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Land
Sea
Space
Cyberspace

Innovation. In all domains.

Building an Agile, Collaborative Environment for Capturing Productivity Based Cost Model Data

David Bloom, Mason Wexler, and Wanda Grant
Raytheon Space and Airborne Systems

3/24/2012

Agenda

- What do I really want to do?
- What does “agile” mean?
- Is Microsoft really still significant?
 - Has anyone paid attention to Apple Stock?
 - I love Google Apps but ...
- Let’s take this environment for a test drive!
- Now let’s take it to the Nurburgring!
- “I have a dream ...”



Abstract

Building an Agile, Collaborative Environment for Capturing Productivity Based Cost Model Data

By David Bloom

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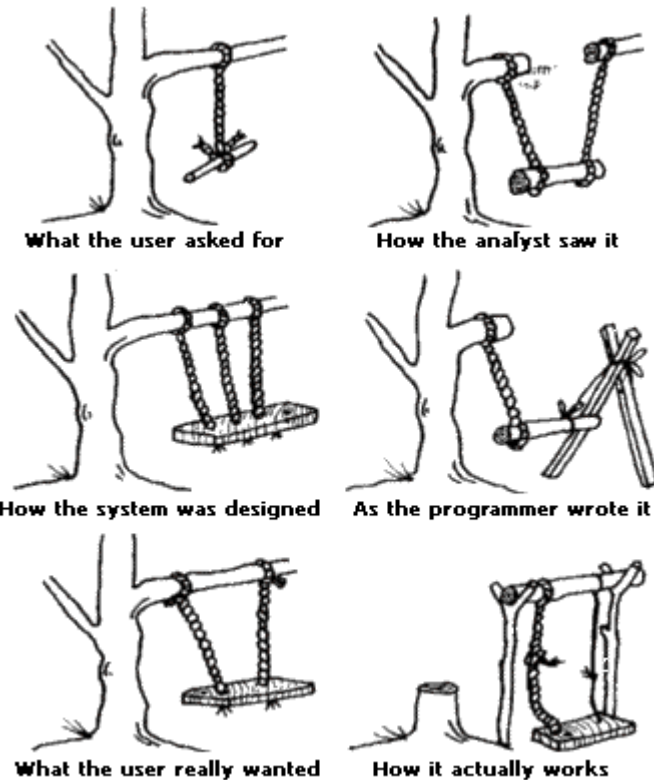
Understanding and analyzing productivity within an Aerospace electronics development organization requires continuous oversight and adjustment. For example, in digital electronics, a corollary to Moore's Law says that the capability of digital processor components doubles every 18 months. This would imply that the cost to design a set of digital electronics products to deliver a specific state-of-the-art capability would change (become less) as a function of the ability to incorporate more features on any one component.

This paper will discuss how Raytheon Space and Airborne Systems (SAS) Electronics Center (EEC) built an extremely agile, collaborative environment in order to track in-process productivity of the development of electronics systems and sub-products of those systems. The fundamental basis of this discussion is that productivity will be defined as the number of labor hours to produce a product of certain size (hours/size), where the size of any particular product is encapsulated by a parameter called an "Effective Key Size Metric" (eKSM).

The collaboration technology platform that the Raytheon SAS Electronics Center built upon was Microsoft Sharepoint 2010, but other collaboration technologies like Google Docs could easily be applied. The most important pieces for the success of collecting the required productivity data are well defined data requirements, ease of access, data visibility and constant data review.

What Would the Requirements Look Like?

- Wouldn't it be amazing if we had a computing environment that is ...
 - Web Based
 - Standard permissions
 - Open to everyone that needs it
 - Extensible
 - Collect cost data for any type of product
 - Data visible to corporate applications
 - 3rd Normal Form
 - Collaborative
 - 80 pairs of boots on the ground
 - No lockouts like eRoom
 - Self-Serve
 - Minimum IT involvement
 - Does not require full time administration
 - Agile
 - Data collection needs are always changing
 - Report productivity close to real time
 - Tell a story with charts
 - Tightly integrated with Microsoft Office



What is Agile?

Manifesto for Agile Software Development

We are uncovering better ways of developing software by doing it and helping others do it.
Through this work we have come to value:

Individuals and interactions over processes and tools

Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

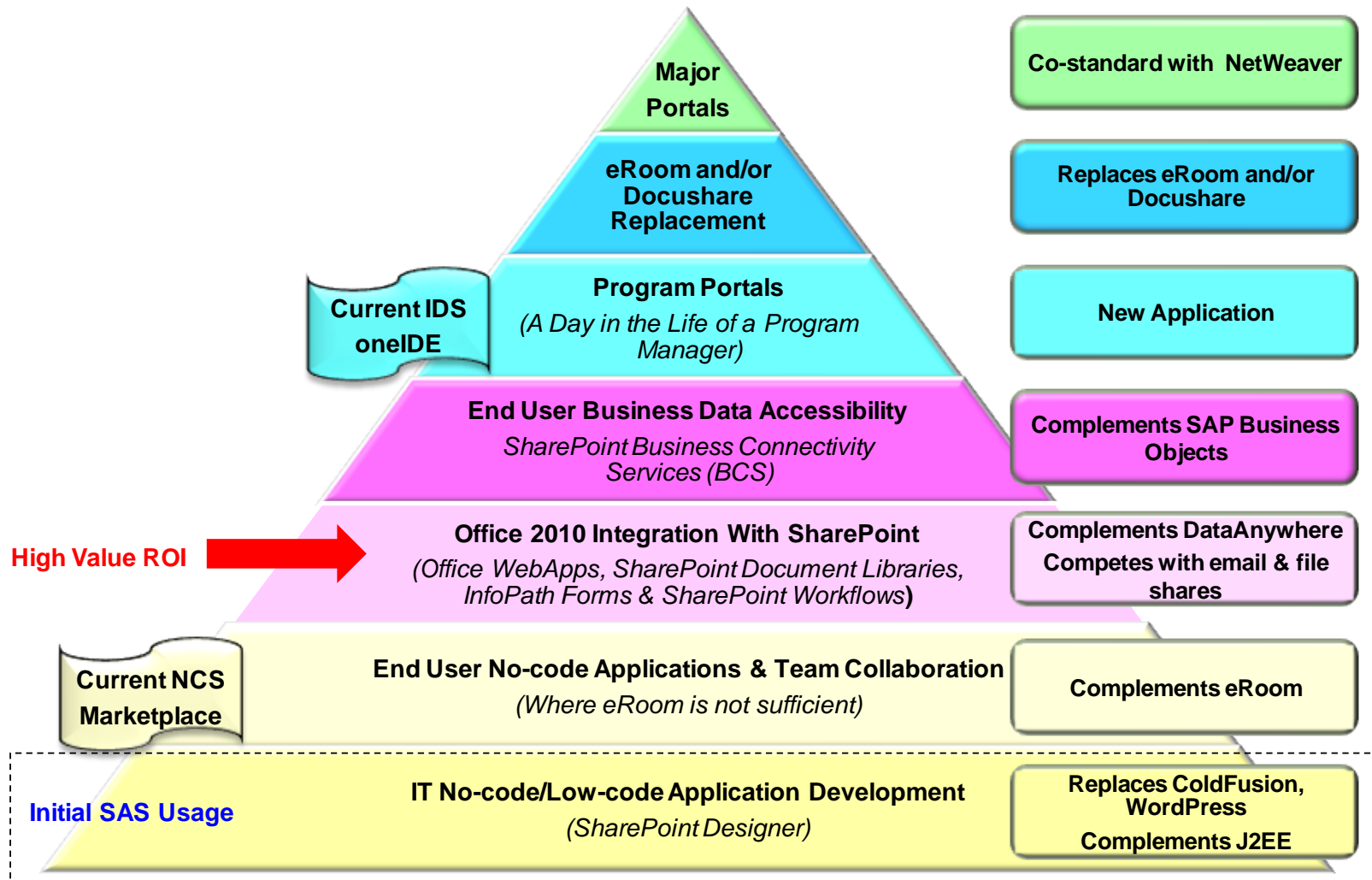
Source: agilemanifesto.org

Why Agile - Principles behind the Agile Manifesto

- Satisfy the customer through early and **continuous delivery**.
- **Welcome changing requirements**, even late in development.
- **Deliver working software**.
- Business people and developers must work together.
- Build projects around **motivated individuals**. Give them the environment and support they need, and trust them to get the job done.
- Face-to-face conversation.
- **Working software** is the primary measure of progress.
- Agile processes promote **sustainable** development.
- Continuous attention to **technical excellence and good design**.
- **Simplicity**.
- **Self-organizing teams**.
- At regular intervals, the team reflects on how to **become more effective**.

Source: agilemanifesto.org/principles.html

SAS SharePoint Functionality Fit



SharePoint Functionality That Enables No-Code Solutions

- Lists (like database tables) and libraries
 - Integration with Office client applications
 - Office Web Apps: Multi-user, co-authoring, browser-based editing
- Metadata: content management, document assembly, so much more...
- Workflow & business process automation
 - InfoPath forms & SharePoint Designer workflows
- Forms: list forms, InfoPath forms (browser-based fill-in)

The image shows two screenshots from a SharePoint environment. The top screenshot displays the 'List Tools' ribbon with the 'List' tab selected. The 'Manage Views' section shows a table with the following data:

Title	Category
Test 1	Test
Test 3	Test Update
Test 3	Test
Test 4	Update Test
Test 5	Test
Test 3	Update

The bottom screenshot shows a 'New Item' form for a list. The form has the following fields:

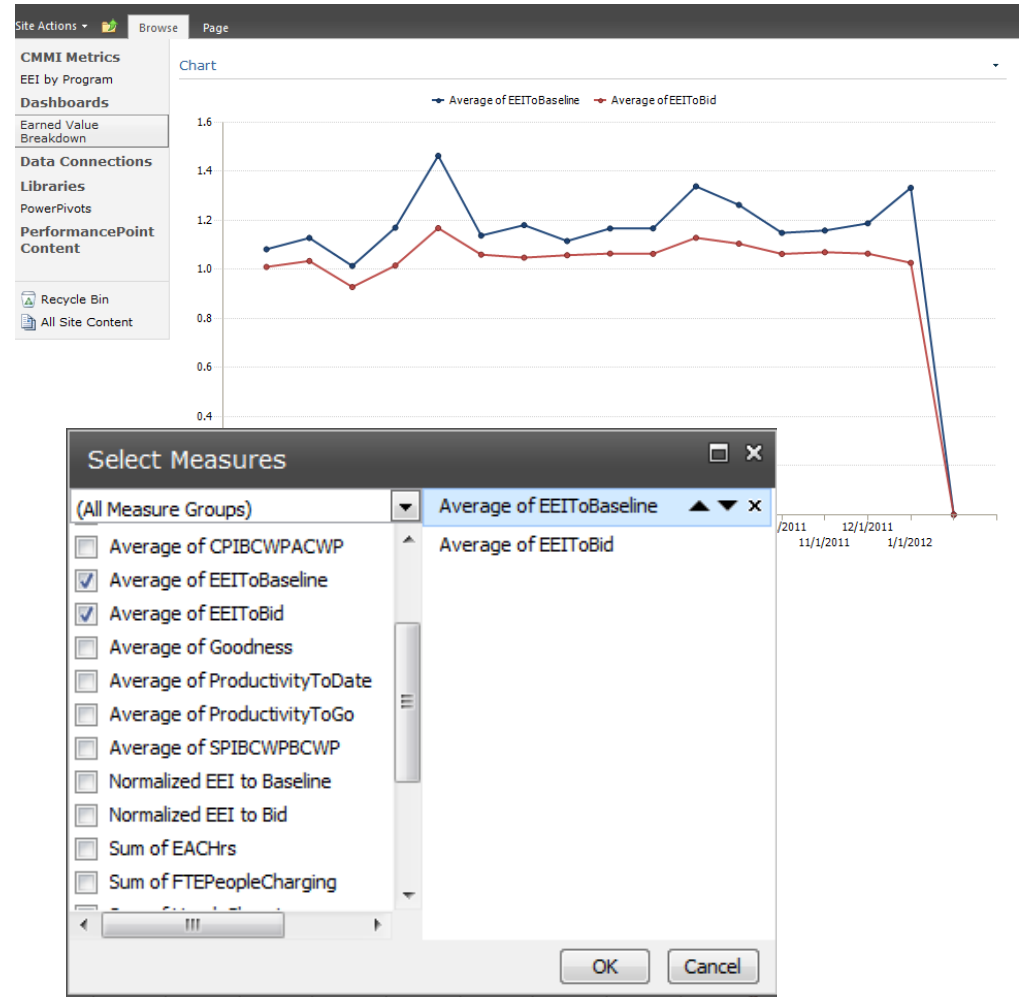
- Title:
- Category:
- Data:
- Data2:
- Result:

Buttons for 'Save' and 'Cancel' are visible at the bottom right of the form.



