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Return on Investment for the United States Navy's Training with Industry Program

June 2017

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LT Amphay Souksavatdy, USN

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Prepared for the Naval Postgraduate School, Monterey, CA 93943.

ACQUISITION RESEARCH PROGRAM
GRADUATE SCHOOL OF BUSINESS & PUBLIC POLICY
NAVAL POSTGRADUATE SCHOOL

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ABSTRACT

Annually, the United States Navy's Supply Corps selects four officers to participate in its Training with Industry (TWI) program. This program takes the selected officers out of traditional Navy Supply Corps billets and sends them to work with one of four Fortune 500 companies, ExxonMobil, Starbucks, The Home Depot, or FedEx. Lessons learned from these companies and their best business practices are to be brought back to the fleet during a follow-on three-year utilization tour after the TWI program.

To develop an ROI metric for Naval Supply Systems Command (NAVSUP) to apply to its TWI program, this MBA project researched three ROI methodologies, the Kirkpatrick model, Schmidt's seven steps model, and Phillips' five-level ROI framework. Combining elements of the three methodologies, an adaptable metric was developed for NAVSUP.

The net benefit of the program divided by the program costs results in an ROI of 88%. Additional intangible benefits obtained include meeting capability gaps, meeting NAVSUP's objectives, and increasing the professional value of the Supply Corps officers. It is recommended that NAVSUP adjust its utilization of the officer to maximize the benefit, use the forms developed to improve data collection, and assign participants additional qualification designations (AQDs) upon TWI program completion.

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ABOUT THE AUTHORS

LCDR Melissa S. Flynn, USN, A native of Waldorf, Maryland, LCDR Flynn graduated from Towson University with a degree in Elementary Education. While teaching for four years in Maryland, she earned a Master of Science in Education from Johns Hopkins University. LCDR Flynn then joined the Navy in January 2006. Upon completion of Officer Candidate School, she attended the Supply Corps Officer Basic Qualification Course in Athens, GA where she graduated in the top 10 of her class. After graduation, she reported to her first assignment in San Diego, California on USS JOHN PAUL JONES (DDG 53).

Reporting onboard USS JOHN PAUL JONES, LCDR Flynn served as the Assistant Supply Officer from January 2007 to May 2009. Major accomplishments during this tour included earning the Supply Blue "E" for the ship, an achievement not received in over a decade for the ship. She also earned her Surface Warfare Supply Corps Officer pin.

After her first tour, LCDR joined the staff of Commander, Logistics Forces (COMLOGFORNAVCENT), Commander, Task Force 53 (CTF-53) at Naval Support Activity Bahrain. Here she served as Assistant Replenishment Officer from May 2009 to June 2010, coordinating replenishment events for 58 US combatants and 92 coalition forces representing 17 nations in the Fifth Fleet operating area.

Following her tour in Bahrain, LCDR Flynn reported to TWENTY-SECOND Naval Construction Regiment as the Assistant Logistics Officer from July 2010 to September 2012. While homeported in Gulfport, MS, she made two deployments to Afghanistan in support of Operation Enduring Freedom. Deployed logistic operations included the support of 1500 Soldiers, Sailors, and Airmen for construction projects throughout South and Southwest Afghanistan. LCDR Flynn earned her Seabee Combat Warfare pin and Navy Expeditionary Supply Corps Officer pin while assigned to the Regiment.

Taking orders to U. S. Fleet Forces Command in Norfolk, VA from October 2012 to May 2014, LCDR Flynn tracked the logistics readiness of 174 combatant units preparing to deploy in support of combatant commanders worldwide.

After a successful tour, she was selected to become the Supply Officer on USS MONTEREY (CG-61). While onboard from July 2014 to December 2015, she led her department through a successful Supply Management Certification and helped bring the ship from dry-dock to combat ready.

Currently, LCDR Flynn is at Naval Postgraduate School in Monterey, CA, where she is working toward attaining a Master in Business Administration with subspecialty in acquisition and contracting. She will also graduate having completed Joint Professional Military Education Phase I. Her next assignment is at NAVAIR where she will be utilizing her subspecialty in contracting.

Her awards and decorations include four Navy and Marine Corps Commendation Medals, a Navy and Marine Corps Achievement Medal, and various other campaign and unit awards.

LT Amphay Souksavatdy, USN, born in Laos and raised in Lompoc, CA, LT Souksavatdy enlisted in the United States Navy in August 1999. Upon completion of Basic Training and Aviation Electronic Technician "A" and "C" school, she reported for duty at VAQ 136, Carrier Air Wing Five embarked onboard USS KITTY HAWK (CV 63), home-ported in Yokosuka, Japan. In October 2003, she reported to Commander Strike Fighter Wing, U. S. Pacific Fleet DET AIMD, Naval Air Station Lemoore, CA, where she served as the 2M Leading Petty Officer.

While serving on a shore duty billet in Lemoore, CA, LT Souksavatdy attended Columbia College as a full time student, earning her Bachelor of Science in Business Administration with double majors in Business Management and Human Resource Management in May 2006. Upon receiving her degree, she submitted a package for Officer Candidate School, and was accepted into the Supply Corps Program.

In September 2007, LT Souksavatdy reported on board USS DUBUQUE (LPD 8) where she served as the Disbursing, Sales, Postal and Food Services Officer. In February 2013, she reported on board USS NEW ORLEANS (LPD18) as Supply Officer Department Head. She successfully navigated the ship through two SMCs, an eight months deployment, and two INSURV inspections.

Her shore duty was at NAVSUP Fleet Logistics Center Yokosuka where she served as Commander, Fleet Activities Yokosuka Liaison Officer, Strategy Cell, and Logistics Support Officer. During this time, she was trained as NAVSUP Lean Six Sigma Black Belt, and worked as the Command Continuous Performance Improvement Deployment Champion. She is currently a student at Naval Post Graduate School (815).

LT Souksavatdy decorations include the Navy and Marine Corps Commendation Medal (Two awards), the Navy and Marine Corps Achievement Medal (four awards), and various unit decorations.

ACKNOWLEDGMENTS

We would like to thank our advisors, Professor Bill Hatch and Dr. Daniel Nussbaum, along with other Naval Postgraduate School faculty for their assistance and for the academic tools provided to us throughout our educational experience. Additionally, we would like to thank Mr. Phillip Knauss, Director, Officer Plans (NAVSUP OP3 / PERS 4412 P3), whose steadfast support throughout the project was invaluable.

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LIST OF ACRONYMS AND ABBREVIATIONS

AFIT	Air Force Institute of Technology
AQD	Additional Qualification Designation
BCR	Benefit and Cost Ratio
BSO	Budget Submitting Office
CNO	Chief of Naval Operations
DLA	Defense Logistics Agency
DOD	Department of Defense
DON	Department of the Navy
EPMD	Enlisted Personnel Management Directorate
EWI	Education with Industry
GAO	Government Accountability Office
GPRA	Government Performance and Result Act
HR	Human Resources
HRC	United States Army Human Resources Command
L&D	Learning and Development
LTS	Leadership Training for Supervisors
MOU	Memorandum of Understanding
NAVSUP	Naval Supply Systems Command
NCOs	Non-commissioned Officers
NOBC	Navy Officer Billet Classification
NOOCS	Navy Officer Occupational Classification System
NRP	National Partnership for Reinventing Government
ODC	Officer Data Card
OPNAV	Office of the Chief of Naval Operations
PCS	Permanent Change of Station
PRD	Projected Rotation Date
ROE	Return on Expectation
ROI	Return on Investment
SECNAV	Secretary of the Navy
SNTWI	Secretary of the Navy Tours with Industry

TQM	Total Quality Management
TRANSCOM	United States Transportation Command
TWI	Training with Industry
USMC	United States Marine Corps
YOS	Years of Service

I. INTRODUCTION

As Phillips (1997) stated, "When examining current publications related to ROI … most models and representations of the ROI process ignore, or provide very little insight into the two key elements essential to developing the ROI: Isolating the effects of training, and converting data to monetary values" (p. xiv). This project attempted to do this for the Navy's Training with Industry (TWI) program so that the Naval Supply Systems Command (NAVSUP) can make better informed decisions regarding investing resources, including manpower, into the program.

A. BACKGROUND

The United States Navy Supply Corps can trace its inception to 1795 when the first Supply Corps officers were assigned to support the original six frigates of the U.S. Navy. At this time, the original duties and responsibilities of the Navy Supply Corps included logistics support. The Supply Corps' overall mission today, "delivering sustained global logistics capabilities to the Navy and Joint Warfighter," has not changed significantly (Naval Supply Systems Command [NAVSUP], n.d.-a). However, the Supply Corps has grown to over 3,500 active duty and reserve component officers. Supply Corps officers are serving not just on ships, but on submarines, in the expeditionary environment, and in joint operations, both in the United States and abroad. Today's Supply Corps officers are trained to be well-rounded naval officers, and they receive specific training in one of the three supply lines of operations: supply chain management, acquisition management, and operational logistics (NAVSUP, n.d.-a).

A successful career in the Supply Corps requires skills and talents to support maritime, contingency, and expeditionary environments. Through job rotation, an officer picks up technical and leadership skills which help to gain "Big Navy" insight to logistics operations while providing exposure to managing logistics from the unit level to the strategic level. With each billet assigned, Supply Corps officers build professional development and gain experience to better support the fleet. Supply Corps officers learn problem solving techniques through both training and education (Office of Supply Corps Personnel, 2011).

From the ranks of ensign through lieutenant, the Supply Corps career path develops tactical junior officers who learn how the Navy is organized and how it operates at the unit level. Lieutenant commanders are often sent to graduate school, which, along with prior experience, helps build and refine leadership and logistics skills to help them take on key leadership and operational billets as commanders (Office of Supply Corps Personnel, 2011).

The Supply Corps often awards what is termed "top-tier assignments" to individuals who sustain superior performance, accept challenging billets, maintain a solid reputation, and network with individuals in the supply community. One example of a top-tier assignment is selection for a TWI internship (Office of Supply Corps Personnel, 2011).

Every year, four accomplished lieutenant (O-3) and lieutenant commander (O-4) Supply Corps officers are selected for participation in the TWI program. To be eligible for selection, the officer is (a) an O-3 or O-4, (b) has a master's degree or will obtain one in the calendar year following the board, (c) completed two operational tours, and (d) has a projected rotation date (PRD) in the calendar year following the selection board (NAVSUP, 2013). The TWI program provides the opportunity for those selected to be part of the operations of well-regarded companies with large logistic footprints, including Starbucks, FedEx, The Home Depot, and ExxonMobil. The TWI program is designed "to provide training and/or development of skills in private sector procedures and practices not available through existing military or advanced civilian education programs or other established training and education programs" (Department of Defense [DOD], 2007). During this one-year assignment, the Supply Corps officer executes a permanent change of station (PCS) to the company headquarters to work in the field with real-world business issues; assists with quality and safety audits, and contingency and strategic planning; and develops a solid understanding of how the company manages its supply chain (Adams, 2012). After one year in the TWI program, the officer has a three-year payback tour in a select billet with the intent to bring best practices from the corporate world to the fleet.

1. Department of Defense Training with Industry Policy

DOD Instruction 1322.06 establishes the policy for the TWI program. This program, along with other fellowships and scholarships, is to "fulfill a present need, anticipated requirement, or future capability that contributes to the effectiveness of the respective

Military Department and the Department of Defense" (DOD, 2007). While participating in the program, the DOD pays the participant normal pay and allowances. The payback requirement for the participant is to complete at least three times the length of the TWI tour. Therefore, a one-year TWI tour requires a three-year payback (DOD, 2007).

DOD Instruction 1322.06 goes on to specify that military personnel may be accepted into TWI only under the following circumstances:

- In recognition of outstanding performance in their fields
- To undertake a project that may be of value to the United States
- For development of their recognized potential for future career service
- To acquire a skill, knowledge, or ability to fulfill a present need, anticipated requirement, or future capability that contributes to the effectiveness of the respective Military Department and contributes to the transformation of the Department of Defense. (DOD, 2007, p. 8)

The DOD Instruction 1322.06 also states the criteria for an assignment to the TWI program must include the following:

- There must be an existing Military Component need or desired future capability fulfilled by virtue of the experience gained.
- There must be either a follow-on utilization tour or assignment to which the individual shall be assigned, or a clear, documented future need for the skill that is gained.
- If individuals completing the TWI are not immediately placed in a utilization tour or assignment, the Secretary concerned shall keep administrative oversight of the individuals and their gained skills for utilization at a time determined by the Military Component.
- The TWI tour or assignment should not exceed 12 months in length. Any TWI tour or assignment that will exceed 12 months must be approved by the Secretary concerned.
- The proposed TWI tour or assignment must meet professional development requirements.
- There must be a written agreement between the private sector host, the employee, and the DOD Component concerned before the start of the TWI assignment.
- The education or training to be received or the research to be performed by a fellowship, scholarship, TWI, or grant recipient must be designed to qualify the recipient to satisfy a requirement or potential requirement of the Department of Defense, contribute to the recipient's recognized potential for career service, or constitute a contribution to a project of value to the United States. (pp. 9–10)

Each branch of the military, with the exception of the United States Marine Corps (USMC), participates in the TWI program. These programs are described in the following section.

2. United States Army Training with Industry

The U.S. Army has sent both commissioned and non-commissioned officers through the TWI program since the 1970s (United States Army Human Resources Command [HRC], 2016). The Army's objective in participating in the TWI program is to develop officers and non-commissioned officers (NCOs) who understand industry and who gain new management practices through the private sector. Partnering with industry helps the Army to "support marketing, public affairs, artificial intelligence, physical security, and finance" (HRC, 2016). Over 40 companies partner with the Army and accept TWI participants, including the National Football League, Caterpillar, and Google (Enlisted Personnel Management Directorate [EPMD], 2017c).

Officers and NCOs who want to participate in the TWI program submit applications to Military Schools Branch, where a panel selects top candidates and submits the names to a leader development division for final approval. Prospective participants have demonstrated the potential for a long-term career in the Army and must have been recently promoted, or qualified for promotion (EPMD, 2017b). The Army has a total of 50 TWI allocations per year. Each assignment is 6 to 12 months (EPMD, 2017a).

The Army requires its participants to follow a training plan with objectives, perform self-study actions, and complete specific activities. Both mid-term and final reports are due to the Army training coordinator (HRC, 2016). The payback for Army officers and NCOs is a three-year active duty assignment and a two-year utilization tour.

3. United States Air Force Education with Industry

The Air Force's program is called Education with Industry (EWI). The EWI program is open to officers and civilians of the rank O-3 to O-4 or GS 11 to GS 13 (Air Force Institute of Technology [AFIT], 2015). The Air Force started this program in 1947 because the Air Force recognized a need for its personnel to understand the workings of the defense industry and for Air Force personnel and industry to communicate service needs to each other.

Companies that partner with the Air Force for EWI include The Boeing Company, Microsoft Corporation, and Honeywell (AFIT, 2015).

Officers are nominated for the EWI program by their senior rater (Secretary of the Air Force, 2009). The nomination is reviewed by a team who then forward the applications for the recommended individuals to a selection board. Civilians submit their own application for consideration of acceptance into the EWI program. Civilians can apply through Career Field Teams, using an Air Force Civilian Competitive Development Nomination Form. Unlike officers, who typically PCS to an EWI location, civilians partner with companies within close proximity to their home location (Secretary of the Air Force, 2009). The number of persons selected for the program varies from year to year, but it is usually between 30 and 40 personnel (K. Hansen, personal communication, February 16, 2017). Assignments for the EWI program are 10 months in length and incur a three-year commitment after completion (United States Air Force, 2009; Secretary of the Air Force, 2009).

The Department of the Air Force (2009) specifies the requirements for the Air Force participants to include developing a work plan to identify the objectives and to guide activities to complete during the program. The work plan is a flexible document to enable participants to capitalize on unforeseen opportunities that arise and are deemed beneficial. During the program, participants are required to submit three individual reports containing information on activities performed, benefits derived, and personal observations. Participants also complete a research paper during the EWI program (Department of the Air Force, 2009).

4. United States Navy and Marine Corps Secretary of the Navy Tours with Industry

Aside from the four participants sent through the TWI program each year from the Navy Supply Corps, in October of 2015, the Navy initiated Secretary of the Navy Tours with Industry (SNTWI) (Department of the Navy [DON], 2015). The secretary of the Navy lays out a policy for both officers (O-3 or above) and enlisted (E-6 or above) to work 11 to 12 months with industry to familiarize themselves with business planning, organization, management techniques, innovations, and best practices (DON, 2015). At SNTWI's inception, Amazon and FedEx partnered with the Navy (Chief of Naval Personnel Public Affairs, 2015).

Participation in the program is voluntary; however, personnel are first nominated and then selected from their naval community. As of 2015, the Navy had five participants in the SNTWI program (Chief of Naval Personnel Public Affairs, 2015). The Navy intends to grow the program to 15–20 officers and 15–20 enlisted each year.

Participants submit periodic reports documenting experiences and observations. Additional briefing to Naval leaders may be required (DON, 2015). The Marine Corps, under the Department of the Navy (DON), is required to establish an SNTWI program. No information has been found on the Marine program.

5. Training Oversight

The military components are authorized to send service members to training in nongovernmental facilities, like TWI, EWI, and SNTWI, under Section 2013 of Title 10 of the U.S. Code. However, a Government Accountability Office (GAO) report, GAO-12-367, called out the Army, Navy, and Air Force for lack of oversight of their TWI programs. The report specifically lists four main reasons:

- Not all of the services conduct periodic program review.
- The services do not have clear guidance as to what qualifies as a follow-on utilization tour.
- The services do not know their overall program costs, including both direct and indirect costs, and therefore it is difficult know whether these program are cost-effective.
- Some of the services do not have written agreements or memoranda of understanding with the non-DOD host organizations providing the educational opportunity that spell out both parties' roles and responsibilities. (Farrell, 2012, pp. 23–24)

The Naval Supply Systems Command (NAVSUP) invests in the TWI partnerships with the Navy Supply Corps. However, there is no tool to evaluate the return on investment (ROI) from the TWI program. This MBA project evaluated the Supply Corps TWI program from an ROI perspective. Through analysis of the partnerships and a determination of ROI, NAVSUP will be able to make better informed decisions regarding investing in the TWI program.

B. OBJECTIVES

Several methodologies for ROI were analyzed to determine the best method to use for the Navy to determine its ROI.

The primary question is

- What are the costs and benefits of the TWI program to the Navy?

The secondary questions are

- What is the retention rate for TWI fellows after the three-year utilization tour?
- Does the utilization tour fill the correct billet and meet the professional requirement?
- Do the skills/competencies obtained through TWI meet the DOD's guidance?
- What are the effects of the TWI program on the officer's promotion and career?

Through the course of this research, the best methodology to use to measure the ROI of the Navy's TWI program and an example for the calculation is provided.

C. SCOPE, LIMITATIONS, AND ASSUMPTIONS

The scope of the project is limited to Navy Supply Corps officers who have completed a TWI internship. The program has been around since 2006, and the number of participants is 24. A portion of the data was collected via survey of the Supply Corps officers who have completed the TWI program. Because no military component effectively determines the cost and benefit of TWI programs, research into best practices is limited to using private sector cases.

