Using Customer Feedback to Focus Software Quality Improvements

Lisa Arnold, Operations Manager

Peter Schulz, Manager, Corporate Quality

Cisco Systems, Inc.

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We will show how we…

- Design actionable surveys for multiple audiences

- Present data that gets attention

- Translate feedback into improvement initiatives

- Deal with cynics and detractors

- Monitor progress and measure success

- Apply what we learned

History of Global Satisfaction Surveys at Cisco

- **Politics of Change**

- **Presenting the Results**

- **Establishing the Initiatives**

- **Measuring our Success**

- **Lessons Learned**

Cisco Public

Glossary

- Client

    Internal Cisco organizations

- Customer

    Survey respondent, i.e. Cisco product end-user

Cisco Systems, Inc. Overview

- $4 billion R&D investment, annually

- Over 16,000 engineers working in more than 1110 labs worldwide

- Worldwide leader in networking for the Internet.

- Industry-leading routing and switching products

- 110+ acquisitions to quickly enter new markets and add talent

  IP Communications

  Network Security

  Wireless LAN

  Storage Area Networking

  Home Networking

  Video Systems

  Application Networking Services

- 10+ years of history formally tracking customer satisfaction

- Central part of Cisco's culture

- Customer satisfaction tied to the bonus plan – for **everyone**

- Organizational ownership

3.58 3.96 3.98 4.01 4.06 4.12 4.22 4.33 4.49 4.63 4.73 4.37 4.42 4.36

5.0

4.5

4.0

3.5

3.0

1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006

Direct

Indirect

Source: Independent research study; measured on a scale of 0 to 5
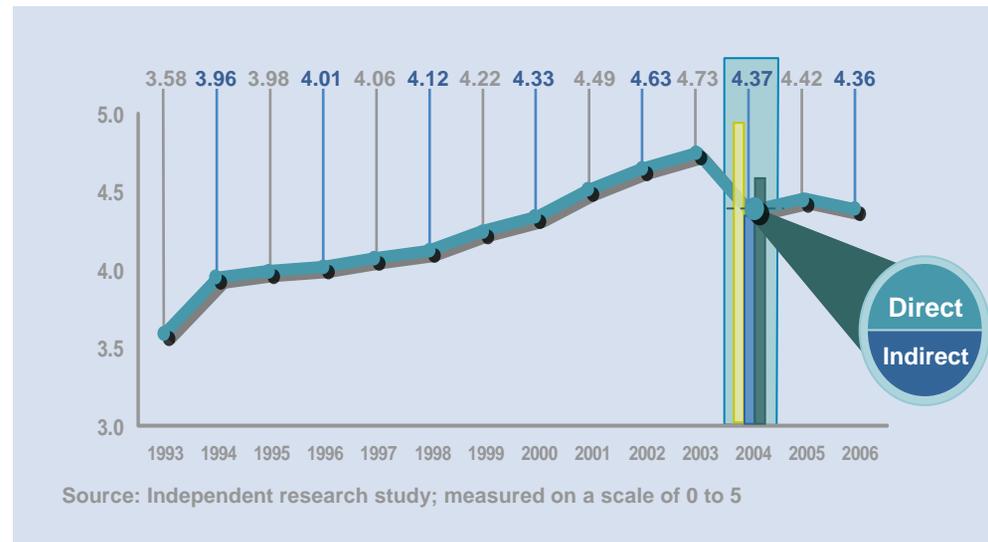
Global Customer Satisfaction Survey
General Flow: Sections by Actionable Area

Identify respondent's role

- Executive
- Staff

Overall Measures of Quality, Loyalty, etc.