SharePoint Functionality That Enables No-Code Solutions

- Data analysis
 - Excel services, PowerPivot, SQL Server Reporting Services
- Data visualization
 - Web Parts: Excel Services, Chart, PerformancePoint, KPIs, Visio services
- Out-of-box lists & applications: Issue tracking, bugs, projects, etc.
- Rapid application development: Access services, InfoPath, Visio



Sharepoint: Self-Serve Intranet Development

Raytheon Space and Airborne Systems

Electronics Center Home » Home

Electronics Center Home SVC_Home SDC_Productivity MOEC_Home All Sites

Quick Actions

- [Add a New Product](#)
- [View and Report Monthly Productivity](#)
- [Change Closure Metric Reporting](#)
- [Update Completed Products](#)
- [Completed Products Scorecard](#)
- [Completed Products Scorecard Instructions](#)

Lists

- [EC Productivity Baseline Table](#)
- [EC Monthly Productivity Reporting](#)
- [EC Products](#)
- [Monthly reporting / FMR Report](#)
- [Calendar](#)
- [Tasks](#)
- [SAS Work Packages EE \(HW\)](#)
- [SAS Work Packages](#)

Libraries

- [Product Fragnets](#)

Center Admin: Carole Miller

Announcements

- [Center Ops Pkg due to F...](#)

Embedded Training video

Wiki lite

Self-serve landing page

Self-serve landing page

Important links

Live data analysis charts!

Automated FMR Template Tutorial

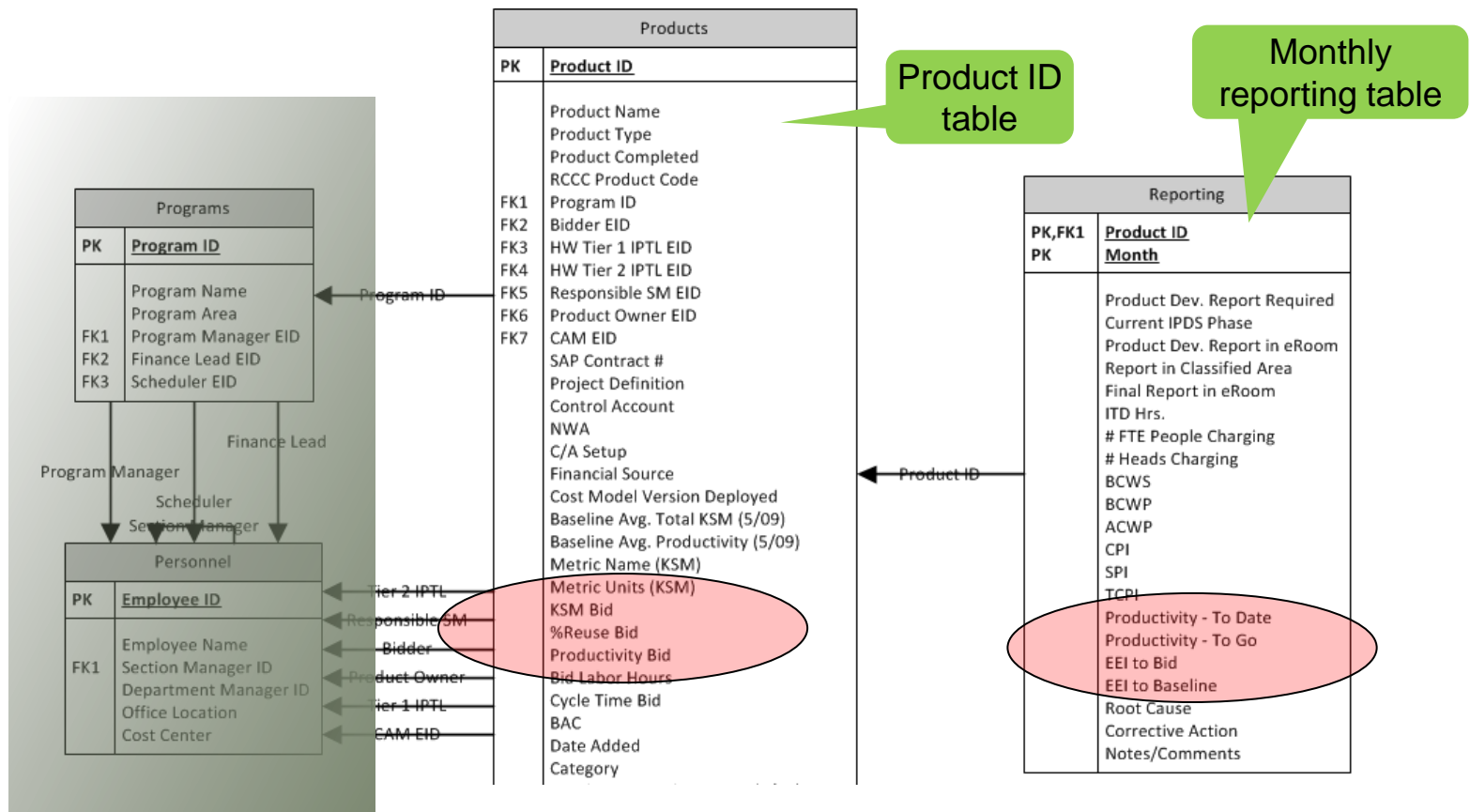
Performance Pt Tutorial

Date	Value
10/2/2010	0
11/2/2010	0
12/2/2010	0
1/2/2011	0
2/2/2011	0
3/2/2011	0
4/2/2011	0
5/2/2011	0
6/2/2011	14
7/2/2011	0

Product Tracking Schema

- Suggested relational database/SharePoint list schema
 - Organizes existing program data within multiple tables to reduce complexity and allow for more robust tracking and visualization

Think Best Buy!



The Power of Lists!

CustomerID	CompanyName	ContactName	ContactTitle	Address	City	Region	PostalCode	Country	Phone	Fax
ALFKI	Alfreds Futterkiste	Maria Anders	Sales Representative	Obere Str. 57	Berlin		12209	Germany	030-0074321	030-0074321
ANATR	Ana Trujillo Emparedados y helados	Ana Trujillo	Owner	Avda. de la Constitución 2222	México D.F.		05021	Mexico	(5) 555-4729	(5) 555-4729
ANTON	Antonio Moreno Taquería	Antonio Moreno	Owner	Mataderos 2312	México D.F.		05023	Mexico	(5) 555-3932	
AROUT	Around the Horn	Thomas Hardy	Sales Representative	120 Hanover Sq.	London		WA1 1DP	UK	(171) 555-7788	(171) 555-7788
BERGS	Berglunds snabbköp	Christina Berglund	Order Administrator	Berguvsvägen 8	Luleå		S-958 22	Sweden	0921-12 34 65	0921-12 34 67
BLAUS	Blauer See Delikatessen	Hanna Moos	Sales Representative	Forsterstr. 57	Mannheim		68306	Germany	0621-08460	0621-08460
BLONP	Blondee ddaal père et fils	Frédérique Citeaux	Marketing Manager	24, place Kléber	Strasbourg		67000	France	88.60.15.31	88.60.15.31
BOLID	Bólido Comidas preparadas	Martin Sommer	Owner	C/ Araquil, 67	Madrid		28023	Spain	(91) 555 22 82	(91) 555 22 99
BONAP	Bon app'	Laurence Labihan	Owner	12, rue des Bouchers	Marseille		13008	France	91.24.45.40	91.24.45.40
BOTTM	Bottom-Dollar Markets	Elizabeth Lincoln	Accounting Manager	23 Taawassen Blvd.	Taawassen					
BSBEV	B's Beverages	Victoria Ashworth	Sales Representative	Fauntleroy Circus	London					
CACTU	Cactus Comidas para llevar	Patricio Simpson	Sales Agent	Cerrito 333	Buenos Aires					

