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BREAKING THE CHANGE BARRIER: A 40 YEAR ANALYSIS OF AIR FORCE PILOT RETENTION SOLUTIONS

by

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Preface

In 2007, as an Army Armor Officer, I received orders to attend the Maneuver Captain's Career Course at Fort Knox, KY. During the first days of humidity infused instruction, Army Vice Chief of Staff, General Richard A. Cody, visited the school to personally speak with specific year groups of officers identified by incredibly low retention numbers. In the auditorium we discussed the perceived disconnect between General Officers and company grade officers, a "trust gap" as termed by Colonel Don Snider, and we also spoke about the other various issues precipitating mass departures from the active Army upon service obligation completion.[i] Participating in an exceptional engagement with a senior leader left a significant leadership impression. In response to the exodus, the Army attempted several incentive programs including the "Officer Menu of Incentives Program" and the "Officer Career Satisfaction Program."[ii] Despite being a member of those year groups, I chose to not participate in the Officer Menu of Incentive Programs. Instead, I transferred to the Air National Guard and attended Undergraduate Pilot Training. During my remaining years in the Army, I gained insight during the many hours spent discussing with peers their motivations to stay or depart the Army.

After completing pilot training, I joined my squadron in the midst of a relocation following a round of Base Realignment and Closure, while simultaneously activating a woefully short-lived active duty associate unit. Within the next few years, complete with rotations overseas, both the active duty and Air National Guard squadrons deactivated. Again, I learned much about the individual considerations and motivations behind a pilot's decision to stay or their desire to seek civilian employment especially due to increased airline hiring. It was the conversation of choice at cruise, post debrief, and around squadron training events. Local airline

representatives frequently gave unofficial presentations or held impromptu "meet and greets" to recruit pilots near the base.

The recent headlines, reports, and congressional testimonies concerning apparent unprecedented pilot shortages within the Air Force struck a personal chord, both as an officer and pilot. I was reminded of my departure from the Army and of the many Air Force conversations about "who is hiring" at the step desk. I decided to pursue a study of this topic in an attempt to better understand this particular leadership issue. In the course of this research, I discovered a discussion amongst some organizations and organizational management theorists debating the role of history in strategic decision-making.[iii] Some theorists believe decisions are products of unique circumstances or perspectives while others contend inherent mechanisms within organizations prevent them from adapting or changing over time. In the light of the contemporary "National Aircrew Crisis," this paper examines the role of historical precedence in organizational decision-making. The significance of such a study may not only save the Air Force in lost fiscal investment from voluntary separations but also ensures future organizational strategic agility by preserving its most valued asset, its people.

Thanks are due to my advisor, classmates, and friends who helped clarify and refine this paper. Of course, my largest debts are owed to my wife and children who patiently sacrificed with unwavering support. Thank you.

NOTES

[i] Kaplan, "Challenging the Generals," 3945.
[ii] Slocum, "Maintaining the Edge," 23.
[iii] Booth, "Does History Matter in Strategy," 96.

Abstract

Several times in Air Force history, the service endured large numbers of pilot separations directly affecting organizational readiness and thereby national defense. A problem/solution research methodology using the organizational management theory of path dependence explored the implications of the corrective leadership decisions. Exit survey data from the 1970s, 1990s, and 2017 and the subsequent documented Air Force efforts to stem the exodus, when linearly charted, showed evidence of organizational lock-in. Past strategic personnel decisions affected by organizational self-reinforcing mechanisms prevented leadership from taking truly innovative measures to change the course and break the cycle of pilot exodus.

The identification of organizational lock-in provides leaders a larger temporal frame of reference with which to make strategic decisions. One recommendation to remedy pilot exodus is to start the incentive process earlier in the career and prior to the final decision to separate. Path dependent analysis indicates all prior Air Force retention actions were reactionary. Preemptive action, and not solely monetary action, provides several benefits to both the Air Force and the individual pilot. The pilot gains increased quality of life satisfaction because of a greater sense of stability from the guaranteed various incentive options and personal involvement in the overall process. The Air Force can annually budget and forecast incentive requirements and personnel movements based on the earlier decisions of pilots. Secondary effects of this innovative change include increased commitment from pilots, increased quality of life for pilots, predictability for the Air Force, and retention of critical experience.

Introduction

It is the receptive mind, rather than the oracle, which inspires confidence. General Eisenhower said at one point that, after 40 years, he still thought of himself as a student on all military questions, and that he consciously mistrusted any man who believed he had the full and final answer to problems which by their nature were ever-changing.

– Brigadier General S. L. A. Marshall
The Armed Forces Officer, Edition of 1950

Change and adaptation are integral to the Air Force and explicit in its visionary *Strategic Master Plan* by an aggressive pursuit of "a path that leads to the institutional strategic agility required to adapt and respond faster than our adversaries."[1] Unfortunately, these adversaries face a United States military poised at what politicians warn is "at the tipping point."[2] A point characterized in terms of budgets, equipment age, technology, and organizational resilience as measured against near-peer entities. One of these myriad of forces pulling the nation towards a perilous summit is an unprecedented exodus of aviators.

A previous Chief of Staff of the Air Force cautioned, "We face an extremely serious problem in the retention of rated personnel. The exodus of young pilots…has affected every aspect of our force planning. These departures will be felt well into the future."[3] While another general delivered these remarks during a speech later the same year: "No personnel issue at the moment is more alarming, and none carries greater symbolic impact, than an Air Force that is losing its pilots."[4] An Acting Secretary of the Air Force (SECAF) commented: "What concerns me most…is retention. Our retention rates are alarmingly low…it is clear our success depends upon being able to retain good people to operate and support our high-tech machines."[5] Another general addressed the House Armed Services Committee Subcommittee on Personnel, attesting the Air Force is facing a "national aircrew crisis" with a projected USAF pilot shortage of one thousand five hundred fifty five less than required.[6] Interestingly, the first two remarks are from

1979, the acting-SECAF statement was from 1999, and the last general's quote delivered in 2017. Together the remarks evince a cyclical pilot retention issue rather than an isolated incident. The echoing leadership comments suggest a plaguing organizational problem spanning seventy percent of the Air Force's existence.

Agile organizations require agile leadership. Brigadier General S. L. A. Marshall quoted General Eisenhower in the 1950 edition of *The Armed Forces Officer,* to illustrate the need for flexible leadership: "The commander's success will be measured more by this ability to lead than by his adherence to fixed notions."[7] Marshall also noted, "In the conduct of operations not less than in the execution of orders, it is necessary that the mind remain plastic and impressionable."[8] There are important historical lessons for strategic leaders to remember. Path dependence theory allows organizational leadership to detach from a situation and examine whether or not their solutions are progressively transformational or fixed in precedence and reinforced by organizational culture. Thus, a three-phased problem/solution path dependent exploration of prior Air Force aviator retention decisions during these distinct periods of exodus may provide the insight to identify new alternatives and break the cycle.