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II. LITERATURE REVIEW

A. WHAT IS ROI AND WHY USE ROI?

Return on investment (ROI) is extensively used by organizations to make better business decisions. Determining the ROI can be a challenging process but is overall beneficial for the organization.

1. Background/History

In the 1980s, the development of total quality management (TQM) was, according to Chmielewski and Phillips (2002), a management-focused "shift toward a performance-oriented approach to business practices" (p. 225). Because of TQM, business organizations experienced growth and increased profits while fostering the production of top quality products. In 1993, the National Partnership for Reinventing Government (NRP) emulated this concept to create an efficient and low cost operating government. Chmielewski and Phillips go on to explain that Congress passed the Government Performance and Result Act of 1993 (GPRA), "which required government agencies to submit strategic plans and performance measurements to justify their budgets" (p. 226). According to the authors, GPRA required agencies to seek out ways to measure performance so they could be more accountable, and led to the popular usage of the ROI methodology.

2. Benefits of ROI

There are many reasons why ROI should be used according to Phillips (2007). First, the increase in training budget requires accountability and closer observation for investment justification. Second, top executives care about the costs and benefits. This goes back to justification for investment in competing programs. Third, ROI is a familiar term. Most managers with a business degree have learned and used it in an academic environment, so they will demand it on the job. Additionally, there are many benefits to measuring the ROI. According to Phillips (2007), these are the top five benefits:

- Measure contribution. ROI methodology is most commonly used to demonstrate benefits of training to business because of its accuracy and reliability. It shows the benefits versus the costs of the program in terms of dollar values. It answers the question: Is the return worth the investment?

- Establish priorities. Calculating the ROI will ensure visibility on positive or negative returns, which will enable executive leaders to prioritize resources in fiscally constrained environments. Having insight on ROI will provide decisions makers with relevant facts to make thorough and accurate conclusions as to keep or eliminate inefficient programs or programs with lesser impact.
- Focus on results. Because ROI "requires instructional designers, facilitators, participants, and support groups to concentrate on measurable objectives" (p.7), the overall effectiveness of the training program will improve.
- Earn respect of senior executives and sponsors. Senior executives will be able to make better decisions because they will be able to see the connection of certain training programs to business goals in actual monetary value.

B. ROI IMPLEMENTATION CHALLENGES

Phillips (2007) acknowledges that some organizations see ROI as the answer to accountability and training justification, while others see it as an inaccurate and burdensome method. This is especially evident when ROI is used inappropriately. An inappropriate application of ROI is when applying ROI does not meet a balance of "feasibility, simplicity, credibility and soundness" (Chmielewski & Phillips, 2002, p. 228). Although applying the ROI methodology provides benefits, it remains a challenge for many organizations to use. Some of these challenges highlighted by Phillips (2007) are also relevant to the Navy.

- Cost and time. To effectively conduct ROI requires time and money, a commodity already scarce in most organizations. Generally, it adds 3–5% to the program budget, but may be offset in the end by the benefit gained through the program.
- Lack of skills and orientation for human resources department staff. ROI is not a widely taught subject and is normally not part of training for a job. A typical program is focused on the learning process and not on measuring results.
- Faulty needs assessment. Many training programs are in place due to the want of a manager at that specific time and may not be thought through with the need of the training program. Minimal need leads to minimal benefit.
- Fear. The fear of failure and the unknown will keep learning and development (L&D) professionals from utilizing the ROI process. Additionally, the ROI process usually initiates the traditional fear of change.
- Discipline and planning. To successfully implement ROI requires significant discipline and planning from the L&D team. If there is no direct pressure from the boss for results, the L&D team may not dedicate the time needed for an effective evaluation.

- False assumptions. L&D teams are prevented from using the ROI process because of assumptions, such as that the "impact of learning cannot be accurately measured" (p. 7), executive leaders do not require ROI, and learning is complex and cannot be accurately measured.

Schmidt (2017) points out that although many training program evaluations measure the initial reaction of the program participants for positive feedback, few conduct actual ROI of the overall program. This is due to a misconception of the complexity of the method, the additional cost and time required to measure the ROI (Schmidt, 2017). Many business professional find it difficult to produce hard monetary returns, or to demonstrate program value. Most training produces positive evidence for providing the training, but does not produce quantitative financial justification or a compelling ROI metric to support the training budget request. Although possible to measure objectively, quantitatively and credibly putting effective measurements in place takes careful planning, time, and effort (Schmidt, 2017).

While the commercial world and government sector share similar challenges relating to ROI data, the government also has unique challenges. Most organizations within the government do not invest in ROI training for the workforce. Some organizations within the government do not have a human resources department, creating a challenge for organizations to effectively use ROI methodology to measure programs. Chmielewski and Phillips (2002) said, "For an ROI process to be useful, it must balance many issues such as feasibility, simplicity, credibility, and soundness" (p. 228). Additionally, in the government, in order for the ROI to be useful, three targeted audiences must accept the ROI process. The audiences are human resource practitioners, managers, and researchers. Chmielewski and Phillips (2002) further explain, "the challenge is to develop acceptable requirements for an ROI process within the government system that will satisfy researchers and, at the same time, please practitioners and executive managers" (p. 228). Contrary to many beliefs, this is possible.

C. ROI METHODOLOGY USED BY DIFFERENT SERVICES

Although, research showed no record of ROI for the TWI program in any of the military services, the DOD conducted numerous ROI measurements for similar programs. These include the following:

- *An Analysis of the Return on Investment of Navy Enterprise Resource Planning as Implemented Navy-Wide FY04–FY15.* A Naval Postgraduate School (NPS) MBA Professional Report written by Robert Kovack Jr. and Philip R. Lindley. http://calhoun.nps.edu/bitstream/handle/10945/10758/11Jun%255FKovack%255FMBA.pdf?sequence=1&isAllowed=y

  Used classic ROI formula to compare cost-benefit from Navy to private sector.

- *Evaluating Navy's Funded Graduate Education Program: A Return-on-Investment Framework.* Prepared by the National Defense Research Institute (RAND) and written by Kristy N. Kamarck, Harry J. Thie, Marisa Adelson, and Heather Krull. http://www.rand.org/content/dam/rand/pubs/monographs/2010/RAND_MG995.pdf

  Used the ROI framework to measure the ROI for funded graduate education in the Navy's surface warfare officer and the meteorology and oceanography communities.

- *Calculating Return on Investment for U.S. Department of Defense Modeling and Simulation.* Prepared by the Defense Acquisition University (DAU) and written by Ivar Oswalt, Tim Cooley, William Waite, Elliot Waite, Steve "Flash" Gordon, Richard Severinghaus, Jerry Feinberg, and Gary Lightner. http://www.dau.mil/pubscats/pubscats/AR%20Journal/arj58/Oswalt%20ARJ_58.pdf

  Developed and used measuring metrics to produce an ROI-like (qualitative and monetary value) result that the DOD can use to prioritize modeling and simulation investments.

- *An Analysis of Return on Investment Options for the USMC Distance Learning Program.* A Naval Postgraduate School (NPS) thesis written by Jamie E. Clark. http://calhoun.nps.edu/bitstream/handle/10945/9353/00Mar_Clark.pdf?sequence=1&isAllowed=y

  Used the cost benefit analysis process and the ROI model to calculate the cost and benefit of the USMC Distance Learning program.

D. ROI METHODOLOGY

This project reviewed three different ROI methodologies for training programs. Kirkpatrick's four levels model has served as a foundation for many training and evaluation measurements in the commercial sector, including the other two models examined namely Schmidt's seven steps model and the Phillips' five-levels ROI framework. These three models are discussed in this section.

1. Kirkpatrick's Four Levels Model

As defined by Kirkpatrick and Kirkpatrick (2013), program evaluation is important to determine continuity, improvement, existence justification, compliance, effectiveness, and alignment to business strategy. It is important to have support from managers and leaders at the executive levels to ensure success of the evaluation.

When using the model, Kirkpatrick recommends reversing the model (levels 4, 3, 2, and 1) during the planning and executing the steps in a chronological order during the monitoring. The model is shown in Tables 1 and 2, with further descriptions from Kirkpatrick and Kirkpatrick (2013).

Table 1. Planning Phase of the Kirkpatrick Model. Source: Kirkpatrick & Kirkpatrick (2013, p. 19).

Level 4: Results	Find out business needs and opportunities
Level 3: Behavior	Define non-negotiable required behaviors
Level 2: Learning	Identify required knowledge, skills and attitude to perform the required behaviors
Level 1: Reaction	Determine learning environment that will facilitate obtaining required knowledge and skills

Table 2. The Kirkpatrick Model. Source: Kirkpatrick & Kirkpatrick (2013, p. 6).

Level 1: Reaction	To what degree participants react favorably to the learning event
Level 2: Learning	To what degree participants acquire the intended knowledge, skills and attitudes based on their participant in the learning event
Level 3: Behavior	To what degree participants apply what they learned during training when they are back on the job
Level 4: Results	To what degree targeted outcomes occur, as a result of learning event(s) and subsequent reinforcement

Last, after following the steps outlined in Tables 1 and 2, the Return on Expectation (ROE) should be measured. This is the degree of satisfaction the training initiative delivers to the stakeholders. Was the expectation identified in the planning phase met?

2. Schmidt's Seven Steps Model

Schmidt (2017) wrote an article with a seven-step approach to measuring the value of professional training and ROI. Measuring the value help business professional justify the training when organizations are moving toward "zero-based budgeting" (p.1) environment, merging and acquisitioning, changing financial leaders, and reassessing working capital. The following are the seven steps structured approach (Schmidt, 2017).

a. Step 1: Recruit and Use a Training Advisory Team

Measuring the ROI and improvement to the ROI of a training program should not fall solely on the training manager (Schmidt, 2017). Training ROI is a team effort and works best when there is a training advisory team that meets consistently to develop, evaluate, and measure the training requirement of the company.

b. Step 2: Link Training ROI to Existing Performance Measurement Systems

Schmidt (2017) recommends reviewing performance measurement already in place at the organization such as balanced score cards, financial metrics, customer metrics, or internal business process metrics. If current metrics are implemented poorly, improve upon the current metrics. If current metrics are implemented exceptionally well, use the existing metrics. The training ROI metrics should be linked to these metrics. Speaking the same language as the organization will ensure faster buy in and measurement relevancy.

c. Step 3: Measure Level 1 of the Kirkpatrick Model (Response to the Training)

Aim for a return to the organization and the participant. Use Kirkpatrick's level one of training measurement by asking the participant specific questions to determine on-the-job impact and benefits, personal and professional value, and needed course improvement (Schmidt, 2017).

d. Step 4: Measure Level 2 of the Kirkpatrick Model (Learning and Retention)

To attribute specific learning to the training, the pre-course and post-course testing must be in place. Schmidt (2017) expounds on Kirkpatrick by having participants complete a second post-course test to measure retention of the training.

e. Step 5: Measure Level 3 and 4 of the Kirkpatrick Model (Changed Behavior and Business Impact)

Training is valuable to the organization "only when it leads to changes in behavior that help meet business objectives" (Schmidt, 2017, p.8). The training advisory team and various managers are an asset for measuring skill and performance improvements like (a) "percentage of participants applying" the new skill, (b) "tangible improvements in productivity or efficiency," (c) "tangible improvements to quality of work," (d) "new abilities or skills following training," and (e) "links between changed behaviors and business objectives" (p.8).

f. Step 6: Measure All the Training Costs

Calculate the "cost per successful participant" (Schmidt, 2017, p.8) in addition to the total cost of the training. This will "show management how training ROI should improve in the future" (p.8). Distinguish between the fixed training cost and the variable training cost to show true benefit of specific training. Also consider opportunity costs and other hidden costs in this calculation.

g. Step 7: Deliver the Full Training Report Card

Use the clearest and most direct approach, which is the classic ROI formula:

Training ROI = (Total returns - Training cost) / Training cost

or

Training ROI = (Total returns /Training cost) - 1

Also include all metrics used because different managers may want to use different metrics (Schmidt, 2017).

3. Phillips' Five-Level ROI Framework

Phillips' five-level ROI framework combines the four features from the Kirkpatrick model with a way to measure the investment and benefit, the return on investment (see Figure 1). Phillips' measurement focus ensures a systematic evaluation of the transfer of learning from the training program and its impact to the organization (Chmielewski & Phillips, 2002).

Level of Evaluation	Measurement Focus
I. Reaction & Planned Action	Measures employee satisfaction with the program and captures planned action.
II. Learning	Measures changes in employee knowledge, skills, and attitudes related to the program.
III. Job Applications	Measures changes in on-the-job behavior/job processes.
IV. Business Results	Measures changes in business-impact variables.
V. Return on Investment (ROI)	Compares program benefits to the costs.

Figure 1. Five Levels of ROI Evaluation. Source: Chmielewski & Phillips (2002).

Chmielewski and Phillips (2002) suggest four factors to consider before planning the ROI evaluation: "evaluation purposes, instruments, levels, and timing" (p.228). The evaluation purpose will "determine the scope of the evaluation" (p.228), which leads to the types of measurement instruments used and choosing which data to capture. It is also important to determine what levels are appropriate for data collection and the timing of the data collection. These are key factors for an effective data collection plan. The major steps for Phillips' framework are "data collection, isolating program effects, converting data to monetary values, tabulating program cost, calculating ROI, and identifying intangible benefits" (p. 229).

a. Data Collection

Collect hard data (e.g., input, output, time, and cost) and soft data (e.g., command climate, attitudes, and performance habits) using the best data collection method(s) for the setting, specific program, time allotted, and budget constraints (see Figure 2) (Chmielewski & Phillips, 2002).

Method	Level	Application
Surveys	3	•Determines the degree to which employees have utilized various aspects of the program. •Responses are often developed on a sliding scale and usually represent attitudinal data.
Questionnaires	3, 4	•Uncovers specific applications of HR initiatives/programs. •Employees provide responses to a variety of types of open-ended and forced-response questions.
On-the-job observation	3	•Captures actual skill application and use. •Observations are particularly useful in customer service initiatives and are more effective when the observer is either invisible or transparent.
Post-program interviews	3	•Determines the extent of program effectiveness. •Allows for probing to uncover specific applications.
Focus groups	3	•Determines the degree to which a group of employees are involved in the program and the extent to which the program effects day-to-day operations.
Program Assignments	3, 4	•Employees complete the assignment on the job, utilizing components or initiatives of the program.
Action plans	3, 4	•Developed in programs and are implemented on the job. •A follow-up provides evidence of program success.
Performance Contracts	3, 4	•Developed where the employees, managers, and executives all agree on specific outcomes of the program.
Follow-up Sessions	3, 4	•Captures evaluation data as well as presents additional learning material.
Performance Monitoring	4	•Useful when various performance records and operational data are examined for improvement.

Figure 2. Data Collection Methods and Application to the ROI Evaluation. Source: Chmielewski & Phillips (2002).

b. Isolating the Effects of the Training Program

An essential step that is often overlooked is the isolating of the effects of the program. Comparison between participants going through the program versus individuals that did not demonstrates the direct attribution the training program has on the outcome. This is to ensure that the ROI calculation for the training program is accurate. Figure 3 shows strategies used by organizations to isolate the effects of programs.

Strategy	Type of Effect Isolated
Control group	•One group participates in the program while a similar group does not. •The difference in performance of the two groups is attributed to the program.
Trend lines	•Used to project the value of specific output variables, if the program has not been undertaken. •The projection is compared to the actual data after the program and the difference represents the estimate of the impact.
Forecasting model	•Used when mathematical relationships between input and output variables are known. •With this approach, the output variable is predicted with the assumption that the program is not conducted. •The actual performance of the variable after the program is then compared with the forecast to estimate program impact.
Employees estimate	•Employees are provided with the total amount of improvement on a pre- and post-program basis. •Asked to indicate the percent of improvement that is actually related to the program.
Managers estimate	•Managers are presented with the total amount of improvement and are asked to indicate the percentage related to the program. Senior management estimate •Managers provide an estimate or 'adjustment' to reflect the portion of the improvement related to the program.
Experts estimate	•Because the estimates are based on previous experience, the experts must be familiar with the type of program implementations and the specific situation.
Subordinates estimate	•Subordinates of the employees affected by the program assess if other variables changed in the work climate could have influenced output performance.
Extraneous factors	•Other influencing factors are identified and their impact estimated or calculated. The unexplained portion of the output is then attributed to the HR program.
Customer input	•Describe the extent to which the components of the program have influenced their decision to use a product or service.

Figure 3. Strategies to Isolate the Effects of the Training Program. Source: Chmielewski & Phillips (2002).

c. Converting Data to Monetary Values

It is important to convert data collected in level 4 (Figure 1) of the framework to monetary values in order to calculate the ROI. Chmielewski and Phillips (2002) recommend ten strategies that may be used to convert data collected into monetary value. The strategy selected to convert data to monetary value "depends on the type of data collected and the situation" (p. 229). For example, if the data collected is an output data, this data can be "converted to profit contribution or cost saving" (p. 232) to the organization. Examples of data and types of conversion are in Figure 4.

Unit of Data	Type of Conversion
Output data	•Data is converted to profit contribution or cost savings. •Output increases are converted to monetary value based on their contribution to profit or cost reduction.
Quality data	•The cost of quality is calculated and quality improvements are directly converted to cost savings.
Time data	•For programs where employee time is saved, wages and benefits are used for the value of time. •Since many programs focus on improving the time required to complete projects, processes, or daily activities, the value of time is important to consider.
Organizational cost data	•Historical costs and current records are used when available for a specific variable. •Organizational cost data are utilized to establish the specific value of an improvement.
Estimate of value	•When available, internal and external experts may be used to estimate a value for an improvement. •The credibility of the estimate hinges on the expertise and reputation of the individual.
Estimate of cost	•External databases are sometimes available to estimate the value or cost of data items. •Government, industry, and research databases can provide important information for these values.
Employee estimates of improvement	•Employees estimate the value of the data item. •They must be able to provide a value for the improvement.
Manager estimates of improvement	•Provide estimates when they are both willing and capable of assigning value to the improvement. •Useful when employees are not fully capable of providing this input or in situations where supervisors need to confirm or adjust employee's estimate.
Senior management estimate of improvement	•Provide estimates on the value of an improvement when they are willing to offer estimates.
Expert estimates of improvement	•Estimates made by HR professionals involved in the program are used to determine the value of output data. •Estimates must be provided on an unbiased basis.

Figure 4. Strategies to Convert Data to Monetary Value in an ROI Evaluation. Source: Chmielewski & Phillips (2002).

d. Tabulating Program Cost

Consolidate all related costs of the program in order to calculate the ROI. Some of the costs to consider are (a) design and development of the program, (b) organization of the program, (c) implementation of the program, (d) salaries plus employee benefits, (e) training employee on using the program, (f) contractors who help facilitate the program, (g) evaluating the program, and (h) administrative and overhead (Phillips, 1997).

e. Calculating the ROI

Chmielewski and Phillips (2002) used the program benefits and cost to calculate ROI. The formula they use for the benefit/cost ratio (BCR) is as follows (p. 231):

BCR = Program Benefit/Program Costs

The formula for the net program benefit is as follows:

Net Program Benefit = Program Benefit – Program Cost

The formula for the ROI is as follows:

ROI (%) = Net Program Benefit/Program Cost x 100s

The ROI in some programs may be higher than 100%. For example, an ROI of 650% means that for each dollar invested in the training program, the organization received $6.50 "dollars in return after the cost of the program had been recovered" (Phillips, 1997, p. 154). In personnel systems, the ROI may be lower. This is due to intangible benefits that may not be possible to capture in monetary value (Phillips, 1997).

f. Identifying Intangible Benefits

Chmielewski and Phillips (2002) said all attempts should be used to convert "hard and soft data to monetary value" (p. 232), but if the "conversion is too subjective or inaccurate, and the resulting conversions lose credibility in the process", then the data should be "listed as an intangible benefit" (p. 233). An example provided by Phillips (1997) is a selling skills program. In this program, the attempt was made to convert customer satisfaction data into monetary, but the "value lost credibility" so "customer satisfaction was reported as intangible benefit" (p. 172). Some common intangible benefits are "increased job satisfaction, increased organizational commitment, improved teamwork, improved customer service, reduced complaints, and reduced conflicts" (Chmielewski & Phillips, 2002, p. 232). Intangible benefits may be the most important benefit for some programs, especially leadership skills, so they must be included.

