion Seventh Marines Reviewing Officer Worksheets (2015).

This is a substantial concern when one is to consider that the Marine Corps requires that the PES be consistent across the Marine Corps to allow fair and objective evaluations of Marines. Processes at the individual level affect how Marines will be and are evaluated. Nonuniformity of process across the Marine Corps implies that Marines experience degrees of quality within the PES. Emergent behavior such as the RO worksheet is inconsistent with the PES manual yet a widely accepted and encourage behavior across the FMF. Full copies of these RO worksheets are available in Appendix J.

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C. COMMANDING GENERAL INSPECTION PROGRAM 1610 (PES)

Most recently, on July 19, 2021, the Inspector General of the Marine Corps updated the functional area (FA) CGIP checklist for MCO 1610.7A Performance Evaluation System. Currently, this checklist has six questions; the following section will analyze the inspection question to determine whether an IMS solution is possible and present the general premise of such a solution. An exact copy of the CGIP FA checklist is available in Appendix B.

1. Question 0101

0101	Based on a comparison of the command's non-judicial punishment (NJP) and court martial files against the Fitness Report Inventory of applicable Marines, is the command submitting "Directed by the Commandant of the Marine Corps" (DC) or "Grade Change" (GC) reports when significant administrative, commendatory, or adverse action on the Marines that requires immediate reporting to the CMC? This includes when Marines have substantiated incidents of domestic violence, or child abuse. Note: "FITREP Inventory" tool is located in MOL under Resources, APES, MMRP Reference: MCO 1610.7A, chap 3, par 4b

Figure 19. CGIP FA Checklist 1610 PES Question 0101. Source: Newbold (2021).

Presently, the inspection team would have a unit's legal officer or legal clerk pull the NJP records court martial records, and the PES manager pulls a Fitness Report Inventory. After which the inspection team would then compare the two sets of records to check for DC and GC against the legal records. If the legal records are in disarray or nonexistent, the inspection team would have to get data from MCTFS. IPAC could help provide this data, and the MOL Reports module could also help provide data. MCTFS already records many if not all events that would warrant a DC Fitness Report. Having a unit keep either digital or paper records for inspections are redundant to other authoritative systems of record.

Given that the unit has all the appropriate records for any events leading to a DC report, a Marine would have to compare those records to the Fitness Report inventory

manually. A Marine manually inspecting a unit requires Marines to travel to the unit. This manual inspection process is time-consuming for the Marine doing the inspection and the Marine getting inspected. Humans conducting the inspection also permits human error to enter into the equation. At the same time, the final judgment of a FA passing or failing an inspection with noteworthy results, findings, or discrepancies is the inspection team's responsibility. However, the process of manually inspecting the records does not necessarily require a Marine; a software solution could conduct the inspection and produce a report for the inspection team. Marines use APES to conduct performance evaluations, and APES is a web-based software with digital records. This report could be viewed physically at the command or remotely. A remote inspection would save traveling time and the associated cost for inspection teams from travel claims.

In the MCTFS, any aspects of question 0101 described events are captured and recorded. MCTFS logic could compare all unit diary transactions against all the Fitness Reports in a command on a scheduled basis. Embedding MCTFS logic would keep the CGIP inspection team abreast of any unit's proper utilization of DC reports in the case of NJP, GC, Summary Court Martials (SMC), Special Court Martilas (SPCM), General Court Martials (GCM), and domestic violence or child abuse (substantiated). Automated MCTFS logic and a Commander's dashboard could provide an immediate snapshot for remote inspections and routine process audits. Such a tool would reduce some of the administrative requirements of the current inspection system, linking Command Legal Action (CLA) to trigger an alert for DC Fitness Reports when appropriate events occur, e.g., ADSEP, NJP, SCM. Much of the inspection process could be reduced or eliminated while increasing the resources available for a Commander to ensure that the PES manual is followed appropriately at their command. Specifically, the following tables in ODSE would provide all the data required to check if Marines were receiving appropriate DC Fitness Reports automatically:

Table 1. ODSE Tables for DC Fitness Report Automation in APES. Source: Manpower Information Branch (2022).

Table Number	Table Name	Table Number	Table Name
R119	Legal Action	R111	CO Assignment Relieved
R114	Military Appearance	R197	Promotion Restriction
R172	Punitive Reduction History	R113	Weight Control
R212	Court Martial NJP Status	R143	Awards
R300	Separations	R984	Reserve absence from individual drill time

The data already exists to inform inspection teams if a command uses DC reports adequately or incorrectly without inspecting any paper records. Automation of this inspection would increase the Marine Corps' awareness of institutional adherence to the PES manual without creating an undue burden on commands. In actuality, such a system is likely to increase adherence and reduce administrative burdens.

2. Question 0102

0102	Does a review of training documentation (training rosters, training material, LOIs, local PME unit diary entries, etc.) support the conduct of annual master brief sheet training (non-reporting officials, new reporting officials, mid-level reporting officials, and senior reporting officials)? Note: Power Point presentations are available at https://www.manpower.usmc.mil/webcenter/portal/MMRP30 Reference: MCO 1610.7A, chap 8, par 4; and chap 9, par 5d(1)

Figure 20. CGIP FA Checklist 1610 PES Question 0102. Source: Newbold (2021).

The training requirements for this CGIP inspection currently provide the material for small unit leaders to conduct the training. The reporting requirements for recording the training allow for paper records, an Excel spreadsheet, or a logbook. A loss of synchronicity across Marine Corps Programs allows for the acceptance of multiple recording methods. That CGIP question does not reinforce MCO Findings and Recommendation 1553.10 Marine Corps Training Information System (MCTIMS) Standard Operating Procedures (SOP) guidance. In the said order, Commanding Generals, Commanding Officers, Officer-on-Charge in the operating forces and supporting establishment receive the following guidance:

> Direct all MSCs to track, record, and report collective and individual training with the MCTIMS UTM module in accordance with the guidance outlined in reference (d) [MCO 1553.3 Unit Training Management Program] and this Order [MCO 1553.10 MCTIMS SOP]. (Combat Development and Intergration Command, 2014, p. 2)

While keeping paper records, logbooks, or Excel meets the requirement and intent for the PES, accepting any other method outside the utilization of MCTIMS for recording the training events undermines another Marine Corps program and the TM2030 initiative to use more and better data. Moreover, not using MCTIMS to record any training events is particularly counterproductive since M&RA and TECOM establish and maintain the following requirements:

> Maintain a system interface between MCTIMS and Marine Corps Total Force System (MCTFS). MCTFS will maintain a systems interface with MCTIMS to ensure authoritative training completion date for annual and ancillary training requirements is provided for pay, promotion, and other administrative purposes as required. (Combat Development and Intergration Command, 2014, p. 2)

MCTIMS is the authoritative source for all training and provides easily accessible training reports for Commanders and their staff. Presently, MCTIMS already has a training event for the Performance Evaluation System (PES) as a calendar year annual training event. This training event's originating authority is the Marine Corps Intelligence School Training Command. Therefore, M&RA (MMRP-31) or TECOM should take over maintaining the training event and coordinating the small unit leader training material

hosting on MCTIMS in addition to MMRP-31 keeping the PowerPoint Slides online. A second consideration is that TECOM manages MCO 1500.63 Marine Corps Individual Training and Education Requirements. Though MCO 1500.63 is the comprehensive listing of all annual training and education requirements, it does not cover all training requirements, particularly those rank-based training requirements.

For example, MCO 1500.63 does not list annual PES training or Casualty Assistance Program training for all SNCOs and officers, as outlined in MCO 3040.4 Marine Corps Casualty Assistance Program. Additionally, MCO 5100.29C established Marine Corps Safety Management System. In Volume 5, Chapter 1 of the order requires safety briefs for all military personnel prior to all "Prior to Holiday/Foreign Port Visits/ Return from Deployment/Change of Seasons/Lessons Learned After Significant [Recreational Off-Duty Safety] Mishaps" (Safety Division, 2021, p. 256). Added annual training and briefing requirements for Marines do not necessitate other branches or departments' involvement. It reinforces that separately tracking every requirement creates unnecessary work for Marines while existing IMSs shall track these requirements MCTIMS and MCTFS.

More efficient integration of the PES, casualty, and safety requirements into MCO 1500.63 and MCTIMS would enable Commanders to have snapshot reports readily available in MCTIMS. Also, these training requirements would export to MCTFS. Such minor changes in MCO 1500.63 and CGI 1607 question 0102 requiring MCTIMS entries would synchronize different orders requirements and stipulations while simultaneously reducing the unit PES manager and other program managers from maintaining an additional tracker and records to comply with CGIP requirements.

The interconnectedness of MCOs and statutory requirements impose substantial burdens onto units and their Commanders. Every opportunity to synchronize any requirements reduces work for Marines increases efficiencies and compliance. While these orders seemingly do not relate directly to the PES, they are. The PES order specifies 28 different other required directed comments; two of which directly relate to safety and Marine Corps risk management are as follows:

> Extent of fulfillment of the execution and oversight of the command's safety policy, when applicable, but especially when MRO is filling an executive officer's or deputy commander's billet with their safety responsibilities.
>
> Extent to which all Marines, especially those whose billet specifically involves planning, supervision, training, and operational responsibilities, exhibit Operational Risk Management (ORM) ability to accomplish the mission. (Manpower and Reserve Affairs, 2018, p. 75)

Furthermore, much of the data in Section A, Administrative Information, trigger the directed comments specified in the PES manual. *Directed comments* are directed comments; the PES manual provides the exact language for the Section I directed comment, and the RS must review the Section A data to determine which directed comments warrant copying. System logic could automatically create and input each directed comment into an addendum page to Section I. Few of the directed comments would require a drop-down menu from which the RS could choose the appropriate comment. However, many obscure and dispersant orders have requirements for input into the PES manual, and presently the RS must manually search and evaluate each of them.

Some of the information affecting the directed comments remain separate from MCTIMS or MCTFS, and no Marine Corps database records track the information. For example, the PES manual requires a directed comment covering the MRO's professional development. The guidance is as follows: "Specifically comment on: Books read from the Commandant's Professional Reading List per reference (v) [Professional Military Education], formal and other PME attended, and self-education" (Manpower and Reserve Affairs, 2018, p. 81).

However, MCTIMS nor MCTFS have the means to record the books read from the Commandant's Reading List or for a Marine to report and record various types of self-education. Automating this directed comment can auto-populate any PME courses or off-duty education recorded in MCTIMS and MCTFS. Non-tradition off-duty education such as completing a Massive Online Open Course or a python programming camp has no suitable reporting mechanism. A Marine's interest changes over time; talent data is what they choose to pursue in education, no matter its form. The Marine Corps could use Fitness Reports to capture this data and allow RS to assess it.

3. Questions 0103, 0104, and 0105

Questions 0103, 0104, and 0105 of the PES CGIP FAC inquire into the storage and use of the Commanders Timeliness Report (CTR), missing last annual and data gap queries at the command. The underlying goal of these three reports is to ensure that Marines are not missing any Fitness Reports and that a Marine's Fitness Reports do not overlap or have date gaps over 30 days. Secondly, the report will show if each RS and RO completes Fitness Reports on time. Therefore, these three questions are analyzed together in the light of the intended goal.

0103	Is the command maintaining quarterly copies whether digital or hard copy of the following reports that cover the previous 12 months: Commander's Timeliness Report (CTR), Missing Last Annual, and Date Gap Query? Note: CTRs must be requested by submitting an email to the organizational email at smb.manpower.mmrp-31@usmc.mil along with the RUC and MCC of the command. Date gap and missing last annual queries are available in MOL under Resources, APES, MMRP web tool. Date gaps can be pulled by RUC/MCC. Missing last annual must be pulled by RUC/MCC and grade for all E5-O6. Reference: MCO 1610.7A, chap 9, paragraph 5f(1)-(4)
0104	Is the command actively using the CTR by notifying the reporting officials to ensure that fitness reports are submitted to HQMC within 30 days of the end of the reporting period for normal reports and 60 days for adverse reports? Reference: MCO 1610.7A, chap 1, par 3c
0105	Does a review of the Missing Last Annual Reports and Date Gap Queries reveal proactive efforts by the command notifying and assisting the Marine written on to ensure record discrepancies are corrected? For example, correcting date gaps, overlaps, or correcting occasion codes. Reference: MCO 1610.7A, chapter 9, par 5a(1)

Figure 21. CGIP FA Checklist 1610 PES Question 0103, 0104, and 0105. Source: Newbold (2021).

Question 0103 is simple in Figure 20. Does the command keep records of the three named reports for the last 12 months? Question 0103 is not required, given that an inspected unit could not answer questions 0104 and 0105 without records. Asking such a

question reveals no significant insight for inspectors that questions 0104 and 0105 do not already answer, directly or indirectly. Inspection questions 0104 and 0105 are intended to ensure that commands identify date gaps or overlaps for the unit's personnel between E5 and O5. Secondly, these questions ensure that the command utilized the CTR to identify RS or RO behind their reporting and routing requirements. An issue is immediately apparent in the minimum requirement of a quarterly request of the CTR. Four reports a year cover 90-day increments and help the unit's Commander identify a tardy RS or RO. However, it will not help the Marines whom Fitness Reports route after the 30-day requirement and potentially affected Marine's briefing for promotion or slating board.

The CTR is a retroactive report for individuals and unit-level that informs the Commander only after the Fitness Report is late. In reality, the CTR is a relic of an era when most RS and RO mailed Fitness Reports to MMRP-30 for processing and when Fitness Reports did get lost in the mail or at Marine's desk. Therefore, when 30-day increments measure timeliness, four quarterly 90-day CTRs will not help the individual Marine.

Such use of the CTR is reactive administration, whereas digitizing the initial counseling process and creating a TAD module for MOL would help forecast when TD and FD Fitness Report occasion would occur. Such tools would allow for a real-time Fitness Report dashboard that could show a commander if a Marine has started their MRO if an RS has created a Fitness Report if a Fitness Report was routed and pending with an RO. This real-time data would provide a Commander with tools to prevent Fitness Reports from being late in the first place. A Fitness Report dashboard would replace and standardize the various Excel spreadsheets leveraged across the FMF. Proactive administration and automated logic from MCTFS and APES would eliminate much of or all administrative errors and oversites, thus reducing the number of corrections of Fitness Reports. Date gaps and overlaps should be a thing of the past, and basic system logic using the existing MCTFS and ODSE relational tables is achievable.

A Fitness Report dashboard solution already exists in the form of the CTR. Instead of requiring units to email MMRP for the report, automated the report and create a module in APES for senior enlisted leaders, Commanders, with an option to grant permissions to

administrative personnel. Making an existing report readily available would provide Commanders access to the tools the Marine Corps already requires Commanders to utilize but retain at MMRP. Retaining the CTR at the institutional level dictated that MMRP will generate and email a minimum of 1,500 CTRs for individual commands every year. This practice creates unnecessary work for MMRP that could be automated and delegated to computer software.

Marine Corps leadership recognizes that any late Fitness Report would seriously jeopardize an individual Marine's competitiveness on a command selection board. Hence, MARADMIN 473/21 and 735/21 changed the Reserve and Active Duty field grade officers' annual reporting dates. These MARADMINs changed the annual Fitness Report date to April 31 for Majors, Lieutenant Colonels, and Colonels of the Active, Active Reserve, and Reserve components. In addition, Marine Corps leaders decided to deconflict the reporting timelines and the board by time at the institutional level. Therefore, these changes were in the institutional and individual Marine's interest and alleviated many potential ramifications across the HRDP. Figure 22 is the pre-change Annual Fitness Report Schedule.

Appendix A

Annual Fitness Report Schedule (AN and AR Reports)

	ACTIVE COMPONENT REPORTING PERIOD ENDS	RESERVE COMPONENT REPORTING PERIOD ENDS	ACTIVE RESERVE REPORTING PERIOD ENDS
RANK	LAST DAY OF	LAST DAY OF	LAST DAY OF
MAJ	MAY	SEP	JUN
LTCOL	MAY	JUN	JUN
COL	MAY	JUL	JUL

Annual Fitness Report Schedule (AN and AR Reports) post MARADMIN 473/21 and 735/21

	ACTIVE COMPONENT REPORTING PERIOD ENDS	RESERVE COMPONENT REPORTING PERIOD ENDS	ACTIVE RESERVE REPORTING PERIOD ENDS
RANK	LAST DAY OF	LAST DAY OF	LAST DAY OF
MAJ	MAY	APR	APR
LTCOL	APR	APR	APR
COL	APR	APR	APR

Figure 22. Annual Fitness Report Schedule for Annual Occasions. Adapted from Manpower and Reserve Affairs (2018).

