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DEVELOPMENT OF AN RDECOM WORKFORCE MOTIVATIONAL SURVEY INSTRUMENT

September 2016

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In order to improve the morale and raise the level of workforce productivity, it is critical to understand trends in an individual's motivational factors. We developed a closed-loop survey instrument and analysis methodology to identify distinct generational workforce motivational factors. Nine United States Army Research Development and Engineering Command (RDECOM) supervisory engineers, General Schedule (GS) 14 and 15, reviewed the survey instrument for relevancy, consistency, and applicability to meet the objective. Through the 108 comments received, the instrument was refined for transition to the Human Resources directorate in RDECOM. Subsequently, we developed a plan to provide recommendations within the current government compensation and workplace environment structure to motivate the target generational workforce demographic to improve productivity. The deliverables from this project include a comprehensive motivational factors survey and approach to qualitative analysis techniques. In addition, we recommend a phased approach for broad-level survey dissemination and performance of responses analyses by RDECOM to affect workforce policy change implementation. In conclusion, through utilization of a survey instrument, RDECOM will be able to recognize generational motivational factors, translate that knowledge into historically successful and new or novel methods of rewards, introduce workplace environment changes, and award high achievers in order to retain the engineering workforce.

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ABSTRACT

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LIST OF ACRONYMS AND ABBREVIATIONS

AMC	Army Material Command
AMRDEC	Aviation and Missile Research Development Engineering Center
AMSAA	Army Material Systems Analysis Activity
ARDEC	Armament Research Development Engineering Center
ARL	Army Research Lab
ASA(ALT)	Assistant Secretary for Acquisition Logistics and Technology
CERDEC	Communications Electronics Research Development Engineering Center
CITI	Collaborative Institutional Training Initiative
CP	Career Program
CPAC	Civilian Personnel Advisory Center
CRM	Comment Resolution Matrix
DOD	Department of Defense
ECBC	Edgewood Chemical Biological Center
Gen X	Generation X
Gen Y	Generation Y
GS	General Scale
HQ	Headquarters
JAP	Joint Applied Project
JCM	Job Characteristics Model
MPS	Motivating Potential Score
NSRDEC	Natick Soldier Research Development Center
OPM	Office of Personnel Management
QSI	Quality Step Increase
RDEC	Research Development Engineering Center
RDECOM	Research Development Engineering Command
S&T	Science and Technology
SES	Senior Executive Service
SME	Subject Matter Expert
TARDEC	Tank Automotive Research Development Engineering Center
TRADOC	U.S. Army Training and Doctrine Command

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I. INTRODUCTION

A. WORKFORCE RETENTION WITHIN THE DOD AND U.S. ARMY

Workforce retention rates are steadily declining in U.S. Research Development and Engineering Command (RDECOM), and the Department of Defense (DOD) as a whole, due to the retirement of many civilians (Sedmack, 2014): "Nearly 50% of the Acquisition Engineering workforce will be eligible to retire by 2023" (Sedmack, 2014), as can be seen in Figure 1. This has raised concerns because "engineers play a vital role in fielding high-quality affordable, supportable and effective defense systems to sustain and advance America's Military dominance" (Sedmack, 2014).

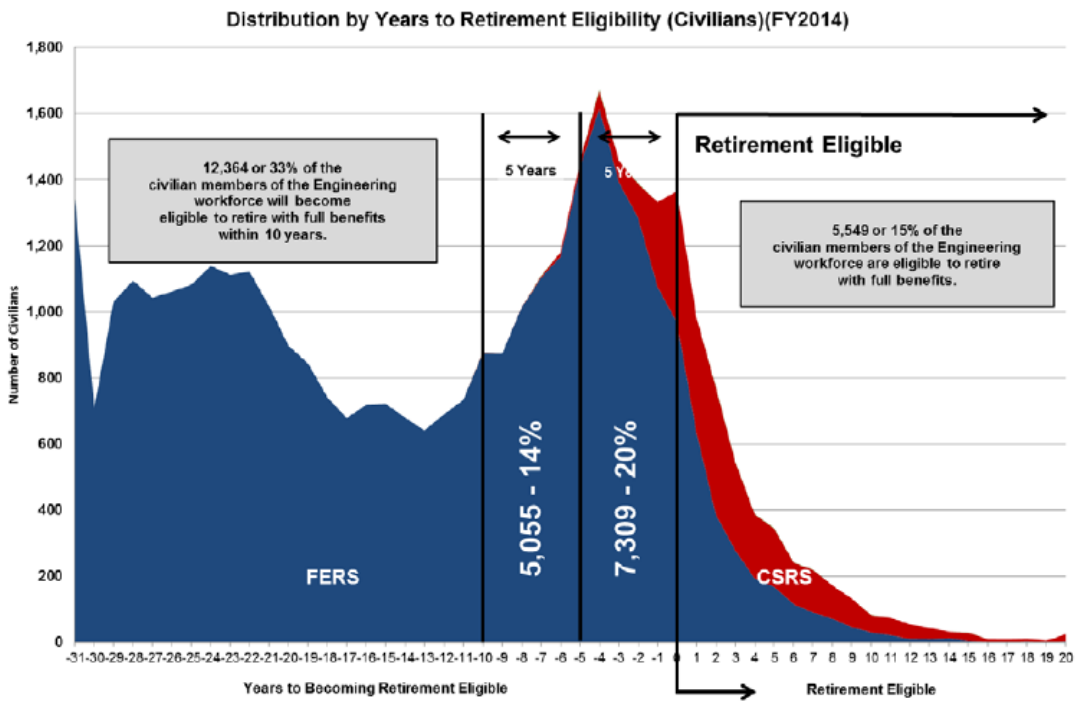

Figure 1. Defense Acquisition Workforce – Engineering. Source: Sedmack (2014)

The RDECOM goal is to retain future government leaders that will pass down their expertise to future generations. As the government begins to hire the next generation of civilians, leaders need to be more aware of what motivates their employees. In addition

to awareness, supervisors and leaders need to be equipped with various ways, both in historically successful and new or novel methods, to reward and award high achievers in order to retain them.

The employee generational demographic in RDECOM workforce is composed of three distinct groups: Baby Boomers (born 1946–1964), Generation X (born 1965–1976), and Generation Y (born 1977–1994). Generation Y (Gen Y) is the newest group entering into the workforce and will become the leading employee year group population for the next 5 to 15 years. The focus for RDECOM is retention of its Career Program (CP)-16 engineering workforce funded under General Schedule (GS) pay scale. Identifying motivational factors, through a survey, can provide much needed insight into trends of this generation already working within the government. Overlapping this information with other resources will provide a more accurate picture and strategy to retain these employees. As budgets dwindle, it is in the government's best interest to determine whether there are other motivators to maintain the Gen Y workforce.

The purpose of the paper is to propose a survey instrument that will identify the motivational factors of the RDECOM's Gen Y workforce. If RDECOM can better understand their perspective of job satisfaction, they can then make better informed decisions on effective retention strategies.

B. RESEARCH QUESTIONS

Our research on generational types in the DOD workforce will identify differences in motivational factors leading to job satisfaction. Specifically, preferences of Gen Y will be addressed through this research deliverable: a validated survey questionnaire. We began with a broad problem statement: "What motivates the RDECOM workforce and how do we tap into the understanding of those motivational factors to more effectively reward individuals?" From this starting point, we devised two primary questions necessary to answer and solve the workforce development issue addressed in the problem statement. Information provided by the survey developed in this JAP is critical to combine with other RDECOM data such exit surveys of those leaving

government service to determine how RDECOM can most motivate and retain current and next generation employees.

Research Questions

1. What causes turnover of people from government positions to industry positions?
2. What are the methods or types of rewards that motivates employees?

C. BUILDING AND RETAINING RDECOM'S FORCE OF THE FUTURE

The survey developed for this project will attempt to determine the key motivators of the generation known as Gen Y. By identifying the motivators, this generation's leaders can work to provide an environment and awards structure that meet their expectations. We will present a proposed survey to the RDECOM leadership distribute to their Gen Y workforce that can be used in conjunction with other data including RDECOM exit surveys to definitively be able to provide incentives that motivate this generation. The data will identify and support workplace changes for increasing retention rates, increasing morale and job satisfaction and maintaining this highly educated generation that will be needed to be great predecessors to the next generation of government engineers. Turnover rates need to be reduced because it is more technically effective and cost effective.

D. THE DEVELOPMENT OF AN RDECOM WORKFORCE MOTIVATIONAL SURVEY INSTRUMENT

We started with a simple hypothesis: As members of a different generation than the Baby Boomers, money does not mean the same as it previously did in single-income families. Rather than money (salary and bonuses) as the only method of job satisfaction, different methods of rewards or job flexibility was more meaningful to the current generations. From this initial theory, we researched the premise that utilization of different motivational tools, including money, could provide more job satisfaction, thus retaining the declining workforce.

This JAP focuses on the current RDECOM engineering workforce structure, government pay and reward structures, generational differences, and job satisfaction

components to develop a solution for leadership to clearly define the mindset of this generation. With that knowledge, it was anticipated that leadership would be able to develop better policies and motivational systems, or “carrots,” to improve and maintain job satisfaction. This report outlines the research approach (the development of a tool, a survey), to be utilized by RDECOM to define the mindset of Gen Y and the recommendations that could be implemented after the broad-based utilization of the survey to verify the premise this research project was based upon.

II. RESEARCH PLAN

A. RESEARCH PLAN APPROACH

The research plan for the project divides into four phases. The fourth phase is dedicated to RDECOM for its workforce wide dissemination of the completed and validated survey (project deliverable). The team designed an Employee Motivational Factors Survey Development Plan, Figure 2, to identify the research work required. Each phase in the plan contains specific steps to accomplish in sequential order.

