BUSINESS TRANSFORMATION DISRUPTORS: AN INVESTIGATION AT THE MILITARY STRATEGIC COMMAND LEVEL

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Abstract

This paper will address business transformation disruption as a phenomena. The findings are based on a research study that was carried out utilizing a two-phase mixed-methods approach. The first phase included qualitative data gathering through a series of discussions and focus groups that provided an initial understanding of the phenomena and the basis needed to formulate the research conducted in the second phase. From this initial phase, three main research categories were established: *Leadership Turbulence, Resistance to Business Transformation*, and *Lack of Agility in Military Culture*. For the purposes of this paper, however, the focus is on only one of three main categories (i.e., *Leadership Turbulence*) which was found to have a positive relationship associated with disruption of business transformation processes at the strategic command level within the U.S. military. Quantitative data collection and analysis were employed in the second phase to test the hypotheses. A total of 1,095 data points were collected from senior level military and civil servants of a U.S. Army strategic command organization (i.e., Training and Doctrine Command – TRADOC) using a self-administered online survey. The findings of this study highlight the importance of considering a wide range of critical success factors in the transformation of military strategic commands. The results of this research can be used by engineering managers, practitioners, and academics as a complement to their research and teaching efforts with respect to organizational change and transformation.

Keywords

Strategic command, military business transformation, transformation disruption, leadership turbulence.

Background

Over the last several decades, the U.S. Military has been confronted with more complicated and complex problems which are intensified within a geopolitical and global context. Events such as the bombing of the World Trade Center and the Pentagon on September 11, 2001 have hastened the need for more innovative and time-sensitive military solutions. Thus, senior leaders and executive-level planners have a critical need for new tools, strategies, and technologies to help enable them to ensure U.S. military force readiness and, more specifically, competitive advantage in warfare. These 21st century realities have given rise to the need for greater attention and focus on business transformation[1] within the U.S. military. For instance, there are several domains that require continual re-adjustments so that our military forces are prepared to leverage what they learn from field experience(s), knowledge, and processes. Some of those domains include military culture, process improvement, knowledge management, and human factors. Therefore, command-wide business transformation efforts to increase both effectiveness and efficiency have become urgent. This urgency is made evident by the standing up of the Deputy Chief Management Office (DCMO) and Office of Business Transformation (OBT) (Department of Defense, 2013; Office of the Deputy Chief Management Officer, 2011).

Research suggests that 70% to 80% of transformation efforts not only tend to fail overall, but also fall short of their intended goals and objectives (Lyons, et al., 2009). This knowledge is vitally important, as it will help risk managers and planning practitioners to factor it into transformation processes enabling risk mitigation over time. For instance, as engineering and risk management practitioners design and plan for business transformation initiatives (including cultural changes within the military context), it would be prudent to factor in, e.g., turnover frequency, rigidity, and hierarchical leadership structures in order to properly calibrate potential solutions.

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[1] *Business transformation/business transformation processes*: Identifiable processes that have been demonstrated to increase an organization's efficiency and effectiveness in achieving its strategic goals and objectives (Bock, 2014).

Conceptual framework

In an effort to gain useful and meaningful insight into the disruption of business transformation and/or business transformation initiatives[2], initial information was gathered by having conducted a series of qualitative focus and discussion groups as well as key informant interviews. These efforts sought to accomplish the following objectives: 1) justification for primary research; 2) enable the target population to share their beliefs, experiences, and challenges with respect to daily work activities; 3) enough meaningful observations would be collected to justify moving forward along the research pathway; and 4) feedback from the qualitative portion would help frame and establish questions for later survey instrument development in the data-gathering process (Krueger & Casey, 2009; Mack & Macqueen, 2005).[3]

Initial feedback from members of the target population [i.e., mid-level and senior military officers (O4 to O6) and senior civil servants (GS-13 to GS-15)] resulted in the establishment of three main research categories: 1) Leadership Turbulence; 2) Resistance to Business Transformation; and 3) Lack of Agility in Military Culture. These research categories (abbreviated as LT, RBT, and LAMC) include a total of seven factors. *Leadership Turbulence* was the first of three research categories that was studied to determine its relationship to *disruption to business transformation* (i.e., dependent variable or DV). Exhibit 1 illustrates the conceptual framework. The results from the first phase of the qualitative research through a series of focus groups and discussion groups helped to establish the basis of the conceptual framework. Further, several operational definitions and hypotheses were generated.

