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Institute

CAPABILITY COUNTS 2016

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Title: Using the CMMI-DEV and the Agile Scrum Methodologies to Sustain Process Capability in a Diminishing Environment

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Organization Overview

Organization Description	Case Study 1: NNSA Software Engineering Team	Case Study 2: Diligent Consulting Inc
Small Setting	17 FTE	15 FTE
Management Structure	Integrated customer – contractor management team	All projects located in Operations
Development Tools	Team Foundation Server MS CRM	Rational Software Architect C#, .Net Java
Location	On-site – NNSA Albuquerque, NM	Diligent Consulting Software Development Facility – San Antonio, TX On-site Testing
Customer	DOE/NNSA	DoD

Business Challenge

Business Challenge	Case Study 1: NNSA Software Engineering Team	Case Study 2: Diligent Consulting Inc
Staff Reduction	7	7
Schedule	Yearly delivery modified to 3 week Scrums	Yearly delivery modified to 3 week Scrums
Managing Customer Expectations	<ul style="list-style-type: none"> ▪ Customer strategic planning ▪ On-going modernization and replacement of legacy systems ▪ Vendor selection of development platforms 	<ul style="list-style-type: none"> ▪ Understanding and controlling requirements ▪ Customer CM processes ▪ Training and rollout of eBOSS
Contract Type	Level of Effort	Firm Fixed Price

The Plan

Planning Factor	Case Study 1: NNSA Software Engineering Team	Case Study 2: Diligent Consulting Inc
Life Cycle Model	Was: Waterfall Is: Agile (2009)	Was: Waterfall Is: Agile (2012)
Resources	7 FTE	7 FTE
Schedule	3 week Scrums	3 week Scrums
Benchmarks	2007 – CMMI-DEV ML 2 2009 – CMMI-DEV ML 3 2012 – CMMI-DEV ML 3 2015 – CMMI-DEV ML 3	2010 – CMMI-DEV ML 3 2016 – ISO 9001:2008
Location	On-site	Diligent development facility
Risk Management Strategy	<ul style="list-style-type: none"> ▪ Project dashboards communicate requirements and production bugs for customers. ▪ Impediments and mitigation actions in TFS ▪ Staff training on new development tools 	<ul style="list-style-type: none"> ▪ Certified QMS ▪ Risk sources extracted lessons learned & project experiences

The Results

Results	Case Study 1: NNSA Software Engineering Team	Case Study 2: Diligent Consulting Inc
Schedule	On-time deliveries ranged from 3 – 4 months	Reduced delivery schedule by 20% Ahead of the delivery schedule
Benchmark renewal	CMMI-DEV ML 3 (2015)	CMMI-DEV ML 3 (2016) ISO 9001:2008 (2016)
Customer Satisfaction	Improved	Improved

Lessons Learned

Key Factor	Benefits
Mature CMMI-DEV processes	<p>Institutionalization provides consistency of usage in :</p> <ul style="list-style-type: none"> ▪ Tailored processes <ul style="list-style-type: none"> ▪ Project planning (QMS Project Stand-up Plan) ▪ Tracking and reviews (TFS virtual task boards and capacity tracking) ▪ Requirements management (TFS, RTC, RTM) ▪ Risk management ▪ Measurements ▪ Quality - ISO 9001:2008 ▪ Corrective actions and action Items (CAPAs) ▪ Reporting
Agile Scrum	<ul style="list-style-type: none"> ▪ Disciplined engineering techniques (white boards, peer reviews, backlogs) ▪ Cross training of team ▪ Visibility into requirements and design activities ▪ Daily defect tracking ▪ Risk management ▪ Customer interactions and satisfaction
Management Commitment to Quality	Visible support and commitment to the importance of existing processes and Agile Scrum