5 November 2004

INDIAN HEAD DIVISION, NAVAL SURFACE WARFARE CENTER
LEAN IMPLEMENTATION PLAN

EXECUTIVE SUMMARY

Indian Head Division (IHDIV), Naval Surface Warfare Center began applying Lean Six Sigma principles to its process over a year and a half ago. IHDIV has developed a relationship with The University of Maryland at College Park (UMCP) which resulted in local Lean expertise in the Cartridge Actuated Devices (CAD)/Propellant Actuated Devices (PAD) ordnance product line. Recent Lean transformation, exemplified by the M25A1 Thruster program has yielded a labor savings projection of 44% and cycle time reduction from 6 weeks to 6 days (a factor of 5). Additional CAD/PAD products will be manufactured using this lean line for the accrual of additional savings.

IHDIV currently has nine (9) Green Belts that have executed projects. IHDIV Senior Leadership held a one-day workshop in August 2004 to develop the program design and structure which uses a synchronous approach of Lean and Six Sigma, to determine how to select future Green Belt and Black Belt candidates, and to determine how to select potential projects. Since then, an additional 19 Green Belt candidates were chosen and trained to make a total of 38 Green Belts. The first ten (10) Black Belt candidates were also selected and have attended the first week of a four-week training session. These Black Belt candidates are cross-blend of senior and junior personnel with a wealth of experience.

In September 2004, IHDIV established a new Lean Quality Department whose Department Head reports directly to the IHDIV Commander and is directly accountable as the liaison with Task Force Lean (TFL). This Department is currently staffed with three full-time improvement engineers as well as the ten (10) full-time Black Belt candidates.

The Lean Implementation Plan contained in this document describes the coordination of existing and future Lean planning and execution efforts to meet the requirements of TFL's NAVSEA Implementation Plan and ultimately IHDIV's lean financial targets totaling $12.638M for FY 05 and FY 06 prescribed by NSWC Headquarters.

I. INTRODUCTION

IHDIV is striving to meet the needs of the Nation, the Navy, and NAVSEA. This approach is being accomplished by implementing NAVSEA Headquarters' vision of Lean transformation. The IHDIV approach is a total Lean immersion plan with rapid deployment to accelerate IHDIV's Lean journey.

IHDIV's mission is to support national defense by providing unmatched quality, speed, and flexibility through the inculcation of Lean Six Sigma proven methods into our management principles, processes, and controls. The Lean Quality Management System (LQMS) is a series of disciplined and rigorous management principles, processes, and controls, designed with the purpose of exceeding corporate Navy and customer expectations, by continuously improving value and developing our people through Lean transformation. Figure 1 shows a transformation model of interlinked LQMS processes that will be applied throughout the IHDIV and documented in IHDIV instructions and Lean Quality Manual. This model exemplifies the interdependent processes, necessary to uplift execution to "World Class Performance" levels at IHDIV. LQMS integrates workforce development processes with the rigor of the technical processes of Lean Six Sigma.

Figure 1: Lean Implementation as Part of IHDIV's Lean Quality Management System Transformation

II. LEAN ORGANIZATION

A. Organization Structure

The IHDIV Lean-Quality Department, Code 18, reports directly to the IHDIV Commander and is directly accountable as the liaison between IHDIV and Task Force Lean (TFL). The organizational structure is shown in Figure 2. The Lean Quality Department was established as the organizations Lean Quality Champion. The Department is currently staffed with three full-time improvement engineers and ten full time Black Belt candidates.

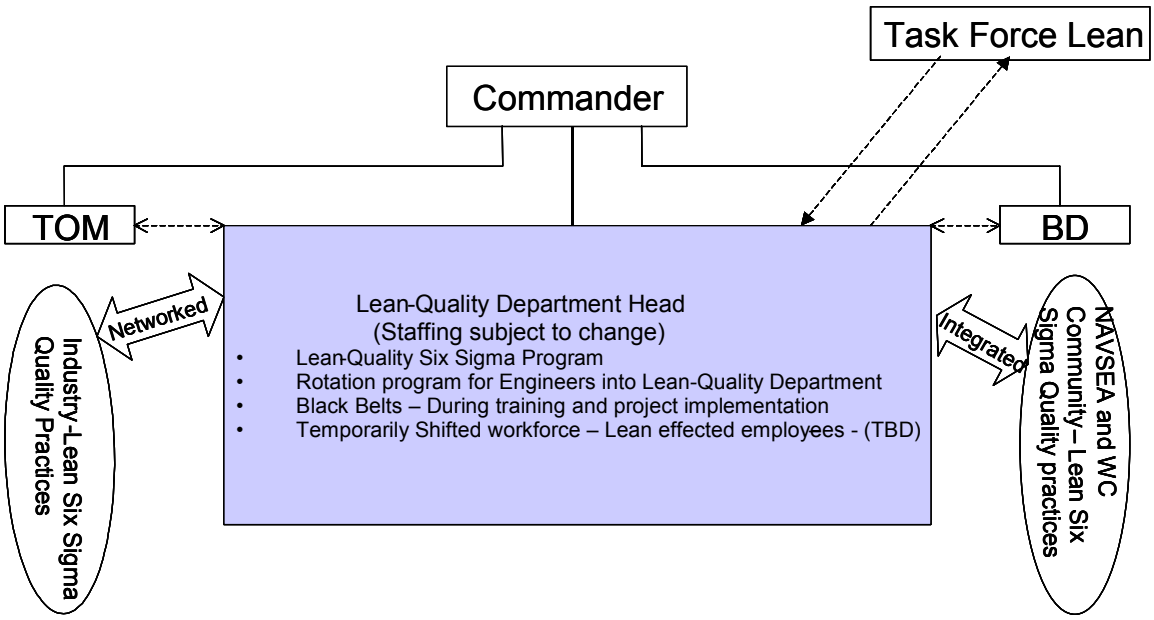


Figure 2: IHDIV's Lean-Quality Department

B. Roles & Responsibilities

(1) Communication on Lean

The Lean-Quality Department is responsible for effective communication of all elements and phases of Lean Six Sigma and associated efforts at IHDIV. Effective communication will be enhanced by support through the IHDIV Corporate Communications group.

