DON'T WASTE MY TIME: IMPROVING THE MAF AFTER-ACTION REPORT

Graduate Research Paper

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Abstract

Many organizations utilize AARs to help build institutional memory of strengths and weaknesses from events. The military is no different. Mobility Air Force units constantly write AARs for off-station exercises and operations. Many have noted anecdotal evidence suggesting AARs are not worth the time or energy invested given meaningful change has rarely occurred upon review of lessons learned. A lack of standardization in the AAR forms and the process does not allow for an analysis of trends to show deficiencies or successes over time. This paper consolidates previous research to create an AAR process framework and then measures the MAF AAR process against the AAR process framework for effectiveness through interviews. Data analyzed from interviews found that the MAF AAR process lacked standardization, access to AARs, and a failure to implement change from recommendations. The paper recommends immediately standardizing an AAR form tied to a database to correct standardization and access issues. The next step includes championing change from recommendations through leadership and tactics offices. The recommended process is replicable; any organization that uses AARs can use this framework to build a process that drives positive, continuous organizational change.

Acknowledgments

Table of Contents

List of Figures

DON'T WASTE MY TIME: IMPROVING THE MAF AFTER-ACTION REPORT

I. Introduction

Learning from successes and failures is how organizations improve and build experience. Large organizations need to record successes and failures so that those not directly participating in an operation or incident also learn from those who were there. Capturing lessons learned through after-action reports (AARs) is how many institutions choose to record these experiences to pass on to others. Organizational learning does not occur by simply writing down a real-world operation or training exercise's results. AARs require a thorough analysis to discover trends across AARs, find lessons learned, and make recommendations (Savoia, Agboola & Biddinger, 2012). An organization must disseminate the lessons learned and then apply them; otherwise, that organization loses the experiences gained (Donahue & Tuohy, 2006). Many organizations struggle to implement a successful AAR process limiting the ability to implement positive and lasting organizational change (Donahue & Tuohy, 2006).

The Mobility Air Force (MAF) is no different from most organizations and struggles to maintain an effective AAR process. When evaluating training in the C-17 community, McConville references a debrief of Mobility Guardian 2017 as a reason to update current training. This debrief discusses how a mission failed due to the destruction of most of the force from simple pre-briefed threats (McConville, 2019). The C-130 AAR for this exercise is 41 pages long and does not mention this extreme failure. It is also challenging to find the critical information to pass on due to its length. The C-17 AAR

1

for this exercise is one and a half pages and more concisely details the strengths and weaknesses of the exercise, but again fails to mention the massive failure of a mission due to simple mistakes. It instead focuses on exercise execution and shifts blame for minor failures to outside agencies rather than directly confronting them. Neither AAR explains the root cause of the failure; that information is known only to those who attended the debrief of the specific sortie in question.

The MAF currently stores AARs in locations that are neither known nor accessible. The lack of standardization and difficulty accessing these AARs make them ineffective teaching mechanisms for those who did not attend in person. A trend analysis of multiple iterations of Mobility Guardian would show recurrent deficiencies the MAF can train to and correct. However, a lack of standardization currently makes trend analysis extremely difficult (Donahue & Tuohy, 2006).

Squadrons in the MAF conduct multiple off stations and exercises every year. Most of these missions generate an AAR. While AARs capture valuable information about the Airmen's successes and deficiencies, discussion with the A9 revealed leaders rarely reference them to find correlations in trends that can directly result in training prioritization and improvement. Their primary purpose is to reveal significant deficiencies at individual events, and a lack of standardization and database management makes the correlation of trends and deficiencies difficult. This study researches best practices through the literature review, creates a standard required for an effective process and trend analysis, and then conducts interviews to discover AAR opportunities in the Air Force. The following research questions guided the research.

2

RQ1. Is the MAF utilizing AARs and making them accessible to everyone?

RQ2. Is there AAR process commitment in the MAF?

RQ3. Is quantifiable trend analysis of AARs possible to achieve continuous process improvement?

This paper will analyze research on the requirements of a successful AAR to build a theoretical framework and interviews with different echelons of the Air Mobility Command (AMC) community to answer the research questions. This research seeks to bridge the gap between studies on effective AAR processes and current MAF AAR processes. The researchers found no previous research that unified research findings to form a process framework. It also found no previous research on MAF AAR practices. This paper will use its findings to support recommended changes to the current MAF AAR process and provide a process framework for any organization that employs AARs. A successful process allows trend analysis and better data-driven decision-making. This research aims to make AARs and lessons learned a practical part of MAF culture.

II. Literature Review

Chapter Overview

The history of the AAR has driven an evolving understanding of maximizing learning at all levels of an organization. Research into AARs has accelerated in the emergency services and health sectors, producing new recommendations and theories during the last thirty years. This paper consolidates this research to create what the researchers believe is the first theoretical framework for a successful AAR process (Donahue & Tuohy, 2006; Savoia, Agboola, & Biddinger, 2012; Darling, Parry, & Moore, 2005; Kaliner, 2013).