4. Other Considerations for ROI Measurement

In addition to using one of the models discussed previously, Bennington and Laffoley (2012) offers five steps for human resources (HR) personnel measuring the ROI to take into consideration to ensure a more effective demonstration of ROI.

a. Step 1: Have That Critical Conversation

Have an initial discussion with senior level leaders to identify what success means to them in regard to the training program.

b. Step 2: Make Smiley Sheets More Robust

An initial reaction sheet can be biased, so to minimize this, re-evaluate participants' reactions three to six months after the program, including concrete examples of how they applied their experience to their work. When possible, assess the reaction of their supervisors, peers, and subordinates.

c. Step 3: Include Real Business Challenges in the Program

Incorporate actual and relevant projects into the training program. Implementing such deliverables can reap significant ROI for executive leadership and demonstrate the importance of the training program. This is a win/win for both the participant and the organization.

d. Step 4: Integrate Learning Programs into the Organization's Performance Management System and Hold All Stakeholders Accountable

Ensuring that the "performance appraisal goals reflect those targeted outcomes for participants and supervisors" (Bennington & Laffoley, 2012, p.11) will "increase the probability that the targeted outcomes of the programs remain a focus area for participants" (p.11). This increases their motivation to learn as much as possible from the program. Track the before and after performances of participants and do not be afraid to compare their performance to that of equivalent employees. Think creatively in developing metrics to measure the success of the program.

e. Step 5: Assign Participants Actual Projects after the Learning Experience

Assign actual projects to participants after the training and establish check-point measurements to monitor the effectiveness of training programs. This will reap benefit for organizations (Bennington & Laffoley, 2012).

E. EXAMPLES OF ROI MEASUREMENT

In a 2007 article, Phillips showed examples of published ROI studies. These are from a variety of applications and generally displayed high ROI, although not always the case. These are shown in Figure 5.

Sample of Published ROI Studies

Case Study Name	Measuring the ROI:	Key Impact Measures:	ROI
Cracker Box	Performance Management (Restaurant Chain)	A variety of measures, such as productivity, quality, time, costs, turnover, and absenteeism	298%[1]
Federal Information Agency	Internal Graduate Degree Program (Federal Agency)	Retention, individual graduate projects	153%[4]
Healthcare, Inc.	Sexual Harassment Prevention (Health Care Chain)	Complaints, turnover, absenteeism, job satisfaction	1052%[2]
Imperial National Bank	Executive Leadership Development (Financial)	Team projects, individual projects, retention	62%[2]
International Car Rental	First Level Leadership Development (Auto Rental Company)	Various measures – at least two per manager	105%[7]
MetroTransit	Absenteeism Control/Reduction Program (Major City)	Absenteeism, customer satisfaction	882%[2]
Midwest Electric	Stress Management Program (Electric Utility)	Medical costs, turnover, absenteeism	320%[2]
National Crushed Stone	Skill-Based Pay (Construction Materials Firm)	Labor costs, turnover, absenteeism	805%[2]
National Steel	Safety Incentive Plan (Steel Company)	Accident frequency rate, accident severity rates	379%[2]
Nations Hotel	Executive Coaching (Hotel Chain)	Cost reduction, sales growth, operating efficiency, retention, and customer satisfaction	221%[5]
Nextel Communications	Diversity (Communications Company)	Retention, employee satisfaction	163%[6]
Southeast Corridor Bank	Retention Improvement (Financial Services)	Turnover, staffing levels, employee satisfaction	258%[3]
United Petroleum	E-Learning (Petroleum)	Sales	206%[2]
VA Sunshine Healthcare Network	Competency Development (Veteran's Health Administration)	Time savings, work quality, faster response	159%[4]

References for Published Studies

1. *In Action: Measuring Return on Investment*, Volume 3. Patricia P. Phillips, Editor; Jack J. Phillips, Series Editor. American Society for Training and Development, Alexandria, VA, 2001.
2. *The Human Resources Scorecard: Measuring the Return on Investment*. Jack Phillips, Ron D. Stone, Patricia P. Phillips. Butterworth-Heinemann, Woburn, MA, 2001.
3. *In Action: Retaining Your Best Employees*. Patricia P. Phillips, Editor; Jack J. Phillips, Series Editor. American Society for Training and Development and the Society for Human Resource Management, Alexandria, VA, 2002.
4. *In Action: Measuring ROI in the Public Sector*. Patricia P. Phillips, Editor. American Society for Training and Development, Alexandria, VA, 2002.
5. *In Action: Coaching for Extraordinary Results*. Darelyn J. Mitch, Editor; Jack J. Phillips, Series Editor. American Society for Training and Development, Alexandria, VA, 2002.
6. *In Action: Implementing Training Scorecards*. Lynn Schmidt, Editor; Jack J. Phillips, Series Editor. American Society for Training and Development, Alexandria, VA, 2003.
7. *The Leadership Scorecard*, Jack J. Phillips and Lynn Schmidt, Butterworth-Heinemann, Woburn, MA, 2004.

Figure 5. Sample of Published ROI Studies. Source: Phillips (2007).

An excellent example of the usage of the Kirkpatrick's four levels model can be found at Kirkpatrick and Kirkpatrick (2006). In this example, Gap Inc. identified a need for leadership training for store managers at Gap, Gap Kids, Banana Republic, and international divisions of Gap, Inc. The training program to fill this void was Leadership Training for Supervisors (LTS), which focuses on "supervisory and leadership skills" (Kirkpatrick & Kirkpatrick, 2006, p. 26) specifically on how to "influence and interact with store

employees" (p. 26). Gap Inc. partnered with Blanchard Training and Development to deliver a three-day program starting with general managers, area managers, district managers, and regional managers. In 1995 and 1996, LTS was available for store managers. The program continues today due to its success. The program's effectiveness was measured on all four levels, as listed in Table 3.

Table 3. Evaluation Methods. Adapted from Phillips (2007), Kirkpatrick & Kirkpatrick (2006).

Level 1: Reaction	Qualitative and quantitative data were collected using the LTS Program Evaluation form, collected from each participant at the end of the program to capture their reaction
Level 2: Learning	Randomly selected 17-percent of the participants were given "fill-in-the-blank" LTS questionnaire to evaluate their learning. Before the training, participants were told they may be selected to contributing to an anonymous questionnaire.
Level 3: Behavior	Randomly selected 17-percent of the participants were given an LTS Post-Program Survey to evaluate the short-term behavior change. A different LTS Post-Program survey was given to these participants' direct supervisors. For long-term behavior changes, leadership skill assessments were administer to participants before the training and six to nine months after the training. Results are compared to measure percent of changes.
Level 4: Results	Study was conduct to see if there was a link between the learned leadership skill and the "store sales, employee turnover rates, and shrinkage" (p.49).

After interpretation of data in each area, the training program was determined a success because there was a positive reaction to the program, new skills and knowledge were learned, the new skills and knowledge were used to improve performance, and the stores' business was positively impacted. The only criticism for this example is that no ROI calculation was measured, but the form, survey, and assessment used in this case study provided examples to emulate.

F. UNIQUE NAVY MANNING SYSTEM

Billet funding for the Navy is prioritized based on mission requirements, available funding, and personnel executability (Chief of Naval Operations [CNO], 2016). A requirement for shore duty is based on a valid, approved workload. When considering shore manpower, requirements for memorandums of understanding (MOU) are considered, like the MOUs for TWI partners. Budget submitting offices (BSO) validate and identify requirements they would like authorized. Requirements are not authorized until they are funded by the Office of the Chief of Naval Operations (OPNAV). Due to fiscal constraints, the Navy may

be restricted in authorizing all validated billets. Authorization must never exceed manpower requirements (CNO, 2016).

NAVSUP is the community manager for the U.S. Navy Supply Corps. Like the rest of the Navy, the Supply Corps manages officers and billets through designation codes. These designations can describe billet duties; requirements to qualify for billets; and skills, qualifications, or traits obtained throughout a career.

A way to identify specific skills or experiences required or obtained from billets is through the Navy officer occupational classification system (NOOCS). The NOOCS "is the method to identify skills, education, training, experience and capabilities" (DON, 2017a, p. 3). It is a management tool for how communities manage personnel in terms of assigning to training billets, promoting to the next rank, distributing certain qualified personnel amongst the fleet, or utilizing to help guide professional development of officers. The description of general billet duties is found in the Navy officer billet classification (NOBC) code. For example, a code of 1515 represents inventory control, which identifies a billet that may require assembling, compiling, and analyzing inventory data. NOBC codes identify billet requirements to fill vacancies. The code also represents officer experience gained in a particular billet (DON, 2017a).

According to the Department of the Navy (2017a), subspecialty codes identify professional disciplines secondary to an officer's primary specialty. A primary specialty, or designator, is a four-digit number identifying officers within an officer community and specialization. For instance, a Supply Corps officer designated as a "3100" signifies a staff officer, specialized in supply. A subspecialty code, or secondary discipline, in the Supply Corps could be 1302, which identifies Supply Chain Management. Subspecialties can be gained through meeting educational requirements or obtaining core skill requirements. Requirements may be quantifiable skills, traits, and experiences that must be possessed to acceptably perform in a coded billet (DON, 2017a).

An additional qualification designation (AQD) is assigned to an officer based on qualified experience and education (DON, 2017a). AQDs denote other qualifications and skills not already identified in a community designator, NOBC or subspecialty code. An AQD identifies a more specific qualification required by a billet or awarded to an officer. An

AQD of SQ1 represents a Supply Corps officer who is submarine qualified or a billet coded with SQ1 requires a Supply Corps officer who is submarine qualified (DON, 2017a).

This system helps in the identification of special skills required for a billet. It also identifies special skills of officers. While the TWI program does not award a subspecialty code, it does award participants an AQD of 24G. The 24G AQD is titled SECNAV Tours with Industry and is awarded after an officer has successfully participated in the SNTWI program (DON, 2017a). Although the Supply Corps officers are participating in TWI and not SNTWI, the two programs are similar enough that TWI participants are also awarded 24G (P. Knauss, personnel communication, March 6, 2017). According to the eSUPPO app Frequently Asked Questions, participants may request a service school code of code 800. Service school codes identify on an officer data card (ODC) service schools attended. The 800 code identifies the completion of a management short course at various schools and universities around the country (DON, 2017b).

The other way to identify skills gained from the TWI program on a military record is through NOBC. The NOBC associated with a TWI billet is 3289. This represents a student. The *Manual of Navy Officer Manpower and Personnel Classifications* (DON, 2017a) describes the code as follows: "Participates in full-time studies in general or special schools (civilian or service) or performs student duties under scholarship of military commands." There is no specific NOBC billet that TWI participants go to for their utilization tour.

G. CHAPTER SUMMARY

ROI methodology is a popular tool used to justify training investment and maintain accountability. There are many benefits (i.e., focuses on results, enables better prioritization, and earns respect of senior executives) to using the ROI process, and it is widely used, but it remains challenging for many organizations due to cost and time, lack of skills, faulty needs assessment, fear, discipline and planning, and false assumption (Phillips, 2007). If applied consistently and comprehensively, ROI processes allow an organization to invest in relevant training for its employees while improving the actual training program. Three popular methods are the Kirkpatrick's four levels model, Schmidt's seven steps model, and Phillips' five-level ROI framework.

III. ANALYSIS OF THE METHODOLOGIES

A. KIRKPATRICK'S FOUR LEVELS MODEL

The Kirkpatrick model is a standard model used to determine ROI. The simple four-level approach is used to determine the effectiveness of training programs. However, criticism of the model centers on its description of a simple taxonomy instead of a full, researchable model. It is also criticized because evaluators tend to skip level 3 and level 4 (Pulichino, 2007).

The model is described as taxonomy because each of the four levels are independent of the others. In trying to evaluate a whole training program, Kirkpatrick's levels are unrelated to each other, and each level requires its own independent evaluation. For instance, there is not necessarily a correlation between the results of one level and the next. Participants can react to the training in a favorable way (level 1), yet not acquire the intended learning or skills presented (level 2; Pulichino, 2007).

Pulichino (2007) goes on to critique that because evaluators must evaluate training across four distinct and different criteria in the Kirkpatrick model, there is inherent complexity despite the "simple" four levels. Evaluators can reach contradictory conclusions about the effectiveness of a training program. Evaluators may also force evaluation of a program using all four levels, when not all trainings need to be evaluated at all levels (Pulichino, 2007).

Lacking instruction on implementing the model, evaluators often skip levels 3 and 4. Difficulty, complexity, and time increase with evaluating each level, which contributes to the omission of higher levels of evaluation. For evaluating level 3, difficulty is identified in gathering the data, designing the interview, determining the right people to survey, lack of time, and the cost and complexity involved in using a control group. Training professionals can struggle in how to relate results to training (Pulichino, 2007).

Kirkpatrick needs to include additional factors and variables in determining the effectiveness of a program. For instance, in level 1, the opportunity to apply learned behavior to the job may be inhibited by the work environment. If the work environment constrains the learning or does not provide a climate that encourages change (level 3), a participant could

react favorably to training, but the discouraging work environment does not support change (Sekowski, 2002).

Additionally, at level 4, Kirkpatrick does not factor in the direct cost of training. Therefore, salary for instructors, supplies and materials, and the trainees' time away from work are not factored into his model (Sekowski, 2002). Other variables not accounted for include the level of knowledge of participants, their experience, their position in the organization, the knowledge of the training staff, the size of the organization, and the type of industry. The consequences of omitting these factors could result in false assumptions in change of job behavior, opportunity and time to apply the learned behavior, and changes that may have impacted the market (Pulichino, 2007).

Because of the vague instructions to implement Kirkpatrick's four levels model and increased complexity in evaluating levels, evaluators are not using the right metrics, not using the right data, and developing superficial and subjective evaluations. The superficial findings can lead to overgeneralizing the overall program and lead to a misunderstanding of the results (Pulichino, 2007).

B. SCHMIDT'S SEVEN STEPS MODEL

Schmidt's seven steps model for evaluating ROI aims to expand the Kirkpatrick model and measure the value of training to the organization and individual objectively, quantitatively, and credibly. Using Kirkpatrick's four levels model, the Schmidt model condenses the four levels into three and adds four more levels, two to be conducted before training and two after training (Schmidt, 2017).

Schmidt (2017), in step 1, identifies the need for a formal training advisory group to determine the training needs. The group would be made up of supervisors who know their subordinates' strengths and weaknesses. Knowing their people, they can then determine the training needs. This step relies on a supervisor/subordinate history. A unique element to the military is the constant rotation of personnel. With officer tours typically lasting only three years, and with staggered rotation dates within a command/office, a supervisor in the military may be challenged to effectively identify training needs based on personnel knowledge of employees. In the case of the TWI program, the supervisor following the fellowship had no

say in establishing the training objectives and typically would not know the participant, let alone the participant's weaknesses that the TWI program might help them overcome.

Step 2 aims to link training and performance measures. This involves both HR and training personnel to develop a metric or scorecard. The issue with performance measurement systems is that they must be effective. If a performance measurement system is not effective, the training metric will have no value (Schmidt, 2017).

Step 3 encompasses Kirkpatrick's level 1, or response to training. However, Kirkpatrick relies on general scorecards to evaluate responses to training. This method is only helpful at times when the training participants overwhelmingly agree to something as either very good or very bad. So, Schmidt (2017) developed specific, direct questions for each content area. By requiring participants to explain how the training will impact the job or provide benefit, the supervisor can then look for those specific elements to change in job performance. Evaluating the responses to direct questions, such as the personal and professional value gained from the training or areas to improve the training, can provide the necessary feedback to HR and training to determine best uses for training resources (Schmidt, 2017).

To measure learning and retention of information, the Schmidt model expands on Kirkpatrick's level 2. To show change in behavior and impact to business after training, Schmidt follows Kirkpatrick with a pre-test and post-test. However, Schmidt also includes a second post-test, weeks after training, to evaluate retention of learned knowledge and skill. The second post-test is meant to determine (a) "how, where, and by how much their own productivity or efficiency has improved" and (b) "where has the training helped improve the quality of their work" (Schmidt, 2017). As stated for the military, after completing the TWI program, participants report to a new command. Stepping into a new job, it is not possible to identify the TWI program as the sole factor of performance improvement. There is no base for comparison. Nor would a supervisor know whether the behaviors would have improved without TWI, based on natural improvement and progression in a military career.

Step 5 for Schmidt (2017) combines level 3 and level 4 from the Kirkpatrick model to measure the changed behavior of the participant and the impact to business. Here supervisors evaluate the skills and performance of the participant both before and after training. Areas to

look for as improved after training are productivity and efficiency, quality of work, new skills or abilities, and linking the changed behaviors to business objectives. This link entails putting a dollar value on each business objective expected from the training, determining what the business should pay to achieve the objective, and then determining what percent is attributed to training. From there, supervisors can determine if training is essential to meet the objective (Schmidt, 2017).

Again, the problem with this step for the military is lack of continuity between both supervisors and participants in the TWI program. Supervisors do not work with TWI participants prior to their training experience. Because of this, the supervisor cannot determine any link to training and change in performance. With the current pipeline for TWI participants and the subsequent transfer to a new job after the TWI program, this step is not conducive to determining ROI for TWI participants.

Schmidt's step 6 (2017), capitalizes on weaknesses identified in the Kirkpatrick ,odel. In this step, all training costs are measured. The challenge here is to determine the cost per successful participant. Success is defined as changed performance. Numbers can be inflated to document a higher return and be decreased to lower investment costs. Therefore, identifying costs needs to be considered and applied objectively. This step allows for the cost consideration of items like (a) housing and travel allowances, (b) marketing positive impact to participants, (c) marketing positive career impact to future participants, and (d) calculating the opportunity costs of participants being away from the day-to-day work for training. For the Navy, this is the opportunity cost of being away from an operational fleet for 12 months.

It is at step 7 that Schmidt delivers a full training report card. While the report does not communicate everything that is important about the ROI from training, it does provide participant feedback, data from post-tests to determine what was learned and retained, changes in performance, the impact on the business, and the cost of a successful participant (Schmidt, 2017).

