e**X**treme
Process
Improvement

Seven Success Factors for CMMI based Process Improvement

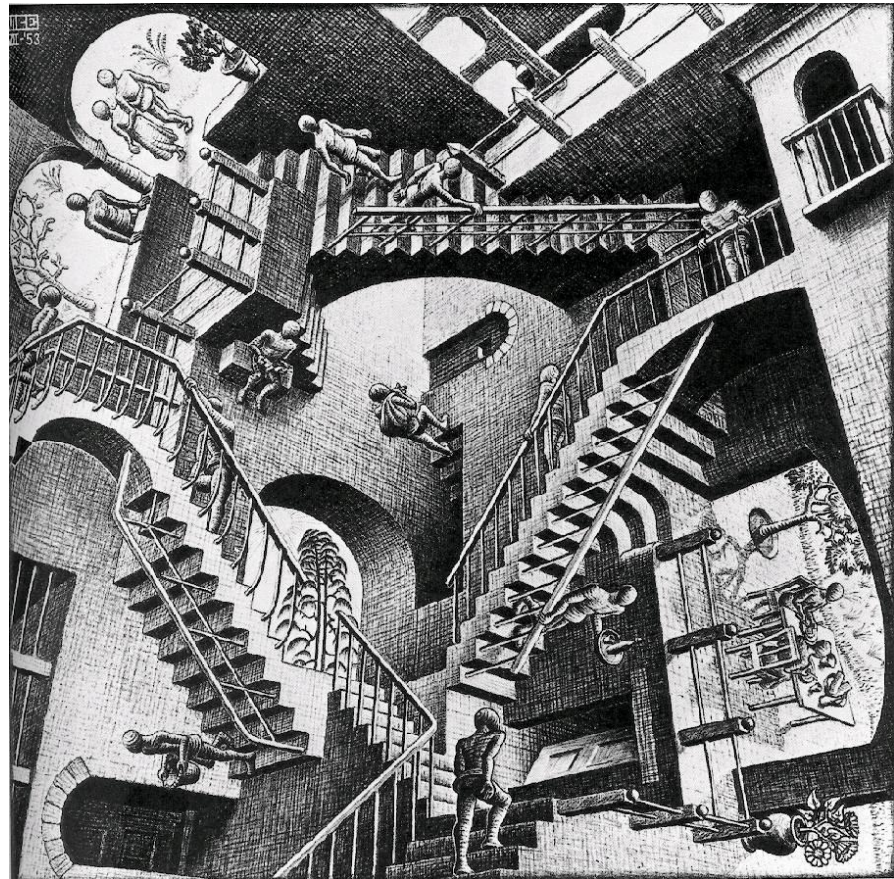Orhan KALAYCI
orhan.kalayci@xpi.ca
November 2007

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Risk of Failure

STRATEGIC PLANNING ASSUMPTION(S)
Two-thirds of process improvement initiatives within
application development organizations will
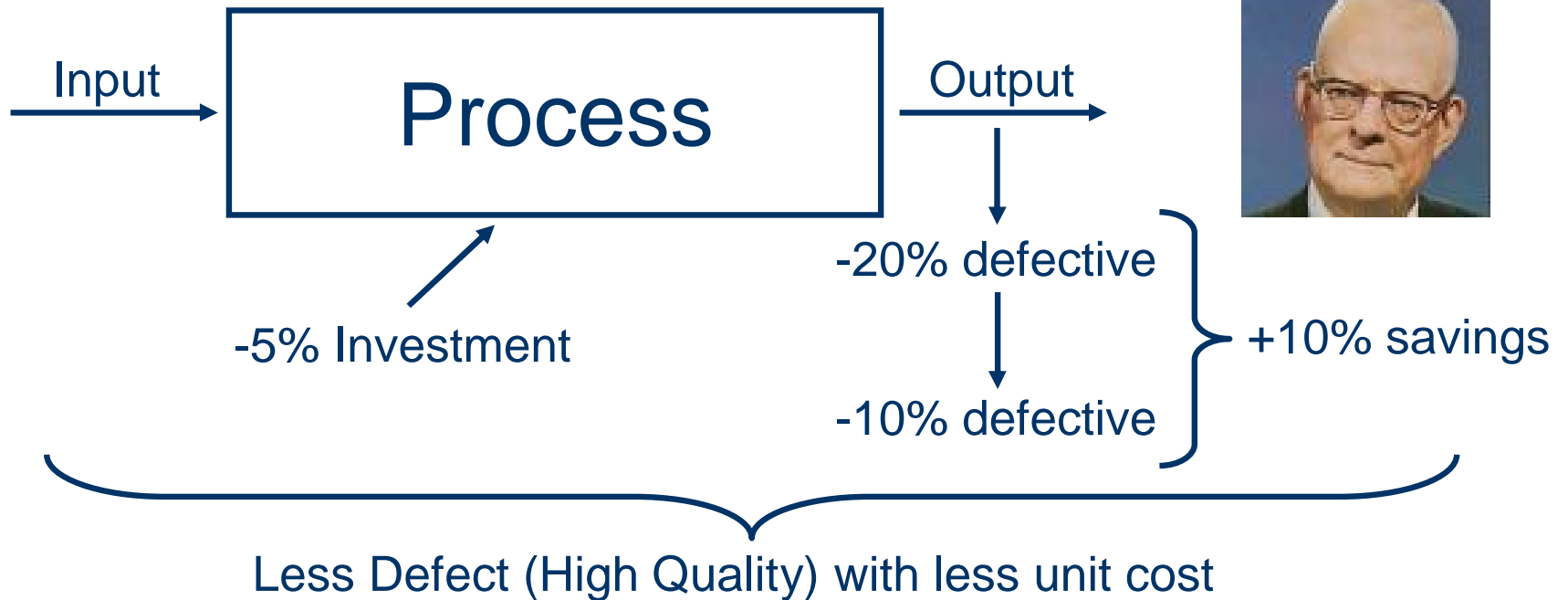fail within three years of initiation (0.7 probability).

Matthew Hotle, *Why Process Improvement Efforts Fail*,
Gartner, Publication Date: 9 April 2002, ID Number: TG-15-4929

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|I mprovement

Definition of Success

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Process
Improvement

Definition of Success

1950 - Deming

W. EDWARDS DEMING
Out of the Crisis

Input → **Process** → Output

-5% Investment

-20% defective

-10% defective

+10% savings

Less Defect (High Quality) with less unit cost

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|I mprovement

Definition of Success

Carnegie Mellon University
Software Engineering Institute

Impact of Software Process Improvement: Boeing Data

Software Estimates
(Efforts = Labor Hours)

Productivity

Post Release Defects

Cycle time

John Vu, Boeing, keynote talk at SEPG '97, "Software Process Improvement Journey (From Level 1 to Level 5)"