The Most Important Organizational Asset

> *And what sort of soldiers are those you are to lead? Are they reliable? Are they brave? Are they capable of victory? Their story is known to all of you. It is the story of the American man-at-arms. My estimate of him was formed on the battlefield many, many years ago, and has never changed. I regarded him then, as I regard him now, as one of the world's noblest figures; not only as one of the finest military characters, but also as one of the most stainless.*
>
> - General Douglas A. MacArthur
> *Thayer Award Speech: Duty, Honor, Country*

Self-professedly, the Air Force is a technologically progressive and focused military branch. However, the technical emphasis diminishes with consideration of the human

component. For example, the *Air Force Future Operating Concept* outlined the strategic vision for the year 2035: "[Air Force] forces will leverage operational agility as a way to adapt swiftly to any situation or enemy action..."[9] Where the Air Force considered operational agility as "a guiding principle in the conduct" of core missions.[10] To employ operational agility the Air Force: "will combine superior decision speed with dynamic command and control to plan and execute integrated multi-domain operations with a balanced mix of capabilities delivered by performance-optimized teams."[11] These teams are tailored packages of Airmen and technology, not technology alone. Furthermore, in the *Strategic Master Plan*, the Air Force discussed maintaining coherency and balance to their plans and programs: "…the changes that we need to enact are wider than just choices about equipment programs. Our Airmen are essential to all our capabilities and we must deliberately plan and invest in them to meet the challenges of the future."[12] Hence, despite the technological fervor, the Air Force recognizes and values the importance of the human component of warfare. BG Marshall quoted a 19th century French officer, Ardant du Picq, to illustrate timelessness of this ideal and wrote: "… despite the wholesale transformation in the scientific and industrial aspects of war, there has been no revolution in the one thing that counts most. Ardant du Picq's words, 'The heart of man does not change,' are as good now as when he said them in an earlier period of war."[13] No matter the technological developments or inventions, there is an immutable component of humanity involved in all martial organizations.

In the *Human Capital Annex to the USAF Strategic Master Plan*, the Air Force recognized the decisive point for the organizational future rested on becoming, "…more agile, diverse, inclusive, and capable force in a rapidly changing environment..." and "…success in that endeavor rests squarely upon providing the right Airmen, sufficiently developed, equipped, and organized to defend national interests through airpower."[14] An anecdotal story from General H.

Norman Schwarzkopf supports the value of this idea in military leadership. During a speech to civilian executives, he recounted counseling newly arrived officers, to walk to the motor pool and command a tank, any tank, or vehicle, to "right face," then observe what happens.[15] He charged leaders to recognize and always remember nothing happens without the involvement of people: not just operators, but maintainers, logisticians, defense civilians, and manufacturers. His point remains, "leaders lead people," leaders do not lead machines.[16] Thus, it is a critical leadership function in the Air Force to take the necessary measures to retain the right people.

Unfortunately, the Air Force recurrently hemorrhages people; more specifically, it has lost pilots at irreplaceable rates. The 2017 National Aircrew Crisis was a problem for the Air Force then and into the future.[17] The incredible investment, not only monetarily, but also in irretrievable time required to become experienced aircrew, is a critical component to organizational readiness and national defense. Succinctly, Senator John McCain, Chairman of the Senate Armed Services Committee, summed up the state of the Air Force: "The Air Force is the oldest, smallest, and least ready in its history."[18] The hoped for gains in increased productivity per person through technological advancement, like the F-35, failed to cushion a force as small and as equipped in 2017.[19]

As the newest and arguably most modern branch of service, the Air Force had previous little opportunity for self-reflection while focused on technological change and adaptation.[20] Technology naturally changes at a rapid pace but the human aspect is often slower to follow suit. The personnel side of an organization, as crucial as it is to its success, is often overlooked, or deferred to allow attention elsewhere. However, a problem put off for later is still a problem. A problem requires a solution and for the Air Force, as one researcher wrote, it will take not only a solution rooted in "technological wizardry, but also in a better understanding of the human and

cultural dimensions."[21] An internally focused, hard, organizational look at processes and procedures are necessary to make any significant change and retain the human asset.

Organizational Path Dependence

> *Like the Athenians in their decline following the Golden Age of Pericles …we Americans failed, and are still failing, to examine all the implications of various courses of action. Grand strategy has not been our forte. Despite ample evidence that power gravitates with awesome inevitability toward those who use it readily and effectively, we seem to wait for bad news before we act.*
>
> – General Albert C. Wedemeyer
> *Wedemeyer Reports*

A RAND Corporation study commissioned by the Air Force in 2015 to "develop a framework for long-term posture planning" to "increase the robustness and agility of its posture over the 30 year planning period" used an organizational management theory called path dependence to examine some of the Air Force's strategic overseas basing decisions.[22] The report's explanation and adaptation of path dependence in this context lent itself to a parallel application to examine the cyclical pilot retention problem.

Initially, path dependence theory aimed at examining organizational technological adoption with particular attention to suboptimal inefficient outcomes.[23] Management theorists expanded the scope to organizational leadership; advocating decisions are the result of unique circumstances or perspectives related to inherent mechanisms within organizations preventing them from adapting or changing over time. The RAND Corporation report noted, "the idea has been adapted and applied to the fields of sociology and political science to explain institutional persistence."[24,25] RAND further clarified path dependence as "a process in which the outcome of the process in any period depends on the path or the set of previous outcomes."[26] In the field of organizational management, researchers believed "there seems to be a broadly shared feeling that we need to understand better *how* organizations can lose their flexibility and become inert or

even locked in."[27] Essentially, path dependence is a means to explore precedence as causative of unintended strategic consequences for organizations due to inflexibility. Furthermore, researchers stated, "to gain a deeper understanding of the organizational patterns considered to be path dependent, along with their underlying causal mechanisms, it is instructive to explore the cases and conceptual suggestions" because "we learn that history can be quite important for explaining strategic choices and organizational failures."[28] Path dependence is a means to delineate strategic lessons from organizational history.

The RAND Corporation study used four defining characteristics to illustrate path dependence in Air Force basing options: 1. Openness, 2. Critical juncture characterized by contingency, 3. Constraint, and 4. Closure.[29] However, other researchers advocate a three-phased approach: 1. Phase I – Preformation, 2. Phase II – Formation, and 3. Lock-in.[30] This research examination used a three-phased approach to explore three periods of pilot exodus because the phases more closely aligned with the exodus periods and organizational decisions. Figure 1 shows a graphical example of the RAND Corporation's four characteristics while Figure 2 depicts the three-phased approach.

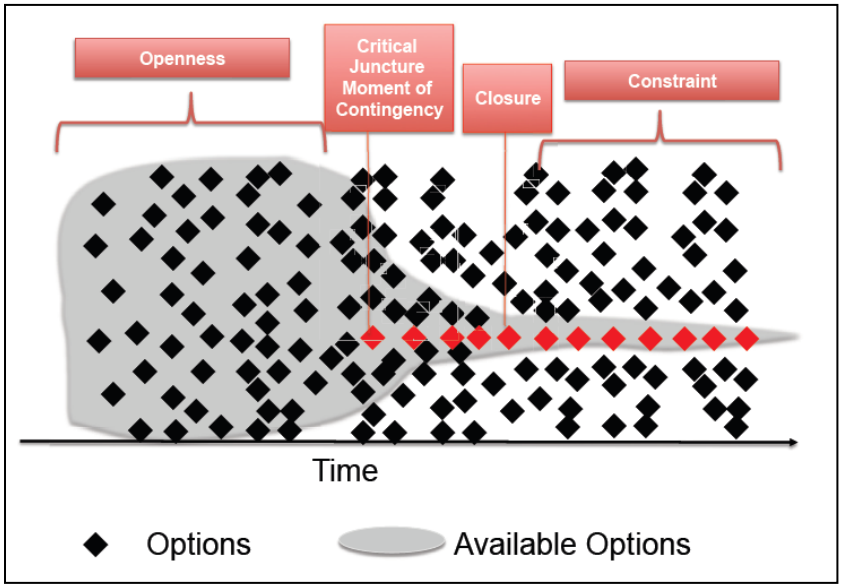

Figure 1: Rand Corporation Path Dependence Concept[31]