(2) Training of IHDIV Personnel in Lean Six Sigma Quality

The Lean-Quality Department will be responsible for ensuring that training is provided to all IHDIV personnel. Different training levels will be provided on an as needed basis to all members of the organization. Training types include awareness training, training of specific tools and techniques, and continued mentoring for management personnel. The Lean Quality Department will not be responsible for providing all training but will use the training resources through the Human Resources Department or external to the organization to

meet the needs of the organization. The Human Resources Department shall coordinate and track the training.

(3) Report Lean Results to NSWC and TFL
The Lean-Quality Department will maintain a database of all IHDIV Lean Six Sigma efforts, track results, and track savings generated. The Lean-Quality Department will be responsible to report the status of Lean Six Sigma efforts to TFL according to standardized metrics and reporting mechanisms identified by TFL.

(4) Provide Lean Expertise and Guidance
The Lean-Quality Department shall coordinate the lean expertise within the organization and provide mentoring and guidance on Lean Six Sigma. The Lean-Quality Department currently is staffed with three full-time improvement engineers and ten full time Black Belt candidates. IHDIV also has nine (9) Green Belts and nineteen Green Belt candidates. These individuals and the future Green Belts and Black Belts will create the organic capability to complete the IHDIV lean transformation.

C. Communication

Communication of Lean Six Sigma is essential at all levels of the organization to ensure that the workforce and management are aware of the status and plans for Lean Six Sigma. The organization will use the following vehicles to communicate Lean to the workforce.

(1) Bi-weekly Lean Quality Newsletter distributed via email (see Appendix A for an example)
(2) IHDIV Lean Six sigma Web Site
(3) Periodic Flashpoint Articles from the CO, TOM, and/or Business Director (BD)
(4) Regular communication of Lean principles and practices through shop talks, all hands briefings and all hands emails.

III. LEAN IMPLEMENTATION METHODOLOGY

Lean processes and lean techniques have been implemented over the last several years. Lean implementation is being inculcated to coordinate existing and current process across the entire organization. The coordination and integration of a complete systems approach is being accomplished by the Lean Quality Department. This integrated systems approach is captured in Figure 3.

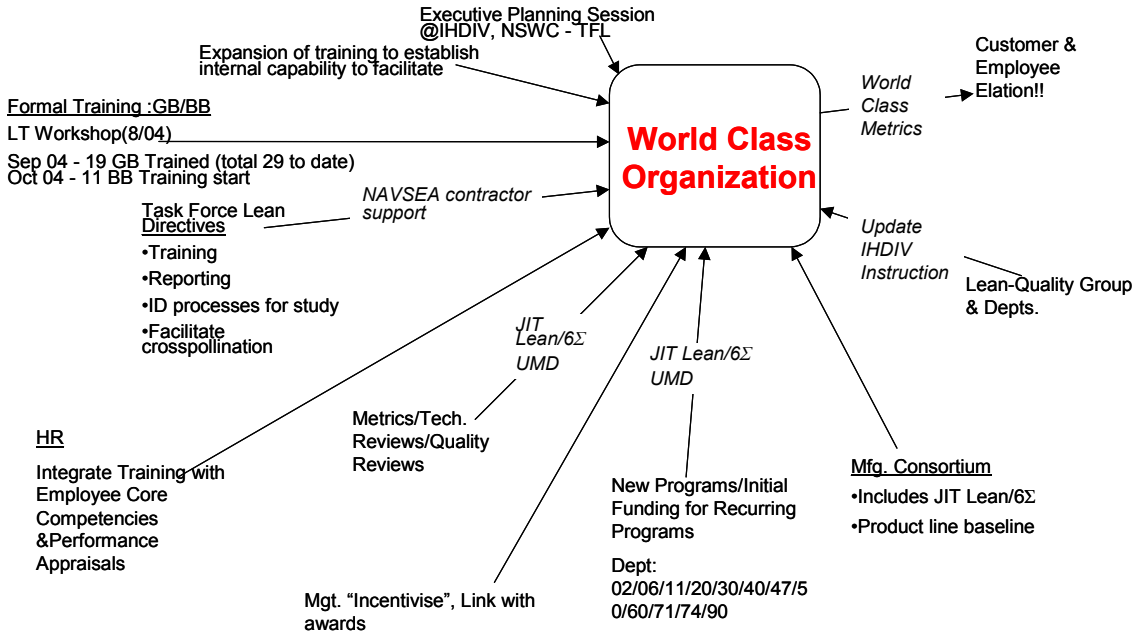


Figure 3: Systems Approach to Lean Implementation

The overall process for generating improvement efforts includes but is not limited to the following activities, Executive Planning Session, Value Stream Analyses, Rapid Improvement Events, and Organizational Assessments (Figure 4).