Sept 2001   10   History of CMM

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Process
improvement

Risk of Failure

STRATEGIC PLANNING ASSUMPTION(S)
Two-thirds of process improvement initiatives within
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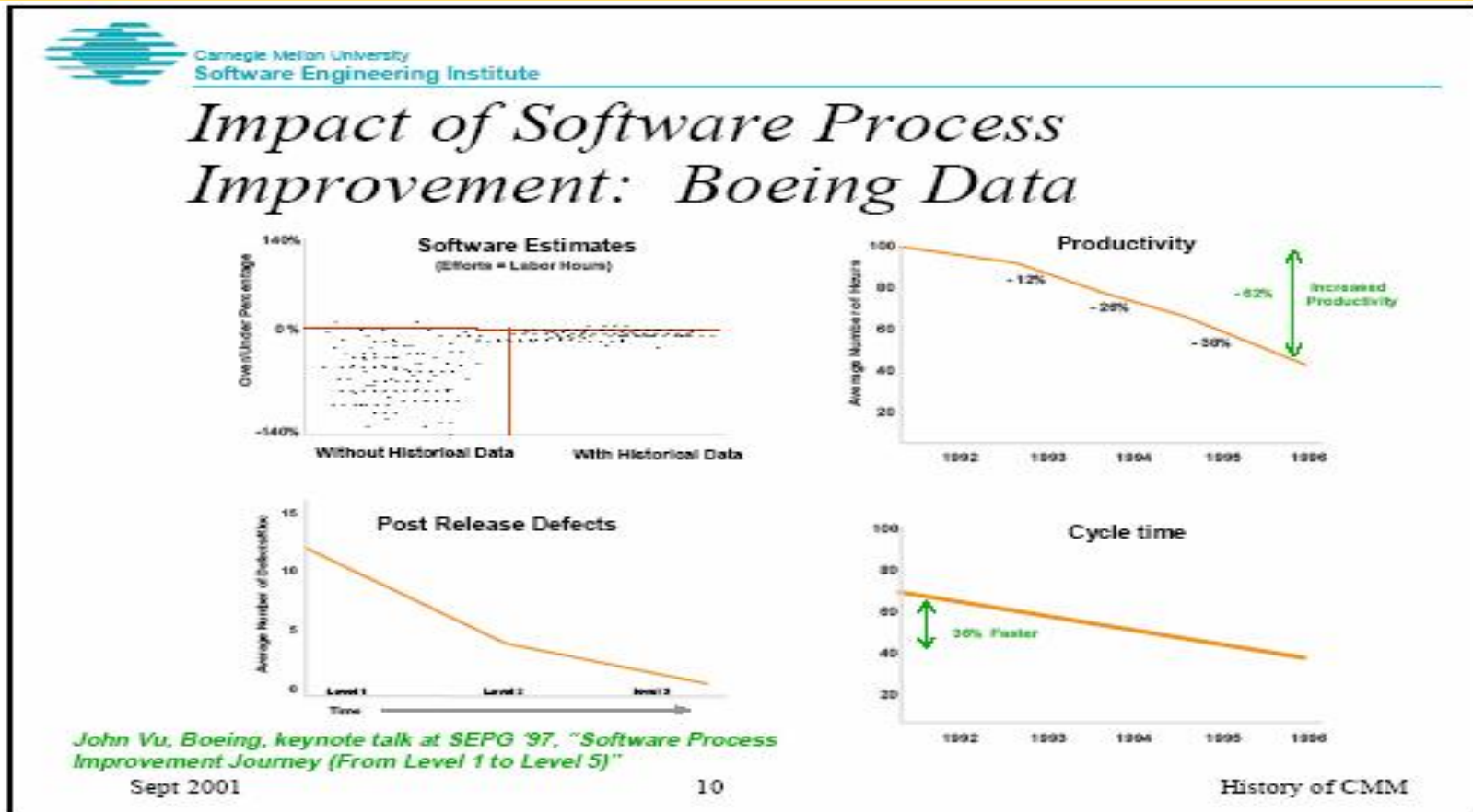Gartner, Publication Date: 9 April 2002, ID Number: TG-15-4929

6

eXtreme
Process
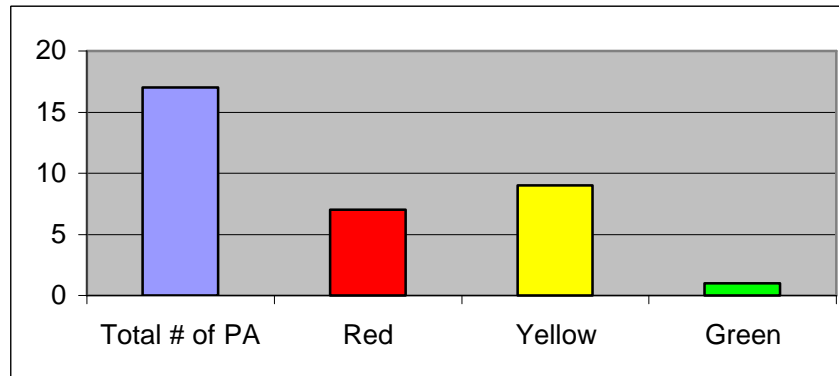Improvement

Seven Success Factors

- Business Objectives & Leadership
- Separation of Powers & Ceasing Over-Commitment
- Result-Oriented Processes
- Wide Spread Involvement & Awarding System
- Correct Planning for Transformation
- Tools are Just Tools!
- Sustainable Transformation

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eXtreme Process Improvement

Meteksan - April 2006

#	PA	Status	# of weaknesses	EUAS	ABYS	CSGB	ARIP	Green	Yellow	Red
1	REQM	Y	2					0	1	0
2	PP	Y	5					0	1	0
3	PMC	R	10					0	0	1
4	MA	R	4					0	0	1
5	CM	Y	2					0	1	0
6	PPQA	Y	1					0	1	0
7	RD	Y	2					0	1	0
8	TS	R	No Obs					0	0	1
9	VER	Y	No Obs					0	1	0
10	VAL	R	No Obs					0	0	1
11	PI	R	No Obs					0	0	1
12	RSKM	Y	4					0	1	0
13	IPM	R	6					0	0	1
14	OPF	Y	1					0	1	0
15	OPD	Y	2					0	1	0
16	DAR	R	No Obs					0	0	1
17	OT	G	0					1	0	0
								1	9	7

Summary	
Total # of PA	17
Red	7
Yellow	9
Green	1

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eXtreme Process Improvement

Meteksan - July 2006

Typical Issues in CMMI Implementations	Status	Çözüm Onerileri
1 Business Objectives linked to CMMI		
2 Tools (too much expactions from tools)		
3 Plan (long term short term balance)		Ayl²k Gözden Geçirme Toplant²lar
4 Seperations of Powers (Implementation, Consulting, Appriasal)		Süreç Sorumluluklar²n²n Prj ve Grup Yöneticilerine da ²t²lmas²
5 Organization (no democracy during war) / Overcommitment		- %20 fazla kestirimler - Geçikmelere sempatik yakla ²yoruz - CMMI Fazla zaman al²yor demek yanl² (ba ka bir ifade bulmak) - Proje Ynt. yükü
6 Human Factor (no slaves but believers)		- "Amacı ve faydası" anlamadığınız herşeyi lütfen sorun - A4 Süreçler - Süreç Haritas² Posteri - CEP CMMI - CMMI Süreç Alanlar²n²n üzerinden geçmek
7 Leadership (from top to down) -- Group Mng, Prj Mng.		Ayda 2 kere toplant² - Grup Ynt, Prj Ynt, Süreç Sahipleri, Bireyler

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Meteksan - December 2006
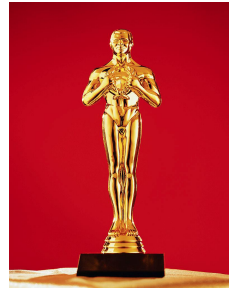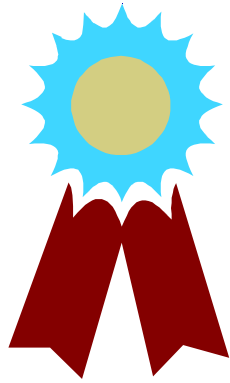
**Meteksan Sistem
Kurumsal Uygulamalar ve
Yazılım Geliştirme Direktörlüğü**

CMMI ML3

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eXtreme Process Improvement

Business Objectives & Leadership

Typical Business Objectives:

1. Increase Scope
2. Decrease Cost
3. Decrease Duration
4. Decrease Defects

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Business Objectives & Leadership

How many leaders?
Who is leader?

