



# **NAVAL POSTGRADUATE SCHOOL**

**MONTEREY, CALIFORNIA**

## **THESIS**

**INFORMATION TECHNOLOGY IN THE UNITED STATES  
MARINE CORPS: A CASE STUDY OF INNOVATION AND  
CHANGE USING A SYSTEM DYNAMICS PERSPECTIVE**

by

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June 2018

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**INFORMATION TECHNOLOGY IN THE UNITED STATES MARINE CORPS:  
A CASE STUDY OF INNOVATION AND CHANGE USING A SYSTEM  
DYNAMICS PERSPECTIVE**

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## **ABSTRACT**

The Department of Defense lacks case studies that investigate and detail the innovation and adoption of information technology systems. This qualitative study develops a case study to explore the factors that contributed to the United States Marine Corps' innovation and adoption of Ripper Academy, a video-streaming platform that allows Marines to create, share, and view user-generated video content. This research addresses the research question: How can the United States Marine Corps successfully employ the principles of change management and system dynamics to innovate and ensure the adoption of information technology systems?

Using the change formula, John Kotter's eight-stage process, and the ADKAR change model, an analysis of the Ripper Academy case study highlights the importance of internal and external champions, a vision for the future, actual data, the support of a guiding coalition, bottom-up and top-down support, and individual abilities when implementing an organizational change. Referencing the limits to growth archetype and Bass diffusion model, the case study identifies incentives, advertising, word-of-mouth, inaccessibility, and dissatisfaction as possible variables impacting the adoption of Ripper Academy. This research provides a teaching case study that examines the innovation and adoption of an information technology system in the United States Marine Corps.

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## **LIST OF ACRONYMS AND ABBREVIATIONS**

ADKAR	Awareness, Desire, Knowledge, Ability, Reinforcement
BYOD	bring your own device
CAC	common access card
CDET	College of Distance Education and Training
DLNOC	Distance Learning Network Operations Center
DoD	Department of Defense
EAS	expiration of active service
IMI	interactive multimedia instruction
ITX	Integrated Training Exercise
MAGTF	Marine Air Ground Task Force
MarineNet	Marine Corps Distance Learning Network
MCCRE	Marine Corps Combat Readiness Evaluation
MCU	Marine Corps University
MOS	military occupational specialty
MUE2	MarineNet User Engagement Exercise
NAVAIR	Naval Air Systems Command
NCO	Non-Commissioned Officer
SNCO	Staff Non-Commissioned Officer
TBS	The Basic School
USMC	United States Marine Corps

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# **I. INTRODUCTION**

## **A. BACKGROUND**

The United States Marine Corps (USMC) invests a significant amount of time, effort, and resources in the training and education of its most valuable assets, Marines. In 1998, the USMC developed an online learning management system, Marine Corps Distance Learning Network (MarineNet), to host electronic distance-learning products to support annual training, entry-level training, Military Occupational Specialty (MOS) training, pre-deployment training, and professional military education (Gavin, 2015; Marine Corps Concepts and Programs, n.d.). MarineNet has been comprised primarily of interactive multimedia instruction, instructional graphics, videos, and audio files to improve the traditional learning paradigms and create a cohesive instructional package in the absence of an instructor (College of Distance Education and Training [CDET], n.d.).

In 2014, the Marine Corps University's College of Distance Education and Training (CDET) conducted the MarineNet User Engagement Exercise (MUE2) to identify the expressed needs of MarineNet's end users, Marines. MUE2 was a series of engagements with Marines from the Fleet Marine Forces and Marine Forces Reserve to provide the College of Distance Education and Training with a data-driven decision support methodology to help prioritize the architectural changes necessary to develop the next generation of MarineNet (Gavin, 2015). The findings of the MUE2 indicated that the MarineNet end users believed the system lacked both usefulness and relevance in terms of content, delivery, and dissemination methods (Gavin 2015). In order to address these identified deficiencies, the College of Distance Education and Training began the development of a number of initiatives intended to redesign their suite of services (Gavin, 2015). One of the first major initiatives was the innovation of a video-streaming platform that eventually came to be known as Ripper Academy (Gavin, 2015). Ripper Academy is a video-streaming platform that provides a specific subset of Marines with a capability to create, share, and view user-generated video content through MarineNet.

This thesis presents an in-depth case study to examine the factors that contributed to the innovation and adoption of Ripper Academy. This case study examines the applications of change management and system dynamics when developing and implementing new information technology systems in an organization like the USMC.

## **B. PROBLEM STATEMENT**

The Department of Defense (DoD) lacks case studies that investigate and detail change management, system dynamics, and even more specifically, the innovation and adoption of information technology systems. A limited understanding of the factors influencing the success, or failure, of new information technologies in the DoD creates this problem. This case study intends to close this identified gap, and that of recorded histories surrounding the successful implementation of new information technologies in large organizations. This is important because a close examination and study of change management and system dynamics will unlock a greater understanding of the processes required to develop, implement, and ensure the adoption of new information technology systems.

## **C. PURPOSE STATEMENT**

The purpose of this qualitative study is to develop an in-depth case study to explore the factors that contributed to the innovation and adoption of Ripper Academy, a video-streaming platform that allows end users to create, share, and view user-generated video content, in the USMC. Focusing on change management and system dynamics, the researcher intends to synthesize the key elements surrounding innovation and adoption of Ripper Academy. Specifically, the researcher intends to capture the interpersonal interactions of the primary actors of Ripper Academy in order to extract key elements that may prove useful to the success of future information technology innovations within the DoD.

## **D. RESEARCH QUESTIONS**

The following question guides this research: How can the USMC successfully employ the principles of change management and system dynamics to innovate and ensure the adoption of information technology systems?

To answer this, the research will incorporate the following additional questions:

1. What are change management factors that may contribute to the innovation of new information technology systems in the USMC?
2. How can an understanding of system dynamics be leveraged to ensure the adoption of new information technology systems in the USMC?

## **E. RESEARCH METHODS**

This research is a qualitative case study relying on published literature, personal interviews, email communications, and archival data analysis. The research will first examine the qualitative case study strategy as a means to determine the most appropriate approach to follow, given the various stakeholders of this particular case study. Research of the case study strategy will not be limited to the development of a case study, but will also include preparation recommendations, interview methodologies, and data analysis techniques. Following case study strategy research, a review of published literature on change management and system dynamics, by esteemed and distinguished authors, will provide background to obtain an understanding of the various theories and their respective applications.

To develop and create the case study, the primary researcher will use semi-structured interviews and email communications with key stakeholders to gather information on the intent, objectives, timeline, key events, and decisions surrounding Ripper Academy. Archival data analysis of the MUE2 database, official reports, and Ripper Academy metrics provides a contextually based understanding of the concerns held by the MarineNet end user community prior to the implementation of Ripper Academy and an understanding of the actual usage of Ripper Academy. With the use of triangulation, the information collected through interviews, email communications, and archival data

analysis have been combined to produce an in-depth case study on the innovation and adoption of Ripper Academy.

## **F. PROPOSED DATA, OBSERVATION, AND ANALYSIS METHODS**

Because of the qualitative nature of this research, limited data was available prior to conducting research activities. Personal interviews are the most significant method used to collect information in this research. The primary method for interviews was in-person, with a secondary option of over-the-phone interviews. The primary researcher conducted semi-structured interviews with military, government, and contractor stakeholders based on their interaction and involvement in Ripper Academy. When possible, the primary researcher recorded interviews for transcription and analysis. If unable to coordinate interviews, the primary researcher corresponded with subjects via email communications. Archival data analysis of the MUE2 database and official reports provides a contextually based understanding of the concerns held by the MarineNet end user community prior to the implementation of Ripper Academy. Archival data analysis of Ripper Academy metrics provide data on the creation, sharing, and viewing of video content during the existence of Ripper Academy. Personal interviews, email communications, and archival data analysis provides information on the key factors surrounding Ripper Academy. With this information, the primary researcher developed a qualitative case study on the innovation and adoption of Ripper Academy in the USMC.

Existing literature on the case study strategy, change management, and system dynamics drove the development and analysis of the case study. With this research, the Ripper Academy case study highlights the successes and failures of change management methods to innovate information technology within the USMC. Additionally, the case explores the application of system dynamics to help understand the successful, or failed, adoption of information technology systems within the USMC.

## **G. POTENTIAL BENEFITS AND LIMITATIONS**

This research helps provide an analysis of how the principles of change management and system dynamics can be employed within the USMC, and the DoD, as a means to ensure the success of information technology innovations. With a limited number



of case studies examining information technology in the DoD, this research will provide a teaching case study that examines how change management and system dynamics can influence the innovation and adoption of information technology in large organizations like the USMC. Readers can generalize the lessons learned from this case study for use in future undertakings.

The availability of personnel involved in the design, development, implementation, and usage of Ripper Academy may be a limitation to this case study. Because of permanent change of station moves, expiration of active service (EAS), and operational deployments, some of the original personnel involved in Ripper Academy may no longer be available for interviews. The primary researcher will correlate statements and actions of available personnel to develop an in-depth case study.

## **H. ORGANIZATION OF THE THESIS**

Chapter II examines literature relevant to this case study. The initial section will discuss the case study strategy to performing research. The second section will focus on change management literature with an emphasis on the change formula, John Kotter's eight-stage process, and the ADKAR change model. The last section will explore system dynamics, specifically organization systems' structure, the limits to growth archetype, and the Bass diffusion model.

Chapter III will contain a case study formed by the interviews and email communications of military, government, and contractor personnel that were involved in the design, development, implementation, and usage of Ripper Academy. The recollections of those involved will chronologically recap of the events and emotions surrounding Ripper Academy.

Chapter IV will analyze the case study. Referencing change management and system dynamics literature, the researcher will compare and contrast aspects of the case study to examine how change management and system dynamics can influence the innovation and adoption of information technology systems.

Chapter V will consist of two sections. First, it will provide a conclusion and discussion of the research. Finally, it will consist of any recommendations directed at actions that may be desirable based on this research and areas of future research.

## **II. LITERATURE REVIEW**

### **A. INTRODUCTION**

In our extremely complex and constantly evolving world, change is vital to the success and sheer existence of any organization (Edmonds, 2011; Luecke, 2011). Even with this understanding, approximately 70 percent of all changes fail (Balogun, Hope Hailey, & Gustafsson, 2016; By, 2005; Luecke, 2003). Despite an increase in the number of case studies that explore change and change management, a gap exists in the number of case studies that explore and detail the factors that contribute to the successful, or failed, innovation and adoption of information technology systems within the DoD.

This review will focus on qualitative research methods, more specifically, the case study strategy, change management, and system dynamics to provide the background necessary to develop and analyze the innovation and adoption of Ripper Academy, an information technology system, in the USMC. These three areas of study apply to the observational nature of the research and the requirement to comprehend and analyze various elements of the Ripper Academy case study, including people, culture, and behaviors.

The review will begin by examining qualitative research methods and the case study strategy in order to identify the most appropriate strategy for research and to determine the process for developing the case study. The review will then concentrate on change management and system dynamics in order to provide the background necessary to analyze the case study. Despite numerous change management models to support organizational change, this review will be limited to the change formula, Kotter's eight-stage process, and the ADKAR change model. Finally, the review will explore system dynamics, specifically organization systems' structure, the limits to growth archetype, and the Bass diffusion model in order to analyze factors contributing to the adoption of Ripper Academy.

## **B. CASE STUDY STRATEGY**

### **1. Introduction**

Quantitative, qualitative, and mixed methods are the three most common research methods that researchers use to study a particular topic (Creswell, 2009). In quantitative research, the researcher will often use surveys and experiments to test a theory by means of a hypothesis (Creswell, 2009). In comparison, qualitative research tends to use open-ended interview questions, observations, and written document analysis to examine an issue and “establish the meaning of a phenomenon” (Creswell, 2009, p. 16). Mixed methods research “incorporates elements of both qualitative and quantitative” research methods allowing the researcher to collect an array of data to provide an understanding of a phenomenon (Creswell, 2009, p. 3). A review of qualitative research methods is necessary in order to identify the most appropriate strategy for research and to determine the process for developing the case study.

### **2. Qualitative Research Strategies**

Qualitative research, as described by Merriam (1998), is “an umbrella concept covering several forms of inquiry that help us understand and explain the meaning of social phenomena with as little disruption to the natural setting as possible” (p. 5). Qualitative research seeks to answer questions that stress the *how* and *why* of human behaviors, experiences, interactions, and opinions to provide insight and knowledge (Guest, Namey, & Mitchell, 2013). Since the 1990s, the types of qualitative research strategies, and respective procedures, have continued to expand (Creswell, 2009). Some of the most common strategies for collecting and utilizing qualitative data include case study, ethnography, grounded theory, inductive thematic analysis, narrative analysis, and phenomenology (Creswell, 2009; Guest et al., 2013). A researcher will select a strategy based on the focus of the research, purpose of the research, objective of the research, audience of the findings, time constraints, and available resources (Guest et al., 2013).

### 3. Case Study Strategy

The case study strategy best serves to detail the particularity and complexity of a single event, activity, process, program, individual, or group of individuals (Creswell, 2009; Stake, 1995). To Yin (2009), a case study is, “an empirical inquiry about a contemporary phenomenon (e.g., a “case”), set within its real-world context—especially when the boundaries between phenomenon and context are not clearly evident” (p. 18). Case study research examines the context and complex conditions surrounding a particular case in order to gain insight and knowledge about the particular case (Yin, 2012). Yin (2012) identified three situations relevant for the case study strategy: 1) when research questions are exploratory, descriptive, or explanatory (*how* and *why*), 2) when studying a phenomenon in its natural setting, and 3) when performing an evaluation. As suggested by Yin (2009), the case study strategy “allows investigators to retain the holistic and meaningful characteristics of real-life events—such as individual life cycles, small group behavior, organizational and managerial processes, neighborhood change, school performance, international relations, and the maturation of industries” (p. 4).

Despite its noticeable applicability, the case study strategy is not without criticism. The speculation surrounding the case study strategy often originates from a “lack of trust” in the researcher’s procedure (Yin, 2012). Those critical of the case study strategy believe that case study researchers exhibit biases, only discover what they want, or are unable to generalize findings to another case study (Yin, 2012). It is possible for case study research to be done poorly, but systematic procedures can help make certain research is generalizable, valid, and reliable (Yin, 2012).

To mitigate poor procedures, biases, and incomplete analysis, Yin (2003) proposes a six-step linear, but iterative, process for developing a case study.

1. **Define.** When conducting case study research, the first step is defining the research questions to ensure selection of the proper research strategy, selecting the case study strategy, and making certain an understanding of the strengths and limitations associated with the case study strategy (Yin, 2003).

2. **Design.** During the second step, the researcher must develop a “logical plan for getting from here to there” (Yin, 2003). During this step, the researcher clarifies research questions, defines the “case,” asserts theories and related issues, and determines the type of design—single, multiple, or embedded (Yin, 2003).
3. **Prepare.** As one of the most difficult types of research, the researcher must adequately prepare for collecting data. During this step, the researcher refines and enhances their ability to ask questions, be a good listener, ask follow-up questions, interpret answers, understand the issue being researched, and be unbiased (Yin, 2003). Additionally important during this step is developing and reviewing the case study protocol, selecting candidates for the case study, and obtaining human subjects research approval (Yin, 2003; Yin, 2009).
4. **Collect.** During this step, the researcher collects data. Researchers collect case study data from an assortment of sources. Six of the most common data sources include “documentation, archival records, interviews, direct observation, participant-observation, and physical artifacts” (Yin, 2009, p. 83). While no particular data source is superior to another, it is beneficial for the researcher to gather data from multiple sources in order to apply triangulation and ensure the validity and reliability of the case (Yin, 2009). It is critical for the researcher to ensure the quality of the data collected during this step.
5. **Analyze.** During this step, the researcher should determine a strategy for analyzing the data—theoretical propositions, descriptive frameworks, or rival explanations (Yin, 2003). After determining a strategy, the researcher can use techniques like cross-case synthesis, explanation building, logic models, pattern analysis, and time-series analysis to examine, categorize, test, tabulate, and/or recombine data to address the initial theories of the study while still ensuring a quality case study (Yin, 2003).

6. **Share.** The final step to the case study process is sharing the results and findings (Yin, 2003). When compiling the case study report, the researcher should be cognizant of the audience for who they are writing while also making sure to follow procedures to have the report reviewed (Yin, 2003). The end state of this process is providing readers with enough evidence to come to their own conclusion on the case study (Yin, 2009).

If performed properly, case study research can provide invaluable insight and knowledge into a particular phenomenon that can be generalizable to future endeavors.

#### **4. Conclusion**

A review of qualitative research methods and the case study strategy suggests that the case study strategy is most appropriate when attempting to gain insight and knowledge about the complex social interactions of a single, limited duration, event—Ripper Academy. Adherence to Yin's (2003) six-step process for developing a case study will help ensure the creation of a complete and unbiased case study. Using the case study strategy, the primary researcher will detail the complexities of Ripper Academy while also providing insight and knowledge into the factors surrounding the case.

### **C. CHANGE MANAGEMENT**

#### **1. Introduction**

Defined by Moran and Brightman (2000), "change management is the process of continually renewing an organization's direction, structure, and capabilities to serve the ever-changing needs of external and internal customers" (p. 66). Numerous change management models exist to support organizational change. Some models focus on the business dimension of change, some focus on the person dimension of change, and others focus on both. Some support top-down transformation and yet others support bottom-up transformation.

Critical to change management is understanding the various sources and types of change. Change originates from either external or internal customers. Regardless of origin, leadership needs to scrutinize the pressure for change to ensure it is an actual cause, not

just a “symptom” (Beckhard & Harris, 1987). Examples of common causes for organizational change include new technology, new processes, mergers or acquisitions, new legislation, organizational restructurings, cultural transformations, globalization, business process reengineering, and the demand for greater performance within a certain program (Balogun et al., 2016; Edmonds, 2011; Kotter, 2002; Luecke, 2003). Luecke (2003) identifies four types of change: cost cutting, cultural, process, or structural. Depending on the type of change, organizations can predict how the change is “likely to affect the overall” organization while also identifying any likely challenges that would hinder success (Luecke, 2003, p. 9).

Regardless of the sources and types of change, arguably the single most important factor influencing the success, or failure, of an organizational change is the individual (Hiatt, 2006; Kotter, 2002). Kotter (2002) reiterates the importance of the individual by suggesting that the main challenge to organizational change is not the culture, strategy, or systems, but “changing people’s behavior” (Kotter, 2002, p. 2). Kotter further explains, “people change what they do less because they are given analysis that shifts their thinking than because they are shown a truth that influences their feelings” (Kotter, 2002, p. 1). This confirms the importance of change management.

To assist this research, the primary researcher will focus on the change formula to measure individual readiness for change, Kotter’s eight-stage process to overcome organizational resistance to change, and the ADKAR change model to prepare individuals to support an organizational change.

## **2. Change Formula**

Most change management models attempt to ensure the “readiness” of individuals to embrace change. Formally introduced in 1977, Beckhard and Harris reference David Gleicher’s change formula as a means to determine an individual’s readiness for change (Beckhard & Harris, 1977). Modified in 1992 by Dannemiller and Jacobs, leaders can utilize the change formula to analyze an individuals’ attitude and willingness to support change. The change formula is:



“D [dissatisfaction] x V [vision] x F [first steps] > R [resistance]” (Dannemiller & Jacobs, 1992, p. 483)

Dannemiller and Jacobs’ (1992) change formula suggests that change is possible when an individual’s “product of dissatisfaction (D) with the present situation, a vision (V) of what is possible, and first steps (F) toward reaching the vision are greater than the resistance to change (R)” (p. 483). If any of the variables are zero, or negligible, then it is likely that the proposed change will be unsuccessful (Dannemiller & Jacobs, 1992).

The change formula does not guarantee success, but instead provides an analytic tool to predict whether change is likely to succeed based on an individual’s current readiness. Additionally, the change formula provides leadership with a means to focus efforts to improve individual readiness in support of change (Beckhard & Harris, 1977). For example, to overcome resistance due to disappointment with the desired future state or first steps, leadership may employ a strategy that communicates the desired future state, the goals to achieve the future state, or the benefits to individuals if the change is achieved (Beckhard & Harris, 1977). If resistance is likely due to satisfaction with the current state, then it may be necessary for leadership to oversee limited experiments or improvements with small groups to make evident the benefits of the proposed change (Beckhard & Harris, 1977).

The change formula can be employed as a “diagnostic tool” and “planning model” to gain insights “to new ideas, and even to paradigm shifts because it organizes present reality and enables us to see it differently” (Dannemiller & Jacobs, 1992, p. 483, 490). When developing a strategy for change, the change formula can be instrumental in identifying interventions to decrease individual resistance to change and help ensure future success (Beckhard & Harris, 1977).

### **3. Kotter’s Eight-Stage Process**

In *Leading Change*, John Kotter outlines a sequential, top-down, eight-stage process, Figure 1, to help leaders overcome resistance to change (Kotter, 2012). Through years of observation, Kotter (2012) found eight common errors to change that often resulted in serious consequences such as “reengineering bogs down, new strategies fail to

be implemented well, acquisitions aren't assimilated properly, downsizings never get at those least necessary expenses, and quality programs become more surface bureaucratic talk than real business substance" (Kotter, 2012, p. 5–6). Kotter's eight-stage process provides a model to prevent overconfident attitudes, bureaucracy, inwardly focused cultures, low levels of trust, lack of teamwork, politics, and the fear of the unknown from supporting change (Kotter, 2012).



Figure 1. Kotter Eight-Stage Process. Adapted from Kotter (2011).

Kotter (2012) emphasizes that successful change requires the successful completion of all eight stages sequentially. Failure to complete just one-step, combining

steps, or skipping steps, can result in unforeseen problems and failed change (Kotter, 2012). As a sequential process, stages one through four focus on setting the stage for the change; stages five through seven introduce new directions; and stage eight focuses on ensuring the change becomes an inherent part of the organization's processes and culture (Kotter, 2012). Like Dannemiller and Jacobs' change formula, Kotter's eight-stage process reiterates that mitigating resistance to change requires a significant force. The following describes Kotter's eight-stage process—using his language for the eight stages (Kotter, 2012, p. 23).

***a. Establishing a Sense of Urgency***

The first stage is “establishing a sense of urgency” within the organization (Kotter, 2012, p. 37). The purpose of this stage is to reduce complacency driven by false pride, low performance standards, a lack of feedback, and overconfidence (Kotter, 2002; Kotter, 2012). Urgency creates the cooperation, motivation, and energy required for individuals to support change. During this stage, leaders take significant risks to demonstrate to employees the need for change. Risks can include allowing a financial loss, eliminating benefits, setting unreasonable expectations, and having candid conversations about problems within the organization (Kotter, 2012). During this stage, individuals are convinced of, and become excited about, the need for a change (Kotter, 2012).

***b. Creating the Guiding Coalition***

Most changes require the support of a coalition. The second stage is “creating the guiding coalition” (Kotter, 2012, p. 53). Strong leaders can be extremely influential, but rarely can they implement change without the support of a coalition. Developing and communicating the vision, eliminating obstacles, generating intermediary wins, and successfully leading and managing the change process requires an entire coalition (Kotter, 2012). Creating the guiding coalition, with the right people, skills, and background is essential to any change management process (Kotter, 2012). Kotter (2012) identifies four key characteristics for members of the guiding coalition: there needs to be a sufficient number of key players, there needs to be expertise from various points of view, members need to be credible and respected within the organization, and leaders need to be included

to direct the change process. The guiding coalition must be comprised of a unified, trusted, group of respected individuals.

***c. Developing a Vision and Strategy***

The third stage to Kotter's eight-stage change process is developing a *clear* "vision and strategy" (Kotter, 2012, p. 69). Kotter (2012) indicates that a vision must serve three purposes: clarify the "general direction for change," inspire individuals to "take action in the right direction," and help "coordinate the actions of different people, even thousands and thousands of individuals, in a remarkably fast and efficient way" (Kotter, 2012, p. 71). Clearly articulating the vision and strategy is critical to motivating action and allowing initiative (Kotter, 2012). This stage is also important to establishing how the change will benefit those affected. Absence of a clear vision and strategy can lead to confusion, frustration, diversions, and ultimately resistance to the change (Kotter, 2012).

***d. Communicating the Change Vision***

The fourth stage is "communicating the change vision" (Kotter, 2012, p. 87). The real benefit of developing a vision is having everyone involved in the change clearly understanding the goals and objectives of the vision (Kotter, 2012). To enlist the support of the entire organization, the guiding coalition must communicate the vision clearly, often, and in multiple forums throughout the depths of the entire organization (Kotter, 2012). A vision needs to be clear, concise, and understandable at all levels to ensure it is not miscommunicated or misconstrued. In addition to constantly communicating the vision, it is ideal for an organization to support two-way dialogue in order to provide clarity and conduct refinement when required (Kotter, 2012).

***e. Empowering Broad-Based Action***

The fifth stage to Kotter's eight-stage change process is "empowering the broad-based action" (Kotter, 2012, p. 105). The purpose of empowering broad-based action is to remove potential barriers that prevent employees from taking action to pursue the vision. Kotter (2012) identifies four significant barriers: structures, skills, systems, and supervisors. Formal and hierarchical structures sometimes discourage employees from

making changes to achieve the vision because of their particular role within the structure (Kotter, 2012). The next potential barrier is skills. Leaders need to provide employees with the training and education necessary to ensure they have the requisite skills to support the change (Kotter, 2012). The third potential barrier is systems. To prevent the complete failure of the change, it is important to remove old systems that are in conflict with the vision (Kotter, 2012). Lastly, there are supervisors. Leaders need to identify and quickly deal with supervisors who resist the change (Kotter, 2012). Supervisors who resist the vision will undoubtedly make it difficult for those under their direct charge to take the actions necessary to support the change. Organizations need to make certain employees have the “right structure, training, systems, and supervisors” to ensure the success of the change (Kotter, 2012, p. 119).

***f. Generating Short-Term Wins***

“Generating short-term wins,” the sixth stage, provides individuals with the encouragement often needed to continue pursuing the vision (Kotter, 2012, p. 121). Short-term wins, whether achieving a goal or providing a reward, build momentum, and provide positive feedback indicating that the long hours, inconveniences, and sacrifices served a purpose (Kotter, 2012). Short-term wins inform pessimists and reinvigorate individuals to continue pursuing the vision (Kotter, 2002; Kotter, 2012). Successful change can take years; failure to generate short-term wins can cause employees and leadership to give up on the change marathon and accept failure (Kotter, 2012).