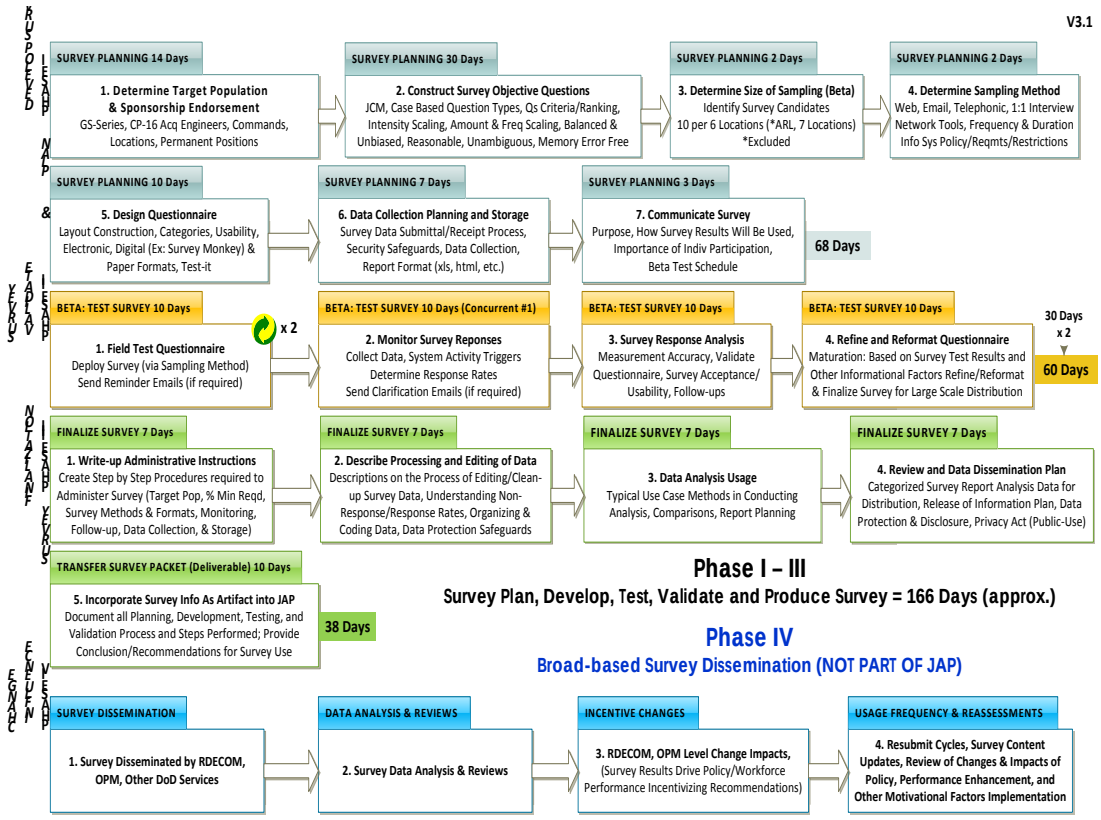

Figure 2. Employee Motivational Factors Survey Development Plan

The benefits of devising this plan flow diagram early significantly contributed to effectiveness of assigning team members roles and responsibilities. Additionally, it described all the survey development step tasks, and visually illustrated the research plan phase components to supporting participants (e.g., advisors, RDECOM leadership, and

subject-matter experts [chief engineers]) as required in the development and validation of the survey.

1. Phase I Plan and Develop Survey

In this phase, the team accomplished the following to produce survey content and prepare for the validation process.

- Determined the target generation population and job locations within RDECOM CP-16, GS workforce structure. The team determined size of sampling to be 60 candidates (3%) of the total Army 1,961 engineer workforce. Survey candidates met the Gen Y age group parameters and were situated in seven location across the U.S.
- Identified and contacted subject matter expert (SME) engineers to participate in survey development. Of the seven locations where engineering workforce work, the team decided 10 minimum SMEs were required to validate the survey. Ten SMEs were contacted and requested to participate at six locations, all accepted.
- Established the delivery methods for beta testing of survey. Email was primary method of communication of survey instructions along with attachments of the survey, in native document formats i.e., Microsoft Word and EXCEL. Additionally, the team agreed to jointly pay for use of online survey tool, SurveyMonkey. This allowed use of the online tool reports and assisted in the survey look, feel, and participation by SMEs.
- Provided a secured storage mechanism for data collection information. Use of SurveyMonkey facilitated a data protection environment.
- Announced to RDECOM HQ Leadership the survey intent, its importance, and level of participation required by the sub-commands, also known as the Research Development and Engineering Centers (RDEC). Gaining top leadership sponsorship opened up the team opportunity for survey development support by key RDECOM SMEs.
- Determined best practices of how a survey is developed. The team utilized general survey methods and techniques from the Developing and Using Questionnaires publication (U.S. General Accounting Office, 1993, pp 12–201).
- Developed questions based on Gen Y characteristics that incorporate elements of the Job Characteristics Model (JCM) (Hackman & Oldham, 1976), address current DOD workplace environments, and merge in additional supporting research information related to job satisfaction and motivation factors. The details of survey development are highlighted in Chapter IV, Research Focus, Considerations in Developing the Workforce Survey and Survey Questions Generation.

- Transferred survey content developed on local computer into online application, SurveyMonkey, in preparation for execution of Phase II, Validate Survey. The transfer operation was part one, part two was spent modifying the survey (ensuring each survey question and its response options working together). Multiple changes were made to online data.

2. Phase II Validate Survey

The validation survey phase served to refine, reformat and verify the questionnaire for completeness.

- Conducted a beta test review of survey questionnaire developed in Phase I. The team distributed the request communication messages to the identified candidates. The message contained the active link (with passcode) to SurveyMonkey. There were two rounds of survey beta testing.
- Engaged selected RDECOM engineers to review survey questions and provide written critique. The SMEs were requested to critique the survey itself for clarity, ease of use, relevancy, ambiguousness, question phrases and consistency. They provided information and perspective that influenced survey changes.
- Reviewed survey participant responses. The team jointly reviewed SMEs written comments, survey responses, and other related information that provided input for revision based on questions relevancy, sentence structure and wording articulation.
- Checked that question responses were appropriate and easy to select from available choices. The initial question-response sets were changed by 10% as SME feedback and team consensus elicited need for modification.
- Exercised the online survey tool application SurveyMonkey. The online tool was effective in conducting beta testing in an independent approach. The completed surveys aggregated into a summary report and participants remained anonymous.

3. Phase III Survey Finalization

The purpose of the survey finalization phase is to verify the completeness of the project research effort. The team accomplished the following:

- Organized and collated the changes made to initial survey development baseline into a tabular datasheet for historical reference purposes. The team verified all project information originated from survey development phases was collected as a ready reference source for writing of JAP report.
- Determined survey meets research project requirements and classified the questionnaire as final (research project survey completed and validated).

- Exported all surveys and reports from SurveyMonkey online application, delete data, and closed account
- Assessed survey viability for RDECOM wide dissemination. Based on SME input and survey maturation, the questionnaire was deemed effective to identify jobs satisfaction motivators and undergo workforce wide distribution.
- Wrote up recommendations for best use of validated survey questionnaire. The team considered every facet in conduct of research, development of survey, beta testing it, and finalizing the survey document to come up with recommendations of its use. Chapter VI, Conclusions and Recommendations of this report contain the best uses.

In collective agreement by all team members, the approved Joint Applied Project Report (and appendices) shall be the primary source of background information for RDECOM to use in development of a command-level survey instrument, based on its internal organizational administrative policy requirements.

4. Phase IV Influence Change

This phase is dedicated to RDECOM to perform. Potentially the Office of Personnel Management (OPM) and other DOD Services can utilize the motivational factors survey data derived from this research project in development of a workforce-wide dissemination of survey.

The phase process steps arrangement is in a flow that provides indication of what follow-on activities may take place under RDECOM authority. The proposed objectives for RDECOM in this phase are:

- Survey dissemination
- Data analysis and review
- Implementation of performance reward and incentive changes
- Establish monitoring and reassessment cycles to maintain currency with employee demographic characteristic changes

The phases outlined in the project plan gave bearing on the order sequence and effort required to effectively design questions traceable to the problem statement context. Understanding the present RDECOM organizational structure, its workforce composition, and the DOD compensation framework was essential to establish a current jobs operation

foundation. Coupling these organizational components with particular Gen Y demographic characteristics and preferred workplace environments that can influence job satisfaction was the major thrust of research project endeavor. The team explored this information in three specific research study topics to solidify problem solutions in the form of recommendations.

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III. LITERATURE REVIEW

A. RDECOM STRUCTURE AND HISTORY

The U.S. Army Research Development and Engineering Command (RDECOM) was established in 2002 as a subcommand by the U.S. Army Material Command (AMC) to ensure Science and Technology (S&T) initiatives are being addressed and benefit the Army and its soldiers in the most effective way possible. The headquarters (HQ) of the established RDECOM is currently located in Aberdeen Proving Ground, Maryland. The initial mission of the command was: "To field technologies that sustain America's Army as the premier land force in the world" (United States Army Research and Development Command, n.d.-b). The RDECOM major goal when standing up integration of S&T was to ensure the soldiers get the best equipment fast, having it developed in the labs and sent to the soldiers more efficiently with a quicker turnaround time. When opportunities for benefiting the U.S. are known, RDECOM sets to take advantage of these opportunities quickly, but to do it had to develop new methods of execution to reach its goals. As a result, RDECOM has seven subcommands that include the Tank Automotive Research Development and Engineering Center (TARDEC), Armament Research Development and Engineering Center (ARDEC), Edgewood Chemical and Biological Center (ECBC), Natick Soldier Research Development and Engineering Center (NSRDEC) and Communications and Electronics Research Development and Engineering Center (CERDEC) as well as the U.S. Army Research Lab (ARL). RDECOM also includes AMC elements: Army Material Systems Analysis Activity (AMSAA) and Training and Instrumentation Command. Later AMSAA moved from under the command in 2009 and in 2010 Training and Instrumentation Command, but AMSAA was later absorbed into ARL.

The vision of RDECOM now is to be: "The preeminent world leader in research, development and engineering" (RDECOM SharePoint, n.d.-a). What the Command does for the warfighter is to "enable Warfighters to be more flexible and adaptive against asymmetrical threats, to be the Army's solution for weapon systems development to ensure land combat power dominance, to create and maintain relationships with

international partners including educational institutions remains crucial to maintain affordably when modernizing weapon systems that benefit the Warfighter" (RDECOM SharePoint, n.d.-a).

The RDECOM situates below three larger commands, structure and organization is directly overseen by AMC. RDECOM collaborates and works directly with Assistant Secretary for Acquisition Logistics and Technology (ASA(ALT)) for S&T funding and with the U.S. Army Training and Doctrine Command (TRADOC) where requirements for systems are derived. See Figure 3 for organizational structure of where RDECOM falls under the higher commands.