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Business Objectives & Leadership

The Broken Windows Theory

˝Identify the broken windows
˝Fix them
˝Warn the one who broke it, punish if necessary

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Business Objectives & Leadership

Three Secrets of Japan Emperor

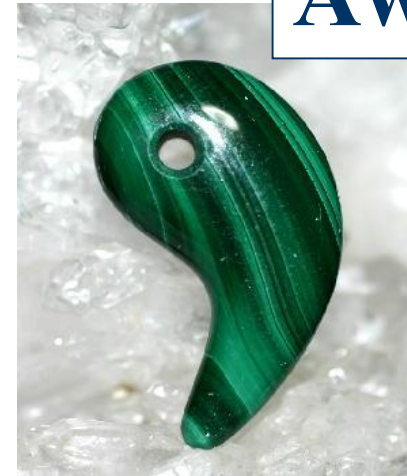# Business Objectives & Leadership

Three Secrets of Japan Emperor

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Business Objectives & Leadership

Three Secrets of Japan Emperor

Objective Info
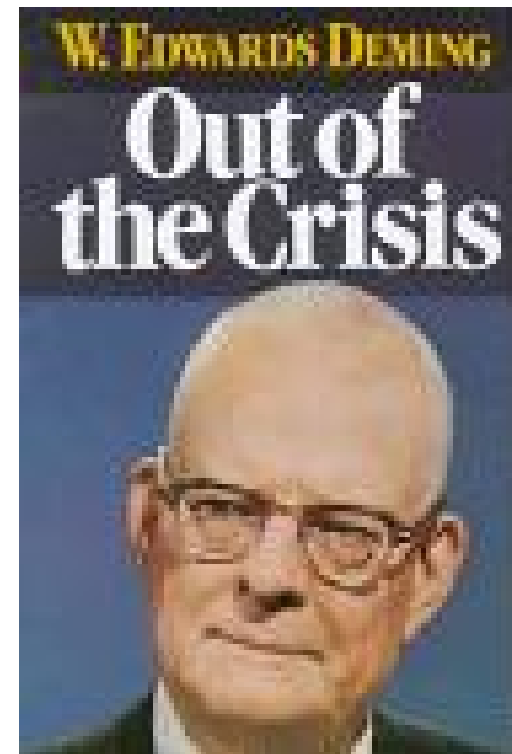
Award

Penalty

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Business Objectives & Leadership

Deming's 14 points

1. "Create constancy of purpose towards improvement".
2. "Adopt the new philosophy".
3. "Cease dependence on inspection".
4. "Move towards a single supplier for any one item."
5. "Improve constantly and forever".
6. "Institute training on the job".
7. "Institute leadership".
8. "Drive out fear".
9. "Break down barriers between departments"
10. "Eliminate slogans"
11. "Eliminate management by objectives".
12. "Remove barriers to pride of workmanship".
13. "Institute education and self-improvement".
14. "The transformation is everyone's job".

W. EDWARDS DEMING
Out of the Crisis

eXtreme Process improvement

Business Objectives & Leadership

WHY?

19

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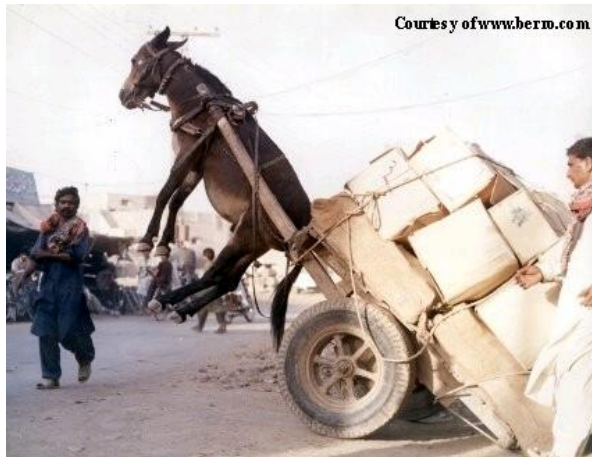**P** rocess
I mprovement

Seven Success Factors

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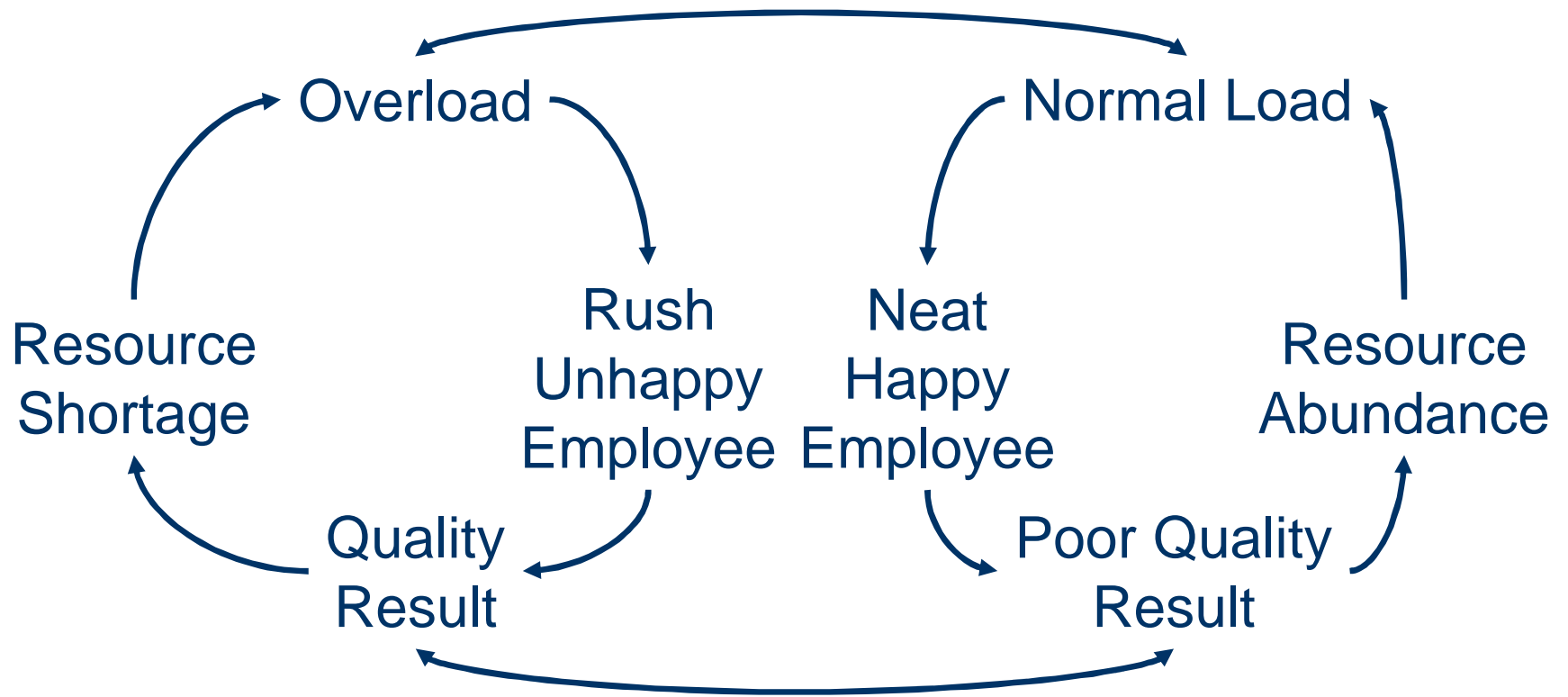- Tools are Just Tools!
- Sustainable Transformation