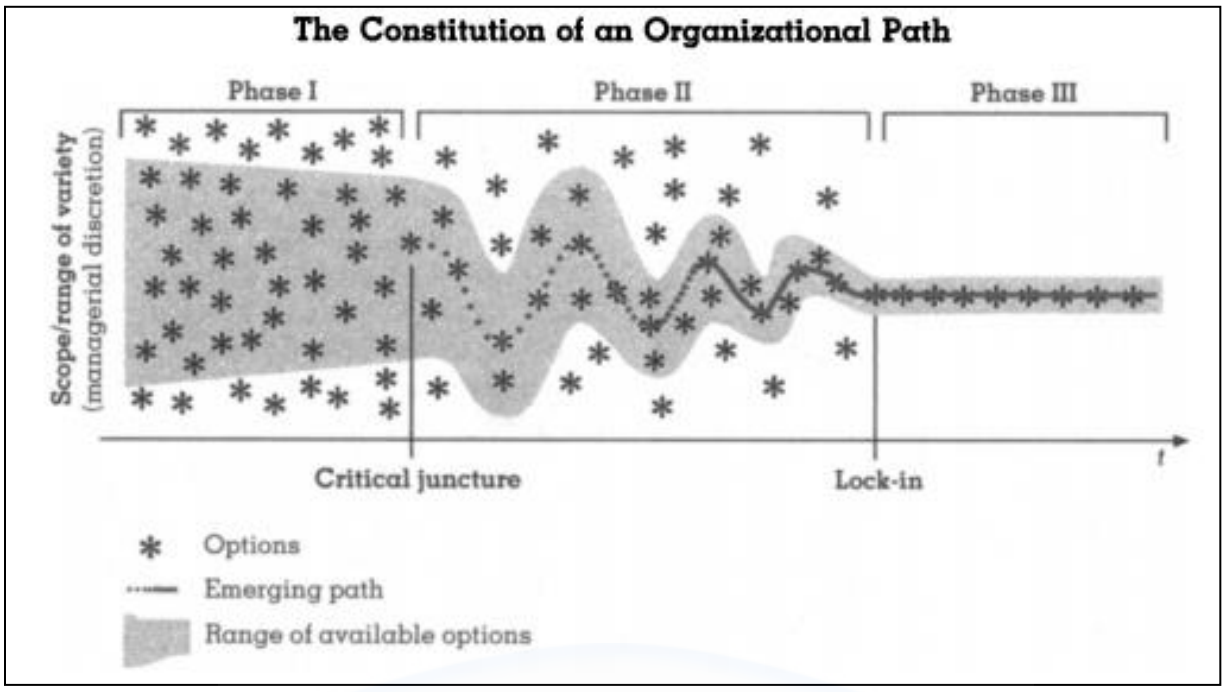

Figure 2: Three Phased Approach to Path Dependence[32]

Phase I – Preformation Phase, is "characterized by a broad scope of action."[33] It is the period, pre-decision, where all options are present. There are no constraints in this phase, only a range of possibilities. From this spectrum, organizational leadership makes a choice or selects a series of options thereby identifying the RAND "Critical Juncture Moment of Contingency" or simply "critical juncture." It is a "critical" juncture because this is the point where a "self-reinforcing process" begins affecting the organization in the future and is indicative of the beginning of Phase II – The Formation Phase.

Organizational self-reinforcement is key to path dependence theory; where "a dominant action pattern is likely to emerge, which renders the whole process more and more irreversible."[34] As a path develops, it becomes increasingly difficult for an organization to select other options due to self-reinforcement. The RAND Corporation identified several self-reinforcing processes appropriate for this application: increasing returns, functional, power, and legitimacy beliefs.[35] A caveat to the self-reinforcing process is the difficulty to identify and

isolate the environment in which the decision maker or makers are receiving the feedback. Some researchers argue it is the "broader organizational context" in the form of organizational culture and institutionalized practices, either indirectly or inadvertently, shaping this context for the leadership.[36]

RAND clarified increasing returns as "each movement in a particular direction increases the costs of changing paths and/or the benefits of the current path; therefore, rational decision makers elect to stay the course."[37] A strategically nearsighted administrator unwittingly incurs additional cost as the organization becomes entrenched in the path; i.e. the lost cost of unrealized potential. Power is a component of the organizational environment where certain internal groups may benefit more than other less prestigious groups may and the decisions then serve to benefit the stronger groups. Functional self-reinforcing mechanisms create a path having seemingly "increasingly beneficial effects over time that increase its practical utility" for the organization.[38] As more people learn a particular system, it becomes increasingly difficult to depart from the status quo due to perceived practicality. Lastly, the legitimacy mechanism for self-reinforcement suggests most members in an organization view the current path as legitimate, reasonable, or longstanding and "therefore support its reproduction."[39] Those before have always done it this way and therefore it must be correct.

Phase II is insidious, the self-reinforcing mechanisms whittle away at available options until the path is cemented in place leading to Phase III – "Lock – In". Theoretically, lock-in is prohibitive of new alternatives and decision makers are then bound to repeat the path thus becoming the only particular outcome.[40] The most prolific example of lock-in is the QWERTY keyboard designed in 1873.[41] The layout was a functional design to prevent the sticking of internal components used in typewriters of the period. As technology advanced and solved those minor mechanical problems, typewriter manufacturers continued to use the QWERTY keyboard.

Several self-reinforcing mechanisms led to QWERTY lock – in; increasing returns meant short-term cost prohibitive typist retraining and functional reinforcement due to the prolific number of users. Well after a century, the QWERTY is still in use.

There are some limitations to path dependence to consider during event analysis. Charles Booth identified, "emphasis is often placed on the effects of path dependence (such as technological lockout) rather than its causes."[42] In a technological examination of organizational path dependence, this means an undue focus on the technology and its effects rather than what events drove the decision. In a sociological examination, it is difficult to categorize and document all of the factors leading to a leadership decision such as state of mind, organizational culture, political pressure etc. However, it is incumbent on the researcher to frame the critical juncture as best possible with the information at hand to distinguish the root cause of the decision.

Another limitation is an undue focus on a singular event or decision.[43] There are countless decisions made by leadership over the course of time and few of them result in an irrevocably nonadjustable trajectory. Additionally, determining the critical juncture may lead to the dangerous introduction of hypotheticals to the analysis. "If/then" arguments become the realm of imagination without an intimate knowledge of the decision maker's frame of mind. Nonfactual-based hypotheticals may be either a reason or a conclusion; it is therefore difficult to use them with certainty to identify a critical decision due to faulty premise.[44] An effective approach is objective analysis incorporating as much information as possible to narrow the critical juncture time span.