To create a successful AAR process, each segment of the framework must build on the last section. This framework includes standardization, availability, analysis, and application of recommendations (Donahue, & Tuohy, 2006). Each step of the framework increases process commitment (Greenwood, Argyris & Schon, 1996). This paper applied research on organizational commitment to the AAR framework to understand the requirements for members of an organization to commit to the AAR process, a fundamental condition for its success (Eisenberger, Huntington, Hutchison & Sowa, 1986; Fabiny & Lovas, 2018; Greenwood, Argyris & Schon, 1996). Therefore, a successfully implemented AAR drives the MAF community's process commitment, resulting in a more significant positive organizational change. The researchers found no previous reports on the MAF AAR process, possibly making this paper the first to attempt to find deficiencies and make recommendations in this field.

AARs need to accurately capture the results of an exercise for the AAR process to work. A poorly written AAR or a lack of candor due to a fear of political fallout from a mistake both lead to a failure to capture data accurately (Donahue & Tuohy, 2006). Research shows that a thorough AAR increases subsequent performance by 20-25% (Tannenbaum & Cerasoli, 2013). Studying both successes and failures has led to better outcomes in subsequent exercises (Ellis & Dividi, 2005). A mission commander must record both successes and failures to understand the entire picture and find the correlation between actions and results. They must also record failures without fear of reprisal or political fallout to create an accurate event record and generate actionable recommendations. Standardizing an accurate AAR begins the AAR process framework.
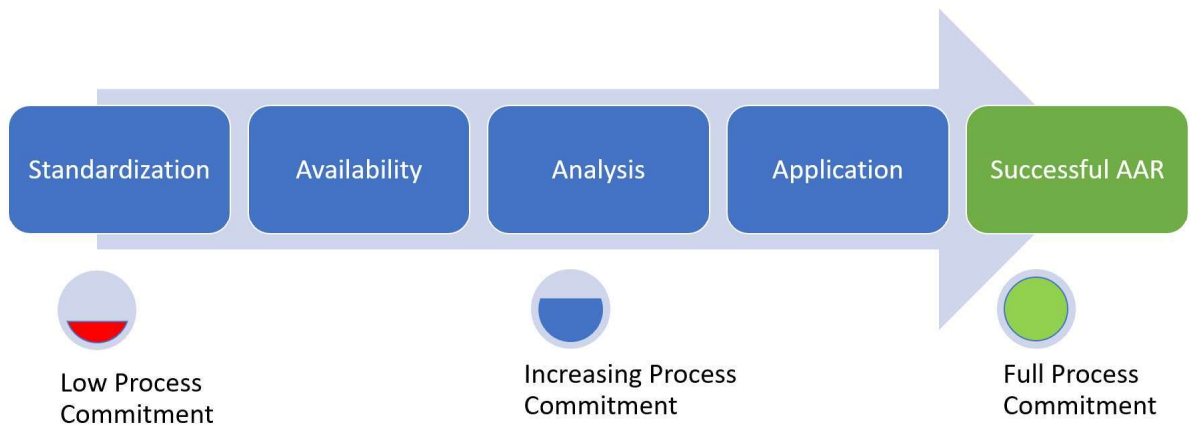

Figure 1: AAR Process Framework

Standardization

Standardization results in improved process performance, enhanced readiness, and superior interchangeability (Münstermann & Weitzel, 2008). It accomplishes this through

5

reduced time and costs associated with a process (Ramakumar & Cooper, 2004; Swaminathan, 2001). A mission commander with a standardized AAR template spends less time creating an AAR and makes themselves available for additional tasks more quickly. Additionally, standardization improves the quality of the process and allows a similar understanding of an organization-wide process (Fomin & Lyytinen, 2000; Manrodt & Vitasek, 2004). A mission commander told to write an AAR, with no guidance and no template, will create a product that is as good as their skill and experience allows. A template gives a mission commander a minimum standard and demonstrates expectations on the desired product, improving the overall quality of AARs.

Standardization also results in enhanced readiness; it increases performance measurability and an organization's ability to react to external change and trends by increasing flexibility (Hesser et al., 2006; Wullenweber et al., 2008). A standard of performance for exercise objectives allows a mission commander to measure success or failure against defined limits. While not perfect, given personalities and experience from commander to commander, these standardized objectives help identify trends across multiple AARs. As a result, data becomes meaningful, and commanders can easily extract actionable information.

Standardization also enhances interchangeability. Most organizations suffer from ad hoc reports, multiple reports from the same incident without consultation between writers, and no universally accepted approach to the development or content of reports (Donahue & Tuohy, 2006). Sub-organizations participating in an organization's process provide the same products with common terminology and standard resource typing.

Standardization allows comparing the sub-organizations and movement between the sub-organizations with little impact on the product. A mission commander that moves to a new squadron will use the same standards for an AAR and terminology for write-ups and exercise type, easing the transition. Additionally, standardization facilitates accessibility and application of lessons learned while enabling an analysis (Donahue & Tuohy, 2006).