20

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Separation of Powers & Ceasing Over-Commitment

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Separation of Powers & Ceasing Over-Commitment

Courtesy of www.berm.com

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Separation of Powers & Ceasing Over-Commitment

Overload   Normal Load

Resource Shortage

Rush Unhappy Employee

Neat Happy Employee

Resource Abundance

Quality Result

Poor Quality Result

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Separation of Powers & Ceasing Over-Commitment

Congress approves presidential nominations and controls the budget. It can pass laws over the president's veto and can impeach the president and remove him or her from office.

The president can veto congressional legislation.

LEGISLATIVE BRANCH
The Congress
House of Representatives; Senate.
House and Senate can veto each other's bills.

EXECUTIVE BRANCH
The President
Executive office of the president; executive and cabinet departments; independent government agencies.

The Senate confirms the president's nominations. Congress can impeach judges and remove them from office.

The Court can declare laws unconstitutional.

The president nominates judges.

The Court can declare presidential acts unconstitutional.

JUDICIAL BRANCH
The Courts
Supreme Court; Courts of Appeal; District courts.

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Separation of Powers & Ceasing Over-Commitment

Policy   **Senior Management**   Strategy

Procedure   **Middle Management**   Tactics

Execution   **Line Management**   Operations

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e **X** treme
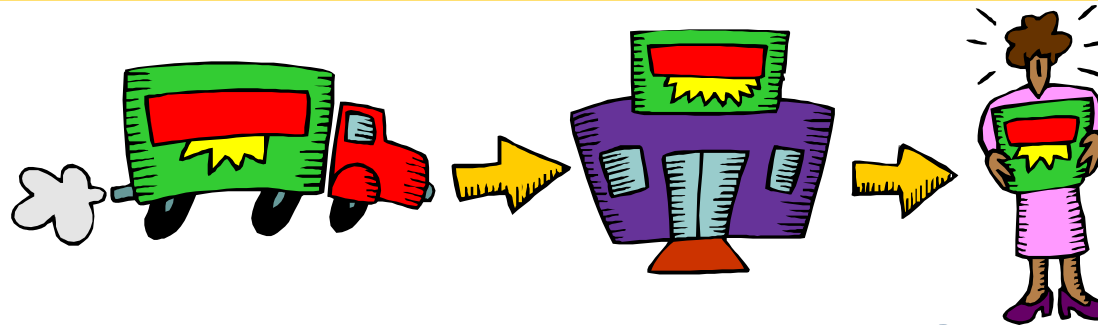**P** rocess
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Result-Oriented Processes

Meaningful Processes for Customer

A Large Financial Software Company

1. Provide good products at good prices
2. Acquire customers and maintain good relations with them
3. Make it easy to buy from us
4. Provide excellent services and support after the sale

Texas Instrument

1. Strategy Development
2. Product Development
3. Customer design and support
4. Manufacturing capability development
5. Customer communication
6. Order fulfilment
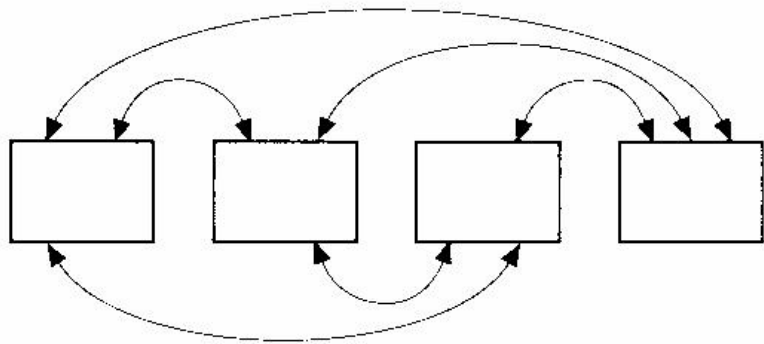
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Result-Oriented Processes
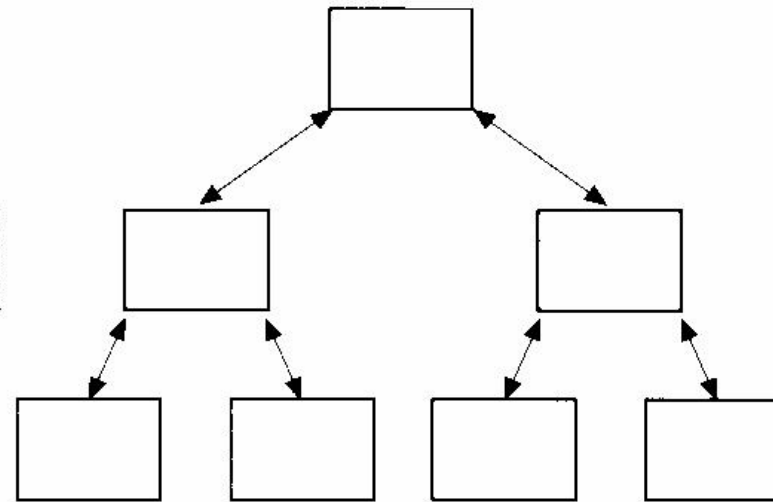
Simple