***g. Consolidating Gains and Producing More Change***

The seventh stage to Kotter’s eight-stage change process is “consolidating gains and producing more change” (Kotter, 2012, p. 137). Short-term wins can energize the organization, but can also lead to belief that the change is complete (Kotter, 2012). To mitigate resistance and ensure the change effort continues until completion requires constant urgency and pressure (Kotter, 2002). An organization needs to continue to generate momentum while at the same time eliminating unnecessary tasks that are no longer relevant (Kotter, 2002).

#### *h. Anchoring New Approaches in the Culture*

The final stage is “anchoring new approaches in the culture” (Kotter, 2012, p. 153). After the change is complete, individuals must make it a part of everyday behavior (Kotter, 2012). To achieve this stage, the organization needs to incorporate the change into its processes and culture (Kotter, 2012). Processes, values, and behaviors of individuals need to complement and embrace the change.

#### **4. ADKAR Change Model**

After years of research and hundreds of project teams, Jeffrey Hiatt developed the ADKAR change model to guide change at the individual level in order to achieve organizational results (Hiatt, 2006). While Kotter’s eight-stage process focuses on both the business and person dimension, the ADKAR change model only focuses on the person dimension. Prosci asserts, “the secret to successful change is rooted in something much simpler: how to facilitate change with one person” (“ADKAR Change,” n.d.). The ADKAR change model, Figure 2, proposes that an individual must achieve five successive outcomes in order for a change to be successful: “awareness, desire, knowledge, ability, reinforcement” (“ADKAR Change,” n.d.). The following is a description of the ADKAR change model elements—using Hiatt’s language for the outcomes (Hiatt, 2006, p. 2).

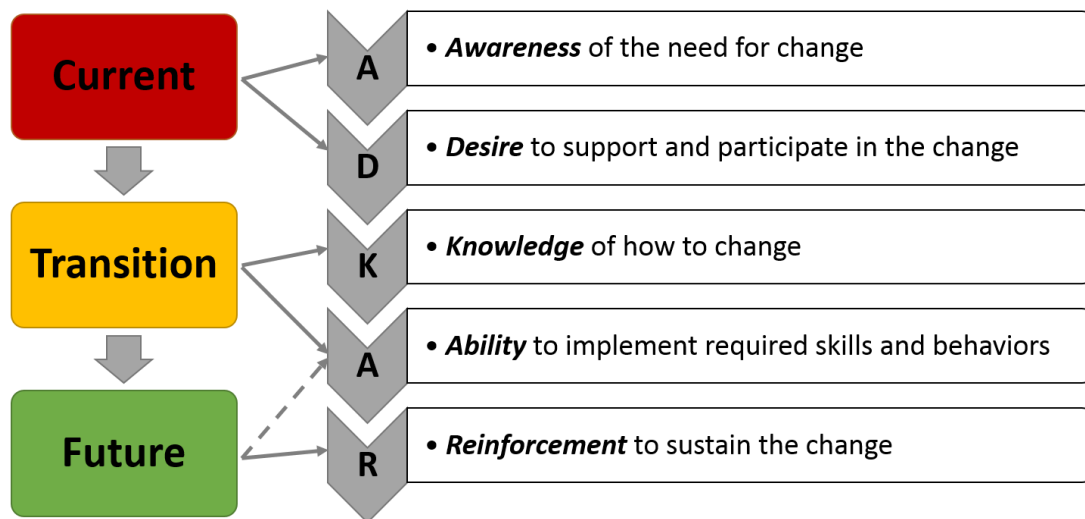


Figure 2. ADKAR Change Model. Adapted from “ADKAR Change,” (n.d.).

***a. Awareness***

The first outcome of the ADKAR change model is awareness. Building awareness is a process that enlightens an individual of the need for organizational change. This process includes providing the individual with a general understanding of the change, the reason for the change, the risks associated with not implementing the change, and the direct impacts of the change (Hiatt, 2006). Building awareness is more difficult than distributing a mission statement or hosting a meeting. Building awareness requires honest messages from credible leaders to influence the deeply ingrained assumptions that affect how individuals perceive reality (Hiatt, 2006; Senge, 2006).

***b. Desire***

The second element of the ADKAR change model is desire. Desire is the ultimate decision of an individual to “support and participate” in the change (Hiatt, 2006, p. 17). Organizations can create awareness of the need for change, but ultimately an individual must decide whether they want to be part of the change (“ADKAR Change,” n.d.). The perceived impact of the change, personal situation, and intrinsic beliefs, values, and goals influence an individual’s willingness to support change (Hiatt, 2006). An individual must not only be aware of a change, but must have a desire to support and participate in a change in order for it to be successful (Hiatt, 2006).

***c. Knowledge***

Having achieved awareness and desire, an individual must build the knowledge “on how to change” and “how to perform effectively in the future state” (“ADKAR Change,” n.d.). Building knowledge includes providing an individual with the information, training and education, skills, mentorship, and resources necessary to realize the change (Hiatt, 2006). Knowledge requirements can range from learning new rules to learning a completely different strategy for an entirely new product. For a change to be successful, the knowledge gap must be eliminated (Hiatt, 2006).

***d. Ability***

Hiatt (2006) noted, “Knowing how to do something and being able to do something is not necessarily the same thing” (p. 30). Ability is the actual practice of knowledge—can an individual demonstrate the capabilities necessary to implement the change and achieve success (Hiatt, 2006). Physical and intellectual limitations may prevent individuals from implementing change (Hiatt, 2006). While organizations are likely unable to change physical and intellectual abilities, they can provide practical application training, subject matter expertise, and coaching to develop the individual’s newly acquired skills and abilities (Hiatt, 2006).

***e. Reinforcement***

Reinforcement is the final block of the ADKAR change model and is critical to sustaining the change. Two-fold in nature, the reinforcement element prevents individuals from reverting to old processes and procedures and sustains the momentum for future change (Hiatt, 2006). Reinforcement can be achieved through meaningful rewards and recognition, accountability mechanisms, feedback, or corrective actions (Hiatt, 2006). Hiatt (2006) references a study of customer service employees suggesting that the most meaningful recognition an individual could receive was an expression of appreciation from a supervisor. Reinforcement does not need to be elaborate, but does need to be meaningful.

**5. Conclusion**

Change is often disruptive and frustrating, but if anticipated and properly managed, it can be both satisfying and successful (Luecke, 2003). Change management is simply an approach to guide change. While change management does not guarantee success, it does provide leaders with processes and procedures to improve the likelihood of successful implementing change within their organization. Leaders must realize that no two changes are the exact same and thus there is no correct model for creating and supporting change. The change formula, Kotter’s eight-stage process, and the ADKAR change model provide a method to analyze the Ripper Academy case study to gain insight into how leaders and organizations can create and support change.



## **D. SYSTEM DYNAMICS**

### **1. Introduction**

In our extremely complex world of accelerating change, leaders have come to realize that the well-intentioned efforts of individuals to solve problems can result in unexpected reactions and unanticipated, potentially detrimental, side effects. With that understanding, the question remains, how do we attain a realistic understanding of a complex system in order to make well-informed decisions? One possible answer is system dynamics. Developed by Professor Jay Forrester at Massachusetts Institute of Technology in the 1950s, system dynamics is “the application of feedback control systems principles and techniques to model, analyze, and understand the dynamic behavior of complex systems” (Forrester, 1961).

Forrester (1968) defines a system as “a grouping of parts [people and/or objects] that operate together for a common purpose” (p. 1-1). A United States Marine Corps infantry regiment is a system of Marines who work together to conduct combat operations. The human body is a system of organs that work together to provide life. The various, and numerous, interconnections between components of real-life (socio-economic) systems often result in extremely complex interactions that can sometimes produce completely unforeseen, behaviors (Sterman, 2000). System dynamics rest on the belief that dynamic behaviors arise from a system’s structure. Because the structures of our organizational and socio-economic systems are complex, mental models are unreliable with respect to understanding how a system changes over time (Sterman, 2000). Modeling provides a viable, reliable, and efficient approach to show individuals, decision makers, and policy makers how system components interconnect and interact to produce dynamic behaviors (Abdel-Hamid & Madnick, 1991). Based on these beliefs, system dynamics utilizes feedback control systems principles to model system structure (using a few building blocks including feedback loops, stocks, and flows) and computer simulations to provide a quantitative understanding to system behavior (Abdel-Hamid & Madnick, 1991).

## **2. System Structure**

By modeling systems, whether economic, industrial, physical, or social, into a formal mathematical structure, an individual can gain a better understanding of how decisions, policies, and changes may influence the dynamic behavior of a system (Sterman, 2000). Forrester (1968) identified three core concepts for organizing a systems' structure: endogenous system's structure (variables that exist within a system's/model's boundary) is key to understanding system behavior, systems are composed of feedback loops, and feedback loops include variable levels and rates.

### ***a. System Boundary***

A system's boundary delineates which variables (and loops) "are included endogenously, which are exogenous, and which are excluded from the model" (Sterman, 2000, p. 97). Forrester's (1968) endogenous viewpoint asserts that dynamic behaviors arise from within a system's internal structure, therefore the significance of properly defining a system's boundary. By establishing a closed boundary, an individual can focus on the interconnections and interactions of the components within a system that cause growth, oscillation, and change (Forrester, 1968). Exogenous components, as defined by Albin (1997), are those "whose values are not directly affected by the system" and should be excluded from the closed boundary (p. 9). In order to understand dynamic behaviors, a system boundary needs to encompass a specific area of interest, not an entire system (Sterman, 2000).

### ***b. Feedback Loop***

The dynamic behaviors of complex systems stem from the interactions of various feedback loops between system components (Sterman, 2000). Stated by Abdel-Hamid (2010), "only the study of the whole system as a feedback system will lead to correct results" (p. 118). Feedback loops are essential to structuring and defining relationships within complex systems (Abdel-Hamid, 2010). Feedback loops are "closed sequences of causes and effects" that trigger "side effects, delayed reactions, changes in goals, and interventions within systems" (Abdel-Hamid, 2010; Abdel-Hamid & Madnick, 1991, p. 9; Sterman, 2002, p. 11). Feedback loops make clear how the "information about the outcome

of any process or activity” flows back to its source to trigger a follow on process/activity (Abdel-Hamid, 2010, p. 118). Systems often have multiple, interlocking, feedback loops, and this tends to increase the dynamic complexity of the system (Sterman, 2000). Feedback loops are either positive or negative and represent the behavior of variables *if* there were a change (Sterman, 2000). Positive feedback loops represent a reinforcing, or amplifying, relationship between variables and are the cause of accelerating growth or decline (Senge, 2006). In comparison, negative feedback loops represent a balancing, or self-correcting, relationship between variables contributing to goal-seeking behaviors (Senge, 2006).

In policy analysis and design, failure to recognize the full range of feedback effects in complex systems is particularly problematic. It is what often leads to “policy resistance”—the phenomenon commonly encountered whereby interventions are “delayed, diluted, or defeated by the response [feedback] of the system to the intervention itself” (Sterman, 2000, p. 5). In the adoption of new products or ideas, this is what leads to the abandonment or discarding of the product or idea.

#### ***c. Levels and Rates***

Feedback loops connect variables such as the inventory of munitions and the acquisition of munitions. These variables can be mathematically characterized as levels (stocks) and rates (flows). Every feedback loop, positive or negative, includes levels and rates (Sterman, 2000). Level variables are the accumulations of actions that describe the current condition of a system (Sterman, 2000). Rate variables cause level variables to change (Sterman, 2000). It is important to recognize that level variables will not change instantaneously, but will instead change over time as specified by their input and output rate variables (Sterman, 2000).

#### ***d. Conclusion***

System structure provides an improved means to understanding what creates the dynamic behaviors of complex systems, but it is not perfect. By understanding a systems’ structure, individuals can better modify the source of the problem, not just the symptoms. However, the misperceived effects of feedback loops and missing variables can result in

an imperfect understanding of a system and modifications that further exacerbate the unanticipated behaviors (T. Abdel-Hamid, class notes, January 2017).

### **3. Limits to Growth Archetype**

Senge (2006) asserts that certain patterns of system structures recur on a regular basis. These system structures are referred to as “systems archetypes” or “generic structures” (Senge, 2006; Wolstenholme, 2003). Elegant and simple, system archetypes “are useful for gaining insight into the ‘nature’ of the underlying problem and for offering a basic structure or foundation upon which a model can be further developed and constructed;” archetypes provide a conceptual framework (Braun, 2002, p. 1; Senge, 2006). Researchers have identified ten common system archetypes that provide basic insight into systems’ dynamic behaviors: “limits to growth (aka limits to success), shifting the burden, eroding goals, escalation, success to the successful, tragedy of the commons, fixes that fail, growth and underinvestment, accidental adversaries, and attractiveness principle” (Braun, 2002, p. 2; Senge, 2006). These ten system archetypes are quite generic and so can be fitted (or adapted) to model a particular system of interest. The researcher will focus on reviewing the limits to growth archetype in order to support the comparison and contrast during the case study’s analysis.

The limits to growth archetype consists of both a reinforcing (left) and balancing feedback loop (right) which causes the condition to experience growth and/or decline; see Figure 3. The construct of this archetype suggests that a process will grow, maybe even exponentially, over time until a limiting condition, whether a “resource constraint or an external or internal response to growth,” is approached and it slows, halts, or reverses the growth of the process (Braun, 2002; Senge, 2006, p. 379). Understanding the limits to growth archetype can help an organization mitigate the limiting condition and slowing action that often cause processes to reverse (and collapse) after reaching a certain level of growth (Senge, 2006). To prevent the balancing action from reversing growth, organizations should not solely focus on the reinforcing process, but should also focus on relieving or addressing the potential source(s) of limitation (Braun, 2002; Senge 2006).

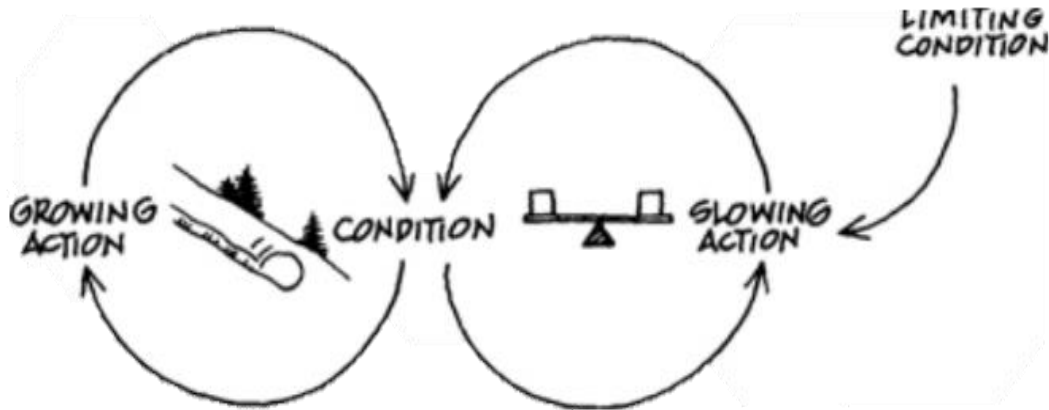
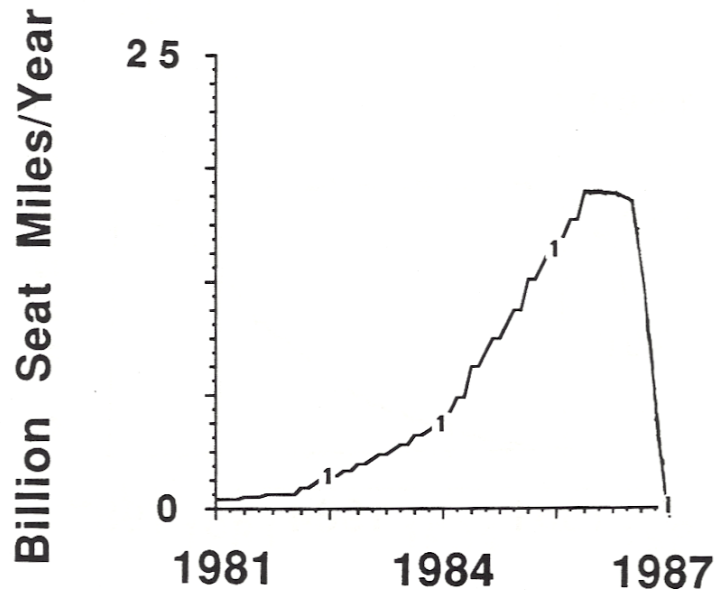


Figure 3. Limits to Growth Archetype. Source: Senge (2006).

An example of limits to growth occurs when a new company experiences great success with initial sales, but after a period of time sales plateau and eventually decline. Initially, the company executes a successful marketing plan that increases sales. The company continues to invest in marketing and sales continue to increase until suddenly sales come to a halt. Instead of doubling down on the marketing plan, which would be an initial instinct for most companies, the company needs to investigate what is limiting the sales. The limit could be production capacity or market saturation. Instead of continuing to invest in the marketing plan, the company needs to expand its production capacity or develop a new product.

Figure 4 depicts the graphical representation of a real-life limit to growth scenario. For almost five years, People Express experienced success with an exponential increase in seat miles/year. After five years of astonishing success, People Express's seat miles/year plateaued. At this point, People Express should have investigated what was limiting additional success. Instead of identifying the limit, People Express continued to reinforce growing actions to no avail. Within just one year, People Express experienced a complete failure.

## People Express: Historic Capacity



Source: T. Abdel-Hamid, class notes, February 11, 2017.

Figure 4. Rise and Fall of People Express Airlines.

System archetypes are not specific to any one particular organization or industry, but provide insight into common system structures in order to anticipate behaviors (Braun, 2002). Because of their conceptual nature, system archetypes have been challenged as to whether they are actually capable of demonstrating the behavior attributed to them (Wolstenholme, 2003). System archetypes provide insight into behaviors, but do not provide a quantitative understanding. As expressed by Sterman (2000), “understanding model behavior goes beyond the invocation of simple archetypes” (p. 767).

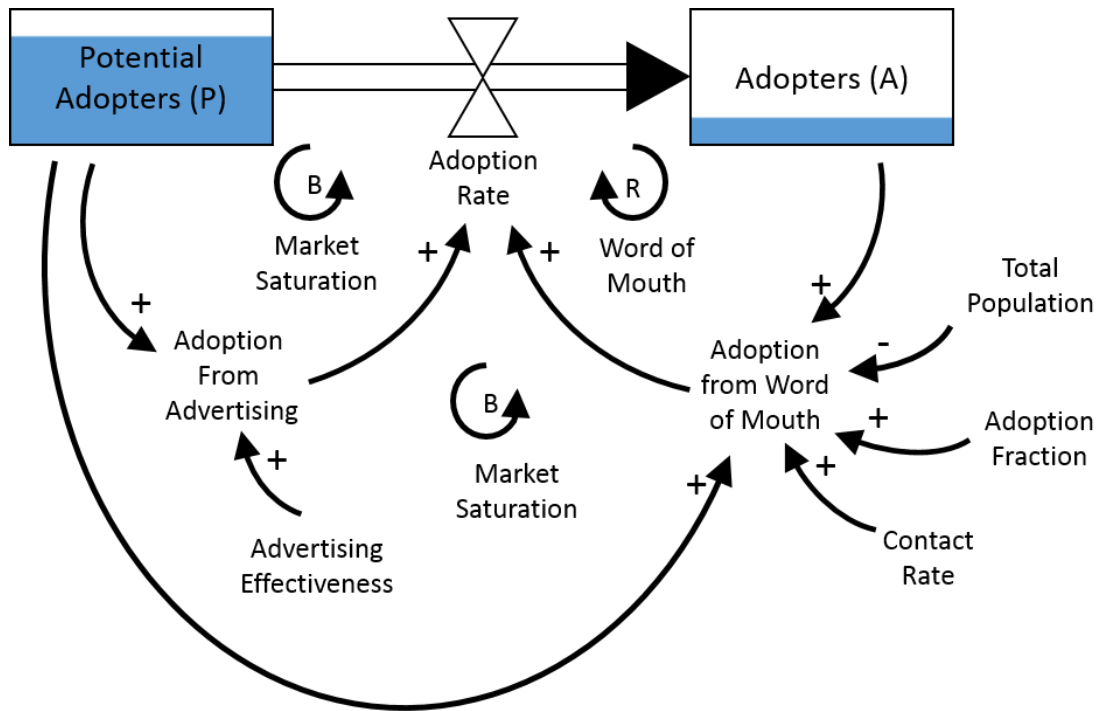
#### 4. Bass Diffusion Model

Within systems dynamics, numerous quantitative models exist to represent goal seeking, exponential growth or decay, or limits to growth (s-shaped) behaviors (Sterman, 2000). These various models have represented the dynamic behaviors of diabetes, global warming, the HIV/AIDS epidemic, the fight against terrorism, immigration, and much

more. To further facilitate the comparison and contrast during the case study's analysis, the researcher will focus on the Bass diffusion model, which models the adoption and diffusion of a new product or idea.

As stated by Maier (1998), "the diffusion of innovations over time is a highly dynamic and complex problem" (p. 285). Cognizant of the four elements Roger deemed necessary for the adoption and diffusion of innovations (the actual innovation, communication channels, social systems, and time), Frank Bass developed the Bass diffusion model in 1969 to model the diffusion and adoption of new ideas or products (Bass, 1969; Rogers, 1995). Since its development, the Bass diffusion model, as depicted in Figure 5, has been used in management of technology, marketing, strategy, and numerous other fields to help demonstrate how the initial growth rates of new ideas or products is initiated and influenced by feedback like advertising, direct sales, media reports, and word of mouth efforts (Stermann, 2000).

The original Bass diffusion model consists of two levels: potential adopters and adopters. Connecting the two levels is the adoption rate, which controls the rate at which individuals adopt a new product or idea (Stermann, 2000). The adoption rate is the "sum of adoptions resulting from word-of-mouth, and adoptions resulting from advertising and any other external influences" (Stermann, 2000, p. 333). In the original Bass diffusion model, all potential adopters eventually adopt the new product (given sufficient time). A limitation of the original model is its failure to account for the eventual abandonment or discontinued use of products or ideas (Stermann, 2000).

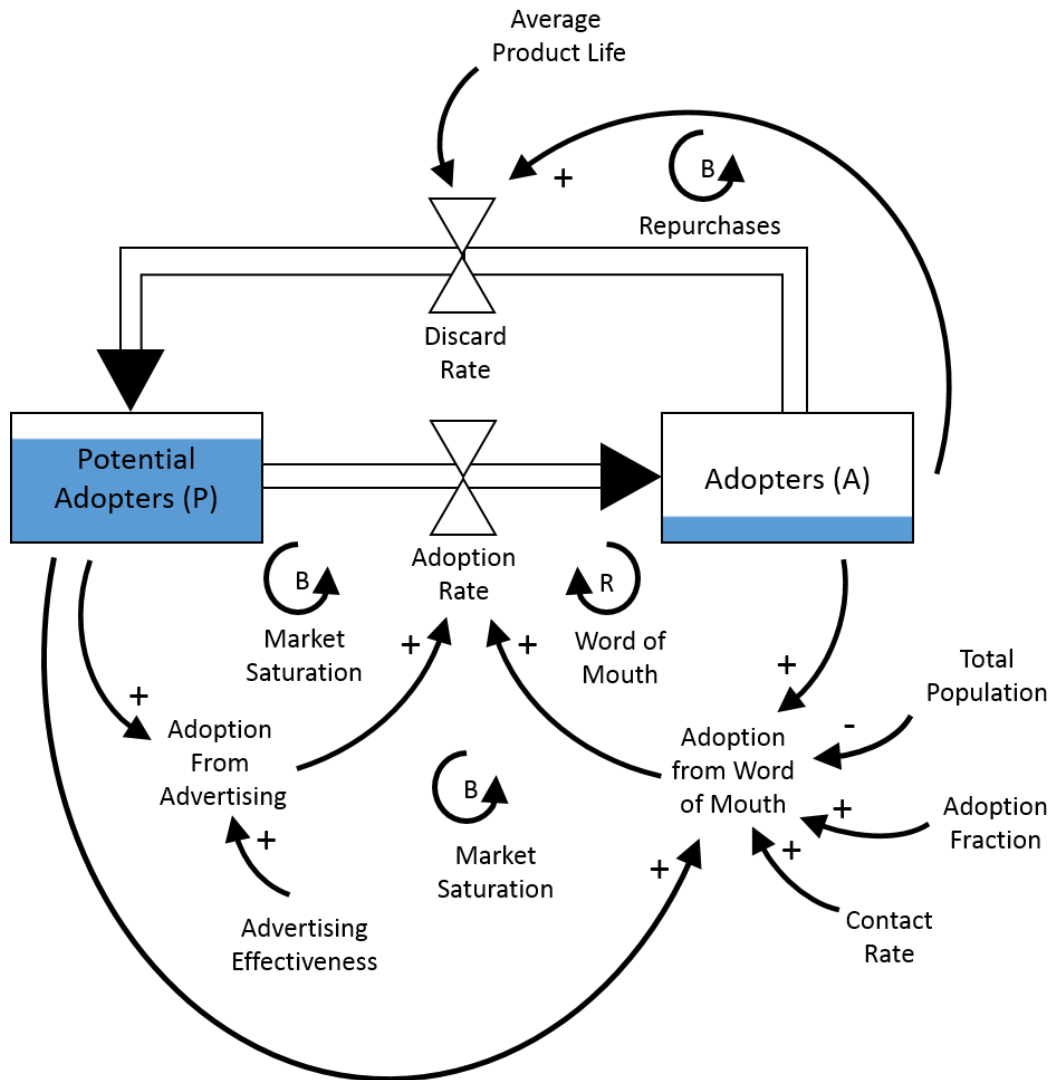


The rate at which potential adopters adopt a new product or idea and become adopters is determined by the adoption rate (sum of advertising and word-of-mouth); over time, all potential adopters will become adopters.

Figure 5. Bass Diffusion Model. Adapted from Sterman (2000).

To extend the original Bass diffusion model, the model can be modified to model the abandonment or discarding of a product or idea; see Figure 6. The modified Bass diffusion model accounts for the temporary or permanent abandonment or discarding of a product or idea by including a discard rate (Sterman, 2000). The discard rate controls the rate at which adopters reenter the potential adopter population, meaning they must be re-convinced to adopt the product or idea (Sterman, 2000). Modifications to the original Bass diffusion model suggest that a product or idea may ultimately fail if the discard rate is higher than the adoption rate.