C. PHILLIPS' FIVE-LEVEL ROI FRAMEWORK

Phillips' five-levels of ROI framework takes the best of the Kirkpatrick model and adds a fifth level. Phillips' level 5 is a cost–benefit analysis using the classic ROI formula. In addition to Kirkpatrick's levels 1–4, Phillips elaborates on the importance of data collection, isolating the effect of the training program, converting data to monetary values, tabulating program cost for an accurate ROI calculation, and identifying intangible benefits (Phillips, 2003). Phillips ensures a systematic evaluation of the transfer of the learned skill from the training program and its organizational impact. Phillips emphasizes the importance of simplicity of the ROI process, but recognizes that truly capturing an accurate ROI can be complex (Phillips, 1997).

The value added from Phillips' level 5 is the ability to compare the monetary benefits from the program and its costs (Chmieliewski & Phillips, 2002). The procedures for measuring the investment, as well as indicators of return, factor in both soft data and hard data. Soft data includes employee attitudes, the organization climate, and work habits. Hard data is the output, quality, time, and cost. The challenge lies in converting the data, especially soft data, into a dollar value. If the value of data becomes too subjective, the resulting values lose credibility. With enough quality data, Phillips' level 5 provides information on the training program, including whether the program is too costly, what the savings are, and what costs were avoided by implementing the program (Chmieliewski & Phillips, 2002).

D. RECOMMENDED METHODOLOGY

The military manning and rotation process makes choosing one model for determining ROI difficult. There is not one plug-and-play methodology that fits perfectly with the military and the TWI program. However, through picking and choosing elements from various ROI models, altering the Schmidt seven step model, which already incorporates both Kirkpatrick's and Phillips' models, is the recommended methodology for determining the TWI program's ROI.

1. Step 1: NAVSUP Identifies Objectives for Each TWI Location

With military billets, there is not much continuity in the relationship between supervisor and subordinate. Both are typically in a particular billet for only three years, and

tours between the two generally overlap, creating a period of maybe two years where the supervisor can identify areas for subordinate improvement and assess performance after training. Therefore, a training advisory team as Schmidt suggests is not conducive for the TWI program. Plus, supervisors do not know their subordinates until after completing the TWI program.

However, the Navy Supply Corps has already laid out objectives for each participant based on the location of the tour. Prior to partnering with an industry partner, the commander of NAVSUP requests permission from the secretary of the Navy (SECNAV) to establish the TWI program. For each company, the request identifies learning objectives the participant is expected to accomplish. The Navy may need to refine the objectives to ensure they are measurable and linked to business objectives of the Navy and/or objectives for the professional growth of the participant (Schmidt, 2017).

As participants provide feedback and as the Navy's training needs change, objectives should change as well. Additionally, frequent feedback from supervisors in the fleet should drive program objectives. Once a new participant starts the program, he should have a copy of the objectives. The TWI partner should also have a copy of the objectives. Additionally, during the participant's follow-on utilization tour, his supervisor should have a copy of the objectives.

2. Step 2: Link TWI ROI to Existing NAVSUP Performance Measurements

The Navy should then develop a scorecard on how participants meet program objectives. For instance, TWI in the Supply Corps focuses on supply functions. A scorecard should define and rate the training outcomes based on supply functions, such as supply chain management, contracting support, financial management, quality assurance, and leadership. A performance measure of supply chain knowledge gained through the TWI program may state, "Applies Lean Six Sigma processes from the corporate sector to improve government processes." The resulting score could be a stoplight color code of green, yellow, or red.

3. Step 3: Response to the TWI Program

In this step, the TWI participant tells NAVSUP the value TWI brings to the Navy. Specific questions should be asked to determine benefits, value, and improvements to the program (Schmidt, 2017).

- How do you expect to use what you learned at [FedEx] in the Navy?
- How did the training contribute to your qualities as an officer?
- How will your training improve your quality of work for the Navy?
- How did this training contribute to your professional goals?
- What new skill/knowledge obtained is most beneficial to the Navy?
- What aspect of TWI was least valuable?

Having answers to questions like these will show supervisors where to look for performance improvement and impacts to the Navy. It will also help the supervisor with inputs to periodic fitness reports, while providing the participant with a way ahead in using his new skills and knowledge.

4. Step 4: TWI Learning and Retention

This step creates a challenge for the Navy. Schmidt's intent in his ROI model is to conduct a pre-course testing, post-course exam, and a second post-course exam. Because the TWI program is more like an internship, where practical experience is gained versus training for a specific skill, pre- or post-exams do not make sense.

However, step 3's questions and the participant's response to the TWI program can be used as a post and second post examination. The questions can be asked and recorded prior to transferring from the TWI location to the next billet location. The questions can be answered again 4–6 months later during the participant's utilization tour. The 4–6-month period of settling in to a new billet, understanding the job, and re-acclimating to the Navy will help the participant reflect on how the TWI experience can impact the Navy. The participant may even notice new ways in which he is a more productive, efficient and effective officer than realized after the initial completion of the TWI program. A significant question to answer might be, "What am I doing now for the Navy that I could not do before?" (Schmidt, 2017).

5. Step 5: Navy Impact

According to Schmidt (2017), "Training has value to the company or organization only when it leads to changes in behavior that meet business objectives." NAVSUP has implemented the program to "provide training and development of skills in private sector procedures, and practices that are not available through existing military, advanced civilian schooling programs or other established training and education programs" (Heinrich, 2012). These skills and knowledge gained provide a "return" for the Navy. In meeting these objectives, NAVSUP has to put a value on each objective. If the TWI participant meets an objective, how much can be attributed to the TWI experience? Answering this question will determine "whether training is essential to reaching the objective, or instead one of many contributing factors" (Schmidt, 2017).

6. Step 6: Measure All Training Costs and Benefits

This step pulls from the Phillips model and is used for determining the program's benefits and costs. The formula to determine an ROI percentage is Net Program Benefits/Program Costs × 100. It is determining the tangibles and intangibles that create the challenge. Tangibles like salary and travel can be easy to identify. However, intangibles like increased job satisfaction or increased commitment to the Navy are more subjective and difficult to put a monetary value on (Phillips, 2003).

7. Step 7: Full Training Report

Bringing all the information together will provide a comprehensive view as to the return the Navy gets on the TWI program. Identifying objectives, creating a scorecard based on performance, determining how participants apply what was learned, placing a value on meeting objectives, and determining the cost–benefit analysis will provide an overall ROI for the TWI program (Schmidt, 2017).

E. CHAPTER SUMMARY

Determining ROI is always a topic for debate. Since the 1950s, people have been trying to create models for determining ROI. And as budgets are cut in the government and training dollars are pinched, validating the ROI for training has become more important. Because there is no one perfect model for every training, it is necessary to piecemeal elements of various models to make a sound model to best meet individual trainings. In the case of the TWI program, elements of Kirkpatrick, Schmidt, and Phillips were utilized to best present a model for the Navy to use.

The following chapter takes the elements of Kirkpatrick, Schmidt, and Phillips' methodologies and creates a comprehensive metric to measure the ROI for the TWI program. The metric takes current capability gaps, program objectives, and developed forms to provide NAVSUP with a product to determine the ROI for the TWI program. A full ROI cannot be measured until NAVSUP implements the recommendations and tracks new selected TWI participants from cradle to grave. However, all attempts are made to explain the full data collection process and how to interpret results.

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IV. APPLYING THE METHODOLOGY

Choosing one methodology to use on the TWI program proves challenging and unfitting due to the unique nature of the government's way of doing business from the commercial industry. Instead, this project uses elements from the three ROI models discussed with Schmidt's seven steps model as its analytical framework. Figure 6 is the recommended Navy TWI ROI Model which incorporates the elements from the three ROI models discussed in Chapter II.

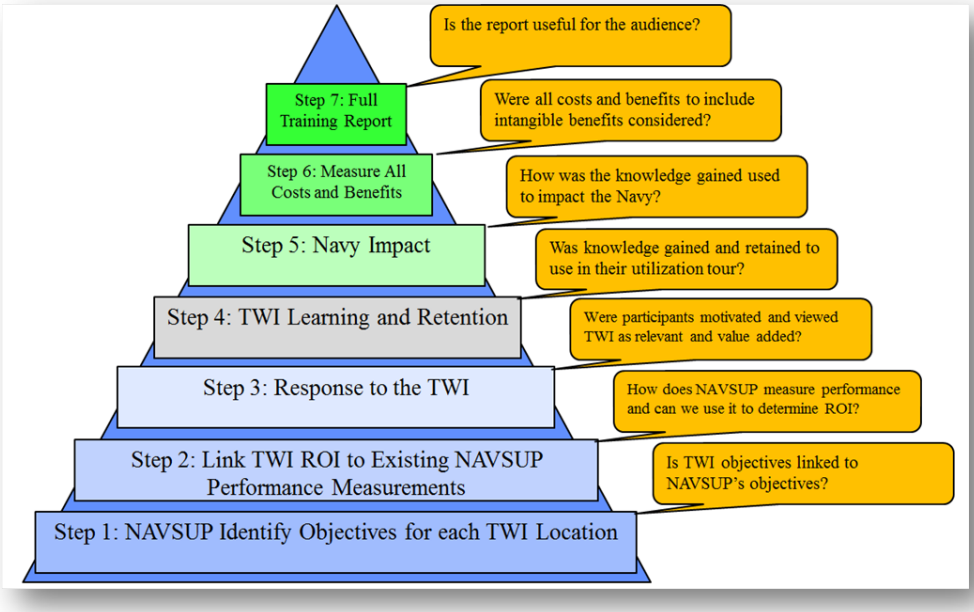

Figure 6. Navy TWI ROI Model. Adapted from Schmidt (2017).

A. NAVY TWI ROI MODEL

As discussed in Chapter II, simply going straight to the ROI formula is not sufficient for the measurement of a leadership training skill of this type. A holistic approach is necessary to truly evaluate a program. NAVSUP, the owner of the Navy's TWI program, is in the best position to utilize the Navy TWI ROI Model. The following provides an example to implement the Navy TWI ROI Model in order to evaluate the entire TWI program while realizing the ROI in step 6.

1. Step 1: NAVSUP Identifies Objectives for Each TWI Location

Three steps help identify the objectives for each location.

a. Identify the skill set needed to fulfill an existing Military Component or for desired future capability as stated in DOD Instruction 1322.06 (2007).

The U.S. Navy Supply Corps aims to continuously align itself with the fleet to ensure products and services are delivered to the warfighter to meet the readiness needs of all its naval customers. To accomplish this objective, NAVSUP has established and published four strategic goals in the NAVSUP Strategic Plan 2013–2017 (NAVSUP, n.d.-b). These four goals are:

- Create and sustain a working environment that fosters teamwork and collaboration, rewards innovation, and provides the tools, resources, and developmental opportunities employees need to be effective.
- Drive unity of effort across the Naval support network by strengthening relationships, optimizing processes, and focusing on customer outcomes.
- Refine internal business processes to reduce operating costs and ensure compliance while enhancing support to our customers.
- Create and sustain an information environment that leverages technology to deliver greater transparency, facilitate information data sharing, and enable better decision making. (pp. 3–4)

The capabilities gaps identified according to NAVSUP in requesting the TWI partnerships (Stone, 2004; Lyden, 2009; Heinrich, 2012) are as follows:

- Exposure, training, and skills in industry innovative business approaches, management practices, and corporate organizational culture
- Exposure to industry senior and executive level decision-making processes
- Develop skills in private sector procedures and best practices
- Understand strategic and service-level linkages with public policy, corporate and non-governmental organizations
- Ability to embrace changes and other cultures in a complex national environment

b. Identify billets the TWI participant will be expected to fulfill upon TWI completion as required in DOD Instruction 1322.06 (2007).

In each request for authorization of the TWI program letter (Stone, 2004; Lyden, 2009; Heinrich, 2012), NAVSUP identifies measurable objectives the TWI participant is to attain. Additionally, the letters provided several examples of billets for utilization tours upon completion of the TWI program. Tables 4 through 7 display the billets.

c. Identify the measurable training objectives for each location keeping in mind to link it to NAVSUP's objectives

Tables 4 through 7 display the objectives for each location using the MOU between the Navy and the companies.

Table 4. Identifying Objectives—The Home Depot. Adapted from NAVSUP (n.d.-b, pp. 3–4), Stone (2004).

STEP 1: Identify objectives for each TWI location				
The Home Depot				
NAVSUP Strategic Plan 2013-2017	**Capability Gaps**	**Measurable Objectives**	**Billets (not limited to)**	**Organization Goals**
Goal 1. World Class Workplace – Create and sustain a working environment that fosters teamwork and collaboration, rewards innovation, and provides the tools, resources, and developmental opportunities employees need to be effective. Goal 2. Unity of Effort – Drive unity of effort across the Naval support network by strengthening relationships, optimizing processes, and focusing on customer outcomes. Goal 3. Effective, Efficient Performance – Refine internal business processes to reduce operating costs and ensure compliance while enhancing support to our customers. Goal 4. Data Driven Decision Making – Create and sustain an information environment that leverages technology to deliver greater transparency, facilitate information data sharing, and enable better decision making.	1) Exposure, training, and skills in industry innovative business approaches, management practices, and corporate organizational culture 2) Exposure to industry senior and executive level decision-making processess 3) Develop skills in private sector procedures and best practices 4) Understand strategic and service-level linkages with public policy, corporate and non-governmental organizations 5) Ability to embrace changes and other cultures in a complex national environment	**Operations:** - Learn the store/business operations within a Home Depot store - Learn operations business and key processes - Participate in Senior Vice president (SVP) Operations Leadership Team - Participate in development and implementation of strategic operations business initiative **Human Resources:** - Learn key HR processes (e.g. performance management, HR review, 360 Feedback process) - Learn key HR programs (e.g. Store Leadership Programs, Business Leadership Programs) - Shadow assignment with Chief Executive Officer (CEO), Store Human Resource Manager (HRM), etc. **Merchandising:** - Learn merchandising business and key processes - Participate in Mechandising Leadership Team - Participate in development and implementation of strategic merchandising business initiative - Participate in Merchandising Leadership Program Career Forum and Orientation	1) Weapon System Manager 2) Equipment Manager Support and Submarine Program Support 3) Operations Officer 4) Special Project Manager 5) Joint Weapon System Integrator 6) Joint Marine Weapon System	Add the command objectives that links between the measurable objectives learned from industry to NAVSUP Strategic goals. 1) NAVSUP WSS Philadelphia 2) NAVSUP WSS Mechanicsburg 3) Defense Logistics Agency 4) Defense Supply Center Richmond 5) Defense Supply Center Columbus 6) Defense Support Center Philadelphia

Table 5. Identifying Objectives—FedEx. Adapted from NAVSUP (n.d.-b, pp. 3–4), Lyden (2009).

STEP 1: Identify objectives for each TWI location				
Federal Express Corporation				
NAVSUP Strategic Plan 2013-2017	**Capability Gaps**	**Measurable Objectives**	**Billets (not limited to)**	**Organization Goals**
Goal 1. World Class Workplace – Create and sustain a working environment that fosters teamwork and collaboration, rewards innovation, and provides the tools, resources, and developmental opportunities employees need to be effective. Goal 2. Unity of Effort – Drive unity of effort across the Naval support network by strengthening relationships, optimizing processes, and focusing on customer outcomes. Goal 3. Effective, Efficient Performance – Refine internal business processes to reduce operating costs and ensure compliance while enhancing support to our customers. Goal 4. Data Driven Decision Making – Create and sustain an information environment that leverages technology to deliver greater transparency, facilitate information data sharing, and enable better decision making.	1) Exposure, training, and skills in industry innovative business approaches, management practices, and corporate organizational culture 2) Exposure to industry senior and executive level decision-making processess 3) Develop skills in private sector procedures and best practices 4) Understand strategic and service-level linkages with public policy, corporate and non-governmental organizations 5) Ability to embrace changes and other cultures in a complex national environment	**Supply Chain Management:** - Learn FedEx Supply chain management and how it is utilized - Learn the technological application involved and their purpose **Contract Management:** - Company orientation to support contract managment - Company's structure to influence critical decision point **Acquisition Pre-Award Activities:** - Business strategy - Steps/responsibilities involving proposal preparation, contract negotiation and award **Award Activities:** - Contract administration procedures and responsibilities **Pricing:** - Learn FedEx cost accounting system in relation to government and commercial business - Learn FedEx pricing and proposal preparation precidure **Commercial Practice:** - Learn different business strategy for government and commercial customer **Total Quality:** - Learn FedEx approaches to total quality philosophy	1) Weapon System Manager 2) Equipment Manager Support and Submarine Program Support 3) Operations Officer 4) Helicopter Production, Customer Support Divsion 5) Joint Customer Service Team Leader	Add the command objectives that links between the measurable objectives learned from industry to NAVSUP Strategic goals. 1) NAVSUP WSS Philadelphia 2) NAVSUP WSS Mechanicsburg 3) Defense Logistics Agency 4) Defense Supply Center Richmond 5) Defense Supply Center Columbus

Table 6. Identifying Objectives—ExxonMobil. Adapted from NAVSUP (n.d.-b, pp. 3–4), Heinrich (2012).

STEP 1: Identify objectives for each TWI location				
ExxonMobil Fuels Marketing Company				
NAVSUP Strategic Plan 2013-2017	**Capability Gaps**	**Measurable Objectives**	**Billets (not limited to)**	**Organization Goals**
Goal 1. World Class Workplace – Create and sustain a working environment that fosters teamwork and collaboration, rewards innovation, and provides the tools, resources, and developmental opportunities employees need to be effective. Goal 2. Unity of Effort – Drive unity of effort across the Naval support network by strengthening relationships, optimizing processes, and focusing on customer outcomes. Goal 3. Effective, Efficient Performance – Refine internal business processes to reduce operating costs and ensure compliance while enhancing support to our customers. Goal 4. Data Driven Decision Making – Create and sustain an information environment that leverages technology to deliver greater transparency, facilitate information data sharing, and enable better decision making.	1) Exposure, training, and skills in industry innovative business approaches, management practices, and corporate organizational culture 2) Exposure to industry senior and executive level decision-making processess 3) Develop skills in private sector procedures and best practices 4) Understand strategic and service-level linkages with public policy, corporate and non-governmental organizations 5) Ability to embrace changes and other cultures in a complex national environment	**Supply Operations:** - Perform in various key position in company's operation to learn functions and responsibilities **Refinery process:** - Learn various procidure essential to the refinery process **Downstream and Chemical Safety, Health, & Environment (SH&E):** - Participate in EXXONMOBILE's Operation Integrity Managment System (OIMS) Assessments to familiarize with process of continuous improvement and streamline operations - Learn trend analysis of safety statistics, assessment results, etc. **General Aviation:** - Design and operate fixed and mobile aviation refueling facilities and equipments - Supply and distribution of Jet A and Avgas to customers - Conductinging process and procedure testing **SeaRiver:** - Manage receipt and issue operations from inland and ocean-going maritime operations - Coordinate logistics involved with moving various petroleum products - Understand and improve emergency	1) Fuel Depot 2) Aircraft Fueling Officer 3) General Supply 4) Fuel Depot 5) Fuel Logistics Planner 6) Fuel Depot	Add the command objectives that links between the measurable objectives learned from industry to NAVSUP Strategic goals. 1) NAVSUP FLC Diego Garcia 2) NAVSUP FLC Sigonella 3) NAVSUP FLC Souda Bay 4) NAVSUP FLC Rota 5) COMLOG WESTPAC 6) NAVSUP FLC Pearl Harbor

Table 7. Identifying Objectives—Starbucks. Adapted from NAVSUP (n.d.-b, pp. 3-4), Lyden (2009), Stone (2004).