In justification for changing field grade officers' annual Fitness Report dates, both MARADMINS 473/21 and 753/21 specified that:

> This adjustment will allow additional time for Fitness Report processing and inclusion in the OMPF prior to the commencement of the command Screening Board (473/21) and Reserve Professional Military Education Selection Boards (753/21). (Manpower and Reserve Affairs, 2021a, 2021b)

Command and Reserve PME boards occur at various times of the year; Table 2 shows the last three years' board convening dates and each board's planning horizon.

Table 2. Command Screening and Reserve PME Boards.

Board	Date Convened	Planning Horizon
Reserve Profession Military Education Board	September 17, 2019 September 16, 2020 September 20, 2021	AY 2020 – 2021 AY 2021 – 2022 AY 2022 – 2023
Command Screening Board (Active)	9/10 July (LtCol/Col) 2019 13/14 July (LtCol/Col) 2020 7/13 July (LtCol/Col) 2021	1 June 2020 – 31 May 2021 1 June 2021 – 31 May 2022 1 June 2022 – 31 May 2023
Command Screening Board (Reserve)	12/19 August (LtCol/Col) 2019 17/24 August (LtCol/Col) 2020 16/23 August (LtCol/Col) 2021	1 Oct 2019 – 30 Sep 2020 1 Oct 2020 – 30 Sep 2021 1 Oct 2021 – 30 Sep 2022

The two MARADMINS 473/21 and 753/21 increased MMRP's time for processing Active Duty Lieutenant Colonel (LtCol) and Colonel (Col) from approximately ten days to 40 days while better aligning the Reserve Fitness Report to Command Screening and PME Boards. Ten days is not enough time for MMRP to review all 1,912 Lieutenant Colonels and 629 Colonels for any boards (Manpower and Reserve Affairs, 2022). Roughly one-quarter of Lieutenant Colonels or Colonels are eligible for command slating in any given year. More specifically, in 2021, MMRP reviewed 150 Colonels records of a population of 629 (Manpower and Reserve Affairs, 2022; Manpower Management Division, 2021b). The report reduction does not negate that MMRP would have to identify those reports and prioritize some over others, including 9,539 Major and Captain Fitness Reports prior to the Commandant's Education Boards (Manpower and Reserve Affairs, 2022).

Tardiness in routine reports coupled with the annual board schedules seriously hindered the board's ability to make decisions with the most up-to-date data. However, the quantity or rate of Fitness Reports is not the point of concern; the underlying issue for Marine Corps leadership is that any late Fitness Reports would seriously jeopardize Marine's competitiveness on any selection board.

Automating the process at the individual level will provide greater efficiencies in the entire system than automation for the last step's procedures. Further automation at MMRP to streamline the review of Section I and Section K comments would require far more than basic logic in MCTFS and APES. Likely, automation would require natural language processing to flag any potential Fitness Reports for human review at that part of the process.

4. Question 0106 and the Fitness Report Audit Program

0106	Is the command maintaining a record log that annotates the Fitness Report Inventory check for every E-5 through O-5 who has checked into the command within the preceding 12 months? Note: A record log can consist of an excel spreadsheet, a logbook, or another format that shows a proactive effort in verifying FITREPs are processed/completed including the FITREP Inventory which is maintained for a minimum of 12 months. Reference: MCO 1610.7A, chap 9, par 5f(2)

Figure 23. CGIP FA Checklist 1610 PES Question 0106. Source: Newbold (2021).

This question's intent addresses the same issues as the previous three questions. However, this question references the Fitness Report Audit Program (FRAP); much of the FRAP could be digitized and automated to assist Marines and their units. Most Marines are likely pending their last Fitness Report upon check-in. That is due to the lapse in time between when a Fitness Report occasion ends and when a Fitness Report is due to MMRP. A Marine checks out a command and is typically allowed 30 days to execute leave and permanent change of station (PCS) travel to their next duty station. The Marine's TR Fitness Report's ending date matches the check-out date from the losing command.

Therefore, checking Marines Fitness Reports at check-in meets the requirements for the CGIP FAC but does not inherently meet the intent. The automated CTR and Fitness Report dashboard would accomplish this requirement and not create another tracker and reduce work for MMRP and the unit. All the proposed Commander's Fitness Report dashboard features already exist—however, the tools and resources at neither automated nor consolidated at the battalion or squadron level.

5. Omitted PES Requirements from the CGIP FAC

Currently, the most recent version of the CGIP inspection checklist does not check for all the required actions in the PES order, of which some requirements are far more critical than the questions presently asked. For example, when reviewing the *Reporting Senior (RS) Checklist,* the first step requires that the RS counsel any new Marine E5 - O5 within the first 30 days of the reporting period. Nevertheless, nowhere does the Marine Corps inspect for this requirement.

Until 2015 when the current version of MCO 1610.7A canceled the previous version of MCO 1610.7F Ch 2, the Marine Corps required that initial counseling occurs in the first 15 days (Manpower and Reserve Affairs, 2010, 2018). The most recent iteration of the PES manual has relaxed the standard and afforded RSs and MROs more time for initial counseling.

The Marine Corps PES manual outlines precisely why this initial counseling is fundamental to the evaluation cycle in the Counseling section of the PES order:

> (1) The PES and counseling, as addressed in reference (d)[NAVMC 2795, USMC User's Guide to Counseling], are separate but complementary. Leaders must counsel Marines to transmit the guidance, performance standards, and direction important for the MRO's success and continued development.
>
> (2) The complementary relationship between the counseling process and the PES begins when the RS and MRO meet to develop the MRO's billet description. It then becomes a regular and continuous process with additional sessions to review billet descriptions, establish new goals, and develop performance. As a result, the performance evaluation process should not produce any surprises for the MRO.

> (3) Periodic performance evaluation can also help clarify and crystallize the subjects on which the counseling process should focus. Any counseling program which relies on final evaluations as a tool to force behavioral changes is without merit and must be avoided. The PES highlights past performance; counseling shapes future performance.
>
> (4) The fitness report is not a counseling tool. (Manpower and Reserve Affairs, 2018, p. 15-16)

Requiring an initial counsel is critical to setting the RS/ MRO relationship's tone, establishing expectations, ensuring Marines are cognizant of the RS marking philosophy, how that pertains to their assigned billet, and how the RS evaluates Marines. Easily, one of the most important steps and one that should occur at the beginning of every reporting period but with a forcing function or means of inspection is not guaranteed or enforceable. Presently, the Marine Corps cannot know if Marines are getting initial counselings; the Marine Corps assumes that each RS does this.

I know this is not occurring; as a Second Lieutenant, I failed to provide initial counseling for many of my Sergeants while acting as the Remain Behind Element Officer-in-Charge. I did this knowing full well I should have, but also knowing that the Marines I did not initially counsel were getting EN Fitness Reports in a matter of months when they reached their end of active service obligations. Additionally, many of these same Marines had less than 90 days of observations. Secondly, I have not always received new initial counseling for each reporting period—most notable, when and if my RS and billet did not change. I am but one officer who has failed in their obligations to Marines and has been failed as a Marine. Automation and establishing forcing functions can eliminate or substantially reduce the number of initial counseling not occurring on time—assisting RSs' to lead better and helping Marines get clear guidance.

As the adage goes, inspect what you expect; presently, the Marine Corps CGIP FAC for the PES order does not inspect for Marine Corps standards. The CGIP checklist is the equivalent of inspection theater and provides the guise of enforcing a standard but only maintains the façade of compliance. Automation and digitization of many of these processes reduce administrative burdens, provide a means to inspect what the Marine Corps

expects and make much of the required administrative procedures easier, thus enabling officers to focus on leading Marines, not paperwork.

Much of the time taken in the Fitness Report process does not go toward counseling, guiding, coaching, mentoring, leading, or evaluating Marines but to ensure that the paperwork is correct. That reality directly results from the lack of adequate resources and tools for Marine leaders to leverage in the Fitness Report process. Second is the sheer amount of compliance requirements currently mandated from the overseers far removed from the process. Energy directed toward managing the PES and ensuring that the information is correct or that an occasion is correct under such and such circumstances detracts from leaders' ability to focus on the Marine.

Finally, while conducting anyone Fitness Report is manageable, presently in the Marine Corps, 68,000 Marines require Fitness Reports each year. Additionally, the number of required reports is compounded by the number of Permanent Changes of Station, Temporary Assigned Duties, Change of Reporting Senior, Semi-Annual Occasion, Returning from Temporary Assigned Duties (Manpower and Reserve Affairs, 2022). As a result, the number of Fitness Reports in the Marine Corps quickly climbs well above 100,000 each year.

D. WHY APES MATTERS FOR PROCESS AUTOMATION.

Digitizing new processes and procedures that account for the STS and all interrelated orders represents the best possible outcome for HRDP and administrative IMS modernization. Outlining the path requires a detailed, thorough, and comprehensive analysis of the orders, policies, existing IMS, human processes, and the five RM-ODP method enterprises, information, computational, engineering, and technology viewpoints. General Berger summarized the problem framing of talent management for Marines and his vision of talent Management end-state succinctly as:

> Today, some Marines have the leadership abilities, intelligence, and fitness to succeed, but lack the **mentorship**, opportunities, or education that would enable them to take full advantage of their talents.
>
> A talent management system identifies an individual Marine's talents, helps them develop those talents through education, training, **mentorship**, and

experience, and assigns them to positions where they can best contribute to the success of their unit and the Corps.

Marines make the Marine Corps

—General Berger, 38th Commandant of the Marine Corps, Talent Management 2030

With all modernization efforts, the advocates of technology and technical solutions promise far more than any technical solution could deliver. However, the heart of talent management will remain the Performance Evaluation System, where the rubber meets the road, and no technical improvement can replace leading Marines. Technical design improvements only solve defined problems; technical innovations will not directly address the problem when a problem remains undefined. Presently, this paper represents the first attempt to look at talent management from the bottom up, specifically how talent management processes occur at the individual level. Talent Management is taking care of Marines, and the Marine Corps must remember that the Marine Corps does not take care of Marines—"Marines take care of Marines" (Ortize, 2022). The systems and tools Marines use do not take care of Marine; the Marines using those tools take care of Marines. All the investment for automation ease leaders' administrative burdens but will not replace the leaders' burden of leadership.

1. The Data Available, Deduced, and What is Missing.

The problems that TFAS faced in creating MOL and APES in 2003 and 2004 remain today, necessitating the development of specific Applications Program Interfaces (API) to connect the back-end data to the users' front-end interfaces. Appendixes C provide the Section A, boxes, and requirements along with the data sources' table, column, and objects that prefill most administrative information requirements. Appendix D provides the tables, columns, and objects that would directly provide the data for a field or formulate that series at the correct information for all the potential Fitness Report occasions, when and if to extend or omit an annual report, and the minimum observation times.

Lastly, Appendix E –Performance Evaluation System Master Table holds all the data that generates the RS Fitness Report List and RS Profile from OMPF. That table

contains each Fitness Report that an Officer writes. Its composition should precisely match the data contained in an officer's personal FitRep Tracker. While there are no direct means to export the data from the database directly as a Marine, the most recent version of the FitRep Tracker can import the data from a comma split value Excel spreadsheet available from OMPF. In addition, the FitRep Tracker uses linear programming to "solve" for the missing Fitness Report markings to recreate the same relative values, cumulative values, and marking values from each Fitness Report. At the beginning of a new reporting relationship, an officer has various tools at their disposal for the initial counseling.

For the second time, this paper walks through the entirety of the fitness report life cycle; this time, the IMS and tools at the RS, RO, MRO, and SEL collective disposal work in near-perfect harmony with the PES manual and existing STS permeating the Marine Corps. Additionally, the narrative includes leveraging an upgraded version of FAST to act as the unit's Fitness Report process management system.

2. Recommended Path for Integrating the FAST Conceptual Methods into Administrative Processes.

First, the low-lying fruit; currently, nowhere under the ''Resources'' tab or ''A Few Good… Links'' tab within MOL provides a link to FAST (Technology Service Organization, 2022b). Therefore, one of this paper's most practical suggestions is that the MOL webmaster adds a link to FAST. Copying the HTML script from Appendix H on line 254 in the MOL "A Few Good… Links" Tab HTML script will update the page and place the link under the MISSA/MISSO Portal link. The link will read as follows:

Marine Corps Reserve Forces Command Functional Administrative Support Tool (FAST)

The description for FAST is as follows and comes from the FAST Resources page:

> The Functional Administrative Support Tool (FAST) is the result of a collaborative partnership between Information Management/Knowledge Management and the Administrative Support Unit, G1, Marine Forces Reserve in New Orleans, Louisiana. FAST is designed to help you learn routine administrative processes independently. FAST replaced the checklists that were a part of the Standardized Administrative Processes.

Getting the information into the hands of Marines will ensure that Marines utilize the resources available. Moving beyond the initial step of dissemination requires a more concentrated effort. The FAST web application is already compiled and assembled into Docker images for hosting and further development. The immediate suggestion is to create a MOL modernization initiative where Marines can join the Marine Online applications and modules, development team. Through leveraging virtualized environments for further development, NPS, M&RA Information Branch, and the Marine Corps Personnel Administration School (MCPAS) already have a secure development sandbox. Currently, the MCPAS leverages a virtualized MOL FOS for teaching administration courses at the Formal Learning Center.

Information technology today can quickly achieve a level of automation on par with the accuracy of FAST, although it necessitates the same level of specificity on the front end. Presently, the front-end analysis process remains in human hands and requires the level of details in this paper. However, much of that work, FAST already captured, and if granted access to information, Marines could extrapolate the same ideas and concepts across all functional areas of administration.

Using existing systems and secure structures within the Marine Corps allows M&RA to democratize the HRDP modernization efforts and have a consistent flow of new and experienced Marines attending the FLC. Additionally, the combination of Marine with no preexisting experience and extensive experience with MOL FOS, the UI, and various modules will provide a diverse range of experiences between the test users. On average, at current strength levels for the administrative field, annually, MCPAS will host the 54 different personnel administration courses to over 1,580 entry and career Marines in the following course distribution.

Table 3. Course and Personnel Distribution at the Personnel Administration School, Camp Johnson, NC. Adapted from Training and Education Command (2022).

# of Course	Course Title	Total Student Count
3	**Basic Manpower Officer Course**	**90**
42	**Basic Adminstrative Specialist**	**1254**
2	**Basic Personnel Officer Course**	**26**
5	**Intermediate Adminstration Specialist**	**150**
2	**Manpower Officer**	**60**
54		**1580**

With access to over 1,500 students a year, a virtualized environment, the NPS GitLab repository from developing the RIDAC and FAST web application, M&RA Information Branch can coordinate the personnel that volunteer from the personnel administration field. In comparison, traditional innovation challenges such as the Deputy Commandant for Information C4 Division are open for competition and welcome all idea submission initially; only the ideas that interest the decision-makers allow further pursuit.

Allowing a virtualized cloud to host the testing and development of different concepts and applications containers from the FMF will allow Marines to pursue any ideas. The concepts they can think of will receive unbiased feedback from student personnel who have some time to interact with the ideas of the fleet and provide feedback. This development sandbox could become the administration fields incubator for modernization efforts within the MOL FOS. Ideas, concepts, and innovative approaches to current and emerging problems are less likely to come from traditional sources. If the Marine Corps truly desires to manage talent, modernize the HRDP, and conduct personnel administration differently, perhaps the institution would serve its interest best by allowing Marines to

tackle the problems as they emerge in a controlled environment without jeopardizing the whole system.

Thus far, this paper has conducted an in-depth analysis of the entirety of APES and Marines' IMS, policies, and behaviors. While fully developing the ideas and concepts of this paper are presently beyond the author's reach, creating a workspace for the administrative Marines across the FMF to work on technical problems is within reach. The virtual environments and hosting infrastructure are already in place. Additionally, a fully operational model of process standardization software already exists for Reserve Marines.

While the example of the paper focused on APES, the concepts are applicable across all administrative functions, Marine Corps Orders, and Commanding General Inspection Programs. For that reason, and with minimal resource investments beyond the present expenditures, this paper offers a means to radically approach redesigning the Marine Corp administrative systems through a process of co-creating the future neoteric IMS across the strategic, operational, and tactical levels of the HRDP simultaneously. The concept is not radical in the private sector, and the concept is known as open-source. Primarily, the conceptual tweaks are simple; open the access up to Marines and let a little chaos, a little creativity, a little innovation, and the initiative of Marines tackle Marine Corps problems.

3. Automating Performance Evaluation Administration.

There are multiple concepts of automation and process improvements intermittently introduced throughout the analysis of the systems interwind with the Marine Corps execution of the PES process. The information required for automating Section A Administrative Information of a Performance Evaluation NAVMC form is available through MCTFS over multiple database tables. MCTFS is a relational database established in the 1990s using International Business Machines (IBM) hosted data storage and hosting. Specifically, MCTFS runs on the Telnet application protocol using Transmission Control Protocol/Internet Protocol (TCP/IP) and local area networks. Marine Corps administrators access MCTFS data directly through a teletype network (Telnet) connection.