Supplier Benchmark Evaluation

Satisfaction with Account Team

Satisfaction with Post-Sales Tech Support

Satisfaction with Pre-Sales Channel Partner

Satisfaction with Post-Sales Channel Partner

General Business Evaluation

Satisfaction with Products **A**

Conclusion
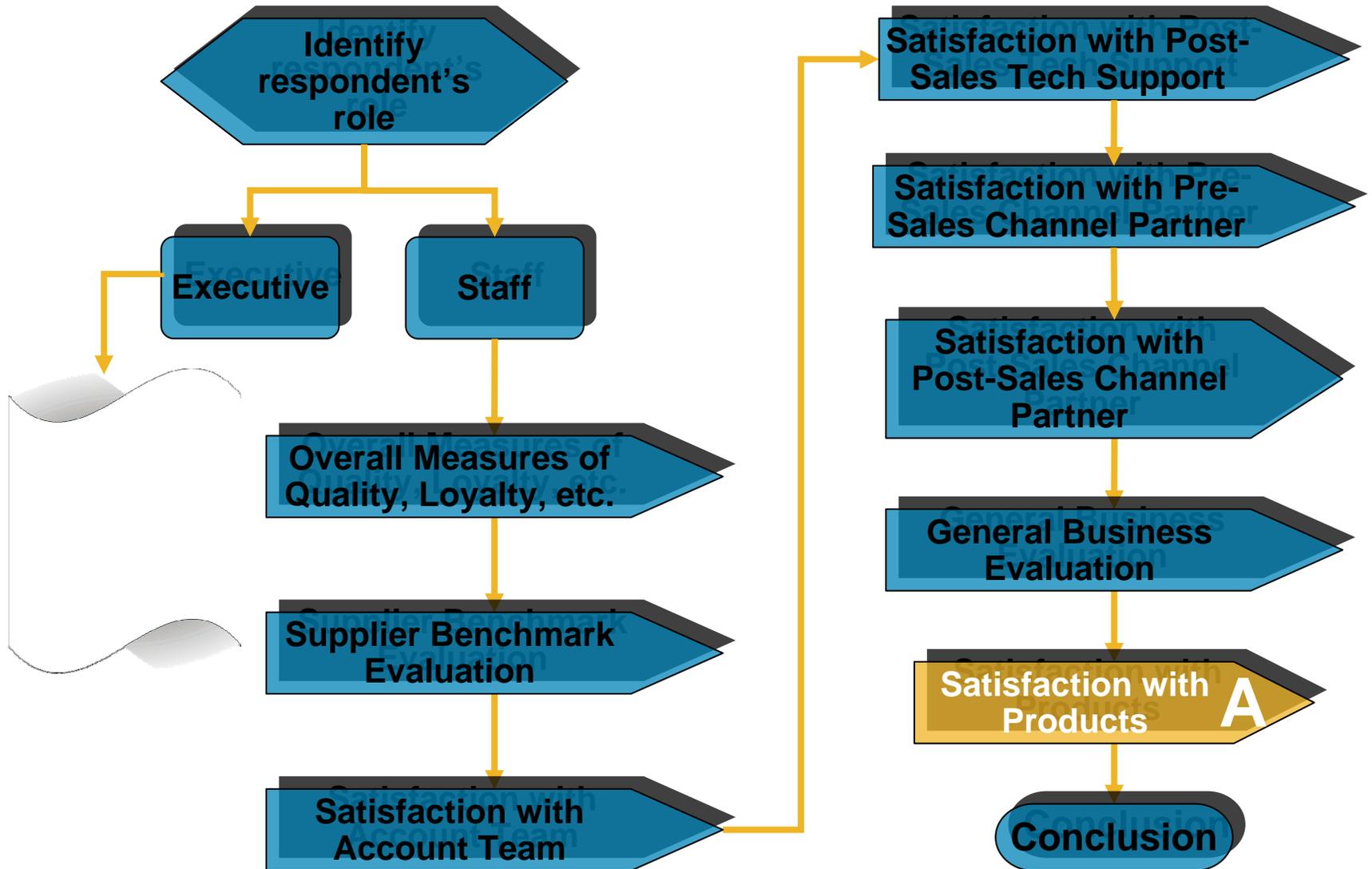
Product Evaluation Flow
First Year

A → Product census

Present random product

Satisfaction with Hardware

HW Satisfaction Attributes:
Reliability
Interoperability
Security
Availability
Documentation

Satisfaction with Software

SW Satisfaction Attributes:
Stability
Configuration
Maintenance
Time to get bug fixes
Time to get new features
Serviceability
Compatibility w/HW
Ease of Selecting release
Documentation

Present all products selected in census

Least/Most Successful Products

Survey conclusion

Maps to Defect categories

Automated action

Multiple responses

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Politics of Change
Fighting "The Data is Wrong"

- ## Make the Data Real

  "Your data isn't right"

  "Your data doesn't match our data"

- ## Make the Data Believable

  "What does that really mean?"