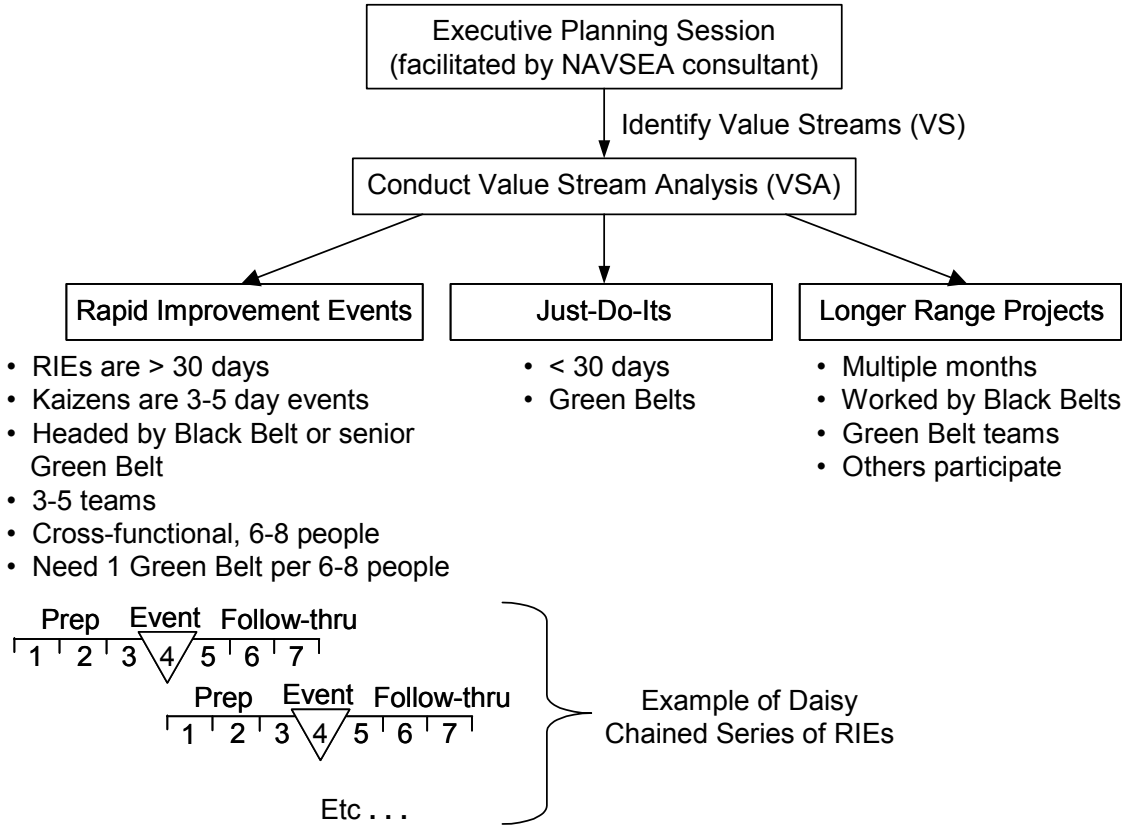


Figure 4: Overall Lean Planning and Implementation Process

An Executive Planning Session is held to identify target value streams and Value Stream Analysis is accomplished with the assistance of the Senior Leadership and the Lean deployment team (which includes internal and external support). IHDIV has networked with The University of Maryland at College Park (UMCP), through the Center for Energetic Concepts Development (CECD), and BESCORP for conducting VSAs. It is important to balance these objective sources for training and conducting VSAs in order to align the correct expert base for the right processes.

The VSA methodology is used to create a Rapid Improvement Plan (RIP) that identifies the Rapid Improvement Events (RIEs), Just-Do-Its and Black Belt projects to be conducted. The Black Belt projects are more substantive, higher dollar, and longer term (several months). Green Belts are encouraged to execute "Just-Do-It" projects and rely on the Black Belts for mentoring and oversight. Experienced Green Belts will lead teams and lead RIEs under black Belt guidance. Each RIE will realize a Return-on-Investment (ROI) in 90-120 day cycles. This approach will yield continuous improvement and savings.

Improvement efforts can also be nominated by the workforce or at several program execution instances, utilizing the nomination and scoring form in Appendix B.

A. Lean Six Sigma Executive Planning Session

A two-day Executive Planning Session (EPS) led by a NAVSEA contracted Sensei will be conducted to establish strategic direction and to analyze the activity for lean implementation opportunities. IHDIV Senior Leaders and Lean Deployment Team members will participate in this EPS that is planned in the first quarter of FY 05. A standard strategic planning approach will be used to establish goals and objectives, identify the value streams with the greatest potential of achieving Leadership's goals and objectives, and develop the site's transformation plan. The overall outcome of this session will be an understanding of the appropriate focus of the Lean transformation efforts.

In preparation for the Executive Planning Session, the Black Belt candidates have collaborated with this activity's program managers to identify target areas for consideration. Decision matrices were used to score and rank both the indirect and direct target areas. These matrices are attached in Appendices C and D. The line items in these matrices are target areas only and do not represent the specific projects that will be worked. As shown in Figure 4, the projects are identified through a very specific process that is yet to be completed.

B. Value Stream Analysis (VSA)

After the target value streams are selected as a result of the Executive Planning Session, VSAs will be conducted. The Senior Leadership and Lean Deployment Team will develop and analyze the current value stream map with the assistance of contracted facilitators. The Rapid Improvement Plan (RIP) will be developed from this analysis. The RIP plots the execution schedule for the Rapid Improvement Events (RIEs). The improvement opportunities, which are generated from the VSAs, are segregated into one of three process methodologies, which will be executed to transform the value stream to a desired future state. These process methodologies are: Rapid Improvement Events (RIEs), Just-Do-Its, and Black Belt projects (see Figure 4). The all-inclusive RIP includes not only the RIEs and other projects but the schedule for the completion of those projects as well.

(1) Rapid Improvement Events (RIEs)

A Rapid Improvement Event is an action-oriented event that is usually 3-5 days in length and consists of several cross-functional teams focusing on topics identified by the Value Stream Analysis. A structured 7 week improvement cycle is used to prepare for, execute, and follow-up of the Rapid Improvement Event. The first three weeks are used to prepare for the event by identifying tools to be used, defining improvement metrics, collecting data, and informing and training participants. The actual event occurs during the fourth week and there is a specific format used describing what is done on each of the event days. The objective is to have a leaner process by the end of the event. The

last three weeks are used to follow up on any remaining action items and improvement metrics.

(2) Just-Do-Its

A simple project that can be completed in approximately one-month. Usually, ownership of the process is contained to one division at IHDIV. These projects will be completed by the Green Belts under the guidance of the Black Belts if their experience is limited.

(3) Black Belt Projects

Longer-term projects are required when the processes are more complicated and involve a wider scope. IHDIV has determined that Black Belts will lead these projects. These Black Belt projects usually span across several IHDIV departments and will typically last 3-6 months. These projects usually involve several Green Belts, working under the Black Belt. The degree of the complexity determines the Lean Six Sigma approach and tool used.

D. Lean Deployment

IHDIV's FY 05 and FY 06 financial targets for Lean implementation are shown in Table 1. These targets are in addition to IHDIV's Intelligent Target Savings shown in Table 2.