STEP 1: Identify objectives for each TWI location				
Starbucks				
NAVSUP Strategic Plan 2013-2017	**Capability Gaps**	**Measurable Objectives**	**Billets (not limited to)**	**Organization Goals**
Goal 1. World Class Workplace – Create and sustain a working environment that fosters teamwork and collaboration, rewards innovation, and provides the tools, resources, and developmental opportunities employees need to be effective. Goal 2. Unity of Effort – Drive unity of effort across the Naval support network by strengthening relationships, optimizing processes, and focusing on customer outcomes. Goal 3. Effective, Efficient Performance – Refine internal business processes to reduce operating costs and ensure compliance while enhancing support to our customers. Goal 4. Data Driven Decision Making – Create and sustain an information environment that leverages technology to deliver greater transparency, facilitate information data sharing, and enable better decision making.	1) Exposure, training, and skills in industry innovative business approaches, management practices, and corporate organizational culture 2) Exposure to industry senior and executive level decision-making processess 3) Develop skills in private sector procedures and best practices 4) Understand strategic and service-level linkages with public policy, corporate and non-governmental organizations 5) Ability to embrace changes and other cultures in a complex national environment	**Starbucks Immersion:** - Basic understanding of Starbucks Coffee Company - Familiarization of Starbucks Supply Chain Operations **Supplly Chain orientation:** - Familiarize with multiple groups and their impact on day-to-day supply chain operation and strategy - Understand Starbucks operational functions and scope of project **Director Orientation and project work:** - Learn Supply Chain Operations at director-level - Understand higher-level processes, and cross-functional project work with category, retail and other business units to include international businesses **Executive Orientations:** - Develop an understanding of supply chain at senior leadersip team strategy and its relationship within the framework of Starbucks Coffee Company.	Unavailable, but should be similar to Home Depot and FedEx	Unavailable, but should be similar to Home Depot and FedEx

2. Step 2: Link TWI ROI to Existing NAVSUP Performance Measurements

It is challenging to link the TWI ROI to specific existing NAVSUP performance metrics. Each NAVSUP organization uses different performance metric. For the scope of this project, the time constraint does not allow analysis of all possible performance metric of all possible utilization organizations. Instead, this project links the TWI ROI to NAVSUP's four goals as stated in the Strategic Plan 2013–2017 (NAVSUP, n.d.-b).

a. Hard ROI

Hard ROI is the increase in productivity the TWI participant brings back to the Navy after completing the program. The costs and benefits calculation is detailed in step 6. Hard ROI is also the cost saving TWI participant may contribute to while at their TWI utilization tour. An example is leading a project that improved an existing process or created a new process which resulted in cost saving to the Navy. This data was not measured for this MBA project, but a form has been created for future collection of this data.

b. Soft ROI

Soft ROI is the intangible benefit and in this case, a more important benefit than the hard ROI. TWI participants will obtain skills that help meet NAVSUP's goals as stated in the NAVSUP Strategic Plan 2013–2017. Figure 7 illustrates the link. It displays the capability gaps identified from the NAVSUP Strategic Plan (NAVSUP, n.d.-b). These gaps cannot be satisfied with "existing military or advanced civilian schooling programs or other established training and education programs" (Heinrich, 2012). The TWI objectives at each location are identified to ensure fulfillment of existing capability gaps. The billets are identified to best use TWI participants' newly learned skills. In performing their duties at the utilization tour, TWI participants meet their command's objectives, which are linked to NAVSUP's objectives. As a result of this link, TWI participants meet NAVSUP's objectives and fulfilled identified capability gaps, which is arguably the biggest benefit for the Navy.

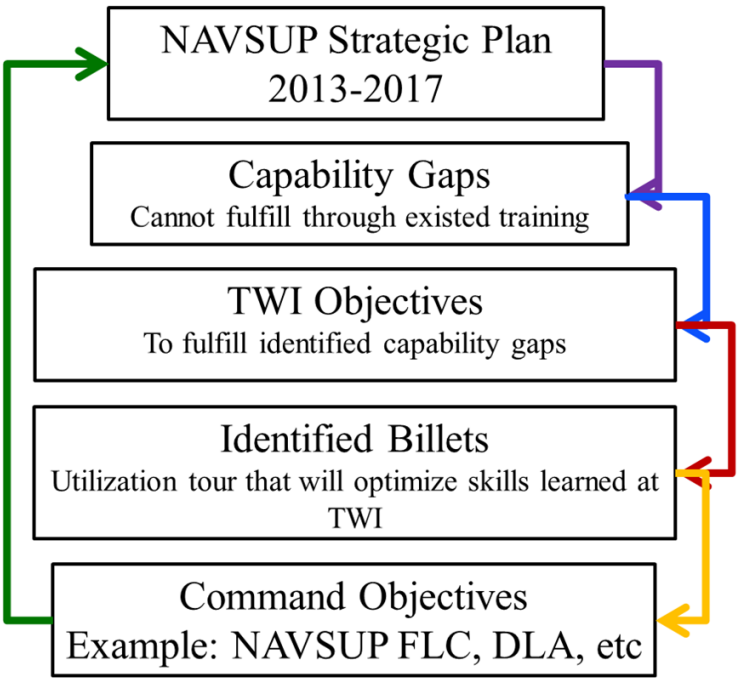

Figure 7. Link between NAVSUP Objectives and TWI Objectives

Table 8 is the Data Collection Plan. It is an overview of what objective(s) to accomplish during each stage of the learning process, what method of data collection will be used to meet the objective(s), when the data collection will happen, and who will be responsible for the data collection.

Table 8. Data Collection Plan. Adapted from Phillips (1997, p. 36).

Data Collection Plan					
Program: TWI _____		Responsibility: _____		Date: _____	
Level		Objective (s)	Evaluation Method	Timing	Responsibilties
1	Reaction, Satisfaction and Planned Actions	1) Positive Reaction 2) Recommended Improvements 3) Action Items	1-3) Initial Program Evaluation Form	1-3) Upon completion of TWI tour, before reporting to utilization tour	1-3) Sponsoring company representative. Email a copy to PERS-4412.
2	Learning	1) Industry innovative business approaches, management practices, and corporate organizational culture 2) Industry senior and executive level decision-making processes 3) Skills in private sector procedures and best practices 4) Strategic and service-level linkages with public policy, corporate and non-governmental organizations 5) Ability to embrace changes and other cultures in a complex national environment	1-5) Skill Practice	1-5) During TWI tour	1-5) TWI participants and Sponsoring company representative.
3	Job Application	1) Meet NAVSUP's objecives 2) Use of Skills 3) Frequency of Skill Use 4) Barriers	1) Scorecard 2-4) Post Program Evaluation Form (4-6 months)	1) Upon completion of TWI tour, before reporting to utilization tour 2-4) 4-6 months after working at utilization tour	1) Sponsoring company representative. Email a copy to PERS-4412. 2-4) PERS-4412
4	Business Results	1) Cost saving to the Navy 2) Faster and more efficient ways to conduct business 3) Increased customer satisfaction	1-3) Capture Navy Impacts Data (performance monitoring)	1-3) One to two years after working at utilization tour	1-3) PERS=4412 and TWI paticipants

In the Data Collection Plan, upon completion of the TWI tour and before reporting to the utilization tour, the participant will provide information to the scorecard and the initial program evaluation form. This will be administered by the partnering company's representative. The scorecard is a way to assess whether the participant is meeting the objectives set out by the program and how each of the objectives are linked to NAVSUP's objectives. Table 9 is an example of the scorecard.

Table 9. TWI Scorecard. Adapted from NAVSUP (n.d.-b, pp. 3–4).

TWI SCORECARD						
NAVSUP Strategic Plan 2013-2017	**Objectives for [Home Depot]**	YES	NO	**Overall Score**		
Goal 1. World Class Workplace – Create and sustain a working environment that fosters teamwork and collaboration, rewards innovation, and provides the tools, resources, and developmental opportunities employees need to be effective. Goal 2. Unity of Effort – Drive unity of effort across the Naval support network by strengthening relationships, optimizing processes, and focusing on customer outcomes. Goal 3. Effective, Efficient Performance – Refine internal business processes to reduce operating costs and ensure compliance while enhancing support to our customers. Goal 4. Data Driven Decision Making – Create and sustain an information environment that leverages technology to deliver greater transparency, facilitate information data sharing, and enable better decision making.	**Supply Chain**			**GREEN**	**YELLOW**	**RED**
	G3: Know the production schedule			Met 70% or above of the objectives	Met 40-69% of the objectives	Met 39% or less of the objectives
	G3: Understands inventory management					
	G2: Can coordinate with third party transporters					
	G3: Can manage inventory at inventory control point					
	G3: Know how to evaluate work processes on the line					
	G4: Can identify technology applications and purposes to improve supply chain management			Note: Add relevant objective and take away irrelevance objective as needed. To calculate the overall score use the following formula.		
	G4: Know the benefits and problems the company faces with new software/management programs					
	G3: Know how companies utilize strategic sourcing					
	G3: Know how the use of strategic sourcing affects the bottom line			Overall Score = (# yes / Total # of objectives) x 100		
	G3: Know the key processes in the operation					
	Quality Assurance			G1 = NAVSUP Goal 1 G2 = NAVSUP Goal 2 G3 = NAVSUP Goal 3 G4 = NAVSUP Goal 4		
	G3: Can test for quality of product					
	G3: Know the inspection techniques used by the company					
	Fuel					
	G3: Understands the environmental factors to refinery process					
	G3: Can assess fuel testing procedures					
	G2: Understands the operation of aviation refueling facilities					
	G3: Can conduct process and procedure testing to ensure safe practices					
	G3: Can coordinate movement of fuel assets					
	Safety					
	G3: Improve upon emergency response plans					
	Contract Management					
	G3: Improve organization's structure to optimize acquisition function					
	G2: Know the types of contracts used in procurement and its effects on the contract choice					
	G2: Know different negotiation strategies used by industry					
	G2: Know how industry carries out contract administration					
	G2: Know how industry manage subcontractors					
	G2: Know how business strategy changes when dealing with the government versus commercial customers					
	G2: Know the techniques used to incentivize contracts					
	Process improvement					
	G3: Know how Lean/ Six Sigma is utilized and incorporated into business					
	G3: Know different improvement initiatives companies are implementing					
	G1: Know what processes companies used to develop leadership					
	G1: Know how companies instill strategic and operating excellence					

TWI participants may also obtain skills that contribute to their personal growth as naval officers. In theory, there should be an improvement in the participant's Fitness Report (form NAVPERS 1610/2 11-11), specifically in Block 33 (Professional Expertise), Block 36 (Teamwork), Block 37 (Mission Accomplishment and Initiative) and Block 38 (Leadership). Currently, obtaining this data is challenging, as is isolating the effect of the program due to so many factors contributing to an individual's general performance evaluation. However,

this can be measured if the TWI track is changed to have more continuity between the participant and the reporting senior. As illustrated in Figure 8, a selected TWI participant reports to a utilization tour for one year, attends the TWI program, and reports back to the utilization tour command. The supervisor of the individual will see the difference from before and after the TWI tour.

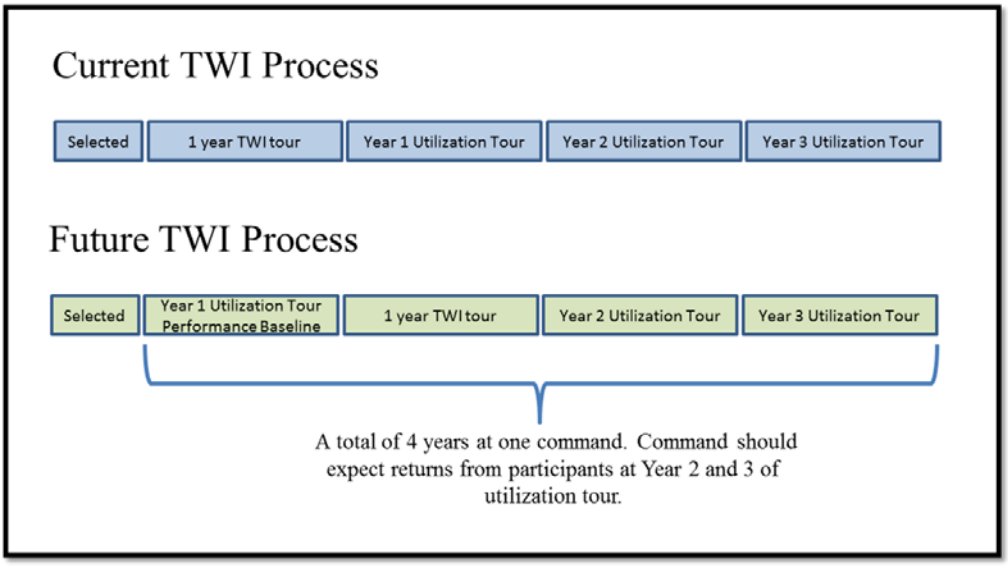

Figure 8. Current and Future TWI Process

3. Step 3: Response to the TWI Program

Sponsoring organizations (e.g., Starbucks, FedEx) should require participants to fill out the initial post program evaluation (Table 10) before departure. The experience of the participants will still be fresh on their minds and the sponsoring organization, along with NAVSUP, will be able to make immediate improvement to the program using the participant's feedback. The purpose of this evaluation is to capture the valuable initial response to the training program and to help in assessing whether the TWI program fulfills the five identified capability gaps. Completing the post program evaluation should be mandated in the Memorandum of Understanding (MOU) between the Navy and the partnering company to institutionalize the process. The initial post-program evaluation can be used to improve the program experience for future participants and to use in the overall ROI measurement consideration. The following tables are examples of a TWI Program Evaluation form (Table 10) and its interpretation (Table 11).

Table 10. TWI Program Evaluation

TWI Program Evaluation
Please help us evaluate the Training with Industry (TWI) program by answering the following questions. Give the completed evaluation to your industry representative and email a copy to NAVSUP PERS-4412 Mr. Phillip Knauss at phillip.knauss@navy.mil. Your candid feedback will be key to improving the program for future participants.
General
1). Give examples of observed innovative business approaches, management practices, and corporate organizational culture. Comments:
2). Give examples of observed senior and executive level decision making processess that are different from the Navy and/or may be beneficial for the Navy. Comments:
3). Give examples of skills developed in private sector precedures and best practices that may be use in the Navy. Comments:
4). Give examples of how you contributed to the strategic and service-level linkage with public policy, corporate and non-government organization. Comments:
5). Give examples of how your ability to embrace changes and other cultures in a complex national environment has enhanced. Comments:
On the Job Impact and Benefit
6). How do you expect to use what you learned at [FedEx] in the Navy? Comments:
7). How did the training contribute to your qualities as an officer? Comments:
8). How will your training improve your quality of work for the Navy? Comments:
9). What aspect of TWI was least valuable or not likely to be used? Comments:
Personal and Professional Value
10). What area of the FITREP performance trait is most impacted by the TWI Program? o 33. Professional Expertise: Professional knowledge proficiency and qualification o 34. Command or Organizational Climate/Equal Opportunity: Contributing to growth and development, human worth, community o 35. Military Bearing Character: Appearance, conduct physical fitness, adherence to Navy Core Values o 36. Teamwork: Contributions toward team building and team results o 37. Mission Accomplishment and Initiative: Taking initiative, planning/prioritizing, achieving mission o 38. Leadership: Organizing, motivating and developing others to accomplish goals. Comments:
11). How did this training contribute to your professional goals? Comments:
TWI Program Improvement Please rank from 1 (Entirely ineffective) to 5(Very effective)
12). Distribution of time on different content and skill areas 1 2 3 4 5 Comments:
13). Length of the program and the balance between mentoring, hands on, team project, etc 1 2 3 4 5 Comments:
14). Design and facilitation of learning environment 1 2 3 4 5 Comments:
15). Connection between the program objectives and the actual learning performance 1 2 3 4 5 Comments:
16). What should be added to the program to enhance the learning? Omitted? Comments:

Table 11. TWI Program Evaluation Interpretation

TWI Program Evaluation Interpretation
When reviewing the answers for the TWI Program Evaluation, use the following ranges as guidelines for responses to meeting program expectations, relevancy of training to NAVSUP objectives, and overall quality of program.
General
The participant's answer to the "General" section demonstrated if TWI program have filled the 5 identified capability gaps. 1) Industry innovative business approaches, management practices, and corporate organizational culture 2) Industry senior and executive level decision-making processes 3) Skills in private sector procedures and best practices 4) Strategic and service-level linkages with public policy, corporate and non-governmental organizations 5) Ability to embrace changes and other cultures in a complex national environment
On the Job Impact and Benefit
The participant's answer to the "On the Job Impact and Benefit" section demonstrated what they learned and how they plan to apply it. This will capture the prospective impact to the Navy; basically the benefit of TWI program.
Personal and Professional Value
The participant's answer to the "Personal and Professional Value" section demonstrated if the participant is satisfied with TWI program and if it is benefical to their professional career.
TWI Program Improvement
The participant's answer to the "TWI Program Improvement" section will help sponsoring company improve the program for future participant. This will also help the Navy draft better MOU/MOA in the future.

4. Step 4: TWI Learning and Retention

After 4–6 months, TWI participants complete another post-program evaluation (Table 12), provided by PERS-4412. This evaluation captures whether the participant learned and retained the knowledge learned through the TWI program. The 4–6-month-period of settling in to a new billet and re-acclimating to the Navy enables the participant to reflect on how the TWI experience impacts the Navy. The participant may identify new ways in which he is productive, efficient and a better officer than realized after the initial completion of the TWI program. Interpreting the 4-6 month post-program evaluation can be found in Table 13.

Table 12. TWI Program Evaluation (4–6 Months)

TWI Program Evaluation (4-6 Months)

Please help us evaluate the Training with Industry (TWI) program by answering the following questions. Email to NAVSUP PERS-4412 Mr. Phillip Knauss at phillip.knauss@navy.mil. Your candid feedback will be key to improving the program for future participants and capturing the benefit of TWI.