Path dependent analysis provides organizational clarity for strategic vision by becoming aware and cognizant of impending, existing, or potential lock-in. For example, during the United States Army's reconstruction in 1939-1941, a biographer wrote General George C. Marshall

recognized that a strategic leader had to have a "general concept, or vision, of what he wanted to accomplish… that it was flexible enough to support a wide range of actions; and that he chose astutely from among those courses of action, based on changing conditions at home and abroad."[45] Gen Marshall ensured he had choice, freedom of maneuver, and vision to change and transform the Army. Had Gen Marshall failed to maintain strategic agility to shape the Army prior to World War II, would the outcome have been more costly to the Allies? The Air Force is younger than the QWERTY keyboard and could improve organizational agility from path dependent identified solutions for pilot retention. Strategically, it is imperative to recognize the implications of path dependence.

1970s Exodus

The major challenge and concern of the armed forces in the period of the 70's and beyond are, and will continue to be in the field of personnel. You can devise all of the technologically sophisticated systems in the world, but without people in the quality and quantity required to operate these systems, to fix them and to control them, you are nowhere.

– Major General Jeanne M. Holm
Functions and Basic Doctrine of the United States Air Force

The Air Force of the late 1970s faced a critical retention problem, specifically with pilots in the six to eleven years of service groups. In a 1980 research paper, two officers identified 73% of pilots who entered their sixth year of service separated by their eleventh year in 1979.[46] This exodus of experienced pilots caused the Air Force Manpower and Personnel Center to issue the USAF Officer Exit Survey. The data from this survey informed the organizational solutions implemented by the leadership.[47] Interestingly, of the one thousand two hundred pilots departing active duty, only ninety-four returned the Exit Survey to Air Force officials.[48] While there are many plausible explanations for the poor number of overall responses, the failure to respond in itself may be indicative of a final act of displeasure with the service. Including the lack of

participation, another limiting factor for the researchers was the aviators who returned the surveys were already past the decision point for departing the service. The information only came from those whom had separated and not those considering remaining in the service.

In this particular survey there were seventy-six questions "related to potential factors affecting the decision to separate from active duty."[49] The questions in the survey gathered information regarding job satisfaction, career opportunity, the effect of tenure, pay, benefits, promotion, peer group integration, role clarity, job autonomy, satisfaction with past assignments, leadership, assignment policies, and family quality of life considerations. The respondents rated these factors on a scale of one to ten with ten being a major cause and one a minor cause. The top three averaged categories: 1. Assignment Policies, 2. Tenure, and 3. Pay/Benefits (Figure 3).

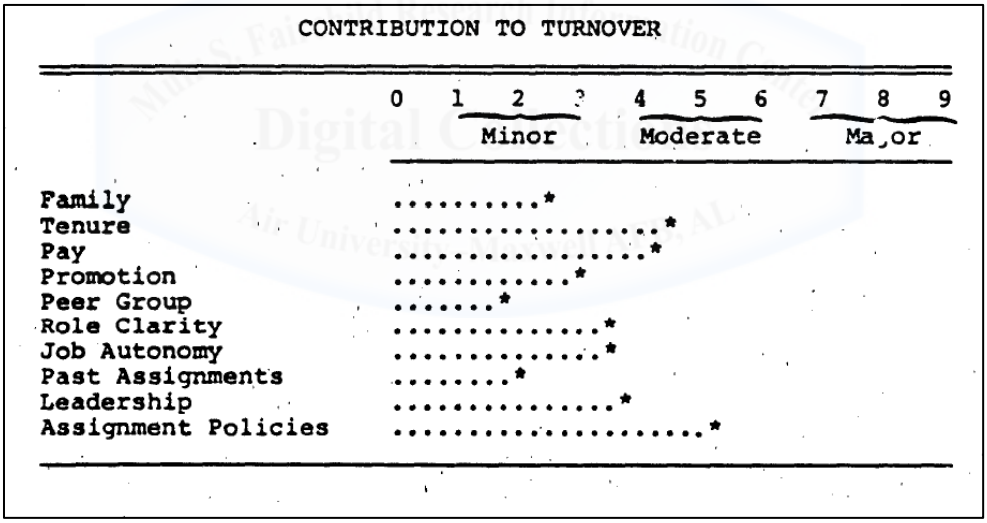

Figure 3: Table from 1980 Gulick, Laakman Thesis, 1979 USAF Exit Survey Results[50]

As regards the highest mean averaged reason for departure and displeasure, assignment policies, the pilots agreed having "little say in future assignments, inability to cross-train to different weapon systems, and unsatisfactory future assignments" had the greatest impetus for their separation.[51] Tenure, while having a high average, was only indicative of two questions from the survey addressing "career uncertainty due to up-or-out management systems" and "more security in civilian jobs."[52] For the purposes of the exit survey, pay and benefits included

pay, allowances, and medical/dental benefits and the results indicated the several departure considerations such as "general erosion of benefits, actual pay too small, inadequate medical/dental care for self/dependents, and uncertainty resulting from proposed changes in the retirement system."[53] While these were the highest averages there were several other reasons noted, albeit without as high ratings, such as, "opportunity to fly with the airlines, not enough flying time, lack of opportunity for career broadening assignments, too many additional duties, too much ancillary training, too many inspections, and lack of opportunity to demonstrate initiative."[54] Within a year from the completion of the survey, the Air Force announced changes to remedy the pilot retention problem. As reported in 1981:

> General Bennie Davis, summarized those steps the Air Force was taking to alleviate the irritants: creation of special retention groups; elimination of the controlled Officer Evaluation Report system; implementation of a selective continuation program; initiation of special crew member briefings and squadron commander symposiums; elimination of additional duties, increased pilot involvement in the assignment process; pushes for higher incentive pay; and pushes to reverse the on-going pay caps and restore pay comparability.[55]

Out of the listed remedies, leadership fully implemented an increase in Aviation Continuation Pay and the push to reverse the pay caps for pay comparability.[56] Another experimental solution to the retention problem was called PROJECT SEASON where the Air Force "placed active duty pilots in Guard and Reserve units for an initial operational tour to retain manageable experience levels."[57] PROJECT SEASON was short lived because pilots were combining it with the PALACE CHASE program and flowing into the Reserve and Guard units. While the stated intended changes were a show of good faith, they failed to stem the flow of pilots out of the service. As noted by one author there is little research or records addressing what the Air Force fully implemented and its effectiveness after the clarion call of shortage.[58] Records are plentiful of intentions but hardly of action and result. Seemingly, once the demand for civilian aircrew diminished and the economy stabilized pilot retention rates normalized. Perhaps other factors,

like significant reorganization or reduction in overall force levels staunched the exodus out of the military on paper.

Claiming civilian occupations were a significant motivator is a fallacy based on opinion surveys conducted at Military Airlift Command, Tactical Air Command, and Strategic Air Command.[59] Contrary to popular assumption, the airline career incentive was largely unsuccessful at enticing satisfied people out of the Air Force.[60] General T.R. Milton concluded of the pilots leaving the service, "There was a note of regret that ran through most of the rationales for leaving the service, regret at abandoning a career that had a lot to offer and a few things wrong with it, some tangible, some less so. It is the things wrong, rather than the attraction of civilian life that seem to influence their decisions."[61] There is little to no information available to report the ratio of transitioning military pilots to civilian pilots was 1:1 to substantiate the claim.