Table 1: IHDIV's FY 05 and FY 06 Financial Target for Lean Implementation

	Direct Labor ($M)	Overhead Labor ($M)	Overhead Non-Labor ($M)	Total Revenue Adjustment ($M)
FY 05	2.529	0.639	1.055	4.223
FY 06	4.973	1.270	2.172	8.415

Assumptions:

1. Adjustments are based on the FY 06 budget submitted to OSD via FMB on 3 September 04.
2. IHDIV will apply lean techniques to direct workload, generating savings that will accrue to the Navy through NAVSEA.
3. IHDIV will apply lean techniques to reduce overhead to achieve budgeted NOR in FY 05 and FY 06.
4. The FY 05 adjustment assumes a 5% efficiency adjustment to the FY 05 column of the budget due to Lean Implementation instituted not later than 1 April 05.
5. The FY 06 adjustment assumes a 5% efficiency adjustment to the FY 06 column of the budget due to Lean Implementation instituted not later than 1 October 05.

Table 2: IHDIV's Intelligent Target Savings
(FY 06 A-11 Budget Submission to OSD)

FY 05	FY 06		
Total Intelligent Target Savings ($M)	Total Intelligent Target Savings ($M)	A-11 Intelligent Target Savings ($M)	Non A-11 Intelligent Target Savings ($M)
0	8.676	4.323	4.353

NOTES:

Total Intelligent Target Savings: the total amount that NSWC and NUWC will save through Intelligent Target Initiatives

A-11 Intelligent Target Savings: the savings that reduce WCF cost of operations

Non A-11 Intelligent Target Savings: savings outside WCF cost of operations; includes contract efficiencies on contracts funded by RCP/direct cite and work for private party savings that accrue to the customer directly.

For FY05 and 06, IHDIV has a total objective of $12.638 Million in addition to our $8.676 Million Intelligent Target Savings. IHDIV will plan several Black Belt projects and RIEs throughout the next two years and beyond, to meet and even exceed these targets.

The deployment model depicted in Figure 5 presents the phasing plan of RIEs necessary to yield the total $12.638 M by FY06 as well as the number of people from the activity that will be involved in those RIEs.

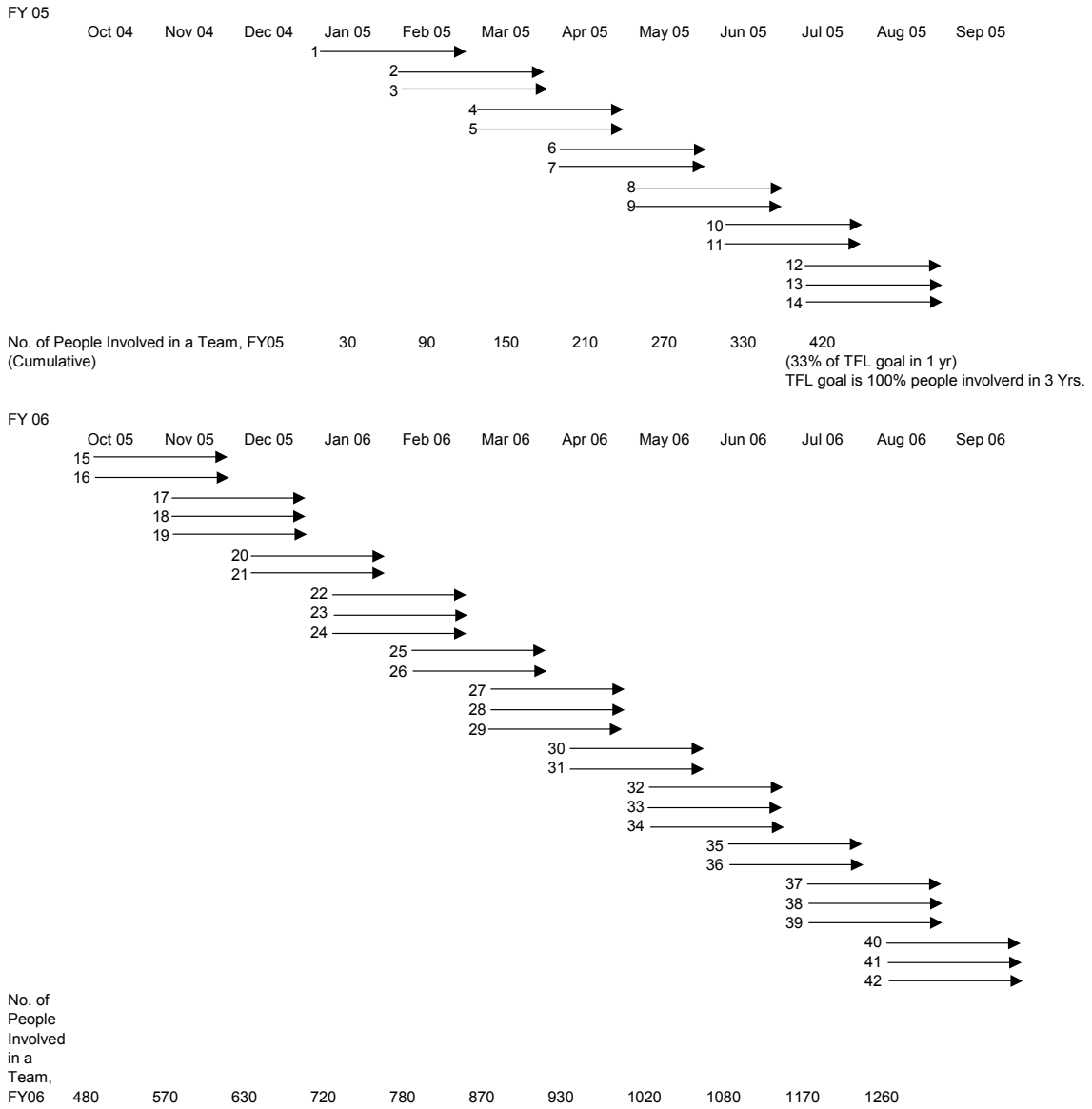


Figure 5: IHDIV Lean Deployment Model

The number of RIEs required to meet IHDIV's lean financial targets shown in Figure 5 is calculated using the average cost and return factor for a RIE as follows:

Number of Needed Events = Target Savings / (ROI per RIE – Cost per RIE)

Target savings: $12.638M (or $12,638K)
Cost per RIE: $100K
ROI per RIE: 4 to 1 (an invested cost of $100K yields a total savings of $400K, thus the net savings per RIE is $300K)

Therefore, the number of events required is 42 RIEs.