The rate at which potential adopters adopt a new product or idea and become adopters is determined by the adoption rate (sum of advertising and word-of-mouth); the rate at which adopters discard a new product or idea and reenter the potential adopter population is determined by the discard rate (average life of the product or idea). With this model, it is possible for a product or idea to fail.

Figure 6. Bass Diffusion Model with Discards. Adapted from Sterman (2000).

The Bass diffusion model provides a quantitative framework to capture, through simulation, the dynamic behaviors often associated with the adoption of a new product or idea (Sterman, 2000). To gain true insight into a system's behaviors, organizations need to modify models to include all necessary feedback loops, variables, and equations to replicate reality.

Formalizing models for computer simulation helps validate concepts, identify flaws, and improve an individual's understanding of the system (Stermann, 2000). Conceptual models are often too complex for humans to predict behaviors, thus the requirement for computer simulation. Sterman (2000) states that computer simulation models "help us learn about dynamic complexity, understand the sources of policy resistance, and design more effective policies" (p. 4).

## **5. Conclusion**

Systems are extremely complex. System dynamics help best predict the dynamic behaviors of complex systems by expanding mental models, revising assumptions, and testing models through simulation (Stermann, 2000). While most models approximate or simplify, system dynamics is one technique to help capture the various interconnections and interactions between components of complex systems to predict behaviors over time. An appreciation of the limits to growth archetype and the Bass diffusion model will provide the opportunity to analyze how various components of the case study interact to produce dynamic, and sometimes unforeseen, behaviors over time.

## **E. CONCLUSION**

Using the case study strategy, the primary researcher will explore the factors that contributed to the initiation, design, development, implementation and usage of Ripper Academy. Using the three change management models, the limits to growth archetype, and the Bass Diffusion model, the primary researcher will analyze the Ripper Academy case study to gain insight and knowledge into the factors surrounding the case. The change formula will explore factors within the case study that increased individual's readiness for change. Kotter's eight-stage process will examine how leaders prepared and supported their respective organizations for change. Using ADKAR's model, the primary researcher will survey how leaders prepared individuals to support an organizational change. The limits to growth archetype and the Bass Diffusion model provide a means to understand and evaluate the adoption of an innovation like Ripper Academy. This literature review highlights relevant points of change management and system dynamics for the primary researcher to reference when analyzing the case study.

### III. CASE STUDY

Unless otherwise specified, the primary researcher obtained all information contained in this case study through personal interviews and personal communications, as referenced in Chapter I. All names referenced in the case study are pseudonyms to ensure the protection and anonymity of the personnel involved in this research; see Table 1.

Table 1. Case Study Personnel Organizations, Positions, and Pseudonyms

<b>Marine Corps University</b>	
President Marine Corps University	Brigadier General Walcke
Chief of Staff	Colonel Garzin
<b>College of Distance Education and Training</b>	
Marine Corps University Vice President Distance Learning / College of Distance Education and Training Director	Anthony Kinzel
Educational Technology Director	Matthew Steere
Operations Officer	Dylan Carlson
Digital Content Department Head	Lieutenant Colonel Coger / Lieutenant Colonel Hesline
Emerging Technology Officer	Major Goman
MarineNet Officer (Ripper Academy Lead Designer)	Major Pompen
<b>Naval Air Systems Command (NAVAIR) Distance Learning Network Operations Center (DLNOC)</b>	
Ripper Academy Project Manager Systems Engineer	Trent Shore
Ripper Academy Project Manager Software Engineer	Caleb Swartz
<b>7th Marine Regiment</b>	
Commanding Officer	Colonel Vicktor
<b>The Basic School</b>	
Commanding Officer	Colonel Wabl
Director of Education	Sean Floyd
Deputy Director of Education	Joel McKinsey

#### A. NAVAL POSTGRADUATE SCHOOL GRADUATES

In the fall of 2013, two Marine Corps officers, Major Pompen and Major Goman, both graduates of Naval Postgraduate School, were assigned to Marine Corps University College of Distance Education and Training as the MarineNet Officer and Emerging Technology Officer. As the MarineNet Officer, Major Pompen had a catchall job

description with a lot of flexibility, but was primarily responsible for managing and maintaining the USMCs current learning management system, MarineNet. While Major Goman, the Emerging Technology Officer, was responsible for actively surveying technology systems to discover new and innovative ways to improve distance training and education within the USMC.

Despite working in different departments within the College of Distance Education and Training, Major Pompen and Major Goman almost immediately decided to team up to improve training and education within the USMC. Specifically, they were interested in applying their recent education and leveraging current information technology to modernize MarineNet. With an understanding of the current capabilities and limitations of MarineNet, and strong personal beliefs that MarineNet was substandard at best, Major Pompen and Major Goman began their journey.

Keenly aware that the discontent of two Majors would not result in changes to MarineNet, Major Pompen and Major Goman decided it was critical to determine what Marines, the end users, thought of MarineNet. The officers' desire to solicit unbiased feedback from the end users led to the design, development, and execution of the MUE2. As explained by the two officers, MUE2 was a tool to convince decision makers of an ingrained feeling, across the Marine Corps, that MarineNet was insufficient. They went on to indicate that MUE2 was designed to solicit the "voice of the Marine Corps" to identify what end users believed to be the positive and negative aspects of MarineNet. As Major Goman explained, "MUE2 at heart was nothing more than finding a way to improve MarineNet." Major Pompen shared similar thoughts on why the two officers pursued the MUE2, "online learning in the Marine Corps has been bastardized as a check-in-the-box, and so we took steps in re-shaping online learning in a way that would benefit the Marine Corps."

## **B. COLLEGE OF DISTANCE EDUCATION AND TRAINING**

The College of Distance Education and Training is tasked with the mission to "design, develop, deliver, evaluate, manage, and resource distance-learning products and programs across the Marine Corps training and education continuum in order to increase

operational readiness” (Marine Corps University [MCU], n.d.-a). First established in 1997, the groundwork for the College of Distance Education and Training dates back to the 1920s when visionaries, Major Earl Hancock Ellis and Colonel Robert H. Dunlap, foresaw the need to implement distance education programs to assist in furthering the professional education of Marine Corps Officers (MCU, n.d.-a). Mirroring resident courses, Field Officers Course and Company Grade Officers Course were some of the first distance education programs designed to provide officers with education on amphibious operations, air support, and tactical operations (MCU, n.d.-a). The newly designed distance education programs quickly proved their value by contributing to the amphibious successes of World War II (MCU, n.d.-a). Since its inception, officer distance education has continued to evolve to incorporate lessons learned and new emerging concepts such as vertical envelopment, atomic warfare theory, maneuver warfare theory, and irregular warfare theory. In a 1970s effort to extend its reach, the USMC instituted distance education for enlisted Marines (MCU, n.d.-a). Similar to officer distance education, the distance education programs for enlisted Marines have progressed to provide the training and education necessary for enlisted Marines to become problem solvers, leaders, and mentors on numerous topics ranging from warfighting to USMC history, customs, and courtesies.

With its roots in professional military education, in the last 20 years, the College of Distance Education and Training has expanded its training and education portfolio to provide products and programs that target leadership, warfighting, language and culture, family and personal readiness, and professional development. Despite its relative infancy, the College of Distance Education and Training reaches globally to provide all active, reserve, and retired military, government civilians, civilian contractors, dependent family members, and foreign government personnel with distance training and education (MCU, n.d.-a).

### **C. MARINENET**

Since its founding, the USMC has dedicated a significant amount of time, energy, personnel, and resources to train and educate its most valuable assets, Marines. Traditionally, the USMC has relied upon face-to-face instruction and the traditional

classroom methods to train and educate Marines. Immediately following its establishment, the College of Distance Education and Training realized the need for the organization to extend training and education beyond the traditional techniques in order to support the continuously evolving mission and expeditionary nature of the USMC. Taking advantage of the organization's novelty and the simultaneous push from the Department of Defense to "transform training," the College of Distance Education and Training began to explore technology-enabled distance education learning management systems. The College of Distance Education and Training Director, Anthony Kinzel, described the training transformation as a turn of the century initiative that was looking for ways to leverage online technology to reduce the overall time required to train individuals. He further indicated that he believed the ultimate goal of the training transformation was to decrease the amount of time it took to train individuals in order to return them to the operating units faster. In 1998, the College of Distance Education and Training developed MarineNet, a distance education learning management system, to increase individual Marines' knowledge and skills by improving the accessibility, quality, and effectiveness of training and education with technology (Marine Corps Concepts and Programs, n.d.).

Almost 20 years after its introduction, MarineNet provides end users with 24/7 access to more than 2,250 free online distance-learning courses (Gavin, 2017). These courses are most often designed as interactive multimedia instruction (IMI), or instructional graphics, videos, and audio files that provide standardized training and education, without an instructor, via practical exercises, preliminary and end-of-course evaluations, and periodic learning checks (CDET, n.d.; MCU, n.d.-b). Examples of current courses include, but are not limited to, Incidental Motor Vehicle Operator High Mobility Multi-Wheeled Vehicle, Joint Anti-Terrorism Level I, Leading Teams, Farsi language training, and Lean Six Sigma (United States Marine Corps [USMC], 2018). Figure 7 is a screenshot of the typical MarineNet course interface (USMC, 2018).



Figure 7. Screenshot of MarineNet Joint Anti-Terrorism Level I Course.  
Source: United States Marine Corps (2018).

MarineNet courses are designed to increase individual end users' knowledge and skills by ensuring a common understanding of basic concepts and knowledge, providing formal training, and providing on-the-job performance support (CDET, 2011). In accordance with Figure 8, MarineNet courses are designed to increase an individual's knowledge and skills by equalizing prior knowledge and skills prior to formal instruction, reducing the overall time required to train, providing individual learners with extra practice and remediation, promoting individual accountability for learning, and providing a dispersed audience with anytime, anywhere access to learning products and programs (CDET, 2011).

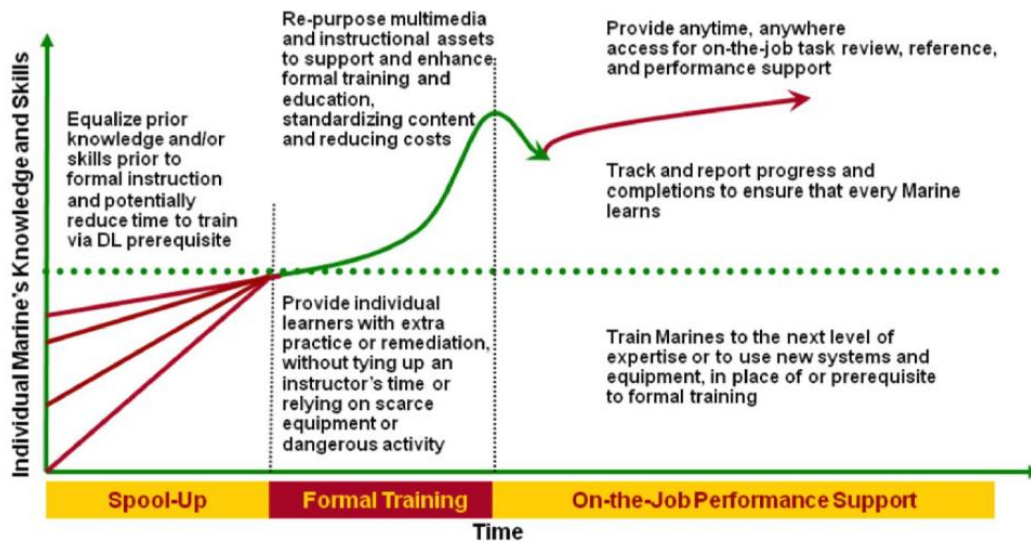


Figure 8. Training and Education Continuum. Source: CDET (2011).

In order to successfully design, develop, and support more than 2,250 online distance-learning courses, the College of Distance Education and Training relies on the support of not only its organic digital content development section, but also third-party vendors. Since the College of Distance Education and Training does not maintain a robust digital content development section, third-party vendors develop a significant percentage of the distance-learning courses (Gavin, 2015).

When developing courses, third-party vendors, more often than not, follow the waterfall methodology that requires the user to define all system requirements at the start of the project, which means there is little flexibility to make changes or correct deficiencies without being difficult, expensive, or delayed in implementation (Gavin, 2015). Additionally, due to the proprietary nature of using third-party vendors to design and develop courses, once courses are implemented on MarineNet, little can be done to modify the courses; if a course has an error, there are often only two choices—accept the error, or delete the entire course (Gavin, 2015).

The waterfall methodology, as depicted in Figure 9, originally designed by Winston Royce in the 1970s, is a structured, sequential, approach to designing systems (Royce, 1987). After the project manager has a detailed understanding of the user requirements, the



project team progresses sequentially through the five steps until completion of the project. The waterfall methodology is very structured, with clearly defined milestones, but lacks flexibility to adjust user requirements (Royce, 1987).

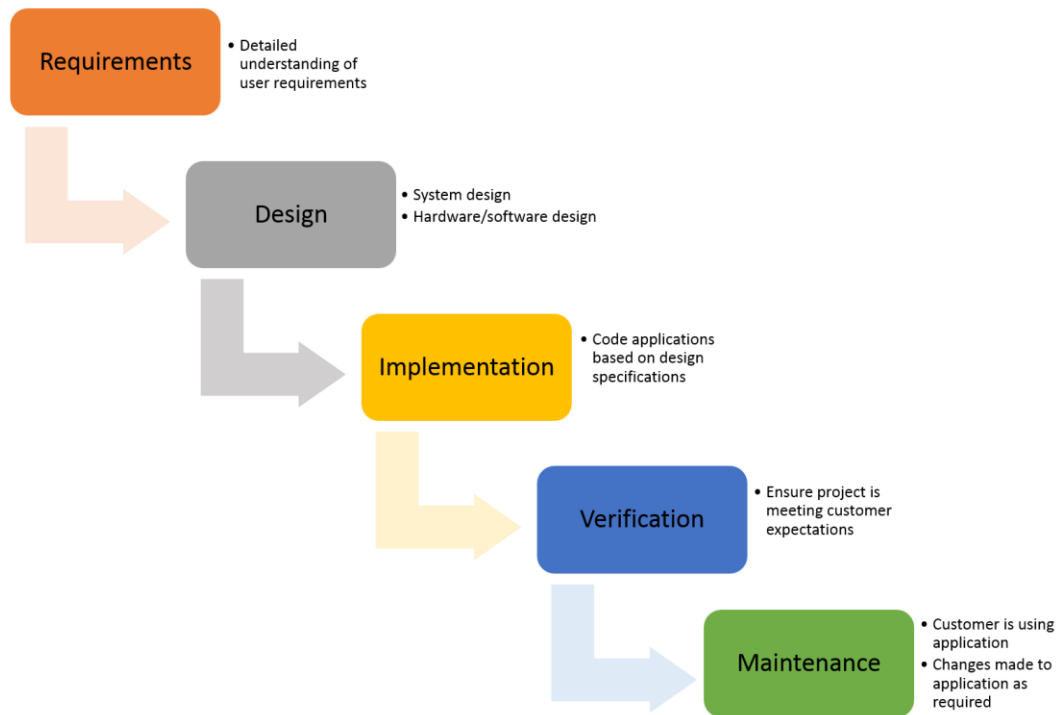


Figure 9. Waterfall Methodology. Adapted from Royce (1987).

The current process to design, develop, and support online distance-learning courses for MarineNet has caused frustrations for not only the College of Distance Education and Training, but also course sponsors and end users alike. As observed by Kinzel, having courses designed for course sponsors and end users in a timely manner always presents a challenge:

Our flash to bang [to produce MarineNet courses] was long, we had a lot of things to do, didn't have a lot of people to do it, so the long lead to get a product [MarineNet course] out. Sometimes we would get a product to them [sponsors and end users] just after they needed it. They needed it six months ago, not now.

Despite the challenges associated with the design, development, and support of online distance-learning courses, MarineNet remains the USMC's primary means for completing annual year and fiscal year auxiliary training requirements, common skills training, pre-deployment training, and professional military education. In fiscal year 2016 alone, MarineNet had in excess of 5 million course enrollments and 3.4 million course completions (Gavin, 2017).

#### **D. MARINET USER ENGAGEMENT EXERCISE**

When first arriving at the College of Distance Education and Training, Major Pompen and Major Goman recalled walking into a conference room and seeing a single slide with what seemed to be a list of loosely coupled elements currently being developed to improve MarineNet. As recalled by Major Pompen, "one of those elements was a YouTube like capability." After realizing that the list of elements was nothing more than a brainstorming session to develop the College of Distance Education and Training "2018 Vision," the two officers joined together to improve MarineNet.

In the winter of 2013, anticipating the need for concrete data to convince the leaders within the College of Distance Education and Training that MarineNet was inadequate, Major Pompen and Major Goman began to design and develop the MUE2. The officers designed MUE2 to be a series of engagements, with MarineNet end users, composed of a scripted interactive presentation and a brief paper survey that would ultimately generate a comprehensive list of end users' concerns and desires (Gavin, 2015). This methodology would provide participants with a common understanding of the current MarineNet system, afford individual participants with the opportunity to verbally articulate their experiences, concerns, suggestions, and recommendations in a group setting, and provide participants with a means to offer anonymous feedback through a paper survey (Gavin, 2015).

The College of Distance Education and Training leadership, some of the initial founders of MarineNet, did not oppose conducting the MUE2, but they were also not immediately convinced on the necessity to conduct the MUE2. The initial hesitation from the College of Distance Education and Training leadership to conduct the MUE2 was a product of several factors. With 2,250 courses, 5 million annual enrollments, and 3.4

million annual course completions, MarineNet was assumed both popular and effective (Gavin, 2017). Additionally, with no push from higher headquarters or the end users for changes, the College of Distance Education and Training leadership believed MarineNet to be adequate and therefore no need to dedicate time or resources to modifying a functioning system. Frustrated with their immediate leadership's acceptance of a substandard system, but overwhelmed with daily requirements, Major Pompen and Major Goman could not immediately lobby for the support needed to pursue the execution of the MUE2. Determined to make changes to MarineNet, Major Goman refused to let MUE2 die. Several months later, Major Goman was fortunate enough to informally meet with the President of Marine Corps University, Brigadier General Walcke. Taking advantage of the fleeting opportunity, Major Goman informally presented the idea of the MUE2 to Brigadier General Walcke. The next working day, by the direction of Brigadier General Walcke, Kinzel and Major Goman found themselves presenting the idea of the MUE2 to the Marine Corps University Chief of Staff, Colonel Garzin. Immediately convinced that the MUE2 would be beneficial, Colonel Garzin agreed that Marine Corps University would provide the College of Distance Education and Training with the resources necessary to support the execution of the MUE2. After seeing the excitement of Marine Corps University leadership, the College of Distance Education and Training leadership granted Major Pompen and Major Goman permission to move forward with the execution of the MUE2.

After receiving authorization to execute the MUE2, for a period of almost four months, Major Pompen and Major Goman conducted 62 separate group engagements with a total of 1,550 active duty and reserve Marine participants from 191 different military occupational specialties (Gavin, 2015). More than 85% of the MUE2 participants were junior, company grade, officers between the ranks of O1-O3 and junior enlisted Marines between the ranks of E1-E5 (Gavin, 2015). Major Pompen and Major Goman designed the MUE2 to target this population of Marines, the millennial generation, because not only do they make up the majority of the USMC, but they naturally understand the internet, computers, and video games (Gavin, 2015). Additionally, the two officers believed that persistent issues with the reliability, accessibility, and compatibility of MarineNet have tainted the reputation of the system among the senior end users (Gavin, 2015). To make

certain the research accurately represented the entire USMC, the Headquarters Element, Ground Combat Element, Aviation Combat Element, and Logistics Combat Element, of I, II, and III Marine Expeditionary Forces, Marine Forces Reserve, and Marine Corps University's professional military education schools provided Marines to support the MUE2 (Gavin, 2015).

Upon completion of the separate MUE2 engagements, in the fall of 2014, Major Pompen and Major Goman immediately began to input the data into a custom database, analyze the data, and aggregate the findings into an official report. In the spring of 2015, Major Goman finalized the MUE2 report and provided Kinzel with the results. As recalled by Kinzel,

They [Major Pompen and Major Goman] came back [from MUE2] with exhaustive research on what it was that Marines were looking for and not looking for [with respect to MarineNet]. Of course, as you imagined it was a million and one different thoughts. They had to group them up, and they did a good job of grouping them up and coming out with some trends and patterns that we [the College of Distance Education and Training] could look at.

The MUE2 report succinctly summarized the 1,550 participants' responses to four questions (early engagements did not ask approximately 300 participants questions one and two):

1. Does the Marine Corps have a need for eLearning? (Yes/No),
2. MarineNet is the eLearning tool for the Marine Corps. Are you satisfied with MarineNet? (Yes/No),
3. What issues have you had with MarineNet?, and
4. What would improve distance education in the Marine Corps? (CDET, unpublished data, September 22, 2017)

With these four questions, MUE2 participants expressed their beliefs, concerns, and desires with respect to online distance learning in the USMC. Overwhelmingly, more than 76% of the MUE2 participants believed that online distance learning is a force multiplier

within the USMC (CDET, unpublished data, September 22, 2017). Despite the common belief, regrettably only 21% of the MUE2 participants surveyed believed that MarineNet, the current learning management system for the USMC, was meeting their expectations (CDET, unpublished data, September 22, 2017).

In response to questions three and four, MUE2 participants registered 6,518 instances of concern—an average of four instances of concern per participant (Gavin, 2015). Major Pompen and Major Goman reviewed all the responses and categorized the participants' 6,518 instances of concern into nine primary areas: content, unrealized capability, accessibility, reliability, policy, user interface design, incentives, general comments, and customer support (Gavin, 2015). Figure 10 illustrates MUE2 participants' primary areas of concern.

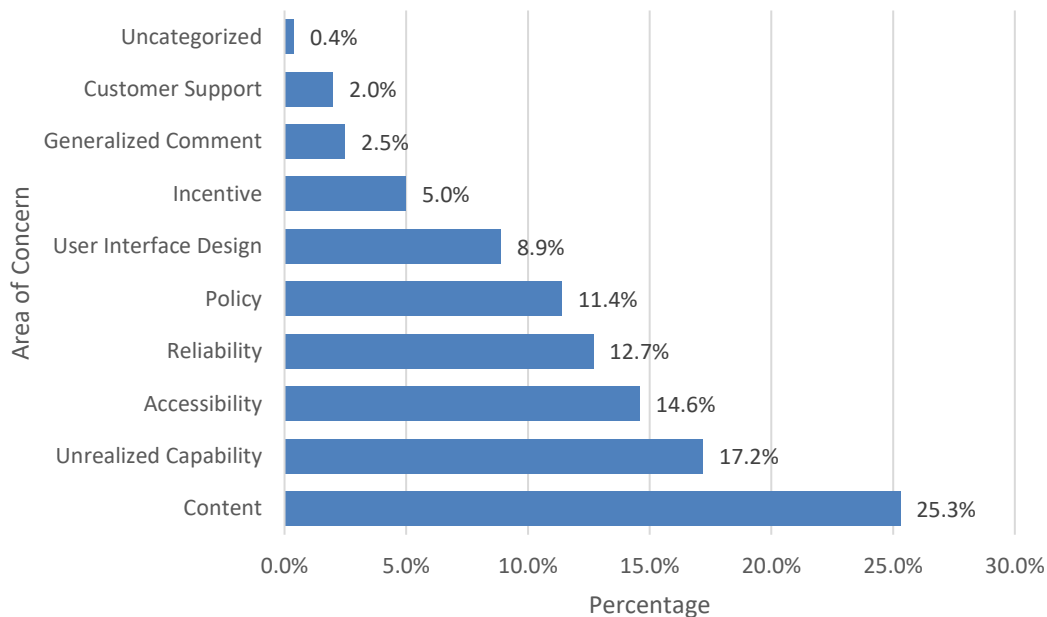


Figure 10. MUE2 Primary Areas of Concern. Adapted from Gavin (2015).

The number one area of concern identified by MUE2 participants was MarineNet course content (CDET, unpublished data, September 22, 2017). As noted by one participant, “The classes are the same every year I take them. They are so boring and

monotone that I just click right through them, and a lot of the classes are out of date and need to be updated.” (CDET, unpublished data, September 22, 2017). Similarly, another participant expressed concern with redundancy, “Redundant courses, such as annual training that have changed with certain criteria but have not changed in MarineNet course. The last four years have been the same classes, so for my Marines, they click through but retain nothing.” (CDET, unpublished data, September 22, 2017). Marines voiced their concerns with course content being relevant, accurate, and redundant. Also concerned with the MarineNet course content delivery methods, one MUE2 participant recorded, “MarineNet seems out dated and a bit old school. With the new generation used to technology, MarineNet needs to shift to grab the attention of those younger individuals.” (CDET, unpublished data, September 22, 2017).

The second concern registered by MUE2 participants was the unrealized capability of MarineNet. Through this concern, participants provided numerous recommendations on what they desired to be incorporated into MarineNet in order to improve online distance learning. The most common recommendation was a mobile friendly platform, best described by one of the participants, “In the mobile driven time, we should have a MarineNet App for phones and devices. It would make it different, and we could work on it no matter where we are. Doctor’s appointment, waiting while wife shops, etc.” (CDET, unpublished data, September 22, 2017). This participant articulated that not only is mobile technology widespread throughout the USMC, but end users want to use it to better themselves. Participants were also very clear about the desire to incorporate video-based training into MarineNet. As one participant recorded,

Create a free open YouTube channel so Marines can post how to type videos. Most of the knowledge in the Marine Corps is gained through experience i.e. field craft, handling weapons, and is only passed down through word of mouth, the form and YouTube style channel would preserve that. (CDET, unpublished data, September 22, 2017)

As noted by another participant,

The YouTube based idea would work really well. If MarineNet had a search engine where Marines could look anything up from their MOS [military occupational specialty], to rolling sleeves, basic knowledge would be leaps and bounds ahead what it is now. I am confident the Marines will make

captivating videos that will teach us a lot. (CDET, unpublished data, September 22, 2017)

Furthermore, another participant suggested,

Create [a] user uploaded content portal, something resembling a Wiki that allows anyone to create and edit content on Marine Corps issues. Have it monitored by users who have the ability to flag and report information that is incorrect or inappropriate and moderators to enforce and review these submissions. Include a video upload portal as well as a tutorial on anything not easily explained in text (i.e. weapons maintenance, tactics, technical activities, etc.). (CDET, unpublished data, September 22, 2017)

The MUE2 participants, the future of the Marine Corps, clearly expressed the benefits they see associated with incorporating a video-based training capability into MarineNet.