Availability

A fundamental concept of AARs is availability. AARs only pass on their lessons learned to people with access to read them. Not effectively distributing even a well-crafted AAR undermines its value (Donahue & Tuohy, 2006). The most common method for AAR distribution is informal dissemination (Donahue & Tuohy, 2006). Organization members who create an AAR distribute it to those they think would benefit, and members who need them seek out applicable AARs. These informal delivery methods do not guarantee distribution. Effective AARs require a trusted, accessible database (Donahue & Tuohy, 2006). This availability showed validity after the Boston Marathon bombing when the emergency responders had reviewed AARs of similar bombing incidents in Israel (Stoto et al., 2019). A mission commander must know an applicable AAR exists and have easy access to it to implement lessons learned. Providing members of the MAF access to AARs allows an analysis of the recorded data.

Analysis

AARs require analysis from a single event informing the next event in a series to a meta-analysis of data to find trends across a segment of an organization. Failure to accurately determine a root cause for a lesson learned leads to ineffective

recommendations, a common problem (Donahue & Tuohy, 2006). For organizational

change to occur, an analyst requires a deep understanding of the causal process

(Greenwood, Argyris & Schon, 1996). Finding the root cause of a failure or a success

enables meaningful organizational change (Savoia, Agboola, & Biddinger, 2012; Friesen,

Kelsey, & Legere, 2017). Root cause analysis involves finding the part of a process that

directly failed to achieve mission success. A mission commander must analyze a mission

failure to discover the root cause of that failure. They then must develop

recommendations for the next mission commander based on this root cause analysis.

A meta-analysis of AARs shows analysts trends across sectors of an organization.

Without standardization or access, this analysis proves extremely difficult. Many

organizations look at AARs as reviews of an isolated exercise or incident and do not look

for broad behavioral patterns for the larger enterprise to correct (Donahue & Tuohy,

2006). A squadron Director of Operations (DO) may find trends for his squadron outside

of those provided by his standards and evaluation shop that they want to correct through

training. Additionally, staff may find MAF-wide tendencies that require attention through

updated training tables or exercise objectives. The staff can use these tendencies to apply

recommended actions based on the lessons learned.

Application of Lessons Learned

The final step of an effective AAR is the application of lessons learned. This step

is where analysis provided a recommendation, the recommendation is applied, and

behavior is changed (Greenwood, Argyris & Schon, 1996). Most organizations

consistently fail to transform successfully from lessons learned, and they become lessons

observed (Donahue & Tuohy, 2006; Birkland, 2009). Organizations learn when they acquire, process, store, and distribute knowledge, understanding, techniques, and practices (Baird, Henderson & Watts, 1997). For a mission commander, fixing the failing parts of a process from a previous exercise and implementing recommendations allows a test of the changes. They then confirm or reject the changes and recommend future exercises based on the results. Successfully implementing organizational change results from a successful AAR process and increases the commitment of those involved.

Investment/Commitment

A successful AAR process is dependent on members of the organization showing commitment to the process. Organizations gain this commitment in two ways. First, the organization must show perceived organizational support to the process (Eisenberger, Huntington, Hutchison & Sowa, 1986). Second, members of the organization need to see a benefit to the work they put into the process (Fabiny & Lovas, 2018). An organization shows its organizational support when recommended changes occur (Greenwood, Argyris & Schon, 1996). A mission commander who creates a well-written AAR but the MAF does not distribute or make it easily accessible is likely to feel a lack of organizational support. This perceived lack of support is likely to lower the mission commander's commitment to the process.

Members of an organization are more committed to a process when they can see the benefit of their work. The AAR process aims to speed organizational learning through quickly disseminating lessons learned from a sub-organization to the rest of the organization (Meyer, 1982; Kotter, 1996; Donahue & Tuohy, 2006). Suppose a mission

commander creates a detailed recommendation section to an AAR, and the squadron does not implement any of the recommended changes. In that case, they may not see the benefit of the time invested in analyzing lessons and writing an AAR (Fabiny & Lovas, 2018). The mission commander's commitment to the process will decrease, and they will put in less effort the next time they lead an exercise.

Refining the Problem

The Current MAF AAR process focuses on satisfying the requirements of AFI 10-1302, which in turn exists to support CJCSI 3150.25G. The main objective of this AAR process is only to capture joint lessons learned. When a joint exercise drives a requirement for an AAR, AMC/A3X includes the requirement in the Execution Order (EXORD). Outside of this requirement, units submit AARs at their discretion. None of the AARs have a standard template or defined required information. For Mobility Guardian 2017, both the C-130s and C-17s submitted AARs for the exercise. The C-130 AAR was 41 pages with 19 observations, while the C-17 AAR was less than two pages with four observations. None of these observations matched those of their counterpart.