1 List with customized views

Yes, Microsoft loves the ribbon

Datasheet view looks a lot like Excel

ID	MonthName	WeekNumber	SalesGroup	SalesRegion	ProductCategory	LastYearAmount	ForecastAmount
April-Week 14-Australia-Accessories	April	Week 14	Pacific	Australia	Accessories	1562.5900	3500
April-Week 14-Australia-Bikes	April	Week 14	Pacific	Australia	Bikes	54619.1800	5500
April-Week 14-Australia-Clothing	April	Week 14	Pacific	Australia	Clothing	952.3100	
April-Week 14-Canada-Accessories	April	Week 14	North America	Canada	Accessories	1065.4200	
April-Week 14-Canada-Bikes	April	Week 14	North America	Canada	Bikes	6896.3100	
April-Week 14-Canada-Clothing	April	Week 14	North America	Canada	Clothing	334.3600	
April-Week 14-France-Accessories	April	Week 14	Europe	France	Accessories	628.9100	
April-Week 14-France-Bikes	April	Week 14	Europe	France	Bikes	19448.2300	
April-Week 14-France-Clothing	April	Week 14	Europe	France	Clothing	234.9300	
April-Week 14-Germany-Accessories	April	Week 14	Europe	Germany	Accessories	930.2200	
April-Week 14-Germany-Bikes	April	Week 14	Europe	Germany	Bikes	26697.6200	
April-Week 14-Germany-Clothing	April	Week 14	Europe	Germany	Clothing	307.8900	
April-Week 14-Northwest-Accessories	April	Week 14	North America	Northwest	Accessories	1217.2400	
April-Week 14-Northwest-Bikes	April	Week 14	North America	Northwest	Bikes	23424.4300	
April-Week 14-Northwest-Clothing	April	Week 14	North America	Northwest	Clothing	233.9200	
April-Week 14-Southwest-Accessories	April	Week 14	North America	Southwest	Accessories	890.4000	

Electronics Product List (2012)

Category	Product Type	RCCC Product Code	KSM Name	Units	Responsible DM	Subprocess Mgr	Baseline Avg Total KSM (01/2012)	Baseline Avg Labor Hrs - PCL no Pools (01/2012)	Baseline Avg Duration (01/2012)	Baseline Avg Productivity (01/12)	Baseline Avg Productivity (01/12) For Corporate Reporting (hrs/x)	Blended Productivity based Digital Module e terms	Blended Productivity factor (eTerms)
Component	AMIC (Analog ASIC)	DU	#Transistors	Hrs/Tran	Jane Doe	John Doe	77.00	48.00	3.00	34.00	20.00	83.00	96.00
	AMIC (MMIC)	DV	#Stages	Hrs/Stage	Jane Doe	John Doe	86.00	71.00	8.00	24.00	87.00	6.00	87.00
	AMIC (SOC)	DC	#EASF	Hrs/EASF	Jane Doe	John Doe	60.00	59.00	39.00	86.00	22.00	7.00	1.00
	Digital ASIC	DH	#Gates	Gates/Hr	Jane Doe	John Doe	45.00	62.00	48.00	86.00	45.00	7.00	100.00
	Digital ASIC (Obsolescence)	DH	#Gates	Gates/Hr	Jane Doe	John Doe	52.00	62.00	11.00	85.00	38.00	90.00	87.00
	FPGA (Firmware)	DJ	#eLOCs	eLOCs/Hr	Jane Doe	John Doe	68.00	61.00	58.00	10.00	47.00	64.00	85.00
	FPGA	DJ	#eLOCs	eLOCs/Hr	Jane Doe	John Doe	78.00	83.00	19.00	63.00	69.00	32.00	100.00
	Antenna Components (Radomes)	DZ	eDrawings	Hrs/eDrawings	Jane Doe	John Doe	13.00	45.00	17.00	53.00	62.00	55.00	42.00
	Antenna Components (Radiators)	DZ	eDrawings	Hrs/eDrawings	Jane Doe	John Doe	24.00	42.00	25.00	37.00	58.00	7.00	35.00
	Antenna Components (TRMs)	DZ	eDrawings	Hrs/eDrawings	Jane Doe	John Doe	49.00	58.00	28.00	41.00	19.00	64.00	29.00
	Antenna Components (Feeds)	DZ	eDrawings	Hrs/eDrawings	Jane Doe	John Doe	62.00	74.00	92.00	88.00	45.00	26.00	53.00
	Antenna Components (Circulators)	DZ	eDrawings	Hrs/eDrawings	Jane Doe	John Doe	72.00	35.00	4.00	1.00	71.00	22.00	54.00
Module	Analog Module	DT	#Terms	Hrs/Term	Jane Doe	John Doe	77.00	29.00	32.00	93.00	28.00	51.00	30.00
	Analog Power Module	DS	#Terms	Hrs/Term	Jane Doe	John Doe	93.00	40.00	37.00	34.00	24.00	63.00	79.00
	Digital Module	DG	#eTerms	Hrs/eTerm	Jane Doe	John Doe	64.00	51.00	72.00	43.00	67.00	95.00	93.00
	MMOD (RE)	DE	#Components	Hrs/Component	Jane Doe	John Doe	100.00	41.00	75.00	69.00	18.00	28.00	24.00
	MMOD (AE)	DW	#Components	Hrs/Component	Jane Doe	John Doe	37.00	67.00	17.00	64.00	84.00	54.00	5.00
	RF Module	DB	#Stages	Hrs/Stage	Jane Doe	John Doe	33.00	1.00	75.00	55.00	11.00	78.00	83.00
STE	STE (Digital Unit)	DR	#Drawings	Hrs/Drawings	Jane Doe	John Doe	78.00	74.00	75.00	94.00	78.00	63.00	12.00
	STE (Digital Module)	DR	#Drawings	Hrs/Drawings	Jane Doe	John Doe	12.00	36.00	55.00	68.00	77.00	81.00	17.00
	STE (EO)	DR	#Drawings	Hrs/Drawings	Jane Doe	John Doe	86.00	86.00	86.00	86.00	86.00	89.00	81.00
	STE (RF Unit)	DR	#Drawings	Hrs/Drawings	Jane Doe	John Doe	99.00	99.00	99.00	99.00	99.00	91.00	81.00
	STE (Analog Unit)	DR	#Drawings	Hrs/Drawings	Jane Doe	John Doe	90.00	90.00	90.00	90.00	90.00	90.00	53.00
	STE (Analog Mod)	DR	#Drawings	Hrs/Drawings	Jane Doe	John Doe	97.00	97.00	97.00	97.00	97.00	83.00	79.00
	STE (Antenna)	DR	#Drawings	Hrs/Drawings	Jane Doe	John Doe	69.00	69.00	69.00	69.00	69.00	69.00	47.00
	STE (RF Mod)	DR	#Drawings	Hrs/Drawings	Jane Doe	John Doe	37.00	37.00	37.00	37.00	37.00	64.00	85.00
Support	System (RF Prime)	DY	#CCAs	Hrs/CCA	Jane Doe	John Doe	21.00	21.00	21.00	21.00	21.00	37.00	31.00
	System (RF STE)	DY	#CCAs	Hrs/CCA	Jane Doe	John Doe	27.00	27.00	27.00	27.00	27.00	15.00	47.00
	System (EO Prime)	DY	#lbs	Hrs/lbs	Jane Doe	John Doe	5.00	57.00	49.00	5.00	3.00	11.00	24.00
	System (EO STE)	DY	#lbs	Hrs/lbs	Jane Doe	John Doe	74.00	87.00	2.00	47.00	41.00	29.00	79.00
Unit	Analog / Power Unit	DP	#Unit Terms	Hrs/Unit Term	Jane Doe	John Doe	46.00	10.00	53.00	35.00	73.00	39.00	36.00
	Antenna (PA-AESA-Tile)	DD	#eDrawings	Hrs/eDrawings	Jane Doe	John Doe	69.00	93.00	32.00	48.00	65.00	32.00	20.00
	Antenna (PA-AESA-Panel)	DD	#Drawings	Hrs/Drawings	Jane Doe	John Doe	46.00	39.00	73.00	46.00	54.00	4.00	58.00
	Antenna (PA-AESA-Brick)	DD	#Drawings	Hrs/Drawings	Jane Doe	John Doe	62.00	37.00	1.00	97.00	89.00	10.00	20.00
	Antenna (PA-AESA-TRIM)	DD	#Drawings	Hrs/Drawings	Jane Doe	John Doe	1.00	67.00	3.00	39.00	22.00	66.00	27.00
	Antenna (Fixed Beam)	DD	#Concepts	Hrs/Concepts	Jane Doe	John Doe	17.00	15.00	27.00	16.00	55.00	60.00	53.00
	Digital Unit	DF	#eTerms	Hrs/eTerms	Jane Doe	John Doe	51.00	87.00	55.00	31.00	88.00	11.00	86.00
	RF Unit	DA	#CCAs	Hrs/CCA	Jane Doe	John Doe	17.00	44.00	70.00	31.00	22.00	92.00	19.00