Numerous participants registered concerns with the accessibility of MarineNet on various web browsers and operating platforms. Simply stated, one participant commented “More accessibility and operability on non-government systems would be a \*huge\* step forward.” (CDET, unpublished data, September 22, 2017). Issues including reliability and failures with individual courses loading, performance, and completion were widespread throughout the participants’ comments. As stated by two participants: “Some classes need to be completed multiple times in order for the completion to register into the system.” and “Many times [a] course does not load or is blocked by a work security setting outside of a simple fix.” (CDET, unpublished data, September 22, 2017). One of the last main areas of concern participants expressed frustration with was the policies that prevented them from accessing or completing courses because of password issues, proctor requirements, or enrollment restrictions (CDET, unpublished data, September 22, 2017).

MUE2 participants, MarineNet end users, conveyed thousands of concerns with MarineNet, but while doing so, they also formulated hundreds of recommendations for improvements to MarineNet. The results of MUE2 rested with Kinzel and as he recalled,

I get this big survey, and there were three or four or five things that we needed to work on. The problem is, that if I am the guy selecting, what if I select poorly? Because it’s one thing for a lance corporal, or 10,000 lance corporals, to ask for it, but unless the command is involved in that, it’s probably not going to get off the ground.

Despite his personal belief that incorporating video-based training into MarineNet seemed “like a no brainer,” Kinzel believed he needed more.

Until the unit commits itself to it [any new idea], it is just another idea. We have had plenty of ideas that have not gotten off the cutting room floor here at CDET because I always have people thinking out ahead. In the Marine Corps, if I have an idea that...I think is neat for training, but you don't think it's that neat, well then, I am not supporting you very well. So, it is a partnership between what happens...with us at CDET. We are more than willing to work on new stuff and always looking at it, but we really have to have partners to make sure that what we are developing is what the Marine Corps needs. It's a requirement, not one of our bright ideas or thing that we think is neat. It might be neat, but it...might not be needed now.

Understanding the difficulties and risks associated with implementing change in a large, hierarchical organization like the USMC, Kinzel had a difficult decision. In a time when the USMC was actively fighting a war, how could the College of Distance Education and Training move forward with incorporating video-based training into MarineNet? Was the USMC ready and willing to accept the additional responsibilities, resourcing challenges, and disruptions that might be associated with initially implementing a video-streaming, distance learning, capability?

## **E. FUTURE REGIMENT COMMANDER**

In the summer of 2014, Colonel Vicktor learned of his selection to assume the command of 7th Marine Regiment, an infantry regiment, in the fall of 2015. Colonel Vicktor had previously served as a Company Commander, Operations Officer, Executive Officer, Battalion Commander, and was a graduate of resident Command and Staff College, the School of Advanced Warfighting, and the Eisenhower School of National Security and Resource Strategy (United States Marine Corps, n.d.-a). Currently serving in the Plans, Policies, and Operations Division of Headquarters Marine Corps, Colonel Vicktor was also working as a contractor through the College of Distance Education and Training teaching Command and Staff Education<sup>1</sup>, first year, distance education seminar.

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<sup>1</sup> Command and Staff Distance Education Seminar provides officers with “professional military education and training in order to produce skilled warfighting leaders” with the critical thinking skills necessary to overcome diverse security challenges (MCU, n.d.-c).



The timing of the command selection board and planned date for his change of command afforded Colonel Vicktor a period of over one year to reflect on how he was going to approach his future duties as a Regimental Commander. Completely unforeseen, it was while watching the Ohio State Buckeye college football playoffs in December 2014 and the National Championship in January 2015 that Colonel Vicktor realized the need to develop a capability that would “buy back training time” and “accelerate the learning curve” for the Marines in his future regiment.

Cardale Jones, just 22 years of age at the time, started the 2014 college football season as the third-string quarterback for the Ohio State Buckeyes. In November 2014, after the first and second-string quarterbacks suffered season ending injuries, Jones assumed the role as first-string quarterback. With little time to adjust to his new role, Jones soon found himself as the starting quarterback for the 2015 College Football Playoff National Championship—what some would call the opportunity of a lifetime. Jones fully embraced his role as first-string quarterback and led the underdog Ohio State Buckeyes to a 42-20 win over the Oregon Ducks (National Collegiate Athletic Association [NCAA], 2015). During this game, Jones recorded two touchdowns, one passing and one rushing, completed 16 of 23 passes for 242 yards, and rushed for a total of 38 yards (NCAA, 2015). It was while watching this game that Colonel Vicktor remembered thinking to himself,

This was the same demographic that I would be dealing with in a big way in an infantry regiment. Predominantly young men between the ages of 18 to 22, 25. I just saw a lot of mature decision making from this particular quarterback.

Amazed by how Jones made such mature decisions as the third string quarterback, Colonel Vicktor began to research a technique that Coach Urban Meyer coined “on-edge” teaching, or what some have now labeled as “flipped coaching.” As described by Colonel Vicktor, flipped coaching is:

A derivative of flipped teaching, which is using video presentations to deliver content outside of the classroom. So, when the students come into the class, they can start working on group projects and higher-level skills [rather] than just being introduced to concepts and that kind of thing. [In] the football context, the players come to practice and instead of going through the playbook on a blackboard, we go to more advanced collective

skills like working on blocking schemes and audibles and things of that nature.

Coach Meyer has been known to utilize on-edge teaching, also known as flipped coaching, to keep his players alert during team meetings by asking random questions and continuously engaging in individual interactions; his players never know when they will be put in the hot seat (Clegg, 2014). In addition to always-keeping players on-edge, Coach Meyer has taken advantage of players' dependence on technology to disseminate short video lectures, screenshots, and slideshows to help introduce new material (Clegg, 2014). The theory behind Coach Meyer's technique was players use their own time to gain knowledge and comprehend information at their own pace, and team-training time can be dedicated to hands-on activities to make sure players can execute, as a team, the extremely complex playbook (Clegg, 2014).

Impressed at the level of success achieved by Coach Urban Meyer, Cardale Jones, and the Ohio State Buckeyes, intrigued by the concept of flipped coaching, and having a true appreciation of the difficulties associated with delivering valuable training and education, Colonel Vicktor was left asking himself one question. How do I implement Coach Meyer's flipped coaching technique into my future Regiment?

## **F. STARS AND MOON ALIGN**

Now in the summer of 2015, several months after the College of Distance Education and Training Director, Kinzel, received the official MUE2 report indicating the end users' overwhelming desire to see changes incorporated into MarineNet. Despite MarineNet end users expressing a desire to see change, there was still no desire from the College of Distance Education and Training leadership to change MarineNet—leadership was content with the current state of MarineNet. Realizing that leadership was not going to direct changes to MarineNet, Major Pompen and Major Goman decided it was time to answer the “voice of the Marine Corps.” And so, they referenced the MUE2 and decided to begin the formal process to design a video-streaming platform that would provide the entire USMC with the ability to create, share, and view user-generated video content on MarineNet. The two officers truly believed that incorporating a video-streaming platform

into MarineNet was good because: it was something Marines requested during the MUE2, there was a general understanding that watching videos could be more efficient than reading a book or PowerPoint presentation, and it was a project that they could influence with little third-party vendor support. Still required to fulfill their primary responsibilities as the MarineNet Officer and Emerging Technology Officer, for a period of two to three weeks, Major Pompen and Major Goman used free time, lunch breaks, and off duty time at home to begin designing a video-streaming platform for the entire USMC. As Major Goman recalled, “I was working on designing the mobile platform for video streaming during a lunch break and I remember Lieutenant Colonel Coger asking me why I was wasting my time on this [mobile platform]. He told me that if this is really something we need to do, a General will tell us to do it.” Aggravated with the lack of support from the College of Distance Education and Training leadership, Major Pompen and Major Goman were left with no option but to continue to use their free time to design a video-streaming platform for the entire USMC.

As timing would have it, a few weeks after Major Pompen and Major Goman started designing the video-streaming platform, Colonel Vicktor cast his net to determine how to implement a flipped coaching capability for his future Regiment. At this time, Colonel Vicktor approached Kinzel and registered an end user request with the College of Distance Education and Training to develop a ‘YouTube’ like capability. When Colonel Vicktor asked if the College of Distance Education and Training could support it, the Technology Director, Matthew Steere, recalled,

We [College of Distance Education and Training] were like yes, we can support because you know, this is what MarineNet is really supposed to be about, providing things for the Marine Corps, but we had always generated our own requirements and he [Colonel Vicktor] was the first one from outside the organization to come to us directly and say hey, I really need something [video-based training capability], can you support it.

The stars and moon aligned. Within a period of several months, Kinzel received the official MUE2 report highlighting participants’ overwhelming desire for a video-streaming platform, on their own initiative Major Pompen and Major Goman were designing the foundation for a video-streaming platform for the entire USMC, and Colonel Vicktor, a

future Regimental Commander, conveyed an end user requirement for a ‘YouTube’ like capability.

In June of 2015, Kinzel declared that the top priority for the College of Distance Education and Training was to deliver a video-streaming capability to Colonel Vicktor by his Change of Command—the day he assumed responsibility for training and educating more than 4,100 Marines and Sailors. Named after the Colonel’s future Regiment, 7th Marine Regiment, the project was appropriately titled Ripper Academy. As recalled by Kinzel, I remember telling Colonel Vicktor,

If you stick it out with us [College of Distance Education and Training], we will stick it out with you. It’s worth it for me to do that, not just for you as a Marine, but for the Marine Corps, because I think one of two things is going to end up happening in this. We either are going to fail to give you the product you need, or as I believe, it’s going to be a success. If it’s a success with you, I could only imagine the other regimental commanders and separate battalion [will want it as well].

## **G. RIPPER ACADEMY**

Immediately following the approval to pursue Ripper Academy, Major Pompen became Ripper Academy’s Lead Designer and was temporarily relieved of all MarineNet Officer responsibilities. As Ripper Academy’s Lead Designer, Major Pompen was responsible for designing and developing a video-streaming channel that would allow a specific subset of users, Colonel Vicktor’s Marines, to create, share, and view user-generated video content.

### **1. Goals and Design Specifications**

Shortly after the formal decision to pursue Ripper Academy, Colonel Vicktor and several Department Heads from the College of Distance Education and Training had multiple meetings to determine Ripper Academy’s goals and initial design requirements. With different organizational mission statements, Colonel Vicktor and the College of Distance Education and Training had slightly different goals with respect to Ripper Academy.

Knowing that he would be responsible for training and educating more than 4,100 Marines within his Regiment to conduct combat operations, Colonel Vicktor described what he had hoped to achieve with Ripper Academy:

It was really to buy back training time with an end state of accelerating the learning curve of young people. So, given the target demographic being 18-22 or 25, I realized there was nothing I could do as a regimental commander in the near term to change the relative age or experience level of the Marines in the Regiment. So, I was looking for another way to accelerate the learning curve. So, that's really what I was going after with Ripper Academy. When I look at Cardale Jones, the quarterback for Ohio State, I mean he was obviously physically gifted, but he wasn't any different than the other recruits as far as age, yet he looked so much more poised and mature as a decision maker. So that's what I was looking to achieve.

The College of Distance Education and Training concurred with the future Regimental Commander's objective, but as the primary organization responsible for supporting distance learning training and education across the entire USMC, they also wanted to treat Ripper Academy as a beta, essentially a test. As a beta, Ripper Academy would be designed and implemented, with just one unit in the entire USMC, to determine whether designing and developing a video-streaming platform for the entire USMC would be beneficial. As conveyed by Major Pompen,

Our [College of Distance Education and Training] objective was to treat it [Ripper Academy] like a beta in the sense that this was the first time that anyone in the Marine Corps was going to be engaging with the video on MarineNet and we weren't quite sure how it would be received. We weren't sure how, if any, of the Marines would be not only interested in viewing it, but interested in going there [MarineNet] and viewing it, or for that matter of creating video and uploading it.

After establishing a clear understanding of Ripper Academy's objectives, from both Colonel Vicktor and the College of Distance Education and Training's perspective, the group of individuals identified the design specifications thought to be critical to the future success of Ripper Academy. The five critical design specifications were as follows:

(1) Mobile Ready

Not only did more than 17% of MUE2 participants register a request for MarineNet to be mobile ready, but Colonel Vicktor thought it was absolutely essential for Ripper

Academy to be mobile ready in order to experience success (CDET, unpublished data, September 22, 2017). He went on to clarify,

It [Ripper Academy] had to be accessible from a personal electronic device like a phone or tablet computer, or even a personal computer. Without the need for CAC [common access card], or even having a USMC.mil account, because the target demographic in an infantry regiment [18-22 year olds], they don't have ready access to that kind of stuff, and I knew I wasn't going to have the resources to provide every Marine in the Regiment something along the lines of a secured tablet.

(2) "YouTube" Like

Colonel Vicktor also emphasized that Ripper Academy had to be 'YouTube' like because, "it had to be something that our target demographic [18-22 year olds] was very familiar with using, so that there wouldn't be any appreciable learning curve on how to use the tool."

(3) Review and Approval Process

It was immediately clear to both Colonel Vicktor and the College of Distance Education and Training that design specifications needed to include a review and approval process in order to make certain video content was accurate and appropriate. Leadership feared without a review and approval process, videos might contain classified information, vulgar language and/or inappropriate content, and such content could be contrary to guidance and even potentially harmful to those viewing. To mitigate the above concerns, everyone agreed that design specifications had to include a review and approval process in order to make certain the accuracy and appropriateness of all video content.

Worried about the time it would take to have video content routed, reviewed, and approved by a higher headquarters, Colonel Vicktor voiced concerns with respect to who would be the final approving authority. Working through possible review and approval process scenarios, to ensure the timely review and approval of video content, individual units (battalions or above), would be the final approving authority. Both parties agreed this was a great decision. If the College of Distance Education and Training was deemed the approving authority, some scenarios required as many as eight different higher headquarters to review and approve video content before it would finally be routed to the

College of Distance Education and Training for final approval—this would be timely and unacceptable. As stated by Colonel Vicktor,

The approval process had to be owned by them [battalions and regiments] and be the responsibility of the commanding officer at that level. Because I knew with the demographics, knowing that the culture of the Marine Corps, if we had to reach back to Quantico to get videos approved, that it [Ripper Academy] would fail right from the very beginning. That would take too long [getting videos approved].

While Colonel Vicktor was mostly concerned with content accuracy, appropriateness, and the timely publication of the videos, the College of Distance Education and Training made clear that during the review and approval process, an additional action needed to be included to ensure user-generated video content was free of viruses and malware.

#### (4) Simple

With limited time to deliver a final product, and uncertain whether Ripper Academy would become anything more than a good idea, the College of Distance Education and Training was adamant that Ripper Academy remain simple. Major Pompen recalled a very specific design request that would have provided units with the ability to group videos by each individual section within the unit, for example the S-1, S-2, S-3, S-4, S-6 would all have their own area to post videos. To support future implementation timelines, future modifications, and the possibility of expansion, the College of Distance Education and Training denied certain design requests in order to keep Ripper Academy simple. As stated by Major Pompen,

There were some smaller level requirements that we didn't want to run with because we...didn't want to go to that level of detail right from the outset. We wanted to keep it simple. And, if we need to evolve and change the way videos are structured within a channel...then we would do that.

#### (5) Time Constrained

The last requirement with respect to Ripper Academy, and maybe most important, was time. The implementation of Ripper Academy needed to coincide with Colonel

Vicktor's planned Change of Command, now scheduled for December 2015. As Kinzel recalled telling his personnel with respect to the criticality of time,

What I told them [the College of Distance Education and Training personnel] was we need to get something in his [Colonel Vicktor's] hands just about the time he is taking over. He will have a grace period of about 30 to 60 days, maybe, when he takes over before he is overwhelmed as a regimental commander. Regimental commanders are busy, they always have been. So, if we get him something that resembles a pilot, or a test capability when he takes over, he will be able to explain [Ripper Academy to his Marines and Sailors]... [and] get buy in from his people. [He will be able to] Tell them [his Marines and Sailors] this is important to me, and I want to be able to do it. Then he'll be around for almost a year [before deploying overseas] to get it [Ripper Academy] started.

After several meetings, both Colonel Vicktor and the Department Heads at the College of Distance Education and Training agreed on the five critical design specifications for Ripper Academy—mobile ready, 'YouTube' like, review and approval at the unit level, simple, and a timely design and development process with a planned implementation for December 2015.

Following the completion of the initial design meetings, Major Pompen spent the next four months expanding and refining the finer details of the initial design specifications. Due to a lack of resources and daily requirements, the College of Distance Education and Training was unable to establish a project team, which meant Major Pompen had to form a comprehensive, prioritized, list of design specifications. When asked how he did it by himself, Major Pompen recalled that he would share ideas and conduct adhoc meetings with colleagues, particularly Major Goman, to help flush out requirements. Topics that Major Pompen remembered socializing with colleagues included, but were not limited to, establishing prohibited content guidelines, establishing policy guidelines including how long to host videos, and determining who could/could not create video-streaming channels. Major Goman recalled the many discussions regarding content and policy guidelines,

We had a lot of ideas that were awesome, that may have made Ripper Academy more attractive, but we got a lot of arguments on why we can't do that. It eventually became a pick your battles around the policy guidelines.



Major Pompen reminisced about the time when he was expanding the list design specifications, “[I was] coming up with and thinking through, analyzing what can go wrong, how best to implement the system so it can accommodate what we do in the Marine Corps was a bit challenging.” With no dedicated project team, it was a challenge for Major Pompen to determine all the design specifications necessary for a quality end product.

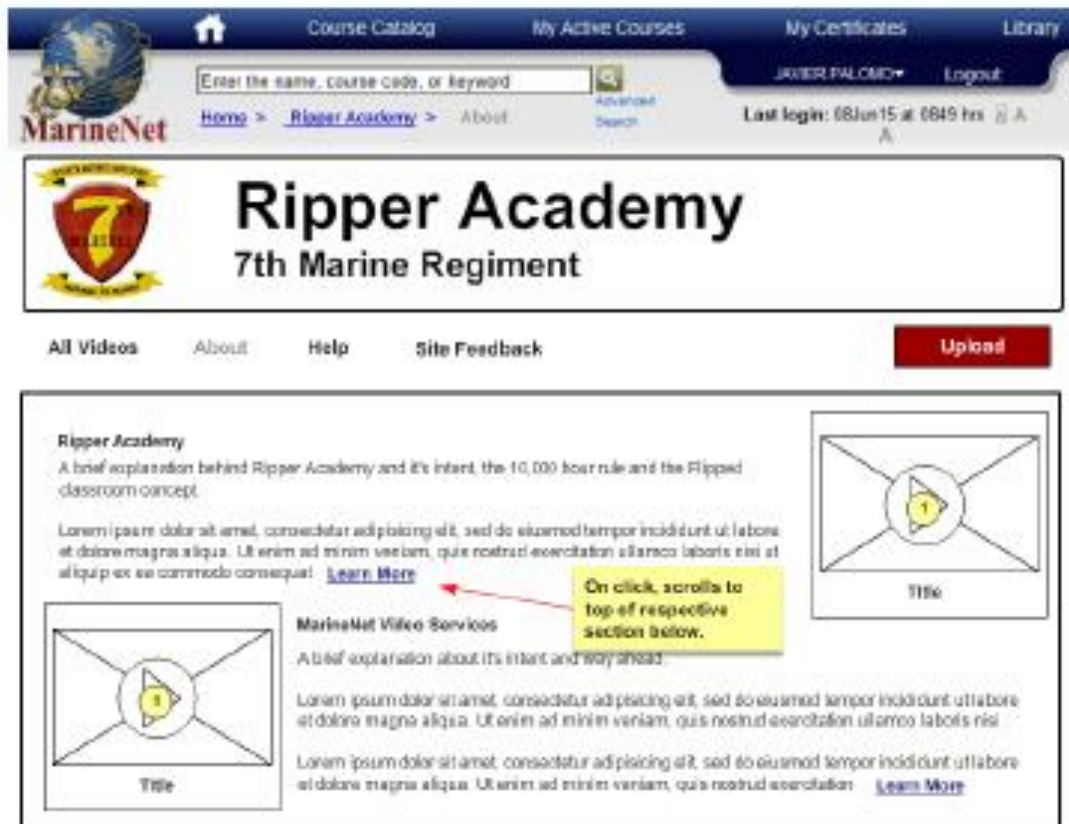
## **2. Development and Implementation**

In June of 2015, while still expanding and refining design specifications, Major Pompen approached the Naval Air Systems Command (NAVAIR) Distance Learning Network Operations Command (DLNOC) Project Managers, Trent Shore and Caleb Swartz, with the initial design specifications to begin the development of Ripper Academy. As a working capital, NAVAIR DLNOC is responsible for providing the College of Distance Education and Training with the resources necessary to ensure the operation, maintenance, and support of MarineNet. Simply stated, the College of Distance Education and Training has a contract with NAVAIR DLNOC to modify and sustain MarineNet to its specifications.

With a general understanding of the Ripper Academy design specifications, Shore and Swartz began to form the NAVAIR DLNOC Ripper Academy Project Team. Despite NAVAIR DLNOC having access to a pool of hundreds of personnel, with different qualifications and levels of expertise, it is often the case that the same personnel support MarineNet projects because they are familiar with the system. With the exception of a few personnel, the Ripper Academy Project Team was no different. The project team included seasoned engineers, operations/customer support personnel, and hardware management personnel that were intimately familiar with MarineNet. Realizing that this was not the “standard” MarineNet project, Shore and Swartz also solicited the support of a senior video expert and several intern engineers. Recalled by Major Goman, “having the intern engineers was a great decision, they were not familiar with the system, they were flexible, and they rolled with the punches.” Having the NAVAIR DLNOC Ripper Academy Project Team formed, Shore and Swartz made the decision that the team was going to adopt the iterative design methodology, instead of the standard waterfall methodology, for the Ripper

Academy project. In comparison to the waterfall methodology, the iterative design methodology is a cyclic process of planning, analyzing, engineering, and refining a product to achieve a desired end state (W. Fast, class notes, 2016). The iterative design methodology is supportive of user requirement modifications, is more fluid and flexible, and is accommodating of change. Shore and Swartz believed the iterative design methodology was necessary because of the incomplete list of design specifications and the compressed timeline associated with Colonel Vicktor's planned Change of Command. Immediately following the formation of the NAVAIR DLNOC Ripper Academy Project Team, the team began to develop its prototype of Ripper Academy.

Major Pompen was still busy finalizing the last of the design specifications for Ripper Academy, but with the compressed timeline at the forefront of his mind, and a general understanding that it is often difficult for the NAVAIR DLNOC project teams to design a user interface from a written description, he looked to leverage technology. Determined to meet the implementation timeline, Major Pompen used personal funds to purchase access to MockFlow software. MockFlow is an online suite of tools to convert user interface ideas into actual designs. Figures 11 and 12 are examples of Ripper Academy user interface designs that Major Pompen created using MockFlow software.



## About Ripper Academy

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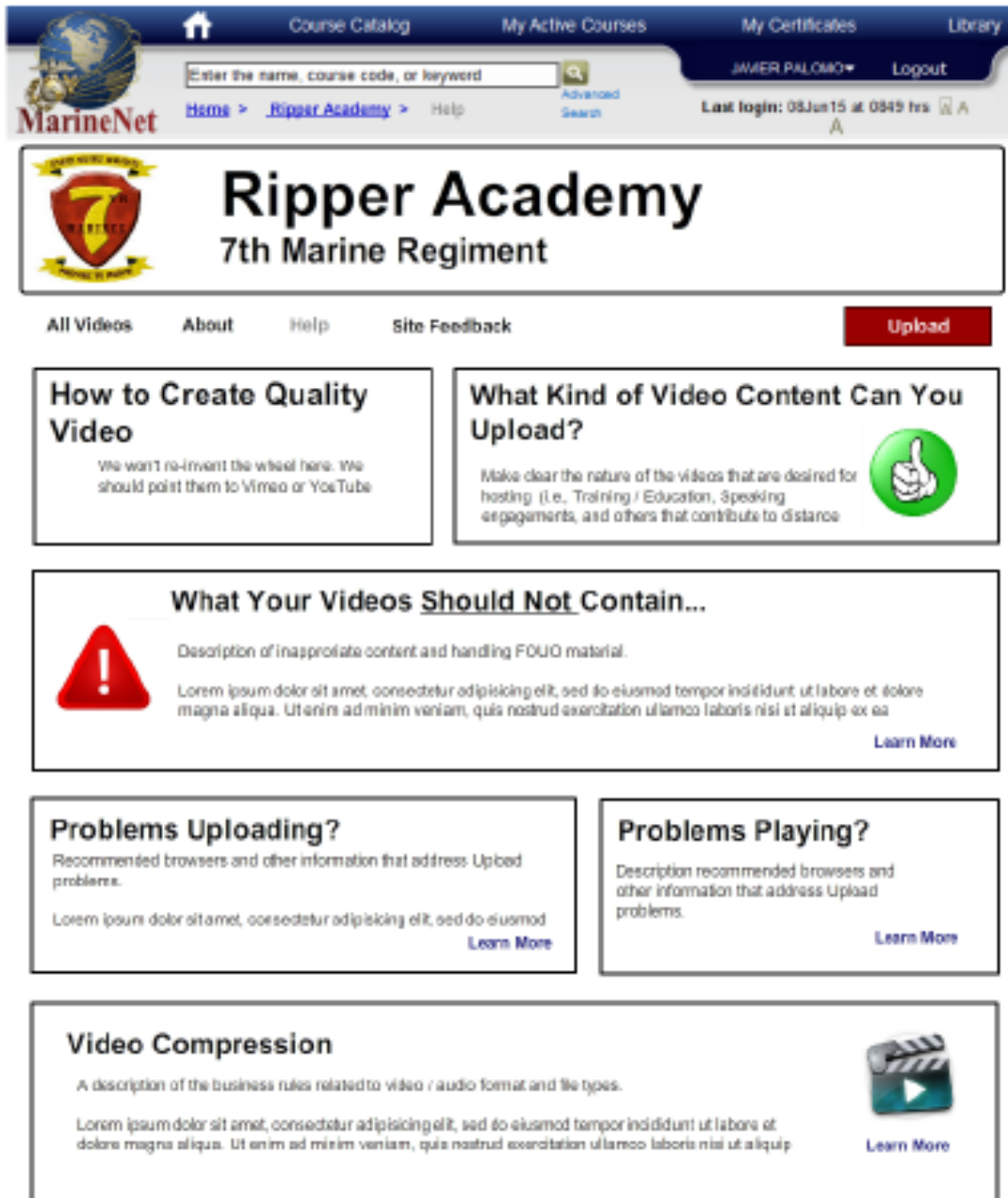
## About MarineNet Video Services

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Source: NAVAIR DLNOC, personal communication, September 20, 2017.