The number of required RIEs calculated using TFL's deployment model is 45 as follows:

Number of required RIEs in the first year = n/20 teams/year divided by 5 teams/RIE

Number of required RIEs in the second and succeeding years = n/10 teams/year divided by 5 teams/RIE

where n = activity population.

IHDIV's population is 1486, therefore, 15 RIEs should be performed in the first year and 30 RIEs should be performed in the second year, for a total of 45 RIEs throughout FY 05 and FY 06.

IHDIV's model closely matches the TFL model for our activity, with 14 RIEs in FY05 and 28 RIEs in FY06 for a total of 42 RIEs. IHDIV expects to adjust the schedule in accordance with a more deliberate Rapid Improvement Plan after the Executive Planning Session.

IV. Lean Six Sigma Workforce Development

A. Lean Six Sigma Training Plan

IHDIV will train the entire workforce at one of four levels; Lean Educated, Team Member/Team Leader, Green Belt, and/or Black Belt. Description for each training level is provided in Appendix E. Formal training will be provided both on-site and off-site, via a variety of sources including the NAVSEA Lean Sigma College at Norfolk Naval Shipyard, the University of Maryland Center for Energetic Concepts Development (CECD), the Defense Acquisition University, various other contractors and IHDIV Black Belts. On-site training will consist of classroom and/or on-the-job training.

IHDIV is committed to the implementation of Lean Six Sigma and a continuous improvement management approach. IHDIV senior leaders will be the change agents. They will use fact-based decision-making and Lean policies and approaches to manage organizations and projects. All senior leaders will be trained in the practices and policies of Lean Six Sigma. The training requirements for IHDIV senior leaders are summarized in Table 3.

Table 3: Minimum Senior Leader Training Requirements

Position	Minimum Requirement	Maximum Time for New Hires	Maximum Time for Current Personnel
Commander	Black Belt Trained	18 months	TBD
Technical Operations Manager/ Business Director	Black Belt Trained	18 months	TBD
Department Head	Black Belt Trained	18 months	TBD
Division Head	Green Belt Trained	18 months	TBD
Branch Manager	Green Belt Trained	18 months	TBD
Program Manager	Green Belt Trained	18 months	TBD
Project Manager	Green Belt Trained	18 months	TBD
Technical High Grades	Green Belt Trained	18 months	TBD
General Workforce	Basic Lean Six Sigma	18 months	TBD

Department heads will be trained as Black Belts. Division directors, branch managers, program managers, project managers, and technical high-grade positions will be trained as Green Belts. All members of the general workforce, not receiving Black Belt or Green Belt training, will receive the Team Member/Team Leader training.

All personnel new to a senior management position must meet the minimum training requirements within 18 months of taking the new position. The maximum time for current personnel to meet the minimum training requirement is still being determined.

B. Competencies

IHDIV's Lean Six Sigma workforce development strategy will consist of five skill levels as defined below. These skill levels will be accomplished through the training outlined in Appendix E.

(1) Lean Educated

General knowledge is required at this skill level, which is appropriate for the entire workforce. Workforce members at this level understand: Lean Six Sigma language and intent; the basic principles of Lean Six Sigma; how Lean Six Sigma tools and processes can be applied in the general work environment; people's roles and the importance to the Navy of Lean Six Sigma.

(2) Team Member/Team Leader
Employees at this skill level demonstrate a basic proficiency of Lean Six Sigma principles. Team members participate in VSAs or RIEs while team leaders, under the direction of a Green Belt or Black Belt, lead the teams that execute the RIEs.

(3) Green Belt
A thorough understanding and demonstrated knowledge of Lean Six Sigma principles, tools, and processes are required at this skill level. Green Belts are trained team members for Black Belt projects who are also skilled at leading the execution and implementation of continuous improvement efforts. Green Belts can apply Lean Six Sigma tools and processes within a specific project environment leading to the identification of specific savings from the application of those tools. Green Belts are required to lead at least six improvement efforts. Finally, their leadership skills demonstrate willingness, openness and credibility.

(4) Black Belt
Black Belts are the change agents and leaders of Lean Six Sigma initiatives. The Black Belts provide assistance and oversight to the Green Belts in the planning and execution of the Rapid Improvement Events (RIEs). Employees at this skill level have demonstrated mastery of Lean Six Sigma tools and processes and have successfully completed a major Lean Six Sigma project. Black Belts are competent to lead change and to coach and mentor others through Lean Six Sigma processes. They must demonstrate the ability to independently lead change and repeat the process. Black Belts are staffed full-time to the Lean-Quality Department.

(5) Champion
Being a champion is a behavior rather than a true competency or training level. It can exist at any of the above competency levels. Champions have demonstrated skills in leading and motivating candidates for Green Belt and Black Belt training. They also have the demonstrated ability to communicate the need for Lean Six Sigma initiatives, to regularly assess and communicate progress of existing initiatives, and to identify specific savings gained from the application of Lean Six Sigma initiatives.

V. Lean Six Sigma Workforce Strategy

A. Performance Elements

Individual performance goals and measures will be established for each employee to ensure accountability for Lean Six Sigma at all levels. The performance elements and criteria for all IHDIV Department Heads were established 15 September 2004. Examples of the specific performance goals and measures, which are focused on the

application of Lean concepts for three specific performance elements, are presented in Table 4.

Table 4: Department Head Lean Focused Performance Elements and Criteria

Performance Element	Goals	Measures
Technical Competence & Mission Accomplishment	Employ concepts of Lean Six Sigma to solve problems and adapt to changing technology and priorities.	As a minimum, attend the 4-week Lean Six Sigma Black Belt training.
Resource Management	Seek more efficient methods to meet the Navy's surge requirements utilizing Lean Six Sigma concepts.	Identify at least one re-engineering initiative or process improvement that generated an increase in ROI or that contributed to improvements in corporate productivity using Lean Six Sigma concepts.
Continuous Improvement	Continuously review department processes to reduce costs while maintaining quality.	Lead by example in promoting Lean Six Sigma by budgeting for training, and establishing standards and expectations for learning and applying Lean Six Sigma concepts.