These numbers are random, but we have a table with the real ones!

These names are fictitious, but we have a table with the real ones!

Start FMR Tool

Refresh Graph Data

Refresh List Data

Upload to SharePoint

Macros must be enabled before using the autorun tool.

You must be in **Slide Show mode** to use the command buttons on the left.

DO NOT DELETE THIS BOX! DOING SO WILL BREAK THE UPLOAD TO SHAREPOINT FUNCTION. Uploading to Sharepoint will automatically hide this box and all of the buttons in the uploaded version.

IMPORTANT:

SAVE and CLOSE all open MS Office documents/windows before using the tool.

EXTREMELY IMPORTANT:

When saving versions of your FMR, make sure that **PowerPoint Macro-Enabled Presentation (.pptm)** is selected in the "Save As" window! (SAVING AS .PPTX WILL RENDER THE TOOL USELESS)

If the EEI graphs look like they have the wrong numbers, first try double-clicking on the graph and accepting the macro warning from Excel, then click anywhere else on the slide to continue.

This should refresh the numbers and often corrects the issue.

Innovation. In all domains.

Raytheon

Customer Success Is Our Mission

Company Most Private

Electronics Center Department Management Review

Danny Chan

Electronics Center

Digital Products I Department

February 20, 2012

Execution: Digital Products I Department – Completed Products Scorecard

Status	Days Since Last Status Update	SM	Product Type	Program Name	Product Name
Yellow	97	SM 1	Dig ASIC	Program A	VSS
Red	115	SM 2	Dig Module	Program B	M4
Red	115	SM 3	Dig Module	Program C	GPP ITA
Yellow	115	SM 4	Dig Module	Program D	CEM1
Red	115	SM 5	Dig Module	Program E	RPM
Yellow	97	SM 6	FPGA	Program F	Test Port Interface FPGA
Green	77	SM 7	FPGA	Program G	RIF
Yellow	105	SM 8	FPGA	Program H	Anti Jam
Red	115	SM 9	FPGA	Program I	ACM
Red	115	SM 10	FPGA	Program J	DCM
Red	115	SM 11	FPGA	Program K	RPM
Red	115	SM 12	FPGA	Program L	AWG

These Section Managers are fictitious, but we have a table with the real ones!

These programs are fictitious, but we have a table with the real ones!

To get from **RED** to **YELLOW**: Fill in all of the following fields: SAP Contract #, Project Definition, NWA(s), Actual Start Date, Actual End Date, Actual Metric Value, Actual Labor Hours, Actual % Reuse

To get from **YELLOW** to **GREEN**: Finance must pull the cost data from BW. This Excel file will be sent to the owning SM, who must unmix and untangle the cost data according to the file process. If this file provides an auditable rationale then Finance will approve the product.

To get from **GREEN** to **BLUE**: Wanda Grant must verify that the product's data is either in SBT or marked as impound and David Bloom must verify that the product's data is in either the pending or current version of the Cost Model or marked as a no-go.