  "You didn't ask the right question"

  "This data isn't actionable"

Politics of Change
Providing the Data That is Right

- Data Must Be

  Compelling

  Backed up by "trusted" data

- Making a logical connection between customer data and operational reality

  Slice the data a variety of ways to get buy in

  No matter how you slice it – the direction is clear

- Dispelling the belief that "it's not our fault"

- Trusted insider to back up the data and message

Making Adjustments
Getting ahead of the critics

A → Product census → Present random product → Satisfaction with Hardware → Satisfaction with Software

Satisfaction with Product Attributes:

- Reliability
- Ease of Use & Accessibility
- Serviceability
- Documentation
- Security
- Interoperability
- Performance
- Feature/Function
- Install/Upgrade

NEW!

Dissatisfied with any product attribute?

No → Survey conclusion

Yes → Why Dissatisfied: for each attribute that = less than Satisfied **NEW!** → Survey conclusion

Provides more information re: "What did they mean by that?"

Legend:
- Maps to Defect categories
- Automated action
- Multiple responses

Lesson Learned
Clear link: Survey language parallels engineering

Satisfaction with Attributes:

- Reliability
- Feature/Function
- Install/Upgrade
- Ease of Use & Accessibility
- Serviceability
- Performance
- Interoperability
- Security
- Documentation

Defect impact mapped to survey attributes

Reliability
Capability
Maintain
Install
Usability
Serviceability
Performance
Interoperability
Migration
Scalability
Security

Yr1
Yr2
Yr3

Year-over-year Reduction in Critical Customer Impact Areas

Lesson Learned
Provide more detail upfront

Satisfaction with Attributes:

- Reliability
- Feature/Function
- Install/Upgrade
- Ease of Use & Accessibility
- Serviceability
- Performance
- Interoperability
- Security
- Documentation

Reasons for Dissatisfaction with: Reliability
For Product: X
(32 respondents)

Reason	Percentage
Unacceptable number of software defects (bugs)	100%
Software crashes	75%
Lack of High Availability, Fault Tolerant, or Redundancy features	62.5%
Hardware crashes	50%
Data/Traffic is corrupted or dropped	37.5%
Failure recovery takes too long	25%
Manual intervention is required to recover	25%
Too many hardware failures	25%

Since respondents are able to select more than one response, the total may be greater than 100%

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Problem: Product X Trails Other Cisco Products In Satisfaction with Quality of Software

Year 1 Global Satisfaction Survey Results
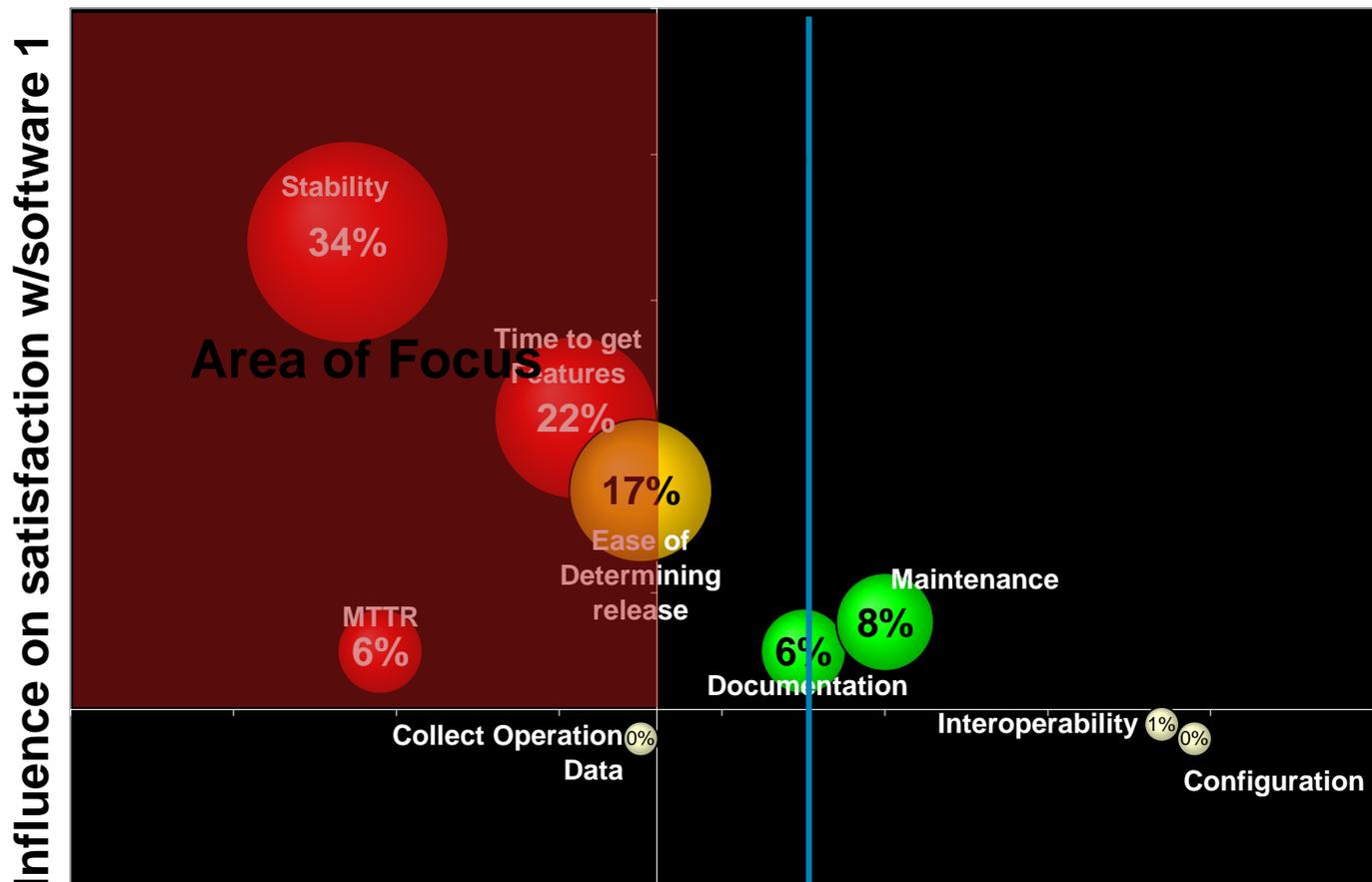
Influence on satisfaction w/software 1