The AMC/A9 office for lessons learned is currently a single civilian tasked with AARs and all lessons learned in AMC. The lessons learned manager currently receives the AARs submitted to the staff and then decides the most relevant staff to work any issues they decide require a follow-up. Submission of these individual issues is a separate process on the same SharePoint. Once finished with an AAR, or if the AAR does not have any relevant issues to work on, the AMC SharePoint stores it for future reference. To find a previous AAR, a member must scroll through thirty AARs at a time and know

the approximate date. To search for an individual AAR, one must type the exact name of the document saved. There is a link for an AAR template, but this link does not work.

This paper attempts to build a foundation of research on the MAF AAR process due to a lack of previous research on the subject. Currently, the MAF does not standardize AARs, make them readily available, or conduct a detailed analysis of AARs. This research will confirm whether the MAF fails to follow the AAR framework resulting in a lack of commitment in the AAR process. This paper will recommend changes to apply the AAR framework to the MAF AAR process and help build process commitment based on the research results.

III. Methodology

With no known previous research on the MAF AAR process, the researcher needed data from those currently a part of the process. The best way to retrieve this data from individuals is by questionnaire, interviews, or focus groups (Williamson, 2018). Based on the Air Force limitation of only nine questionnaires or interviewees, the researcher chose interviews to allow the researcher to discover current AARs usage in the MAF enterprise and to maximize the information retrieved. The research minimizes issues with both structured and unstructured interviews by using a semi-structured interview, also allowing both qualitative and quantitative data collection (Dunn, 2000). The quantitative data consisted of binary questions and scaled questions. The qualitative data used binning to discover themes during the interviews. This mixed-method research allowed qualitative data to inform quantitative data (Johnson & Onwuegbuzie, 2007).

Research Process

The semi-structured interview method allows gathering quantitative and qualitative data as a form of methodological triangulation within a single method, the interview (Grim, Harmon & Gromis, 2006). This mixed-methods interview process involves a statistical analysis of specific questions and then elaborating on those answers to help bring a greater understanding of the problem (Johnson & Onwuegbuzie, 2007). The quantitative data in qualitative interviews also helps eliminate bias (Muskat, Blackman & Muskat, 2012).

The interview included both open and closed questions. The closed questions allowed a quantitative analysis of the information to confirm current AAR practices

(Hofisi, Hofisi & Mago, 2014). They included questions with binary answers and those requesting a response based on a scale. The interviewer encouraged elaboration on the answers to closed questions for context (Lincoln & Guba, 1985). The open questions encouraged describing different aspects of AARs and opinions on the future use of the AARs. The binary questions came at the beginning of the interview. The open questions that asked for a serious evaluation of current processes arose in the middle of the interview after a professional rapport naturally developed (Adams, 2015). The interview ended with scaled questions followed by an open discussion. The interviewer asked follow-up questions during the open discussion and then allowed the interviewee time to speak their mind on the subject.

The interviewer conducted the interviews by telephone, taking handwritten notes during the process. Taking notes allowed the interviewee time to think about answering as the questions progressed. This technique helps interviewees more fully develop their answers during the interview (Adams, 2015). The interviewer encouraged the interviewees to continue to respond if they felt that an answer needed further development. Additionally, the interviewer would question short, confident answers to encourage the interviewee to elaborate on their response and provide more information (Adams, 2015). The interviews typically lasted for fifteen to thirty minutes, and the interviewers did not conduct any follow-up interviews.

The research used nine semi-structured interviews targeting different levels of the MAF organization. These interviews took place between December 2020 and March 2021. The interviewer began all interviews by informing the interviewee of the purpose

of the interview and that they would remain anonymous regardless of how they answered. The research used the key informant sampling strategy to find interviewees (Newing, 2010). This sampling strategy allowed a targeted interview of interested parties from multiple levels of the MAF, given the limit on total interviews. Those interviewed included two recent off-station mission commanders, two squadron Directors of Operations (DO), one Operations Group commander, and four staff members from the A3 and A9. It was a mix of active military and civilians, with the military members ranging in rank from Captain to Colonel. This paper maintains the anonymity of those interviewed by referring to them as interviewees and does not detail specifics of their unit.

Data Analysis

This paper provides a summary of the questions asked. Appendix A contains the complete interview questions. All scaled questions used a scale of 1-5, with five being the most useful or beneficial. They then asked for an explanation of the rating to provide context. This paper uses verbatim quotes to illustrate themes from the data (Young et al., 2014).

Scaled questions looked at the mode, median, and mean to determine the consensus of the interviewees. The mode and median determined the most likely and center answer, respectively. The mean determined the average score on the 5-point scale. The mean is rounded to the nearest whole number to determine the most likely response. The researcher considered any answer greater than one from the nearest whole number an outlier and discussed the specific interview to determine the reason for the outlier.