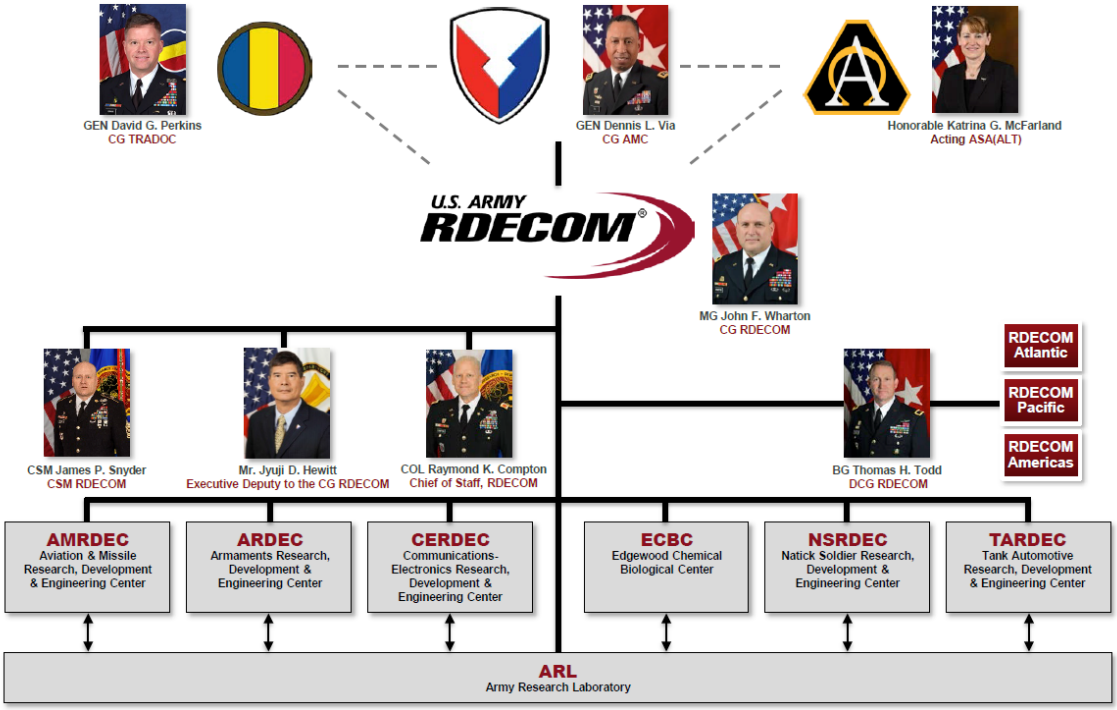

Figure 3. RDECOM Commanding Structure. Source: RDECOM (n.d.-a) .

Each subordinate RDEC and Lab, focuses on specific activities and provides various capabilities. The current RDECOM structure showing the seven subcommands and primary activities can be seen in Figure 4. Each of the RDECs and Lab provide their own set of core competencies which is needed to maintain overmatch capabilities. The core competencies can overlap between RDECs and Labs but are what makes each center

different. Currently, there are 277 core competencies that are maintained and will be needed in the future generation. It is expected that some of the competencies will change over time and will be continuously evaluated based on future threats.

Figure 4. RDECOM Organization Structure. Source: RDECOM (n.d.-a).

1. RDECOM Workforce Composition

The majority of the Army's career programs consist of scientists and engineers that are in the Career Program (CP)-16 series. The RDECOM workforce is composed of many individuals that can fall into different identified CPs. A CP describes the occupational series that correlates with qualifications as well as other distinguishing factors such as specific training requirements associated based on job description and grade.

The CPs establish the range of qualifications throughout the Army to ensure the Army maintains its qualified personnel. A snapshot using AMC data of the CPs identified can be seen in Figure 5.

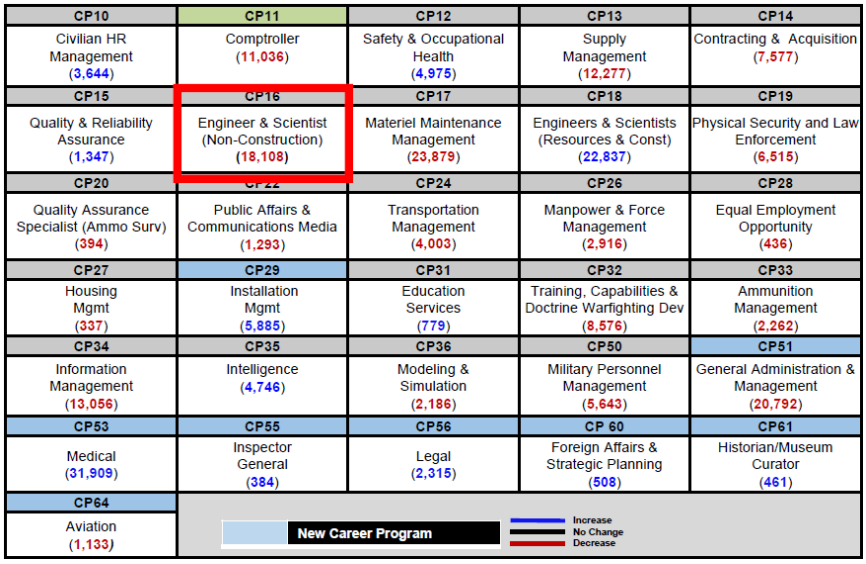

Figure 5. AMC Proponent Office, Career Program Listing, CP101 Introduction. Source: Adkins (2016).

Within RDECOM the total population of civilians is 14,253 and the scientist and engineering population is 10,370 (72.7%) broken out into various RDECs and Labs. The complete engineering population can be seen in Table 1.

Table 1. RDECOM CP-16 Population

RDEC	Total Civilians	Scientists & Engineers
AMRDEC	3140	2504
ARDEC	3718	2767
ARL	1975	1379
CERDEC	2108	1620
ECBC	1198	674
NSRDEC	695	340
TARDEC	1419	1086
Totals	14253	10370

For the research study we focused on the approximately 1,961 engineers within RDECOM who are part of the GS pay scale in the age distribution of Gen Y (1977–1994) ages 22–39. This age group consists of individuals working as new hires (assuming they

started in May of 2016, at the age of 22) or at most 17 years in the government (assuming they started out of college at the age of 22).

The majority of RDECOM government civilians are an average of 45 years old and able to retire between 2020 and 2025. This is why we are focusing on Gen Y, who have many years until they retire and will be the next generation of uniquely qualified civilian workers dedicated to enhancing and maintaining our warfighting edge. Table 2 shows the distribution of the locations of the entire CP-16 workforce throughout the RDECOM command we are focusing on.

Table 2. Total Population of RDECOM, CP-16, GS Pay Series, Gen Y Workforce

Unit	Target Population (RDECOM, CP-16 Engineers, GS Pay Series, Gen Y)
AMRDEC	6
ARDEC	1099
ARL	3
CERDEC	433
ECBC	215
Headquarters (HQ)	8
NSRDEC	169
TARDEC	28
Totals	1961

The CP-16 series is composed of scientists and engineers. This includes approximately 19,000 civilians in Defense Acquisition in 2013 (Army Career Tracker, 2013). These groups of highly trained and educated individuals work in an acquisition career that can range from biologists and chemists to test and evaluation engineers, software engineers or chemical engineers. The engineers and scientists in the career program CP-16 encompass most types of engineers and scientists across the board totaling 57 different occupational series. RDECOM alone maintains approximately 8,500

CP-16 government engineers, who occupy various pay bands and series. This study encompasses a small target population in the GS pay series and generation.

2. RDECOM Workforce Summary

This section has presented the background of the U.S. Army RDECOM workforce and the generation characters of those that comprise it. Table 2 summarizes the targeted breakdown of the Gen Y workforce by RDEC as of June 2016. The amount of workers within this workforce is becoming the largest generation currently represented as we see the Baby Boomer generation retiring throughout the next 10 years. The importance of ensuring we can adequately provide compensation that meets the workforce's desires (monetary vs. other), will allow for a more satisfied workforce who continues to remain in civil service roles.

B. GENERAL SCHEDULE COMPENSATION STRUCTURE

Within the DOD there are different pay systems with different opportunities, with restrictions, to earn monetary rewards. The GS pay system was chosen to focus research on as it encompasses a significant portion of the RDECOM population. This pay structure is divided into levels and steps shown below. Expectant levels of responsibility and typical steps are included in Table 3.

Table 3. General Scale Pay System Description OPM (2016). Source: "Pay and the General Schedule" (2016).

GS Level	Description
GS-3 to GS-4	Typically internships or student jobs
GS-5 to GS-7	Most entry level positions
GS-8 to GS-12	Mid-Level postions
GS-13 to GS-15	Top- level supervisory postion

1. General Schedule Opportunities for Rewards: Step Increases and Quality Step Increases

The GS has 15 grades that range along a scale with 10 steps in each pay scale that is used across the world (United States Office of Personnel Management [OPM], n.d.-c). The current base salary table for 2016 for GS engineers can be seen in Table 4.

Table 4. General Schedule Pay Scale. Source: OPM (n.d.-c).