Stability
34%

Area of Focus

Time to get features
22%

17%

Ease of Determining release

Maintenance
8%

MTTR
6%

6%

Documentation

Collect Operation Data 0%

Interoperability 1% 0%

Configuration

Increasing Satisfaction with Attribute 1

NOTE: All data has been modified for illustration purposes

A Second Look
Using the Engineers' own data

Categorized Defect Data: What is the impact of defects on customers' systems?

Maps to a customer satisfaction priority in Year 1 survey

Y-axis: **# of defects**

X-axis categories: Reliability, Capability, Maintain, Install, Usability, Serviceability, Performance, Interop, Migration, Scalability, Security
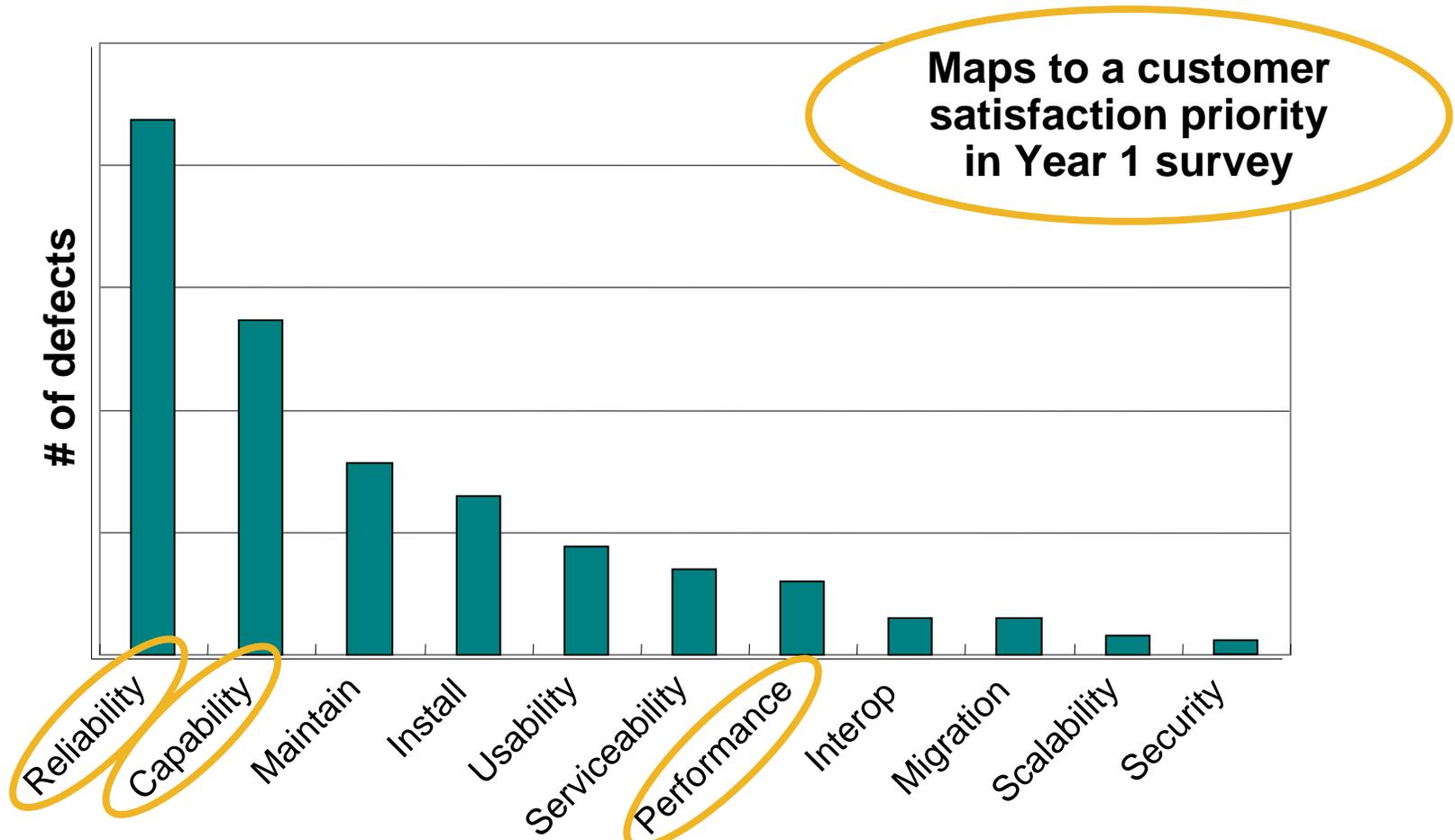
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Choosing the Right Focus