The following figure is a path dependent depiction of the 1970 pilot retention issue using a three-phased model. Phase I is the broad scope of action with all possibility of solutions; this model only reflects the stated options from General Bennie Davis. Post critical juncture where the initial leadership makes a decision is Phase II, the Formation phase where the self-reinforcing mechanisms begin to shape the organization towards Phase III, Lock-in.

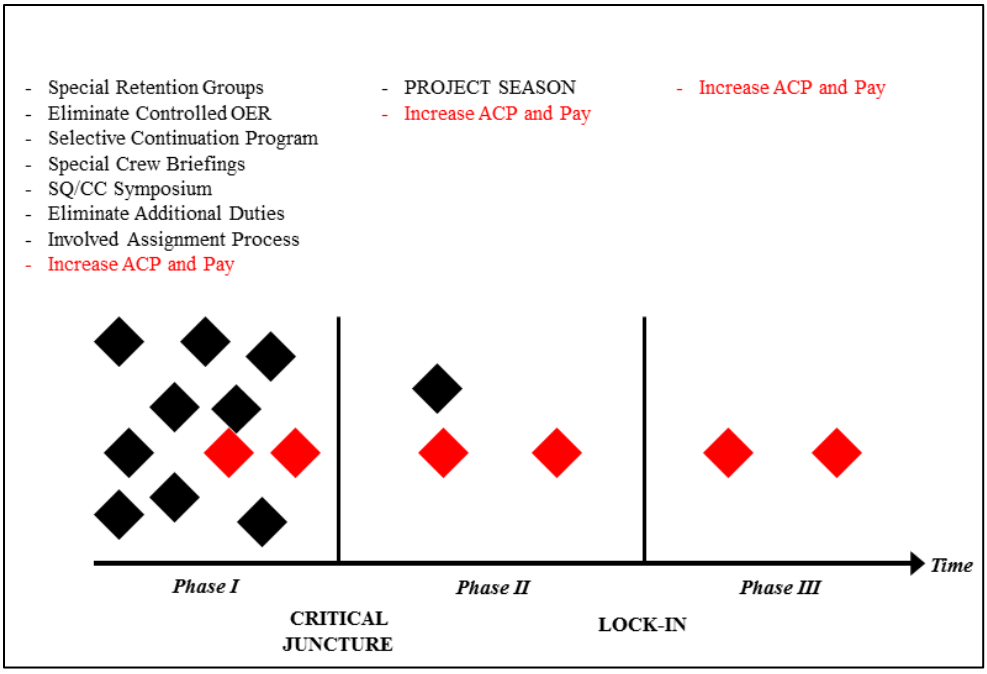

Figure 4: 1970 Pilot Retention Path Dependence Model

Due to the limitations of records concerning the critical juncture or any notes relating to the decision making process it is difficult to identify the political pressures or the organizational environment surrounding the leadership at this specific period. Unequivocally, leadership made a decision to pursue three courses of action to alleviate the pilot exodus based on the existing evidence and thus we can identify the critical juncture as the region in time leading to Phase II, exposing self-reinforcement mechanisms inherent in the organization.

The power mechanism is an evident mechanism most adequately explaining the termination of PROJECT SEASON. The internal group of active duty officers were concerned the Guard and Reserves were benefiting at a net loss to their efforts not only in personnel but also in experience. Additionally, functional and increasing returns reasonably address why Phase II does not contain any of the originally feasible choices. For example, significant organizational cultural shifts and capital investments are required to create groups or change the officer evaluation system within the Air Force. It is economic in the short term to increase the monetary amount until the problem is able to fix itself or reorganization lowers requirements.

However, the enacted solutions failed to affect the causative conditions for this pilot exodus and remained factors into the next two decades.

1990s Exodus

> *But the quality of the Air Force, whether in 1947 or 1997, is not measured in terms of new fighters, bombers, missiles, unmanned aerial vehicles or the weapons they carry. It's the people who together have built the greatest air and space power team in the world. People are the strength of our past and the foundation of our future.*
>
> – General Michael E. Ryan
> *Commander's NOTAM 98-5*

In the late 1990's the RAND Corporation accepted an Air Force Chief of Staff invitation to participate in the Rated Management Task Force (RMTF) to assist in studying the "largest peacetime pilot shortage in history."[62] It is interesting to note the Air Force called this event a shortage and rather than a retention problem yet the RAND report states, "The Air Force has been losing unprecedented numbers of experienced pilots, who are leaving at the end of their initial active duty service commitment and at the end of the initial bonus period."[63] RAND concluded the losses were largely because employment opportunities for pilots were "excellent in the private sector" and "continued high tempos for contingency support operations are degrading their quality of life."[64] Additionally, the intervening reasons for this retention/shortage problem, i.e. low training production numbers during aviator surplus years and faulty manning assumptions regarding early separation, led the Air Force into the midst of another precarious personnel situation.

Akin to the 1970's exodus, the Air Force polled the departing pilots to learn their reasons for leaving active duty.[65] The 1997 Chief of Staff of the Air Force Survey of Quality of Life and Organizational Climate revealed "the active duty force perceived five of fourteen organizational climate areas negatively" directly reflective of quality of life issues.[66] The responses indicated

these reasons were enough catalyst for aviators to depart the service short of twenty years. Like their predecessors, quality of life and an appeal to stability were still foremost in this generation's aviators. Yet, Gen Michael Ryan, then Chief of Staff of the Air Force, along with the other Service Chiefs, explained to Congress low pay was the significant contributor affecting retention despite the Air Force data indicating issues in organizational culture.[67,68] A Government Accountability Office report found the pay difference between someone who separated after nine years of service and one who retired after twenty years of service cost the retiree over three hundred thousand dollars of lifetime earnings to remain in the military.

The Air Force then announced the following measures to increase retention as reported by independent media. Foremost was an increase in aviator compensation (i.e. bonuses). Next, the implementation of the following improvements: 1. satellite video links for deployed pilots to see and hear family, 2. a post deployment "stand-down" period, 3. increased training production, 4. reducing overseas deployments and exercises, 5. reducing the AF overall pilot requirement by 500 pilots, 6. maximizing training opportunities while deployed, and 7. spreading deployments across more types of weapon systems.[69] Several of these solutions inadequately addressed quality of life. Rather they addressed the larger organizational requirements relying on presumptive secondary effects to affect the primary issue. The only direct solution seemingly carried through time was the increase in incentive pay. Additionally, the Air Force implemented a one-year trial program between the civilian airlines and the military called PHOENIX AVIATOR 20.[70] Certain senior eligible Air Force pilots received guaranteed flight currency before separating and employment interviews with the major airlines with the intention these interviews encouraged pilots to remain in the Air Force long enough to take advantage of the opportunity. Figure 5 is the path dependent depiction of this late 1990s aviator retention problem.