Meaningful

Result Oriented

Multi Layered

Result-Oriented Processes

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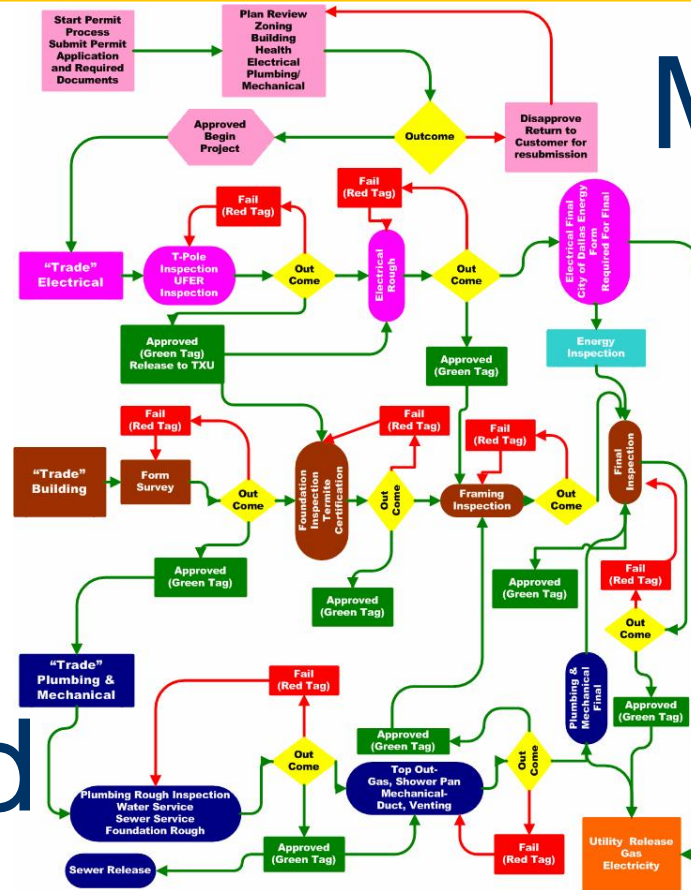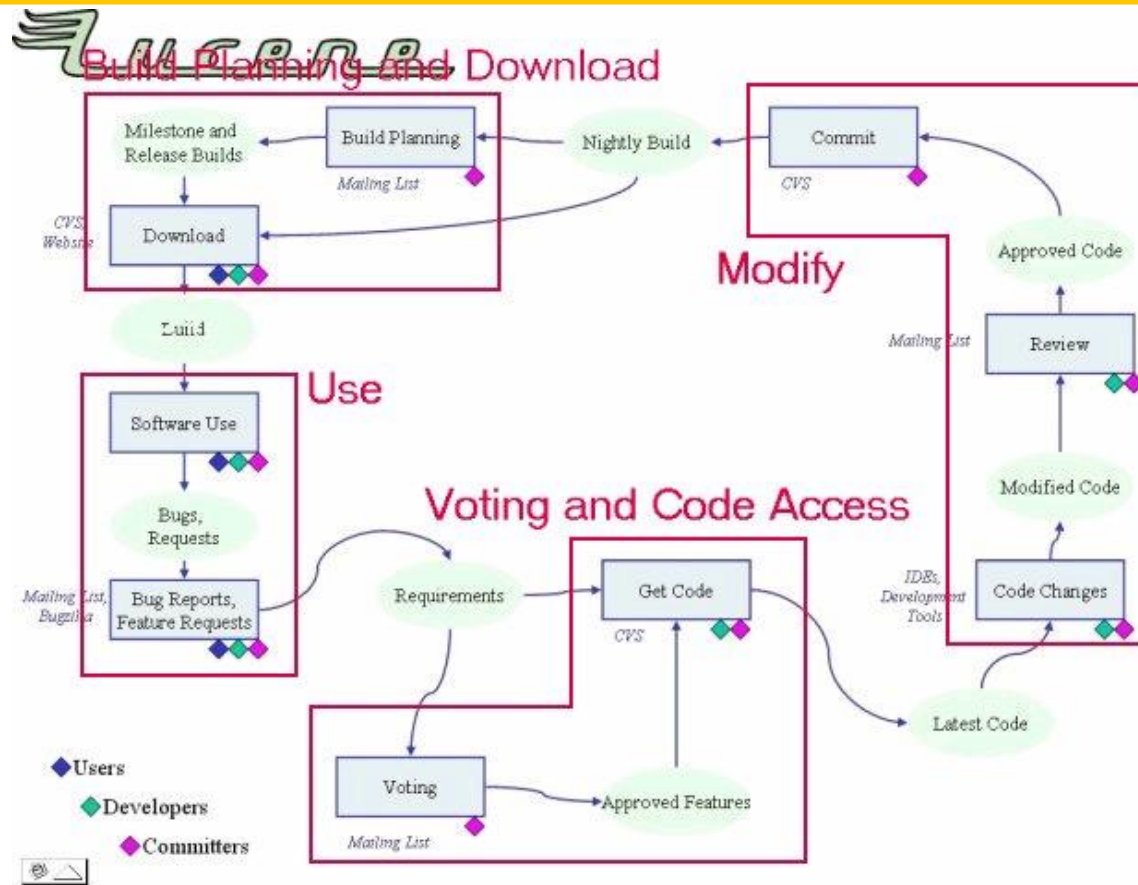
Result-Oriented Processes

Heterarchy

Hierarchy
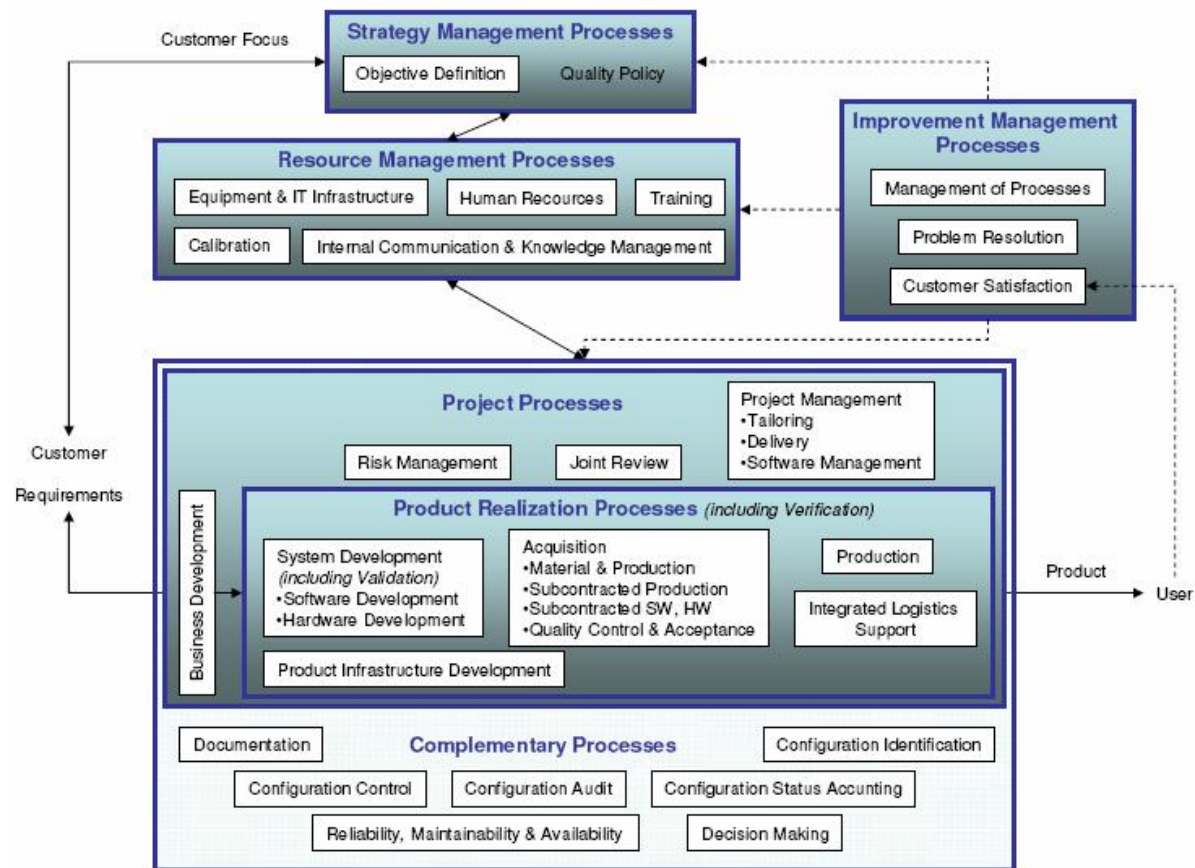
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Result-Oriented Processes