B. Rewards and Recognition

Workforce members are eligible to receive on-the-spot, quarterly, and year-end awards. Individuals who participate in continuous improvement efforts are eligible to receive the honorary Lean Award. Awards may be monetary and/or non-monetary. The amount of monetary awards will be based on Lean Six Sigma factors (e.g. the number of RIEs the employee has participated and the amount of resultant process transformation that has occurred).

C. Workforce Shaping

IHDIV will manage attrition and hiring to ensure, to the best of our ability, there is no loss of employment (other than attrition) as a result of Lean transformation. IHDIV will continue to hire to shape the workforce of the future at a rate that allows for the placement of "leaned" employees. IHDIV's total financial target for Lean implementation ($12.639 Million) equates to a total of 36 work-years in FY 05 and 68.5 work-years in FY 06. Considering these targets and projected attrition rates for each year, IHDIV plans to

hire 30 employees in FY 05 and 55 employees in FY 06 to shape its workforce for the future (as shown in Tables 5 and 6).

Table 5: IHDIV's FY 05 Hiring Plan

	Dec 04	Mar 05	Jun 05	Sep 05	Totals
On-Board – Beginning (9/30/04): 1486	1462	1453	1453	1441	
Attrition (8.1%)	30	39	30	22	121
New Hires for Workforce Shaping (2%)	6	30	30	10	76
Rejuvination of the Workforce	2	13	13	2	
New Skills for Future Work	0	3	3	0	
Health of Technical Capability	3	9	9	4	
Health of Technical Authority	1	5	5	4	
Other – Be Specific	0	0	0	0	
On Board - Ending	1462	1453	1453	1441	

Table 6: IHDIV's FY 06 Hiring Plan

	Dec 05	Mar 06	Jun 06	Sep 06	Totals
On-Board – Beginning (9/30/05): 1441	1400	1382	1376	1366	
Attrition (6.5%) + Shipping Transfer	47	31	20	21	119
New Hires for Workforce Shaping (3.9%)	6	13	14	11	44
Rejuvination of the Workforce	1	2	7	5	
New Skills for Future Work	0	1	1	0	
Health of Technical Capability	3	5	5	3	
Health of Technical Authority	2	5	1	3	
Other – Be Specific	0	0	0	0	
On Board - Ending	1400	1382	1376	1366	

Assumptions for FY 05 and FY 06:

1. We will manage attrition/hiring to result in approximately a 3% reduction per year for FY 05 and FY 06 (consistent with Execution Review of 26 Aug 04).
2. Phased attrition and hiring is based on average experience.

VI. Measurement

IHDIV will track metrics in two categories: Lean deployment metrics and Lean execution metrics.

A. Lean Deployment Metrics

Lean deployment metrics will be tracked and input to NAVSEA in accordance with TFL mechanisms. These measures are defined below:

(1) Basic Lean Education
The number of employees educated in Lean Six Sigma basics. This metric will be reported as a total number and a percentage of employees that have been trained in the basic Lean Six Sigma tools.

(2) Number of Employees on a Team
This metric will be reported as a total number of employees and percent of employees that have participated in a Lean event (VSA or RIE) and will include the number of teams in which employees have participated. For example, the number and percent of employees that have been on one team, two teams, three teams, etc. will be reported.

(3) Number of Team Leaders
The total number and percentage of employees that have been trained in the tools and techniques required to lead individual Rapid Improvement Teams.

(4) Number of Green Belts:
The total number and percentage of employees that plan and execute Rapid Improvement Events on a full time basis.

(5) Number of Black Belts:
The total number and percentage of employees that have become Black Belts and working full time as a Black Belt.

(6) Number of Value Stream Analyses Performed
This metric indicates Lean activity and is expressed as the number of VSAs performed.

(7) Number of Rapid Improvement Events
This metric indicates Lean activity and is expressed as the number of events performed.

(8) Number of Rapid Improvement Events/VSA
This metric is a measure of focused Lean activity and is expressed as the number of events performed as a result of a VSA.

(9) Number of Rapid Improvement Teams
The total number of teams chartered during the Rapid Improvement Events that were executed during the quarter.

(10) Percent and Progress of Business Value Streamed
The percent of the business that has been value stream analyzed and the percent progress that has been made with the first pass implementation of Lean on these value streams.

B. Lean Execution Metrics

(1) Cost of RIEs
The total cost of RIEs conducted as of the date reported as well as the projected cost of each event basis under consideration.

(2) Schedule
Actual performance against the Rapid Improvement Plan.

(3) Footprint reduction
Total amount of square footage reduced for operations as a consequence of Lean deployment.

(4) Placement of "Lean-affected" employees
Number of employees affected by Lean implementation and redeployment of those employees.

(5) Savings
Total amount of savings realized as a result of Lean implementation.

<u>Appendices</u>
Appendix A: Lean Quality Newsletter Example
Appendix B: Project Nomination Form
Appendix C: Decision Matrix for Lean Targeting of Indirect Processes
Appendix D: Decision Matrix for Lean Targeting of Direct Projects and Processes
Appendix E: Lean Six Sigma Training Levels

5 November 2004

The Lean-Quality Newsletter

Vol. 2, No. 1 Oct. 18, 2004

The Belts - In Depth

Green Belts. Black Belts. Champions. You've probably heard at least one of these titles within recent months. Confused about the differences? Here's a summary of what they do:

- Black Belts – Want someone to lead a team and save the big money? Here they are. Black Belts have demonstrated a mastery of Lean Six Sigma tools and processes, and displayed this mastery on a major Lean Six Sigma project. They possess the competency to lead change, to coach and mentor others during Lean Six Sigma events, and to capably repeat the project process. They are change agents.
- Green Belts – Where would Black Belts be without someone to lead? Green Belts are the backbone of teams, people with a thorough understanding and demonstrated knowledge of Lean Six Sigma tools and processes, who can apply those tools and processes within a specific project environment. They're skilled at executing and implementing smaller continuous improvement efforts, and provide supportive roles to Black Belts.
- Champions – Need someone to remove obstacles their teams encounter? Or someone who encourages teams when things get tough? Call the Champion. The title says it all. These people: demonstrate skills in leading and motivating the Belts; identify specific savings gained from Lean Six Sigma applications; and communicate potential Lean Six Sigma initiatives, then regularly assess and communicate progress.