SALARY TABLE 2016-GS
INCORPORATING THE 1% GENERAL SCHEDULE INCREASE
EFFECTIVE JANUARY 2016

Annual Rates by Grade and Step

Grade	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8	Step 9	Step 10	WITHIN GRADE AMOUNTS
1	$ 18,343	$ 18,956	$ 19,566	$ 20,173	$ 20,783	$ 21,140	$ 21,743	$ 22,351	$ 22,375	$ 22,941	VARIES
2	20,623	21,114	21,797	22,375	22,629	23,295	23,961	24,627	25,293	25,959	VARIES
3	22,502	23,252	24,002	24,752	25,502	26,252	27,002	27,752	28,502	29,252	750
4	25,261	26,103	26,945	27,787	28,629	29,471	30,313	31,155	31,997	32,839	842
5	28,262	29,204	30,146	31,088	32,030	32,972	33,914	34,856	35,798	36,740	942
6	31,504	32,554	33,604	34,654	35,704	36,754	37,804	38,854	39,904	40,954	1,050
7	35,009	36,176	37,343	38,510	39,677	40,844	42,011	43,178	44,345	45,512	1,167
8	38,771	40,063	41,355	42,647	43,939	45,231	46,523	47,815	49,107	50,399	1,292
9	42,823	44,250	45,677	47,104	48,531	49,958	51,385	52,812	54,239	55,666	1,427
10	47,158	48,730	50,302	51,874	53,446	55,018	56,590	58,162	59,734	61,306	1,572
11	51,811	53,538	55,265	56,992	58,719	60,446	62,173	63,900	65,627	67,354	1,727
12	62,101	64,171	66,241	68,311	70,381	72,451	74,521	76,591	78,661	80,731	2,070
13	73,846	76,308	78,770	81,232	83,694	86,156	88,618	91,080	93,542	96,004	2,462
14	87,263	90,172	93,081	95,990	98,899	101,808	104,717	107,626	110,535	113,444	2,909
15	102,646	106,068	109,490	112,912	116,334	119,756	123,178	126,600	130,022	133,444	3,422

There is locality pay associated with different states that may add a certain percentage related to cost of living to an individual's salary. For instance, Washington, D.C., and some of their surrounding locations locality pay increase to the base salary is 24.78%. An individual may move between the steps of the pay scale in increments. The increments consist of an approximate pay increase that falls between less than $750-$3,422 for 2016. Between steps one to four the civilian must wait a total of 52 weeks to earn the next step. Then between steps four to seven, 104 weeks are required. Finally, between steps seven to ten, civilians must wait 156 weeks to earn the step increase. When

a person reaches his or her required time in grade to be eligible for a step increase, he or she must also earn a satisfactory job performance rating to ensure earning a step increase.

Another method of earning a step increase in pay in a faster manner is to earn a Quality Step Increase (QSI). This is an award for exceptional job performance. If a supervisor would like to provide a QSI, this is a form of an award for the highest performing individuals; however, they can only be given once a year. These are not always available to be awarded due to funding constraints of the RDECs authorizations.

2. General Schedule Opportunities for Rewards and Awards

There are other opportunities for rewards beyond annual or quality step increases. They consist of letters of recognition, coins, civilian service medals, time off, on-the-spot cash awards for exceptional performance of up to $10,000. Some of the rewards require prior approval through the awards agency, but performance awards cannot exceed 10% of a base salary unless there an exception is granted. Some awards may be combined to not exceed the cash limit of the award given. For example, an individual may receive a time off award as well as a cash award. There are also patent cash awards and retention pay incentives. Anything over $25,000 cannot be granted without presidential approval and are subject to a service agreement. Employees may also be granted the opportunity to attend school and receive degrees and/or technical training leading to certificates that enhance technical abilities of civilians. These awards typically require a person to nominate an individual for exceptional service above and beyond their usual duties or for outstanding work accomplishments. All awards must be budgeted for in the various organizations including HQ and its subcommands. There are also many diversified awards that focus on high-achieving individuals of specific cultures and genders such as Black Engineer of the Year awards and awards granted for Exceptional Woman of the Year. All awards fall into three categories: monetary, honorary and time off. Awards can also be earned through other organizations for superior accomplishments through higher headquarters (OPM, n.d.-d).

C. GENERATION CHARACTERISTICS

1. Generation Characteristics

The Army RDECOM is facing a unique challenge of employing three distinct workforce generations, simultaneously—each with varying viewpoints, perspectives and technology skillsets. Although the DOD has experienced a great deal of stability in the past 10 to 15 years with its highly trained, educated, and proficient workforce, in the not too distant future (5 to 15 years) the Baby Boomer generation numbers will have reached retirement gates and exit the workforce. Soon after, they will be followed by the Generation X (Gen X) population. The generational change in labor workforce numbers is inevitable (on a time scale). Figure 6 portrays the decline and increase of each generation.

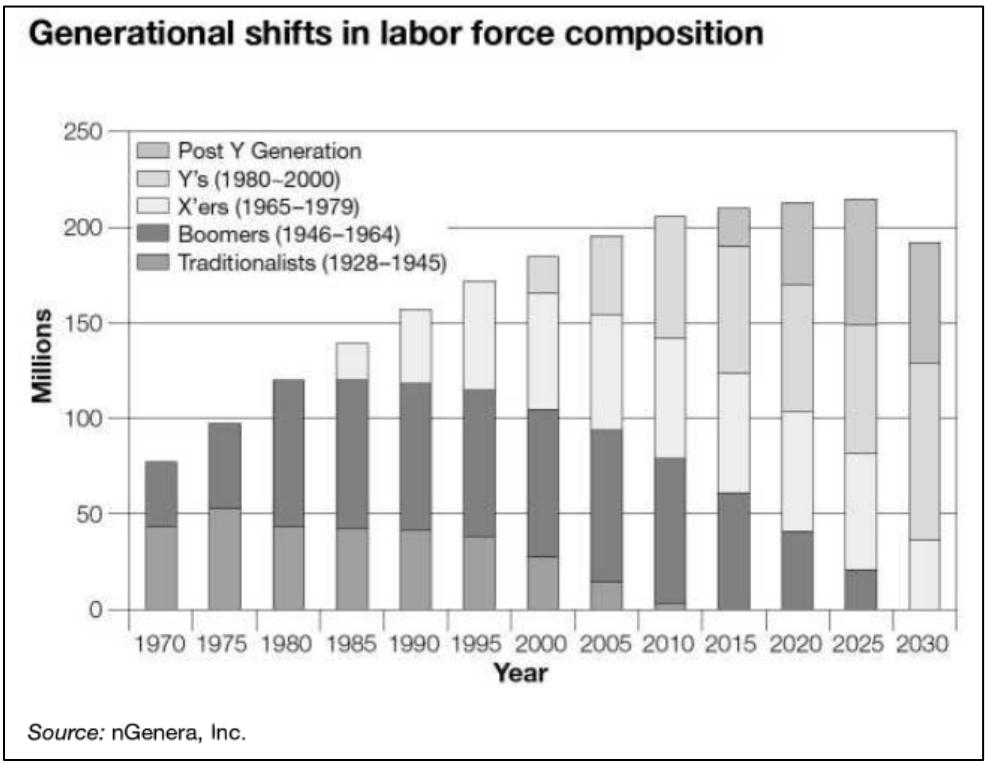

Figure 6. Gen Y Dominance Out to 2030. Source: In Erickson (2008).

Why is this important to RDECOM? Understanding the generation differences is critical to posturing for new hires, updating job position requirements, shaping career development pathways, proactively encouraging mentorship programs (for institutional continuity), and creating an organizational culture that understands the talents, usefulness and the ambitious nature of Gen Y. General descriptions of each generation for project can be seen in Table 5 (Value Options, 2016). There are numerous sources referring to Generation Y as Echo Boomers, Generation Next, or Millennial Generation. For context and scope of this report, the naming convention "Gen Y" shall be utilized.

Table 5. Generational Characteristics

GENERATIONAL CHARACTERISTICS DESCRIPTIONS (Value Options, 2016)			
Gen Type	**Baby Boomers**	**Generation X**	**Generation Y**
Year Range	**Birth Year 1946-1964**	**Birth Year 1965-1976**	**Birth Year1977-1994**
Generational Description	Viewed as the generation with a great amount of optimism, exploration and achievement. They have pursued higher education and without any reservation will relocate considerable distances away from family and friends in order to advance careers.	Individuals who accelerated into adulthood faster than Baby Boomers and questioned everything about the future. They preferred treating parents like friends, lacked respect for authority, and found themselves having to become self-sufficient and completely independent which is a trademark identifier of this generation as a progressive and reliant in the workforce. The problem Gen X endured was the economic decline of late 1980s where jobs became limited thus they failed to achieve the lifestyles of Baby Boomer generation. Nonetheless, Gen X used technology advances to initiate the 1st flexible work schedule programs. They commonly had two-family incomes and limited work to work only hours.	Adults entering the marketplace in large waves and bring with them a plethora of 21st Century technical and social networking skillsets. This generation has always known highly complex entertainment and communication systems (network devices) as commonplace. Technology drives this generation's expectancy for immediate (speedy) access of data, information, and real-time collaborations. They have close relationships with their parents and seek their parents' advice and approval. Look to managers and supervisors to provide the same nurturing protection, advice and approval as their parents have provided. Gen Y is very goal-oriented, is comfortable and flourishes in multi-tasking settings. Growing up in diverse and constant changing demographic social environments, working in teaming and multicultural environments is ordinary and tolerable.

2. Understanding Gen Y's Eight Key Skills

The skills, capabilities and strengths Gen Y possesses are important factors in development of the survey questionnaire: "For the first time in history, a generation is entering the workforce with skills in certain areas—particularly technology—superior to those of their bosses and current co-workers" (Hobart & Sendek, 2014). Addressing these advanced skills in survey question form ensures project focus is consistent in determining what motivates Gen Y to be productive—leading to job satisfaction.

Hobart and Sendek (2014) wrote: "Leaders must make certain the new Gen Y talent is not dismissed, overlooked, and eventually squashed. And they must find ways to spread to experience employees." Considering this, the team incorporated all Gen Y's eight key skills in development of survey questions.

The following Gen Y characteristics information, Understanding Gen Y's Eight Key Skills, is referenced from *Gen Y Now: Millennials and the Evolution of Leadership* (Hobart & Sendek, 2014, pp. 91–99).

> **Gen Y is Tech-Savvy.** Gen Y is highly educated with multiple academic degrees. Understands and is proficient in countless social media networking applications, software systems, computer-based systems (wired and wireless connections), and virtual gaming programs.
>
> **Gen Y is Diverse.** Gen Y is the most ethnically diverse generation in history. Gen Y is open-minded and accepting of those with different views. Their diversified lifestyle demonstrates an ease in adapting to various workplace environments as compare to prior generations.
>
> **Gen Y Understands the Global Marketplace.** Born into the computer and internet age, this generation is highly capable of interacting, researching, and learning about the national and international marketplace using multiple information sources and search techniques. Information on global events and trends is at their fingertips and communication across the globe is natural occurrence and well exercised. Life without a global community perspective is unfathomable for this generation.
>
> **Gen Y has Good Self-Esteem.** This generation has enjoyed an abundant amount of parental support and mentor-like involvement like no other generation. They value time with family and friends. The confidence, positive energy and enthusiasm Gen Y brings to the workplace is something employers can readily plug into but stifling it will immediately

turn them away. They come into the workplace to find ways to contribute and are not comfortable being placed in the background. For Gen Y the right time is now—they come with aspirations to make a difference soon. Employers need to proactively set level work tasks so this ambitious group can see immediate results of their efforts.