General

1). Give examples of observed innovative business approaches, management practices, and corporate organizational culture.
Comments:

2). Give examples of observed senior and executive level decision making processess that are different from the Navy and/or may be beneficial for the Navy.
Comments:

3). Give examples of skills developed in private sector precedures and best practices that may be use in the Navy.
Comments:

4). Give examples of how you contributed to the strategic and service-level linkage with public policy, corporate and non-government organization.
Comments:

5). Give examples of how your ability to embrace changes and other cultures in a complex national environment has enhanced.
Comments:

On the Job Impact and Benefit

6). How do you expect to use what you learned at [FedEx] in the Navy? What knowledge and skill from TWI have you used?
Comments:

7). How did the training contribute to your qualities as an officer?
Comments:

8). Did the training improve your quality of work for the Navy? How?
Comments:

9). What aspect of TWI was least valuable or not used?
Comments:

Personal and Professional Value

10). Was area/s of the FITREP performance trait impacted by the TWI Program?
o 33. Professional Expertise: Professional knowledge proficiency and qualification
o 34. Command or Organizational Climate/Equal Opportunity: Contributing to growth and development, human worth, community
o 35. Military Bearing Character: Appearance, conduct physical fitness, adherence to Navy Core Values
o 36. Teamwork: Contributions toward team building and team results
o 37. Mission Accomplishment and Initiative: Taking initiative, planning/prioritizing, achieving mission
o 38. Leadership: Organizing, motivating and developing others to accomplish goals.
Comments:

11). Did the training contribute to your expected professional goals?
Comments:

TWI Program Improvement

Please rank from 1 (Entirely ineffective) to 5(Very effective)

12). Distribution of time on different content and skill areas 1 2 3 4 5
Comments:

13). Length of the program and the balance between mentoring, hands on, team project, etc 1 2 3 4 5
Comments:

14). Design and facilitation of learning environment 1 2 3 4 5
Comments:

15). Connection between the program objectives and the actual learning performance 1 2 3 4 5
Comments:

16). What should be added to the program to enhance the learning? Omitted?
Comments:

Table 13. TWI Program Evaluation Interpretation (4–6 Months)

TWI Program Evaluation Interpretation (4-6 Months)
When reviewing the answers for the TWI Program Evaluation, use the following ranges as guidelines for responses to meeting program expectations, relevancy of training to NAVSUP objectives, and overall quality of program. Giving this 4-6 months after completion of TWI will demonstrate learning and retention of the skills and knowledges obtain from TWI.
General
The participant's answer to the "General" section demonstrated if TWI program continues to fill the 5 identified capability gaps. 1) Industry innovative business approaches, management practices, and corporate organizational culture 2) Industry senior and executive level decision-making processes 3) Skills in private sector procedures and best practices 4) Strategic and service-level linkages with public policy, corporate and non-governmental organizations 5) Ability to embrace changes and other cultures in a complex national environment
On the Job Impact and Benefit
The participant's answer to the "On the Job Impact and Benefit" section demonstrated what they learned, how they plan to apply it, and if they applied it. This will capture the prospective impact to the Navy; basically the benefit of TWI program.
Personal and Professional Value
The participant's answer to the "Personal and Professional Value" section demonstrated if the participant is satisfied, unsatisfied, or still feels the same with TWI program and if it is benefical to their professional career.
TWI Program Improvement
The participant's answer to the "TWI Program Improvement" section will help sponsoring company and the Navy improve the program for future participant.

5. Step 5: Navy Impact

Positive impact to the Navy can be met if TWI participants are sent to utilization tours to fulfill billets that allow them an opportunity to apply learned knowledge and skills. Hard impact can be captured only if TWI participants lead cost-saving projects or apply new concepts to improve performance or procedure efficiencies. This data can be captured one or two years after the TWI tour by using Table 14. The benefit captured will be applied to step 6 cost-benefit analysis. This data is currently not available for this project.

Table 14. Navy Impacts

STEP 5: Navy Impacts				
	Cost Saving (dollar, time, etc)	Cost Saving in dollars	Confidence Level	Benefit Value
1	Example: improved warehouse restocking time by 50%	Example: Decrease the time by 50% saved $50,000	Example: Used the method learned from Home Depot while conducting TWI so is 95% confindence this saving is due to knowledge learned at TWI	Example: At 95% confidence indicate at error of 5% so the range of benefit is from $47,500 to $52,500. $47,500 is use for a more conservative estimate.
2				
3				
Total Benefits to be added to Step 6 CBA				

6. Step 6: Measure All Training Costs and Benefits

In step 6, all costs and benefits, to include intangible benefits, are identified and measured. The ROI is then calculated using:

$$\text{ROI} = (\text{Net Program Benefits}/\text{Program Costs}) \times 100$$

Table 15 displays the tangible and intangible benefits identified for the TWI program. A monetary value for productivity per officer is 5% of their value for the year. Monetary values for fulfilling identified capability gaps is 20% of their value for the year. These values have been chosen as notional values and are thought by the authors and advisors to be fair representations of their actual values.

Table 15. Navy TWI Program Benefits

Navy TWI Program Benefits					
Benefits	**Tangible Quantifiable**	**Tangible Non-Quantifiable**	**Intangible Quantifiable**	**Intangible Non-Quantifiable**	**Monetary Value**
Productivity Increase per Officer	X				$8,838.00
Cost Saving Projects	X				$0.00
Fulfilling Identified Capability Gaps Per Officer			X		$35,352.00
Meeting NAVSUP Objectives			X		$0.00
Professionally a better officer after TWI tour				X	N/A
Improved civil-military relation				X	N/A
Increase in job satisfaction				X	N/A
Recruiting				X	N/A

a. Assumptions Used in the Analysis

For the cost-benefit analysis, the perspective for costs and benefits is that of the Navy. All pay elements are based on the FY 2017 Department of Defense Military Personnel Composite Standard Pay and Reimbursement Rates, using the Navy's annual DOD Composite Rate (Roth, 2016). The requirement for TWI selection is a senior lieutenant (O-3) or lieutenant commander (O-4). Responses from a TWI participants' survey show all participants as O-4 with at least 10 years of service except for one O-2 with 1–5 years of service, who was an outlier. This project used the O-4 composite rate for the cost and the value of the officer. The annual DOD composite rate includes the "average basic pay plus retired pay accrual, Medicare-eligible retiree health care accrual, basic allowance for housing, basic allowance for subsistence, incentive and special pay, permanent change of station expenses, and miscellaneous pay" (Roth, 2016, Note 2). Table 16 is the calculation of the value of each officer.

Table 16. Officer's Value

Value by Rank				
One Officer	**Used FY2017 #**	**5% skill increase**	**20% capability cost saving**	**Combined**
O-4	$176,759.00	$8,837.95	$35,351.80	$44,189.75
O-5	$198,950.00	$9,947.50	$39,790.00	$49,737.50
O-6	$233,013.00	$11,650.65	$46,602.60	$58,253.25
Four Officers				
O-4	$176,759.00	$35,351.80	$141,407.20	$176,759.00
O-5	$198,950.00	$39,790.00	$159,160.00	$198,950.00
O-6	$233,013.00	$46,602.60	$186,410.40	$233,013.00

For this research, an assumption was made of the TWI participants being selected when they were an O-3 or an O-4 and conducting their TWI tour during their 13th year of service (YOS). It is also assumed that they would promote regularly to O-5 at their 17th YOS and to O-6 at their 22nd YOS. Productivity increase after a TWI tour is determined at 5% based on a study conducted by Kamarck, Thie, Adelson, and Krull (2010). In the study, literature review shows a production of 20-percent, 15-percent from domain knowledge and 5-percent from skills or competencies gained, for officers who attended a one and a half year of graduate school program. The TWI program is slightly different from a graduate study with more focus on skill so this project used 5-percent as the productivity increase from a one-year TWI tour.

According to the survey taken by TWI participants, many gained knowledge and fulfilled one or more capability gaps identified by NAVSUP. Assumption is that NAVSUP would have to hire out to fulfill the capability gaps. By TWI participants obtaining the knowledge to fulfil the capability gaps, there is an assumption of cost saving of 20-percent.

b. Calculation of Costs

The hard cost to the Navy is the base pay. For one year, the Navy is paying the four selected officers their pay and entitlements to work in corporate America. The cost to the Navy (O-4 rank) is $176,759 per officer per year. For selection of four officers per year, it totals $707,036. Another hard cost is the cost of the selection board, which is comprised of one O-7, four O-6s, two O-5s, one O-4, and one O-3. These officers conduct read ahead of candidates and meet for two days to make the selection. Using the FY 2017 Navy annual DOD composite rate and multiplying it by the daily rate of 0.00439 (Roth, 2017), this comes out to the following cost for two days (excluding travel and per diem for those members who may have to travel):

One O-7 = $2,298

Four O-6s = $8,183

Two O-5s = $3,494

One O-4 = $1,552

One O-3 = $1,333

Total Selection Board Cost: $16,860

Because most cost measurement of this type of program do not measure the cost of the selection board, this calculation is available but will not be included in the ROI calculation. This will ensure an easier comparison to other programs' costs and benefits. This brings the total hard cost for four O-4s for the Navy to $707,036.

There are soft costs which are challenging to put a dollar amount on. For example, it would be difficult to put a cost on the loss of military knowledge, skills, and military bearing of the officers after being out of the fleet for a minimum of 11 months. Costs that are uncertain and unmeasurable are the following: (a) the cost on productivity due to the officers being away while at TWI for the year; (b) quality of life adversely affected by repeated moves; and (c) unnecessary added strain and stress on the family unit.

c. Calculation of Benefits

The financial benefit to the Navy is the increase in productivity from the TWI participants following their TWI tour. For this project, 5% productivity (equivalent to $8,838 per O-4 or $35,352 for four O-4s) is applied due to the study conducted by RAND (Kamarck et al., 2010). No discount rate, time value of money, annual pay raise, or inflation is taken into consideration for the calculation.

d. Intangible Benefits

In addition to the productivity benefit, there are intangible benefits. A very important measurable benefit is the fulfillment of the identified future capability gaps and meeting NAVSUP's four goals from its strategic plan. These can be accurately measured by using the forms provided in steps 2, 3, and 4 of the Navy TWI ROI model with future participants. For this project, only the fulfillment of the capability gaps is measured, not the meeting of NAVSUP's four goals.

Results from a survey given in 2017 support the argument that most of these intangible benefits have been met. Although not all TWI participants will meet all of the identified capability gaps, each met at least one or more of the gaps listed:

- Exposure, training, and skills in industry innovative business approaches, management practices, and corporate organizational culture
- Exposure to industry senior and executive level decision-making processes
- Develop skills in private sector procedures and best practices
- Understand strategic and service-level linkages with public policy, corporate and non-governmental organizations
- Ability to embrace changes and other cultures in a complex national environment. (Stone, 2004; Lyden, 2009; Heinrich, 2012)

Twenty percent of the officer's value is used in the calculation. For example, an O-4 capability gaps fulfillment is $35,352 per officer or $141,407 per four officers. This is based on the assumption of cost saving from the Navy having to hire and train to fulfil the existing gaps.

One hundred percent of survey replies state an anticipated commitment of at least 20 years to the Navy. Only one reply (6%) was due directly to the participation in the TWI program. This supports the argument that the TWI program is irrelevant in the increase of participants' commitment to the Navy, but since participant stayed until their 20 years obligation, this project uses the benefit at 20 years of service (YOS) for the ROI calculation as displayed in Table 17.

Table 17. Navy TWI ROI

BENEFITS											
Year of Service (YOS)	**13 YOS**	**14 YOS**	**15 YOS**	**16 YOS**	**17 YOS**	**18 YOS**	**19 YOS**	**20 YOS**	**21 YOS**	**22 YOS**	**23 YOS**
	Investment TWI Tour	Payback Year 1	Payback Year 2	Payback Year 3	**Reg tour Promote to O5**	Reg tour	Reg tour	Reg tour	Reg tour	**Reg tour Promote to O6**	Reg tour
Benefits: One O-4 officer											
Skill productivity of 5%	($176,759.00)	($167,921.05)	($132,569.25)	($123,731.30)	($113,783.80)	($103,836.30)	($93,888.80)	($83,941.30)	($73,993.80)	($62,343.15)	($50,692.50)
Cost saving from filling capability gap at 20%	($176,759.00)	($141,407.20)	($106,055.40)	($70,703.60)	($30,913.60)	$8,876.40	$48,666.40	$88,456.40	$128,246.40	$174,849.00	$221,451.60
Total benefits (Productivity and capability gaps)	($176,759.00)	($132,569.25)	($88,379.50)	($44,189.75)	$5,547.75	$55,285.25	$105,022.75	$154,760.25	$204,497.75	$262,751.00	$321,004.25
Benefits: Four O-4 officer											
Skill productivity of 5%	($707,036.00)	($671,684.20)	($636,332.40)	($600,980.60)	($561,190.60)	($521,400.60)	($481,610.60)	($441,820.60)	($402,030.60)	($355,428.00)	($308,825.40)
Cost saving from filling capability gap at 20%	($707,036.00)	($565,628.80)	($424,221.60)	($282,814.40)	($123,654.40)	$35,505.60	$194,665.60	$353,825.60	$512,985.60	$699,396.00	$885,806.40
Total benefits (Productivity and capability gaps)	($707,036.00)	($530,277.00)	($353,518.00)	($176,759.00)	$22,191.00	$221,141.00	$420,091.00	**$619,041.00**	$817,991.00	$1,051,004.00	$1,284,017.00
*** Add benefit realized from Step 5 into the year it is realized. ***											
ROI = (Net Program Benefits / Program Costs) x 100---> (619,041 / 707,036) * 100											

The net program benefit at 20 YOS is then applied to the formula from Phillips (1997) to determine an ROI percentage.

$$ROI = (Net\ Program\ Benefits/Program\ Costs) \times 100$$

$$ROI = (NPV/Program\ Costs) \times 100$$

$$ROI = (619{,}041 / 707{,}036) \times 100 = 87.5544,$$

which means for each dollar invested in the TWI program, the Navy received $0.88 dollars in return after the cost of the program had been recouped. In the long term, Navy TWI is a benefit to the Navy. Three years after conducting the TWI tour (17 YOS), the investment would be recovered. See Table 17.

Other intangible benefits that are non-quantifiable are (a) the human capital investment, which is the theoretical better leader, more efficient officer, more business savvy officer returning to the fleet; (b) the improvement of the civil-military relation. According to Thompson (2011), there is larger separation between civilian and military leadership which may be problematic to America's democracy. The TWI program contributes to the improvement of the civil-military relations through the one year interaction; (c) increase in job satisfaction and commitment to the Navy; and (d) a tool for recruiting future leaders to the Navy. Results from the survey conducted with participants in 2017 shows a positive human capital investment benefit. Seventy-three percent of participants saw immediate value added and 60-percent found interaction with TWI executives to be a great extent of value added to their military career.

e. Sensitivity Analysis

In the ROI analysis, it assumed that TWI tour provided 5% productivity per officer based on similar study conducted by Kamarck et al. (2010). It was also assumed that the cost saving from having to hire and train to fulfill identified capability gaps is 20%. There are many factors that can affect the percentage. A sensitivity analysis was conducted with varying rate. A low of 4% skill increase and 15% capability cost saving, a medium of 5%/20% and a high of 6%/25% was examined. Table 18 displays the value for each rank.

Table 18. Sensitivity Analysis Value by Rank

Value by Rank										
Four Officers	Used FY2017 #	4% skill increase	15% capability cost saving	Combined	5% skill increase	20% capability cost saving	Combined	6% skill increase	25% capability cost saving	Combined
O-4	$176,759.00	$28,281.44	$106,055.40	$134,336.84	$35,351.80	$141,407.20	$176,759.00	$42,422.16	$176,759.00	$219,181.16
O-5	$198,950.00	$31,832.00	$119,370.00	$151,202.00	$39,790.00	$159,160.00	$198,950.00	$47,748.00	$198,950.00	$246,698.00
O-6	$233,013.00	$37,282.08	$139,807.80	$177,089.88	$46,602.60	$186,410.40	$233,013.00	$55,923.12	$233,013.00	$288,936.12

Table 19 shows the calculation for the low, medium, and high rate. Figure 9 displays the low, medium, and high for one officer's rate of return. All rates obtained ROI at 20 YOS. The three-year utilization tour is sufficient to pay back the investment, but participant will need to conduct an additional tour for the Navy to start reaping benefit.

Table 19. Sensitivity Analysis Benefit Calculations

BENEFITS											
Year of Service (YOS)	**13 YOS**	**14 YOS**	**15 YOS**	**16 YOS**	**17 YOS**	**18 YOS**	**19 YOS**	**20 YOS**	**21 YOS**	**22 YOS**	**23 YOS**
Four Officers per year	**Investment TWI Tour**	Payback Year 1	Payback Year 2	Payback Year 3	**Reg tour Promote to O5**	Reg tour	Reg tour	Reg tour	Reg tour	**Reg tour Promote to O6**	Reg tour
LOW											
Skill productivity of 4%	($707,036.00)	($678,754.56)	($650,473.12)	($622,191.68)	($590,359.68)	($558,527.68)	($526,695.68)	($494,863.68)	($463,031.68)	($425,749.60)	($388,467.52)
Cost saving from filling capability gap at 15%	($707,036.00)	($600,980.60)	($494,925.20)	($388,869.80)	($269,499.80)	($150,129.80)	($30,759.80)	$88,610.20	$207,980.20	$347,788.00	$487,595.80
Total benefits (Productivity and capability gaps)	($707,036.00)	($572,699.16)	($438,362.32)	($304,025.48)	($152,823.48)	($1,621.48)	$149,580.52	**$300,782.52**	$451,984.52	$629,074.40	$806,164.28
MEDIUM											
Skill productivity of 5%	($707,036.00)	($671,684.20)	($636,332.40)	($600,980.60)	($561,190.60)	($521,400.60)	($481,610.60)	($441,820.60)	($402,030.60)	($355,428.00)	($308,825.40)
Cost saving from filling capability gap at 20%	($707,036.00)	($565,628.80)	($424,221.60)	($282,814.40)	($123,654.40)	$35,505.60	$194,665.60	$353,825.60	$512,985.60	$699,396.00	$885,806.40
Total benefits (Productivity and capability gaps)	($707,036.00)	($530,277.00)	($353,518.00)	($176,759.00)	$22,191.00	$221,141.00	$420,091.00	**$619,041.00**	$817,991.00	$1,051,004.00	$1,284,017.00
HIGH											
Skill productivity of 6%	($707,036.00)	($664,613.84)	($622,191.68)	($579,769.52)	($532,021.52)	($484,273.52)	($436,525.52)	($388,777.52)	($341,029.52)	($285,106.40)	($229,183.28)
Cost saving from filling capability gap at 25%	($707,036.00)	($530,277.00)	($353,518.00)	($176,759.00)	$22,191.00	$221,141.00	$420,091.00	$619,041.00	$817,991.00	$1,051,004.00	$1,284,017.00
Total benefits (Productivity and capability gaps)	($707,036.00)	($487,854.84)	($268,673.68)	($49,492.52)	$197,205.48	$443,903.48	$690,601.48	**$937,299.48**	$1,183,997.48	$1,472,933.60	$1,761,869.72
*** Add benefit realized from Step 5 into the year it is realized. ***											
ROI = (Net Program Benefits / Program Costs) x 100 **LOW: 43% MED: 88% High: 133%**											

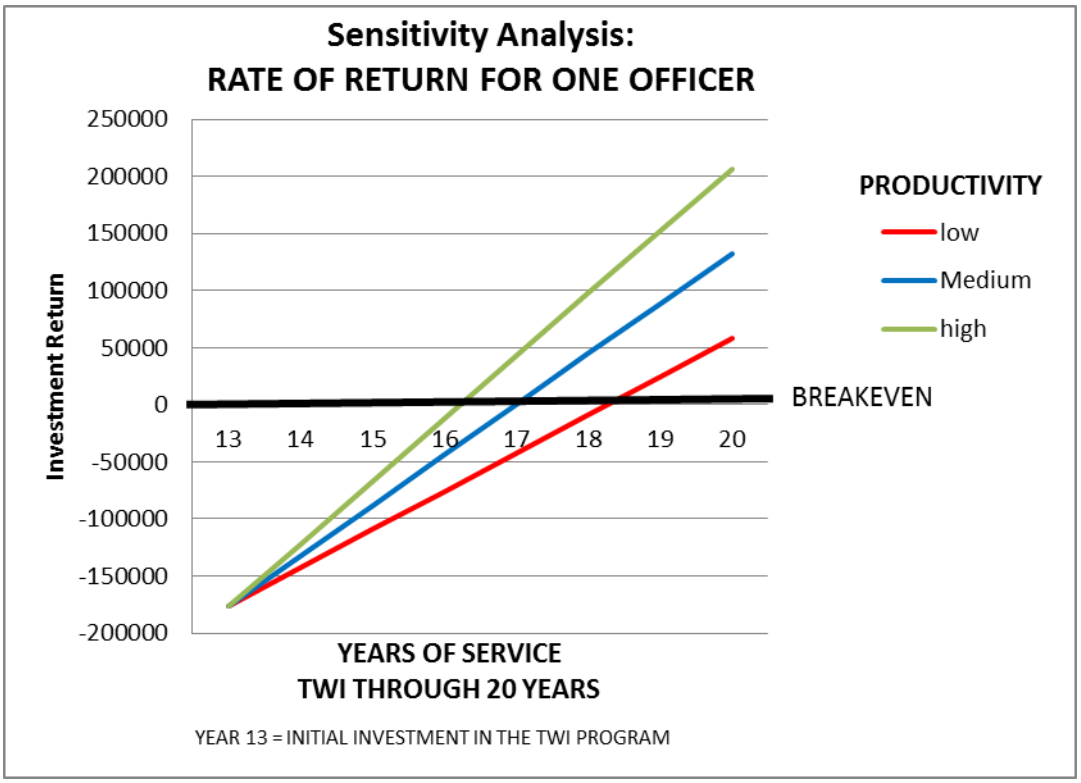

Figure 9. Sensitivity Analysis for One Officer

7. Step 7: Full Training Report

As previously stated in Chapter II, bringing all the information together will provide a comprehensive view of the ROI the Navy gets from the TWI program. To communicate everything important about the investment, all material from steps 1–6 must be presented. Identifying objectives, creating a scorecard linking objectives, determining how participants apply what was learned, placing a value on meeting objectives, and determining the cost-benefit analysis will together provide the overall ROI for the TWI program (Schmidt, 2016). This project was able to capture the hard ROI, but not the soft ROI so the overall ROI for TWI was not captured. Using provided forms to collect data with future participants will provide a more accurate calculation for costs and benefits.