Exhibit 1. Conceptual Framework [for purposes of this paper, focus is on Leadership Turbulence only].

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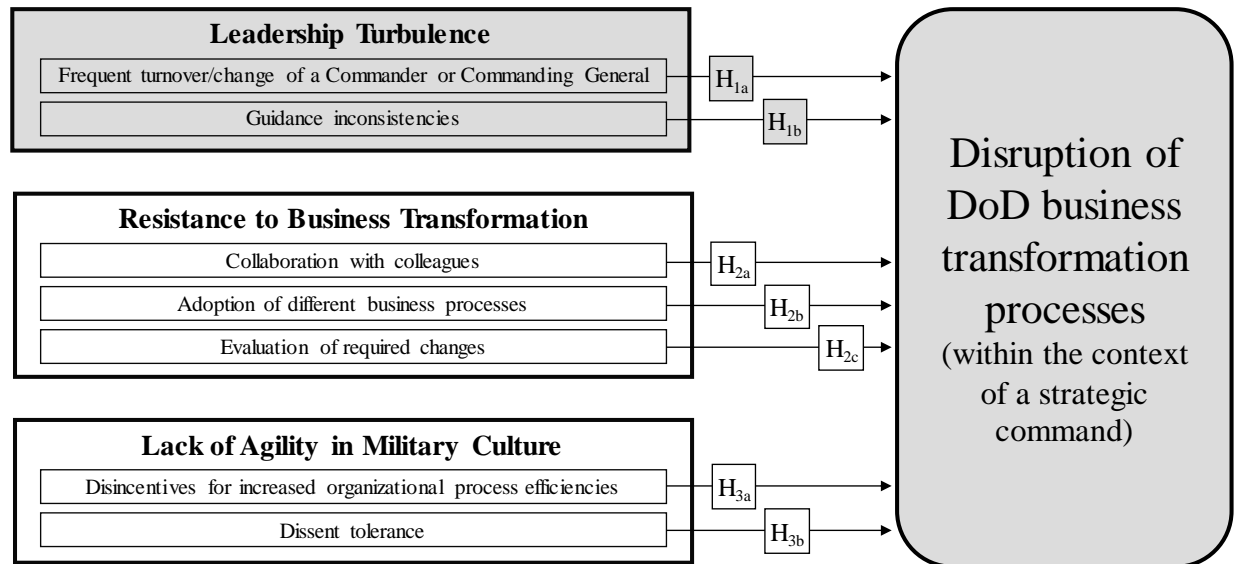
[2] Business Transformation Initiatives (BTIs) such as: Establishing *Army Campaign Plan*; Transforming the *Institutional Army*; Improving *Army Business Processes*; Institutionalizing the *Use of Quality Metrics*; Reforming *Acquisition Processes*; Establishing *Army's Enterprise Business Governance*; Achieving *Financial Auditability*; Supporting *Knowledge-Sharing Initiatives*; Promoting *Resource-Informed Decision Making*; and/or Conducting *Leader & Workforce Development*

[3] Research question #1: Are there existing correlations among a) leadership turbulence, b) resistance to business transformation, and/or c) lack of agility in military culture in respect to potential disruption of business transformation processes in strategic military commands?

Research question #2: If so, what is the direction of correlations between any of the seven associated factors (i.e., hypotheses $H1_a$ through $H3_b$) given staff members' responses to the perceived disruption of business transformation?

Operational definitions

A literature review was conducted to identify the extent to which existing research may already cover pertinent factors within the context of business transformation disruption at the strategic command level. The literature review suggested that only a limited amount of information has been published on the proposed research categories and their associated key factors, considered as part of this research. Essentially, there was a paucity of information and research available addressing leadership turbulence as it relates to business transformation disruption. The following operational definitions describe the a) dependent variable, b) first overarching research category derived from the qualitative portion of the research, and c) two factors associated with the LT-related research category.