Department 18 Meets with Task Force Lean

On October 7, Mo Ibrahim and Tracy Widner met with Jim Brice, the director of Task Force Lean (TFL), and other TFL personnel, at the Washington Navy Yard and provided them with a summary of IHDIV's Lean Six Sigma efforts to date and its plans for the future. Topics that were discussed included the establishment of the Lean-Quality Department, IHDIV's Green and Black Belt initiatives, future training plans, and the project plan. In addition to meeting with Task Force Lean, members of Department 18 met Bob Kelly, an employee of Northrop Grumman (the contractor that was hired by Task Force Lean to support Warfare Center activities with implementation of their Lean Six Sigma training programs). A final topic of discussion was tracking and reporting hard (direct) and soft (indirect) savings. At the conclusion of the meeting, Task Force Lean personnel were impressed with IHDIV's progress to date, and stated that we were definitely ahead of the curve.

Term Time

In no time, you'll be exposed to many terms, associated with Lean Six Sigma, which may be unfamiliar. Here's an initial dose of "Lean Six Sigma-speak" for you:

- Lean – a systematic approach to identifying and eliminating waste (i.e., non-value added activities).
- Six Sigma – a systematic approach, based on the Define, Measure, Analyze, Improve, and Control (DMAIC) methodology, for evaluating and eliminating variability.
- **Lean Six Sigma – (from a Bridgewright Management Consultants pitch) a synergistic meshing of Lean and Six Sigma, that yields a customer-focused, enterprise change strategy to deliver increased capability, improved results, and desired culture change.**
- Value – a measure of worth created when a product is changed toward what the customer wants.
- Waste – anything that doesn't add value to a process (e.g., wait time, excess motion, or transportation).
- Push system – a method of production based on schedule.
- Pull system – a method of production based on system status.

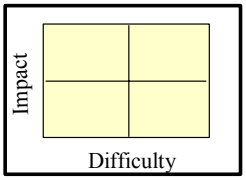
Questions or Comments? Contact Tracy Widner x4575.

5 November 2004

Project Nomination Form

Project Type

- ☐ Just Do It
- ☐ Kaizen
- ☐ Black Belt Prj



Estimated Project Dates:

Project Sponsor:

Process Owner:

Funding Type: Navy or Other_____

Project Description:

Potential Team Leaders and Members:

Potential Implementation Costs:

Business Reason for the Project:

Project Constraints
(Financial, Personnel, Equipment):

Expected Cost Savings:

Decision Matrix for Lean Targeting of Indirect Processes

These are target areas only. They do not represent specific Lean projects to be executed.

	Avail. WKLD in Proj. or Function (Outyears)	Customer Dissatisfaction (3 highest dissatifaction)	Processing Issues/Problems	Dollar Value (set ranges)	ProjectedAttrition (3 high level of atrtition)	Potential for Collaborative Regionalization	Financial Savings Potential	Complete improvement effort that is already starte	
Weighting Factor (1-5)	*2*	*5*	*3*	*5*	*2*	*4*	*5*	*1*	***Weighted Score***
Overhead Processes (Scale 1-3)									
Utilities	3	3	3	3	0	3	3	0	72
Procurement (Including Bank Card)	3	3	3	2	1	3	2	0	64
Financial Management	3	2	2	2	1	3	3	0	61
Facilities Maintenance (NDW)	3	2	2	3	0	3	2	0	59
Repair and Maintenance	3	0	2	2	2	3	3	0	53
Calibration	3	3	2	1	1	3	1	0	51
HR Processes	3	2	1	2	2	3	1	0	50

Decision Matrix for Lean Targeting of Direct Projects and Processes

These are target areas only. They do not represent specific Lean projects to be executed.