The protocols for this system began in 1969 and were one of the first internet standards. Before the Navy Marine Corps Intranet (NMCI), Marine Corps administrators used various software emulators to connect to and use the bidirectional interactive text-oriented communication system to retrieve data from a specific table on the information. After the phased deployment of NMCI in the early 2000s, the Marine Corps began using a single software application, Reflections, to access 3270. Prior to TFAS and MOL, the only way to confirm the data in Section A authoritatively required an administrative Marine with access to MCTFS. MOL and APES significantly increased the efficiency in confirming section A data and generating fitness reports. TFAS as an API created MOL and APES as graphical user interfaces for users to interface with MCTFS and the TFDW. MOL presented humans with readable data that remained manipulatable by machines, allowing users to read, create, and modify some data sets.

VI. FINDINGS AND RECOMMENDATION SUMMATION

A. SYNOPSIS

The question is simple—Do HRDP Policies, Marines' day-to-day procedures, and the supporting IMSs help or hinder each other? In answering such a question, this thesis conducted a detailed systematic review of the evolution of the supporting IMSs, the requirements outlined in the PES manual, the Marine Corps' inspection process regarding the PES, and how Marines interact with APES, MOL, and OMPF create a new system of behavior. Additionally, by outlining the PES requirements, this thesis identified the Marine Corps specified requirements for procedural execution of the PES manual throughout the Fitness Report life cycle.

When overlaying those specified requirements with Marine's socio-technical system relationship with the MOL FOS, it became clear that the IMS designed to facilitate Marines' adherence to the PES manual fell short of encouraging compliance to stated Marine Corps policy. Furthermore, the CGIP FAC does not currently inspect for all the requirements outlined in the PES manual. Instead, the CGIP FAC inspects for minimal adherence to the PES policy. This level of inspection detail presents the façade that the current IMS, Marines' behavior, and their combined socio-technical relationship adhere to Marine Corps policy and requirements.

The work that MARFORRES completed in 2017 to create FAST introduced the product of systematic procedural analysis for standardizing administrative procedures. Creating FAST MARFORRES also introduced a method for disseminating the best SOPs and administrative procedures that encourage perfect adherence to Marine Corps policy without restricting commands discretion in applying policy appropriately. One of the FAST shortfalls is not the final product but the creating and expanding capacity for the checklist generation. Second, is FAST produces a checklist for printing and physical retention by the individual Marine.

Integrating the FAST checklist with MOL FOS will provide the Marine Corps with consistent data for business process analysis. Although each checklist generated represents

an instance of a Marine executing a day-to-day procedure within the Marine Corps, the automation and tracking of the checklist completion provide process analysis data. Additionally, in creating a MOL FOS administrative checklist module, commands across the Marine Corps can implement their own SOPs as appropriate. At the same time, the IMS ensures perfect adherence to Marine Corps policies and regulations. Such a tool standardizes the supporting functions within IMS ad gains efficiencies across the Marine Corps.

A single project manager maintains the FAST tool for MARFORRES. In order to accelerate the expansion of the checklist capability and the validation of the user interface, the Marine Corps must incorporate an ongoing and continuous testing process of new checklist accounting for new MARADMINs, ALMARs, and MCOs. The operating forces within the FMF should not assume responsibility for testing and validating the new checklist. The staff and students at the Personnel Administration School could assume the testing and validation burden. Testing and validation can be relegated as part of the curriculum to ensure changes in Marine Corps policy and procedures are introduced to students. This recommendation must balance current training requirements outlined in the period of instruction against the continual changes within Marine Corps administration policy and procedures.

B. DEMOCRATIZING PROCESS ANALYSIS AND BEST PRACTICES

This thesis does not offer a specific technical code, suggested software, or methods. Instead, it details the precise requirements, reusable concepts, and abstract objectives required to introduce, develop, and deploy an IT-based solution that accounts for the Marine Corps socio-technical relationship. Additionally, taken as a whole, this thesis demonstrates the necessary level of detailed analysis required to understand Marine Corps policy in execution.

Marine Corp developers can conceive, design, and deploy IMS that support the Marine Corps Orders, policies, directives, and intents without creating Orwellian oversight and nullifying the Marine Corps culture of command by negation using the FAST concept toward process standardization. Such an undertaking requires and necessitates that the

institution conducts a thorough review of the processes directed by policy and an honest evaluation of the procedures and tools created by Marines outside the institutions' purview. The Marine Corps could democratize a portion of the analytics to the Marines, as a top-down perspective is limited. A top-down perspective does not include the variety of organizational viewpoints; Marine Corps units have implemented SOPs unique to each command for executing the same policies. A holistic evaluation of these SOPs will provide the Marine Corps with a more comprehensive and diversified approach to addressing the same challenges. Some are better than others, but all are worthy of examination and evaluation.

Using processes, techniques, and tools that are easily reproducible in concept or by direct duplication, any layperson in business process analysis or system engineering can model and analyze their niche within an organization. For example, such analysis, done on mass, by those persons using the IMS and executing prescribed procedures within a policy could model every system's behaviors within the Marine Corps. In addition, modeling the daily functions and tasks that Marines and Civilian Marines execute daily would provide software programmers, policymakers, program managers, and decision-makers with enough information to synchronize IMS business processes across the FMF.

Ultimately, the front-end analysis is required at the tactical level of policy and procedure to generate specific IMS requirements and abstractions. This front-end analysis will ease the design and adoption of an enterprise-wide IMS supporting talent management and the necessary DODAF architecture DM2 compliance requirements. Additionally, such front-end analysis focuses on how a single process of a single Marine requires the analysis of nearly the entire establishment to articulate the abstraction and specificity essential to synchronize the Marine Corps' systems of structure, procedure, policy, and IMS to support that Marine.

To create the innovative and neoteric Marine Corps as the Commandant envisioned in his planning guidance and Talent Management 2030, the Marine Corps must embark on a profoundly different approach to the problem of modernization. Thus far, the research and findings have identified the specific requirements of the PES manual, the CGIP FAC, and tertiarily related MCOs requirements.

The Marine Corps has a unique opportunity to open up the modernization to more Marines and embark on a process of co-creation of the systems and procedures that Marines will utilize to execute the day-to-day functions of the Marine Corps business operations. Co-creation occurs at the units already in the form of bottom-up refinement, and at the local unit, the process occurs immediately. While at the organizational and enterprise-level, the process is protracted and layered in bureaucracy. This is especially true in developing new IMS, with compliance requirements, budgets lasting years, and contracting processes equally long.

Implementing and creating an environment for Marines to conduct, submit, recommend process automation, and test their concepts closes the traditional latency between the developer and the Marines using the software developed. Closing the development cycle also hastens the emergence of new socio-technical relationships that change the system entirely. Just as a FitRep Tracker changed how Marine RS's manage their profile, the faster the Marine Corps can identify such emergent behaviors, the faster the Marine Corps can ensure that the system, procedures, and IMS of the Marine Corps support policy. Bringing Marines into the process of expanding the capabilities of FAST is a prime opportunity for rapid process analysis, standardization, data collection, introducing automation, and the collection of best practices across the FMF.

APPENDICES

APPENDIX A. REPORTING SENIOR CHECKLIST

MCO 1610.7A
01 MAY 2018

Appendix F

Reporting Senior (RS) Checklist

1. General (Chapter 2, Paragraph 3)

a. Brief MRO on billet description within first 30 days of the reporting period.

b. Adjust MRO's billet description within reporting period as applicable.

c. Review worksheet input if submitted by the MRO.

2. Section A, Administrative Information (Chapter 4, Paragraph 3)

a. Ensure section A information is accurate.

b. Confirm "from" date as correct utilizing the MMRP website at: www.manpower.usmc.mil.

c. Mark item 5a if report is adverse.

d. Review section A for marks requiring directed comments in section I.

3. Section B, Billet Description (Chapter 4, Paragraph 4)

a. Highlight MRO's significant responsibilities as they relate to the unit's mission during the reporting period.

b. Prepare in proper format (see chapter 4, paragraph 4c).

4. Section C, Billet Accomplishments (Chapter 4, Paragraph 5)

a. Highlight the MRO's most significant accomplishments during the reporting period.

b. Be objective vice qualitative.

c. Focus on what the Marine accomplished rather than personal qualities or potential impact of the MRO's contributions.

d. Prepare in proper format (see chapter 4, paragraph 5c).

5. Sections D Through H, Categories of Evaluated Areas (Chapter 4, Paragraphs 6-11)

a. Ensure markings reflect MRO's demonstrated performance during the reporting period as the action verbiage of accomplishments over the gradient marked would indicate.

b. Justify all marks of "A", "F", or "G" with concrete examples of what was done or failed to be done and ensure justifications are verifiable, substantive, and where possible, quantifiable.

c. Mark section H as N/O for all Marines who do not have reporting senior responsibilities.

d. Avoid the tendency to grade to your profile! Review your profile only after you have graded the Marine and finished your draft evaluation to serve as a check and balance to ensure you have been objective and thorough in your assessment.

6. Section I, Directed And Additional Comments (Chapter 4, Paragraph 12)

a. Ensure all directed comments are included (see chapter 4, paragraph 12d)

b. Prepare in proper format (see chapter 4, paragraph 12c).

7. Section J, Certification (Chapter 4, Paragraph 13)

a. Prior to certifying, ensure the accuracy and completeness of sections A through I per the provisions of this Order.

b. Sign, date, and inform the MRO that the RS portion of the report is complete.

c. If adverse, refer report to the MRO for acknowledgment, signature, and the opportunity to submit a rebuttal statement.

d. Inform the MRO if any changes are made to sections A through I of the report.

e. Annotate whether an addendum page is attached to the report.

f. Forward report to the RO in a timely manner. (Report is due to HQMC within 30 days after the ending date of the report.)

8. Adverse Reports. When the MRO's performance or conduct warrants an adverse report, prepare and submit the report in accordance with the provisions of Chapter 5.

APPENDIX B. CGIP FA CHECKLIST FOR 1610 (PES)

Inspectors General Checklist

PERFORMANCE EVALUATION SYSTEM (PES) (1610)

This checklist is applicable to all commands.

Functional Area Sponsor: MMRP-31

Name of Command:

Subject Matter Expert:
Maj Jonathan E. Newbold
jonathan.newbold@usmc.mil
(DSN) 278-3997 (COML) 703-784-3997/3905

Date:

Inspector:

Revised: 19 July 2021

Final Assessment Discrepancies: **Findings:**

Overall Comments: Place Here

Subsection 1 – GENERAL

0101 Based on a comparison of the command's non-judicial punishment (NJP) and court martial files against the Fitness Report Inventory of applicable Marines, is the command submitting "Directed by the Commandant of the Marine Corps" (DC) or "Grade Change" (GC) reports when significant administrative, commendatory, or adverse action on the Marines that [Copy] nediate reporting to the CMC? This includes when Marines have substantiated incidents of domestic violence, or child abuse.
Note: "FITREP Inventory" tool is located in MOL under Resources, APES, MMRP
Reference: MCO 1610.7A, chap 3, par 4b

Result Comments

0102 Does a review of training documentation (training rosters, training material, LOIs, local PME unit diary entries, etc.) support the conduct of annual master brief sheet training (non-reporting officials, new reporting officials, mid-level reporting officials, and senior reporting officials)?
Note: Power Point presentations are available at https://www.manpower.usmc.mil/webcenter/portal/MMRP30
Reference: MCO 1610.7A, chap 8, par 4; and chap 9, par 5d(1)

Result Comments

This checklist outlines the general elements needed for the day-to-day administration and operations of this function area. Additionally, this checklist provides guidelines for internal evaluations and standardized criteria for the conduct of inspections. Commands must also fully comply with all applicable references.

Page 1 of 2

0103	Is the command maintaining quarterly copies whether digital or hard copy of the following reports that cover the previous 12 months: Commander's Timeliness Report (CTR), Missing Last Annual, and Date Gap Query? Note: CTRs must be requested by submitting an email to the organizational email at smb.manpower.mmrp-31@usmc.mil along with the RUC and MCC of the command. Date gap and missing last annual queries are available in MOL under Resources, APES, MMRP web tool. Date gaps can be pulled by RUC/MCC. Missing last annual must be pulled by RUC/MCC and grade for all E5-O6. Reference: MCO 1610.7A, chap 9, paragraph 5f(1)-(4)	
Result	Comments	
0104	Is the command actively using the CTR by notifying the reporting officials to ensure that fitness reports are submitted to HQMC within 30 days of the end of the reporting period for normal reports and 60 days for adverse reports? Reference: MCO 1610.7A, chap 1, par 3c	
Result	Comments	
0105	Does a review of the Missing Last Annual Reports and Date Gap Queries reveal proactive efforts by the command notifying and assisting the Marine written on to ensure record discrepancies are corrected? For example, correcting date gaps, overlaps, or correcting occasion codes. Reference: MCO 1610.7A, chapter 9, par 5a(1)	
Result	Comments	
0106	Is the command maintaining a record log that annotates the Fitness Report Inventory check for every E-5 through O-5 who has checked into the command within the preceding 12 months? Note: A record log can consist of an excel spreadsheet, a logbook, or another format that shows a proactive effort in verifying FITREPs are processed/completed including the FITREP Inventory which is maintained for a minimum of 12 months. Reference: MCO 1610.7A, chap 9, par 5f(2)	
Result	*Comments*	

This checklist outlines the general elements needed for the day-to-day administration and operations of this function area. Additionally, this checklist provides guidelines for internal evaluations and standardized criteria for the conduct of inspections. Commands must also fully comply with all applicable references.

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APPENDIX C. A-PES SECTION A AUTOMATION DATA SOURCES

A-PES Section A Automation Data Sources

Paragraph	OCC Type	Requirements	Column Name	Table name and Path
4.a.1	Grade Change (GC)	Frocked, promoted, reduced	Present Grade Code	Individual Marine
4.a.2	GC	GC reducation post NJP appeal	E 119 Appl System Source Cd	Manpower Remarks => Personnel => Legal Action R119
4.a.3	GC	grade reductions resulting from Court Martial	Cm Ded Reduction Pay Grade Cd	Pay Remarks => Pay & Account Status => Court Martial Deduct R990
4.a.3	GC	grade reductions resulting from Court Martial	Cm Ded To Date	Pay Remarks => Pay & Account Status => Court Martial Deduct R990
4.a.4	GC	Reserve Promotion while members of MTU	Deploy Mobilize From Dt	Manpower Remarks => Personnel => Deploy Mobilize R138
4.a.4	GC	Reserve Promotion while members of MTU	Deploy Mobilize To Dt	Manpower Remarks => Personnel => Deploy Mobilize R138
4.a.4	GC	Reserve Promotion while members of MTU	Selected Grade Date	Marine Data => Grade
4.a.5	GC	Section A Items 1.e DOR from present rank, not rank promoted to	Present Grade Code	Individual Marine
4.a.6	GC	Frocked, Section A Items 1.e	Present Grade Code	Individual Marine
4.b.1	Directed by the Commandant of the Marine Corps (DC)	Must cover from the end date of the MRO's last fitness report	Occasion From Date , Occasion to Date	PES Performance Eval System Mst
4.b.3	DC	Marine is subject to commendatory material that warrants immediate reporting to CMC.		
4.b.3.a	DC	MRO awarded a combat valor award for valor, Silver Star or higher	Award Code	Manpower Remarks => Personnel => Awards R143
4.b.3.a	DC	Marine is awarded a Service-wide eligible award	MARADMIN, not in TFWD/ MCTFS	
4.b.5	DC	RS must submit a DC report following specific actions		
4.b.5.a	DC	MRO subject of NJP, SCM, SPCM, GCM or Civ Conviction also under UCMJ	Legal Action Effective Date, Type Code	Manpower Remarks => Personnel => Legal Action R119
4.b.5.b	DC	Deserter Status	Look-Up Tables => Lk Idt Absence Reason 71 10 95	Lk Idt Absence Reason 71 10 95
4.b.5.b	DC	Deserter Status	Duty Status	MOL Ad Hoc => UMSR => Published
4.b.5.c	DC	Remedial Promotion in case of Sergeant	Promotion Effective Dt, Promotion to Rank	Manpower Remarks => Presidential Scrolls R109
4.b.5.d	DC	When Missing in Action or Prisoner of War status occurs	Abs Whereabouts Unk Ind Cd, Prisoner Of War Code	Marine Data => Marine Info
4.b.5.e	DC	ADSEP under adverse conditions	Separation Code	Marine Data => Separation
4.b.5.e	DC	ADSEP under adverse conditions	Code	Look-Up Tables => Lk Char Of Service 71 95 20
4.b.5.e.1	DC	ADSEP under adverse conditions, and already received DC than EN	Occasion Code	PES Performance Eval System Mst
4.b.5.e.2	DC	ADSEP under adverse conditions, if Multiple causes, then DC	Legal Action Effective Date, Type Code	Manpower Remarks => Personnel => Legal Action R119
4.b.5.e.3	DC	ADSEP board, and retained (actions leading, not ADSEP board)		
4.b.5.f	DC	Second Alcohol Treatment Failure		
4.b.5.g	DC	Domestic Violence Conviction or Child abuse under UCMJ	Legal Action Effective Date, Type Code	Manpower Remarks => Personnel => Legal Action R119
4.b.5.h	DC	DC Aviation held Flight Performance Board, loss of insignia	Remark Kill Date Rmk 140	Manpower Remarks => Training => Insignia Auth Wear R140
4.b.5.h	DC		Flight Status Identifier	Marine Data => Aviation Service
4.b.5.h	DC	placed in a probationary flight status	Last Difop Start Dt	Marine Data => Aviation Service
4.b.5.i	DC	When a Judge Advocate General suspends a judge advocates certification	Crt Mrtl Sprt Susp Flag Cd	Pay Remarks => Allotments => Crt Mrtl Sprt Allot R731
4.b.6.e	DC vice TR, TD or CD	Marine has been relieved for cause, unless the relief is simultaneously accompanied with adjudicated disciplinary action	B 111 Document Rpt Unit Code	Manpower Remarks => Personnel => Co Assignment Relieved R111
4.b.6.e			B 111 Document Type Code	Manpower Remarks => Personnel => Co Assignment Relieved R111
4.c	Change in RS (CH)	RS and RO determination	Marine Data	Marine Data => TFAS => Unit Structure
4.d	Transfer (TR)	The RS leaves for reasons other than TAD, but the MRO remains in the same billet.	Marine Data	Marine Data => TFAS => Unit Structure
4.e	Change of Duty (CD)	Submit a CD report when the MRO has a significant change in primary duty under the same RS.	Additional Duty Cd	Manpower Remarks => Members Command/Billet => Additional Duty R174
4.e	CD		Billet Description	Marine Data => Marine Command
Paragraph	OCC Type	Requirements	Column Name	Table name and Path