C-Sat → **Initiatives**

Product Supportability Engineering

PSE

Defect Database

WNBU Customer Satisfaction Improvement Plan

Objective	State	Owner	Target Completion	Success / Next Steps
Reduce Doc Improvement Plan Backlog by 25%	🟡	Miller / Files	July 2007	Backlog Reduced by 20% In Past Several Weeks
Deliver TAC Training on Advanced Debugging Techniques	🟢	Chebrolu	December 2006	Identified top 3 topics : 1. Mesh AP's 2. WCS and 3. Location Server plus BE-MR2 and 2106. Training occurred the week of January 22nd. Plan to poll TAC on a monthly basis to determine next steps.
Market RF Leadership, Deliver MIMO, Cognio (FY08)	🟢	Sloan / Pelham	On-Going	D3 EC Complete - Included Basic Cognio Integration Tesla Project EC Planned for February
Improve out of the box usability of WNBU products (focus groups, roadmap)	🟢	Badjate	April 2007 (Phase 1)	Concannon: Added ACL Improvements, misc WCS UI improvements D3 EC: WCS Usability features included Worked with TAC to EC a project to data mine WCS support cases Review data from TAC on WCS support cases
Deliver Phase 1 of Serviceability Enhancements in Concannon	🟢	Malpani	April 2007 (Phase 1)	Phase 1 Concannon (Show Proc CPU, Proc Memory, Buffer, Memory, Running-Config, Tech Support Commands; Syslog Improvements Phase 1) Phase 2 D3 (XML Based Text Config, AP Join Process Messages, Syslog Messages Phase 2s); TAC Presentations at Monthly R&D Review
Forecast Accuracy of +/-3% Overall with +/-7% by Product OTS goal is 97%, and our shipped LT goal is 90% of ship sets at or below LT target	🟢	Kranz / Jacobson	On-Going	Lead times and OTS on track. FY2Q07 forecast linearity: - AP = 98% dollars and 103% for units - Controller = 99% for both units and dollars