The interviews also used open questions to find coded trends in answers. The interview asked a question three different ways and then manually coded the responses based on the theme (St. John, Freya, et al., 2014). The analysis considered a trend significant if at least six of the nine interviewees discussed it. The interviewers asked similar questions in different ways to ensure a response based on the interviewee's perceptions (Williamson, 2018). The first question asked, "What are the best features of current AARs?" The second question asked, "What are the worst features of current AARs?" The third question asked, "What is currently missing from AARs?" Following the questions, the interviewer began discussing the topics to build context around the coded themes. Any opposite themes resulted in not adding 1 number to either side to cancel both. The analysis coded 11 themes during the interviews and found four themes to be significant. The significant themes included future recommendations and lessons learned, access, standardization, and application of recommendations.

Limitations

The significant limitations of this research include only nine interviews allowed and the limits of interview-based research. The limited number of interviews may not meet the necessary amount for a saturation of knowledge, although this is a subjective measurement (Bertaux, 1981). Additionally, interview-based research is subject to reliability issues, the interviewer and interviewee's bias, and generalizations of a group based on a small sample (Silverman, 2004; Cottrell, 2014).

IV. Analysis and Results

This study aims to assess AARs current application in the MAF based on actual evidence, compare that with the AAR framework, and propose changes based on the results determined from the data collection. The researcher intends for the data to show whether there is a gap between reality and the framework and then make recommendations to bridge it. The data analysis will also involve determining what needs to change to make our processes more effective. The analysis categorizes the interview questions based on a segment of the AAR framework to discover gaps between the MAF AAR process and the AAR process framework.

Standardization

A significant theme found was standardization, an element of the AAR framework. Seven of the nine interviewees discussed a need for standardization in AARs. Standardization allows for a single template easily organized in a database. Additionally, it walks a first-time AAR writer through creating an AAR. This simplification ensures the capture of desired information and saves valuable time for the writer. All parties who review an AAR know precisely where to look for the information they need. Standardization also allows trend analysis of data. Different exercises must capture data similarly for subject matter experts to conduct a valuable trend analysis. Three interviewees use internal standardized AAR templates, and the rest use an ad hoc system. There is currently no standardized MAF AAR template.

A scaled question asked, "How beneficial do you think a standardized AAR form with drop-down menus for categorization would be?" Seven interviewees responded with

16

5, and two responded with 4, making the median and mode of the answer 5 and the mean 4.8. A mean over 4.5 tells us that the interviewees found standardization very beneficial, with no significant outliers below a 4. One interviewee stated, "This would be extremely beneficial. It limits word choice options for categorization for easy reference. However, due to the limits on word choice, it would need to be followed up with a free-flowing text to expand on the category". Most interviewees stated AARs are more valuable when sorted by category.

The analysis reveals a lack of standardization across the MAF. This shortcoming makes analysis hard and leads to possible confusion when reviewing AARs. The scaled question showed a desire for a standardized AAR template for MAF-wide use, making it easier to file into a database and therefore more readily available.

Availability

The first question asked was, "do you regularly review AARs for lessons learned?" The questions elicited a mixed response. 5 interviewees responded "yes," and 4 answered "no." When asked to clarify their answers, 3 of the 5 "yes" answers only reviewed AARs from their organization, and 2 of those only reviewed them for approval before submission to a higher echelon. The result is only one-third of interviewees used AARs to discover lessons learned, and only 2 of 9 used AARs from outside their organization. This low usage highlights two issues. First, it shows that AARs and lessons learned are not a part of most interviewee's processes. Second, it displays a possible lack of access to AARs.

To discover potential access issues, the researchers asked the question, "Do you know where AMC stores their AARs and how to find them?" No interviewees knew where to find AMC AARs. One mission commander did answer, "I think you find them on the AMC/A3 SharePoint". The answer showed an assumption in the MAF at lower echelons that A3 controlled their AARs when A9 lessons learned owns the AAR initially and saves the AARs for later use. The first two questions revealed that only one-third of interviewees reviewed AARs for lessons learned, and none of them knew where to retrieve lessons learned submitted to AMC.

A scaled question asked, "If a database existed where AARs were easy to view and categorized by event type and airframe, how much more useful would they be?" Eight of nine interviewees answered 5, with one 4. This answer resulted in a median and mode of 5 and a mean of 4.9. A mean over 4.5 indicates interviewees believe an easily accessible database would be highly beneficial with no significant outliers below a 4. Every interviewee displayed interest in quickly seeing lessons learned across a broader spectrum than their piece of the MAF. Some wanted to compare their mission or squadron to outside units to improve their strengths and weaknesses. Others wanted to see what lessons others previously learned before accomplishing an event for the first time. Finally, a few wanted to see trends across airframes and the MAF, in general, to know where to focus and adjust training.

The coded answers from the open-ended questions revealed the significant theme of access. Six of the nine interviewees discussed a lack of access to AARs. One interviewee stated, "Everyone is stove-piped. Access to outside AARs will let us learn

from other's mistakes and learn about their issues." Two different interviewees mentioned that squadrons rarely share AARs with other squadrons. A mission commander stated, "I did not know where to look for AARs. Halfway through the exercise I was lead for as a first-time mission commander, someone sent me the AAR for the previous exercise." Many of the interviewees in the squadron found difficulty obtaining AARs previously submitted. Interviewees on staff relied on squadrons and wings to directly submit AARs or the A9 to read them and send out relevant AARs to the different portions of the staff.