- **Disruption of Business Transformation Processes:** An event and/or condition under which business transformation processes are modified, reprioritized, suspended, or discontinued.
- **Leadership Turbulence:** Leadership turbulence is a consequence of a) frequent change of a commander or commanding general and b) guidance inconsistencies leading to adjustments, uncertainties, and/or rearrangements of strategic goals and objectives.
    - o **Frequent turnover/ change of a commander or commanding general:** Frequent turnover/change of a commander or commanding general (flag officer/general officer, respectively) is defined as a change or rotation of command within any twenty-one to thirty-four month period.
    - o **Guidance inconsistencies:** The degree to which current guidance inputs diverge or differ from previous inputs.

Initial Findings

Frequent turnover/change of a commander or commanding general (CG). *Frequent turnover* amongst executive/command-level staff is a constant dilemma embedded in military culture within the U.S. military branches. On average, chief executive leaders (e.g., CGs) are switched out approximately every 21 to 34 months (Bock, 2014; King, 1993). By studying this particular variable, it helped to illuminate how military and civilian staff members experience this turbulence and to what degree it plays a role in transformation disruption (Eide & Allen, 2012). Secondly, by having conducted a deeper investigation, engineering managers will begin to appreciate the importance of embracing multi-dimensional approaches that include consideration of human motivation and social interaction impact on project planning, processes, risk management, and knowledge management. It can specifically be useful for those who are responsible for planning large-scale transformation initiatives across multiple sectors within the military as ways to help predict, analyze, and assess risk of failure. For instance, if turnover is high and changes in directions are likely, *how likely* is long-term success when repeated deviations – no matter how slight – help to steer attention and focus away from primary goals and objectives? This is a vitally important question to risk managers, planners, project engineers, government-funding entities, the General Accounting Office (GAO), and other stakeholders such as the recently established Deputy Chief Management Office (DCMO).

Guidance inconsistencies. *Guidance inconsistencies* tend to be a significant factor pertaining to distraction or disruption of transformation goals. They are likely to be considered major concerns by those who are expected to follow orders/instructions from command-level staff. This is particularly important since humans are confronted with myriad compliance motivators and/or disincentives (Frick, 2010). Learning more about how employees perceive, experience, and feel about guidance inconsistencies can prove very useful in knowledge management and risk assessment as well as change management overall. Even with the newest models and research in change management, what is not known about guidance inconsistencies might be a deficiency in the existing body of knowledge because little is known about how this relates to transformation failures. It is envisioned the research findings may offer ways and means to suggest improved techniques to establish military change architectures, timelines, and overall processes to include attention to what research indicates regarding key disruptors and how to help mediate and/or mitigate risk. Therefore, the study may prove to be useful to commanders and CGs.

Research hypotheses

With respect to frequent turnover of a commander/CG and guidance inconsistencies, the following hypotheses were developed:

- **H1$_a$:** *Frequent turnover/change of a commander or commanding general* are positively related to disrupting business transformation processes.
- **H1$_b$:** *Perceived inconsistencies of leadership guidance* are positively related to disrupting business transformation processes.

Research Methodology

Recognizing the sheer breadth and depth of the engineering management field, the aim of this research was to further distill and narrow the scope so as to study the phenomena through the lenses of business transformation. Further, it is important to point out the study was framed from a workers/followers' perspective. That is, the research sample population included entrenched staff members (both military and civilian) who are charged with strategic planning, forecasting, and program implementation. The selection of the sample population is consistent with previous research studies and recommendations presented by scholars such as John P. Kotter (Kotter, 1995). Focusing on this target population and investigating how they experienced various aspects of business transformation shaped the research framework. To help formulate the basis upon which the research topic was developed, it was decided to facilitate several focus and discussion groups in order to collect information from both mid-level and senior military officers (O4 to O6) and senior civil servants (GS-13 to GS-15).