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Wide Spread Involvement & Awarding System

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Wide Spread Involvement & Awarding System

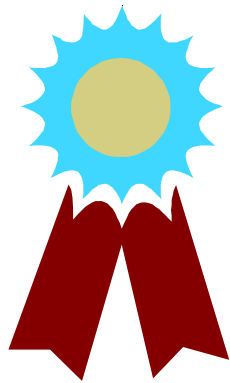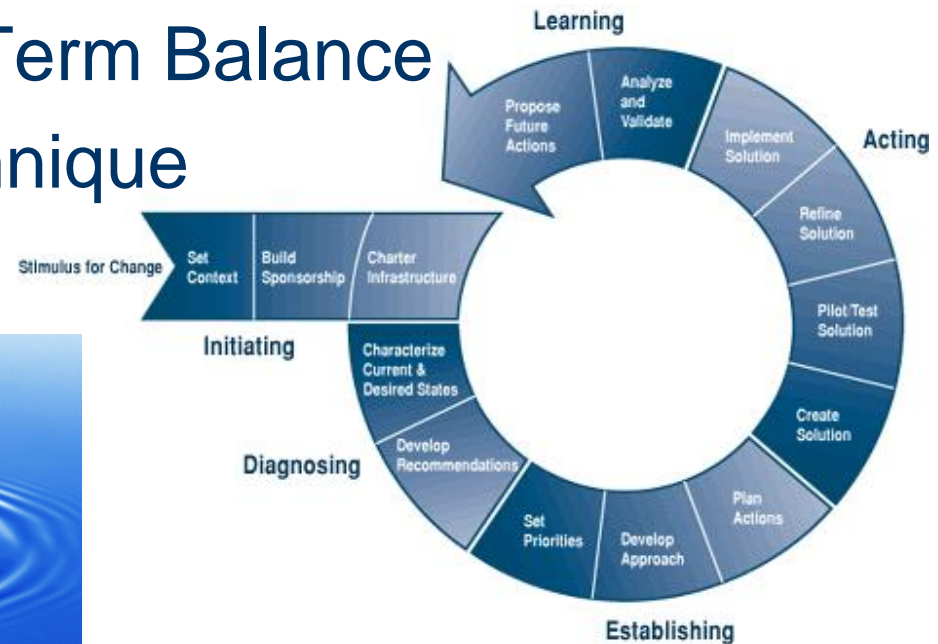| #	PA	Processes		Process Owner	PM	Developer	CM	SQA	Test
1	PP, PMC, IPM	Proje Yönetim	P	Kadriye	Hakan	afak			Emre
2	RSKM	Risk Yönetimi	P	Filiz	Pelin	Güçlü			Güne
3	REQM, RD	Gereksinim Müh.	P	Ula	Hakan	rem Emre Bayram			
4	TS	Teknik Çözüm	P	Ziya	Mustafa Kemal	Emre Ergüden			
5	PI	Ürün Entagrasyonu	P	Murat Orun	Yalç²n	Mesut			
6	VER	Gözden Geçirme	P	Elçin	Ersan	Ikay			
7	VER, VAL	Yaz²l²m Testi	P	Ye im	Ziya	Dilan	Ula	Canan	Ye im
8	PPQA	Yaz²l²m Kalite Güvence	P	Canan	Tüfekçi	Yeliz			
9	CM	Yaz²l²m Konf. Ynt.	P	Sevtaç	MMT	Ufuk			
10	DAR	Karar Analizi ve Çözüm	P	ahin	Muhammed	Onur entürk			
11	MA	Ölçme ve Analiz	O	Koray	Hüseyin Erdem	Elif			
12	OPD, OPF	Süreç Yönetimi	O	Eda	Filiz	Dilek			
13	OT	Kurumsal E itim	O	Banu	Melike	Ay egül			
14	OPF	Yaz²l²m Yönetiminin Gözden Geçirilmesi	O	Umut	Ali Çak²c²	Y²lmaz			
15		Geli tirme	O	Gökmen	Kadriye	Dilek			Ye im
16	CM	De i iklik Yönetimi	P	Sibel	As²m	Gülnur			

eXtreme Process Improvement

Wide Spread Involvement & Awarding System

The Fifth Discipline

1. **Personal Mastery**
2. **Shared Vision**
3. **Mental Models**
4. **Team Learning**
5. **Systems Thinking**
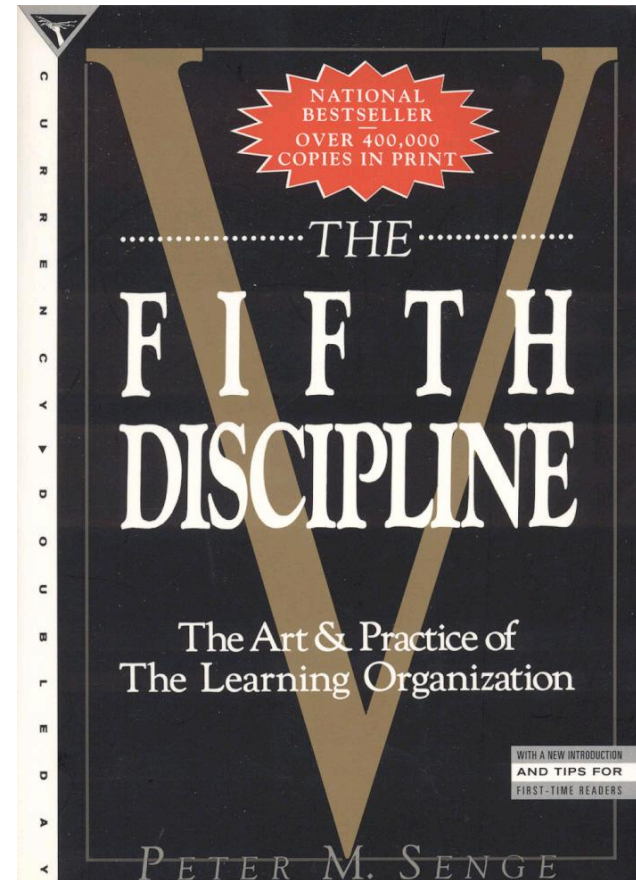
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THE
FIFTH
DISCIPLINE