Validating the Initiatives
Improvement Plan Maps to Customer Satisfaction

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Software Priorities

25%

25%
Install

Innovation

15%
Usability

Reliability

Features

Documentation

Serviceability

5%

4.05   4.15   4.25   4.35

Support

Security

Interoperability   Acct. Team

Performance

-5%
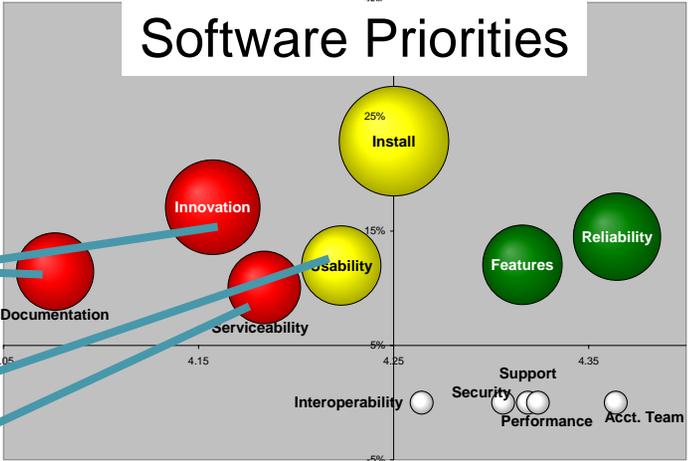
PSE: Top 2 Serviceability Usability

>> PSI Investigation Process

Stage 1: Identify Focus Area

Stage 2: Identify Improvement Opportunity

Stage 3: Root Cause

Stage 4: Solution Identification

Stage 5: Solution Implementation

Stage 6: Evaluate Results

Requirement Rule Sub-Process

Communications Sub-Process

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Weekly Review of Operational Data
Quality Dashboard

WNBU Customer Satisfaction Improvement Plan

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Executive Summary for WNBU

Metric / Business Unit	Customer Experience			Customer Intimacy	Supplemental Metrics							
	Responsible Manager	CFD MTTR	Doc. Backlog	CI Plan	Defect Density	Rel CFD	Automation Test Coverage	Ease Of Use	Serviceability	TAC Training	CSAT SW	CSAT HW
WNBU	Galloway, Brett	41	72.6	80	N/A	31	87	74	N/A	2	4.4	4.4