Gen Y has a Sense of Security and is Ambitious. The nurturing years of support, love, and care from family and friends give this generation a deep-down sense of security. They possess emotional strength of not being afraid to ask questions and attempting new things. They are more competitive and willing to learn than previous generations. Although Gen Y seems to be a more motivated and confident worker they constantly need feedback on job performance. This can be issue in workplaces where the traditional manager—employee performance reviews are periodically scheduled.

Gen Y has Life Experience in the Marketplace. Gen Y understands e-commerce and has a developed expectation and understanding of what customer service is, good and bad. They know what good customer service is and can differentiate between poor and exceptional levels of service. Turning inward to organizations, Gen Y compares co-workers the same way as treating someone respectfully with a customer service mindset. The organizational culture and office dynamics play an important role in Gen Y's attitude and productivity.

Gen Y is Research-Oriented. They can find, sort, and report information faster than any prior workforce generation. Gen Y is tech-savvy and know about the best tools on the market—even applications not yet available (underground/beta versions). This generation thrives in information overload situations. They continuously find new ways to solve problems—at record speeds. This generation will lead a research project team and strives to accomplish the task.

Gen Y are Problem Solvers. Gifted with multiple talents, this generation can solve most problems confronted with yet they find employers question how they figured out problems and distrust the results. Gen Y can access and expertly work in multiple application networks and collaborate on so many different social media levels to solve problems. They consistently come up with new ideas that increase organizational processes or material production efficiencies. Employers must not dissuade but encourage these problem solvers.

D. JOB CHARACTERISTICS MODEL

The project research team discovered a model on job satisfaction factors. This model was an outcome result of the job characteristics theory and the work of Greg R. Oldham and J. Richard Hackman, in 1975. Job characteristics theory is a theory of work design. It provides "a set of implementing principles for enriching jobs in organizational settings" (Oldham & Hackman, 2005).

The original version of job characteristics theory proposed a model of five core job characteristics (skill variety, task identity, task significance, autonomy, and feedback) that affect five work-related outcomes (motivation, satisfaction, performance, and absenteeism and turnover) through three psychological states (experienced meaningfulness, experienced responsibility, and knowledge of results) ("Job characteristics theory," n.d.).

Later on, the five-core job characteristics theory model became the Job Characteristics Model (JCM) (Hackman & Oldham, 2012). The JCM postulates that employee performance is greater when core job dimensions factors are satisfied through:

- Jobs redesign approach that seeks to increase employee motivation and promote personal growth
- Creating a job setting that emphasizes and acknowledges internal motivation and sense of accomplishment
- Redesigning work tasks to make the job more interesting and incorporates best use of knowledge, skill, and abilities

The JCM five characteristics (dimensions) are: 1. Skill Variety, 2. Task Identity, 3. Task Significance, 4. Autonomy, and 5. Job Feedback. These five characteristics could be combined into a single index called Motivating Potential Score (MPS) (Hackman & Oldham, 2012) to measure a person's motivation toward job satisfaction. The calculation applied numerical assess factors in the form of an equation:

$$\text{MPS} = (\text{Skill variety} + \text{task variety} + \text{task significance})/3) \times \text{autonomy} \times \text{feedback}$$

The empirical MPS value assessed the overall potential of a job position to influence an employee's feelings, behavior patterns, and outcome (performance)

tendencies. The opportunistic use of JCM, Figure 7 is the ability to assess employee growth-need strength potential. Both outcomes and core dimensions elements are intertwined (reciprocals) that provide the employee growth-need strength propensity relationship. As the one dimension element is established and the outcome desired is achieved, so can the inverse take place—indicating a weaker outcome requires change in a core dimension for correlating change result.

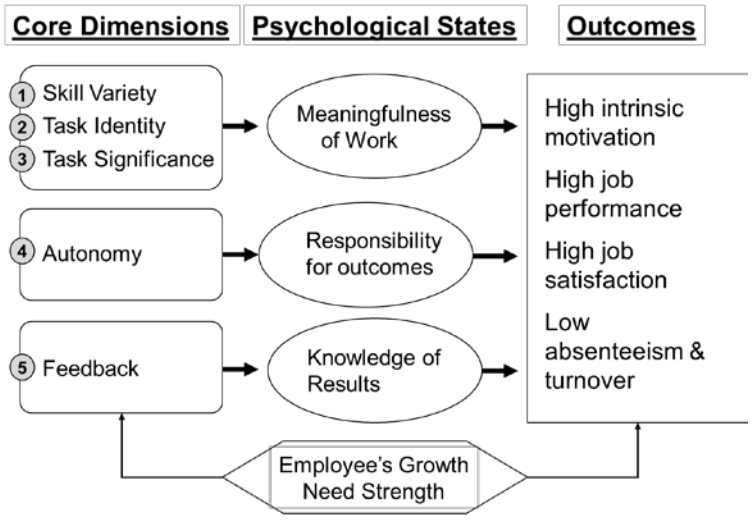

Figure 7. Job Characteristics Model. Source: Hackman and Oldman (2012).

Understanding the JCM applicability in development of the survey was essential to segment the questions in specific core dimension categories. These categories underpin the primary and secondary research questions to elicit areas in the current RDECOM workforce environment that are in need of redesign. The JCM contains various conceptual elements that form foundational approaches to motivate employees, foster innovation and project-oriented goal setting, and ultimately will retain (and recruit) a dynamically engaged workforce.

The JCM is structured into five dimensional components that when decomposed and expounded upon individually offers a description and relevance that is germane to almost any market level job position. However, when all five are combined the complete job environment paradigm is considered. From this vantage point the team agreed to

proceed with aligning the RDECOM workforce motivation factors survey questionnaire development with JCM elements.

By understanding and combining generational characteristics, Gen Y skillset (Hobart & Sendek, 2014), and preferences (Value Options, 2016), and JCM dimensions (Hackman & Oldham, 2012) it is highly plausible the project questionnaire will identify job satisfaction motivators.

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IV. RESEARCH FOCUS

The research work in this section is the team's collective efforts in acquisition of data, information, and formulation of survey questionnaire.

A. CONSIDERATIONS IN DEVELOPING THE WORKFORCE SURVEY

The motivational factors influencing Gen Y job satisfaction are widespread. These influencing factors are conditions such as growth–need strength objectives (Hackman & Oldham, 2012), unrestrictive expression of knowledge and skills, openness to diversity acceptance, a clear set of meaningful and contributive aspirations, highly technology progressive, pronounced need for team-based practices, and other inherent workspace environment (Tamara, 2008), aspects essential to cultivate and bolster this growing labor force demographic.

Taking into consideration the psychological states concept of JCM in combination with Gen Y characteristics and the current DOD workforce dimensions of culture, the team formed two primary and five secondary research questions. The secondary questions aim to assess what are the driving factors for Gen Y employee turnover over to industry jobs and what reward system incentives are truly effective to retain them.

The secondary questions are comprised of substantive content intended to produce specific analysis data needed for the research project. Composition and complexity of the secondary questions are the foundation for the motivational factors survey development and deliberately trace back to the primary questions.

B. SURVEY QUESTIONS GENERATION

A blueprint for use during the brainstorming of developing specific motivational questions was developed.

The Survey Question Generation Concept Model diagram, Figure 8, provided the pathway for each question creation. By threading the diagram component elements into Gen Y on-the-job motivation questions, by survey category, the team created content-rich

questions in the object to provide evidence based data for argument and justification of potential workplace environment changes.

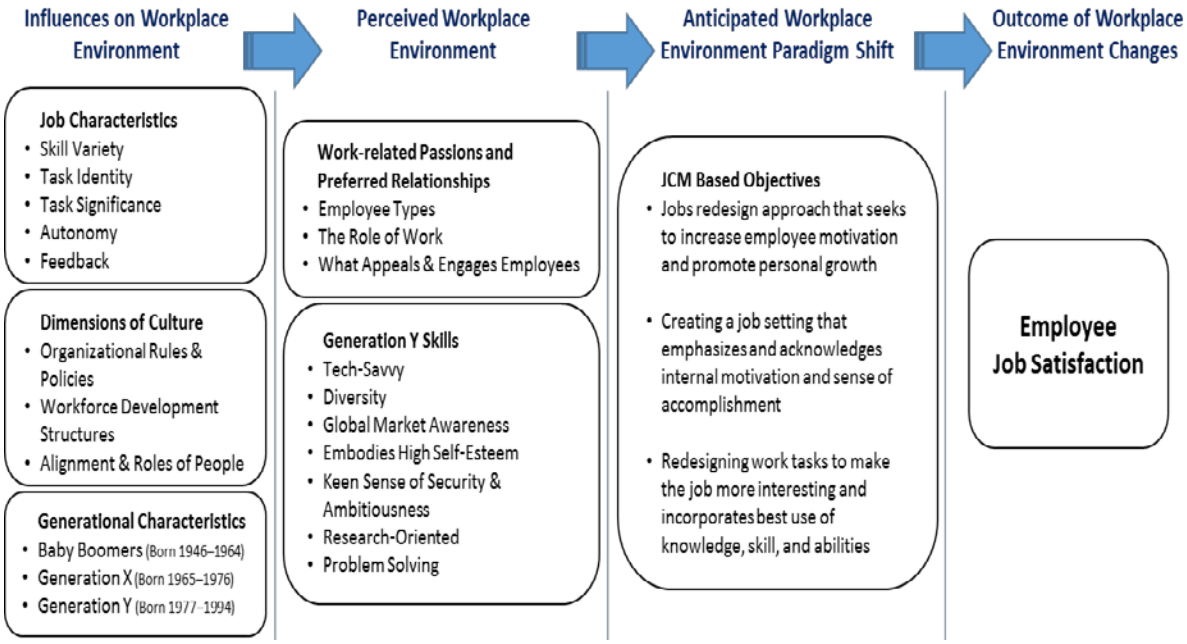

Figure 8. Survey Question Generation Concept Model

The methodology of using the depicted survey generation process in creating questions as the questionnaire was broken into seven areas and the team could compartmentalize content into the correct survey category. The survey header is called Motivation Factors to Retaining the Next Generational Workforce and contains the seven question areas (categories):

1. Demographic Information
2. Work Experience and Recognition
3. Workforce Empowerment and Task Assignments
4. Professional Development/Continuing Education
5. Telework/Flex Work Schedule
6. Technology/Resources Availability

7. Additional Factors in Retaining You as an Army GS Acquisition Engineering Employee.

Accomplishing the task to create relevant and intuitive responses for each question posed an interesting approach. The team decided to form the question responses consistent with Likert Scale Examples for Surveys (Brown, 2010) to follow best practices. This pattern, Likert Scale Format, worked for majority of the questions responses but the team elected to modify as needed to ensure open-ended content responses could be used in the SurveyMonkey (online) survey application and not restrict the surveyed employee's input.