B. CHAPTER SUMMARY

Simply going straight to the ROI formula will not be sufficient for the measurement of a leadership training skill. This MBA project utilizes the Navy TWI ROI Model, which is a combination of the three methodologies discussed in Chapter II. The ROI is 88%. Using the survey conducted, it can be determined that the intangible benefit of fulfilling the identified capability gaps were met, the increased commitment to the Navy due to TWI was not evident, and the human capital investment was met. For a more thorough and accurate measurement of the intangible benefits in the future, it would be beneficial for the Navy to use the forms provided in Step 2 (Scorecard), Step 3 (Initial TWI Program Evaluation), and Step 4 (4–6 Months TWI Program Evaluation). Overall, the TWI program is determined to be beneficial for the Navy.

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V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

A. SUMMARY

Applying the right methodology to the right training will enable decision-makers, training staff, comptrollers, and executives to determine whether training returns are worth the investment. In attempting to develop an ROI metric for NAVSUP to apply to its TWI program, this research established three ROI methodologies. Through the combination of elements of the three methodologies, a metric was developed that would best address the ROI question for the Navy Supply Corps. The metric is adaptable to the changing needs of the Navy, allowing users to add and take away objectives as necessary.

The research designed and sent a survey to the participants in the Navy Supply Corps TWI program. The spirit of the survey was to gather reactions to training, utilization of training, and impact to career milestones. The survey was able to solicit response from 15 of 24 TWI participants.

Research questions were addressed using the survey, Navy policy guidance, career planning milestones and promotion opportunity as identified through the project.

B. CONCLUSIONS AND RECOMMENDATIONS

1. What Are the Costs and Benefits of the TWI Program to the Navy?

a. Conclusion

The cost of the TWI program to the Navy is the salary and benefits paid to one officer while at the one year TWI tour. Therefore, the cost to send one O-4 through the TWI program is $176,759. Determining the benefit to the Navy as a 5% skill increase ($8,838) and a 20% cost saving in filling capability gaps ($35,352), the yearly benefit of sending an O-4 through the TWI program is $44,190. Over a 20 year career and factoring promotion within zone, applying the ROI formula ROI = (Net Program Benefits/Program Costs) × 100, the ROI for the TWI program was determined to be 88% (Table 19).

b. Recommendations

NAVSUP should use the Navy TWI ROI Model (Appendix C) to holistically evaluate the TWI program. A cost/benefit analysis does not take into account the entire program. Using forms like the TWI Scorecard (Appendix E), TWI Program Evaluations (Appendices E and F), and compiling all the data into the TWI Full Report (Appendix I) will improve the criteria to evaluate the overall benefit.

2. What Is the Retention Rate for TWI Fellows after the Three-Year Utilization Tour?

a. Conclusion

The Navy Supply Corps TWI eligibility requirements (NAVSUP, 2013) and selection process of TWI participants is effective in selecting officers committed to a full 20-year or more career. All survey respondents indicated that they intend to stay in the Navy for at least 20 years. Therefore, based on the survey, an assumption is that upon completion of a TWI utilization tour, retention of participants is 100%.

b. Recommendations

NAVSUP should require the three-year utilization tour after the TWI program be served separate from other payback tours. An officer completing a Navy-funded postgraduate education program typically owes a three-year payback tour. Seventy-three percent of the survey respondents owed a utilization/payback for both TWI and graduate school. These payback tours are served concurrently. Separating the payback tours would commit an officer to six years of additional service versus the present three concurrent years.

3. Does the Utilization Tour Fill the Correct Billet and Meet the Professional Requirement?

a. Conclusion

The utilization tour does not fill the correct billet or meet the professional requirement. While the Supply Corps has suggested certain types of billets as utilization tours, there are no specific billets identified. Current utilization tours have NOBC codes ranging from equipment program support officer (1920), inventory control methods officer (1515), procurement contracting officer (1480), to supply plans officer (1984) (P. Knauss,

personal communication, March 6, 2017). Suggested locations for utilization are identified. Many report to a NAVSUP Weapons Systems Center for utilization; however, Defense Logistics Agency (DLA), United States Transportation Command (TRANSCOM), and U.S. Fleet Forces Command are just a few of the other potential utilization sites.

b. Recommendations

1. NAVSUP should assign a specific NOBC to TWI billets instead of the generic student code of 3289. Each TWI billet should have a code(s) identifying the skills, training, experience, and capabilities expected to be gained from the experience. TWI participants should then go to a utilization tour with at least one matching NOBC code they obtained from the TWI program.
2. NAVSUP should establish a new AQD for those who have completed the TWI program. NAVSUP should also have specific billets identified and coded for the new AQD. The generic 24G AQD currently assigned after TWI completion does not have any specific Supply Corps billet requiring the AQD. See Appendix B to establish an AQD.
3. NAVSUP should require TWI participants going to Starbucks or FedEx possess the 1302 subspecialty for supply chain management, which aligns with the ExxonMobil prerequisite of participants requiring the Petroleum Management 1307 subspecialty code.
4. NAVSUP should designate a NAVSUP command as a utilization tour for the TWI program. This would provide participants with more exposure to top-level Supply Corps leadership. The leadership can in turn see the benefits to the TWI program and offer areas for improvement as the needs of the Supply Corps change.

4. Do the Skills/Competencies Obtained through TWI Meet the DOD's Guidance?

a. Conclusion

The Navy Supply Corps TWI program meets most of the guidance laid out by the DOD in its instruction 1322.06, *Fellowships, Scholarships, Training with Industry (TWI), and Grants for DOD Personnel* (Table 20).

Table 20. Navy Supply Corps Fulfilling DOD TWI Criteria. Adapted from Department of Defense (2007).

Department of Defense Instruction 1322.06 (DOD, 2007, p. 8) , military personnel may be accepted into TWI only under the following circumstances:	**YES**	**NO**
In recognition of outstanding performance in their fields	X	
To undertake a project that may be of value to the United States		X
For development of their recognized potential for future career service	X	
To acquire a skill, knowledge, or ability to fulfill a present need, anticipated requirement, or future capability that contributes to the effectiveness of the respective Military Department and contributes to the transformation of the Department of Defense	X	
The criteria for an assignment to the TWI program include the following (pp. 9-10):	**YES**	**NO**
There must be an existing Military Component need or desired future capability fulfilled by virtue of the experience gained	X	
There must be either a follow-on utilization tour or assignment to which the individual shall be assigned, or a clear, documented future need for the skill that is gained.	X	
If individuals completing the TWI are not immediately placed in a utilization tour or assignment, the Secretary concerned shall keep administrative oversight of the individuals and their gained skills for utilization at a time determined by the Military Component	X	
The TWI tour or assignment should not exceed 12 months in length. Any TWI tour or assignment that will exceeds 12 months must be approved by the Secretary concerned.	X	
The proposed TWI tour or assignment must meet professional development requirements	X	
There must be a written agreement between the private sector host, the employee, and the DOD Component concerned before the start of the TWI assignment	X	
The education or training to be received or the research to be performed by a fellowship, scholarship, TWI, or grant recipient must be designed to qualify the recipient to satisfy a requirement or potential requirement of the Department of Defense, contribute to the recipient's recognized potential for career service, or constitute a contribution to a project of value to the United States	X	

b. Recommendations

1. The gaining command for a TWI participants should assign the officer to a project upon completion of the TWI program. According to Bennington and Laffoley (2012), a helpful way to assess the effectiveness of a training program is to assign participants to an actual project. Identifying specific TWI program outcomes, such as leadership/management skills, development of effective strategies, or development of communication skills can all be demonstrated and measured in the isolation of a specific project.

2. NAVSUP should send TWI selectees to their utilization tour for one year prior to the TWI program. After the TWI program, they return to the utilization tour for the remaining two years. Working for the utilization command prior to the TWI program enables continuity and the ability to see effects of the training on the individual participant.

5. What Are the Effects of the TWI Program on the Officer's Promotion and Career?

a. Conclusion

There are no major effects, positive or negative, on an officer's promotion or career after the TWI program. Based on the consent of 12 TWI participants, data on promotion history was obtained from Naval Personnel Command. These participants are promoting within their "in-zone" period.

b. Recommendation

There is no recommendation for this conclusion.

C. FURTHER RESEARCH

The scope and time for this project was constrained. Three ROI methodologies were thoroughly researched, but only a survey was used to gather data from past participants in the TWI program. Further research is recommended using forms developed from this project to thoroughly capture true costs and benefits. Further improvement can be applied to the ROI process developed in this project.

A second area for further research in the benefit of assigning specific utilization tours and AQDs. The following are some questions to explore: (a) Are more benefits gained from

sending a participant to a specific billet?; (b) are participants more productive at one billet than another? and (c) is TWI more attractive to an officer due to gaining an AQD?

Finally, with the new retirement system going into effect January 2018, retention of TWI participants should be studied as there may be less incentive for officers to stay in the Navy for at least 20 years.

APPENDIX A. ESTABLISHING OR REVISING SUBSYSTEMS (NOBC) WITHIN NOOCS

The NOOCS Board is the central location for changes to the NOOCS. To propose the establishment, deletion, or revision of an NOOCS subsystem, send recommendations via the chain of command to:

Commanding Officer Navy Manpower Analysis Center (Attn: Code 10)

5722 Integrity Drive

Millington, TN 38054-5011

Recommendations may also be emailed to navmac_noocs@navy.mil

Navy Officer Billet Classification (NOBC)

To establish an NOBC, the *Manual of Navy Officer Manpower and Personnel Classifications Volume I* states to include:

1. Recommended code number, long and short title. The maximum length for the short title is 14 spaces, including blank spaces.
2. Recommended definition (preferably limited to fifty words);
3. Number and location of billets by activity type that the proposed NOBC will identify;
4. Designators and grades applicable to the proposed code;
5. List of special training required for the incumbent officer (include length and type of course(s) and/or on-the-job training);
6. Information on how the requirements/qualifications are currently identified;
7. Justification stating why the existing billet descriptors are insufficient without the proposed NOBC, and other historical or amplifying information necessary for prudent consideration at each level of review; and
8. Point of contact (include telephone (both commercial and DSN number, fax number, and e-mail address). (DON, 2017a, p. C-5)

To revise an NOBC, the *Manual of Navy Officer Manpower and Personnel Classifications Volume I* states to include:

1. Code and title of existing NOBC;
2. Proposed recoding, retitling, and/or rewording of the current NOBC;
3. Justification for the proposed revision(s); and
4. Point of contact. (DON, 2017a, p. C-5)

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APPENDIX B. ESTABLISHING OR REVISING SUBSYSTEMS (AQD) WITHIN NOOCS

The NOOCS Board is the central location for changes to the NOOCS. To propose the establishment, deletion, or revision of an NOOCS subsystem, send recommendations via the chain of command to:

Commanding Officer Navy Manpower Analysis Center (Attn: Code 10)

5722 Integrity Drive

Millington, TN 38054-5011

Recommendations may also be emailed to navmac_noocs@navy.mil

Additional Qualification Designation (AQD)

To establish an AQD, the *Manual of Navy Officer Manpower and Personnel Classifications Volume I* states the following criteria must be met:

1. It does not duplicate an existing code.
2. It has practical application in personnel planning, control, career management, and training.
3. It identifies additional qualifications, skills, and knowledge required by the duties and functions of the billet, peacetime and mobilization, and/or additional knowledge, skills, and qualifications attained by officers, both active and inactive.
4. It must identify qualifications, skills, and knowledge that cannot be identified by a designator, grade, NOBC, or subspecialty code.
5. It identifies a minimum of 15 billets or 15 officers. (DON, 2017a, pp. D-3)

Guidance for submitting a proposal to establish an AQD code is found in the *Manual of Navy Officer Manpower and Personnel Classifications Volume I* and states*:*

a. Commands recommending the establishment, deletion, or revision of AQD codes must ensure proposals meet the AQD criteria [in the prior list].

(1) Proposals to establish or revise AQD codes must be submitted as endorsed letters and include the following information. Proposals to revise AQD(s) should include all the items below but may state "no change" for those items that are the same as the existing AQD(s).

(a) Recommended code number.
(b) Titles for second and third AQD characters.
(c) Billet detailing requirements. Indicate whether or not billets have been coded to require an officer who has earned the AQD. The description should include special notes as appropriate.
(d) Officer awarding criteria. Specify whether the AQD is earned by course completion, certification, successful completion of a tour in a qualifying billet,

or a combination thereof. If a tour must be completed, identify minimum length of tour.
(e) Length of validity. Specify whether or not the AQD expires or is indefinite. If it expires, include (1) the time period for which the AQD is valid and (2) any recertification requirements.
(f) Designators that can hold the AQD.
(g) Minimum and maximum Grades.
(h) Statement as to whether the AQD is for Active Only, Reserve Only, or Active and Reserve.
(i) Primary consultant(s).
(j) Auxiliary consultant(s).
(k) Funding implications. Resource Sponsor endorsement must accompany all proposals that have lasting funding implications. ALL funding implications MUST be clearly stated as PROGRAMMED/APPROVED.
(l) Cost Analysis. What will be the net effect on students [Individuals Account] IA in terms of man-years/Manpower Personnel Navy (MPN)? NOTE: MPN man-years in the student IA are calculated by multiplying course length in days (include weekends) by number of students and dividing that by 365 for initial training in man-years. This figure is divided by 3 for approximate follow-on, per-year cost for out years.

$$\text{MPN} = \frac{\text{Course length in days} * \text{number of billets}}{365} \qquad \text{Approx follow-on} = \frac{\text{MPN}}{3}$$

(m) Number and location of billets by activity type that will be identified by the proposed AQD.
(n) Information on how the qualifications are presently identified.
(o) Justification as to why existing billet descriptors (i.e., NOBC or SSP codes) are insufficient.
(p) Point of contact (include telephone (commercial and DSN) numbers and e-mail address).

(2) A code table must be enclosed with each proposal and should be prepared per the template at the end of this section.

NOTE: Part D of the manual is currently undergoing a complete revision in terms of content and format, specifically regarding the code tables. Please make note of the new template for establishment and revision requests. Additionally, due to existing AQD code tables in their previous formats, there are cases where the AQD order does not follow logical alpha-numeric sequencing. Please ensure you view the entire section for completeness when searching for a specific AQD as it may be out of sequence until the entire manual can be formatted appropriately.

(3) Proposals to disestablish AQD codes must be submitted as endorsed letters and include the following information: (1) reason(s) for deletion (e.g., qualifications duplicated by existing designator, sufficiently identified by means other than AQD, or insufficient requirements reflected on manpower authorizations) and (2) other information necessary for prudent consideration at each level of review.

(4) Due to data integrity over time and the risk of future personnel misrepresentation, best practices mandate that classification elements are not to be reused once they are disestablished. To this end, deleted or disestablished AQDs will not be reused at any time unless they are reestablished under the same criteria and guidelines as previously published. b. Submit proposals to the address listed [at the beginning of Appendix B]. After approval of a proposal, the originator must:

(1) Coordinate with Budget Submitting Office(s) (BSOs) to ensure Total Force Manpower Management System (TFMMS) package(s) are submitted with Billet Change Requests (BCRs) to implement changes.

(2) Liaise with NAVPERSCOM (PERS-4) to ensure officers receive codes for assignment completed prior to code establishment. (DON, 2017a, pp. D-3 - D-4)

TEMPLATE FOR AQD CODE TABLE

CHARACTER					OFFICER AWARDING CRITERIA	BILLET DETAILING PREREQUISITES	CONSULTANTS
1ST	2ND		3RD				
	CODE	TITLE	CODE	TITLE	Officer will be awarded this AQD if member has:	If other than "N/A", then there are existing billet requirements coded in TFMMS.	
					How is the AQD awarded? Explain whether the AQD is awarded by course completion, certification, successful completion of a tour in a qualifying billet, or a combination thereof. If a tour must be completed, identify minimum tour length. If available to Reserve Component Officers, specify Reserve-specific awarding criteria and awarding authority. Applicable Designator(s)? Applicable Grade(s)? If grades are different for various designators, break out the grades for each designator. Length of validity? Does the AQD expire? If not, use "Indefinite." If so, identify timeframe/recertification requirements. Manpower Type? Is this AQD for Active Only, Reserve Only, or Active and Reserve?	(Option 1) If the AQD is required prior to assignment to designated billets, then use the language: "Billets coded with ___ require an officer who has previously been awarded the ___ code prior to reporting to ultimate duty assignment." (Option 2) If an AQD is NOT required in the performance of duties for designated billets, but is to be assigned only after successful completion of a minimum tour length in qualifying billets, then the AQD will be used for tracking purposes only. In this case, annotate this block "N/A." Applicable Designator(s)? Applicable Grade(s)? If grades are different for various designators, break out the grades for each designator.	Primary: Auxiliary:

Figure 10. Template for AQD Code Table. Source: Department of the Navy (2017a, p. D-5).