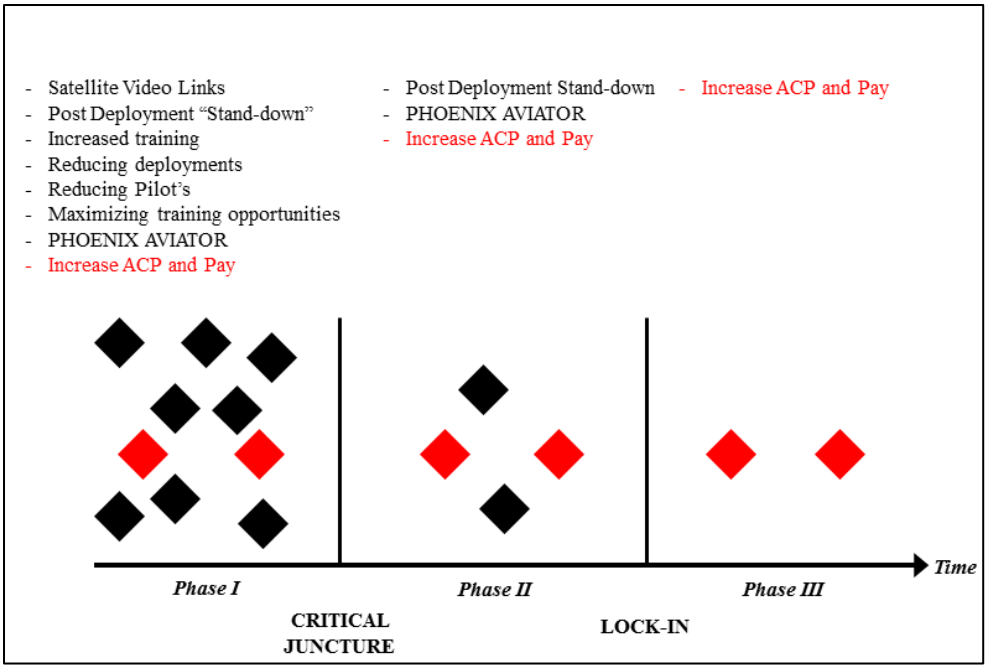

Figure 5: Late 1990s Pilot Retention Path Dependence Model

In this model, the self-reinforcing mechanisms present include functional and power. Different from the 1970 model, it also contains the legitimacy mechanism. Functionally, to increase ACP and pay are effects further serving the organization only by justifying an increasing congressionally mandated budget amount and, as a byproduct, keep some pilots in the service. Interestingly, after the 1993 Aviation Career Incentive Pay was approved by Congress the Air Force received far fewer than expected participants reverting to a policy where refusers were either grounded or threatened with assignment retribution.[71] The power mechanism in this instance is evident in the singular group application over the organization as a whole. The Air Force only needed to focus efforts on a small group of members thereby keeping the solution simple. The new mechanism, legitimacy, appears since it was a solution at the last pilot exodus there is then precedent for the leadership and thus another organizational lock-in. It is assumed, based on the period, the post deployment "stand-downs" shifted due to events after September 11, 2001. Likewise, unable to discover documentation cataloging the end of the PHOENIX AVIATOR 20 program, a theoretical deduction, and lack of existence in any form in present day,

indicates there was below estimated or actual participation to maintain the program. This period also bore witness to the reorganization of the Air Force into an Expeditionary Air Force serving to reduce some operational burden on the force through structure and indirectly affecting retention.

The evidence for organizational lock in is further present when depicted nose to tail along the "time" axis with the previous historical occurrence, as in Figure 6.

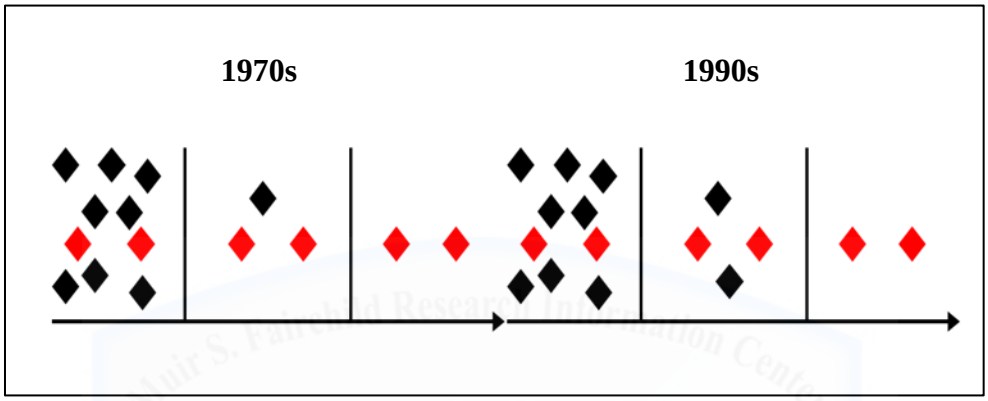

Figure 6: 1970s and 1990s Combined Path Dependence Model

The path dependence model portrays over time the Air Force has lock-in regarding pilot retention solutions. Increased monetary benefits are the contiguously applied solutions directly aimed at aviator retention with little to no deviation.

Attached to a GAO Report to the House of Representatives written in 1999 includes the direct responses from the Department of Defense concerning their thought processes and reasons for either concurring or not concurring with their recommendations. Of the five service wide recommendations, one is of particular note and was the implementation of a "fly-only career" track for the Air Force.[72] The DOD response included a reinforcing mechanism of increasing returns:

> The Department agrees that a percentage of pilots just want to fly, and have little desire for non-flying assignments. At a later date a fly-only option would certainly be a consideration, but would best be addressed in a broader context that considers areas such as compensation, retirement, and advancement of individuals in this type of career progression path.[73]

In theory, it cost too much in organizational change to make such an adjustment by changing personnel management and requirements. The services preferred to maintain the status quo of solutions thereby further entrenching organizational lock-in.

2010s Exodus

> *So as we look to the future, this problem is not going away. That's why it's production, retention, requirements, and then as we think about this as a national problem, if you think it cost us $11 million to create an F-22 pilot, and you lose him at the peak of his proficiency, it's a loss to the nation of a big investment.*
> – Lieutenant General Mark C. Nowland
> *Testimony on Air Force Modernization*

Lieutenant General Gina M. Grosso, Deputy Chief of Staff Manpower, Personnel and Services, testified before a subcommittee of the House of Representatives the globally engaged Air Force, after two decades of continuous combat operations, is unable to meet the challenge of near-peer adversaries and faced yet another significant pilot shortage.[74] The Air Force labeled this period a, "National Aircrew Crisis."[75] Lt Gen Grosso further reported the Air Force was short over one thousand five hundred fifty five pilots in 2016 with a projected increase in 2017. She also stated the organizationally accepted cause as:

> [the] national aircrew crisis is the result of multiple factors: high operational tempo over the last 26 years, a demand for our pilots from the commercial industry, and cultural issues that affect the quality of life and quality of service for our Airmen.[76]

In the Air Force's FY18 AF/A1 HASC MILPERS Posture Statement, the Air Force inferred the "active recruitment of our rated Airmen by civilian aviation companies" is the most significant reason for separation by devoting significant amount of detail to explain the organizational impact.[77] Additionally, the Air Force surveyed the departing pilots and discovered the top five reasons for departing: 1. Additional Duties, 2. Work/life balance, 3. Availability of Civilian Jobs,

4. Home Station Tempo, and 5. Potential to leave family for deployment.[78] A subsequent grouping into broader categories resulted in the reasons becoming operational tempo, quality of life, and civilian pilot hiring. These reasons are eerily similar to the exit surveyed results in both the late 1970s and 1990s and neither werer solely nor in large part factually attributable to civilian aviation hiring. Once again, there was no published available data to support the inference departing military pilot to civilian pilot transitions as 1:1.