Additionally, Seven of the nine interviewees discussed future recommendations and lessons learned. One interviewee stated, "If you do not document it, it never happened." Another stated, "We need to highlight errors and not just successes so we can correct them." Finally, a third said, "We need to change our attitudes on AARs. They are for show right now, but should be for learning from mistakes and making change." Most interviewees believe current AARs fail to capture lessons learned accurately, leading to poor future recommendations. If mission commanders fail to capture these lessons learned, they cannot use them to create recommendations, and the problems will continue to occur.

Availability of lessons learned is a severe issue MAF-wide. None of those interviewed knew where to find AARs. The mission commanders interviewed did not know where the squadron kept their AARs either, and both admitted to working with rough drafts of old AARs they discovered on their squadron drives. The MAF must address the availability of lessons learned and access to AARs for the AAR process to bring organizational change.

Analysis

A closed binary question asked, "Do you think a greater focus on tactical lessons learned and trend analysis would make AARs more relevant?" Only 3 interviewees answered directly with a "yes." 5 interviewees expanded on their answer by explaining that there is already a good split between tactical and strategic lessons learned. This split implies that only minor changes are necessary to the focus of AARs. Separately, all the respondents agreed that trend analysis of AARs would be beneficial to their organization. This qualitative data implies that many of the current AAR system issues stem from the process rather than the reports themselves. It also implies the MAF would benefit from a more significant analysis of AARs.

A scaled question asked, "Would trend analysis from AARs be a useful tool to your organization?" This question resulted in seven 5s, a 4, and a 3. The median and mode of responses are 5, and the mean is 4.7. A mean over 4.5 shows that interviewees believed trend analysis would be a beneficial tool, but with one 3 as a significant outlier. This outlier found it only somewhat helpful because their sub-organization had internally implemented this process. There was a distrust that the MAF would accomplish it even though the member found it valuable and believed in the process their organization created. This distrust drove the lower score creating a significant outlier. Among interviewees who scored a 4 or a 5, one interviewee stated, "This would allow us to catch years of problematic efforts and learn how not to repeat them." Another interviewee added, "more data is more information to help inform data-driven decision making." The result shows interviewees generally agreed that finding recurring themes and challenges

is advantageous for every echelon of the MAF. An analysis of MAF AARs is currently a challenge due to a lack of standardization and access.

Application

Another significant theme found in the open questions is acting on recommendations. Six of the nine interviewees said acting on recommendations shows that the organization puts value in AARs. One mission commander stated, "When I debriefed my wing commander on the lessons learned and my recommendations, he said they were the same from when he conducted a similar exercise as a Captain." The interviewees that see an application of lessons learned saw this due to an internal process in their sub-organization. None of those interviewed perceived MAF level or even platform level organizational change from AAR recommendations.

Process Commitment

The previous questions highlighted issues with AARs. The next question probed the value of the AAR process. It asked, "are AARs currently worth the time invested in them?" 8 of 9 interviewees responded that AARs are not worth the time in their current form. All 8 interviewees continued to answer and said AARs are valuable if written and used correctly. Some areas requiring attention are an updated AAR process, better access, and visible implementation of recommendations. One interviewee said,

> many times, the writer of the AAR is just trying to write a success story
> for the next level of leadership because that level believes they need to
> write a success story for the level above them. There is a fear of failure at
> every level that inhibits people from fully writing up their failures.

Multiple interviewees echoed this sentiment at different levels of the MAF community and admitted to a perception that leaders valued success stories. This perception drives mission commanders to write mission success report rather than a report of lessons learned.

When the people involved in the AAR process do not see an impact from the time and effort spent on AARs, they assume that the organization does not prioritize AARs. This mentality showed during the interviews. Three interviewees stated that when they submitted AARs for exercises superiors told them were vital for a changing Air Force, none saw any of their recommended changes implemented. This lack of implementation leads all three to believe AARs are not worth their time. One interviewee stated, "I am glad someone important is looking into how to fix our broken AAR process." Most Interviewees showed a desire to use AARs to implement change but think the current MAF process is ineffective.

V. Conclusions and Recommendations

Overview

The original focus of this research was to find a trend analysis of AAR write-ups in the MAF. Identifying trends proved challenging due to a lack of standardization in AARs and the overall process. The research focused on determining the current problems with MAF AARs, from creation and distribution to the following steps required to create a fully functioning process. A functioning process will allow a look at the possibility of using trend analysis to create data-driven decision-making of results over time instead of relying entirely on qualitative data gathered from participants of a single exercise. To answer the first two research questions, the researcher used previous research to create an AAR framework for a successful AAR process to measure against the current MAF AAR process. Any organization that utilizes AARs can apply this framework.