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APPENDIX C. NAVY TWI ROI MODEL

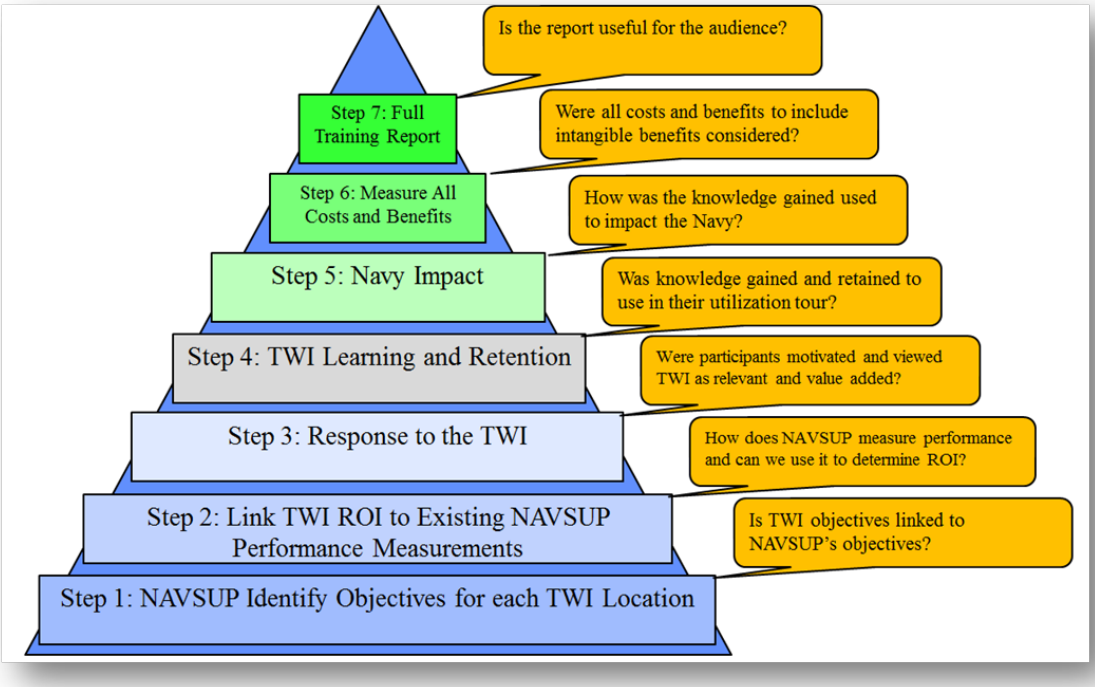

Figure 11. Navy TWI ROI Model. Adapted from Schmidt (2017).

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APPENDIX D. DATA COLLECTION PLAN

Data Collection Plan					
Program: TWI		Responsibility: _____		Date: _____	
Level		Objective (s)	Evaluation Method	Timing	Responsibilties
1	Reaction, Satisfaction and Planned Actions	1) Positive Reaction 2) Recommended Improvements 3) Action Items	1-3) Initial Program Evaluation Form	1-3) Upon completion of TWI tour, before reporting to utilization tour	1-3) Sponsoring company representative. Email a copy to PERS-4412.
2	Learning	1) Industry innovative business approaches, management practices, and corporate organizational culture 2) Industry senior and executive level decision-making processes 3) Skills in private sector procedures and best practices 4) Strategic and service-level linkages with public policy, corporate and non-governmental organizations 5) Ability to embrace changes and other cultures in a complex national environment	1-5) Skill Practice	1-5) During TWI tour	1-5) TWI participants and Sponsoring company representative.
3	Job Application	1) Meet NAVSUP's objecives 2) Use of Skills 3) Frequency of Skill Use 4) Barriers	1) Scorecard 2-4) Post Program Evaluation Form (4-6 months)	1) Upon completion of TWI tour, before reporting to utilization tour 2-4) 4-6 months after working at utilization tour	1) Sponsoring company representative. Email a copy to PERS-4412. 2-4) PERS-4412
4	Business Results	1) Cost saving to the Navy 2) Faster and more efficient ways to conduct business 3) Increased customer satisfaction	1-3) Capture Navy Impacts Data (performance monitoring)	1-3) One to two years after working at utilization tour	1-3) PERS=4412 and TWI paticipants

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APPENDIX E. TWI SCORECARD

TWI SCORECARD

NAVSUP Strategic Plan 2013-2017	Objectives for [Home Depot]	YES	NO	Overall Score		
Goal 1. World Class Workplace – Create and sustain a working environment that fosters teamwork and collaboration, rewards innovation, and provides the tools, resources, and developmental opportunities employees need to be effective. Goal 2. Unity of Effort – Drive unity of effort across the Naval support network by strengthening relationships, optimizing processes, and focusing on customer outcomes. Goal 3. Effective, Efficient Performance – Refine internal business processes to reduce operating costs and ensure compliance while enhancing support to our customers. Goal 4. Data Driven Decision Making – Create and sustain an information environment that leverages technology to deliver greater transparency, facilitate information data sharing, and enable better decision making.	**Supply Chain**			GREEN	YELLOW	RED
	G3: Know the production schedule			Met 70% or above of the objectives	Met 40-69% of the objectives	Met 39% or less of the objectives
	G3: Understands inventory management					
	G2: Can coordinate with third party transporters					
	G3: Can manage inventory at inventory control point					
	G3: Know how to evaluate work processes on the line					
	G4: Can identify technology applications and purposes to improve supply chain management			Note: Add relevant objective and take away irrelevance objective as needed. To calculate the overall score use the following formula.		
	G4: Know the benefits and problems the company faces with new software/management programs					
	G3: Know how companies utilize strategic sourcing					
	G3: Know how the use of strategic sourcing affects the bottom line			Overall Score = (# yes / Total # of objectives) x 100		
	G3: Know the key processes in the operation					
	Quality Assurance			G1 = NAVSUP Goal 1		
	G3: Can test for quality of product			G2 = NAVSUP Goal 2		
	G3: Know the inspection techniques used by the company			G3 = NAVSUP Goal 3		
	Fuel			G4 = NAVSUP Goal 4		
	G3: Understands the environmental factors to refinery process					
	G3: Can assess fuel testing procedures					
	G2: Understands the operation of aviation refueling facilities					
	G3: Can conduct process and procedure testing to ensure safe practices					
	G3: Can coordinate movement of fuel assets					
	Safety					
	G3: Improve upon emergency response plans					
	Contract Management					
	G3: Improve organization's structure to optimize acquisition function					
	G2: Know the types of contracts used in procurement and its effects on the contract choice					
	G2: Know different negotiation strategies used by industry					
	G2: Know how industry carries out contract administration					
	G2: Know how industry manage subcontractors					
	G2: Know how business strategy changes when dealing with the government versus commercial customers					
	G2: Know the techniques used to incentivize contracts					
	Process improvement					
	G3: Know how Lean/ Six Sigma is utilized and incorporated into business					
	G3: Know different improvement initiatives companies are implementing					
	G1: Know what processes companies used to develop leadership					
	G1: Know how companies instill strategic and operating excellence					

Adapted from NAVSUP (n.d.,-b, pp. 3–4).

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APPENDIX F. INITIAL PROGRAM EVALUATION

TWI Program Evaluation

Please help us evaluate the Training with Industry (TWI) program by answering the following questions. Give the completed evaluation to your industry representative and email a copy to NAVSUP PERS-4412 Mr. Phillip Knauss at phillip.knauss@navy.mil. Your candid feedback will be key to improving the program for future participants.

General

1). Give examples of observed innovative business approaches, management practices, and corporate organizational culture.
Comments:

2). Give examples of observed senior and executive level decision making processess that are different from the Navy and/or may be beneficial for the Navy.
Comments:

3). Give examples of skills developed in private sector precedures and best practices that may be use in the Navy.
Comments:

4). Give examples of how you contributed to the strategic and service-level linkage with public policy, corporate and non-government organization.
Comments:

5). Give examples of how your ability to embrace changes and other cultures in a complex national environment has enhanced.
Comments:

On the Job Impact and Benefit

6). How do you expect to use what you learned at [FedEx] in the Navy?
Comments:

7). How did the training contribute to your qualities as an officer?
Comments:

8). How will your training improve your quality of work for the Navy?
Comments:

9). What aspect of TWI was least valuable or not likely to be used?
Comments:

Personal and Professional Value

10). What area of the FITREP performance trait is most impacted by the TWI Program?
o 33. Professional Expertise: Professional knowledge proficiency and qualification
o 34. Command or Organizational Climate/Equal Opportunity: Contributing to growth and development, human worth, community
o 35. Military Bearing Character: Appearance, conduct physical fitness, adherence to Navy Core Values
o 36. Teamwork: Contributions toward team building and team results
o 37. Mission Accomplishment and Initiative: Taking initiative, planning/prioritizing, achieving mission
o 38. Leadership: Organizing, motivating and developing others to accomplish goals.
Comments:

11). How did this training contribute to your professional goals?
Comments:

TWI Program Improvement

Please rank from 1 (Entirely ineffective) to 5(Very effective)

12). Distribution of time on different content and skill areas 1 2 3 4 5
Comments:

13). Length of the program and the balance between mentoring, hands on, team project, etc 1 2 3 4 5
Comments:

14). Design and facilitation of learning environment 1 2 3 4 5
Comments:

15). Connection between the program objectives and the actual learning performance 1 2 3 4 5
Comments:

16). What should be added to the program to enhance the learning? Omitted?
Comments:

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APPENDIX G. POST-PROGRAM EVALUATION

TWI Program Evaluation (4-6 Months)

Please help us evaluate the Training with Industry (TWI) program by answering the following questions. Email to NAVSUP PERS-4412 Mr. Phillip Knauss at phillip.knauss@navy.mil. Your candid feedback will be key to improving the program for future participants and capturing the benefit of TWI.

General

1). Give examples of observed innovative business approaches, management practices, and corporate organizational culture.
Comments:

2). Give examples of observed senior and executive level decision making processess that are different from the Navy and/or may be beneficial for the Navy.
Comments:

3). Give examples of skills developed in private sector precedures and best practices that may be use in the Navy.
Comments:

4). Give examples of how you contributed to the strategic and service-level linkage with public policy, corporate and non-government organization.
Comments:

5). Give examples of how your ability to embrace changes and other cultures in a complex national environment has enhanced.
Comments:

On the Job Impact and Benefit

6). How do you expect to use what you learned at [FedEx] in the Navy? What knowledge and skill from TWI have you used?
Comments:

7). How did the training contribute to your qualities as an officer?
Comments:

8). Did the training improve your quality of work for the Navy? How?
Comments:

9). What aspect of TWI was least valuable or not used?
Comments:

Personal and Professional Value

10). Was area/s of the FITREP performance trait impacted by the TWI Program?
o 33. Professional Expertise: Professional knowledge proficiency and qualification
o 34. Command or Organizational Climate/Equal Opportunity: Contributing to growth and development, human worth, community
o 35. Military Bearing Character: Appearance, conduct physical fitness, adherence to Navy Core Values
o 36. Teamwork: Contributions toward team building and team results
o 37. Mission Accomplishment and Initiative: Taking initiative, planning/prioritizing, achieving mission
o 38. Leadership: Organizing, motivating and developing others to accomplish goals.
Comments:

11). Did the training contribute to your expected professional goals?
Comments:

TWI Program Improvement

Please rank from 1 (Entirely ineffective) to 5(Very effective)

12). Distribution of time on different content and skill areas 1 2 3 4 5
Comments:

13). Length of the program and the balance between mentoring, hands on, team project, etc 1 2 3 4 5
Comments:

14). Design and facilitation of learning environment 1 2 3 4 5
Comments:

15). Connection between the program objectives and the actual learning performance 1 2 3 4 5
Comments:

16). What should be added to the program to enhance the learning? Omitted?
Comments:

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APPENDIX H. PROJECT COST SAVING

Navy Impacts				
	Cost Saving (dollar, time, etc)	**Cost Saving in dollars**	**Confidence Level**	**Benefit Value**
1	Example: improved warehouse restocking time by 50%	Example: Decrease the time by 50% saved $50,000	Example: Used the method learned from Home Depot while conducting TWI so is 95% confindence this saving is due to knowledge learned at TWI	Example: At 95% confidence indicate at error of 5% so the range of benefit is from $47,500 to $52,500. $47,500 is use for a more conservative estimate.
2				
3				
Total Benefits to be added to Step 6 CBA				

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APPENDIX I. FULL REPORT

Training with Industry Return on Investment							
ROI	**88%**	For each dollar invested in the TWI program, the Navy received $0.88 dollars in return after the cost of the program had been recovered					
Benefits and Costs Breakdown				**Data From**	**Follow Action**	**POC**	**Due By**
Benefits	1) Productivity at 5%; Capability Gaps at 20%		$619,041.00	FY 2017 DOD Military Personnel Composite Standard Pay and Reimbursement Rates			
	2) Project cost saving to Navy		$0.00		Use Navy Impacts form to capture data from TWI participant in the future	PERS-4412	
Costs	1) One year tour		$707,036.00	FY 2017 DOD Military Personnel Composite Standard Pay and Reimbursement Rates			
	2) Selection Board		$16,860.08	Pers-4412 and FY 2017 DOD Military Personnel Composite Standard Pay and Reimbursement Rates			
Intangible Banefits	**YES**	**NO**	**Cannot be Determined**	**Data From**	**Follow Action**	**POC**	**Due By**
1) Fulfilling identified Capability Gaps	X			Survey	Update MOU/MOA and use initial Program Evaluation Form for future participants	PERS-4412	
2) Meeting NAVSUP Objectives	X			Survey	Update MOU/MOA and use initial Program Evaluation Form and Scorecard Form for future participants	PERS-4412	
3) Professionally a better officer after TWI tour	X			Survey	No further action require, selection board is doing a sufficient job of selecting participant interested in making the Navy a career		
4) Improved civil-military relation			X				
5) Increase in job satisfaction	X			Survey	No further action require, selection board is doing a sufficient job of selecting participant interested in making the Navy a career		
6) Recruiting			X				
Areas for Improvements				**Data From**	**Follow Action**	**POC**	**Due By**
1) Assign real world project to complete to maximize business impact; better utilization of learned skills				Survey	Change selection process and TWI/Utilization tour format	PERS-4412	
2)Uniform strategic leadership level interaction across all partnership companies				Survey	Update MOU/MOA for clearer objectives and responsibility of each party	PERS-4412	
3)utilize forms provided to better measure costs and benefits				MBA Project	Update MOU/MOA for clearer objectives and responsibility of each party	PERS-4412	

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APPENDIX J. SURVEY TO TWI PARTICIPANTS

1. How many years had you been in the Navy before your PCS to your TWI location?
- ○ 1-5 years
- ○ 6-8 years
- ○ 8-10 years
- ○ 10-12 years
- ○ More than 12 years

2. What was your paygrade when you PCS'd to your TWI location?
- ○ O2
- ○ O3
- ○ O4
- ○ O5

3. Did you have dependents at the time of your PCS to your TWI location?
- ○ Yes
- ○ No (Skip to question 6)

4. Did dependents PCS with you to the TWI location?
- ○ Yes
- ○ No (Skip to question 6)

5. On a scale of 1 to 10, did the two PCS moves in a one year period (to and from TWI) impact family?
1 - Very Negative Experience; 10 - Very Positive Experience

	1	2	3	4	5	6	7	8	9	10
Impact on family	○	○	○	○	○	○	○	○	○	○

6. With what company did you complete your TWI?
- ○ The Home Depot
- ○ FedEx
- ○ Starbucks
- ○ ExxonMobil

7. How many months was your TWI internship?
- ○ 11 months
- ○ 12 months
- ○ Other

8. Did you have a graduate degree prior to TWI?
- ○ Yes
- ○ No (Skip to question 11)

9. Did you owe the Navy a payback tour for the graduate degree?
- ○ Yes
- ○ No

10. What subspecialty did you obtain with your graduate degree?
Contracting
Financial Management
Supply Chain Management
Other

11. Selection to TWI was through:
Self Nomination
Selected without self nomination

12. Did selection to TWI have any impact on your career plans?
No, my plan has been to serve at least 20 years
Yes, I was planning on getting out of the Navy prior to selection. But now I plan to stay through my payback tour and at least another tour.
I am planning to get out of the Navy after my payback tour.
I am requesting a waiver of a payback tour and want to get out of the Navy now.
Other

13. Have you completed the required utilization tour after TWI?
Yes
Currently in my utilization tour
No (Skip to question 17)

14. At what command did you complete your utilization tour?

15. Did you know prior to starting TWI where your utilization tour would be?
Yes
No

16. Did you have a choice in where you would complete your utilization tour?
Yes
No

17. On a scale of 1 to 10, how did you feel about selection to TWI prior to attending the internship?
How did you feel about TWI after completing the internship?
1 - Very Upset; 10 - Very Excited

	1	2	3	4	5	6	7	8	9	10
Prior to attending TWI	○	○	○	○	○	○	○	○	○	○
After completion of TWI	○	○	○	○	○	○	○	○	○	○

18. Please explain any change in feelings regarding TWI from question 17.

19. Do you think the value added from TWI is evident in the immediate follow-on tour or are (will) the benefits be more evident in more senior billets, two or three tours after TWI?
I see (saw) the value immediately
I think I will see (saw) more value in more senior billets

20. How would you rate the interaction with TWI executives as value added to your military career?
Please explain why in the comment box.
○To a very great extent
○To a great extent
○To a small extent
○To no extent

21. What did you find most valuable from your TWI experience?

22. What experiences gained through TWI do you feel could not have been gained in a traditional Supply Corps billet?
Please choose all that apply:
☐Strategic thinking skills
☐Critical thinking skills
☐Analysis skills
☐Applying technology
☐Decision making
☐Executive decision making
☐Supply chain operations
☐Contingency planning
☐Other

23. Were you able to identify best business practices from TWI that would be applicable to the Navy?
○Yes
○No (Skip to question 25)

24. Did you have the opportunity to implement into the Navy the best business practices identified from TWI?
○Yes
○No

25. Do you feel you lost any edge in military knowledge during your time away from the Fleet?
○Yes
○No

26. The student researchers request your consent to obtain the following information from your personnel record at Naval Personnel Command:
Year selected for TWI
Rank and years of service when selected
Promotion history after TWI
Number of years in service to include the present
If separated or retired, how long after TWI did participant leave the service

All names will be removed prior to data analysis. Data will be used to determine any effects TWI has on promotion or retention.

If you give your consent, please type your name in the box for student researchers to provide to PERS for data retrieval. If you do not give consent, type No.

APPENDIX K. SURVEY SUMMARY

A 26 question survey was sent to past TWI participants to gather reactions to training, utilization of training, and impact to career milestones. The survey was able to solicit 15 of the 24 TWI participants (62.5%).

A number of questions were of a general manner and provided support for some recommendations.

Questions 2, 7, 8, and 13 - 16 were to determine if the Supply Corps is meeting its own selection criteria and the DOD criteria laid out in DOD Instruction 1322.06. Education, rank, length of tour, and assignment to a utilization tour are all being met.

Questions 17 - 21 were to seek the participants' response to the TWI program. Eleven of the 15 responses (73%) saw value in the program immediately with their follow-on tour, while four expressed a greater value from TWI in more senior billets.

Questions 9, 12, 19, and 22 - 23 were to determine learning and retention from TWI. Thirteen of the 15 respondents (87%) were able to identify best business practices from their TWI location to bring back to the fleet.

Question 24 related to TWI's impact to the Navy. Of the 13 participants who answered positively to identifying best business practices for use to the Navy, a total of ten responded to the follow-on question about having the opportunity to implement better business practices into the Navy. Seven of the ten (70%) answered yes they had the opportunity to implement the best business practices into the Navy.

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