Date: February 2012 (January Data)

Analysis & Corrective Actions:

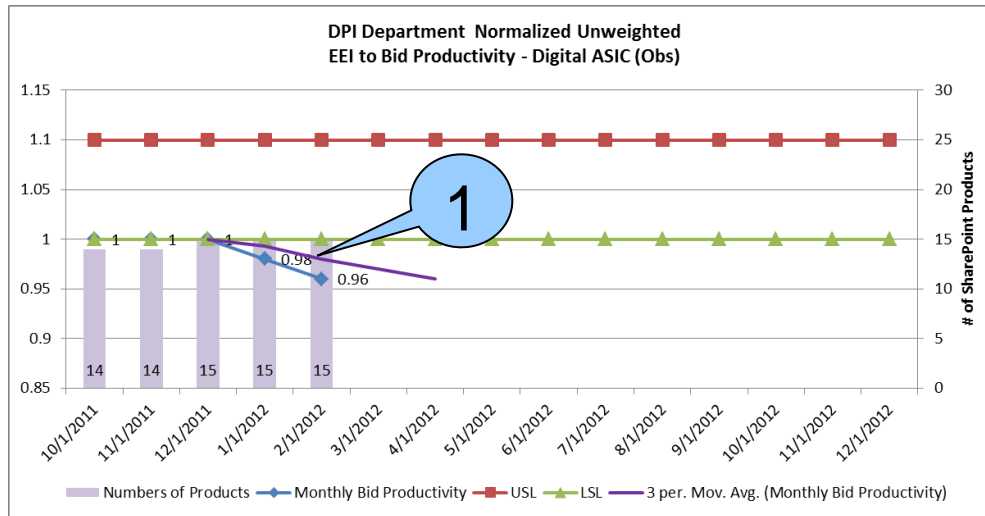
-

Execution:

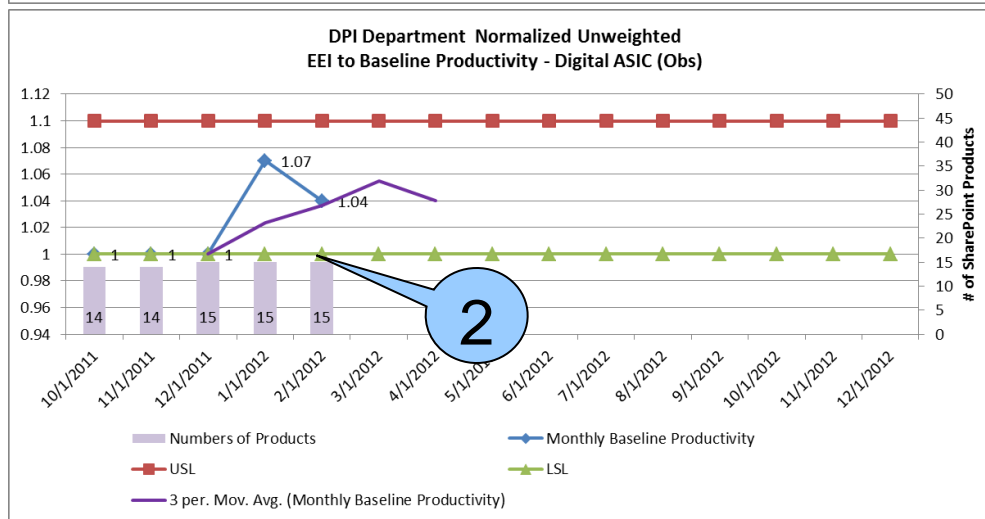
Digital Products I – Engineering Efficiency Index (to Bid/Baseline)



Current Month Status



Current Month Status



Data:
 EEC EEI on Active development programs
Source: EEC Productivity Database
Process Owner:
 Department Manager
Update Frequency: Monthly
Date: Mar 2012 (Feb data)

- Analysis & corrective actions:**
- Add RCCA, explain how you are going to meet your 10% goal
 - Add RCCA

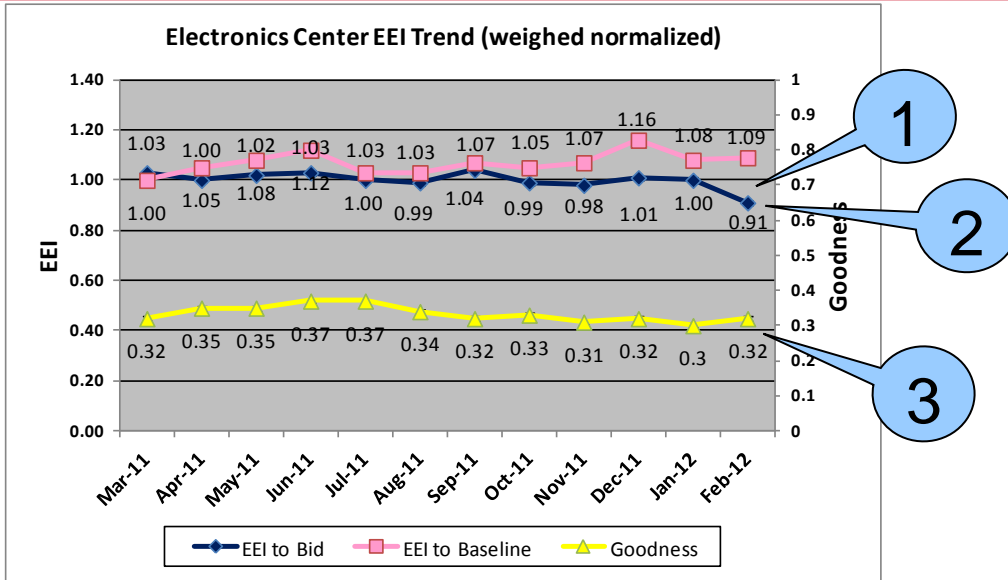
Actual data from SP,
 insert slide into FMR Package

RED <1.0	YELLOW ≥1.0 to <1.08	GREEN ≥1.08 to <1.14	BLUE >1.13
--------------------	--------------------------------	--------------------------------	----------------------

Notes: weighted takes in consideration people (FTEs);
 Baseline refers to current Product Productivity Dataset in Cost Model



Execution: Electronics Center – Engineering Efficiency Index (cont.)