Figure 11. Screenshot of Ripper Academy “About” Page Using Mockflow.

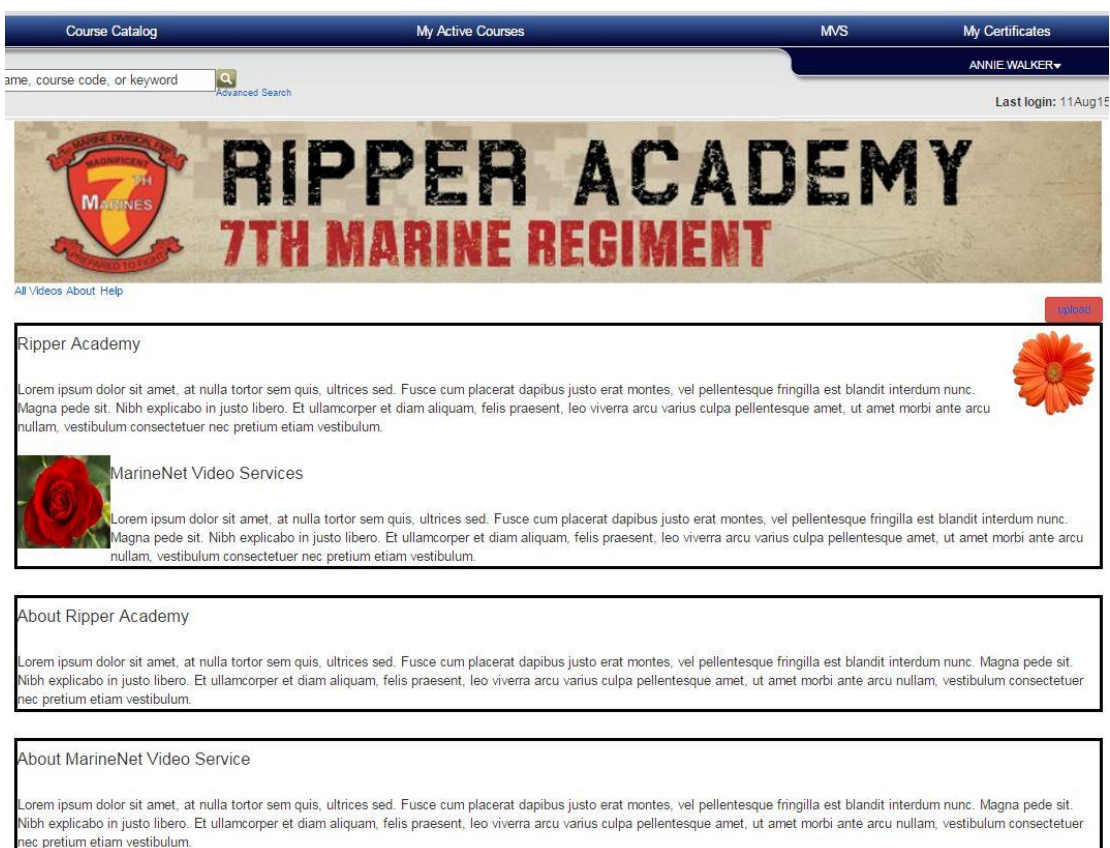


Source: NAVAIR DLNOC, personal communication, September 20, 2017.

Figure 12. Screenshot of Ripper Academy Help Page Using Mockflow.

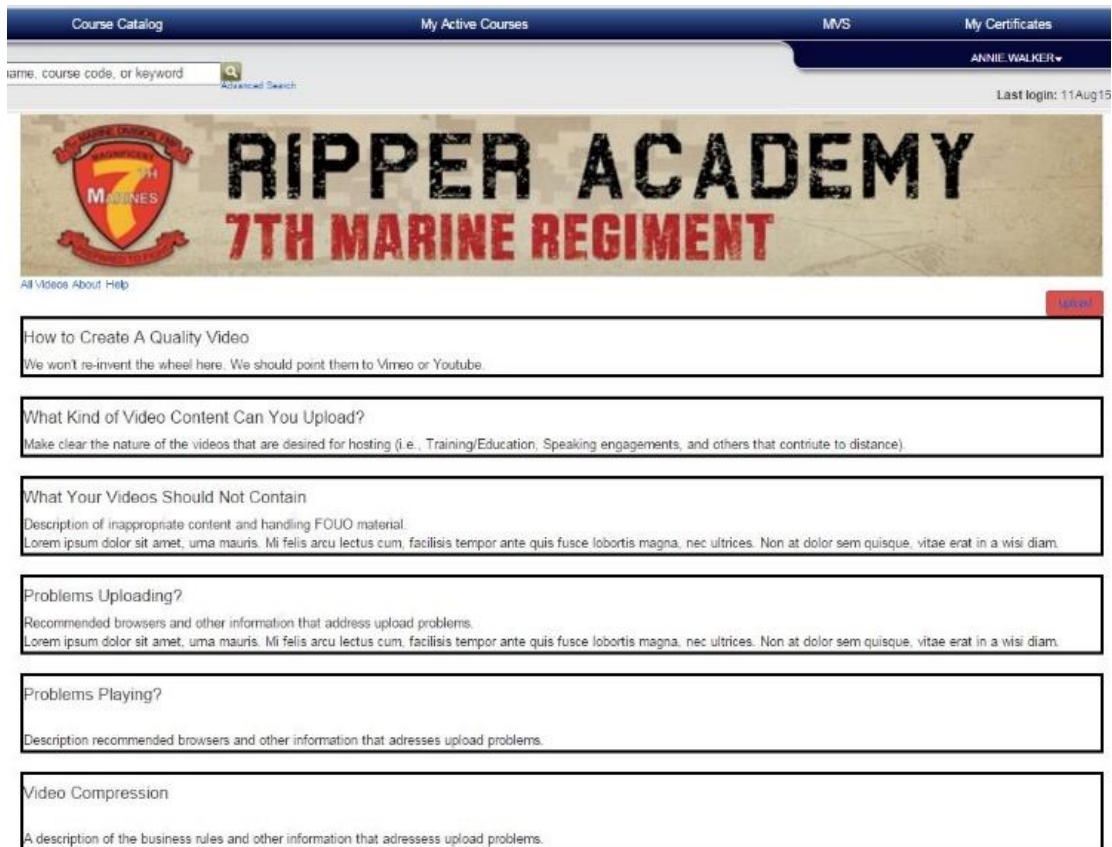
With the College of Distance Education and Training and the NAVAIR DLNOC Ripper Academy Project Team separated by more than 100 miles, MockFlow software was instrumental to the development of Ripper Academy. As stated by one of the Ripper Academy Project Team members, “pictures say 1000 words.” MockFlow helped eliminate

questions from the project engineers by clearly indicating where to place words, buttons, and pictures, and even specifying what colors to use. MockFlow helped specify hyperlinks, formats, and the overall design of the user interface. Major Pompen echoed the value of MockFlow software, “It really helped because we got about 85% of what we asked for, which is good. I would say that’s very good, because the other 15% is probably because of faulty design thinking.” Figures 13 and 14 are examples of what the NAVAIR DLNOC project engineers produced from the MockFlow diagrams in Figures 11 and 12.



Source: NAVAIR DLNOC, personal communication, September 20, 2017.

Figure 13. NAVAIR DLNOC Screenshot of Ripper Academy “About” Page.



Source: NAVAIR DLNOC, personal communication, September 20, 2017.

Figure 14. NAVAIR DLNOC Screenshot of Ripper Academy “Help” Page.

Understanding the importance of constant communication, and the extremely compressed timeline, Major Pompen and Major Goman would conduct regular site visits and virtual teleconferences with the Ripper Academy Project Team to analyze progress and make refinements as necessary. When Major Pompen could not conduct visits, or when he needed extra support, Major Goman was there to assist. The two officers made countless visits to meet with the NAVAIR DLNOC Ripper Academy Project Team, but the compressed timeline and tyranny of distance often resulted in MockFlow being the primary means to articulating the vision and desired end state of the user interface.

As the project engineers developed the user interface and ensured system functionality, the hardware management personnel configured the hardware to support Ripper Academy. As a new and unique capability, an immediate and obvious requirement

for Ripper Academy was video cards. The hardware management personnel acquired brand new video cards to support the design specifications of Ripper Academy, but what they did not immediately realize was the need for the servers to provide the video cards with a dedicated power source. A major, potentially catastrophic, oversight was adverted with the resurrection of some old servers that were deemed end of life with no warranty—a huge risk. The end of life servers provided the video cards with the dedicated power source, but the hardware management personnel did not initially recognize that the video cards and servers were incompatible. Knowing that it can sometimes take one year or more to purchase new servers, the hardware management personnel knew they had to find a way to make the new video cards work on the old servers in order to meet the implementation timeline. After numerous failed attempts to configure the hardware, in a “last ditch effort,” the hardware management personnel configured the video cards and servers with the use of a virtual system. With no other viable option, the new video cards and end of life servers were finally configured to support Ripper Academy.

Another issue that challenged the hardware management personnel was the storage capacity necessary to support Ripper Academy. Ripper Academy required a mass storage capacity in order to store videos of various lengths and quality, scan videos for viruses and malware, and make certain that videos could stream on the numerous operating systems of personal computers and mobile devices. The storage requirements associated with storing videos of various lengths and quality was projected, but the storage requirements for scanning videos for malware and viruses and streaming on numerous operating systems were an initial oversight. The requirement to scan videos for viruses and malware, prior to uploading, required a separate dedicated storage capability in order to prevent other MarineNet content from being infected by a virus or malware. Additionally, in order to support the mobile-ready design specification, original video files had to be transcoded, replicated, into approximately ten different video formats in order to make certain it would be viewable on an array of operating systems on personal computers mobile devices. The requirement for transcoding meant ten times the storage requirement for each video. The hardware management personnel acquired disk space and implemented storage solutions to support the implementation timeline, but this additional oversight could have led to



significant implementation delays. In retrospect, hardware management personnel indicated that while the storage solution worked, it may not have been the best and it probably could not support the exponential growth of Ripper Academy.

Progressing almost flawlessly with the development of the Ripper Academy's design specifications, the project engineers requested reconsideration of the design specification for Ripper Academy to be hosted on the current MarineNet site. As an initial design specification, Major Pompen specified that Ripper Academy be hosted on the current MarineNet site. MarineNet was an approved program of record within the USMC, which meant the College of Distance Education and Training could make improvements and modifications to the current state of MarineNet without having to go through the laborious approval process to introduce and implement a completely new system as a program of record. As the project engineers were developing Ripper Academy, they realized two potential benefits to hyperlinking, instead of hosting, Ripper Academy on MarineNet and requested reconsideration. The first benefit was the ease of development—it would be quicker and easier to design Ripper Academy as a completely separate site and in the end just injecting a hyperlink. The second benefit of making Ripper Academy a separate site was the ease of maintenance—if Ripper Academy required maintenance or modifications, the project engineers could make the required changes to Ripper Academy without affecting the entire MarineNet website. The College of Distance Education and Training supported this request, but later found this to be an even better recommendation than originally envisioned because it gave Ripper Academy a completely different user interface. As explained by the Digital Content Department Head, Lieutenant Colonel Hesline,

The decision to make it [Ripper Academy] a standalone module, and therefore have a different feel once you selected that link ... I think that was a very good decision. In my opinion, it changed the viewpoint or the user experience, away from what we assume Marines think of, and this is also from the MUE2 research, what Marines assume comes with MarineNet, which is nothing more than annual and compliance training and stuff usually doesn't work. So, changing that user interface and creating a new experience for them [MarineNet end users], I think that was a fantastic decision.



In early December 2015, the design and development of Ripper Academy was complete, testing was ongoing, and Colonel Vicktor's Change of Command was on the horizon. The project engineers believed they had produced a functional system that was ready for implementation. Determined to not accept anything less than requested, Major Pompen required the project engineers to make multiple, what some considered last minute, changes to the functionality and user interface of Ripper Academy. These changes, which the project engineers believed were cosmetic tweaks (changing font color, size, location, picture selection and placement), delayed the implementation of Ripper Academy to January of 2016. While the project engineers believed the changes were insignificant, the College of Distance Education and Training had a very different perspective. As reported by Lieutenant Colonel Hesline,

We [the College of Distance Education and Training] are a customer of NAVAIR [DLNOC], so that creates kind of an interesting relationship. We have to approve their work. So, we submit what we want, it comes back, and it's not quite we want, we don't sign off on it until we get exactly what we want. In this instance, because of the visibility that this project [Ripper Academy] was going to get, we were not willing to accept less than what we determined was perfection. In many instances, we will accept less than perfection. We will accept good enough to get the product from the NAVAIR [DLNOC] contract team implemented and executed, but in this case, because of the high visibility, the champion was not going to allow that to occur and they had the full back up of all of CDET.

Now January of 2016, Major Pompen accepted the latest round of changes to Ripper Academy and the system was determined to be ready for implementation onto MarineNet. On January 21, 2016, Ripper Academy was officially implemented as a link on MarineNet. The Marines and Sailors of Colonel Vicktor's command were, for the first time ever, permitted to create, share, and view user-generated video content on MarineNet. Ripper Academy's initial design and development were a success—end users were able to use personal computers or mobile devices to access and upload videos without common access cards or usmc.mil accounts, and through their chain of command, they were able to create and share user-generated video content in a matter of days.

## **H. 7TH MARINE REGIMENT**

### **1. Utilization**

Using his free time to research change and organizational change management, Colonel Vicktor understood the importance of communicating the vision when implementing change. Colonel Vicktor shared the following with respect to how he was going to communicate his vision of Ripper Academy,

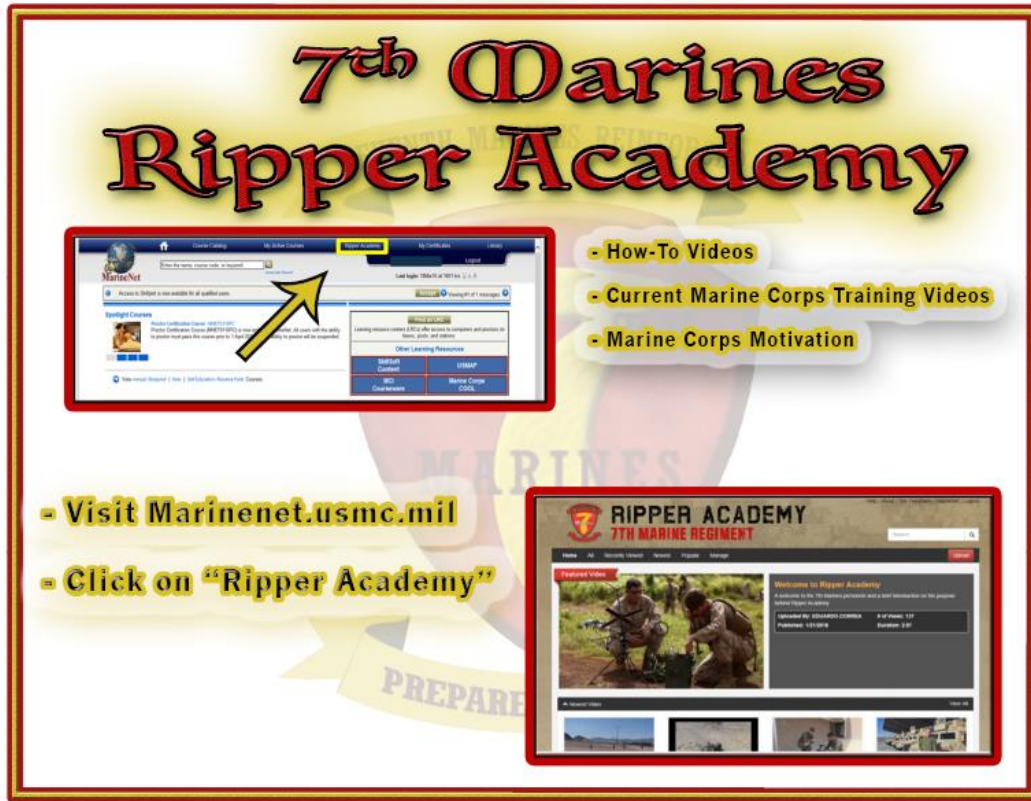
I was going to communicate it [vision] throughout the depth of our organization [Regiment]. So, I played the role of the champion at the top, and so I talked about it with the commanding officers in the Regiment. In this particular case, it included the battalion and the company commanders. I thought that the success would be seen if the company level ran with it, then I thought it would be most successful.<sup>2</sup>

In addition to his dedicated conversation with the Company and Battalion Commanders, Colonel Vicktor used his weekly Command and Staff meetings with Battalion leadership and Regiment staff members to further communicate his vision and intent with respect to Ripper Academy.

Understanding that he had to win the entire organization, not just the leadership, Colonel Vicktor formulated an information operations campaign to target the junior Marines within his Regiment. The first phase included working in conjunction with Combat Camera, the organization within USMC that provides visual information support to units, to create and publish a professional video describing the intent and capabilities of Ripper Academy. Concurrently, the Regiment staff was creating advertising posters and displaying them around various Regiment and subordinate Battalion locations to advertise Ripper Academy to Marines as they passed through facilities to conduct daily business; see Figure 15.

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<sup>2</sup> An infantry regiment (approximately 4,000 Marines) is commanded by a Colonel (O-6) and “consists of a headquarters company and two or more infantry battalions” (USMC, 1998, p. 4-3). (USMC, 1998, p. 4-3). An infantry battalion (approximately 1,000 Marines) is commanded by a Lieutenant Colonel (O-5) and “consists of a headquarters and service company, a weapons company, and three rifle companies” (USMC, 1998, p. 4-8). An infantry company (150–180 Marines) is commanded by a Captain (O-3). An infantry company commander is the lowest level commander responsible for the training, combat efficiency, tactical employment, discipline, morale, welfare, and administration of the Marines within the company.



Source: 7th Marine Regiment, personal communication, January 31, 2018.

Figure 15. 7th Marine Regiment Ripper Academy Poster.

Immediately following the actual implementation of Ripper Academy, the Marines began creating and uploading video content. Some of the first video content uploaded, and viewed, included “Welcome to Ripper Academy,” “Ripper Academy Tutorial,” “GCSS-MC: How to Create a Service Request,” and “How to Create an ANW2 Mission Plan” (CDET, unpublished data, October 6, 2017). During the first 45 days of Ripper Academy being operational, 7th Marine Regiment uploaded 15 new videos. Of those initial 15 videos, 12 were viewed a total of 97 times (CDET, unpublished data, October 6, 2017).

After the implementation of Ripper Academy, Colonel Vicktor noticed that the initial acceptance of Ripper Academy seemed to be “an individual reaction” that was widely varied across the Regiment. Colonel Vicktor described the three groups that he noticed within his Regiment. The first was those who:

Didn't believe in it [Ripper Academy] or weren't all that interested in it, their resistance was passive. In other words, they just really didn't contribute much, or take up the challenge of trying to create a video or anything of that nature.

Next, the group of followers who would use it in time; the

Group who thought that it [Ripper Academy] was pretty clear that their point of view was hey, yes this could be useful, I hope it works out, I am not all that interested in doing too much with it, but I will take advantage of it when the time comes.

Then, one group fully embraced Ripper Academy; these “were the ones who really made the videos and got the thing up and running.”

Interestingly, Colonel Vicktor also noted that the initial acceptance of Ripper Academy varied with respect to an individual Marine's rank and seniority. Those most skeptical of Ripper Academy were the senior field grade officers and the senior staff non-commissioned officers (SNCOs), those with an average of 12-18 years in the Marine Corps. As communicated by one staff member, some of the Marines in this group were concerned that Ripper Academy would be replacing the personal relationship of the tried and true kneecap-to-kneecap conversations and small unit leader discussions that they grew up embracing. Once the leadership understood why some of the senior field grade officers and senior SNCOs were skeptical of Ripper Academy, the information operations campaign was modified to communicate that Ripper Academy was to be “additive,” not to replace current personal interactions.

The company grade officers and more junior SNCOs, 2-12 years in the Marine Corps, were described as being on “both sides of the fence;” there were those who were extremely excited and those who were uncertain. As Colonel Vicktor conveyed, the bigger issue with this group was the lack of personal time; their sole focus was to ensure their Marines were properly trained to conduct combat operations, which meant they did not necessarily have the time to dedicate to creating video content.

Most surprisingly, the group of Marines who truly embraced Ripper Academy was the “gunner community,” the subject matter experts with anywhere from 12-30 years in the Marine Corps. Because of their rank, seniority, and expertise, it can be argued that the

gunner community has the least amount of time to invest in creating video content. As described by Colonel Vicktor, “our gunners today are intellectually curious,” and they really embraced Ripper Academy. For example, Colonel Vicktor provided the story of one Battalion gunner requesting the unit to purchase GoPro cameras so he could use it on the rifle range to look through the rifle sights and show Marines what good sight alignment and picture looked like. Colonel Vicktor went on to say, the gunners “had a lot of ingenious ideas, and ultimately drove some of the better training videos.”

Lastly, there were the non-commissioned officers (NCOs), the backbone of the Marine Corps. Colonel Vicktor believed the NCOs were the “biggest contributors” to Ripper Academy, but it is important to note that in relation to officers and SNCOs, they make up a significantly larger percentage of the overall population of an infantry regiment. Realizing the group of Marines who were truly embracing Ripper Academy, the NCOs, the Regiment Commander expanded his information operations campaign to not only advertise Ripper Academy as a new capability, but to encourage the NCOs to create and share videos. How better to get Marines involved than to incentivize? Through coordination with Marine Corps Community Services, the Infantry Regiment received monetary gift cards from the local exchange (shopping center) to award to their Marines. With the gift cards in hand, Colonel Vicktor held several competitions for “best video” and provided the first, second, and third place winners with the monetary awards. With respect to competitions, Colonel Vicktor explained, “We did that [competitions] a couple of times for the best videos. We kind of had a panel judge them and that kind of thing. So, that actually worked pretty well.” Colonel Vicktor further explained how and why he believed the NCOs really embraced Ripper Academy and the competitions,

It definitely gave our NCOs a venue for demonstrating the depth of their knowledge, and contributing to everybody seeing them as qualified experts, or instructors in their field. You know, that was probably seen most clearly with the competitions we did because those Marines put a lot of effort into it. They made simple, but high quality videos. The information contained in there was definitely useful.

Staying engaged with the information operations campaign, the benefits of Ripper Academy were becoming more apparent at the NCO level as such, NCOs began to utilize

Ripper Academy to improve their leadership skills and develop their junior Marines. As stated by one Regiment Staff Officer, “the Marines who were submitting the videos were pretty excited about it.” He went on to say,

I found that at least for the few Marines who were submitting videos to me, they were generally Sergeants who were planning on staying in that you know, really cared about the Marine Corps and training the Marines and mentoring Marines who got back.

As stated by one NCO, by “utilizing the video, I was able to visually explain to my junior Marines what works and what does not work to enhance our training.” He went on to explain the video that he recalled being beneficial, “videos during training operations like MCCRE [Marine Corps Combat Readiness Evaluation]<sup>3</sup> and ITX [Integrated Training Exercise]<sup>4</sup> showed tactics unique to specific unit/company/squad. Junior Marines understood what worked and what did not work. It also helped Marines understand how [a] specific range was supposed to be conducted.” Stated by another NCO, Ripper Academy improved training and education across the Regiment because, “we can compile training methods across all the battalions and compare tactics.”

For a period of approximately one year, 7th Marine Regiment uploaded a total of 43 videos to Ripper Academy (CDET, unpublished data, October 6, 2017). Video topics ranged from how to assemble/disassemble weapons systems, Federal Assistance Voting Program, deployment briefs, how to plot a point for navigation, how to conduct preventive maintenance checks and services on tactical vehicles, and to how to check into and clean a barracks room (CDET, unpublished data, October 6, 2017). When asked if he believed Ripper Academy was an initial success, Colonel Vicktor responded,

Yes. I definitely would [consider it], an initial success. It’s grown, right? So, I think CDET is going to put out additional pages, we certainly got interest from some other like regiments and things of that nature. So, yeah,

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<sup>3</sup> Marine Corps Combat Readiness Evaluation is an exercise that evaluates a unit’s performance in a series of events to determine the unit’s total training readiness.

<sup>4</sup> Integrated Training Exercise is a month long training exercise consisting of a series of progressive live-fire exercises that affords battalion commanders with the ability to employ their forces and assess combat readiness.

it's definitely an initial success. Whether we are going to realize its full potential or not, remains to be seen.

## **2. Challenges**

Despite receiving exactly what Colonel Vicktor envisioned, from a design and development perspective, and believing it to be an "initial success," the Regiment experienced several challenges with respect to the adoption of Ripper Academy.

People quickly realized that creating a quality video, with valuable and accurate content took a lot of time and talent. This was not a flaw of Ripper Academy, but a part of producing quality training and educational videos. As stated by one NCO, after becoming familiar with and using Ripper Academy, "It was easy to access and view videos. However, making and uploading videos was something I still do not know how to do." While one may believe that creating a video is as simple as pressing record on a phone or video recorder, it was not that simple. Prior to producing videos, Marines invested a considerable amount of time in preparation, including researching the material, consulting technical manuals, and conducting numerous rehearsals. As Colonel Vicktor observed,

The biggest hesitation from all of them [younger Marines] was they did not want to put something up that was not a finished product, at least in their eyes. So, they were reluctant to...video tape a run on one of the ranges and just put it up there for use later for debriefing, which is one of the things I encouraged people to do, but they were reluctant to do something like that. They knew it would be around for a while and, so they wanted it to be of high quality.

It was difficult and time intensive to create video content, but there was also a constant communication challenge. As stated by Colonel Vicktor, "One of the fights that I would say the Regiment continues to have is adequately publicizing it down to the lowest level because of the manpower turnover. You know, that takes real effort." Marines were constantly rotating to attend formal schools, support operational requirements, and relocate to new units; this made it difficult to spread the word. Additionally, not everyone within the Regiment was as passionate about Ripper Academy and spreading the word as Colonel Vicktor. Observed by one Marine from a subordinate Battalion, "I have not seen any

posters nor did my command discuss much about Ripper Academy. I only heard about it once I became an NCO and was seeking ways to improve my leadership skills.”