Some of the documented leadership solutions to the 2017 aircrew shortage were reducing requirements, increased pilot production, increased retention via incentive pay, reduced additional duties, and increased flexibility with assignment processes.[79] The leadership also considered a Career Intermission Program, allowing pilots to fly for the airlines for a brief time before returning to active duty. Presumably, this program was for pilots nearing the twenty-year mark, similar to the PHOENIX AVIATOR 20 program. Due to the timeframe of these exploratory measures, there are no published results from any implementation nor any published policy plans from Air Force leadership. Correspondingly, this particular shortage is in Phase I of path dependence, pre-formation, depicted by Figure 7.

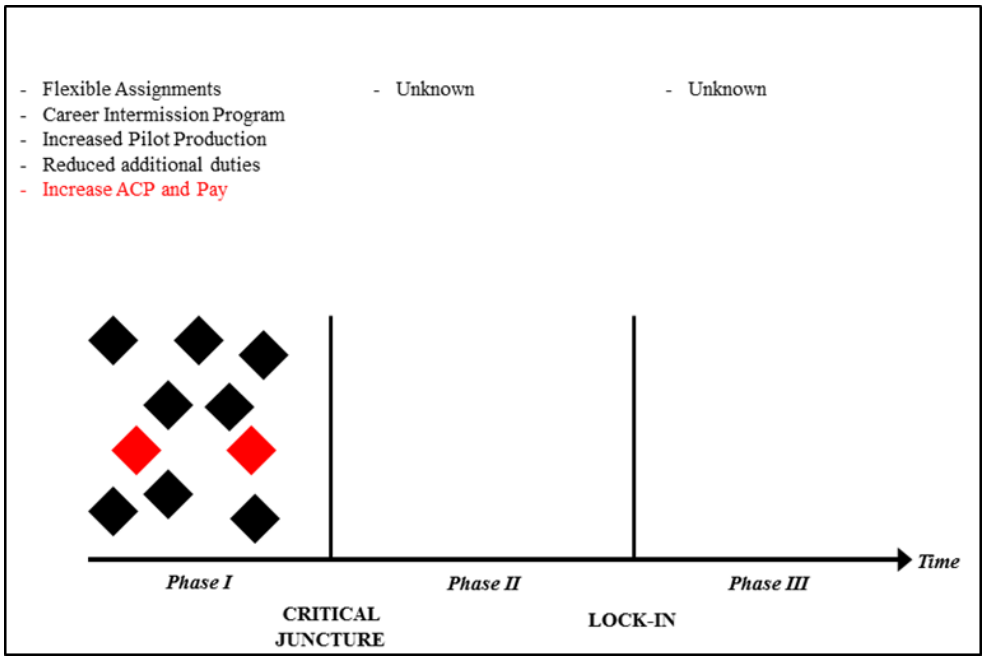

Figure 7: 2017 Pilot Retention Path Dependence Model

Approaching the critical juncture in this period, an examination of the past may help avoid both the dangers of the self-reinforcing mechanisms prevalent in previous two Phase IIs and identify any patterns. The linear depiction of these two past events with the most recent model clearly indicates a pattern of potential organizational lock-in.

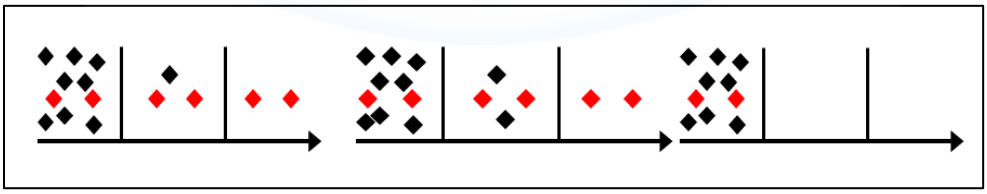

Figure 8: Linear Path Dependence Model, 1970s, 1990s, 2010s

Path dependent analysis allows organizations to identify approaching critical junctures and to make sound strategic decisions affecting them moving forward. If precedence is any indicator, path dependence predicts only one or two additional choices with the leadership continuing with the pay only incentives as solutions to the exodus until either the requirements for pilots decrease or technology makes up the productivity gap.

The self-reinforcing mechanisms most likely to influence the critical juncture are increasing returns and legitimacy. The short-term costs to the organization are larger than the

resources available to implement any significant change to assignments processes or to develop rated only assignments over the long term. Furthermore, removing pilots from the seat to participate in the Career Intermission Program, when there is already a shortage may prove too expensive in physical resources and the cost to the personnel system. This course of action does not logically provide any relief when both the cockpit and rated only staff positions were already largely unfilled. More debt on top of existing debt fails to provide a positive balance. The associated ancillary costs of this option may exceed any benefit for example: permanent change of station costs, out of network healthcare costs, lack of leadership development for the individual. Once more, leadership must consider the historical precedence of the unsuccessful PHOENIX AVIATOR 20 program and PROJECT SEASON initiative. The long-term success of those programs relies on a high civilian pilot demand outside of the control of the Air Force. When the airlines no longer benefit there is no incentive to maintain the agreement, it becomes bad business.

At the writing of this research paper the 2017 pilot retention problem approached the critical juncture which determines the polices for, presumably, the next two decades of aviators and also has the potential to affect remotely piloted aircraft operators who are also in the midst of establishing a new organizational cultural identity and, likewise, suffering from manning issues. It will be interesting to follow and thus chart the leadership decisions after Phase I to identify if the pattern continues, thus indicating over forty years of path dependent organizational lock-in.

Recommendation

You go to war with the army you have, not the army you might want or wish to have at a later time.

– Secretary of Defense Donald H. Rumsfeld
Speech, Camp Buehring, Kuwait

The United States Army struggled with officer retention for several years following the start of Operations IRAQI FREEDOM and ENDURING FREEDOM. Corporations were hiring junior military officers with leadership experience at unprecedented levels. The Officer Retention Branch developed several retention efforts supported by the findings of a twelve-year study of Army officers.[80] The report considered whether organizational commitment can predict retention by examining two primary components of individual commitment: 1. the "want" factor, and 2. the "need" factor.[81] The "want" factor is simply how much individuals want to stay in the organization based on emotional attachment, social identification, and level of involvement. The "need" factor is the officer's need to remain in the service because of weighted cost of leaving the Army is more than staying. The researchers found strong correlations between the "want" and "need" factors and retention particularly during specific times of service in an officer's career. One particular Army retention effort, aimed at an individual's "wants," the Officer Career Satisfaction Program (OCSP), was largely successful. It may provide a similar long-term, proactive, and strategic solution to Air Force aviator retention efforts.

The OCSP was a pre-commissioning program where candidates and cadets applied for either branch of choice, assignment of choice, or a guaranteed fully-funded graduate school in the sixth to eleventh year range of service for an additional three year active duty service obligation.[82] Key components of this program were the preemptive offering and the spirit of competition. Accepted applicants committed extra years to the Army when the individual "want" was still strong. Furthermore, the Army was able to budget for those candidates and make personnel movements without being reactionary. Another benefit for allowing these assignments or branches of choice was the increased motivation level from the officer. These relatively simple assignment procedures paid dividends in additional years of service to the

Army before the initial service obligations even began. The competitive nature of the boards further provided high quality committed talent to the officer corps.