The Art & Practice of The Learning Organization

WITH A NEW INTRODUCTION AND TIPS FOR FIRST-TIME READERS

PETER M. SENGE

Wide Spread Involvement & Awarding System

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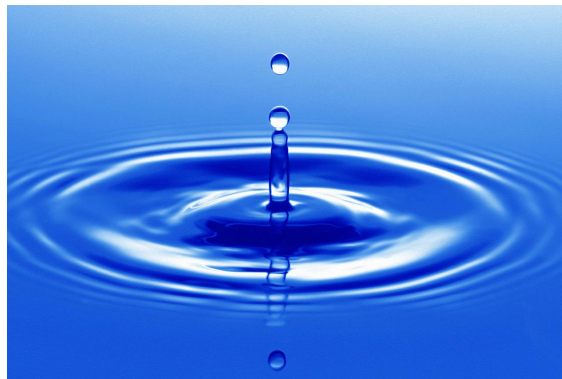
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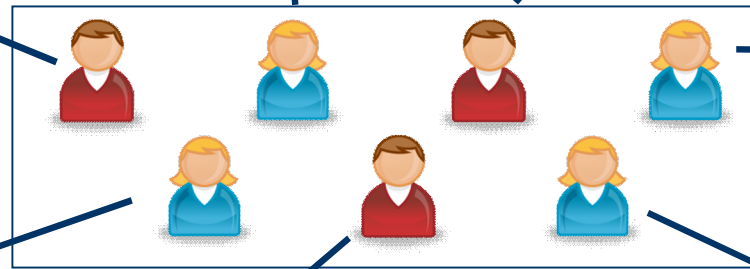- Tools are Just Tools!
- Sustainable Transformation

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Correct Planning for Transformation

- IDEAL
- Short and Long Term Balance
- Water Drop Technique

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Correct Planning for Transformation

Level 1

Level 2

Level 3

Individual
Learning
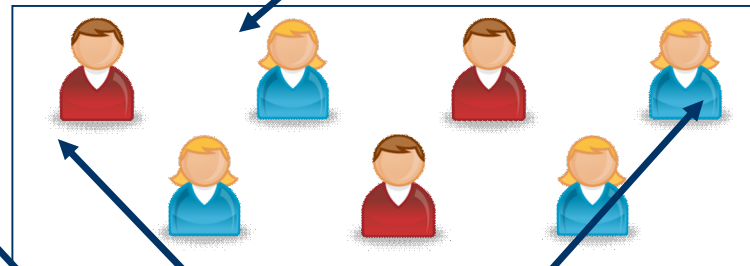
Group
Learning
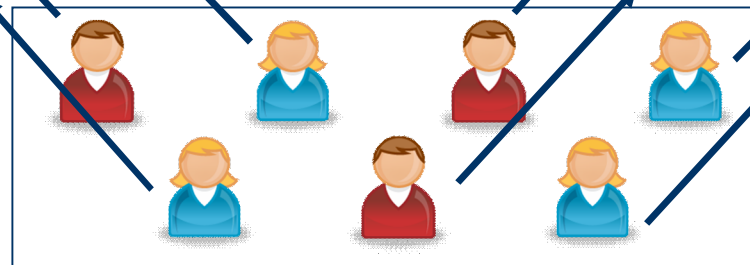
Organizational
Learning
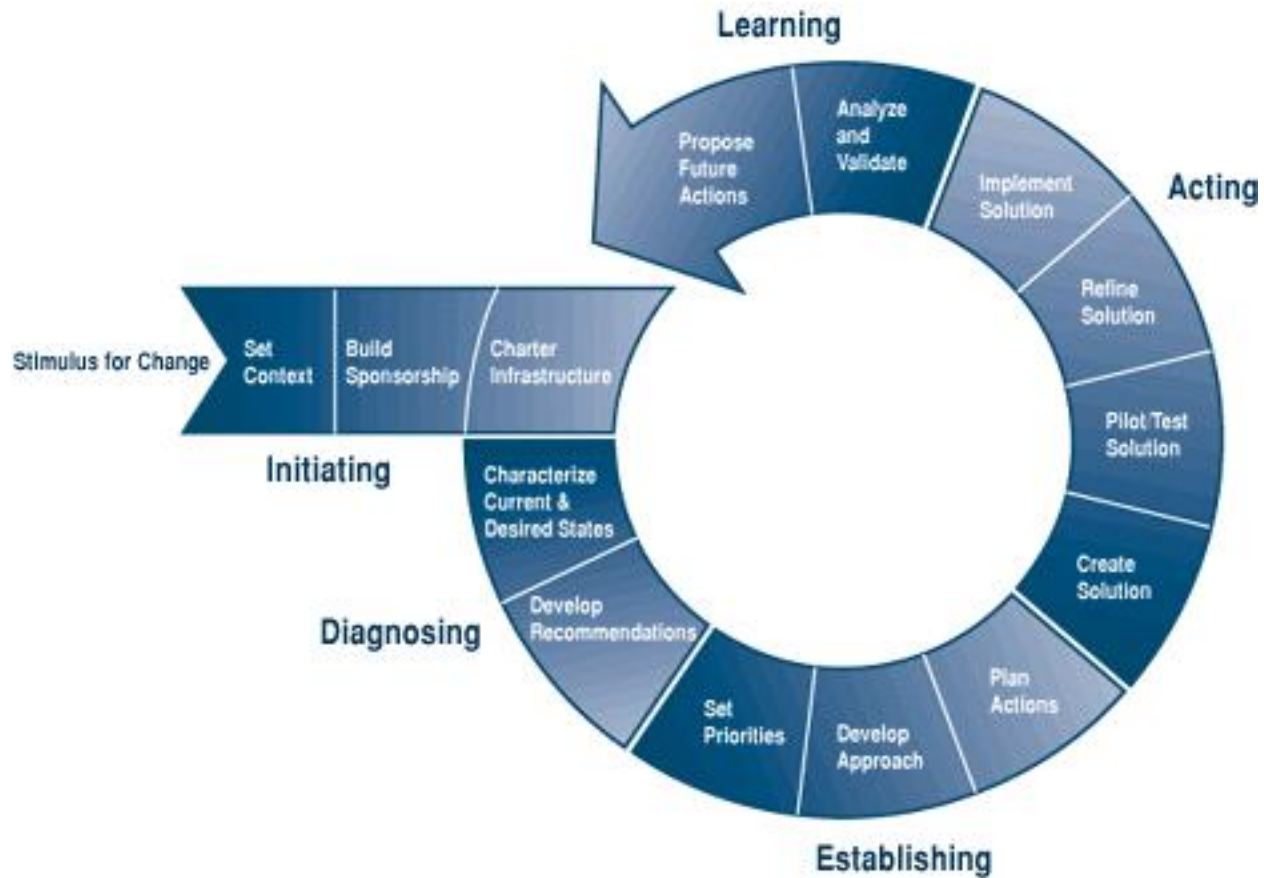
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IDEAL