In general, research is underpinned by the researcher's worldview (paradigm). This paradigm undergirds and helps to guide and substantiate both the methodology and purpose of a study. Further, the paradigm supports the philosophical assumptions of a *constructivist-pragmatic* approach (Creswell, 2009; Pazos, 2010). This research attempted to better understand the phenomenological nature of transformation failures and disruption within military strategic command systems and, thus, gain more insights and understanding into subjective patterns of meaning. More specifically, the constructivist-pragmatic paradigm was employed to shape the initial phase of the study (i.e., the qualitative approach in order to gain an initial understanding of the beliefs, experiences, and worldview of the target population).

Mixed methodology. For the purposes of this study the sequential *mixed methodology* was selected. Phase I of the research process focused on qualitative elements (i.e., conducting focus and discussion groups) while phase II included releasing a survey in support of a quantitative analysis.

The qualitative portion of the study has its roots in cultural anthropology where some of the early researchers used it to understand context, interactions, and behaviors (Maykut, Morehouse, & Manning, 1996). To help avoid the entrenchment of a researcher in exclusively one type, broadening methodological repertoire may help to mitigate/protect against trained incapacities (Reiss, 1968). Moreover, qualitative research in the recent past was typically used in the social sciences such as psychology, sociology, and to some degree education. However, over the last three decades, it has been utilized to set the stage for more in-depth quantitative research in order to help illuminate some of the nuances associated with certain phenomena as well as characteristics and features about a target population within their specific context (Creswell, 2009).

With respect to quantitative research, it has been long-held as an extremely important way to conduct research, particularly in applied sciences, e.g., engineering, information technology, and/or risk management. According to Creswell, it is defined as "an inquiry into a social or human problem based on testing a theory composed of variables, measured with numbers, and analyzed with statistical procedures, in order to determine whether the predictive generalizations of the theory hold true" (Creswell, 1994).

Sample population and research participants. The sample population was derived from the U. S. Army Training and Doctrine Command (Fort Eustis, VA) which is comprised of thirty-two Army schools and nine Centers of Excellence (CoEs). As part of convenience sampling, the survey instrument was released to approximately 6,000 staff members (Leedy & Ormrod, 2010). More specifically, research participants included mid-level and senior military officers (O4 to O6) as well as mid-level and senior civil servants (GS-13 to GS-15). It is important to note that depending on the level of organization (e.g., company, battalion, brigade, division, or corps), the perspective of seniority – and its associated responsibilities – fluctuates. Further, at the strategic command-level, mid-level officers are those staff members who achieved the rank of Major (O4) or Lieutenant Colonel (O5). Alternatively, senior officers are those who obtained the rank of Colonel (O6). Mid- to senior-level civil servants fall within the GS-13 to GS-15 grades, respectively. Generally speaking, these are assigned for technical specialists, supervisors, branch heads, or senior executives. However, given the focus on higher headquarters or strategic-level commands, the organizations' associated GS-13 and GS-14-level civilians often function in action-officer level roles (versus holding senior-level positions).

Metrics. For the organization under study, many of the business transformation initiatives (BTIs) are executed through means of resource-dedicated programs and/or projects. Given the dynamic nature of the military business, strategic commands must be prepared to respond quickly to changes in the operational environment. According to

feedback from a representative sample population at TRADOC, this preparedness often includes frequent modifications (e.g., requirements changes, reprioritization of efforts, restructuring activities, etc.) of existing program or project initiatives. In some instances, program/project initiatives may also be temporarily suspended or even permanently discontinued.

The primary purpose of this research was to evaluate whether or not any of the factors may contribute to the disruption of business transformation efforts. To test the hypotheses, the researcher first evaluated influencing factors and measured their associated disruption scores. This was accomplished through an assessment of staff members' experiences as part of daily work activities (DWA) which contribute to larger business transformation processes. Exhibit 2 illustrates the relationships and influencing factors of work activities and associated business transformation initiatives or processes.