Paragraph	OCC Type	Requirements	Column Name	Table name and Path
4.f	To Temporary Duty (TD)	When the MRO goes TAD in excess of 31 days, TAD to FLC and TDY.	Report Date, Graduation Date, Type A Code	MCTIMS => Training Class
4.f	TD	TAD to Fleet Assistance Program (FAP)	FAP Admin Rpt Unit CD, Est Depart Date, Est Arrive Date	Manpower Remarks => Members Command/Billet => Unit Orders
4.g	TD	MRO leaving TAD longer than 31 days or MRO received TD FitRep going TAD, or IMA, MTU, SMCR ordered to <31 days of ADOS.	FitRepOccCode, Occasion From Date , Occasion to Date, Temp Admin Rpt Unit CD	PES Performance Eval System Mst, Unit Orders
4.g.1	TD	The report must cover the period from the end date of the MRO's last report to the day before the MRO departs to return to their parent command.	FitRepOccCode, Occasion From Date , Occasion to Date	PES Performance Eval System Mst, Unit Orders
4.g.2	TD	The RS must submit an observed report, unless the temporary assignment is an academic environment or an observed evaluation is not feasible.		
4.g.3	TD	Early termination of temporary duty originally projected to last 31 days or longer requires submission of an FD report.		
4.g.4	TD	Refer to chapter 6, paragraph 4 for guidance on Academic duty.		
4.g.5	TD	For annual occasions (Active and Reserve Components), only submit reports when the occasion occurs during a period of temporary duty lasting six months or longer.	FitRepOccCode, Occasion From Date , Occasion to Date	PES Performance Eval System Mst, Unit Orders
4.h	End of Active Service (EN)	Submit an EN report for all Active Component Marines terminating active duty. (Exception Marine retiring to the FMCR with 20 YOS)	Ecc Eas Flag	Marine Data => Marine Info
4.h.1	EN	Adverse EN Reports Refer to Chapter 5 paragraph 1		
4.i	Change of Status	Submit CS when Reserve Marine transfers to the IRR	Reserve Component Code, Reserve Exp Current Contract	Marine Data => Marine Info
4.j	Annual (AN)	Submit an AN report for all Marines serving on the Active Duty List (ADL).	Rank Id, Occasion From Date , Occasion to Date, FitRepOccCode	Marine Data => Mos => Mos Mv, PES Performance Eval System Mst
4.j.1	AN	Report must cover the period from the end date of the MRO's last report to the last day of the month specified.	Rank Id, Occasion From Date , Occasion to Date, FitRepOccCode	Marine Data => Mos => Mos Mv, PES Performance Eval System Mst
4.j.2	AN	Omit the annual report when:		
4.j.2.a	FD	MRO in TAD Status less than six months	Report Date, Graduation Date, Type A Code, Occasion From Date, Occasion to Date	MCTIMS => Training Class , Marine Data => Mos => Mos Mv, PES Performance Eval System Mst
4.j.2.b	TR	MRO is attending formal academic training under permanent change of station (PCS/TEMINS) orders of less than 12 months duration.	Report Date, Graduation Date, Type A Code, Occasion From Date, Occasion to Date, Future Trng Loc Mntrd Cmd Cd	MCTIMS => Training Class , Marine Data => Mos => Mos Mv, PES Performance Eval System Mst, Marine Data => Training
4.j.2.c	OMIT	RS occurred 60 days or less prior to the end date of the annual report	Occasion From Date , Occasion to Date, FitRepOccCode	Marine Data => Mos => Mos Mv, PES Performance Eval System Mst
4.j.2.d	OMIT	Within 89 days or less of the establishment of the RS-MRO relationship.	Rank Id, Occasion From Date , Occasion to Date, FitRepOccCode	Marine Data => Mos => Mos Mv, PES Performance Eval System Mst
4.j.2.e	OMIT	MRO has planned FitRep Occ occurs in >30 days after FitRep end date.	Rank Id, Occasion From Date , Occasion to Date, FitRepOccCode	Marine Data => Mos => Mos Mv, PES Performance Eval System Mst
4.k	Annual Active Reserve	Submit an AR report for Reserve members of the Active Reserve program, IMA, SMCR, MTU, and EAD recruiters. AR reports must be observed.	Rank Id, Occasion From Date, Occasion to Date, FitRepOccCode, Reserve Component Code	Marine Data => Mos => Mos Mv, PES Performance Eval System Mst, Marine Data => Marine Info
4.l.1	Semi-Annual Active Duty (SA)	Report must cover the period from the end date of the MRO's last report to the last day of the month specified.	Rank Id, Occasion From Date , Occasion to Date, FitRepOccCode	Marine Data => Mos => Mos Mv, PES Performance Eval System Mst
4.l.2	OMIT	First report by an RS on an MRO, and observation period is <30 days.	Rank Id, Occasion From Date , Occasion to Date	Marine Data => Mos => Mos Mv, PES Performance Eval System Mst
Paragraph	OCC Type	Requirements	Column Name	Table name and Path

APPENDIX D. A-PES OCCASIONS AUTOMATION DATA SOURCES

Section A	Box Description	Column Name	Category	Path	Oject Name
Box 1	**Marine Reported On**				
1.a	Last Name	Last Name	Individual Marine	Individual Marine => Name	Individual Marine
1.b	First Name	Person First Name	Manpower Remarks	Manpower Remarks => Personnel => Person Expanded Name R151	Person Expanded Name R151
1.c	MI	Person Middle Name	Manpower Remarks	Manpower Remarks => Personnel => Person Expanded Name R151	Person Expanded Name R151
1.d	SSN	Ssn	Manpower Remarks	Manpower Remarks => Members Command/Billet => Additional Duty R174	Additional Duty R174
1.e	Grade	Present Grade Code		Individual Marine	Individual Marine
1.f	DOR	Present Grade Effective Date		Individual Marine	Individual Marine
1.g	PMOS	Primary Mos Code	Marine Data	Marine Data => Mos => Mos Mv	Mos Mv
1.h	BILMOS	Billet Mos	Marine Data	Marine Data => Mos => Mos Mv	Mos Mv
Box 2	**Organization**				
2.a	MCC	Mcc Type	Marine Data	Marine Data => Unit Structure => Unit Mcc	Unit Mcc
2.b	RUC	Ruc Type	Marine Data	Marine Data => Unit Structure => MCTFS Unit Structure	MCTFS Unit Structure
2.c	Unit Description	Present Reporting Unit Code	Marine Data	Marine Data => Mos => Mos Mv	Mos Mv
Box 3	**Occasion and Period Covered**				
3.a	Occ				
3.b	From	Ocassion to Date	Marine Data	Marine Data => PES Performance Eval Sys Mst	
3.b	To				
3.c	Type "J"	Joint Mil Occ Spec Eff Date	Marine Data	Marine Data => Officer	Officer
3.c	Type "J"	Remark Sequence Number Rmk 117	Manpower Remarks	Manpower Remarks => Members Command/Billet => Joint Mos R117	Joint Mos R117
3.c	Type "J"	Uuid	Manpower Remarks	Manpower Remarks => Members Command/Billet => Joint Mos R117	Joint Mos R117
3.c	Type "C"	Remark B Date Rmk 128	Manpower Remarks	Manpower Remarks => Members Command/Billet => Crisis Code R128	Crisis Code R128
3.c	Type "C"	Combat Service Code	Marine Data	Marine Data => Combat Service	Combat Service
3.c	Type "C"	Award Effective Date	Manpower Remarks	Manpower Remarks => Personnel => Awards R143	Awards R143
3.c	Type "A"	Class Complete Date	Manpower Remarks	Manpower Remarks => Recruit Information => Current Trng Location R157	Current Trng Location R157
3.c	Type "A"	Cycle Date	Manpower Remarks	Manpower Remarks => Recruit Information => Future Trng Location R156	Future Trng Location R156
3.c	Type "A"	Actual Train Completion Date	Marine Data	Marine Data => Training	Training
3.c	Type "A"	Add Temp Admin Rpt Unit Cd	Marine Data	Marine Data => Marine Command	Marine Command
3.c	Type "A"	Additional Duty Cd	Manpower Remarks	Manpower Remarks => Members Command/Billet => Additional Duty R174	Additional Duty R174
3.c	Type "A"	Additional Duty From Date	Manpower Remarks	Manpower Remarks => Members Command/Billet => Additional Duty R174	Additional Duty R174
3.c	Type "A"	Additional Duty To Date	Manpower Remarks	Manpower Remarks => Members Command/Billet => Additional Duty R174	Additional Duty R174
3.c	Type "B"	Remark Sequence Number Rmk 117	Manpower Remarks	Manpower Remarks => Members Command/Billet => Joint Mos R117	Joint Mos R117
3.c	Type "B"	Remark B Date Rmk 128	Manpower Remarks	Manpower Remarks => Members Command/Billet => Crisis Code R128	Crisis Code R128
3.c	Type "B"	Combat Service Code	Marine Data	Marine Data => Combat Service	Combat Service
3.c	Type "B"	Uuid	Manpower Remarks	Manpower Remarks => Members Command/Billet => Joint Mos R117	Joint Mos R117
3.c	Type "B"	Joint Mil Occ Spec Eff Date	Marine Data	Marine Data => Officer	Officer

Section A	Box Description	Column Name	Category	Path	Oject Name
Box 4	**Duty Assignment (Descriptive title)**				
Box 5	**Special Case**				
5.a	Adverse				
5.b	Not Observed	Ocassion to Date, Ocassion from Date	Marine Data	Marine Data => PES Performance Eval Sys Mst	
5.c	Extended				
Box 6	**Marine Subject Of**				
6.a	Commendatory Material	Award Effective Date	Manpower Remarks	Manpower Remarks => Personnel => Awards R143	Awards R143
6.b	Derogatory Material	Legal Action Effective Date	Manpower Remarks	Manpower Remarks => Personnel => Legal Action R119	Legal Action R119
6.b	Derogatory Material	Legal Action Type Code	Manpower Remarks	Manpower Remarks => Personnel => Legal Action R119	Legal Action R119
6.b	Derogatory Material	Cm Ded Court Martial Date	Pay Remarks	Pay Remarks => Pay & Account Status => Court Martial Deduct R990	Court Martial Deduct R990
6.c	Disciplinary Action	Punit Rank Code	Manpower Remarks	Manpower Remarks => Personnel => Punitive Reduce Hist R172	Punitive Reduce Hist R172
Box 7	**Recommended for promotion**				
7.a	Yes				
7.b	No				
7.c	N/A				
Box 8	**Special Information**				
8.a	QUAL	Marksmanship Remark Dt	Manpower Remarks	Manpower Remarks => Training => Marksmanship Info R131	Marksmanship Info R131
8.a	QUAL	Marksmanship Remark Score Cd	Manpower Remarks	Manpower Remarks => Training => Marksmanship Info R131	Marksmanship Info R131
8.a	QUAL	Marksmanship Remark Type Cd	Manpower Remarks	Manpower Remarks => Training => Marksmanship Info R131	Marksmanship Info R131
8.b	PFT	Remark B Date Rmk 183	Manpower Remarks	Manpower Remarks => Training => Physical Fitness Test R183	Physical Fitness Test R183
8.b	PFT	Phys Fit Test Dt	Manpower Remarks	Manpower Remarks => Training => Physical Fitness Test R183	Physical Fitness Test R183
8.c	CFT	Cbt Fitness Score Qy	Manpower Remarks	Manpower Remarks => Training => Cbt Fitness Test R184	Cbt Fitness Test R184
8.c	CFT	Cbt Fitness Test Dt	Manpower Remarks	Manpower Remarks => Training => Cbt Fitness Test R184	Cbt Fitness Test R184
8.d	HT(in)	Person Height Quantity	Manpower Remarks	Manpower Remarks => Training => Ht Wt Bf R189	Ht Wt Bf R189
8.d	HT(in)	Person Ht Wt Bf Eff Dt	Manpower Remarks	Manpower Remarks => Training => Ht Wt Bf R189	Ht Wt Bf R189
8.e	WT	Person Ht Wt Bf Eff Dt	Manpower Remarks	Manpower Remarks => Training => Ht Wt Bf R189	Ht Wt Bf R189
8.e	WT	Person Weight	Manpower Remarks	Manpower Remarks => Training => Ht Wt Bf R189	Ht Wt Bf R189
8.f	Body Fat	Person Within Ht Wt Bf Std Flg	Manpower Remarks	Manpower Remarks => Training => Ht Wt Bf R189	Ht Wt Bf R189
8.g	Reserve Component	Reserve Component Code	Marine Data	Marine Data => Marine Info	Marine Info
8.h	Status				
8.i	Future Use	Leave Blank			

Section A	Box Description	Column Name	Category	Path	Oject Name
Box 9	**Duty Performance**				
9.a 1st	Code				
9.b 1st	Code				
9.c 1st	Code				
9.a 2nd	Decscriptive Title				
9.b 2nd	Decscriptive Title				
9.c 2nd	Decscriptive Title				
Box 10	**Reporting Senior**	Present Unit Work Section Id		Individual Marine	Individual Marine
	Reporting Senior	Remark Sequence Number Rmk 192	Manpower Remarks	Manpower Remarks => Members Command/Billet => Icd Code R192	Icd Code R192
	Reporting Senior	Remark Sequence Number Rmk 188	embers Command/Bill	Members Command/Billet => Service Data R188	Service Data R188
10.a	Last Name	Last Name	Individual Marine	Individual Marine => Name	Individual Marine
10.b	Init	Person Middle Name	Manpower Remarks	Manpower Remarks => Personnel => Person Expanded Name R151	Person Expanded Name R151
10.c	Service	All Services Rank Id		Individual Marine	Individual Marine
10.d	SSN	EDIPI	MOL Ad Hoc	MOL Ad Hoc => UMSR => Personnel Accountability	Personnel Accountability
10.e	Grade	Present Grade Code		Individual Marine	Individual Marine
10.f	Duty Assingment				
Box 11	**Reviewing Officer**	Present Unit Work Section Id		Individual Marine	Individual Marine
	Reviewing Officer	Remark Sequence Number Rmk 192	Manpower Remarks	Manpower Remarks => Members Command/Billet => Icd Code R192	Icd Code R192
	Reviewing Officer	Remark Sequence Number Rmk 188	embers Command/Bill	Members Command/Billet => Service Data R188	Service Data R188
11.a	Last Name	Last Name	Individual Marine	Individual Marine => Name	Individual Marine
11.b	Init	Person Middle Name	Manpower Remarks	Manpower Remarks => Personnel => Person Expanded Name R151	Person Expanded Name R151
11.c	Service	All Services Rank Id		Individual Marine	Individual Marine
11.d	SSN	EDIPI	MOL Ad Hoc	MOL Ad Hoc => UMSR => Personnel Accountability	Personnel Accountability
11.e	Grade	Present Grade Code		Individual Marine	Individual Marine
11.f	Duty Assingment				