The final survey questionnaire version contained 35 peer-reviewed and validated questions. Traceability exists from the thirty-five root data analysis questions to the respective secondary research questions. These 35 questions support the primary research questions potentially solving the issues as defined in the problem statement.

The advantage of transferring the project survey questions and paired responses from the EXCEL datasheet into the cloud based online SurveyMonkey application format enabled a clear view of questionnaire sequencing, ability to share ideas of question format choices, and selection of best response schemes available (e.g., random, ranking, tables, pick-from-list, and open comment). Upon completing the tasks of solidifying the online survey look and flow, conducting a self-test (by all team members) to determine if layout was intuitive and engaging, the team agreed the online survey was ready for beta testing. The completed Generation Y Motivational Factors Survey Questionnaire is presented in Appendix D as a SurveyMonkey Forms Report.

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V. DATA AND ANALYSIS

A. DATA GATHERING VIA SURVEY DISSEMINATION

1. Initial Survey Dissemination

According to the project survey development process, we set out to disseminate the survey to the target group of individuals, CP-16 Engineers falling into Gen Y, GS pay at specific RDECOM locations. However, as we explored the scale of CP-16 research population, we determined that dissemination to a smaller focus group of individuals would be manageable and meet the project data and analysis scope objectives.

Within the initial dissemination plan we utilized the research and found the actual numbers of individuals that fit that category as seen previously in Table 2. At the time of this research, 1,961 individuals fit into this category within RDECOM. The initial plan was to first define the statistical relevant number to make the study valid. Because we had previously determined we would use SurveyMonkey, we used their statistically relevant information (SurveyMonkey) to determine that in order to get at 10% error rate, we would need over 100 people. This number of individuals initially seemed reasonable to solicit and receive feedback from and we started to informally reach out to colleagues to try to find people to support the survey without going through RDECOM HQ or other high level directorate officials.

When all the preparatory work for survey dissemination was done, it was recommended that prior to dissemination to the target group of individuals, the survey should be reviewed by organizational SMEs. During the SME review process, we requested review and comments on the survey format and survey questions to determine: 1) whether they were soliciting the responses they were intending to solicit, meaning were we posing the question in the right or most clear way for the response to answer the question as intended; and 2) whether they are relevant and meaningful to the intent of the survey and expected recommendations the responses would drive. The scope of the dissemination effort was then limited only to SMEs to review and comment on the survey's questions. For the scope of the JAP, we would not be soliciting responses to the

survey, this would be left up to the JAP sponsor, RDECOM, to determine if they would take the survey product the final step for dissemination through the OPM.

We identified desired criteria for the individual to qualify as an SME. An SME was determined to be a current RDECOM employee, at a GS-15 level or higher, and have personnel management experience. It was preferred to receive comments from each RDECOM subordinate organization and at minimum a group of five individuals. Once a group of SMEs was identified, the survey materials was disseminated via email with specific review instructions on items to comment on through a Comment Resolution Matrix (CRM).

The initial SME review request was provided to five individuals, all known personally by a group member with a two-week response time. We received only one response from the initial request and decided to expand the definition of an SME to widen the pool of potential responders. The update included GS-14 level individuals who have personnel management experience and they could be retired from an RDECOM subordinate organization if they meet the other criteria. This expended the reviewer pool to an additional 12 individuals, all whom had a personal connection to the JAP researchers. The review request was forwarded to another individual for 18 requests sent. The email with specific items and instructions for review can be seen in Appendix A.

Of the 18 requests for review, we received comments from nine individuals. The breakdown of the review request can be seen in Table 6. From the table it can be seen that we did not receive any comments back from the two females nor any comments back from every organization requested. Of the seven organizations represented, we did not receive a response back from AMRDEC or CERDEC. However, the one forward request was to an SME, formally a Senior Executive Service (SES) level employee from Civilian Personnel Advisory Center (CPAC) who we did not personally have any contact with prior to this JAP effort.

Table 6. Review Request Tracking

Organization	Initial Request			Final Review Request		Final Status
	Sent	Response Requested by	Initial Response Status	Sent	Response Requested by	
AMRDEC	23-Mar	6-Apr	Follow up email sent 11 Apr			No response at all
RDECOM HQ	23-Mar	6-Apr	Follow up email sent 11 Apr			No response at all
ARDEC	23-Mar	6-Apr	Response Received 12 Apr	3-May	11-May	Completed initial review, no re-review
ARDEC	23-Mar	6-Apr	Follow up email sent 11 Apr			No response at all
RDECOM HQ	11-Apr	19-Apr	Initial response received 11 Apr.	3-May	11-May	Reviewed survey and survey changes.
RDECOM HQ	11-Apr	19-Apr	Initial response received 13 Apr.	3-May	11-May	Completed initial review, no re-review
RDECOM HQ	11-Apr	19-Apr	Initial response received 19 Apr.	3-May	11-May	Reviewed survey and survey changes.
CERDEC	24-Mar	6-Apr	No response, no follow up sent			No response at all
ECBC	8-Apr	15-Apr	No response, no follow up sent			No response at all
ECBC	8-Apr	15-Apr	No response, no follow up sent			No response at all
Retired Army SES (ECBC, CMA, RDECOM)	8-Apr	15-Apr	Initial response received 10 Apr.	3-May	11-May	Reviewed survey and survey changes.
Retired Army SES (ECBC)	8-Apr	15-Apr	Initial response received 12 Apr.	3-May	11-May	Completed initial review, no re-review
Retired Army SES (ECBC)	8-Apr	15-Apr	Initial response received 9 Apr.	3-May	11-May	Completed initial review. Had a follow up phone call on 22 Apr. No re-review of changes
Retired Army SES (Dir of APG CPAC & CHRA)	9-Apr	15-Apr	Initial response received 14 Apr.	3-May	11-May	Completed initial review, no re-review
TARDEC Deputy Executive Director, Center for Systems Integration	8-Apr	15-Apr	Initial response received 11 Apr.	3-May	11-May	Completed initial review, no re-review
TARDEC Project Manager	8-Apr	22-Apr	Follow up email sent 18 Apr			No response at all
TARDEC Project Manager	8-Apr	22-Apr	Follow up email sent 18 Apr			No response at all
TARDEC Project Manager	8-Apr	22-Apr	Follow up email sent 18 Apr			No response at all
TARDEC SES	8-Apr	22-Apr	Follow up email sent 18 Apr			No response at all

After we received comments, we determined after the imposed suspense dates, with reminders, that we would not be receiving any further input into the initial survey. At this point, we consolidated the responses into an EXCEL spreadsheet for our team's review. The consolidated comments can be found in Appendix B. To conduct our review, we individually reviewed all the comments and developed our own recommendations to the question based on the comments. Then, as a group, we reviewed each comment and recommendation to come up with a final survey. The assessment of the survey review is discussed later in this chapter.

2. Follow-Up Survey Dissemination

The final survey and comments were updated and tabs were created for each individual who commented to clearly see the adjudicated questions. SurveyMonkey was updated to reflect the changes as well and a follow up email requesting final review was sent out. The email provided for the follow up request can be found in Appendix C.

B. ANALYSIS

1. Finding Related to Survey Question and Responses (First Round)

We received a total of 108 comments from the nine reviewers. Upon detailed review of the comments we were able to define five categories of findings. These findings were significant and worthy of discussion.

- Survey Intent: The purpose and introduction to the survey was not clear upfront. There were numerous questions with regards to why we were focused on "engineers" and "GS" only pay grade. The survey was developed to target this subset of individuals within RDECOM, but that was not clear up front.
- Relevancy: There were comments to whether the question was relevant to the survey or not.
- Ambiguous Terms: There were a few subjective words that were identified as difficult to provide a response based on individual's definition of the word. This was the case in 5 specific questions
- Phrasing of questions and Consistency: The survey required more consistency in phrasing of questions. Throughout the survey, the questions were phrased sometimes as questions and sometimes a statement. There were also inconsistencies between questions focusing on the individual or about the organization that did not solicit the intended information about the employee's job satisfaction. Also there were clear inconsistencies in how the question was phrased as either a question or a statement for the person to provide the same response to.
- Administrative: The survey showed issues with the flow and redundancy of questions.

Of the 108 comments, we were able to identify what areas of the survey needed improvement. Table 7 shows the number and percent comments received by type. The majority of comments came with regards of phrasing and consistency with relevancy the second highest category.

Table 7. Survey Beta Test Comments Breakout by Type

Type of comment	# comments	% comments
Survey Intent	14	13.0
Relevency	30	27.8
Ambigous Terms	12	11.1
Phrasing of Questions & Consistency	43	39.8
Administrative	9	8.3
Total	108	

We then analyzed the comments further by category to determine what was the root cause of the issues and what changes were needed to finalize the survey tool.

Survey Intent comments. As previously discussed in the project background and survey generation, the targeted demographic was very specific. This was highlighted in the instructions to the survey reviewers but the detail of the targeted demographic was not clear to some people. The background and instructions to be provided along with survey need to be very clear and ensure the targeted demographic is aware the survey is focused on them and it is not a general workforce climate survey targeted to every member of the workforce regardless of job series and age. The clear communication of the survey goals should also be more clearly stated up front so the ambiguity of why the survey was targeting only GS engineers rather than all engineers has already been answered. It is expected that should the survey be disseminated by RDECOM to the targeted demographic, the recommendations will be taken into account while developing associated information. The survey questions themselves were re-phrased slightly to be clear who the survey is targeted. The most commented on question with regards to survey intent (to engineers) was the question: “I would be more satisfied with my job if I were given direct engineering work to accomplish.” The question was modified to read: “I am satisfied with the amount of engineering work I am given” to remove some of the ambiguity of “more engineering work” rather than just to comment on the amount of engineering work currently given. It was also noted from this specific question the focus on dissemination to 0800 series Engineers indicated only engineers are taking this survey.