Research questions

The first research question asked if the MAF utilizes AARs and makes them accessible. The answer to this question is that MAF AARs are extremely hard to access, limiting the ability to utilize them. Organizations that use AARs successfully have mostly done so using internal processes that limit the ability to use AARs from external organizations. This access issue was apparent when a stateside squadron thought they were the first to conduct a wet wing refuel after taking six months to get approvals when an overseas squadron had already accomplished the same training after acquiring the same approvals. The lack of easy access prolonged the second squadron's approval process and kept them from building on the already accomplished training. An easily

searchable database would have saved time and improved training on a new concept for the entire MAF. Additionally, according to interviews with members of the A3, the staff updated training based on word of mouth and individual AARs received from the line units. While this does not prove the necessity of the changes, a successful AAR process with trend analysis would allow quantitative data to confirm qualitative sources' assumptions.

The second research question looked to find process commitment from every level of the MAF. There is currently little commitment to the AAR process. The analysis showed mission commanders receive little guidance, subordinates were writing mission success reports for their leadership, and 89% of the people interviewed found AARs not currently worth the time spent on them. The biggest problem in the process is the lack of an easily accessible database. None of the people interviewed knew where to find submitted AARs. Contributing problems are a lack of standardization in AARs and guidance on which AARs to submit.

Creating a standardized AAR form that feeds into an easily accessible database the moment a mission commander saves it would immediately increase the value of AARs and reduce the time spent writing them. Additionally, requiring a mission commander to submit an AAR for every off-station would set expectations. The last stage required to show process commitment from leadership is implementing change. Change needs to happen from the squadron level to the staff level. Both mission commanders interviewed were excited to submit their AARs to show recommendations on implementing new concepts with agile combat employment and stopping simple mistakes

from happening in the future. Neither saw any changes made. Both showed a reluctance to put as much effort into future AARs because they believed no one was using them for their intended purpose.

The third research question asked if trend analysis of AARs is possible to achieve continuous process improvement. The research suggests the answer to this question is "yes" if the MAF can improve the AAR process. Every person interviewed found value in trend analysis. The only person who found only some value in MAF trend analysis said so because their unit already has an internal process to make this happen. To make trend analysis a reality, the MAF must fix its current process by adhering to the AAR framework.
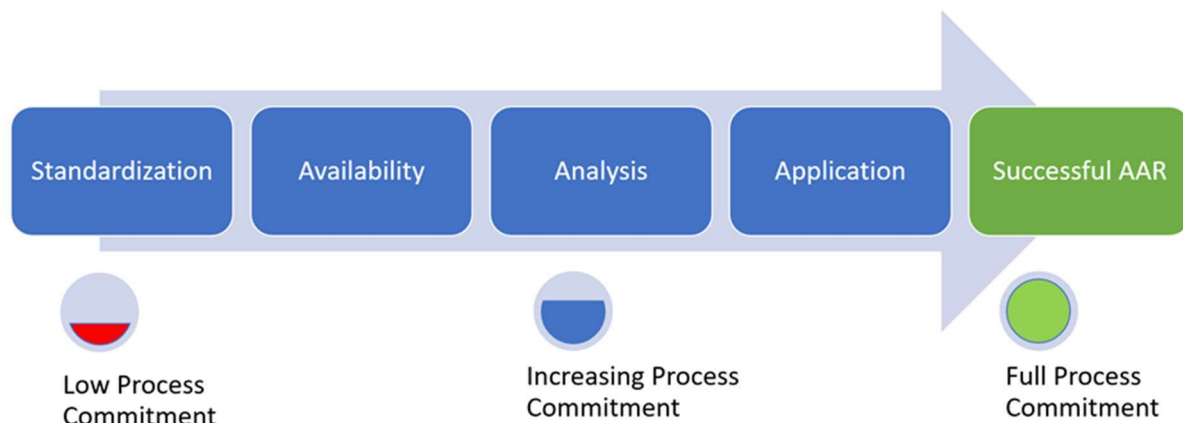

Figure 2: AAR Process Framework

AAR Framework

The AAR framework is a model any organization can apply to their AAR process. The steps of the AAR framework include standardization, availability, analysis, and application. The resulting successful AAR drives process commitment and strengthens

future iterations. If the process does not result in a successful AAR, it stalls. Process commitment reduces, resulting in poor process effectiveness. This process builds on the research of Donahue and Tuohy, who found the lack of standardization and accessible databases made most organization's AAR processes ineffective (Donahue, A., & Tuohy, R., 2006). Standardization and a database do not ensure an effective process. Research from organizational commitment and process commitment supplemented previous AAR research by adding the step of applying recommended changes (Eisenberger, Huntington, Hutchison & Sowa, 1986; Fabiny & Lovas, 2018; Greenwood, Argyris & Schon, 1996). It increases commitment to the process for members of the organization, resulting in a more effective process with improved AARs and better use of the AARs data.