Operational requirements may have been the one factor that most negatively influenced the creation, sharing, and viewing of videos on Ripper Academy. As one Regiment Staff Officer communicated, the

Constant flow of units through major exercises, theater security cooperation support, deployments, and personnel shifts and shortages. People put in charge of executing were rarely around more than a couple of months and once you got a unit on board, then they deployed or hit a part of their training schedule that prevented use or creating videos.

The Regiment was an extremely busy and fluid organization. As Colonel Viktor recalled of the operational tempo,

I pushed hard on it [Ripper Academy] in the spring of 2016, then you know, June rolls around, and you know we experience the same summer PCS [permanent change of station] season as everybody else, so we are doing only the minimum what was required in June of 2016, which was to get ready for ITX, get ready for this special purpose MAGTF [Marine Air Ground Task Force] deployment, and provide well trained battalions. That’s what we were focused on. Then we did ITX in July and August and we formed up the command element for this special purpose MAGTF in September. Did our certification exercise [for deployment] in October, had block leave in the Marine Corps month in November, and then deployed in December.

During the one year that 7th Marine Regiment had access to Ripper Academy, they had less than five months when they were not undermanned or task saturated with training exercises. For the majority of Ripper Academy’s existence, the Regiment was forming, planning, or conducting pre-deployment training and exercises in preparation for its upcoming deployment.

## **I. THE BASIC SCHOOL**

### **1. Utilization**

The mission of The Basic School (TBS) is to “Train and educate newly commissioned or appointed officers in the high standards of professional knowledge, esprit-de-corps, and leadership to prepare them for duty as company grade officers in the



operating forces, with particular emphasis on the duties, responsibilities, and warfighting skills required of a rifle platoon commander.” (United States Marine Corps, n.d.-b).

In an effort to ensure success of its overall mission, the TBS Director of the Academics Group, Sean Floyd, explained,

Fundamentally, we [TBS] are engaged in a long-term campaign plan to try and shift the learning experience for the student. We are trying to get away from passive learning experiences to active learning experiences. Really, we are trying to leverage any and all means that are available to do so.

In 2012, the TBS Academics Group<sup>5</sup> conducted an instructional technology research initiative in which it visited several universities, both military and civilian, to explore the technology being used to improve education. The TBS Deputy Director of the Academics Group, Joel McKinsey, explained what it discovered,

From what we [TBS] found just going to these different places is that there is so much more beyond what TBS was doing that could help improve instruction. We found a lot of beneficial technology being used at George Mason, for instance, when they were using video snippets to help augment instructional and to help build a background knowledge of a student prior to them [students] even getting the formalized instruction. So, I believe, in their learning management system, they could access videos anytime, anywhere, whatever free moment they have on whatever device they have to get a snippet.

George Mason seemed to be at the leading edge of augmenting education with video-based training. When meeting with George Mason, the TBS Academics Group found that it used “snippets” of video to augment instruction. The name, snippets, was important to George Mason because the length of videos should be limited to three minutes or less in order to keep the attention of students. The TBS Academics Group was impressed by the concept of snippets and wanted to make it a reality in their curriculum; as stated by McKinsey, we were “really all over” it, but how to make it a reality was still an unknown.

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<sup>5</sup> According to TBS, the “Academics Group provides sound programs of instruction, curriculum, relevant proponent publications, accommodating instructional technology, and comprehensive evaluation systems in order to facilitate training and education at The Basic School” (The Basic School United States Marine Corps, n.d., p. 12-28).

Fast forward to spring of 2015. Having a brand new video-streaming platform, but overwhelmed with operational requirements, Colonel Vicktor was searching for alternate ways to generate quality video content for Ripper Academy. Knowing that TBS had a plethora of subject matter expert instructors, Colonel Vicktor approached TBS about forming a partnership. For three years, this was exactly what TBS was looking for—a video-streaming platform to “shift the learning experience for the student.” This partnership benefitted both 7th Marine Regiment and TBS. Colonel Vicktor leveraged the TBS subject matter expert instructors to create additional video content for Ripper Academy. At the same time, TBS received full access to Ripper Academy, which meant all the Marines under the TBS structure could now create, share, and view video content. Still a single video-streaming channel within MarineNet, the two commands shared access to Ripper Academy. As communicated by Floyd,

Every Marine here, every student here at The Basic School has a device of one way, shape or form. With maybe the exception of our international officers, but those are very rare that they don't have a device of some form. So, I want to take advantage of those fleeting moments by stretching learning life wide if you will. Life wide [learning] is all about this notion of how can I take advantage of those moments when a student is on a train, on the way home, and they have got a device and they can be doing something to get smart for an upcoming lesson, or they can be reviewing materials, or they can be interacting with these videos or with these personalized e-books. You know, the idea again is to flip the classroom so that when I get them, I can now have them do problem based learning experiences instead of just standing up there and giving the oral tradition where there is an instructor who basically puts on a show. We are trying to get away from the show.

Almost concurrent to TBS obtaining access to Ripper Academy, TBS had modified its curriculum to include two new “end of phase performance exams to assess hard skills of students.” These end of phase performance exams required students to perform tasks like administering the officer oath, call for close air support, assemble/disassemble the M203 grenade launcher and M249 squad automatic weapon, provide combat lifesaving skills, and call for fire. The modification to the curriculum caused a bit of apprehension from students, instructors, and the academics group; no one was quite sure how these new performance exams would “shake out.”

The TBS Commanding Officer, Colonel Wabl, a lifelong learner with multiple Masters Degrees, recognized the potential benefits of Ripper Academy and directed the Academics Group to create and upload a video for each topic on the two performance exams. With a direct tasking from the Commanding Officer, McKinsey began his mission to create a video for each topic on the performance exams.

While seeking assistance to create the performance exam videos, McKinsey found that the initial acceptance of Ripper Academy varied across the ranks and departments at TBS. As he recalled, there were individuals who really embraced the technology of Ripper Academy and individuals who were completely resistant. Stated by McKinsey,

There is always in general, a resistance to these kinds of things. So, I typically find individuals who embrace technology and I leverage them as much as I can. From Marines as a whole, we don't embrace the technology very easily. So, I always have to sell it. What's the benefit to having students spend their free time watching videos? Do you expect videos to replace face-to-face instructing? So, I have to sell it. I always do.

Instead of spending a significant amount of time trying to convince those who were resistant to accepting Ripper Academy to create video content, McKinsey instead relied on those who really seemed to embrace the new technology. In April of 2016, with the assistance of the TBS Gunner, Warfighting Instructors<sup>6</sup>, and Staff Platoon Commanders<sup>7</sup>, McKinsey uploaded seven performance exam videos to Ripper Academy. Some of the first videos that TBS created and uploaded were Combat Life Saving, Call for Fire, Close Air Support, and the Oath of Office (CDET, unpublished data, October 6, 2017).

In September 2016, one of the first group of TBS students truly embraced Ripper Academy. With their first performance exam just days away, 36 of 284 students viewed 145 videos in an attempt to improve their performance exam scores (CDET, unpublished data, November 20, 2017). When students were asked why they watched the videos, one

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<sup>6</sup> Warfighting instructors are assigned to the Warfighting Instructor Group and "conduct the majority of formal instruction [for Basic Officer Course and Warrant Officer Basic Course] and serve as subject matter experts for their respective areas of responsibility" (The Basic School United States Marine Corps, n.d., p. 15-2).

<sup>7</sup> Staff Platoon Commanders are assigned to Basic Officer Course and Warrant Officer Basic Course and are responsible "for the operational and training requirements of the platoons assigned to them" (The Basic School United States Marine Corps, n.d., p. 13-39).

stated, “They were a way to review step-by-step the complex tasks we were briefly shown in class.” Another student indicated, “I am very much a visual learner so watching the videos allowed me to practice before taking critical exams while at TBS.” While students were unsure whether the videos actually improved their practical application exam score, they did find them helpful; as one student stated, “Having familiarity with the forum and execution of the exams made me more confident going in.” In November of 2016, the same group of students began preparing for their second practical exam. This time, 21 of 284 students watched a total of 50 videos (CDET, unpublished data, November 20, 2017).

TBS students that watched videos expressed their satisfaction with, and the benefits associated with utilizing Ripper Academy, but a common request among those surveyed was “more content.” As one student stated, “I find myself on YouTube looking for tutorials regularly so if Ripper can become the YouTube of the Marine Corps for specific how-tos, I believe that would be beneficial to myself and many others.” Echoing the opinion of the students, the TBS Academics Group believes in the concept of Ripper Academy, but as McKinsey indicated, “Our story isn’t over yet...it’s still just the beginning of our usage of this thing [Ripper Academy].”

## **2. Challenges**

Similar to 7th Marine Regiment, TBS experienced several challenges with respect to the adoption of Ripper Academy. The most notable factor believed to have limited the use of Ripper Academy at TBS was the “lack of room for innovation.” Best described by Floyd,

When I say room for innovation, I am referring to the day in/day out constant battle to make mission. We have an ever present population of students on deck. We are surging, as the saying goes here, 50 weeks a year. We take two weeks off a year around Christmas and New Years, but the instructors are pedal to the metal pretty much the rest of the time. Between six, currently, basic officer course companies every year, and then one warrant officer basic course company, we also have support that goes into the infantry officer course which goes four-times a year, but they are basically all the time, always got a course on deck. Sometimes they have to overlap a little bit, so there is never any daylight there.

Constantly under pressure to meet the day-to-day requirements of training and educating newly commissioned or appointed officers, TBS has found little time to dedicate to creating and uploading video content. In addition to the day-to-day requirements, TBS Academics Group has been short four instructional technology positions, so Ripper Academy became an additional duty for several individuals within the Academics Group. As communicated by McKinsey regarding the shortage of personnel and the requirement to oversee Ripper Academy,

It is a rock in the pack. It's a beneficial rock, that's why we do it. We know it's going to pay dividends. But, if we want to take on something like a learning management system, and MarineNet video library and whatever else, BYOD [bring your own device] and mobile applications, I think that would necessitate at least one person whose job that was that they would have to be good at it.

The operational tempo prevented TBS from creating and uploading any additional video content after Ripper Academy's initial inception, but the lack of wireless infrastructure and poor cell phone reception are what some believe to have contributed to the lack of videos being viewed. The Academics Group envisioned that Ripper Academy video content be accessible to students anytime, anywhere; students should be able to watch videos as topics are being presented in class lecture, in their room at night, or while waiting at the armory. The lack of wireless infrastructure in the TBS academic classrooms and the bad cell phone reception aboard Marine Corps Base Quantico have made this virtually impossible. As communicated by Floyd,

The common complaint has been that we don't have accessibility to it [Ripper Academy] in the classrooms. We have poor cell service here. We have limited cell towers that provide support to this institution, to this area, so, we have been engaged in a protracted battle to try and get wireless infrastructure into this facility. Into this building [academic classrooms] and others here on camp.

## **J. MARINET VIDEO SERVICES**

In June of 2016, 7th Marine Regiment and TBS had complete access to Ripper Academy, and both organizations had successfully demonstrated their ability to create and share video content. In roughly five months combined, the two commands created and

uploaded 47 different videos that were viewed 400 times (CDET, unpublished data, March 18, 2018). Looking to the future, the College of Distance Education and Training had to decide whether Ripper Academy was a “success” worth developing for the entire USMC. The College of Distance Education and Training had access to basic metrics including the number of videos created, uploaded, viewed, and number of new visitors. In addition to the metrics, Major Pompen received limited verbal feedback from 7th Marine Regiment and TBS indicating that end users liked Ripper Academy, and they thought that it was easy to use and access. With the available metrics, limited feedback, and a reminder of the MUE2 results indicating end users from across the entire USMC wanted a video-streaming platform, Major Pompen received approval from the College of Distance Education and Training leadership to pursue the design and development of a video-streaming platform for the entire USMC—this project was titled MarineNet Video Services.

From June 2016 to October 2016, Major Pompen worked closely with NAVAIR DLNOC to design and develop MarineNet Video Services. Appreciating the success that MockFlow software provided to Ripper Academy, NAVAIR DLNOC purchased a software license to a similar, but more robust, software suite called Axure in order to ensure constant communication and collaboration for the design and development of MarineNet Video Services. Besides the major modification of taking Ripper Academy from a unit specific capability to something for the entire USMC, the design and development modifications to MarineNet Video Services were limited to improvements that the Major Pompen and Major Goman were unable to initially incorporate into Ripper Academy due to time constraints and the fact that it was a beta. Examples of modifications to MarineNet Video Services included the ability to rate video content, the ability to provide feedback on videos to the content owners, and the ability to classify videos into categories.

In October of 2016, MarineNet Video Services was ready for testing. After multiple test cycles, MarineNet Video Services was implemented in January of 2017. The time of the release was critical from the College of Distance Education and Training’s perspective. January is MarineNet’s busiest month with respect to end user activity and new course enrollments because end users have returned from holiday leave, and every Marine needs to complete fiscal and annual year training. NAVAIR DLNOC wanted to delay MarineNet

Video Services implementation to February in order to mitigate any potential implementation issues, but the College of Distance Education and Training viewed the implementation timing as an opportunity to exploit because in one month, thousands of Marines would be introduced to the new video-streaming platform by logging into MarineNet to complete their required training. As a paying customer, the College of Distance Education and Training prevailed, and MarineNet Video Services was implemented in January of 2017.

In one year, MarineNet Video Services has 31 channels (different units) with a total of 408 videos uploaded (CDET, unpublished data, March 18, 2018). Video content now includes topics including how to unpack an unmanned air system, professional lectures by senior leadership, how to conduct dismounted counter improvised explosive device operations, the assembly and disassembly of various weapons systems, and how to perform helicopter support team operations (CDET, unpublished data, March 18, 2018). The story of MarineNet Video Services is just beginning.

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## **IV. ANALYSIS**

### **A. INTRODUCTION**

In this chapter, the primary researcher will analyze the Ripper Academy case study through the lenses of change management and system dynamics. A comparison of the Ripper Academy case study to the change formula, Kotter's eight-stage process, and the ADKAR change model will identify factors critical to organizational change. Referencing system dynamics, specifically the limits to growth archetype and the Bass diffusion model, the Ripper Academy case study will be dissected to identify variables influencing the adoption of Ripper Academy. This analysis will lead to conclusions regarding the use of change management models and system dynamics when innovating and ensuring the adoption of information technology systems in an organization like the USMC.

### **B. DISCUSSION**

#### **1. Change Management**

The Ripper Academy case study provides a unique, and rare, opportunity to examine the change process, from start to finish, of innovating an information technology system within the USMC. The aspects of creating and managing individual and organizational level change, with respect to Ripper Academy, will be analyzed from the viewpoint of the change formula, Kotter's eight-stage process, and the ADKAR change model.

##### ***a. Change Formula***

The change formula highlighted that an organizational change will be more likely to succeed if an individual's "product of dissatisfaction (D) with the present situation, a vision (V) of what is possible, and first steps (F) toward reaching the vision are greater than the resistance to change (R)" (Dannemiller & Jacobs, 1992, p. 483). Since the variables to overcome individual resistance to change are subjective in nature, they can, and will likely change over time, based on individual experiences, interactions, and newly acquired information.

At the beginning of the Ripper Academy case study, individual dissatisfaction with the current state of MarineNet technology varied. After years of interacting MarineNet to complete fiscal, annual, and pre-deployment training requirements, the MarineNet Officer, Major Pompen, and Emerging Technology Officer, Major Goman, were frustrated and disappointed with the current state of MarineNet technology. The two officers believed that MarineNet was a “check in the box” training and educational platform that was not providing any real value to the end users, Marines. Major Pompen and Major Goman’s level of dissatisfaction with MarineNet technology was extremely high.

On the contrary, the College of Distance Education and Training leadership was content with the current state of MarineNet technology. With 5 million annual course enrollments, 3.4 million annual course completions, 2,250 active courses, and no requests from higher headquarters or end users, the College of Distance Education and Training leadership was satisfied with the current state of MarineNet technology (Gavin, 2017). Comfortable with the current state of MarineNet technology, the College of Distance Education and Training leadership did not believe it was necessary to invest additional time, energy, and/or resources into changing MarineNet technology. The College of Distance Education and Training leadership’s initial dissatisfaction with MarineNet was negligible.

In an attempt to increase the College of Distance Education and Training leadership’s dissatisfaction with MarineNet, Major Pompen and Major Goman designed, developed, and executed the MUE2. Through the execution of the MUE2, Major Pompen and Major Goman highlighted to the College of Distance Education and Training leadership the end user’s dissatisfaction with MarineNet. During the MUE2, 1,550 Marines registered 6,518 instances of concern with respect to MarineNet (Gavin, 2015). Marines expressed dissatisfaction with MarineNet’s content, accessibility, reliability, policy, and user interface design (Gavin, 2015). Additionally, only 21% of MUE2 participants thought MarineNet was adequate (CDET, unpublished data, September 22, 2017). With the results of the MUE2, Major Pompen and Major Goman provided the College of Distance Education and Training leadership with actual data revealing the end user’s overwhelming dissatisfaction with MarineNet technology.

Realizing the College of Distance Education and Training leadership remained satisfied with the current state of MarineNet technology, Major Pompen and Major Goman shifted their efforts to formulating a vision for the future of MarineNet technology. Collectively, Major Pompen and Major Goman proposed the idea of implementing a video-streaming platform, for the entire USMC, to increase individual Marine's knowledge and skills. Still experiencing passive, and even some active, resistance to their vision of a video-streaming platform, it was not until Colonel Vicktor approached the College of Distance Education and Training leadership that Major Pompen and Major Goman saw a significant change in leadership's individual readiness to incorporate a video-streaming platform into MarineNet. Colonel Vicktor registered an end user request with the College of Distance Education and Training leadership for a 'YouTube' like capability to "buy back training time and accelerate the learning curve of young people." The request from Colonel Vicktor, a well-known, respected, senior ranking, future Regimental Commander, was the key factor that increased the College of Distance Education and Training leadership's level of dissatisfaction with the current state of MarineNet technology to a level that was supportive of change.

The course of designing, developing, and implementing Ripper Academy, involved several "first steps" to help overcome the individual resistance to change. The first step, leading up to the actual design of Ripper Academy, was increasing the College of Distance Education and Training leadership's dissatisfaction with MarineNet technology through the execution of the MUE2. The MUE2 provided leaders with actual data highlighting end user's dissatisfaction and frustration with the current state of MarineNet. Another first step critical to developing Ripper Academy required the actual design specifications for Ripper Academy. Determining the design specification for Ripper Academy was essential because it transformed the vision of a video-streaming platform into a reality that personnel could embrace. With design specifications, individuals from the College of Distance Education and Training, NAVAIR DLNOC, and Colonel Vicktor's command became excited about the possibilities associated with implementing a video-streaming platform.

Understanding the change formula, and acting as change agents within the College of Distance Education and Training, Major Pompen and Major Goman, with the assistance

of Colonel Vicktor, eventually convinced the College of Distance Education and Training leadership of the need to incorporate change into the current state of MarineNet technology. The product of individual's dissatisfaction with MarineNet's current state, vision of the future state of MarineNet with a video-streaming platform, and the first steps toward achieving a video-streaming platform, fluctuated over time, but ultimately overcame the individual resistance to change.

***b. Kotter's Eight-Stage Process***

Kotter's eight-stage process helps set the stage for change, introduce new direction to support change, and ensure the ultimate acceptance of change in the organization's processes and culture (Kotter, 2012). The primary researcher will assess the design, development, and implementation of Ripper Academy to Kotter's eight-stage process to overcome resistance to change.

Kotter's first stage, "establishing a sense of urgency," is required to reduce complacency and demonstrate to the entire organization the need for change (Kotter, 2012, p.23). The combination of the execution of the MUE2 and Colonel Vicktor's request for a 'YouTube' like capability highlighted to the College of Distance Education and Training the necessity to change MarineNet technology. The MUE2 collected honest, unfiltered, opinions of MarineNet end users while at the same time registering a request for change to the current state of MarineNet technology. Colonel Vicktor's request highlighted a senior Marine's disappointment with the current state of MarineNet technology and proposed the question of why the USMC could not implement the same training and education technology that other organizations had been using for years. Collectively Major Pompen, Major Goman, and Colonel Vicktor established a sense of urgency within the College of Distance Education and Training.

The second stage is "creating a guiding coalition" for change (Kotter, 2012, p.23). Major Pompen, Major Goman, Colonel Vicktor, and McKinsey built guiding coalitions from within their respective organizations. Major Pompen and Major Goman solicited the support of the College of Distance Education and Training leadership and the NAVAIR DLNOC Project Team. Major Pompen and Major Goman required the support of the

College of Distance Education and Training leadership in order to make their vision a reality; they needed approval to pursue their vision. Additionally, Major Pompen and Major Goman formed a coalition with NAVAIR DLNOC in order to successfully design, develop, and implement Ripper Academy with the compressed timeline. With NAVAIR DLNOC as a partner force, Major Pompen and Major Goman successfully overcame several unforeseen obstacles (video card/server compatibility, storage limitations, and user interface design issues) with timely, creative solutions that ensured the ultimate success of Ripper Academy. Colonel Vicktor formed a coalition with his Battalion Commanders, Company Commanders, and primary staff members to help influence the usage and adoption of Ripper Academy. With more than 4,100 Marines under his charge, Colonel Vicktor recognized the need for a unified coalition to successfully implement Ripper Academy. McKinsey assembled a small coalition around the TBS Gunner, select Warfighting Instructors, and a few Staff Platoon Commanders at TBS. McKinsey relied on his small coalition to help create videos and spread the word on the benefits associated with video-based training. Major Pompen, Major Goman, Colonel Vicktor, and McKinsey built guiding coalitions within their respective organizations.

Kotter's third stage is "developing a vision and strategy" (Kotter, 2012, p. 23). This happened throughout the duration of the case study. Initially, Major Pompen and Major Goman had the vision of executing the MUE2. With the assistance of Marine Corps University leadership, Major Pompen and Major Goman executed the MUE2. The results of the MUE2 led to the vision of improving the current MarineNet technology by developing and implementing a video-streaming platform for the entire USMC. After the request from Colonel Vicktor, the vision of Major Pompen, Major Goman, and now the entire College of Distance Education and Training organization, became designing, developing, and implementing a video-streaming platform for one *specific subset* of users, Colonel Vicktor's Marines and Sailors. The vision defined Ripper Academy. At the unit level, Colonel Vicktor had a vision for Ripper Academy to "buy back training time with an end state of accelerating the learning curve of young people." (Anonymous, interview with author, November, 28, 2017). Whereas the Academics Group had a vision to utilize

Ripper Academy to shift the learning experience for the student from passive to active learning experiences (Anonymous, interview with author, September 19, 2017).

The fourth stage of Kotter's eight-stage process, "communicating the change vision," reflected the combined efforts of Major Pompen, Major Goman, Kinzel, Colonel Vicktor, and McKinsey (Kotter, 2012, p. 23). Together, Major Pompen and Major Goman communicated the change vision up the College of Distance Education and Training chain of command. While Kinzel, once finally agreeing to pursue Ripper Academy, communicated the change vision down the College of Distance Education and Training chain of command. Colonel Vicktor, with the support of his guiding coalition, communicated the vision of Ripper Academy to the Regiment during section visits, training exercises, by displaying posters, and through the creation of an actual video on Ripper Academy. With a limited coalition, McKinsey used his guiding coalition to help emphasize the potential benefits of Ripper Academy from the student's perspective—how Ripper Academy could improve training and education.

The fifth stage is "empowering the broad-based action" of individuals (Kotter, 2012, p. 23). Once officially assigned as the Ripper Academy Lead Designer, Dylan Carlson, the Operations Officer, temporarily relieved Major Pompen of his daily responsibilities, providing him the flexibility required to successfully design, develop, and implement Ripper Academy. Already possessing the requisite knowledge to succeed, the removal of additional responsibilities empowered Major Pompen. The video competitions orchestrated by 7th Marine Regiment are another example of empowering the broad-based actions of individuals. With the video competitions, Colonel Vicktor empowered the Marines in the Regiment by recognizing their efforts and providing monetary awards.

The sixth stage is "generating short-term wins" (Kotter, 2012, p. 23). The Ripper Academy case study demonstrated several notable short-term wins. By using MockFlow, and an iterative design methodology, Major Pompen requested, and quickly saw changes to the user interface design. MockFlow and the iterative design methodology helped with the timely development of Ripper Academy's user interface and provided the reinforcement to the College of Distance Education and Training personnel, NAVAIR DLNOC personnel, and Colonel Vicktor that the implementation of Ripper Academy was

possible within the prescribed timeline. The video competitions that 7th Marine Regiment coordinated were another example of a short-term win. The video competitions increased the number of videos created and uploaded to Ripper Academy, and simultaneously recognized and rewarded those individuals who took the time to create videos. The partnership between 7th Marine Regiment and TBS scored yet another short-term win. This was a win for 7th Marine Regiment because it was able to access additional, relevant, video content without having to dedicate the time to creating the videos. In addition, a win for TBS, it leveraged the video-streaming platform to help shift the learning experience of students.

The seventh stage is “consolidating gains and producing more change” (Kotter, 2012, p. 23). Leveraging the initial success of Ripper Academy, the College of Distance Education and Training almost immediately decided to design and develop a video-streaming capability for the entire USMC—MarineNet Video Services. Major Pompen and Major Goman realized they needed to capitalize on the current state of dissatisfaction, sense of urgency, and initial successes of Ripper Academy, to realize their original vision of implementing a video-streaming capability for the entire USMC.

The final stage of Kotter’s eight-stage process is “anchoring new approaches in the culture” (Kotter, 2012, p. 23). With the implementation of MarineNet Video Services occurring in January of 2017, it is too early to analyze the success of this stage.

### *c. ADKAR Change Model*

The ADKAR change model centers on preparing the individual to help achieve an organizational change (Hiatt, 2006). A sequential process, the ADKAR Change Model suggests that an individual must attain “awareness, desire, knowledge, ability, and reinforcement” for an organizational change to be successful (“ADKAR Change,” n.d.).