Relevancy comments. Their second most comment type was with regards to if the question posed in the survey was relevant to the survey purpose. In some cases, the questions on relevancy are very specific and make sense in the context of the survey. However, some comments regarding the relevancy of the question seem to miss the context of the survey, the anticipated results of the analysis, and the targeted demographic.

For the most part, relevancy comments focused on whether the question fit into the survey, such as why asking about telework matters to the person. There were several comments directly related to the number of telework questions asked and why they were included. The "so what" of the results were lost in the overall context of the survey dissemination and background. However, it is also noted that the targeted demographic, while some may be interested, others may not care why the question is being asked, they would just complete the survey because it was requested of them without much thought to why. As a result of the telework questions, specifically we took a look at the type of questions we asked and re-wrote and deleted telework questions to make the section more efficiently ask the question.

The question that asked: "The length (timing and pace) of the DOD acquisition process plays a role in retaining you as a government Army employee," with the response choices ranging from "Strongly Agree to Strongly Disagree," generated a change to the survey based on its relevancy. There was a 67% comment rate on this question, questioning how this concept plays a role in job satisfaction. The question at first pass was confusing to the reviewers as to what was meant by "length of DOD acquisition process" and how it was relevant to keeping the individual in government service. The intent of the question was to try to correlate if the slow government acquisition process (i.e., moving between milestone decisions) was a positive or negative contributor to whether a person would remain in civilian service. The concept was to see if the pace of working within the rules, regulations and bureaucracy of this system was a point of frustration to people. Ultimately, this question was deleted as we considered that this factor, one that is beyond RDECOM control. Without the ability to change this factor due

to the guidance of the formal DOD acquisition process, it was determined that considerations to this area would not be included.

Ambiguous Terms Comments. In 12.5% of the questions, we used terms that were identified as ambiguous and needed further definition to ensure the response was accurately answering the question. The comments provided were to change "little oversight" to "appropriate oversight," define "direct engineering," and what is "close distance" with regards to commuting distance. The most commented on question was to define what a "unique capability" is when asking if: "working for an organization that has unique capabilities is important to you when selecting a career." In the case of defining "unique capabilities" the revised survey question was re-phrased to ask if the person agreed or disagreed with the statement: "Working for the U.S. Army and supporting the mission of National Defense is an important consideration to me to stay an Army Civilian." This was the intent of "unique capability" but poorly phrased in the initial survey question.

Phrasing of questions and Consistency comments. The most comments we received were in the phrasing and consistency category. The comments were distributed throughout the survey with only a few specific questions receiving multiple comments. The overall theme of phrasing of the questions was addressed in the survey revision by consistently using statements rather than questions as the question format. For example, an original question asked: "Overall I am satisfied with the organization at the present time?" and the resulting question was to remove the question mark and re-phase it to: "I am satisfied with my organization at the present time" while keeping the "strongly agree to strongly disagree" response options. All questions were reviewed and re-phrased to reflect these types of statements for the person to agree or disagree to rather than trying to interpret a question. We also reviewed the entire survey for inconsistent use of "civilian" "government" and "Army" and decided to use the term "Army Civilian" consistently throughout the questions for clarity. In many ways, some of the re-phrasing comments could also be considered administrative but we categorized them as such due to the intent and meaning behind the phrasing was more than just administrative. The changes in phrasing transformed the survey as a whole by ensuring the questions were posed

consistently, used consistent terminology and language and allowed more efficient reading and response of questions by the person taking the survey.

Administrative comments. These comments ranged from phrasing, misspelling, missing words, and inconsistencies. They were captured because they required correction within the survey and could ultimately be a distraction. From the administrative comments, we ensured the survey was precise and meticulous in the execution. All administrative comments were resolved in the updated survey.

2. Findings Related to Survey Revisions (Second Round)

We received confirmation the changes we made to the survey after the initial round of comments were satisfactory. We received no specific comments to the new and updated questions as well as the order they were provided to the reviewer. The most feedback in the verification round of comments was “it looks good” or “the changes are fine.”

Of the initial nine reviewers, we received four confirmation responses to the changes. The adjudication of comments and finalized survey instrument validated the changes made. No further action or changes were made to the survey after completion of this step.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

The intent of this research and analysis was to develop a survey for the U.S. Army RDECOM to utilize in order to understand the mindset and motivational factors of their Gen Y workforce. It is expected that through dissemination of the developed survey, the command can conduct analysis on their workforce to inform leadership on potential changes that, if implemented, can improve the ability to retain the critical engineering workforce.

When leadership can understand some of the factors that influence job satisfaction such as opportunities for personnel growth, tailored awards or rewards, and maximum utilization of people's knowledge, skills and abilities, they can develop and implement realistic policies to promote positive changes.

Our research and development of a survey tool utilized the JCM model to connect the characteristics of what makes a job satisfying to a person to the nuances of the generational characteristics of the Gen Y workforce. If employed, we expect that the survey will show that the Gen Y workforces enjoys the luxury of money, but more importantly they desire more balance between work and life in the form the flexibility the U.S. Army Civilian Service can provide.

The questions focused on items that the U.S. Army RDECOM could control or change to improve Gen Y's job satisfaction such as telework, flexible schedules, and more options or focused use of awards. We chose to exclude items we initially felt were important to job satisfaction overall, but could not be changed at the RDECOM level to improve retention. A specific example of this was a question asking how satisfied an individual was with "the length (timing and pace) of the DOD acquisition process play a role in retaining you as a government Army employee." The initial concept was that the length it takes to move a product through the formal DOD acquisition cycle (i.e., from Pre-Milestone A to Post Milestone C) could be considered a contributor to a negative job satisfaction level, thus causing turnover of individuals to other industries or the private

sector in order to improve job satisfaction. However, through feedback in the survey review, it was determined this issue would not and could not be resolved by RDECOM to improve job satisfaction. The other question ultimately excluded from the survey had to do with the amount of mandatory training that was required by the U.S. Army. We initially felt that it was a contributor to low job satisfaction and inefficiencies every year, but the RDECOM would not have any ability to change or influence the reduction of this type of training; therefore, this item was also deleted.

B. RECOMMENDATIONS

When we started this research, we thought the answer to the loss of personnel from Army civil service would be developing a survey that verify our original hypothesis that factors other than more money would motivate the Gen Y workforce. Through our research, we identified a possible methodology to identify solutions and recommendations to improve reward systems beyond traditional monetary rewards. Through an in-depth study of factors relating to Gen Y characteristics and job satisfaction, we were able to pose questions that would clearly solicit the information related to skill variety, task identification, task significance, autonomy, and feedback. We validated the survey by requesting experienced engineering subject matter experts to conduct two cycles of beta testing. The result is a comprehensive set of survey questions in a finalized questionnaire format. Should RDECOM utilize the survey based on our research, our first and foremost recommendation is to broadly disseminate the survey tool, in order to understand the Gen Y mindset to determine the validity of workforce environmental changes. Should the survey prove out the researched JCM attributes, shifts in the workplace can include changed based on three high-level objectives:

- A jobs redesign approach that seeks to increase employee motivation and promote personal growth
- Creating a job setting that emphasizes and acknowledges internal motivation and sense of accomplishment
- Redesigning work tasks to make the job more interesting and incorporate best use of knowledge, skill and abilities

Each objective requires significant changes in how we plan for and manage our engineering positions within RDECOM. Many of the significant changes might be beyond the current scope and purview of the command but there are smaller changes within each objective that could be undertaken to improve job satisfaction.

1. Jobs Redesign Approach

For RDECOM to increase employee motivation and promote personal growth, it is recommended that the command implement small programs that can promote individual initiatives while pushing the end goal of developing technology. While utilizing formal job descriptions to hire engineers cannot be changed by RDECOM, there are opportunities to improve how positions are designed through execution of the expected duties. Leadership and supervisors can provide high-performing engineers more freedom and flexibility to pursue work on projects that are meaningful to them. Many positions include a broad objective for the employee to fulfill "other duties as assigned," and within this catchall, it is recommended the other duties include small projects that are of personal interest.

In order to support that, we recommend that RDECOM create a policy encouraging small amounts of mission funding be set aside by each RDEC to be competed for annually, for two-year S&T projects of interest, rather than within the bounds of current organizational objectives. While RDECOM cannot plan and budget for these programs specifically, in order to achieve its vision of being: "the preeminent world leader in research, development and engineering" (RDECOM SharePoint, n.d.-a), a program promoting engineers to innovate can push the boundaries of technology beyond its current limit.

It is expected a program of this nature could be a win-win for both the organization and individual employees. It will foster creative thinking and more importantly ownership in an effort providing the Gen Y a way to make a difference within an organization committed to pushing technology further.

2. Job-Setting Approach

In order for RDECOM to creating a job setting that emphasizes and acknowledges internal motivation and sense of accomplishment, it is recommended that they improve the ability of engineers to work from home or anywhere they desire, to a certain extent. Because Gen Y wants all components of their life to fit together (work, home, kids, and personal hobbies), there are many ways to provide this connection. Simple methods of providing connectivity include availability of cell phones, laptops (versus desktop computers) and Wi-Fi hotspots to allow people to work from anywhere. In addition to the availably of the tools to do the jobs, increased support to utilize current telework and flexible schedules can show, through action, that leadership and supervisor support and trust them to complete their efforts as required. Although these policies are in place today, they are used at the discretion of each RDEC and often times pushed down to allow division chiefs or below as the signatory official on telework or flex schedules. For RDECOM to truly get behind their own policies, it is recommended that they require supervisor metrics to have telework agreements and flex schedules in place for all qualifying engineers based on a minimum level of criteria. This criteria would be in addition to the training and agreements required to date. It is recommended to include review of the engineer's current job functions, ability to complete the functions in a setting outside the office, and review of past two annual ratings to ensure the employee is exceeding current job expectations. The telework agreements should also be updated to include conditions of termination based on each employee's situation but could include, change in job functions, reduction of productivity based on annual ratings, or violation of agreement.

By allowing the Gen Y engineer the ability to increase the fluidity between the components of their life, it is expected their job satisfaction would increase though internal motivation and the support entrusted in them by their supervisors to get the work done to the level and with schedule, as expected.