RS and RO determination

Column Name	Category	Path	Object
Cycle Date	Marine Data	Marine Data => TFAS => Unit Mcc	Unit Mcc
Mcc Type	Marine Data	Marine Data => Unit Structure => Unit Mcc	Unit Mcc
Monitored Command Code	Marine Data	Marine Data => TFAS => Unit Mcc	Unit Mcc
Ssn	Marine Data	Marine Data => TFAS => Unit Mcc	Unit Mcc
Type Monitored Command	Marine Data	Marine Data => TFAS => Unit Mcc	Unit Mcc
Uuid	Marine Data	Marine Data => TFAS => Unit Mcc	Unit Mcc
Company Code	Marine Data	Marine Data => TFAS => Unit Structure	Unit Structure
Cycle Date	Marine Data	Marine Data => TFAS => Unit Structure	Unit Structure
Platoon Code	Marine Data	Marine Data => TFAS => Unit Structure	Unit Structure
Reporting Unit Code	Marine Data	Marine Data => TFAS => Unit Structure	Unit Structure
Ssn	Marine Data	Marine Data => TFAS => Unit Structure	Unit Structure
Type Reporting Unit Code	Marine Data	Marine Data => TFAS => Unit Structure	Unit Structure
Uuid	Marine Data	Marine Data => TFAS => Unit Structure	Unit Structure
Work Section Id	Marine Data	Marine Data => TFAS => Unit Structure	Unit Structure

Section B

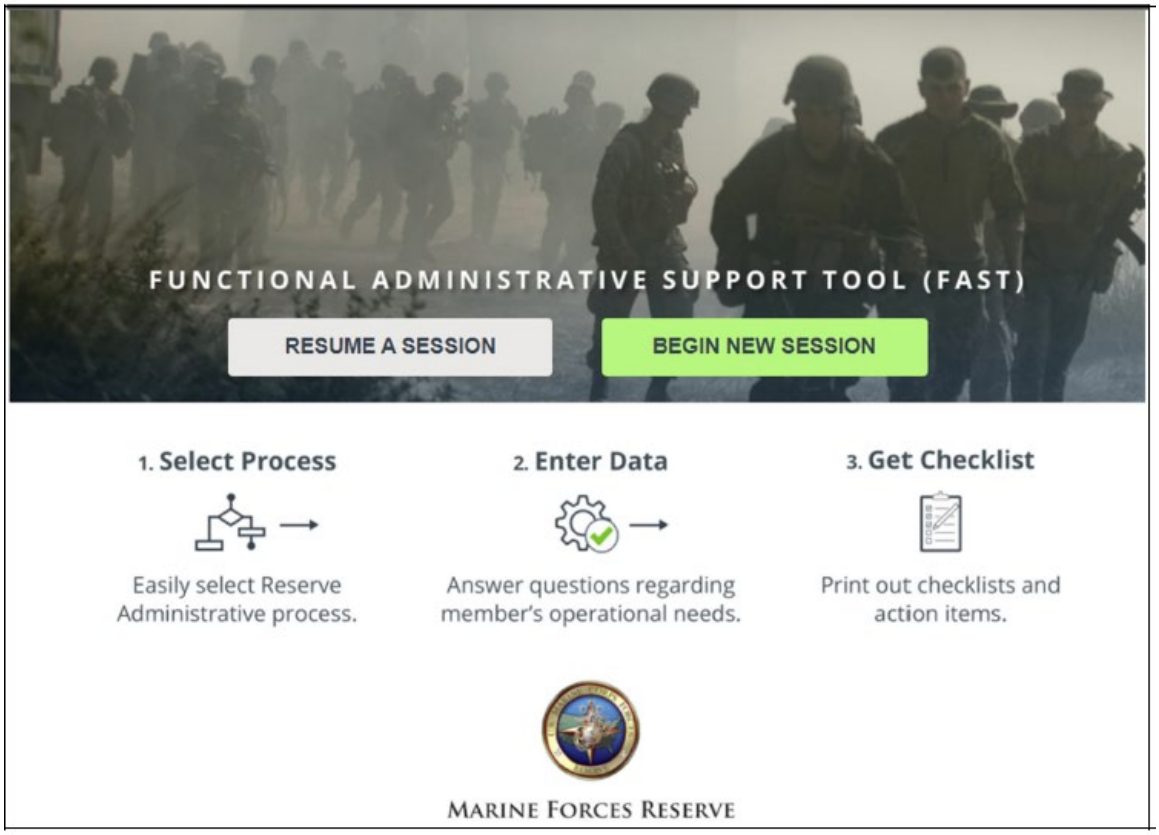
Billet Description	Marine Data	Marine Data => Marine Command	Marine Command
Counseling Req Less Than 30 day			

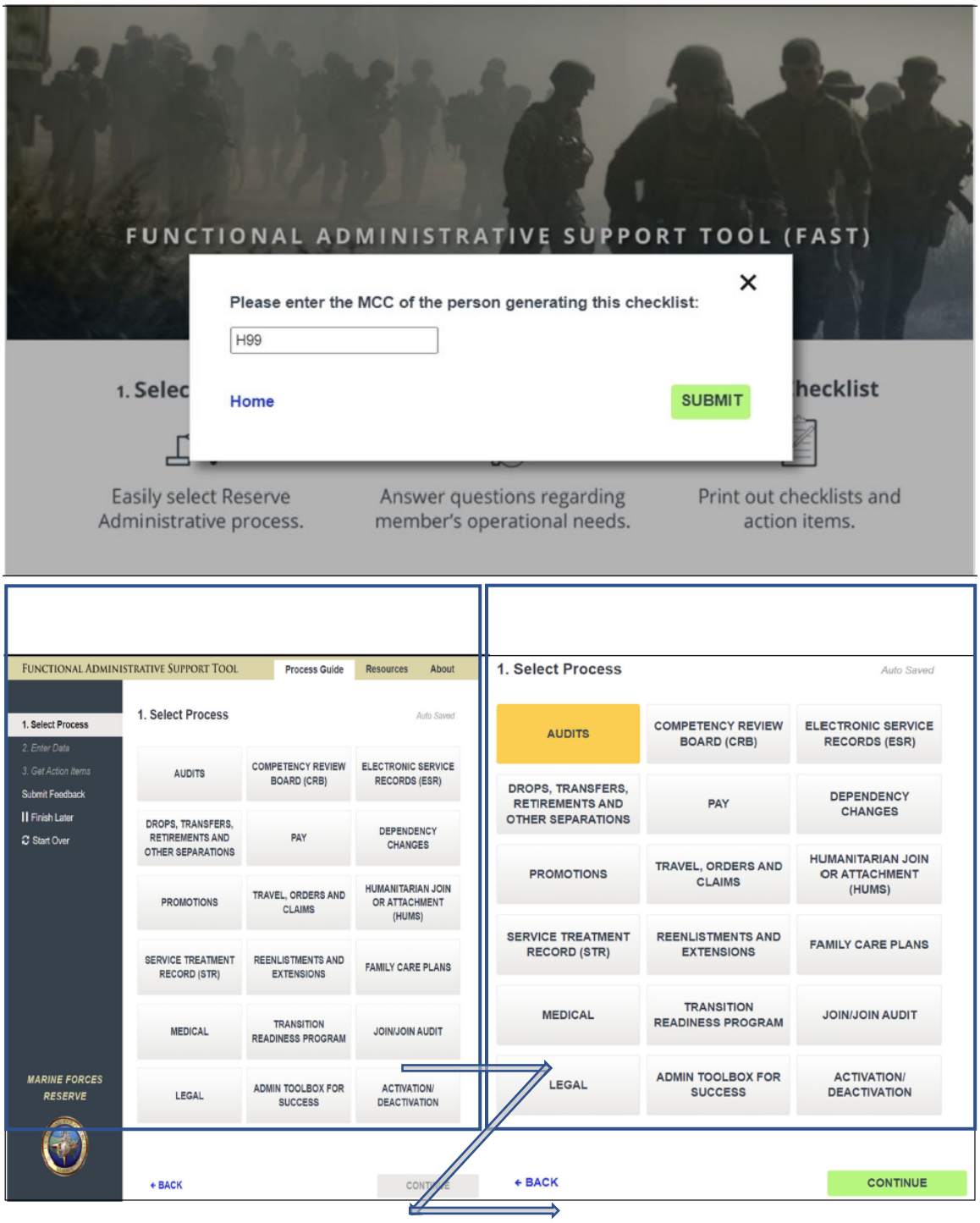
Note 1, Duty Assignment Use the title that most clearly describes the primary duty and responsibilities of the MRO; it need not be the T/O billet title (e.g., T/O lists the MRO as a squadron pilot and the line number indicates assistant operations officer).

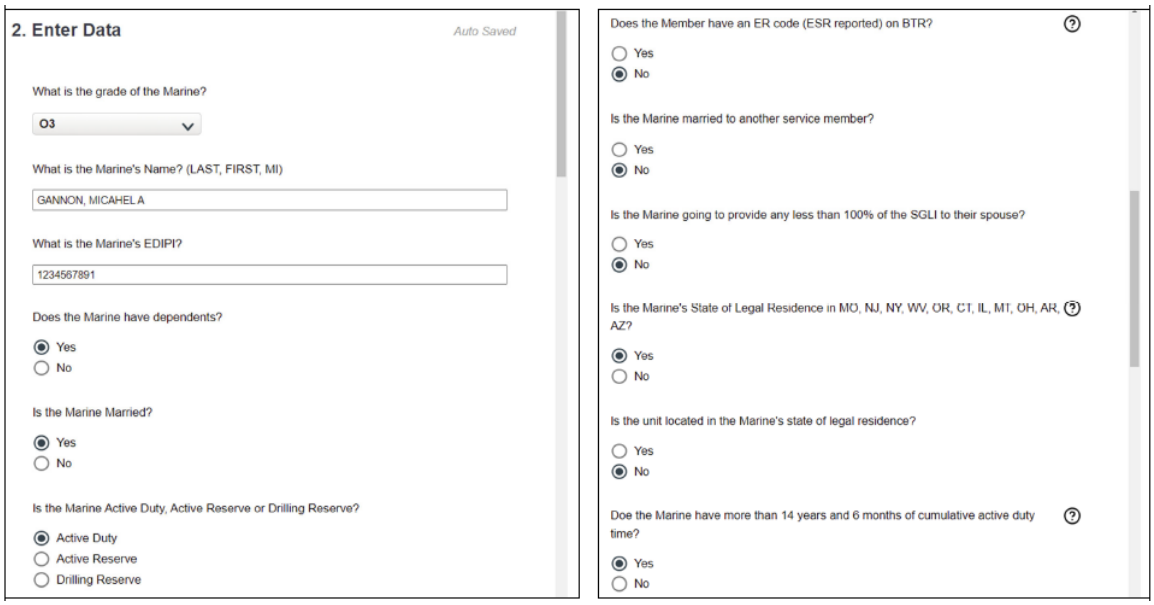
APPENDIX E. PERFORMANCE EVALUATION SYSTEM MASTER TABLE

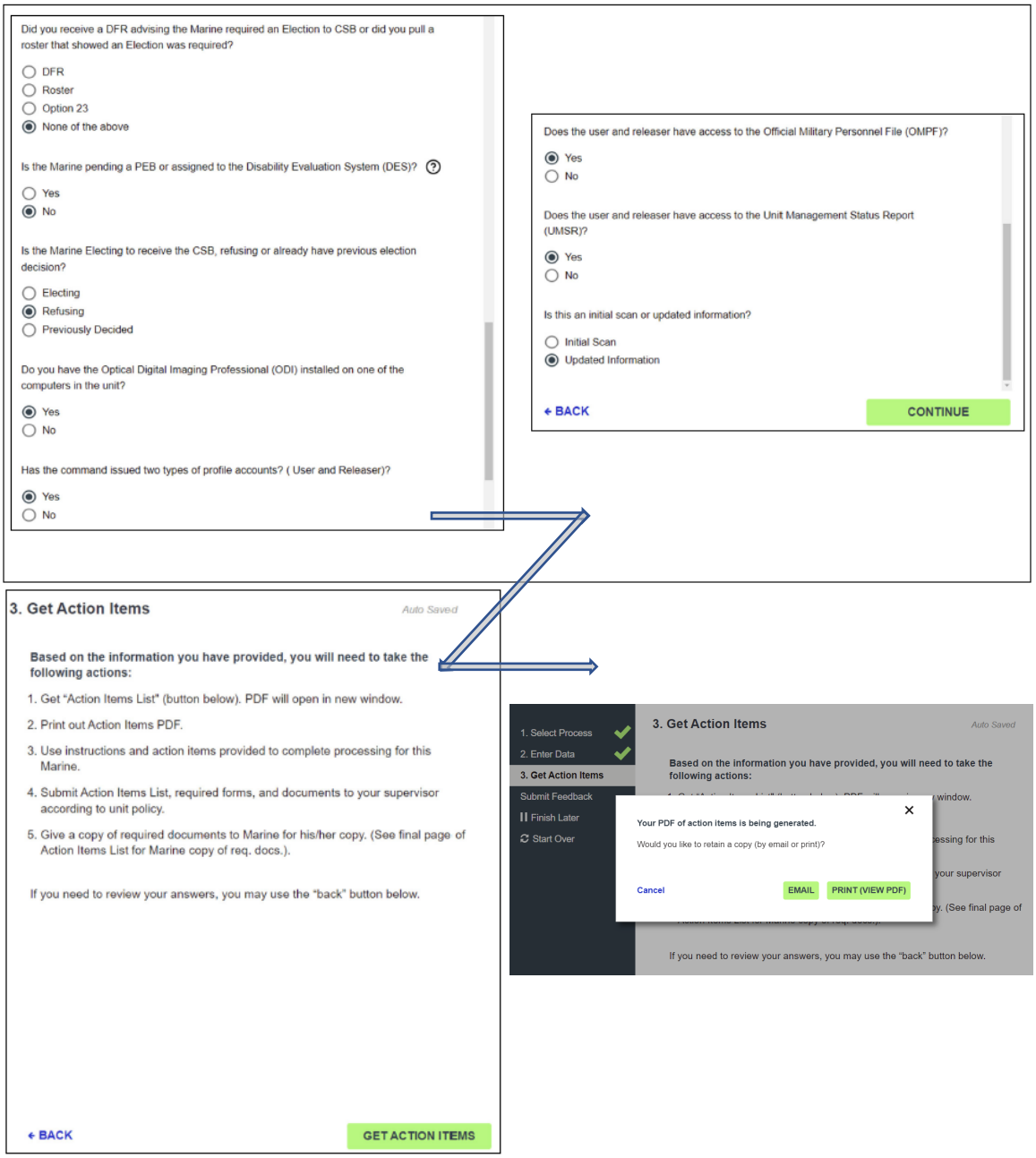
	Column Name	Column Name
Performance Evaluation System Master Table	Assessment Rev Ofcr Code	Mission Perform Code
	Avg At Processing Qy	Mission Profic Code
	Avg This Report Qy	Monitored Command Identifier
	Billet Mos	Observation Rev Ofcr Code
	Duty Assignment Mar Rep On Tx	Occasion Code
	Duty Assignment Rep Senr Tx	Occasion From Date
	Duty Assignment Rev Ofcr Tx	Occasion To Date
	Duty Preference C1 Code	Permanent Rank Date
	Duty Preference C2 Code	Pft Code
	Duty Preference C3 Code	Primary Mos Code
	Duty Type Code	Qual Code
	Evaluation Rev Ofcr Code	Recommed For Promotion Code
	Extract Date	Reporting Unit Code
	First Name Mar Rep On Tx	Reports At Processing Qy
	Fulfillment Evaluations Code	Rep Senr Cumulative Avg Qy
	Grade Mar Rep On Code	Rep Senr Cumulative High Qy
	Grade Rep Senr Code	Rep Senr Cumulative Report Qy
	Grade Rev Ofcr Code	Reserve Component Code
	High At Processing Qy	Ro Score Proc1
	Indiv Courage Code	Ro Score Proc2
	Indiv Effective Code	Ro Score Proc3
	Indiv Initiative Code	Ro Score Proc4
	Initial Rep Senr Id	Ro Score Proc5
	Initial Rev Ofcr Id	Ro Score Proc6
	Intellect Decision Making Code	Ro Score Proc7
	Intellect Judgement Code	Ro Score Proc8
	Intellect Pme Code	Seq Number
	Last Name Mar Rep On Tx	Service Code
	Last Name Rep Senr Tx	Service Rep Senr Code
	Last Name Rev Ofcr Tx	Service Rev Ofcr Code
	Leader Communicate Code	Special Case Code
	Leader Develop Code	Ssn Marine Rep On Id
	Leader Leading Code	Ssn Reporting Senior Id
	Leader Set Example Code	Ssn Reviewing Officer Id
	Leader Well Being Code	Status Code
	Marine Subject Code	Unit Description Tx
	Middle Initial Mar Rep On Tx	
TFRS		FitRepFromDate
		FitRepOCCDate
		FitRepRankDur
		FitRepToDate