The first outcome of the ADKAR change model is awareness. Major Pompen and Major Goman used the MUE2 to highlight to leaders at the College of Distance Education and Training the need for incorporating change into current state MarineNet technology—they built initial awareness. Additionally, Colonel Vicktor’s request for a ‘YouTube’ like capability continued to build awareness with the College of Distance and Education and

Training leadership suggesting that MarineNet needed to change to improve the training and education of individual Marines. At this point in the Ripper Academy case study, individuals had the awareness necessary to determine whether they wanted to support change.

The second outcome is desire. Not until Colonel Vicktor's request did the majority of the College of Distance Education and Training leadership express the slightest interest in the development and implementation of a video-streaming platform on MarineNet. Colonel Vicktor had the experience, reputation, respect, and rank to influence individual's desire to pursue change. Desire at the unit level was an individual reaction. At 7th Marine Regiment, Colonel Vicktor identified three groups of individuals who resisted, followed, or fully embraced Ripper Academy. Similarly, McKinsey observed two groups of individuals at TBS; those who accepted Ripper Academy and those who resisted.

Knowledge is the third outcome to successfully implementing organizational change. Major Pompen did not possess the software tool he believed necessary to design and develop Ripper Academy, but with his passion and determination to ensure the success of Ripper Academy, he used his own personal funds to purchase access to the required software tool. Specifically, Major Pompen purchased access to MockFlow software for the duration of the design and development of Ripper Academy. If Major Pompen had been unwilling to use personal funds to purchase access to MockFlow, Ripper Academy might not have been implemented.

The fourth outcome to implementing change is ability. Major Pompen, Major Goman, and the NAVAIR DLNOC personnel had the knowledge and abilities required to design, develop, and implement Ripper Academy. However, not all Marines of 7th Marine Regiment and TBS had the knowledge and abilities to create video content to share on Ripper Academy. On the assumption that most junior Marines possess the knowledge and/or abilities to create video content, commands provided no formal training on how to create video content for Ripper Academy. Instead of taking time to develop individual abilities, both 7th Marine Regiment and TBS relied on a few select individuals, who knew how to create videos, to continue creating video content for their respective organizations.



The fifth and final outcome to successfully implementing change is reinforcement. 7th Marine Regiment provided several monetary awards to provide reinforcement to Marines who took the time to create videos, but after the initial video competitions, there did not seem to be additional reinforcement provided to Marines at either 7th Marine Regiment or TBS.

***d. Implications of Change Management***

After analyzing the innovation and adoption of Ripper Academy, similarities can be drawn between the case study and the change formula, Kotter's eight-stage process, and the ADKAR change model. Collectively, Major Pompen, Major Goman, Colonel Vicktor, and McKinsey leveraged the various change management models to overcome individual and organizational resistance to change in order ensure the initial success of Ripper Academy. The Ripper Academy case study emphasizes the importance of having a dedicated team of champions, from both inside and outside the organization, to realize success. The analysis of the Ripper Academy case study further emphasizes the importance of having internal and external champions, concrete data, a vision for the future, the support of a guiding coalition, both bottom-up and top-down support, and ensuring the development of individual abilities to implement an organizational change.

**2. System Dynamics**

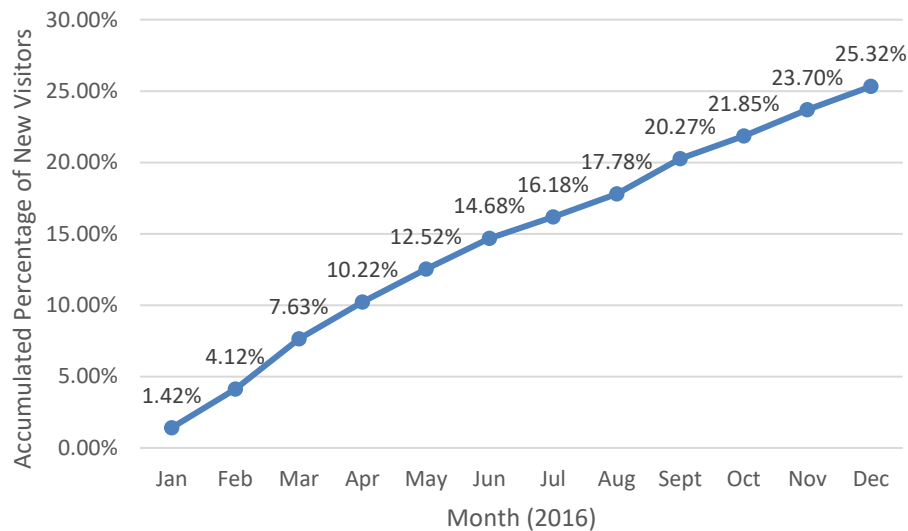
The Ripper Academy case study provides a tangible scenario to evaluate how the various interconnections between variables produce complex interactions and dynamic behaviors over time. The primary researcher will reference Ripper Academy metrics, the limits to growth archetype, and the Bass diffusion model, modified to incorporate the abandonment or discarding of a product or idea, to analyze the adoption of Ripper Academy.

***a. Ripper Academy Metrics***

Ripper Academy was active from January 2016 to December of 2016 before transitioning to MarineNet Video Services. Metrics indicate that during its one year of operation, Ripper Academy had 1,519 new visitors (CDET, unpublished data, March 18,

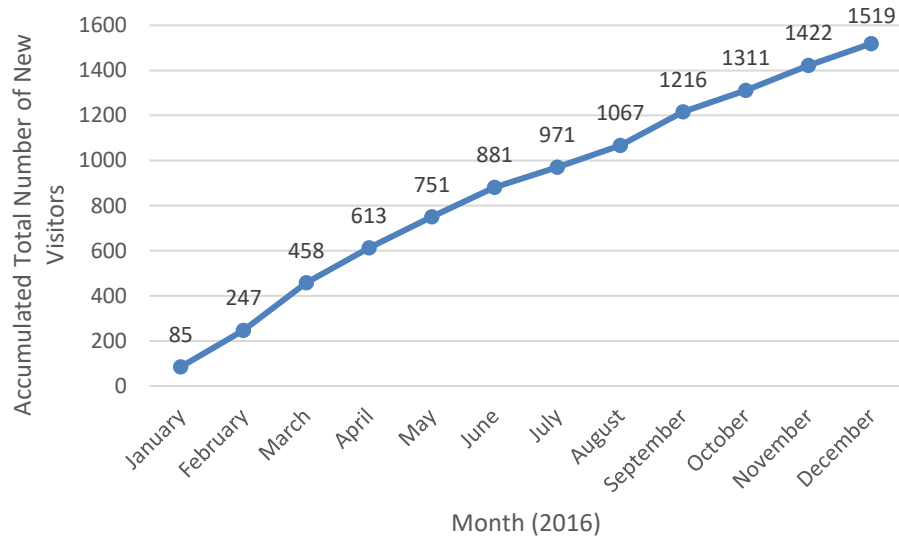
2018). Assuming the combined population of 7th Marine Regiment and TBS is approximately 6,000 personnel that means 25.32% of the total population with access to Ripper Academy visited the actual video-streaming platform; see Figure 16 and 17. However, “new visitors” does not necessarily indicate the adoption of Ripper Academy, but suggests individuals interested in adopting Ripper Academy.

According to Figures 18 and 19, Ripper Academy experienced between 85 (1.42%) and 211 (3.52%) new visitors each month it was operational (CDET, unpublished data, March 18, 2018). Immediately following implementation, the number of new visitors increased, but after the first three months, the number of new visitors gradually decreased. With the exception of September 2016, the number of new visitors for the last six months of Ripper Academy’s existence stayed relatively constant with approximately 95 (1.58%) new visitors per month (CDET, unpublished data, March 18, 2018).



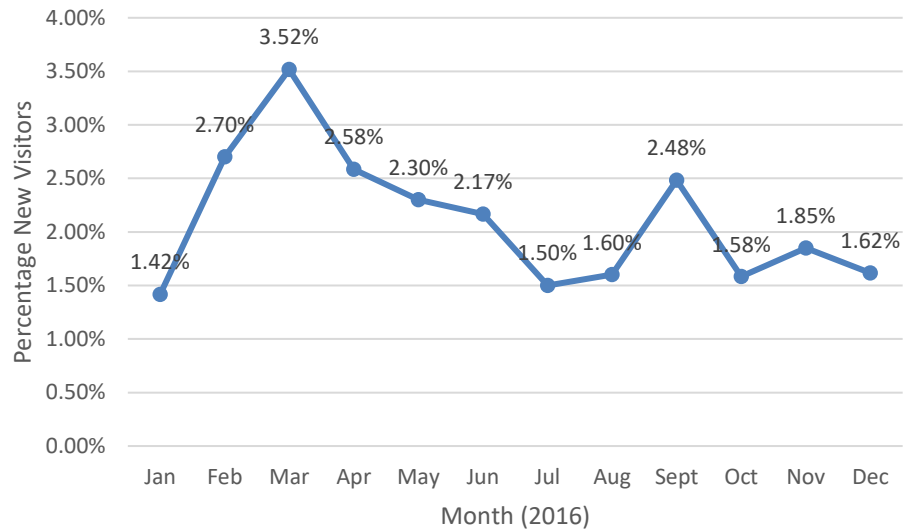
Adapted from CDET, unpublished data, March 18, 2018.

Figure 16. Accumulated Percentage of Ripper Academy New Visitors (Based on the assumption of 6000 Marines with access).



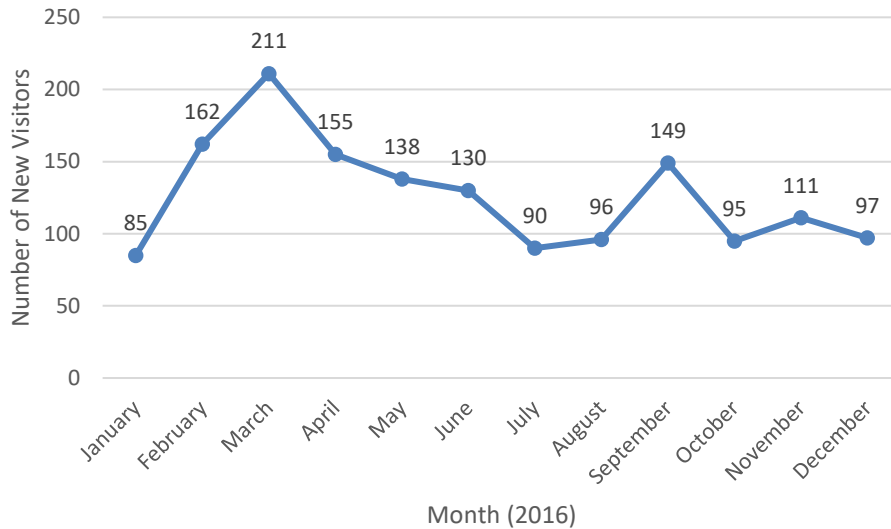
Adapted from CDET, unpublished data, March 18, 2018.

Figure 17. Accumulated Total Number of Ripper Academy New Visitors.



Adapted from CDET, unpublished data, March 18, 2018.

Figure 18. Percentage of Ripper Academy New Visitors by Month (Based on the assumption of 6000 Marines with access).



Adapted from CDET, unpublished data, March 18, 2018.

Figure 19. Total Number of Ripper Academy New Visitors by Month.

#### *b. Limits to Growth Archetype*

An analysis of the adoption of Ripper Academy against the limits to growth archetype, suggests that the adoption of Ripper Academy, at both 7th Marine Regiment and TBS, was a result of both growing and slowing actions.

When examining the Ripper Academy case study, unit-generated advertising campaigns, word-of-mouth advertising, video competitions, and the creation and sharing of relevant video content might all have been growing actions that increased the adoption of Ripper Academy at both 7th Marine Regiment and TBS.

1. **Advertising Campaign.** With unit-generated posters and a professional advertising video developed by Combat Camera, 7th Marine Regiment formulated an aggressive advertising campaign to describe to Marines within the organization the intent and capabilities of Ripper Academy. With multiple methods of advertising, Colonel Vicktor hoped to reach Marines throughout the entire organization in order to increase the initial adoption of Ripper Academy. The Ripper Academy metrics would suggest

that the initial advertising was successful with the number of new visitors increasing for the first three months.

2. **Word-of-Mouth Advertising.** Colonel Vicktor and McKinsey, leveraged their guiding coalitions, formed of influential leaders, to increase the adoption of Ripper Academy by word-of-mouth advertising. Through formal meetings and informal discussions, the guiding coalitions communicated the vision and intent of Ripper Academy throughout their organizations.
3. **Video Competitions.** 7th Marine Regiment hosted several video competitions with monetary awards to generate excitement, elicit support, and recognize Marines for taking the time to create video content for Ripper Academy. Although the Regiment did this initially, it could not sustain it for the duration of Ripper Academy.
4. **Relevant Video Content.** In an attempt to augment formal instruction, TBS used Ripper Academy to share video content that was directly related to performance exams. The Ripper Academy metrics would suggest that the creation and sharing of relevant video content increased the adoption of Ripper Academy with the spike of new visitors in September of 2016. September 2016, was the first time TBS students seemed to embrace Ripper Academy when preparing for their performance exams.

The number of Ripper Academy new visitors began to gradually slow after the first three months, becoming relatively constant after the first six months. The slowing of new visitors suggests the presence of a limit (slowing action). An analysis of the Ripper Academy case study alludes to several limiting conditions affecting the adoption of Ripper Academy. Possible limiting conditions include the amount of available time, personnel resources, individual capabilities, and accessibility.

1. **Available Time.** Starting in June of 2016, 7th Marine Regiment experienced a very high operational tempo with training exercises and

certification exercises, immediately followed by a combat deployment. The operational tempo decreased the time personnel had available to create, share, and view video content. Similarly, the TBS staff had a finite amount of time available to invest in voluntary training and education due to daily requirements. Additionally, it was observed that when Marines created video content they spent a significant amount of time researching, rehearsing, and perfecting the actual production of the video; the Marines wanted perfection. Culturally Marines are unwilling to accept less than perfect—this has prevented Marines from creating less than perfect video content.

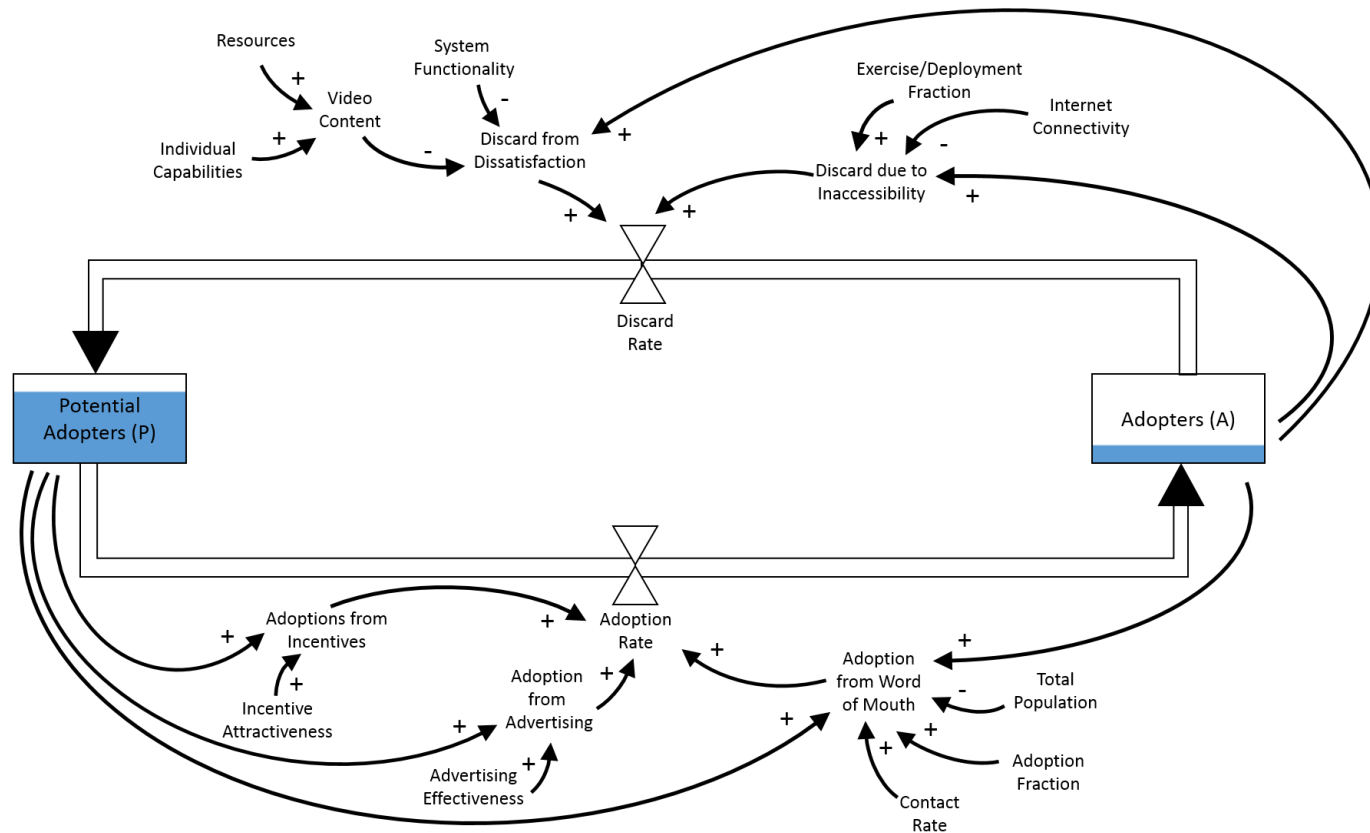
2. **Personnel Resources.** Both 7th Marine Regiment and TBS noted a shortage of personnel during Ripper Academy's existence. 7th Marine Regiment experienced a significant change in personnel during the summer months and TBS Academics Group identified four civilian billet vacancies. The shortage of personnel meant creating video content and maintaining Ripper Academy became an additional, collateral duty. Both organizations lacked the requisite personnel to make Ripper Academy the primary focus of one, or several individuals.
3. **Individual Capabilities.** Multiple interviews articulated that creating valuable, quality video content required significant time and skill. After the initial push of videos created by the College of Distance Education and Training, Combat Camera, and select individuals from 7th Marine Regiment and TBS, the number of new videos being created decreased. The lack of individual abilities to produce video content could be one limit slowing the adoption of Ripper Academy.
4. **Accessibility.** Ripper Academy was available on both personal computers and mobile devices, but Marines' limited availability to mobile devices during exercises and while deployed may have slowed the adoption of Ripper Academy. Additionally, the lack of wireless infrastructure in TBS

academic facilities, and poor cell phone reception at the geographical locations of 7th Marine Regiment and TBS, may have been another factor slowing the adoption of Ripper Academy.

The limits to growth system archetype provides a conceptual framework to understanding the dynamic behavior of the adoption of Ripper Academy. Recognizing and understanding both the reinforcing and balancing processes contributing to the adoption of Ripper Academy is crucial to ensuring the future success of MarineNet Videos Services in the USMC, and other information technology systems in the DoD.

*c. Bass Diffusion Model*

After analyzing the Ripper Academy case study, the Bass diffusion model, modified to incorporate the abandonment or discarding of a product or idea, may be modified even further to provide a quantitative framework that incorporates additional variables to more accurately model the adoption of Ripper Academy at both 7th Marine Regiment and TBS; see Figure 20.



The rate at which potential adopters adopt Ripper Academy and become adopters is determined by the adoption rate (sum of incentives, advertising, and word-of-mouth); the rate at which adopters discard Ripper Academy and reenter the potential adopter population is determined by the discard rate (sum of dissatisfaction and inaccessibility). This model indicates it is possible for the adoption of Ripper Academy to fail.

Figure 20. Bass Diffusion Model with Discards Modified for Ripper Academy  
Adapted from Sterman (2000).



This model, Figure 20, exhibits a repeat adoption behavior that assumes that adopters reenter into the population of potential adopters if they discard the use of Ripper Academy. In the case of the adoption of Ripper Academy, the rate at which potential adopters become adopters is the totality of adoptions stemming from advertising, incentives, and word-of-mouth. By varying the means and methods of advertising, attractiveness of incentives, and strength of word-of-mouth, the adoption rate will increase or decrease. In the Ripper Academy case study, the monetary awards of the video competitions, advertising posters, advertising video, and word-of-mouth from the guiding coalition influenced the initial adoption of Ripper Academy at 7th Marine Regiment. At TBS, the adoption rate was primarily influenced by word-of-mouth from the guiding coalition. This model suggests that when implementing an innovation, such as Ripper Academy, an organization must not only introduce an attractive innovation, but must also offer incentives to using the technology while simultaneously developing an effective advertising campaign to increase the initial population of adopters. After establishing an initial population of adopters, the strength of word-of-mouth can have a substantial effect on the rate of adoption, therefore decreasing the requirement to continue advertising.

Individuals may adopt an innovation, but that does not mean they will continue to embrace the innovation. In this model as adopters discard Ripper Academy, they reenter the population of potential adopters. The rate at which adopters discard Ripper Academy is the total sum of discards resulting from dissatisfaction and inaccessibility. An analysis of the Ripper Academy case study suggests that the rate at which adopters discard Ripper Academy due to dissatisfaction is influenced by the video content and system functionality. As video content (quality and relevancy) and system functionality increase, the rate at which adopters discard Ripper Academy will decrease. In the case of TBS, students seemed to leverage Ripper Academy when video content that was applicable to performance exams was available. The fraction of adopters engaged in continuous training exercises and deployments combined with an individual's ability to access the internet will determine the rate at which adopters discard Ripper Academy due to inaccessibility. When 7th Marine Regiment was conducting training exercises, certification exercises, and combat operations, the Marines had limited time, access to mobile devices, and limited internet

connectivity—this could have increased the discard rate. Additionally, an individual's inability to access the internet may also contribute to the discard rate. In the case of TBS, students had limited access to the internet when attending classroom instruction—this may have caused Marines to discard the use of Ripper Academy.

Those individuals who discard the adoption of Ripper Academy reenter the potential adopter population and need to be treated like first time adopters; they must once again be convinced to adopt Ripper Academy by attractive incentives, effective advertising, or word-of-mouth.

The Bass diffusion model, modified to incorporate the abandonment or discarding of a product or idea, provides a quantitative framework to understand how multiple variables influenced the adoption of Ripper Academy at both 7th Marine Regiment and TBS. To ensure the continued adoption of an innovation like Ripper Academy, leaders must make certain the adoption rate exceeds the discard rate. A product or idea will fail if the discard rate surpasses the adoption rate.

#### *d. Implications of System Dynamics*

The Ripper Academy case study provides an excellent real-life scenario to explore the benefits of system dynamics when trying to understand how the various variables of a system interconnect to influence the adoption of new information technology.

### **C. CONCLUSION**

This chapter examined the Ripper Academy case study by way of change management and system dynamics. The Ripper Academy case study serves to highlight the numerous factors associated with change management while also providing the DoD leadership with a reference to aid in the future innovation and adoption of information technology systems. The benefits of leveraging system dynamics to recognize the dynamic behaviors of complex systems was evident in the analysis of the Ripper Academy case study. To understand the adoption of new information technology systems, like Ripper Academy, leaders within the DoD must recognize how both growing and slowing actions influence the adoption of new information technology systems. Failure of leaders to

mitigate the limiting actions can result in the discard, and even the complete abandonment, of any new information technology system.

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## **V. CONCLUSION AND RECOMMENDATIONS**

### **A. CONCLUSION**

This research provides a case study to explore how the USMC, and like organizations, can employ the principles of change management and system dynamics to innovate and ensure the adoption of new information technology systems like Ripper Academy. This research analyzed the Ripper Academy case study using change management and system dynamics to extract the key elements that may prove useful to future information technology system innovations within the USMC, and the DoD.

Change management is a critical aspect to preparing and supporting individuals, teams, and organizations for the innovation of new information technology systems. Kotter (2002) highlighted that the main challenge to organizational change is not the culture, strategy, or systems, but “changing people’s behavior” (p. 2). Change management provides a method by which leaders can influence people’s behavior to accept a new vision or strategy to support an organizational change. Figure 21 depicts a summary of the change management factors that contributed to the innovation and adoption of Ripper Academy. The analysis of the Ripper Academy case study further emphasizes the importance of having internal and external champions, a vision for the future, actual data, the support of a guiding coalition, both bottom-up and top-down support, and individual abilities when implementing an organizational change. If organizations want to successfully implement change, it is important for them to understand change management.

Change Formula								
	Dissatisfaction with Current State		Vision for Future State			First Steps		
CDET	- MUE2 - Colonel Viktor's request		- Video-streaming platform for entire USMC - Ripper Academy			- MUE2 - Ripper Academy design specifications		
Kotter's Eight-Stage Process								
	Establishing a Sense of Urgency	Creating the Guiding Coalition	Developing a Vision and Strategy	Communicating the Change Vision	Empowering the Broad-Based Action	Generating Short-Term Wins	Consolidating Gains and Producing More Change	Anchoring New Approaches in the Culture
CDET	- MUE2 - Colonel Viktor's request	- Major Pompen and Major Goman - CDET Leadership - NAVAIR DLNOC Project Team	- MUE2 - Video-streaming platform for entire USMC - Ripper Academy	- Major Pompen, Major Goman, and Anthony Kinzel communicated the vision up/down the chain of command	- Major Pompen relieved of additional responsibilities	- MockFlow software - Iterative design methodology	- MarineNet Video Services	- TBD
7th Marine Regiment		- Regiment Commander - Battalion Commanders - Company Commanders - Primary Staff	- Buy back training time with an end state of accelerating the learning curve of young people	- Advertising posters - Advertising video - Informal discussions	- Unit sponsored video competitions	- Unit sponsored video competitions with rewards - Partnership with TBS (additional videos)		- TBD
TBS		- Academics Group - TBS Gunner - Warfighting Instructors - Staff Platoon Commanders	- Shift the learning experience for the student from passive to active learning experiences	- Informal discussions		- Partnership with 7th Marine Regiment (access to video streaming platform)		- TBD
ADKAR Change Model								
	Awareness	Desire	Knowledge	Ability	Reinforcement			
CDET	- MUE2 - Colonel Viktor's request	- Colonel Viktor's request increased individual desire	- Major Pompen purchased MockFlow software access	- Individuals possessed the abilities required to design and develop Ripper Academy	- TBD			
7th Marine Regiment	- Discussions with Battalion Commanders, Company Commanders, and primary staff	- "Individual reaction" that varied: - Non-believers - Followers - Embracers			- Video competitions with monetary awards - TBD			
TBS	- Discussions of benefits of video-based training	- Two Groups: - Accepters - Resistors			- TBD			
Achieved								
Partially Achieved								
Not Achieved								

Summary of the change management factors the author believes contributed to the innovation and adoption of Ripper Academy as interpreted from personal interviews and email communications.