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I mprovement

IDEAL

Strategic
Level

6.0: Manage the Software Process Improvement Program

1.0: The
Initiating
Phase

5.0: The
Leveraging
Phase

Communication,
Commitment, and
Involvement

2.0: The
Diagnosing
Phase

3.0: The
Establishing
Phase

4.0: The Acting
Phase

Tactical
Level

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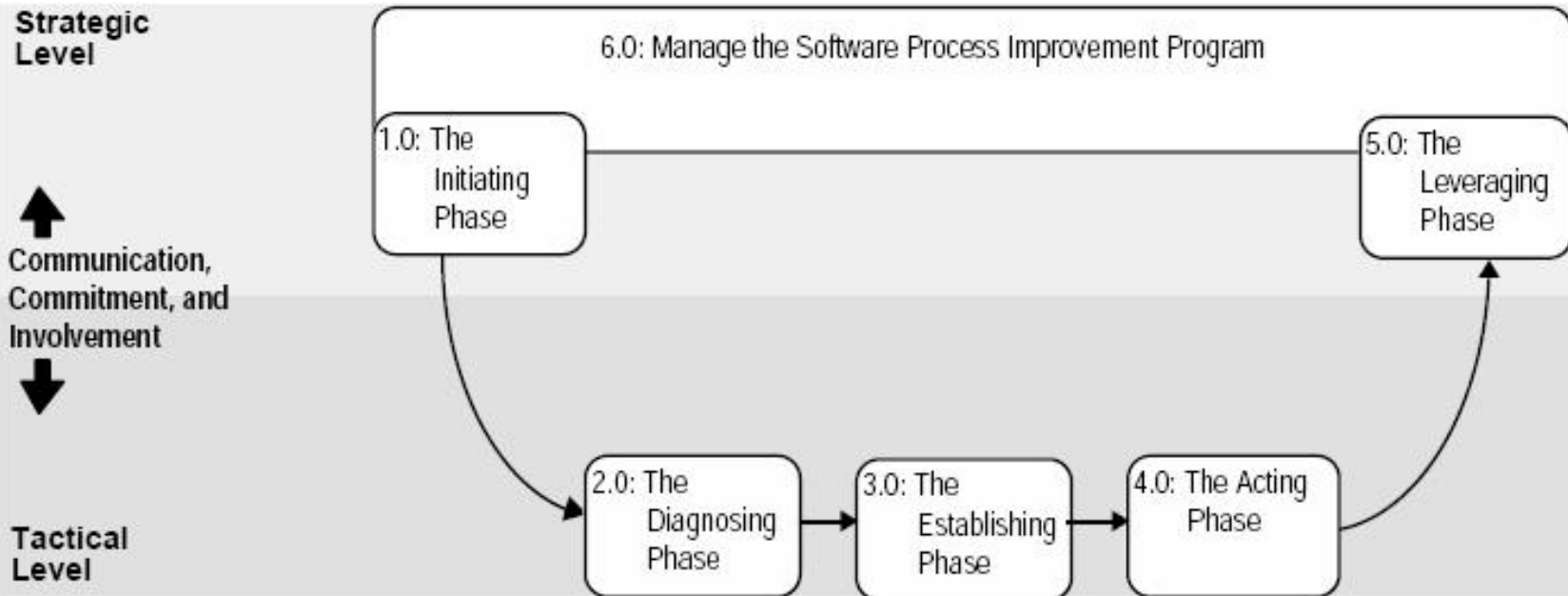
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Tools are Just Tools!

Carnegie Mellon University
Software Engineering Institute

Definition of Software Process

Process – a sequence of steps performed for a
given purpose (IEEE)

Software process – a set of activities, methods,
practices, and transformations that people use to
develop and maintain software and the
associated products (SEI)

Procedures and methods
defining the relationship
of tasks

PROCESS

People
with skills,
training, and
motivation

Tools and
equipment

Sept 2001   14   History of CMM

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Tools are Just Tools!

Carnegie Mellon University
Software Engineering Institute

Recognized Adoption Issues

"70% of tools purchased by the organizations in the surveys are never used, other than perhaps in initial trial

25% are used by only one team or person within each organization

5% are widely used, but not to capacity. Perhaps only 10% of the capacity of the tool is used."

From Jerry Weinberg's informal tool survey, cited in *Quality Software Management vol 4: Anticipating Change.* Dorset House, 1997.

4

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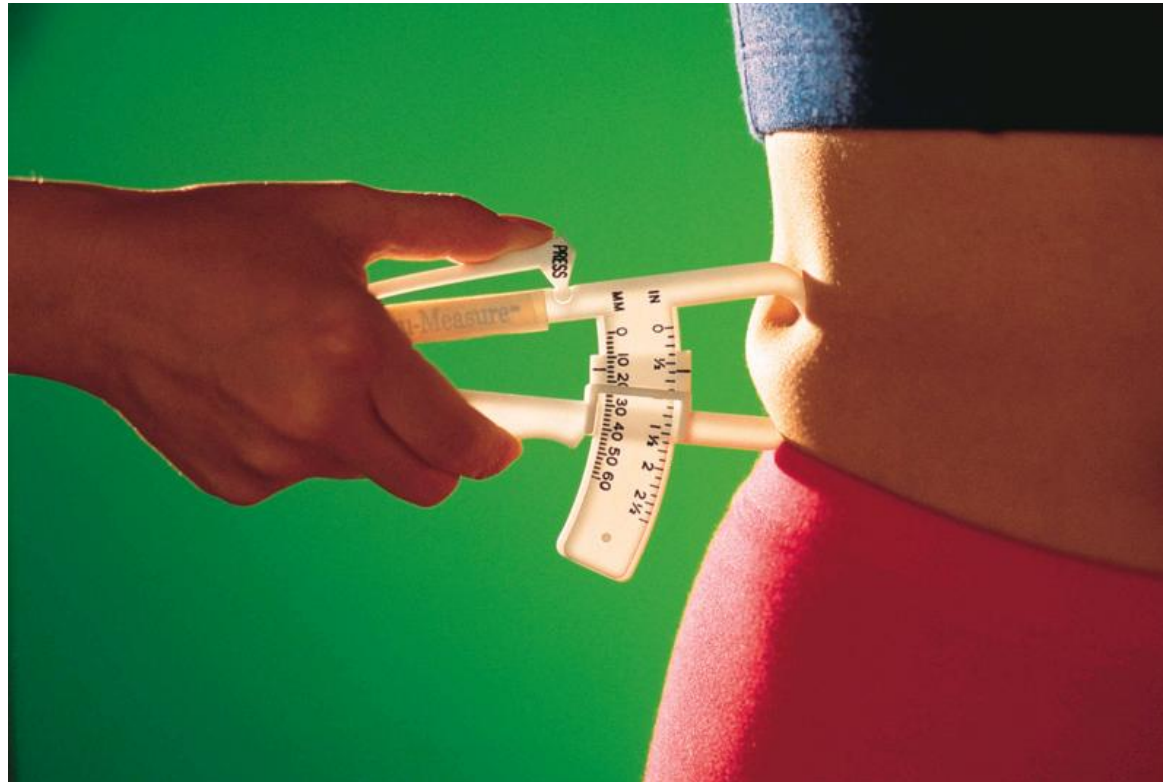- Tools are Just Tools!
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Sustainable Transformation

- Up or down!
- There is no %Letc stay here+

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Sustainable Transformation

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Seven Success Factors
for
CMMI based
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November 2007

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