Data:
 EEC EEI on Active development programs

Source: EEC Productivity Database

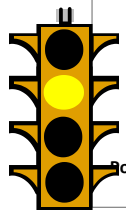
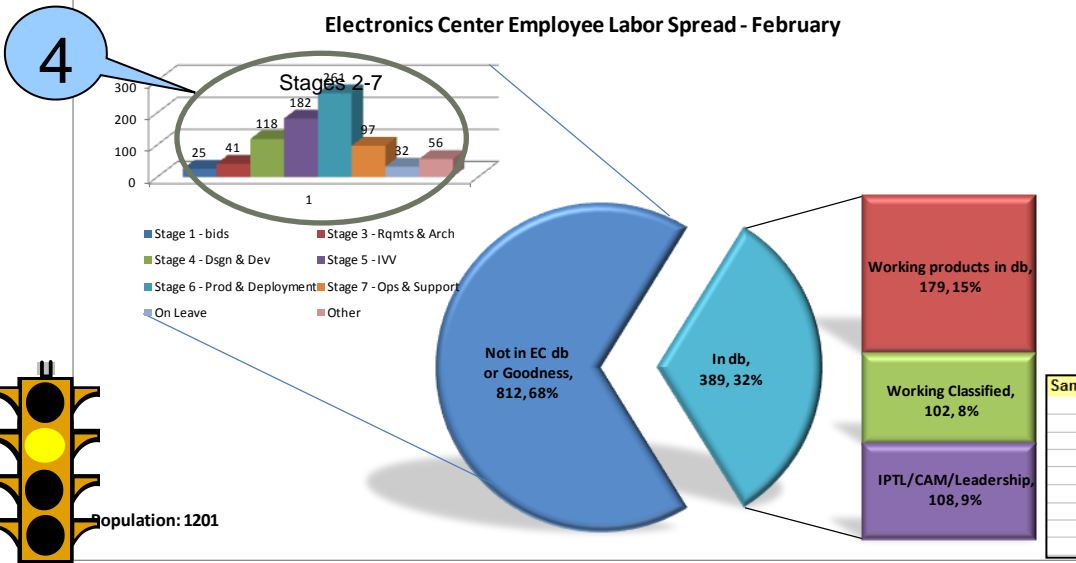
Process Owner:
 EEC Technical Lead

Update Frequency: Monthly

Date: Mar 2012 (Feb data)

Analysis & corrective actions:

- Weighted – normalized EEI to Bid: We normalized based December ending #, hence starting Jan reporting with 1.0. Slight decrease this month due to completing 6 products & adding 4
- Weighted – normalized EEI to Baseline: More involved, 3 things happened – 1) we made an adjustment to our product types productivity baseline #'s in our dataset based upon recent completed products . 2) we added and/or removed products & 3) a few product types KSM changed. This affected our Jan EEI to Baseline # starting Point from 1.00 to 1.08.
- Slight increase in Goodness due to addition of 4 products
- Most of our Employees not in db. are supporting stage 5 & 6 activities.



Current Month
 Status

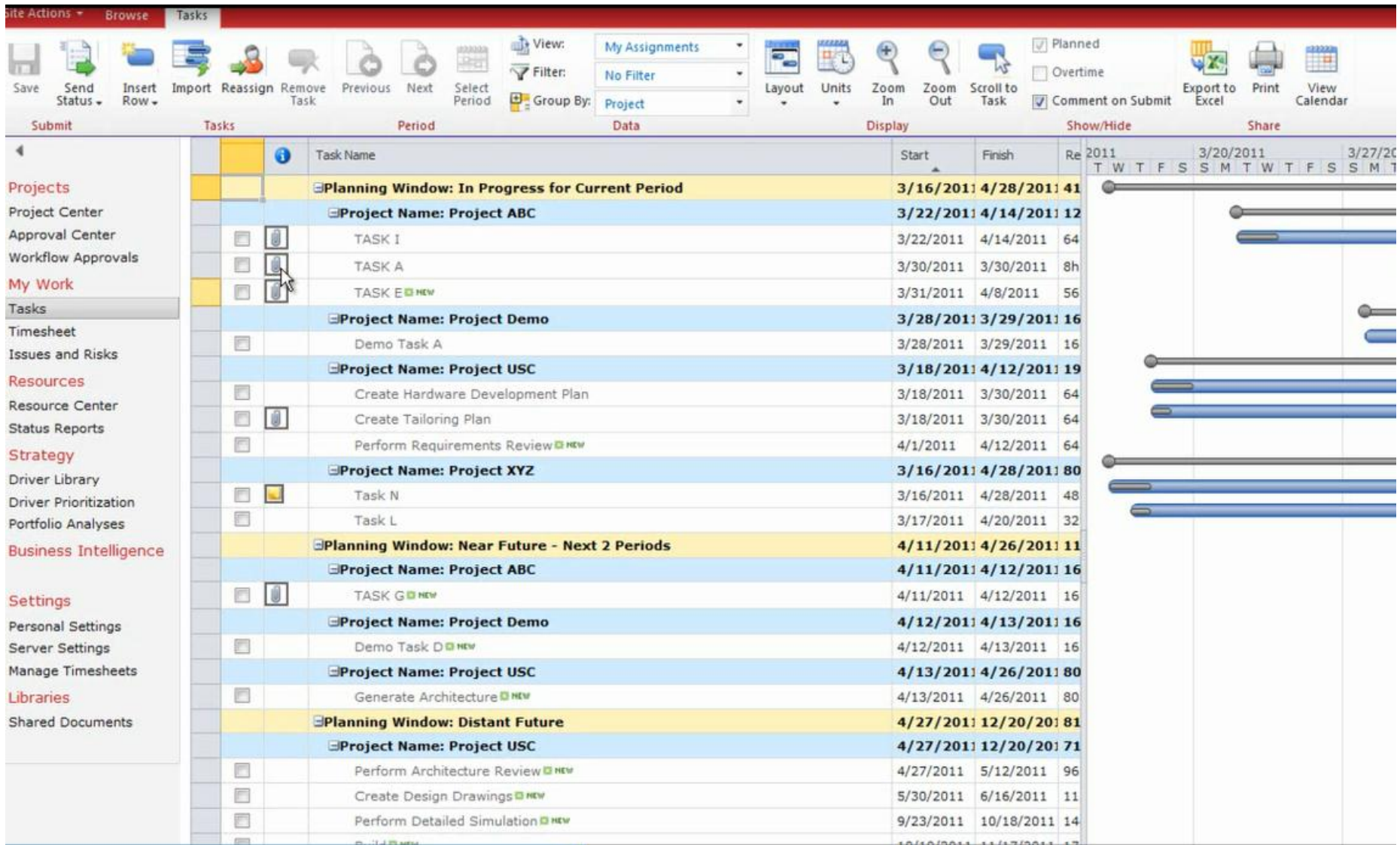
Sample % of Population	Error Bars
90%	~ +/-1%
70%	~ +/-2%
51%	~ +/-3%
37%	~ +/-4%
27%	~ +/-5%
21%	~ +/-6%
16%	~ +/-7%
10%	~ +/-9%
5%	~ +/-13%

Advanced Topics – Business, IP and Project Management

- Silverlight web parts
 - Run on the client (no corporate IT)
 - Compatible with SBT
- Lightswitch
 - Requires IIS server, which in our environment comes with the Sharepoint environment
 - Is mostly very low code solution space
 - Is designed for the knowledge worker, not IT
- Wiki integration
 - Confluence Wiki integration
- Microsoft Project 2010
 - Requires Sharepoint 2010
 - We have demonstrated integration that provided SM view of all member tasks