Exhibit 2. Process Relationship Diagram.
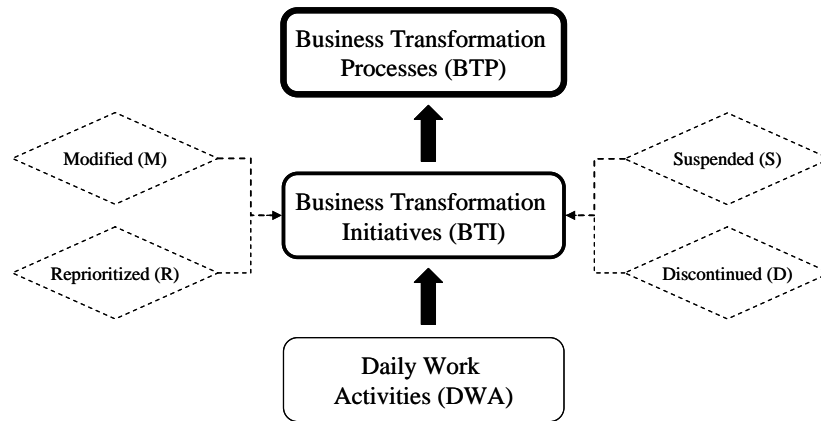
Qualitative metrics facilitated the identification of potential correlations that may have existed between the factors and the dependent variable. The independent variables (IVs) for the LT-related factors and the DV are listed below:

- **IV (LT 1 – 4)**: Number of Generals; Commander's Intent; Re-evaluation Unit Goals; Re-evaluation Priorities
- **IV (LT 5 – 8)**: Changes in Ops. Environm.; Changes in Regulations; Changes in Policies; Fluctuating Guidance
- **DV (Disruption of business transformation processes)**: *Modified* (M) BTI Score; *Reprioritized* (R) BTI Score; Suspended (S) BTI Score; and *Discontinued* (D) BTI Score → *MRSD* Score (Total Disruption Score)

Data collection

The survey instrument included thirty-seven questions in total. As part of the section in support of the dependent variable, the following five questions were designed to gain knowledge on potential disruption from the individuals' perspectives: 1) Did you contribute to business transformation initiatives?; 2) were any program requirements changed?; 3) was the program reprioritized?; 4) was the program temporarily suspended?; and 5) was the program permanently discontinued? Exhibit 3 summarizes all of the survey responses rates by rank/grade. [4]

Exhibit 3. Summary of Survey Response Rates (by Rank/Grade).

Target Population	Rank/Grade	Survey (Invited)	Survey (Received)	% (Received)
Military	O4 [incl. O3 (promotable)]	1,631	144	8.83%
	O5	1,223	194	15.86%
	O6	387	79	20.41%
Civilian	GS-13	1,932	423	21.89%
	GS-14	595	185	31.09%
	GS-15	164	70	42.68%
Total		5,932	1,095	18.46%

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[4] Refer to the complete research report (Bock, 2014) for additional details on the survey instrument/process.

Research Results and Implications

The total disruption score (MRSD) is a product of the modified (M), reprioritized (R), suspended (S), and discontinued (D) metrics which were derived from study participants' survey responses. The disruption score values range between 0 and 1. A disruption score equal to 0 would suggest that the research participants never experienced any changes whatsoever (i.e., neither modified, reprioritized, suspended, nor discontinued programs) as part of the BTIs which they support(ed). Alternatively, a disruption score equal to 1 would indicate that every single BTI was either modified, reprioritized, suspended, and/or discontinued. Exhibit 4 summarizes all of the mean M, R, S, D disruption scores – as well as the average total MRSD score – by rank/grade.

Exhibit 4. Distribution of Average Disruption Score (by Rank/Grade).

Rank/Grade	Count	x̄ M Score	x̄ R Score	x̄ S Score	x̄ D Score	x̄ MRSD Score
O3(P) [5]	14	0.432	0.184	0.039	0.453	0.265
O4	130	0.358	0.259	0.197	0.461	0.303
O5	194	0.328	0.282	0.194	0.458	0.300
O6	79	0.328	0.335	0.266	0.454	0.326
GS-13	423	0.337	0.323	0.263	0.465	0.329
GS-14	185	0.353	0.323	0.230	0.459	0.323
GS-15	70	0.371	0.368	0.251	0.458	0.341

Within the category "Rank/Grade" (Exhibit 4), the minimum average disruption score (0.039) was observed in the suspended (S) disruption score category while the maximum average disruption score (0.465) was observed in the discontinued (D) disruption score category. The mean and median disruption scores were 0.326 and 0.328, respectively.