		Avail. WKLD in Proj. or Function (Outyears)	Customer Dissatisfaction	Obvious processing Issues/Problems	NAVSEA 3, Navy 2, Other 1	Indirect workload subsidy	Two yr funding	ProjectedAttrition	Potential sponsor funding of lean efforts	Financial Savings Potential	Complete improvement effort that is already started	
	Weighting Factor (1-5)	*5*	*5*	*4*	*4*	*1*	*5*	*2*	*3*	*5*	*1*	
	Program (Scale 0-3)											**Weighted Score**
G1A1	SURVEILLANCE	3	2	2	3	0	3	2	0	3	0	**79**
C0H1	OTTO FUEL II DOMESTIC	3	2	2	3	1	1	2	1	3	3	**76**
R1A2	ZUNI RKT MTR MFG	2	2	2	2	1	3	1	3	1	3	**71**
B2C0	MK 125 STD MISSILE WARHEAD	2	3	3	3	1	1	1	0	2	1	**68**
B0C0	SYSTEM INTEGRATION	3	2	1	3	1	1	1	3	2	0	**68**
G1A2	TEST AND EVALUATION	3	2	1	2	2	1	1	3	2	3	**68**
D0G1	GUN SIMULATION	3	1	1	3	1	1	1	3	2	3	**66**
D0C0	GUN PROPULSION - NAVY 6.2	3	1	2	3	1	2	0	3	1	0	**65**
K6A8	CAD PRODUCTION/ACQUISITION	2	2	2	1	1	2	1	3	2	0	**64**
G1A3	AIT AND SENSOR TECHNOLOGY	3	2	2	3	1	2	1	0	1	0	**63**
B0A0	VLS SIMULATION	3	2	1	3	1	1	1	3	1	0	**63**
R1C1	2.75" RKT PES	3	2	2	2	1	2	2	0	1	0	**61**
K4B6	CAD AND AEPS ILS	3	1	1	2	1	2	1	2	2	0	**61**
K5A7	CAD QE	3	2	1	2	1	2	1	0	2	0	**60**
B1B0	STANDARD MISSILE PROPULSION	3	2	1	3	1	2	1	0	1	1	**60**
M0W0	ENERGETIC MATERIALS (MISC)	3	2	2	3	3	1	1	0	1	0	**60**
L1P0	AEPS PIP-NAVY	3	2	2	2	1	2	1	0	1	0	**59**
A2Z0	MISC AIR SIMULATION	3	1	1	2	1	2	1	3	1	0	**59**
R0C1	JATO PES	3	3	2	2	1	1	1	0	1	0	**59**
K9B9	RSS&I	3	1	2	2	3	1	2	0	2	0	**58**
M1D7	CMCO BAA	1	3	2	3	0	1	1	0	2	0	**57**
G1A4	SYSTEM	3	2	2	2	3	1	1	0	1	0	**56**
D0A0	GUN AMMO DESIGN AGENT	3	1	0	3	1	3	1	0	1	0	**55**
M1D0	AMPHIBIOUS WARHEADS	3	2	2	2	1	1	1	0	1	0	**54**
M1C0	TORPEDO WARHEADS, FUZES, S&A's	3	1	0	3	1	2	1	0	1	0	**50**
K1A2	CAD/CAD COMPONENT PIP	3	2	1	2	1	1	1	0	1	0	**50**
N7A2	MISC OFF-STATION INSTRUM. SUPT	3	2	1	2	1	1	1	0	1	0	**50**
B1E0	ESSM PROPULSION	3	2	0	3	0	1	1	0	1	1	**50**
K2B9	EXPENDABLE COUNTERMEASURES	3	1	1	2	1	1	1	0	2	0	**50**
L1M0	AEPS PRODUCTION-NAVY	2	2	2	2	1	1	1	0	1	0	**49**
A2F0	TOMAHAWK SIMULATION	3	1	1	2	1	1	1	0	1	3	**48**
M1A0	WARHEAD RESEARCH BLOCK	3	1	0	1	1	3	1	0	1	0	**47**
R1A5	MISC RKTS	2	1	1	2	1	2	1	0	1	0	**45**
K3B6	CAD ISE	3	1	1	2	1	1	1	0	1	0	**45**
L1I0	AEPS ISE	3	1	1	2	1	1	1	0	1	0	**45**
R3C7	MCM ENG SUPT	3	1	1	2	1	1	1	0	1	0	**45**
L1A0	AEPS ACQUISITION-NAVY	3	1	1	2	1	1	1	0	1	0	**45**
Y1A0	EXPLOSIVE SAFETY	3	1	0	3	1	1	1	0	1	0	**45**
R0A8	MK 125 JATO	1	2	1	3	1	1	1	0	1	0	**44**
T1A0	TENANT SUPPORT	2	1	1	3	1	1	1	0	1	0	**44**
R1A4	MK66	2	1	1	2	1	1	1	0	1	0	**40**
W0A3	ENVIRONMENTAL SERVICES	0	0	0	2	1	3	0	0	0	0	**24**
G0A2	*Dep71, Naval Packaging, Handling, Storage and Transportation, Earle*	*0*	*0*	*0*	*2*	*0*	*3*	*0*	*0*	*0*	*0*	
G0A5	*Dep74, Strategic Systems Evaluation Dept, Seal Beach*	*0*	*0*	*0*	*3*	*0*	*3*	*0*	*0*	*0*	*0*	
S0B0	*SPECIAL WEAPONS MISSILES*	*0*	*0*	*0*	*2*	*0*	*2*	*0*	*0*	*0*	*0*	
M2W0	*OTHER R&D (MISC)*	*0*	*0*	*0*	*2*	*0*	*2*	*0*	*0*	*0*	*0*	
A0F0	*TOMAHAWK PROPULSION*	*0*	*0*	*0*	*2*	*0*	*2*	*0*	*0*	*0*	*0*	
G0A1	*Dep40, Air Weapons Engineering Division, Yorktown*	*0*	*0*	*0*	*2*	*0*	*1*	*0*	*0*	*0*	*0*	

Lean Six Sigma Training Levels:
IHDIV will provide four different levels of training that correspond to the competency levels. Champions are trained at any level. The four training levels are:

1. Lean Educated: The Lean Educated training is appropriate for all members of the workforce. The purpose is to convey a general understanding of Lean Six Sigma terms, language, intent and benefits as well as a general understanding of how to apply Lean Six Sigma tools and processes in a work environment. The goal is to develop a common culture and familiarity with Lean Six Sigma. Some sources for this training are: The Defense Acquisition University (DAU) on-site course, Lean Six Sigma awareness briefings, Lean-Quality Newsletters, IHDIV intranet, IHDIV and Warfare Center web sites, the IHDIV Energetic Solutions in Leadership (ESL) training module, Black Belts and Green Belts.

2. Team Member/Team Leader: The Team Member/Team Leader training will be given to all members who participate on Lean Six Sigma teams. This training will have a Just-In-Time (JIT) project focus and be 4-8 hours in length. The purpose is to provide a working understanding of Lean Six Sigma, of the intent of RIEs, and of the application of Lean Six Sigma principles and practices for the identified project. Some sources for this training are: The University of Maryland Center for Energetic Concepts Development (CECD), various contractors to IHDIV, NAVSEA contract support, and Black Belt-taught short courses, consisting of classroom work and on-the-job training.

3. Green Belt: The Green Belt training will be given to individuals from various levels of the organization who are identified as Green Belt candidates. The purpose of this training is to provide intermediate level expertise in Lean Six Sigma tools and methods. Personnel receiving this training will be identified as Green Belts after 1 week of classroom training and the successful completion of six improvement efforts.

4. Black Belt: The Black Belt training will be given to individuals from various levels of the organization designated as Black Belt candidates. The purpose of this training is to develop the expertise required to facilitate, teach and lead other members of the workforce in Lean Six Sigma initiatives. Personnel receiving this training will be trained as a Black Belt after 4 weeks (minimum) of classroom work over a 4 to 5 month timeframe and the successful completion of a major Lean Six Sigma project. Black Belt training is recognized in government, industry, and academia.