The screenshot shows a web-based configuration interface. On the left is a navigation pane with a 'Browse' tab and a list of site actions including 'Analog_Power_Unit_Record', 'Antenna_Record', 'Digital_FPGA_Record', 'Digital_Module_Record', 'Digital_Unit_Record', 'MMOD_RE_Record', 'Power_Module_Record', 'RF_Module_Record', 'RF_Unit_Record', 'Info', 'Coefficients', 'STE_Record', and 'Discussions'. Below this are 'Recycle Bin' and 'All Site Content' links. The main area is titled 'Page' and contains several form fields: 'Center' (dropdown: EEC), 'Product Type' (dropdown: TE: Test Engineering), 'RCCC' (text: DR), 'Program Name' (dropdown: Demo Program), 'Product Name' (text), 'Product Description' (text), 'Start Date' (3/17/2012), 'End Date' (3/17/2012), 'Duration' (0 Days), and 'Status' (Product Name and Description). Below these are tabs for 'Sizing Tool', 'Bidder's Tool', and 'Summary Sheet'. The 'Summary Sheet' tab is active, showing 'Design Characteristics' with fields for 'Number of Documents' (0), 'Reuse' (0-20%), '# of Bays' (0), 'Hardware Level' (HW Level 2), 'Percent Digital Design' (All Digital), and 'Build Types' (Internal Build). Each field has a 'Reasoning' button and a numerical value in a small box on the right.

Microsoft Project Server Requires Sharepoint



Enablers and Tracking of Each Task

Microsoft Project Web App

Site Actions ▾

Start: 3/18/2011

Finish: 3/30/2011

Remaining Work: 64h

Recent Task Changes
 View the history of task changes, updates, and approvals.

Update accepted: 3/18/2011 9:11 AM
 Details Actual Work On 3/18/2011 → 8h
Submitted: 3/18/2011 9:10 AM <CEDRIC R MACADANGDANG>
 Im almost done
Approved: 3/18/2011 9:11 AM <CEDRIC R MACADANGDANG>
 [US\1083934: 3/18/2011] good job

Update accepted: 3/24/2011 4:06 PM
 Details Finish : 3/22/2011 5:00 PM → 3/30/2011 5:00 PM
Submitted: 3/24/2011 4:06 PM <CEDRIC R MACADANGDANG>
 update
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 [US\1083934: 3/24/2011]

Attachments
 View, add or edit related information such as documents, issues, or risks.

Issues	
Title	Due Date

Risks	
Title	Due Date

Documents	
Title	File Name

Corp IT Plans (Communications Campaign, Integration plans)



Mission: provide a place to go to connect, collaborate, and innovate

Wrap-up

What Would the Requirements Look Like?

- Wouldn't it be amazing if we had a computing environment that is ...



- Web Based

- Standard permissions
- Open to everyone that needs it



- Extensible

- Collect cost data for any type of product
- Data visible to corporate applications
- 3rd Normal Form



- Collaborative

- 80 pairs of boots on the ground
- No lockouts like eRoom



- Self-Serve

- Minimum IT involvement
- Does not require full time administration



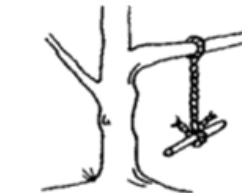
- Agile

- Data collection needs are always changing

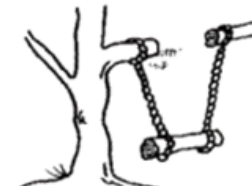


- Report productivity close to real time

- Tell a story with charts
- Tightly integrated with Microsoft Office



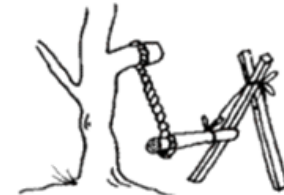
What the user asked for



How the analyst saw it



How the system was designed



As the programmer wrote it



What the user really wanted



How it actually works

Backup and alternative slides

David Bloom Bio

Biography:

After graduating from the University of California at Davis in 1983, Mr. Bloom has worked for the Naval Weapons Center, Lockheed Martin, Lawrence Livermore National Labs and since 2008, for Raytheon Space and Airborne Systems (SAS) where he is a Sr. Engineering Manager.

Mr. Bloom is currently the Cost Estimation Subject Matter Expert (SME) for the Electronics Center of SAS. He has developed parametric models for all Electronics Center products and helped transform the culture of the organization in the use of parametric bidding methodologies.

In addition to Mr. Bloom's focus for the Electronics Center in developing parametric cost models for the design and development cycle activity of electronics sub-products, he is also leading the effort to reduce the cost of FPGA and ASIC development by modernizing the Digital Verification methods and establishing reproducible re-use methods.

Mr. Bloom has patents and software copyrights along with a number of publications ranging from electromagnetic boundary value problems to cost estimation. In 2006, he won the International R&D 100 Award for innovating a cost effective Gigapixel Camera for persistent surveillance applications.

Wanda Grant Bio

Current Position: Electronics Center Chief Process Engineer.
Master in Electrical Engineering from LMU, concentration in
Computer Design
Worked for Hughes / Raytheon for 34 years in various roles
from test engineer, design engineer to systems engineer

Mason Wexler Bio

Mason Wexler has worked for Raytheon for over 23 years in the Information Technology and Engineering organizations and is currently a member of the SAS IT Information Security department. He started working with the IBM Company in 1979 as a numerical control programmer writing algorithms to control machines used to manufacture of printed circuit boards, and also worked as a member of the IBM DB2 database development team. He joined Hughes Aircraft Company in 1984 where he has performed systems administration, systems architecture, and programming assignments. Mason participated in the design and implementation of the Raytheon Active Directory and is currently the SAS Domain Administrator for the us.ray.com Windows Domain. Mason was the project manager for the SAS Server Virtualization project, and most recently was part of the design effort for the SAS Distributed System Architecture (DSA) which developed the design for the next generation SAS desktop environment. Mason graduated in 1979 from the State University of New York College at Potsdam with a major in Computer Science.

Mason Wexler, a Senior Principle Software Engineer, joined Raytheon 23 years ago. Mason was the SAS project manager for the Server Virtualization project, representing SAS IT Engineering Services Architecture and Alignment. He was part of SAS Distributed System Architecture (DSA) that designed the SAS desktop environment. Mason helped design and implement the Raytheon Active Directory and was a SAS Domain Administrator for the us.ray.com Windows Domain. Mason joined Hughes Aircraft Company in 1984 where he performed systems administration, systems architecture, and programming assignments. He started his career at the IBM Company in 1979 as a numerical control programmer and worked as a member of the IBM DB2 database development team. Mason graduated in 1979 from the State University of New York College at Potsdam with a major in Computer Science.