As officers become senior the "wants" and "needs" factors shift. In the case of the Air Force retention issues, the "needs" factors are far less than what is available in the civilian market between the six and ten-year career marks. Assumingly, at the thirteen-year mark, or thereabouts, the individual's "needs" increase closer to retirement; when it is more expensive to leave than to stay. The present and past path dependent Air Force retention efforts were all reactionary. Consider if the Air Force offered similar choices to aviators at pre-commissioning, prior to Undergraduate Pilot Training, or at a five-year mark: first assignment of choice (base or squadron), graduate school of choice after Air Command and Staff College, or even a select number of aircraft of choice provided one was qualified. If program participation is not mandatory but competitive, the pilots or candidates who participate are also the most likely the ones who will serve up to if not more than twenty years. The individual recognizes the organizational investment in them and reciprocates. Understandably, any options available for additional service obligation differ from the Army's, but the objective remains to benefit both the individual and the service while guaranteeing additional years of service into the pilot's 'needs' year ranges.

Strategically, the Air Force cannot afford remaining reactionary nor locked-in to monetary only retention efforts. An earlier commitment for a longer period meets the intent of recruiting, training, and retaining its most valued asset. The increased investment in people creates a talented pool of officers more willing to serve until retirement because of the increased organizational trust established earlier in the career and the cost to leave the Air Force later is too great or unfavorable. Identifying organizational path dependence with current and previous retention solution is another catalyst to explore different options. The Air Force needs to remain

agile in combat and it must remain agile with its retention and personnel policies. Earlier, personalized, and naturally competitive solutions to pilot retention are outside the self-reinforcing mechanisms leading to lock-in and do not require significant change to the organization in policy, officer evaluation systems, or assignment procedures.

Conclusion

> *Of the capabilities we need, none is more important than our Airmen. If we are to devise innovative solutions to new challenges, we are going to need Airmen that can leverage the knowledge of the past, ever-evolving technology, and the expansive information available now to plan and deliver force as needed to achieve national objectives. That requires intellectual agility – an agility that exceeds anything that we are asking of our weapons systems, intelligence systems, support systems or infrastructure. Our people are the key to our success.*
>
> – United States Air Force
> *Human Capital Annex to USAF Strategic Master Plan*

During World War II, General Henry "Hap" Arnold organized an ad hoc advisory council of several junior staff officers, placed them in an office near his own, and charged them with the following instructions, "What I want you to do is sit down and think. Think of the problems confronting us. Think of the solutions to those problems. Bring in new ideas. If you bring in one idea every two or three days, I will be satisfied."[83] Faced with incredible challenges to build, train, and equip an unprecedented force for world war, General Arnold looked beyond traditional staffs, commissioned studies, and reports to entertain unprecedented ideas for unprecedented problems. There remains no recorded impact of the small brainstorming council but the results of the successful establishment of the world's most powerful Air Force serves as substitute. Path dependence is eminently relevant to strategic leadership and organizational decision-making. For a business, for an organization, and for the Air Force there are fatal consequences for being locked-in.[84] In flying, fighting, and winning the costs of being a self-reinforcing inflexible, slow, and unbalanced service may not only cost lives but also our nation's freedom.

Over the years, aviators have consistently stated the causative issues and reasons for separation, which reductively conclude to overall quality of life, i.e. operations tempo, family balance, pay. The needs of the service and therefore of the nation are hard to predict with any regularity. Consequently, as strategic thinkers, like a pre-war Gen Marshall, in planning and preparing for conflicts, it is necessary to "gravitate towards using worse-case scenarios…because the consequences of not doing so can be so catastrophic and definitive."[85] Thus, devastating scenarios must frame solutions to the retention problem and, for efficiency and efficacy, must clearly aim at the root cause, individual quality of life.

In the pre-war build up, General Arnold predicated a vision for the Air Force based on a balanced air program.[86] This program, as biographer Dik Daso wrote, "supported a balance between airplanes, personnel, and bases; not one that emphasized equilibrium in aircraft types. Changes in one of the elements necessarily affected the other two and without balance between them, inefficiency and budgetary waste resulted."[87] General Arnold saw the organization represented as a mathematical formula used to maximize utility.[88] As Daso described, "When one part of the formula was lacking, emphasis was logically placed in that area until the formula was once again balanced."[89] For example, in 1936 General Arnold recognized a significant imbalance in aircraft availability between the requirements for training new pilots and maintaining qualified combat crew proficiency. He unpopularly rebalanced the aircraft in the inventory to make up for the deficit. General Carl A. Spaatz explained:

> In building up Hap's program, he had to tear down Emmon's program. In building up the training, he had to tear down the tactical. That's the first thing you have to do. That resulted in arguments and friction between them. Emmons thought Hap was tearing him down too fast. Hap thought that building up the training was more important than building up any particular tactical operations that he might have going on.[90]

General Arnold attacked the root cause with an initially unpopular initiative because it was the necessary action. He identified his target, massed his forces at the decisive point for the greatest effect, and was inside the organizational decision cycle. So must the Air Force attack the retention problem to retain its people.

Surmounting self-reinforcing mechanisms inherent within path dependence, the Air Force requires boldness of action and a human capital investment. The information from the past forty years of exit surveys provides clarification of aircrew interests and causes to separate, individual quality of life or an unbalance between "wants" and "needs". Time spent on more studies, tests, and surveys is a surreptitious enemy of the bold or an organizational delaying tactic. The delay allows the conditions to change enabling the problem to move from crisis to inconvenience, yet solving nothing for the future. General Arnold used the inputs from those executing the mission, the junior staff officers, in an effective way. They brought with them relevant experience, an incentive to be correct, and they were free from organizational lock-in. General Arnold could then pass those ideas to the staffs to implement, focusing their efforts, rather than having the staff brainstorm, check feasibility, and then implement. The use of websites may provide a similar forum to senior leaders but they are often both poorly advertised and lacking context to collect pertinent input from the organization as a whole.

The inconsistent budgetary climate coupled with the resultant effects of past decisions created an imbalance within the organization between airplanes, bases, and personnel reminiscent of the pre-war Air Corps. Bold action to correct the imbalance may be as unpopular as Gen Arnold's decisions, but it is necessary. These ostracized actions may cost the Air Force in short term to break the chains of lock-in. However, system investment is multifaceted, monetary as well as one of action, keeping people retained even before the long-term intended payoffs.

In Phase I of path dependence, there are countless possible solutions or decisions to solve a problem as well as affect an organization well into the future. The dangers of self-reinforcing organizational lock-in are unresolved problems and the establishment of ineffective, inefficient, and wasteful norms. The solutions to organizational leadership problems often lie in a study of the past, recognition of self-reinforcing mechanisms, and bold action to implement truly new ideas. The very interface used to draft policy or guidance to communicate an organizational solution or leadership decision, the QWERTY keyboard, should remind strategic leaders of the consequences of failing to implement truly innovative solutions for its most important organizational component, its Airmen.

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[9] United States Air Force, *Air Force Future Operating Concept*, 7.
[10] Ibid.
[11] Ibid., 11.
[12] United States Air Force, *Strategic Master Plan*, 2.
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[16] Ibid.
[17] Statement of Lieutenant General Gina M. Grosso, House of Representatives Armed Services Subcommittee on Personnel Hearing, 29 March 2017, 1.

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[20] Mastroianni, "Occupations, Cultures, and Leadership in the Army and Air Force," 89.
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[35] Vick, et al., *Continuity and Contingency in USAF Posture Planning*, 50.
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[79] Ibid., 4-7
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