APPENDIX F. THE FAST PROCESS

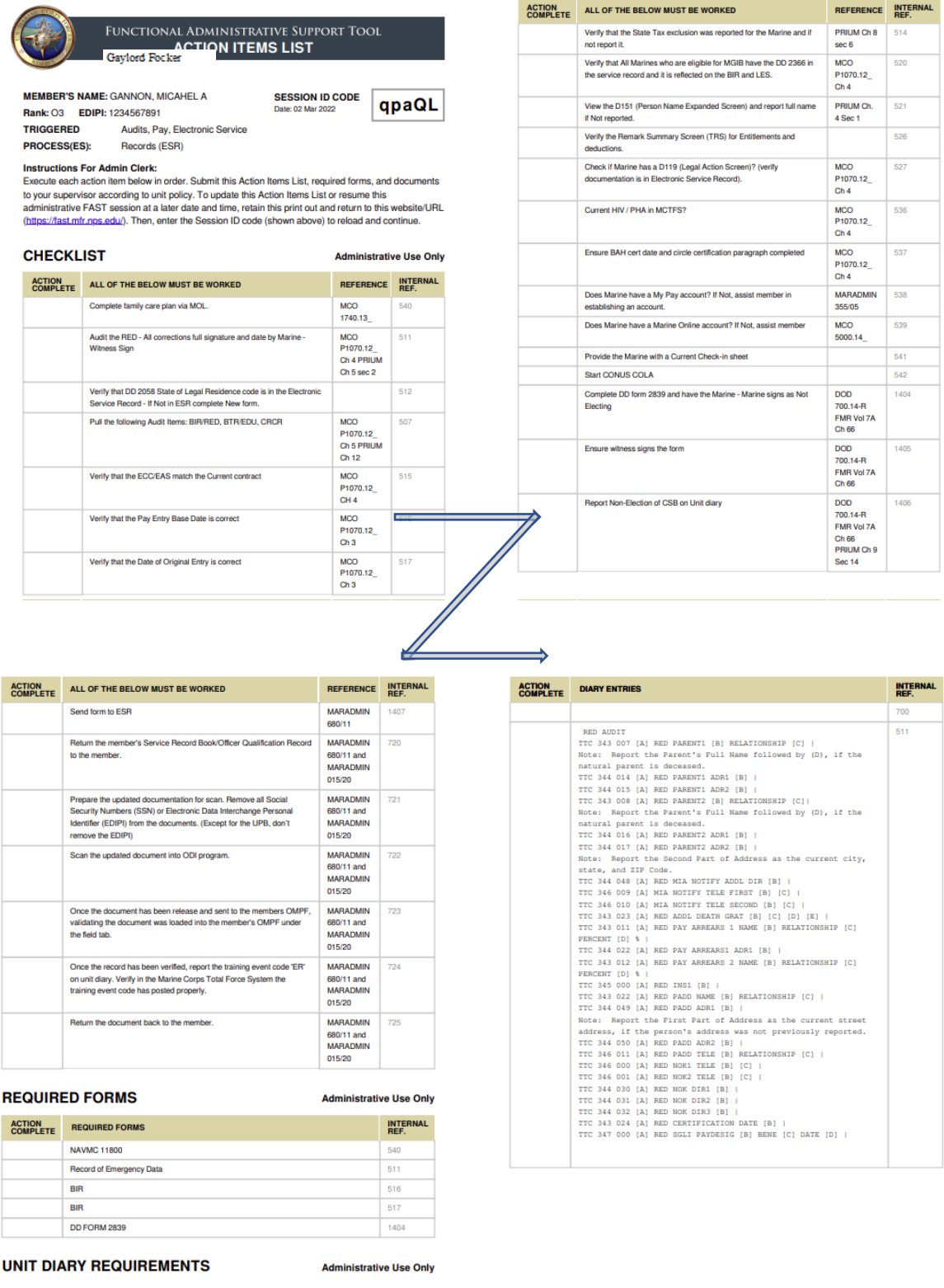



FUNCTIONAL ADMINISTRATIVE SUPPORT TOOL (FAST)
Please enter the MCC of the person generating this checklist:
H99
Home
SUBMIT
Easily select Reserve Administrative process.
Answer questions regarding member's operational needs.
Print out checklists and action items.
FUNCTIONAL ADMINISTRATIVE SUPPORT TOOL
Process Guide
Resources
About
1. Select Process
2. Enter Data
3. Get Action Items
Submit Feedback
Finish Later
Start Over
Auto Saved
AUDITS
COMPETENCY REVIEW BOARD (CRB)
ELECTRONIC SERVICE RECORDS (ESR)
DROPS, TRANSFERS, RETIREMENTS AND OTHER SEPARATIONS
PAY
DEPENDENCY CHANGES
PROMOTIONS
TRAVEL, ORDERS AND CLAIMS
HUMANITARIAN JOIN OR ATTACHMENT (HUMS)
SERVICE TREATMENT RECORD (STR)
REENLISTMENTS AND EXTENSIONS
FAMILY CARE PLANS
MEDICAL
TRANSITION READINESS PROGRAM
JOIN/JOIN AUDIT
LEGAL
ADMIN TOOLBOX FOR SUCCESS
ACTIVATION/ DEACTIVATION
MARINE FORCES RESERVE
← BACK
CONTINUE
1. Select Process
Auto Saved
AUDITS
COMPETENCY REVIEW BOARD (CRB)
ELECTRONIC SERVICE RECORDS (ESR)
DROPS, TRANSFERS, RETIREMENTS AND OTHER SEPARATIONS
PAY
DEPENDENCY CHANGES
PROMOTIONS
TRAVEL, ORDERS AND CLAIMS
HUMANITARIAN JOIN OR ATTACHMENT (HUMS)
SERVICE TREATMENT RECORD (STR)
REENLISTMENTS AND EXTENSIONS
FAMILY CARE PLANS
MEDICAL
TRANSITION READINESS PROGRAM
JOIN/JOIN AUDIT
LEGAL
ADMIN TOOLBOX FOR SUCCESS
ACTIVATION/ DEACTIVATION
← BACK
CONTINUE


2. Enter Data
Auto Saved
What is the grade of the Marine?
O3
What is the Marine's Name? (LAST, FIRST, MI)
GANNON, MICAHEL A
What is the Marine's EDIPI?
1234567891
Does the Marine have dependents?
Yes
No
Is the Marine Married?
Yes
No
Is the Marine Active Duty, Active Reserve or Drilling Reserve?
Active Duty
Active Reserve
Drilling Reserve
Does the Member have an ER code (ESR reported) on BTR?
Yes
No
Is the Marine married to another service member?
Yes
No
Is the Marine going to provide any less than 100% of the SGLI to their spouse?
Yes
No
Is the Marine's State of Legal Residence in MO, NJ, NY, WV, OR, CT, IL, MT, OH, AR, AZ?
Yes
No
Is the unit located in the Marine's state of legal residence?
Yes
No
Doe the Marine have more than 14 years and 6 months of cumulative active duty time?
Yes
No


Did you receive a DFR advising the Marine required an Election to CSB or did you pull a roster that showed an Election was required?
DFR
Roster
Option 23
None of the above
Is the Marine pending a PEB or assigned to the Disability Evaluation System (DES)?
Yes
No
Is the Marine Electing to receive the CSB, refusing or already have previous election decision?
Electing
Refusing
Previously Decided
Do you have the Optical Digital Imaging Professional (ODI) installed on one of the computers in the unit?
Yes
No
Has the command issued two types of profile accounts? (User and Releaser)?
Yes
No
Does the user and releaser have access to the Official Military Personnel File (OMPF)?
Yes
No
Does the user and releaser have access to the Unit Management Status Report (UMSR)?
Yes
No
Is this an initial scan or updated information?
Initial Scan
Updated Information
BACK
CONTINUE
3. Get Action Items
Auto Saved
Based on the information you have provided, you will need to take the following actions:
1. Get "Action Items List" (button below). PDF will open in new window.
2. Print out Action Items PDF.
3. Use instructions and action items provided to complete processing for this Marine.
4. Submit Action Items List, required forms, and documents to your supervisor according to unit policy.
5. Give a copy of required documents to Marine for his/her copy. (See final page of Action Items List for Marine copy of req. docs.).
If you need to review your answers, you may use the "back" button below.
BACK
GET ACTION ITEMS
1. Select Process
2. Enter Data
3. Get Action Items
Submit Feedback
Finish Later
Start Over
3. Get Action Items
Auto Saved
Based on the information you have provided, you will need to take the following actions:
Your PDF of action items is being generated.
Would you like to retain a copy (by email or print)?
Cancel
EMAIL
PRINT (VIEW PDF)
If you need to review your answers, you may use the "back" button below.

APPENDIX G. FAST PRODUCED ACTION ITEM LIST



FUNCTIONAL ADMINISTRATIVE SUPPORT TOOL
ACTION ITEMS LIST
Gaylord Focker

MEMBER'S NAME: GANNON, MICAHEL A
Rank: O3 **EDIPI:** 1234567891
TRIGGERED Audits, Pay, Electronic Service
PROCESS(ES): Records (ESR)

SESSION ID CODE
Date: 02 Mar 2022
qpaQL

Instructions For Admin Clerk:
Execute each action item below in order. Submit this Action Items List, required forms, and documents to your supervisor according to unit policy. To update this Action Items List or resume this administrative FAST session at a later date and time, retain this print out and return to this website/URL (https://fast.mfr.nps.edu/). Then, enter the Session ID code (shown above) to reload and continue.

CHECKLIST — Administrative Use Only

ACTION COMPLETE	ALL OF THE BELOW MUST BE WORKED	REFERENCE	INTERNAL REF.
	Complete family care plan via MOL.	MCO 1740.13_	540
	Audit the RED - All corrections full signature and date by Marine - Witness Sign	MCO P1070.12_ Ch 4 PRIUM Ch 5 sec 2	511
	Verify that DD 2058 State of Legal Residence code is in the Electronic Service Record - If Not in ESR complete New form.		512
	Pull the following Audit Items: BIR/RED, BTR/EDU, CRCR	MCO P1070.12_ Ch 5 PRIUM Ch 12	507
	Verify that the ECC/EAS match the Current contract	MCO P1070.12_ CH 4	515
	Verify that the Pay Entry Base Date is correct	MCO P1070.12_ Ch 3	[illegible]
	Verify that the Date of Original Entry is correct	MCO P1070.12_ Ch 3	517
	Verify that the State Tax exclusion was reported for the Marine and if not report it.	PRIUM Ch 8 sec 6	514
	Verify that All Marines who are eligible for MGIB have the DD 2366 in the service record and it is reflected on the BIR and LES.	MCO P1070.12_ Ch 4	520
	View the D151 (Person Name Expanded Screen) and report full name if Not reported.	PRIUM Ch. 4 Sec 1	521
	Verify the Remark Summary Screen (TRS) for Entitlements and deductions.		526
	Check if Marine has a D119 (Legal Action Screen)? (verify documentation is in Electronic Service Record).	MCO P1070.12_ Ch 4	527
	Current HIV / PHA in MCTFS?	MCO P1070.12_ Ch 4	536
	Ensure BAH cert date and circle certification paragraph completed	MCO P1070.12_ Ch 4	537
	Does Marine have a My Pay account? If Not, assist member in establishing an account.	MARADMIN 355/05	538
	Does Marine have a Marine Online account? If Not, assist member	MCO 5000.14_	539
	Provide the Marine with a Current Check-in sheet		541
	Start CONUS COLA		542
	Complete DD form 2839 and have the Marine - Marine signs as Not Electing	DOD 700.14-R FMR Vol 7A Ch 66	1404
	Ensure witness signs the form	DOD 700.14-R FMR Vol 7A Ch 66	1405
	Report Non-Election of CSB on Unit diary	DOD 700.14-R FMR Vol 7A Ch 66 PRIUM Ch 9 Sec 14	1406
	Send form to ESR	MARADMIN 680/11	1407
	Return the member's Service Record Book/Officer Qualification Record to the member.	MARADMIN 680/11 and MARADMIN 015/20	720
	Prepare the updated documentation for scan. Remove all Social Security Numbers (SSN) or Electronic Data Interchange Personal Identifier (EDIPI) from the documents. (Except for the UPB, don't remove the EDIPI)	MARADMIN 680/11 and MARADMIN 015/20	721
	Scan the updated document into ODI program.	MARADMIN 680/11 and MARADMIN 015/20	722
	Once the document has been release and sent to the members OMPF, validating the document was loaded into the member's OMPF under the field tab.	MARADMIN 680/11 and MARADMIN 015/20	723
	Once the record has been verified, report the training event code 'ER' on unit diary. Verify in the Marine Corps Total Force System the training event code has posted properly.	MARADMIN 680/11 and MARADMIN 015/20	724
	Return the document back to the member.	MARADMIN 680/11 and MARADMIN 015/20	725

REQUIRED FORMS — Administrative Use Only

ACTION COMPLETE	REQUIRED FORMS	INTERNAL REF.
	NAVMC 11800	540
	Record of Emergency Data	511
	BIR	516
	BIR	517
	DD FORM 2839	1404

UNIT DIARY REQUIREMENTS — Administrative Use Only

ACTION COMPLETE	DIARY ENTRIES	INTERNAL REF.
		700
	RED AUDIT TTC 343 007 [A] RED PARENT1 [B] RELATIONSHIP [C] | Note: Report the Parent's Full Name followed by (D), if the natural parent is deceased. TTC 344 014 [A] RED PARENT1 ADR1 [B] | TTC 344 015 [A] RED PARENT1 ADR2 [B] | TTC 343 008 [A] RED PARENT2 [B] RELATIONSHIP [C]| Note: Report the Parent's Full Name followed by (D), if the natural parent is deceased. TTC 344 016 [A] RED PARENT2 ADR1 [B] | TTC 344 017 [A] RED PARENT2 ADR2 [B] | Note: Report the Second Part of Address as the current city, state, and ZIP Code. TTC 344 048 [A] RED MIA NOTIFY ADDL DIR [B] | TTC 346 009 [A] MIA NOTIFY TELE FIRST [B] [C] | TTC 346 010 [A] MIA NOTIFY TELE SECOND [B] [C] | TTC 343 023 [A] RED ADDL DEATH GRAT [B] [C] [D] [E] | TTC 343 011 [A] RED PAY ARREARS 1 NAME [B] RELATIONSHIP [C] PERCENT [D] % | TTC 344 022 [A] RED PAY ARREARS1 ADR1 [B] | TTC 343 012 [A] RED PAY ARREARS 2 NAME [B] RELATIONSHIP [C] PERCENT [D] % | TTC 345 000 [A] RED INS1 [B] | TTC 343 022 [A] RED PADD NAME [B] RELATIONSHIP [C] | TTC 344 049 [A] RED PADD ADR1 [B] | Note: Report the First Part of Address as the current street address, if the person's address was not previously reported. TTC 344 050 [A] RED PADD ADR2 [B] | TTC 346 011 [A] RED PADD TELE [B] RELATIONSHIP [C] | TTC 346 000 [A] RED NOK1 TELE [B] [C] | TTC 346 001 [A] RED NOK2 TELE [B] [C] | TTC 344 030 [A] RED NOK DIR1 [B] | TTC 344 031 [A] RED NOK DIR2 [B] | TTC 344 032 [A] RED NOK DIR3 [B] | TTC 343 024 [A] RED CERTIFICATION DATE [B] | TTC 347 000 [A] RED SGLI PAYDESIG [B] BENE [C] DATE [D] |	511

ACTION COMPLETE	DIARY ENTRIES	INTERNAL REF.
	All BIR Entries 470 000 RUC (87241), COMPANY (A), Platoon CODE (BN**/SUPP) and WORK SECTION (BLANK) 499 003 BILLET DESCRIPTION _____ 829 000 PREVENTIVE HEALTH ASSESSMENT _____ 177 000 BILLET MOS _____ 176 002 ADMOS _____ 174 001 HOME REC W/ZIP CODE ___ ___ ___ 499 001 HIV III _____ 499 024 HOME TELEPHONE # (All PHONE NUMBERS ON BIR/RED APPEAR AS FOLLOWED 000-000-0000) 499 040 CELL PHONE # 499 028 WORK TELEPHONE # 499 025 MAILING Address (VALIDATION R-RECORD) 499 046 PHYSICAL Address 386 000 WORK EMAIL 386 007 PERSONAL EMAIL 815 000 ANNUAL SCREENING = "Z" (ACDU) or "A" (Reserve) 816 000 BAH DEPN CERTIFICATION 417 000 DGLC _____ 407 000 DDLB_____ 406 000 FAM CARE PLAN VAL DT _____ 252 000 SERVICE SPOUSE 423 001 NUMBER OF DEPN _____ 091 000 DEPN LOCATION All _____ ____ _____ 088 001 DEPN OLD _____ _____ _____ _____ _____ New NAME _____ _____ _____ (CHANGE NAME) 027 000 BIC # _____ (active duty - Reserves done in IDMS) 430 000 FED TAX _____ 302 000 STATE TAX _____	507
	TTC 302 000 [A] EXEMPT STATE TAX [B] | [A] DOA (Date of Action) [B] CODE (State Tax Exemption Code) (Value S (Single) or M (Married), and the number of exemptions)	514
	TTC 238 000 [A] NAME [B] [C] [D] [E] | [A] Date of Action (8-byte YYYYMMDD) (All zeroes not allowed) [B] Last Name (26-byte variable alphabetic) (Trailing blanks allowed) [C] First Name (20-byte variable alphabetic) (Trailing blanks allowed) [D] Middle Name (20-byte variable alphanumeric) (All blanks allowed) [E] Cadency (4-byte variable alphanumeric) (All blanks allowed)	521
	276 000 Start CONUS COLA ED_____	542
	TTC 005 000	1406

REQUIRED DOCUMENTS

Administrative Use Only

ACTION COMPLETE	REQUIRED DOCUMENTS	INTERNAL REF.
	MCTFS PRIUM	511
	MCTFS PRIUM	507
	DD Form 4, NAVMC 321A	515
	DD Form 1966, NAVMC 763 (Officers)	516
	DD Form 1966, NAVMC 763 (Officers)	517
	DD 2839	1406

COMMENTS

Administrative Use Only

ACTION COMPLETE	COMMENTS	INTERNAL REF.
	N/A. No generated content for this section.	