3. Task Redesign

Redesigning work tasks to make the job more interesting and incorporate best use of knowledge, skill and abilities is one of the most challenging tenets to improving job satisfaction. It will be very much based on the individual and could become time consuming or even all-consuming of middle management supervisors to ensure each employee is happy with what they are doing. Rather than obligate supervisors be required to be the keepers of their employees' happiness in their jobs, it is recommended that RDECOM implement a policy to support that, while filling open positions, supervisors are required to provide a more detailed overview of the job position. Supervisor incorporation of JCM core job dimensions characteristics that influence task knowledge, skills, and abilities would be beneficial to employees succeeding in executing the duties. Additionally, providing opportunities to meet with employees and discuss the job and functions with other team members who would work with the candidate will foster collective involvement and openness for collaborations. By providing more insight into the day-to-day duties, the team atmosphere and project details, it would ensure the candidate ultimately accepting the position would be postured to fulfill the duties above and beyond expectation.

Another way we would recommend is not redesigning the work task around the individual, but redesigning how supervisors fill positions with the "right people" is to provide more developmental opportunities for people to complete specific duties of a project for a temporary period of time, usually 179 days, to "test drive" the project, team, and duties. To reduce the burden for the supervisor to constantly fill these positions, projects would be required during the planning phase, to lay out specific tasks to be completed through the use of the developmental assignment personnel.

C. FUTURE EFFORTS

It is anticipated that the final survey can be transitioned to RDECOM HQ and provided to the G-1 staff section Human Resources to gain valuable insight into what motivates this group of individuals within the command. It is also recommended, that in addition to annual distribution of the survey, the command should also develop an exit

survey to evaluate the reason why individuals choose to depart the U.S. Army RDECOM or even the federal government. If the command used both types of surveys, it could get an understanding of why they would leave from and compare it with why people actually leave.

It is also recommended that this becomes an annual effort, similar to climate surveys, that can be analyzed for changes over time if a question is added to account for the frequency the person has taken the survey (i.e., "How many years have you worked within the U.S. Army RDECOM?"). The numbers can be backtracked to how many years into the annual survey has taken place to then track people and their mind frame more closely.

Further research could also be done by following this group of individuals from current employment within the command until retirement to see how as people age and priorities change. This would be significant effort and would likely require academic support to ensure the approach is sound. However, if it was undertaken, the information could be used to pro-actively plan for retirement and replacement of skill sets and competencies being lost to natural attrition such as through retirement or death. Based on today's pending crisis of lost knowledge due to the Baby Boomer generation retiring, this would be the first step to mitigate the significant personnel loss at one time while also potentially increasing the productivity of people during the most experienced time of their careers.

VII. SUPPLEMENTALS

The following appendices included as supplemental material provide additional context to the research and analysis conducted. Each appendix is provided to support the detailed analysis of the survey development review process, comments received, and survey generation using the SurveyMonkey online tool.

APPENDIX A: INITIAL SURVEY DISSEMINATION EMAIL

Hello [fill in name],
I am emailing you to request your help on a project I am working on for my master's degree in Program Management from the Naval Postgraduate School (NPS). My group is developing a survey to assess the Army GS-Series Engineering workforce to recognize the progressive mindset of GenY (born between 1977–1994) and understand the personal motivational factors that can influence changes in the workforce performance standards system within RDECOM.

Through our research we have developed an online survey to attempt to assess the motivational factors of our target group. Our research requires the survey be reviewed by a group of senior leaders within RDECOM to assess if the questions we are asking will provide the right type and amount of information to draw conclusions from.

We expect the initial analysis to drive changes to the final survey. We are asking that you review the survey twice, once for an initial take and comment and a second time to review and verify the changes based on the first review. We expect to turn the survey around in approximately 6 weeks after initial review.

To review the survey, we are asking you to follow the below instructions:

Review Online Dissemination:

1. Please access the survey via SurveyMonkey at the link below: https://www.surveymonkey.com/r/ZQGBKBP
2. Answer the following questions:
    a. How long did the survey take for you to complete?
    b. Is the length of the survey beyond what you would expect your workforce to complete?
    c. What is the percentage of your workforce that you would expect to complete the survey if disseminated
    d. How does the survey look online? Is it clear, easy to read and follow instructions?
    e. Are the headers within the survey that separate the questions logical?
    f. Are the buttons, choices, and response types clearly marked and easy to use?

g. Does the flow of questions seem to be in a rational order? If no, then what changes would you recommend?

Review the Survey via EXCEL File

1. Please open the EXCEL file
2. Answer the following questions:
   a. Is the language/phrasing of the questions clear? If not, provide comment or note in column E (Comments to Language and Phrasing of Question)
   b. Is the question useful to the intent of the survey? If not, provide comment or note in column F (Comments to question relevancy)
3. Overall, are these the questions we (or you) would ask in order to determine if your workforce is satisfied with their jobs and intends to remain in government service?

Please take the survey and provide comments NLT DD MON YYYY.

Thank you in advance for your time.

Dawn Folck, Jen Avato, Sam Gachupin
NPS MS Program Management
September 2016

APPENDIX B: SURVEY COMMENTS AND COMMENT RESOLUTION MATRIX

Appendix B details the specific comments, responses, and recommended changes provided by the group of SME reviewers. It includes each comment provide by each individual on each question provided. In addition to the provided comments, the appendix contains the adjudication of the comments and final decision to accept, reject, or partially accept the comment is noted with a rationale as to the decision.

Appendix B can be obtained through the NPS library.

APPENDIX C: FOLLOW-UP SURVEY DISSEMINATION EMAIL

All,

Thank you again for your input into our NPS Thesis project survey. As a team we have reviewed each of your comments and revised survey questions as appropriate. We are asking for a small amount of your time to complete the review process. If possible, could you please provide either a “looks good” email response or any additional comments via the below instructions NLT Wednesday 11 May.

1. Please review the changes to the question and response choice in the attached EXCEL file. There should be a tab with your last name on it so you can quickly see your comments against the changes. (There is also an “ALL Adjudicated Comment” tab if you are interested in seeing the full scope of comments by survey question). If you have any final comments please input them into the sheet under column G “Final Comments.”
2. Please re-take the survey online so we can assess the time it takes to complete. The link is below:

   Motivation Factors to Retaining The Next Generational Workforce v2.0
   https://www.surveymonkey.com/r/VJFRRHR

Thank you again!
Jen, Dawn and Sam

APPENDIX D: MOTIVATIONAL FACTORS SURVEY – SURVEYMONKEY REPORTS

Appendix D contains the completed survey as aggregated into a summary report after the final round of survey development beta testing. Additionally, a blank survey questionnaire is included for clear view of layout, question sequencing, and response choices as programmed in the online survey tool application (SurveyMonkey).

Appendix D can be obtained through the NPS library.

LIST OF REFERENCES

Adkins, F. (2016). AMC proponent office, career program listing, CP101 introduction. Retrieved from http://www.civiliantraining.army.mil/ occupational/Pages/CP-16.aspx

Brown, S. (2010, December). ANR program evaluation. Retrieved from Iowa State University, Extension and Outreach: http://www.extension.iastate.edu/ Documents/ANR/LikertScaleExamplesforSurveys.pdf

Civilian Training & Leadership Development. (n.d.). CP-16 engineers and scientists (non-construction). Retrieved from http://www.civiliantraining.army.mil/ occupational/Pages/CP-16.aspx

Erickson, T. (2008). *Plugged in: The Generation Y guide to thriving at work.* Boston, MA: Harvard Business Press

Hackman, J.R. & Oldham, G.R. (1976, August). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance*, *16*(2), pp. 250–279

Hobart, B, & Sendek, H. (2014). *Gen Y Now: Millennials and the Evolution of Leadership*. San Francisco, CA: Wiley

How many people do I need to take my survey? (n.d.). SurveyMonkey Blog, Survey Tips. Retrieved from https://www.surveymonkey.com/blog/2011/09/15/how-many-people-do-i-need-to-take-my-survey/

Job characteristics theory. (n.d.). In *Wikipedia*. Retrieved January 2016, from https://en.wikipedia.org/wiki/Job_characteristic_theory

Meet the multigenerational workforce: Traditional, Baby Boomers, and Generation Y. (2016, March). Retrieved from ValueOptions: valueoptions.com/spotlight_ YIW/ resources.htm

Oldham, G. R., & Hackman, J. R. (2005). How job characteristics theory happened. In K. G. Smith & M. A. Hitt (Eds.), *Great minds in management: The process of theory development* (pp. 151–170). Oxford, UK: Oxford University Press

Pay and the General Schedule (GS). (2016). Retrieved from http://gogovernment.org/ government_101/pay_and_the_general_schedule.php

Program Evaluation and Methodology Division. (1993). *Developing and using questionnaires*. Washington, D.C.: U.S. General Accounting Office.

Sedmack, A. (2014). *Office of the Deputy Assistant Secretary of Defense for Systems Engineering. Developing the U.S. Department of Defense Engineering Workforce*. 17th Annual NDIA Systems Engineering Conference. Retrieved from http://www.acq.osd.mil/se/briefs/16952-2014_10_29_NDIA-SEC-Sedmak-EngWF-vF.pdf

United States Army Career Tracker. (2013). Army careers: CP-16 career path. Retrieved from http://cpol.army.mil/library/train/acteds/CP_16/CP16-ACTEDS-Plan.pdf

United States Army Research and Development Command (n.d.-a). SharePoint. Retrieved from https://rdecom.apgea.army.mil/Pages/RDECOM.aspx

United States Army Research and Development Command. (n.d.-b). In *Wikipedia*. Retrieved from https://en.wikipedia.org/wiki/United_States_Army_ Research_Development_and_Engineering_Command

United States Office of Personnel Management (n.d.-a). *Human capital management*. Retrieved from https://www.opm.gov/policy-data-oversight/human-capital-management/reference-materials/talent-management/incentivesrecognition.pdf

United States Office of Personnel Management. (n.d.-b). Government pay scale. Retrieved from http://www.opm.gov/policy-data-oversite/pay-leave/pay -administrative/fact

United States Office of Personnel Management. (n.d.-c). Pay & leave. Retrieved from https://www.opm.gov/policy-data-oversight/pay-leave/salaries-wages/fact-sheets/#url=General-Schedule

United States Office of Personnel Management. (n.d.-d). Performance management. Retrieved from https://www.opm.gov/policy-data-oversight/performance-management/awards-list

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
   Ft. Belvoir, Virginia

2. Dudley Knox Library
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