Recommendations for the MAF

The first step to get the MAF AAR process to follow the AAR framework is to create a standardized AAR form that feeds into an easily accessible database when a mission commander saves it. Creating this standardized form tied to a database would immediately increase the value of AARs and reduce the time spent writing them. Additionally, requiring a mission commander to submit an AAR for every off-station would set expectations. AMC currently has a communications squadron assigned to it. Using this squadron to find a way to create a standardized form and database can happen immediately. Categorize the AAR form by aircraft type, date, mission or exercise type, strengths, weaknesses, and squadron. Give each category, especially strengths and weaknesses, an additional area to allow free slowing text so mission commanders can write up specifics and nuances about an exercise for future mission commanders. The database can then pull requested categorizations and show trends over time with no extra

work required. One A3 member stated, "why do we not have a lessons learned cloud that everyone can access from their desktop to see lessons learned from every shop, squadron, wing, and staff in the Air Force?" The member added, "With access to everyone's lessons learned, I could see the effect a change I want to make had on a different organization ten years ago even though there is no institutional memory of the change." The Air Force will not gain significant staffing to work lessons learned. Therefore, it must leverage available technology to create an effective process.

Accomplishing this first step will eliminate the problem faced by Mobility Guardian 2017. The next Mobility Guardian AARs from the C-130s and C-17 will be similar in length and immediately save into the new database. Access is immediate to any squadron or staff that wants to learn the lessons from the foremost MAF exercise. It will take minutes to find and compare. Multiple Mobility Guardian exercises will show trends over time, and MAF organizations can adjust training and objectives to correct the trending deficiencies.

For the A9 staff, the database allows access to every AAR instead of only the AARs directly submitted to the A9. This access will allow thorough analysis. Additionally, the AARs must have a box to check to show it as an AAR from a joint exercise, immediately highlighting it for the A9. This joint option will allow the A9 to meet the DOD requirements of reviewing and submitting joint AARs to the joint staff.

To show process commitment from leadership, they need a champion for the AAR process, and leadership at all levels must implement change. The leader who champions AAR process change must push leaders at all levels to use the new

standardized AAR form and inform subordinates about the centralized AAR database.

Weapons officers in tactics shops can provide feedback on the AAR form, and help

leaders ensure mission commanders complete AARs and accurately capture successes

and failures for input into the database. This database can help individual mission

commanders see recent results for missions similar to ones they lead and let higher-level

leaders and staff see trends across missions. Using this data to create data-driven

decisions on training tables, exercise objectives, purchasing priorities, and more will

drive changes subordinates can see. Visible change from recommendations will improve

process commitment, resulting in better AARs and better data to analyze future decisions.

Change needs to happen from the squadron level to the staff level. This change

will help increase process commitment at every level. Both mission commanders

interviewed were excited to submit their AARs to show recommendations on

implementing new concepts with agile combat employment and stopping simple mistakes

from happening in the future. Neither saw any changes made. Both showed a reluctance

to put as much effort into future AARs because they believed no one was using them for

their intended purpose. To show the MAF is acting on an AAR and provide feedback to

the writer, an AAR in the database should allow attached comments from the following

mission commanders, leadership, and staff. MAF Process commitment is challenging to

achieve. To have it, one needs an effective process. To have an effective process, one

needs process commitment. Thus, only leadership buy-in at all levels will result in

process commitment and an effective MAF AAR process.

Future research

  This research shows gaps and recommends updates to the MAF AAR process. Future research must refine AAR templates and categorizations. A Delphi Study, combined with natural language processing, should refine the AAR and database categorizations to find commonly used language. This process will improve categories for strengths, weaknesses, and exercise types. Additionally, once a database is in place, a meta-analysis of AARs and their trends will provide an immediate picture to MAF leaders of strengths and weaknesses across the force and allow data-driven decision-making in training and exercise selection.

Appendix A: Interview Questions

Do you regularly review AARs for lessons learned?

Do you know where AMC stores their AARs and how to find them?

Are AARs currently worth the time invested in them?

What are the best features of current AARs?

What are the worst features of current AARs?

What is currently missing from AARs?

On a scale of 1-5, with 5 being the most useful, would trend analysis from AARs be a useful tool to your organization? Please explain.

Based on current research, the Army and Emergency Services organizations use their mission debriefs as the basis of their AARs. Do you think a greater focus on tactical lessons learned and trend analysis would make AARs more relevant?

On a scale of 1-5, with 5 being the most beneficial, how beneficial do you think a standardized AAR form with drop-down focus areas to make them easier to fill out and categorize would be? Please explain.

On a scale of 1-5, with 5 being the most useful, if AARs were easy to view and categorized by event type and airframe in a database, how much more useful would they be? Please explain.

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14. ABSTRACT
Many organizations utilize AARs to help build institutional memory of strengths and weaknesses from events. Mobility Air Force units constantly write AARs. Anecdotal evidence suggests an inadequate AAR process. Failures continually repeated over time. A lack of standardization idoes not allow for an analysis of trends. This paper consolidates previous research to create an AAR process framework. The paper then uses interviews to measure the MAF AAR process against the framework. The paper confirms an inadaquate AAR process and recommends adapting the AAR framework and immediately standardizing AARs tied to a database to quickly solve some serious issues in the process.

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