Gaylord Focker

SIGNATURE

ACTION ITEMS LIST (Member Copy)

Instructions to Auditor (clerk):
Sign and date this cover page and retain with Marine's administrative paperwork.

Give a copy of Required Documents (see next page) to the Marine for his or her records and/or follow up action.

Signature of Marine Member Conducting Work: _____

Date: _____

MEMBER'S NAME: GANNON, MICAHEL A
Rank: O3 **EDIPI:** 1234567891

SESSION ID CODE
Date: 02 Mar 2022
qpaQL

Instructions to Marine:
It is your responsibility to provide the following required documents (if listed below) to your administrative clerk IAW instructions from your Unit Commander. Failure to provide all Required Documents may impact your pay, promotion eligibility, and deployment status.

REQUIRED DOCUMENTS (Copy)

For Marine Action

ACTION COMPLETE	REQUIRED DOCUMENTS
	MCTFS PRIUM
	MCTFS PRIUM
	DD Form 4, NAVMC 321A
	DD Form 1966, NAVMC 763 (Officers)
	DD Form 1966, NAVMC 763 (Officers)
	DD 2839

APPENDIX H. MOL FAST LINK HTML CODE

Marine Corps Reserve Forces Command Functional Administrative Support Tool (FAST) The Functional Administrative Support Tool (FAST) is the result of a collaborative partnership between Information Management/Knowledge Management and the Administrative Support Unit, G1, Marine Forces Reserve in New Orleans, Louisiana. FAST is designed to help you learn routine administrative processes independently. FAST replaced the checklists that were a part of the Standardized Administrative Processes.

APPENDIX I. MONTEREY PHOENIX SCHEMA

SCHEMA Fitness_Report_Process

ROOT Marine_Online_FOS : [Check_Section_A_Data];
Check_Section_A_Data: (+ {MOL OMPF APES} +) ;

ROOT Reporting_Senior: New_RS_MRO_Relationship Provide_Initial_Counseling Fitness_Report_Occassion [Receive_MROW] Check_Section_A_Data ;

ROOT Marine: New_RS_MRO_Relationship Receive_Initital_Counseling Fitness_Report_Occassion [Draft_MROW Route_MROW];
Draft_MROW: Check_Section_A_Data {Complete_Section_A Billet_Description Major_Accomplishments} ;

ROOT Senior_Enlisted_Leader: ;

ROOT Reviewing_Officer: ;

ROOT MMRP : Receive_Fitness_Report Review_Fitness_Report (Accept_Fitnees_Report | Return_Fitness_Report);

COORDINATE $b: New_RS_MRO_Relationship FROM Marine,
$a: New_RS_MRO_Relationship FROM Reporting_Senior

```
        DO SHARE $a $b; OD;

COORDINATE      $b: New_RS_MRO_Relationship FROM Marine,
                $a: New_RS_MRO_Relationship FROM Reporting_Senior
        DO SHARE $a $b; OD;


COORDINATE      $a: Provide_Initial_Counseling FROM Reporting_Senior,
                $b: Receive_Initital_Counseling FROM Marine
        DO ADD $a PRECEDES $b; OD;

COORDINATE      $co: Complete_Section_A         FROM Marine,
                $mol: MOL                               FROM
Marine_Online_FOS,
                $ompf: OMPF                             FROM
Marine_Online_FOS,
                $apes: APES                             FROM
Marine_Online_FOS
            DO ADD $mol Provides_data_for       $co;
              ADD $ompf Provides_data_for       $co;
              ADD $apes Provides_data_for       $co; OD;


COORDINATE      $a: Route_MROW FROM Marine,
                $b: Receive_MROW FROM Reporting_Senior
        DO ADD $a PRECEDES $b; OD;
```

APPENDIX J. EXAMPLE RO WORKSHEETS

1610
DD Mmm YY

From: RS, 15th Marine Expeditionary Unit
To: Reviewing Officer, 15th Marine Expeditionary Unit

Subj: RECOMMENDED REVIEWING OFFICER COMMENTS CASE OF _____

1. The following are my recommended Section K remarks:

a. Item K.1. - Observation:

SUFFICIENT [ ] INSUFFICIENT [ ]

b. Item K.2. - Evaluation:

CONCUR [ ] DO NOT CONCUR [ ]

c. Item K.3. - Comparative Assessment:

THE EMINENTLY QUALIFIED MARINE	[ ]
ONE OF THE FEW EXCEPTIONALLY QUALIFIED MARINES	[ ]
ONE OF THE MANY HIGHLY QUALIFIED PROFESSIONALS WHO FORM THE MAJORITY OF THIS GRADE	[ ]
A QUALIFIED MARINE	[ ]
UNSATISFACTORY	[ ]

d. Item K.4. - RO Comments:

2. Written comments.

1 Enclosure (2)

UNITED STATES MARINE CORPS
I MARINE EXPEDITIONARY FORCE, FMF
BOX 555300
CAMP PENDLETON, CALIFORNIA 92055-5300

1610
SSEC

From: Commanding Officer, XXXXXXX
To: Commanding General, I MEF

MRO Rank, Last Name, Initials:
Occasion: Fitrep "From"/"To"

OBSERVATIONS/COMMENTS: Word picture here for further discussion in addition to section I comments.

"Christmas Tree" Marking Recommendation	
The Eminently Qualified Marine	[ ]
One of the Few Exceptionally Qualified Marines	[ ] [ ]
One of the Many Highly Qualified Professionals who form the Majority Of this Grade	[ ] [ ] [ ]
Qualified Marine	[ ]
Unsatisfactory	[ ]

Recommended RO Comments: Recommend comments: recommendation regarding command, assignment to PME or specific assignments. Performance relative to peers. Declarative statement on MRO and statement of worth to the Marine Corps.

1 Enclosure (3)

FOR OFFICIAL USE ONLY

RO Worksheet

U.S. Marine Corps Forces, Europe and Africa

Submit this worksheet to the Staff Secretary for all Marine FITREPs that require the Chief of Staff or Deputy Commander to serve as the Reviewing Officer (RO).

Submit this worksheet to the Executive Assistant for all Marine FITREPs that require the Commander to serve as the Reviewing Officer (RO).

MARINE REPORTED ON (MRO) & REPORTING SENIOR (RS) DATA

MRO

Select	Lname, Fname, MI	Select	D-Mmm-YY
MRO RANK	*MRO LAST NAME, FIRST NAME, MI*	*OCCASION*	*MMSB DUE DATE*
D-Mmm-YY	**Insert duty description**	**Insert unit**	
DATE FITREP WAS ENTERED IN APES	*MRO DUTY DESCRIPTION/BILLET*	*MRO'S UNIT*	

RS

Select	Lname, Fname, MI	
RS RANK	*RS LAST NAME, FIRST NAME, MI*	*RS DUTY DESCRPTION/BILLET*

MRO BACKGROUND INFORMATION

Education	Completed	Selected (Resident)	Enrolled (Non-Res)
Career-Level School:	☐	☐	☐
Intermediate Level School:	☐	☐	☐
Top Level School:	☐	☐	☐
Graduate Degree Program (SEP/ADP):	☐	☐	☐
Graduate/Adv Degree (Self-Study):	☐	☐	☐
JPME Phase I:	☐	☐	☐
JPME Phase II:	☐	☐	☐

Command and Joint Experience	Completed	Selected	Unit (if applicable)
O5-level Command	☐	☐	**Name of unit if applicable**
Full Joint Duty Assignment	☐	☐	**Name of unit if applicable**

	Yes	No	N/A
Is the MRO designated as a JQO MOS 9702?	☐	☐	☐

MRO Desired Rank/Grade Appropriate Follow-on Assignment: **Insert billet, unit/district**
BILLET, UNIT

RS PROFILE AND RECOMMENDATIONS

RS Recommendations:

Do you recommend the MRO for promotion: ☐ Yes ☐ No ☐ N/A
Do you recommend appropriate level resident school (CLS/ILS/TLS): ☐ Yes ☐ No ☐ N/A
Do you recommend appropriate level command slating (O5/O6): ☐ Yes ☐ No ☐ N/A

RS Profile for the Appropriate Rank:

RS High: **X.XX**
RS Average: **X.XX**
RS Low: **X.XX**
Average For This Report: **X.XX**

For all observed reports of the MRO's rank, I ranked the MRO: **XX** of **XX**
I recommend the MRO be placed between the bottom **XX%** and top **XX%** of the RO's comparative assessment profile.

FOR OFFICIAL USE ONLY

Enclosure (3)

RS Recommended RO Comments:

- Provide bulletized comments that capture the MRO's performance and abilities.
- Recommended comments should be appropriate to the rank and billet of the MRO.
- For example, limiting bullets to MOS proficiency, troop leadership ability, and physical fitness for a field grade officer filling an important billet on the Group staff are not rank and billet appropriate comments unless the RS's intent is to indicate marginal performance. Comments that would indicate average/above average performance may address strategic communication and leadership ability, how the MRO's accomplishments impacted the MAGTF, critical thinking ability, etc.

Amplifying Information. In your (RS) own words, provide the rationale behind recommended RO comments and other information that will assist the RO with completing the report:

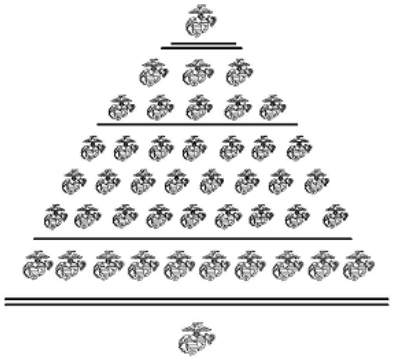
- In your own words, are the recommended RO comments intended to indicate below average/average/above average/superior performance and abilities? Provide an unfiltered assessment.
- Does the MRO intend to retire, separate, or transfer to the reserves?
- Did the MRO overcome a personal or family crisis during the reporting period that demonstrated resiliency, dedication, and/or time management?
- Off duty education? Volunteer service?
- Is MRO's preference for next duty assignment a good fit? Is it rank appropriate?
- Thoughts behind promotion recommendation? With force reductions, is this a Marine you want as your future _____?
- Are you submitting MRO for an award?

REVIEWING OFFICER'S TRUSTED ASSISTANT (TA) ENTRIES

TA Comments:

- Provide administrative remarks regarding the review and the processing of the FITREP.
- Provide information regarding batch processing effects on profile.
- Provide translation of RS percentile recommendation to RO profile distribution.

RO Comparative Assessment Profile (as of 10-Oct-13):



Value	# of Reports	RS Rec	Prev Report
8	X	☐	☐
7	X	☐	☐
6	X	☐	☐
5	X	☐	☐
4	X	☐	☐
3	X	☐	☐
2	X	☐	☐
1	X	☐	☐

REVIEWING OFFICER WORKSHEET

MRO:_____ **Reporting Period:**_____

RS: _____ **Occasion:**___

RO: _____

1. Relative value of this report

- I have written ____ previous FITREPs as a RS on Marines of this rank.

RS High for Grade	
RS Low for Grade	
RS Avg for Grade	
MRO Avg (this report)	
For all reports of this grade I rank MRO	

- I **was / was not** the MRO's RS for last reporting period.

2. Background on MRO
<add amplifying background>

3. Joint Qualified Officer?

4. PME

5. Command
a. Held Command in Grade?
b. Have you been screened for Command?
c. What is your desire for Command

6. Is MRO in zone?

7. Additional information on Duty Preferences

8. RS Comments for reference
<add RS Comments>

9. Comparative Assessment

- I recommend that you mark MRO in the top ____% of your RO profile.

10. Proposed RO Comments
<add Proposed RO Comments>

Enclosure (6)

V27 REVIEWING OFFICER WORKSHEET

MRO: 1stLt Edward Holton **RS:** Maj Burgandy

OCCASION	FROM DATE:	TO DATE:
GC	20150430	20150909

REPORTING SENIOR PROFILE

RS High for Grade	4.21
RS Low for Grade	3.46
RS Avg for Grade	3.78
MRO Avg (this report)	3.46

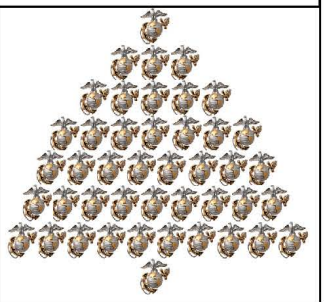
RECOMMENDED SECTION K COMMENTS

Put an X in the appropriate [ ] for the recommended RO observation.

OBSERVATION		
	SUFFICIENT [X]	CONCUR [X]
	INSUFFICIENT [ ]	DO NOT CONCUR [ ]

COMPARATIVE ASSESSMENT

Right click on appropriate box, select "Format Autoshape, under Fill: select the color drop down arrow, select black.

Comparative assessment: Provide a comparative assessment of potential by placing an "X" in the appropriate box. In marking the comparison, consider all Marines of this grade whose professional abilities are known to you personally.	DESCRIPTION		COMPARATIVE ASSESSMENT
	THE EMINENTLY QUALIFIED MARINE	■	
	ONE OF THE FEW	☐	
	EXCEPTIONALLY QUALIFIED MARINES	☐	
	ONE OF THE MANY HIGHLY QUALIFIED	☐	
	PROFESSIONALS WHO FORM THE MAJORITY OF THIS GRADE	☐	
	A QUALIFIED MARINE	☐	
	UNSATISFACTORY	☐	

RECOMMENDED RO COMMENTS

(Include a character assessment and recommendations for promotion, retention, resident PME, and potential for command or follow on duty assignment)

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LIST OF REFERENCES

A brief history of Headquarters Marine Corps staff organization. (1971). [Historical Reference Pamphlet]. Historical Division. https://www.usmcu.edu/Portals/218/A%20Brief%20History%20of%20Headquarters%20Marine%20Corps%20Staff%20Organization%20PCN%20190002487000.pdf

About HR open—HR open standards consortium, Inc. (n.d.). Retrieved March 6, 2022, from https://www.hropenstandards.org/about-hr-open

About—Monterey Phoenix—NPS wiki. (n.d.). Retrieved February 5, 2022, from https://wiki.nps.edu/display/MP/About

Advanced distributed learning initiative products & services catalog. (2021, November). [Power Point Presentation]. https://www.adlnet.gov/assets/uploads/ADL%20Initative%20Products%20and%20Services%20Catalog.pdf

Allen, G. (2020). *Understanding AI technology*. Joint Artificial Intelligence Center.