For category "Function" (i.e., Army G-1 through G-8), the minimum average disruption score (0.093) was also observed in the suspended (S) disruption score category while the maximum average disruption score (0.474) was, again, observed in the discontinued (D) disruption score category. The mean and median disruption scores were 0.325 and 0.313, respectively.

As part of the category "Years Military Experience", both the minimum average disruption score (0.083) and the maximum average disruption score (1.000) were observed in the suspended (S) disruption score category. It should be noted that the outlier value of 1.000 was based on a single staff member who had 1-5 years of military experience.

Results from the comments, factor analysis, reliability, and skewness testing

As part of the analysis, (optional) survey comments from nearly 500 staff members were reviewed. Given the constraints of this conference paper, however, only high-level feedback can be offered here. These include but are not limited to the following suggestions: 1) more concerted coordination efforts should be made to include staff earlier on in the planning processes so that higher level military executives can benefit from the knowledge and expertise of front-line workers and all personnel across the transformation planning spectrum; 2) re-evaluate the traditional bureaucratic nature of decision-making processes, hierarchical authority, and stove-piped work processes as these were viewed by survey respondents as impediments to successful implementation of BTIs; 3) provide means for planning and analysis of existing work processes in order to ensure proper identification of requirements and value-added improvements; 4) invest more time clarifying business transformation goals, particularly as it relates to collaboration with the commercial sector. According to the qualitative feedback, lack of understanding as to how BTIs are linked to a unique military mission suggests this may be one main reason why staff members may resist business transformation in general; 5) invest more time, effort, and financial resources for risk mitigation and management training and education. This is consistent with the guiding principles of the Strategic Management Plan (Department of Defense, 2013).

With respect to the quantitative research data analysis, several statistical techniques were applied in order to check the validity and reliability of the developed constructs (e.g., frequent turnover/change of a commander or commanding general; guidance inconsistencies). In this case, a construct is a group of independent variables that

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[5] A pay-grade equal to O3(P) refers to officers with the rank of Captain (selected for promotion to Major).

were shown to have a relationship amongst and between each other, or as a cluster. Exploratory Factor Analysis (EFA) was utilized to determine whether or not any of the metrics (IVs) were indeed significant contributors to a construct. Then, Principal Component Analysis (PCA) was chosen as the extraction method during the Confirmatory Factor Analysis (CFA). Next, measuring internal consistency was conducted through the Cronbach's Alpha model. According to Rovai, et. al "[a] widely-accepted social science cut-off should be 0.7 or higher for a set of items to be considered an internally-consistent scale" (Rovai, Baker, & Ponton, 2012). Additionally, communalities analysis was conducted to determine if the sample used in factor analysis was large enough to result in valid constructs (MacCallum, Widaman, Zhang, & Hong, 1999). For the two constructs under leadership turbulence, the mean communalities values were greater than 0.5. Finally, determining whether or not the aggregated data of the constructs were normally distributed required testing for skewness (Field, 2009). For later hypothesis testing of the LT category, Spearman's rho was applied since the skewness values were outside the 0 to 1 range. A subset of some of these statistical results for this research tests are summarized in Exhibit 5.

Exhibit 5. Summary of CFA, Reliability, Communality, and Skewness (for LT category only).

Construct/Hypothesis	Reliability (Cronbach's alpha)	Mean Communality Value	Skewness Statistic
Construct #1 (H1$_a$)	0.894	0.825	-1.127
Construct #2 (H1$_b$)	0.710	0.651	-0.305

Research limitations
As with any research endeavor, limitations exist in terms of research approach, target population, time span considered, and other aspects that may be outside the researcher's control. One of the most important limitations during this research process was that of the political climate which emerged while preparing for the data collection phase. More specifically, in early/mid 2013, the U.S. federal government instituted automatic budget cuts, otherwise known as sequestration. This caused a cascading effect whereby U.S. government and military organizations were impacted by an administrative furlough. As a result, federal workers were either a) encouraged to accept temporary leave without benefits or b) faced by a reduction in force (RIF). One of the possible outcomes from this situation was increased uncertainty and anxiety amongst certain members of the target population causing the researcher to recalibrate the originally proposed survey release date. Once the initial phases of the sequestration had passed, the survey was released to the entire proposed sample population. However, it is hard to predict to what extent, if at all, this situation may have impacted the survey results.