Figure 21. Summary of Ripper Academy Case Study Change Management Factors.

System dynamics helps best predict the dynamic behaviors of complex systems over time by expanding mental models and revising assumptions (Sterman, 2000). The analysis of the Ripper Academy case study exhibited the benefits of leveraging the principles of system dynamics to more accurately comprehend the dynamic behaviors of complex systems. To understand the adoption of new information technology systems, leaders must recognize how both growing actions and slowing actions can influence the adoption of new technology. The analysis of Ripper Academy identified incentives, advertising, word-of-mouth, inaccessibility, and dissatisfaction as key variables contributing to the adoption of Ripper Academy; see Figure 22.

Ripper Academy Analysis	
Growing Actions	Slowing Actions
<ul style="list-style-type: none"> <li>- Advertising Campaign <ul style="list-style-type: none"> <li>- Advertising posters</li> <li>- Advertising video</li> </ul> </li> <li>- Word-of-Mouth Advertising</li> <li>- Video competitions with monetary awards</li> <li>- Relevant video content (performance exam material)</li> </ul>	<ul style="list-style-type: none"> <li>- Available Time <ul style="list-style-type: none"> <li>- Operational tempo</li> <li>- Daily requirements</li> <li>- Video content perfection</li> </ul> </li> <li>- Personnel Resources <ul style="list-style-type: none"> <li>- Permanent Change of Station Orders (rotation of personnel)</li> <li>- Billet vacancies</li> </ul> </li> <li>- Individual Capabilities</li> <li>- Resources</li> <li>- Accessibility <ul style="list-style-type: none"> <li>- Training exercises</li> <li>- Certification exercises</li> <li>- Deployments</li> <li>- Internet connectivity</li> </ul> </li> </ul>

Summary of the growing and slowing actions the author believes contributed to the adoption of Ripper Academy as interpreted from personal interviews and email communications.

Figure 22. Summary of Ripper Academy Case Study System Dynamics Analysis.

The analysis of the Ripper Academy case study stresses that leaders must not only focus on growing actions, but more importantly must focus on mitigating, or completely eliminating slowing actions in order to ensure the adoption of any innovation. The failure of leaders to understand the principles of system dynamics, when trying to predict behaviors over time, can result in the unforeseen abandonment of any new information technology system.

## **B. RECOMMENDATIONS**

### **1. MarineNet Video Services**

After analyzing the adoption of Ripper Academy, the primary researcher identified several actions that may influence the adoption of MarineNet Videos Services by increasing the adoption rate and slowing the discard rate; see Figure 23. To increase the adoption rate, the USMC can increase the effectiveness of advertising, increase the attractiveness of incentives, and increase the word-of-mouth contact rate. To increase the effectiveness of advertising, the College of Distance Education and Training may consider varying the means and methods of advertising. The USMC has an officially sanctioned website, Facebook, twitter, and YouTube channel that the College of Distance Education and Training can leverage to increase the effectiveness of MarineNet Video Services' advertising. Furthermore, the College of Distance Education and Training should seek the assistance of key leaders, such as the Commandant of the Marine Corps and Sergeant Major of the Marine Corps, to endorse MarineNet Video Services. The USMC needs an influential champion(s), from the top of the organization, to endorse MarineNet Video Services.

Increasing the attractiveness of the incentives for using MarineNet Video Services is another possible way to increase the adoption rate. Currently, Marines create, share, and view video content of their own free will without expectation of award or recognition. As identified in the Ripper Academy case study, creating quality video content takes a significant amount of time. Providing incentives, such as promotion points or comments on Fitness Report evaluations, is one way to increase the attractiveness of creating video content. Other incentives include providing monetary or time off awards, or public recognition. Providing Marines with credit for watching video content that qualifies as annual, fiscal, military occupational specialty, or pre-deployment training requirements is another way to increase the attractiveness of MarineNet Video Services. Marines are busy, if they can watch a video to satisfy a directed training requirement, they may choose to do so because of its convenience, availability, and accessibility.



To increase the word-of-mouth contact rate, the College of Distance Education and Training may consider collaborating with professional military education schools to provide leaders with training and education on Ripper Academy. Collaborating with intermediate levels schools such as TBS, Expeditionary Warfare School, NCO Courses, and SNCO Courses, will exponentially increase word-of-mouth contact rate, while simultaneously creating champions from within the organization. By providing training and education, leaders will better understand the vision, intent, and capabilities of Ripper Academy to leverage the information technology in future leadership roles.

To slow the rate at which individuals discard MarineNet Video Services, the USMC can increase the quality and relevancy of video content and improve accessibility. To increase the quality and relevancy of video content, the USMC can improve training, invest in specialized hardware and software, and/or consider the reallocation or restructuring of personnel. The Ripper Academy case study highlighted the individual capabilities required to make video content. Additionally, the case study indicated that Marines hesitated to share imperfect video content. To mitigate the above, the USMC could sponsor training that provides Marines with the skills and knowledge required to create quality video content. Furthermore, the USMC could consider investing in filming hardware (video cameras, Go Pros, voice recording devices, etc.) and video editing software to provide Marines with the resources required to create quality video content. Once a Marine has the skill, knowledge, and resources to create video content, the quality and relevancy of video content may increase because Marines are confident in their skills and are willing to create and share more video content. An additional option to increasing the quality and relevancy of MarineNet Video Services video content is creating dedicated billets within commands to create video content. This could include leveraging the current Combat Camera Marines or creating new/additional structure within commands to include a videographer.

To increase the accessibility of MarineNet Video Services to Marines who are conducting training exercises, in a deployed environment, or stationed in a location with limited connectivity, the College of Distance Education and Training may consider the development of a feature that allows video content to be downloaded and viewed in an offline status. Additionally, units may consider modifying policies to allow select

individuals to carry mobile devices, or unit provided devices, while conducting training exercises to capture the raw video footage of training.

MarineNet Video Services Recommendations	
Increase Adoption Rate	Decrease Discard Rate
<ul style="list-style-type: none"> <li>- Advertising Effectiveness <ul style="list-style-type: none"> <li>- USMC Champion—Commandant of the Marine Corps and/or Sergeant Major of the Marine Corps</li> <li>- Additional advertising platforms—Official Marine Corps website, Facebook, Twitter, YouTube</li> </ul> </li> <li>- Attractiveness of Incentives <ul style="list-style-type: none"> <li>- Promotion points</li> <li>- Comments on Fitness Report evaluations comments</li> <li>- Individual awards/recognition</li> <li>- Credit for completing mandated training</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Video Content (quality and relevancy) <ul style="list-style-type: none"> <li>- Provide training and education on how to create quality and relevant video content</li> <li>- Provide training and education in PME schools—TBS, Expeditionary Warfare School, NCO courses, SNCO courses</li> <li>- Invest in specialized hardware and software for units—video cameras, GoPros, video editing software, etc</li> <li>- Restructuring of personnel to create dedicated billets within commands</li> </ul> </li> <li>- Improve Accessibility <ul style="list-style-type: none"> <li>- Offline option</li> <li>- Unit policy modification to allow select mobile device, or unit provided devices, to capture training exercises</li> </ul> </li> </ul>

Figure 23. Recommendations to Influence the Adoption of MarineNet Video Services from a System Dynamics Perspective.

## 2. Future Research

In finalizing this research, the primary researcher identified several opportunities for future research. First, additional research could be conducted to explore the factors that have led to some commands adopting MarineNet Video Services and others resisting. Conducting a further analysis on the adoption of MarineNet Video Services may identify additional variables relevant to the limits to growth archetype and modified Bass diffusion model. This analysis could provide additional areas for consideration when implementing future information technology systems within the DoD.

The second area for future research is capturing the actual benefits of the video-streaming platform and user-generated video content. At the time of this research, there was insufficient data available to determine whether Ripper Academy, now MarineNet Video Services, video content actually increased organizational and/or individual knowledge within the USMC. As organizations continue to adopt MarineNet Video Services, and the College of Distance Education and Training continues to upgrade MarineNet Video Services, additional metrics may become available to assist in measuring how and if user-generated video content has increased organizational and/or individual knowledge within the USMC.

Lastly, case studies on the innovation and adoption of information technology systems within the USMC, and DoD, need to continue to be developed in order to highlight to leaders the importance of change management and system dynamics. The continued development and examination of case studies through the lenses of change management and system dynamics will unlock a greater understanding of the processes required to successfully innovate and ensure the adoption of future information technology systems.

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## APPENDIX A. RIPPER ACADEMY TIMELINE

2013

- Fall: MarineNet Officer, Major Pompen, and Emerging Technology Officer, Major Goman, arrive at CDET
- Winter: MUE2 Design and Development

2014

- Spring–Summer: MUE2 Execution
- Winter: College Football National Championship Playoffs

2015

- Spring: MUE2 Official Report Published
- Summer: Major Pompen and Major Goman pursue designing a video-streaming platform for the entire USMC
- Summer: Future Infantry Regiment Commander, Colonel Vicktor, approaches CDET with an end user request for 'YouTube' like capability
- June: CDET approves the design and development of Ripper Academy—a video-streaming platform for 7th Marine Regiment
- June–October: Ripper Academy Design and Development
- November–December: Ripper Academy Testing
- December: Colonel Vicktor's Change of Command

2016

- 21 January: Ripper Academy Implementation
- Fall: 7th Marine Regiment and TBS form partnership
- June: CDET approves the design and development of MarineNet Video Services—a video-streaming platform for the entire USMC

2017

- January: MarineNet Video Services Implementation

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## APPENDIX B. UNITED STATES MARINE CORPS RANK STRUCTURE

Table 2. Enlisted Rank Structure.  
Adapted from United States Marine Corps (n.d.-c).












Insignia	Rank	Grade	Description
N/A	Private	E-1	
	Private First Class	E-2	
	Lance Corporal	E-3	
	Corporal	E-4	NCOs; the backbone of the USMC
	Sergeant	E-5	
	Staff Sergeant	E-6	SNCOs; responsible for the discipline, morale, training, and welfare of the Marines in their charge
	Gunnery Sergeant	E-7	
	Master Sergeant	E-8	Senior enlisted advisors; responsible for assisting in matters of administration, discipline, morale, technical leadership, and welfare of the unit
	First Sergeant	E-8	
	Master Gunnery Sergeant	E-9	
	Sergeant Major	E-9	
	Sergeant Major of the Marine Corps	E-9	Senior enlisted Marine of the USMC

Table 3. Chief Warrant Officer Rank Structure.  
Adapted from United States Marine Corps (n.d.-c).
















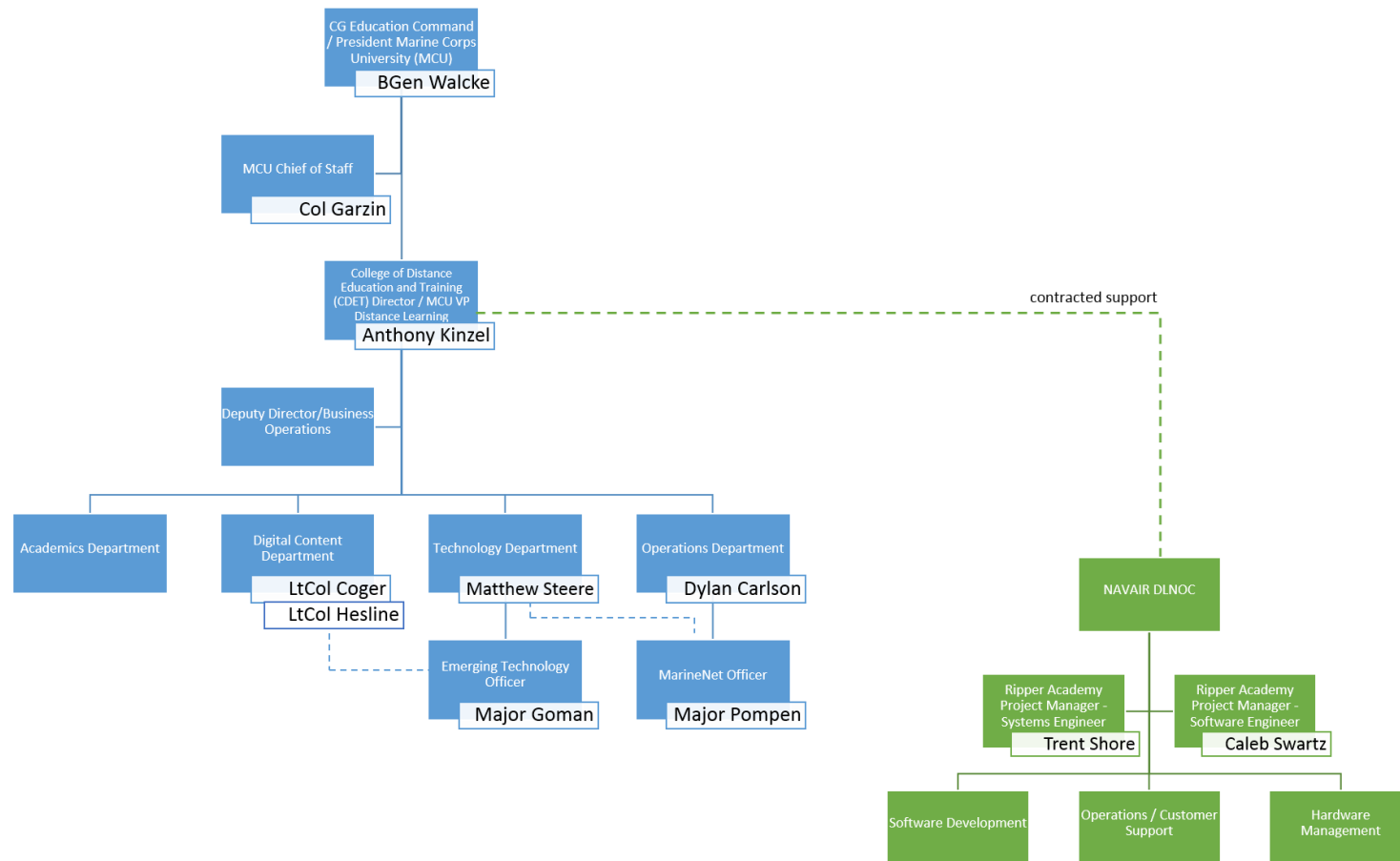
Insignia	Rank	Grade	Description
	Warrant Officer	W-1	Technical advisors that provide leadership and training to the Marines in their military occupational specialty
	Chief Warrant Officer 2	W-2	
	Chief Warrant Officer 3	W-3	
	Chief Warrant Officer 4	W-4	
	Chief Warrant Officer 5	W-5	

Table 4. Officer Rank Structure.  
Adapted from United States Marine Corps (n.d.-c).

Insignia	Rank	Grade	Description
	Second Lieutenant	O-1	Company grade officers; responsible for tactical level operations at the Company and below level
	First Lieutenant	O-2	
	Captain	O-3	
	Major	O-4	Field grade officers; responsible for tactical and operational level operations at the Battalion and above level
	Lieutenant Colonel	O-5	
	Colonel	O-6	
	Brigadier General	O-7	
	Major General	O-8	
	Lieutenant General	O-9	
	General	O-10	



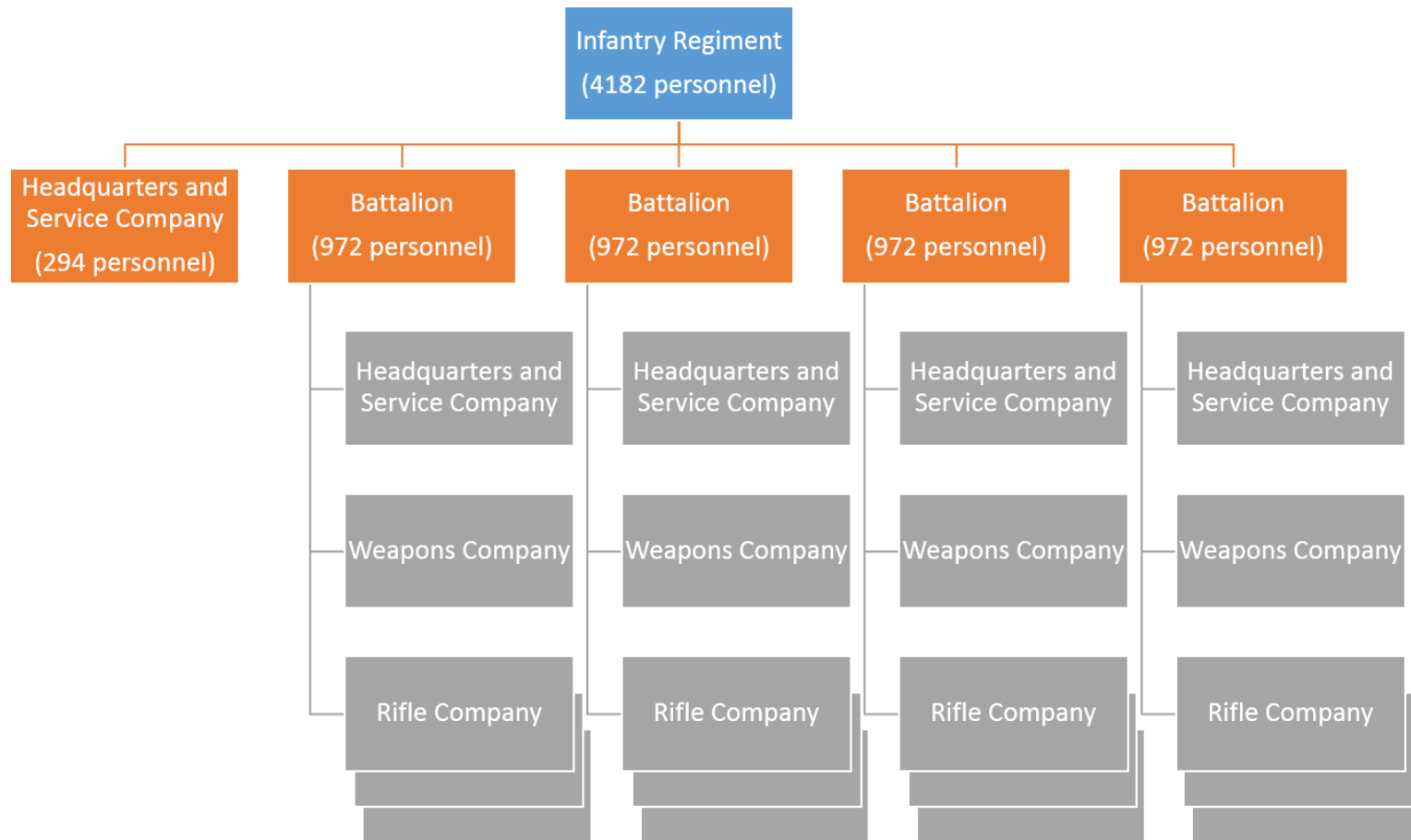
## APPENDIX C. COLLEGE OF DISTANCE EDUCATION AND TRAINING ORGANIZATIONAL CHART



Adapted from CDET, personal communication, March 14, 2018.

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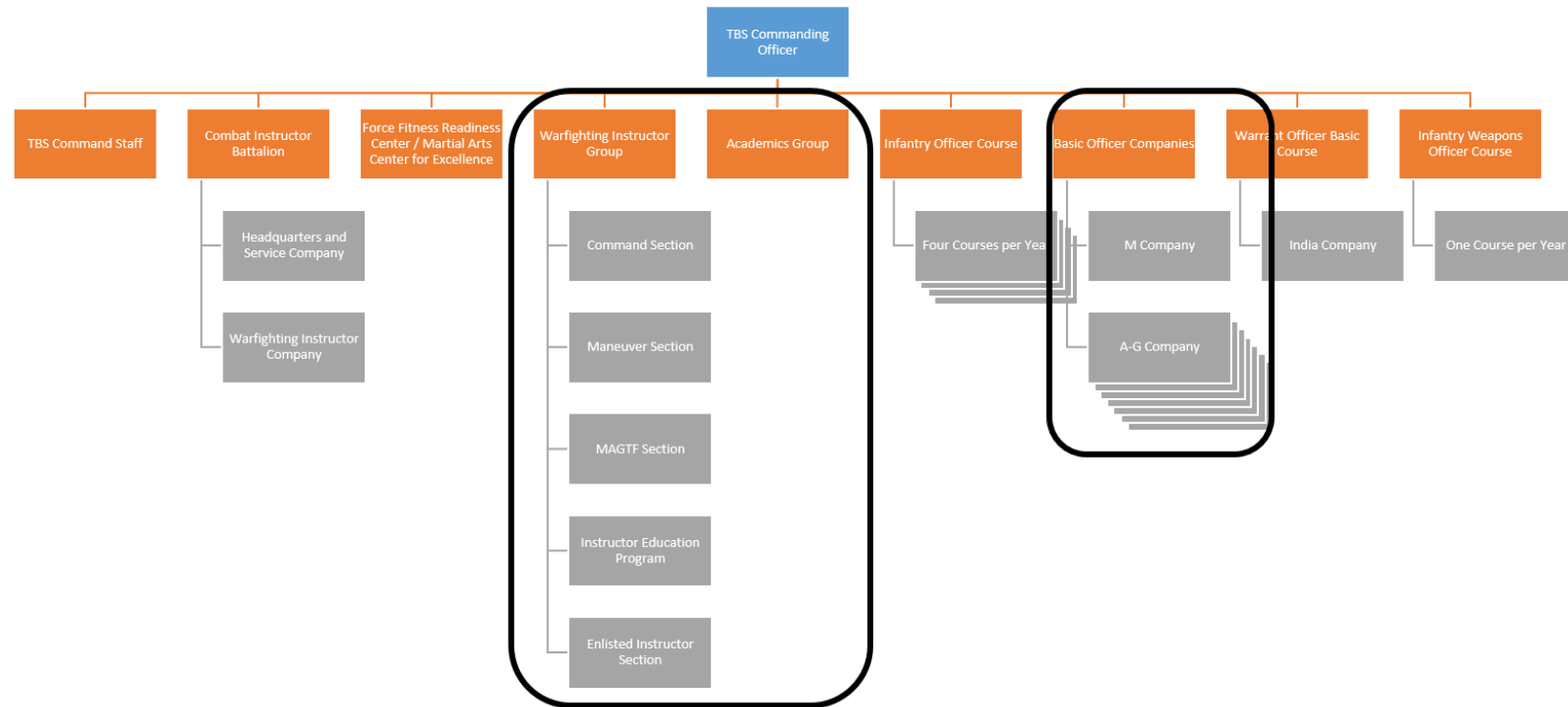
## APPENDIX D. INFANTRY REGIMENT / BATTALION ORGANIZATIONAL CHART



Adapted from USMC (1998).

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## APPENDIX E. THE BASIC SCHOOL ORGANIZATIONAL CHART



Adapted from The Basic School United States Marine Corps (n.d.).

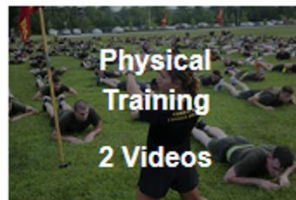
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## APPENDIX F. MARINET VIDEO SERVICES CATEGORIES AND TOP FIVE VIDEOS



### Communications & Technology 40 Videos

- MarineNet Video Services
- Killswitch v2.4
- Introduction to ANW2
- Comm PRC-152
- Brief Overview of the ANPRC-117G



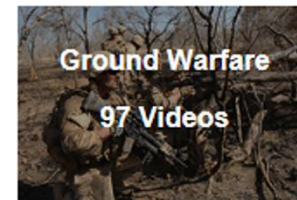
### Physical Training 2 Videos

- Combat HITT
- 2018 2D Marine Division Squad Competition



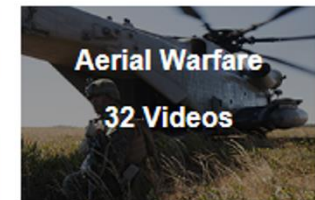
### Munitions 15 Videos

- TBS Performance Exam II: Dis/As of the M240B
- TBS Performance Exam II: .50 Cal Headspace/Timing
- Shooting Positions – Combat Marksmanship
- Section Chief Verification “Digital 2”
- Laser Boresighting Procedures (LBS)



### Ground Warfare 97 Videos

- TBS Performance Exam I: CAS 9 Line Message
- TBS Performance Exam I: Grid CFF
- TBS Performance Exam I: Immediate Suppression
- How to Plot a Point
- Pre Combat Checks/Pre Combat Inspections



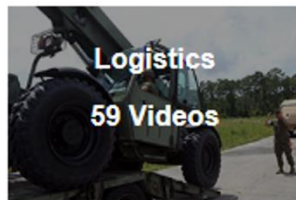
### Aerial Warfare 32 Videos

- Tactical Air Control Party Primer Curriculum
- Emerging UAS Threat
- Counter-Unmanned Aerial Systems (C-UAS) Smart Card
- Nibbler Connecting Motors to ESCsv1
- Introduction to Airfield Damage Repair



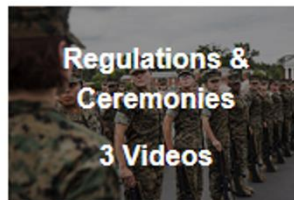
### Administration 45 Videos

- How to Configure iOS Devices for MarineNet Video
- How to configure Android Devices for MarineNet Video
- Requesting a Proctor Pin
- Risk Management
- MCTIMS Training Resource Module



### Logistics 59 Videos

- 5 Gal Beverage Container
- Tactical Vehicle Lubrication
- Checking into the Barracks
- Tactical Vehicle Oil Change
- Logistics Operations School (LOS) Documentary
- PMCS Process Motor Transport



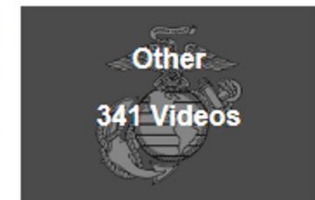
### Regulations & Ceremonies 3 Videos

- Field Day Procedures
- TBS Performance Exam I: Oaths of Office
- Getting Room Discrepancies Fixed



### Medical & Safety 6 Videos

- TBS Performance Exam I: CLS
- Tobacco Cessation
- Hearing Conservation
- Intro to Industrial Hygiene
- Confined Space Entry



### Other 341 Videos

Adapted from CDET, unpublished data, March 18, 2018.

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