our shipped LT goal is 90% of ship sets at or below LT target

Cisco Product X Year 2 Customer Sat Data Goal Set

Year1 **Year2**

Goal

Goal met

Influence on satisfaction w/software 1

Stability

eatures

MTTR

Ma

Increasing Satisfaction with Attribute 1
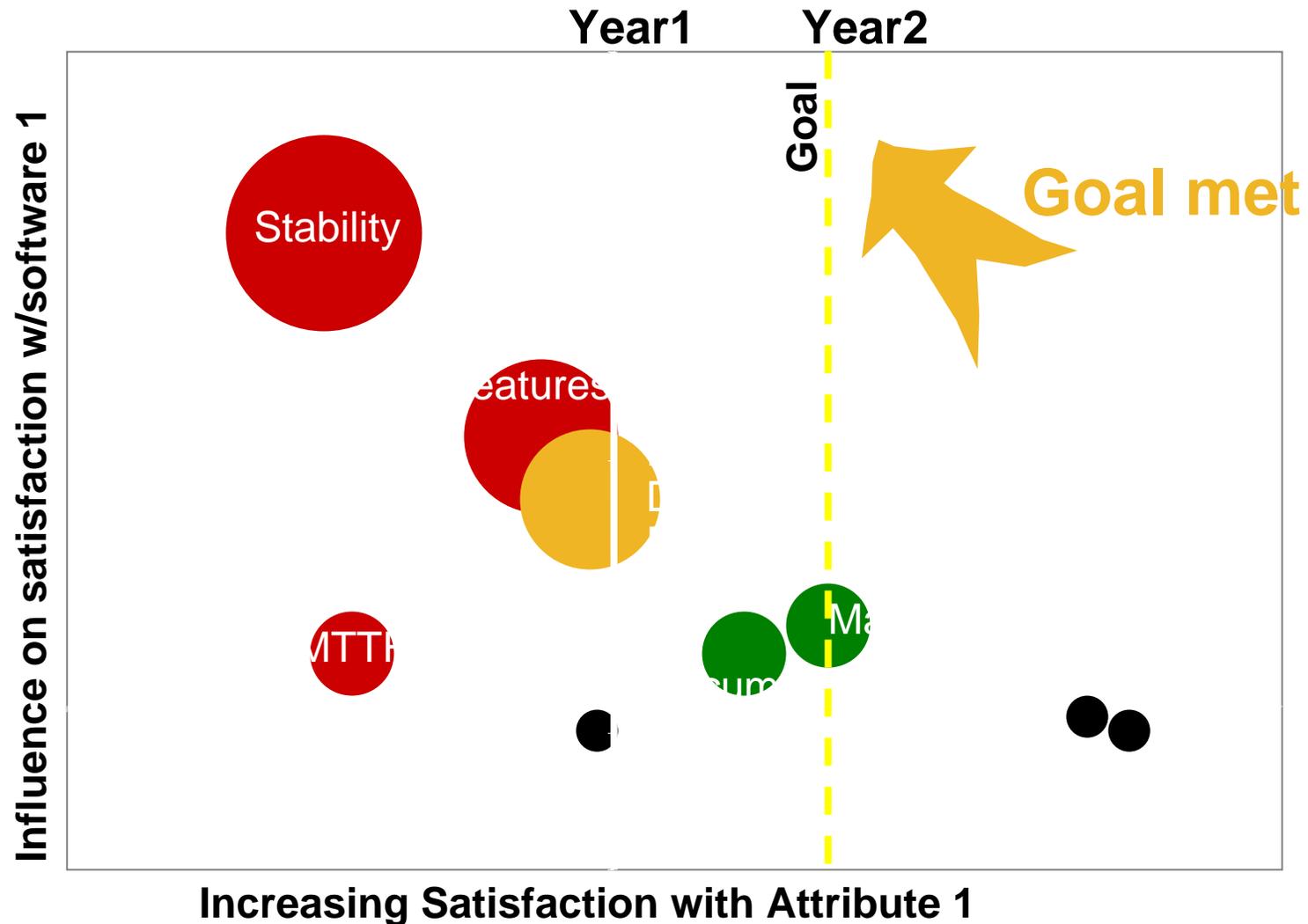
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Goal: Reduce Customer Found Defects
Success Requires Continual Focus
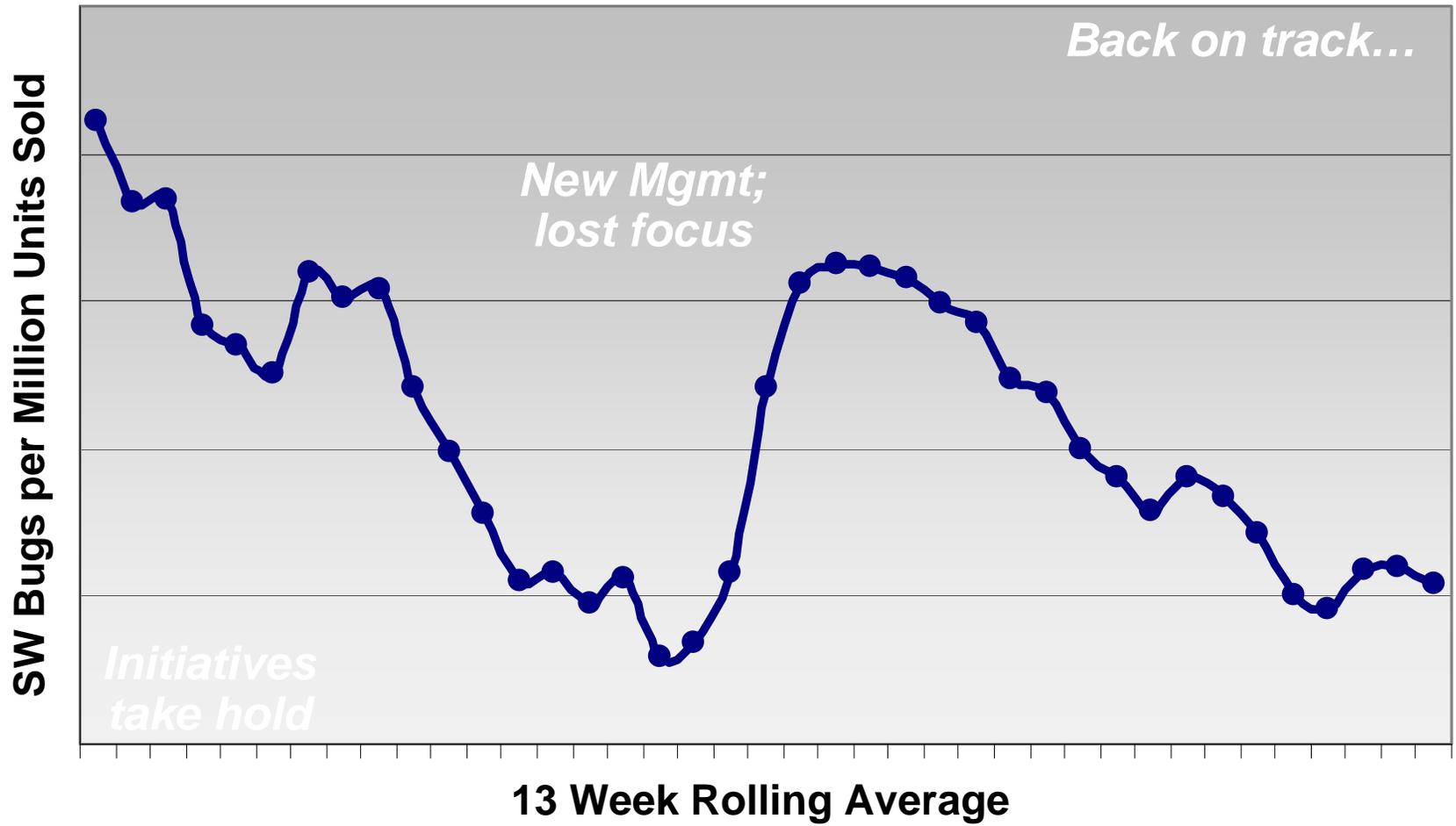
Back on track…