Appropriations, U. S. House Committee on National Defense. (1964). *Department of Defense Appropriations for 1965: Subcommittee on Appropriations,* 88th Cong. (1970) (testimony of General Greene) https://play.google.com/store/books/details/United_States_Congress_House_Committee_on_Appropri?id=-p1dtB8LV8UC

Auguston, M. (2020). *Monterey Phoenix system and software behavior modeling language (Version 4.0)* (p. 152) [Manual]. Naval Postgraduate School. https://wiki.nps.edu/download/attachments/604667916/MP2-syntax-v4.pdf?api=v2

Auguston, M., Giammarco, K., Baldwin, C., Comp, J., & Farah-Stapleton, M. (2015). Modeling and verifying business processes with Monterey Phoenix | Elsevier Enhanced Reader. *Procedia Computer Science*, 9. https://doi.org/10.1016/j.procs.2015.03.055

Baxter, G., & Sommerville, I. (2011). Socio-technical systems: From design methods to systems engineering. *Interacting with Computers*, *23*(1), 4–17. https://doi.org/10.1016/j.intcom.2010.07.003

Benitez-Amado, J., Llorens-Montes, F. J., & Fernandez-Perez, V. (2013). The relationship between it infrastructure leveraging, talent management and operational sustainability, and their effects on the business value of the operations strategy. *Proceedings of the Nineteenth Americas Conference on Information Systems.* 8.

Berger, D. (2019). *Commandant's planning guidance 38th Commandant of the Marine Corps* (p. 23) [Planning Guidance]. United States Marine Corps. http://www.marines.mil/News/Publications/MCPEL/Tag/143328/38th-commandants-planning-guidance/

Bonen, Z. (1979). Evolutionary behavior of complex sociotechnical systems. *MIT Sloan School of Management*, Working Paper #1056-79, 42. http://dspace.mit.edu/bitstream/handle/1721.1/47763/evolutionarybeha00bone.pdf ;sequence=1

Brundick, F. S., & Dehlinger, J. (2011). The global force management data initiative: Implementing an enterprise information exchange data model. 26–30. https://doi.org/10.1109/SERA.2011.11

Center for Disease Control. (2020, May 11). https://www.cdc.gov/nceh/ehs/ehsnet/ system-theory.htm

Chamberlain, S., & Boller, M. (2006, June 12). *The Formal representation of administrative and operational relationships within defense organizational constructs*. 11th International Command & Control Research & Technology Symposium, Aberdeen Proving Ground.

Cheung, Y., & Bal, J. (1998). Process analysis techniques and tools for business improvements. *Business Process Management Journal*, *4*, 274–290. https://doi.org/10.1108/14637159810238174

Cochran, J. (Ed.). (2019). *INFORMS Analytics body of knowledge*. John Wiley & Sons, Ltd.

Combat Development and Integration Command. (2021). Marine Corps Order 6110.3A Marine Corps body composition and military appearance program. United States Marine Corps.

Combat Development and Integration Command. (2014). *Marine Corps Order 1553.10 Marine Corps training information management system (MCTIMS) standard operation procedure (SOP)*. United States Marine Corps. https://www.marines.mil/Portals/1/Publications/MCO%201553.10.pdf

Congressional Research Office. (2019). *Data protection and privacy law: An overview for Congress* (CRS Report No R45631) 79. https://crsreports.congress.gov/product/pdf/R/R45631

Defense military pay year 2000 end to end testing (Audit Report No. 00–017; p. 37). (1999). Office of the Inspector General. https://media.defense.gov/1999/Oct/21/ 2001715674/-1/-1/1/00-017.pdf

Department of Defense, C. I. O. (2010, August). *DoDAF architecture framework version 2.02*. DOD Architecture Framework. https://dodcio.defense.gov/Portals/0/Documents/DODAF/DoDAF_v2-02_web.pdf

Farah-Stapleton, M. (2016). *Executable behavioral modeling of system and software architecture specifications to inform resourcing decisions* [Dissertation, Naval Postgraduate School]. https://calhoun.nps.edu/bitstream/handle/10945/50538/16Sep_Farah-Stapleton_Monica.pdf?sequence=1&isAllowed=y

Farah-Stapleton, M., Auguston, M., & Giammarco, K. (2016). Executable behavioral modeling of system and software architecture specifications to inform resourcing decisions. *Procedia Computer Science*, *95*, 48–57. https://doi.org/10.1016/j.procs.2016.09.292

Frye, L. E. (2021). *Production structure · Wiki · MARFORRES / FAST - functional administrative support tool* [Gitlab Wiki Repository]. GitLab. https://gitlab.nps.edu/marforres/fast/-/wikis/Production%20Structure

Gawande, Atul. 2013. The checklist manifesto: How to get things right. Picador

Giammarco, K. (In Press). Exposing and controlling emergent behaviors using models with human reasoning. In *Engineering Emergence: Real World Applications*. CRC Press Taylor & Francis Group.

Grossmann, W., & Rinderle-Ma, S. (2015). *Fundamentals of business intelligence*. Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-662-46531-8

Harker, T. (2021). *Department of the navy actions to data advantage* (p. 3) [Memorandum for Distribution]. Department of the Navy.

Havis, K. (2021). *Competency and skills system (CaSS)* (p. 10). Advanced Distributed Learning Initiative. https://adlnet.gov/projects/cass/

Hoag, R. (2021, February 19). *Intuitive, NPS-developed behavior analysis tool now accessible to the public*. United States Navy. https://www.navy.mil/Press-Office/News-Stories/Article/2509704/intuitive-nps-developed-behavior-analysis-tool-now-accessible-to-the-public/

Hull, T. (2021). *IPAC modernization concepts*. United States Marine Corps.

I Marine Expeditionary Force. (2018). I MEF guidance and procedures concerning proper identification code (BIC) assignment and reporting procedures. United States Marine Corps.

Kale, V. (2019). enterprise process management systems- engineering process-centric enterprise systems using BPMN 2.0 (https://lccn.loc.gov/2019011924). Taylor & Francis Group.

Kilov, H., & Cordeiro, J. (2001). *Open distributed processing: Enterprise, computation, knowledge, engineering, and realisation* (Proceedings of the 1st International Workshop on Open Distributed Processing: Enterprise, Computation, Knowledge, Engineering and Realisation, p. 136). ICEIS Press.

Kirchmer, M. (2011). *High performance through process excellence*. Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-21165-2

Kulisz, T. (2021). *FitRep tracker* (fitrep_tracker_ver20210429) [VBA; Excel]. https://fitreptracker.wordpress.com/

Lee, N. (2017, November 2). *MARFORRES launches a new online reserve and independent duty administration course and functional support tool*. Marine Corps Forces Reserve. https://www.marforres.marines.mil/News-Photos/MARFORRES-News/Article/1361384/marforres-launches-a-new-online-reserve-and-independent-duty-administration-cou/

Manpower and Reserve Affairs. (2004). *Marine Corps Order 5000.14D Marine Corps administrative procedures (Short title: MCAP)*. https://www.marines.mil/News/Publications/MCPEL/Electronic-Library-Display/Article/899071/mco-500014d/

Manpower and Reserve Affairs. (2008). *MARADMIN 535/08 Marine On-line (MOL) mandate*. https://www.marines.mil/News/Messages/Messages-Display/Article/889951/marine-on-line-mol-mandate/

Manpower and Reserve Affairs. (2010). *Marine Corps Order P1610.7F Ch2 performance evaluation system*. United States Marine Corps. https://www.hqmc.marines.mil/Portals/133/Docs/MCO%20P1610_7F%20W%20CH%201-2.pdf

Manpower and Reserve Affairs. (2012). *MARADMIN 198/12 Marine Corps Total Force System (MCTFS) Marine Online (MOL) billet identification code (BIC) reporting*. United States Marine Corps. https://www.marines.mil/News/Messages/Messages-Display/Article/887580/marine-corps-total-force-system-mctfs-marine-online-mol-billet-identification-c/

Manpower and Reserve Affairs. (2018). *Marine Corps Order 1610.7A performance evaluation system*. United States Marine Corps. https://www.marines.mil/Portals/1/Publications/MCO%201610.7A.pdf?ver=2018-05-07-074813-187

Manpower and Reserve Affairs. (2021a). *MARADMIN 473/21 announcement of change to annual fitness report schedule for active component lieutenant colonels and colonels*. United States Marine Corps. https://www.marines.mil/News/Messages/Messages-Display/Article/2773451/announcement-of-change-to-annual-fitness-report-schedule-for-active-component-l/

Manpower and Reserve Affairs. (2021b). *MARADMIN 735/21 Change to annual fitness report schedule for reserve component field grade officers*. United States Marine Corps. https://www.marines.mil/News/Messages/Messages-Display/Article/2884764/change-to-annual-fitness-report-schedule-for-reserve-component-field-grade-offi/

Manpower and Reserve Affairs. (2022). *Occupation field deployment data*. United States Marine Corps. https://www.manpower.usmc.mil/lookups/lookups/lookups.action

Manpower Information Branch, M. and R. A. (2022, February 24). *Manpower codes lookup*. Manpower Code Lookup. https://www2.manpower.usmc.mil/lookups/lookups/lookups.action?tableId=561

Manpower Management Division. (2021a). *MARADMIN 193/21 implementation of the inbound interview and travel voucher interview process in Marine Online.* United States Marine Corps. https://www.marines.mil/News/Messages/Messages-Display/Article/2566901/implementation-of-the-inbound-interview-and-travel-voucher-interview-processes/

Manpower Management Division. (2021b). *MARADMIN 395/21 FY22 Colonel command screening board results*. United States Marine Corps. https://www.marines.mil/News/Messages/Messages-Display/Article/2714667/fy22-colonel-command-screening-board-results/#:~:text=On%2013%20July%202021%2C%20the%20Commandant%20of%20the,with%20a%20fair%20and%20equitable%20opportunity%20to%20command.

Marine Corps Manpower and Reserve Affairs. (2004). *Total Force Administration System (TFAS) and Marine Online (MOL);/fielding update* (MARADMIN No. 371/04). United States Marine Corps. https://www.marines.mil/News/Messages/MARADMINS/Article/891001/total-force-administration-system-tfas-and-marine-online-molfielding-update/

Marine Corps Manpower and Reserve Affairs. (2008). *Total Force Administration System and Installation Personnel Administration Centers* (ALMAR No. 058/05). United States Marine Corps. https://www.marines.mil/News/Messages/Messages-Display/Article/886520/total-force-administration-system-and-installation-personnel-administration-cen/

Marine Corps Reserve. (2021). United States Marine Corps | Marine Recruiting | Marines. https://www.marines.com/about-the-marine-corps/marine-corps-structure/marine-corps-reserve.html

Monta, R. (2019, September 12). *Portfolio manager supporting establishment systems* [Power Point Presentation]. 2019 Advanced Planning Briefing to Industry, Quantico, Va. https://www.marcorsyscom.marines.mil/Portals/105/CorpComDirectorate/BriefstoIndustry/2019_APBI_SES.pdf?ver=2019-09-12-163152-720

MP-Firebird—Monterey Phoenix—NPS wiki. (n.d.). Retrieved February 5, 2022, from https://wiki.nps.edu/display/MP/MP-Firebird

National Academies of Sciences, Engineering, and Medicine. (2017). *Strengthening data science methods for Department of Defense Personnel and Readiness missions (2017)*. National Academies Press. http://nap.edu/23670

Newbold, J. (2021). *Inspectors General checklist performance evaluation system (PES) (1610)*. United States Marine Corps. https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fmedia.defense.gov%2F2021%2FDec%2F09%2F2002906685%2F-1%2F-1%2F0%2FPERFORMANCE%2520EVALUATION%2520SYSTEM%2520(PES).DOCX&wdOrigin=BROWSELINK

Norquist, D. (2020). *DOD data strategy* (p. 16). Office of the Secretary of Defense.

Ortize, P. (2022, February 24). *Finishing grad school* [Power Point Presentation].

Personnel Administration School. (2020). *USMC personnel admin ref guide*. United States Marine Corps. https://www.mcieast.marines.mil/Portals/33/Guide.pdf

Philpott, T. (2010, February 20). *Military Update: DIMHRS program dumped as 'a disaster.'* Stars and Stripes. https://www.stripes.com/opinion/military-update-dimhrs-program-dumped-as-a-disaster-1.99558

Polach, J., & Young, K. (n.d.). *Marine Corps Total Force System: The workhorse for personnel and pay throughout the Marine Corps*. Retrieved February 9, 2022, from https://jdgrose115.tripod.com/Adjutant/mctfs.html

Raimondi, D. (2022, February 10). *RE: MARFORRES FAST*.

Richter, F.-J., & Sinha, G. (2020, August 21). Why do your employees resist new tech? *Harvard Business Review*. https://hbr.org/2020/08/why-do-your-employees-resist-new-tech

Ridac Process. (n.d.). Functional administrative support tool (FAST), v1.0. Retrieved March 1, 2022, from https://fast.mfr.nps.edu/process/1/

Sadowski, J. (2019). When data is capital: Datafication, accumulation, and extraction. *Big Data & Society*, *6*(1), 1–12. https://doi.org/10.1177/2053951718820549

Safety Division, C. of the M. C. (2021). *Marine Corps safety management system*. United States Marine Corps. https://www.marines.mil/Portals/1/Publications/MCO%205100.29C%20with%20CH-1%20and%20Volumes%201-8.pdf?ver=3lnJ4dnxo17lTHS_6fk8EQ%3d%3d

Salvadorramos, D. (2021, October 21). *MCAAT FY21 Trends* [Power Point Presentation].

Sweeney, L., Kortright, E., & Buckley, R. (2001). Developing an RM-ODP-Based architecture for the defense integrated military human resource system. In *Proceedings of the 1st International Workshop on Open Distributed Processing: Enterprise, Computation, Knowledge, Engineering and Realisation*, p. 136. ICEIS Press.

Tafti, A., Mithas, S., & Krishnan, M. S. (2007). Information technology and the autonomy-control duality: Toward a theory. *Information Technology & Management*, *8*(2). http://dx.doi.org/10.1007/s10799-007-0014-x

Talent Management 2030. (2021). United States Marine Corps. https://www.hqmc.marines.mil/Portals/142/Users/183/35/4535/Talent%20Management%202030_November%202021.pdf?ver=E88HXGUdUQoiB-edNPKOaA%3d%3d

Technology Service Organization. (2022a, February 22). *Marine Online BIC assignment*. Marine Online. https://mol.tfs.usmc.mil/mol/BIC.do

Technology Service Organization. (2022b, March 2). *Marine Online important links*. Marine Online. https://mol.tfs.usmc.mil/mol/ImportantLinks.do

TFDWSequence Numbers_113292021_2024.csv. (2021). [Total Force Data Warehouse]. Manpower & Reserve Affairs.

Titopace, T., & Souza, C. (2021). *Inspectors General checklist Marine Corps body composition and military appearance program (MCBCMAP) (6110)*. https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fmedia.defense.gov%2F2022%2FJan%2F21%2F2002925449%2F-1%2F-1%2F0%2FBODY%2520COMPOSITION%2520AND%2520MILITARY%2520APPEARANCE%2520PROGRAM%2520(6110).DOCX&wdOrigin=BROWSELINK

Training and Education Command. (2020). *MCTP 3-30G Marine Corps manpower and personnel administration* [MCTP]. United States Marine Corps. http://www.marines.mil/Portals/1/Publications/MCTP%203-30G.pdf?ver=2020-02-11-105907-827

Training and Education Command. (2022, February). *MCTIMS student registrar*. MCTIMS student registrar. https://mctims.usmc.mil/Registrar/Pages/Course/CourseDetails.aspx?CID=M03KCH8&CourseID={c3ca3fa6-00d2-43d3-a5f9-555ad6ce6a6c}&FiscalYear=2023&FYCourseID={B1B68336-1840-7534-E053-CA0A2BD62A5F}#Memo

Turulja, L. (2018). Information technology, knowledge management and human resource management. *VINE Journal of Information and Knowledge Management Systems*, *48*(2). http://dx.doi.org/10.1108/VJIKMS-06-2017-0035

U. S. Government Accountability Office. (2008, September 8). DOD systems modernization: Maintaining effective communication is needed to help ensure the Army's successful deployment of the defense integrated military human resources system. https://www.gao.gov/products/gao-08-927r

West, D. M. (2021, November 15). How robotic process and intelligent automation are altering government performance. *Brookings*. https://www.brookings.edu/research/how-robotic-process-and-intelligent-automation-are-altering-government-performance/

Woods, E., & Rozanski, N. (2011). How software architecture can frame, constrain and inspire system requirements. In P. Avgeriou, J. Grundy, J. G. Hall, P. Lago, & I. Mistrík (Eds.), *Relating Software Requirements and Architectures* (pp. 333–352). Springer. https://doi.org/10.1007/978-3-642-21001-3_19

Young, K., & Lentivech II, J. (2001, June 14). *MCTFS*. https://www.globalsecurity.org/intell/library/reports/2001/compendium/mctfs.htm

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