Implications: Leadership turbulence
The findings from this research study have several important implications across a range of fields and professions, but for the purposes of this effort, this section will focus only on those related to academia and engineering management practitioners. The implications are profound and relevant to contemporary problems that continue to frustrate and vex leaders responsible for solving problems in dynamic, ever-changing complex environments. With respect to the leadership turbulence, there are several implications that should be noted.

According to the survey data, frequent modifications of the commander's intent and any associated changes in both unit goals and unit priorities – triggered by a change of the commanding general – appear to be associated to disruption of business transformation implementation initiatives. Moreover, these findings can be linked to comments that were gathered during the initial focus groups. For example, several military and civilian staff members indicated that "we are in a continuous cycle of reinventing processes." The key implication in this case is that higher levels of frustration amongst staff are likely to impact the organizational climate (e.g., moral). If so, continued disruption – as part of any business transformation process – may be experienced. Therefore, as the analyzed survey results confirmed a positive correlation between a) frequent turnover of a commander or commanding general and b) disruption of business transformation processes, the findings of this research should be taken into account so as to help mitigate program/project misfires and/or failures.

Recommendations and Future Research
As the engineering management community looks toward the future, there are several recommendations which might offer either a) assistance with additional research and/or b) provide guidance to engineering practitioners, especially those working in the domain/arena of risk and change management, planning, and/or complex systems in general.

The recommendations are primarily based on the qualitative portion of the research process. Specifically, they were derived from participants' responses to the following question: *What could TRADOC do differently to improve implementation of business transformation initiatives?* These recommendations are presented in manner specific to academia and practitioners in the industry.

Academia. Within academia, there is a wide range of opportunities to inform new and emerging fields of thought based on the findings from this research effort. Institutions of higher learning, scientific research institutes, and military schools may benefit from the research results (Bock, 2014). For example, survey respondents provided much needed insight in terms of learning more about context and human aspects of social constructs. Thus, it is highly recommended that the academic community considers expanding its educational offerings to engineering management students such that a wider variety of classes in the behavioral and human factors sciences become available. Also, it may be necessary to investigate the feasibility of including these fields as core requirements for engineering science.

It is also recommended that academia strives toward opening up more pathways of experiential learning for engineers so that they can gain first-hand knowledge working with experts in the human behavior discipline(s). There is scholarly support for expanding engineering sciences to include a variety of fields so that professional engineers can increase their likelihood of formulating solutions, including those factors heavily influenced by human behavior. For instance, Stafford Beer – a cybernetics expert and research scholar – articulates the necessity for the scientific research community to *re-imagine* the manner in which planners and managerial problem-solvers prepare to learn new ways of doing business (Beer, 1972).

Industry/Practitioners. While it is believed that engineers do an exceptional job of focusing on technical aspects as well as general project planning, the engineering management field still leaves much to be desired in terms of expert knowledge of human and social implications with respect to building theories, models, and/or systems. The engineering community may be able to improve its contribution to praxis by establishing new standards of professional certifications that will include some level of multi-disciplinary expertise with attention to increased understanding of human behavior, social interaction, and organizational context. At the very least, it might be extremely advantageous for more engineers, scientists, and planners to attend educational seminars, symposia, and learning institutes where they gain more insight into these phenomena and, therefore, benefit their chosen profession.

As for how the risk management field may be able to utilize the research findings, it is suggested that practitioners consider further investigation on how factors such as leadership turbulence can be integrated into computational analyses when working with business transformation initiatives within DoD settings. Through applying, e.g., decision tree analysis, the field may be able to garner even more information as part of the knowledge-building process. Finally, during this initial investigation, a rating system that would classify the organizational overall state of business transformation (e.g., poor, fair, average, good, excellent) had not been established. Developing such rating system, however, is being considered for future research activities.

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