*New Mgmt;
lost focus*

*Initiatives
take hold*

SW Bugs per Million Units Sold

13 Week Rolling Average

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Lessons Learned

 Cisco Public

Lesson Learned about Data Access
Easy Access to Customer Feedback

NEW!

Product Satisfaction Analyzer   Return to Overview

TG, BU and Overall scores reflect weighted averages determined by product census.

Group:	Select a Technology Group to View ▾		view trend, goal & actual ▶
...ss Unit:	WNBU ▾		view by customer role ▷
Product Family:	Select a Product Family to View ▾		view by market segment ▷
Version/Series:	Select an Individual Product or Release to view ▾		

Bu Spotlight WNBU
The Cached Report below was generated: 02/26/2008 05:52 AM

	WNBU Totals	**FY05**	**FY06**	**FY07**	**FY08 Goal**	**FY08 Actual**	
	NOTE: Responses from those with 6 or more months of hands-on experience are shown below:						
	# of Responses	2864	3132	3876	--	2729	
Why Dissatisfied?	Quality of Hardware	4.35	4.33	4.38	4.39	4.43	↑
NA	Quality of Software	4.10	4.12	4.23	4.26	4.27	↑
Why Dissatisfied?	Reliability	4.32	4.36	4.35	4.38	4.38	↑
Why Dissatisfied?	Usability	4.16	4.22	4.25	4.27	4.32	↑
Why Dissatisfied?	Serviceability & Maintenance	4.09	4.19	4.19	4.22	4.24	↑
Why Dissatisfied?	Documentation	4.01	4.09	4.10	4.14	4.12	
Why Dissatisfied?	Security	4.17	4.31	4.32	4.34	4.33	
Why Dissatisfied?	Interoperability	4.15	4.27	4.27	4.30	4.29	
Why Dissatisfied?	Performance & Scalability	4.25	4.32	4.31	4.34	4.34	↑
Why Dissatisfied?	Features & Capability	4.19	4.32	4.29	4.33	4.33	↑
Why Dissatisfied?	Installation/Upgrade/Migration	4.31	4.25	4.22	4.27	4.25	
Why Dissatisfied?	Time to Adoption	4.11	--	4.21	4.24	4.27	↑
Distribution	Likely to Recommend	--	4.01	4.08	4.12	4.17	↑
Distribution	Degree of Technical Innovation	4.11	4.14	4.10	4.18	4.26	↑
Comments	Meets Carrier-Class Requirements (SP-Only)	--	--	3.92	3.98	3.96	
Comments	Account Team - Specific to Product	--	4.31	4.33	4.34	4.39	↑
Why Dissatisfied?	Technical Support - Specific to Product	--	4.24	4.25	4.27	4.29	↑
Why Dissatisfied?	Lead Time	--	4.11	4.13	4.17	4.23	↑

Hardware Priorities	Software Priorities	Likely to Recommend

↑ = At or Above Goal
↓ = 0.03 Points OR LESS Below FY07
↓ = MORE Than 0.03 Points Below FY07

Summary
Lessons Learned

- Keys to success

  Meaningful metrics

  High-level sponsorship

  Local leadership

- Communicate consistently and often

- Clear link:

  Survey parallels engineering language

- Easy access to customer feedback

     Cisco Public

Contacts

- Lisa Arnold

    Cisco Systems, Inc.

    lisad@cisco.com

    408-525-6148

- Peter Schulz

    Cisco Systems, Inc.

    peschulz@cisco.com

    978-936-1855

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