

WAMPS 2014 – 10° MPS Annual
Workshop
Campinas (Brazil), Dec 2 2014

Do we really re-use our knowledge (or not)?



Luigi Buglione, Ph.D.
Process Improvement & Measurement Specialist
Industry & Services Business Unit
Engineering Ingegneria Informatica SpA

Associate Professor
Ecole de Technologie Supérieure (ETS), Montréal



- ✓ **1.** Discuss the 'lack of (knowledge) reuse' in organizations and its possible root-causes
- ✓ **2.** Introduce the ROI/VOI (→ ROK: Return on Knowledge) setting up a Knowledge Management strategy
- ✓ **3.** Suggest some best practices for achieving better business results moving from a proper KM deployment



ENGINEERING GROUP

The first Italian IT player.

About **7,300** PEOPLE

7.2% Italian market share

more than **1,000** large accounts in all markets

System Integration & Application Maintenance

OUTSOURCING

Software

Consulting

www.eng.it

ORGANIZATION

40 offices in Italy and abroad.



 Usa
  Brazil
  Argentina
  Belgium
  Republic of Serbia
  Italy

RESULTS (In millions of Euro)

Operating revenues

Ebitda

2013	11% revenues overseas	822.8	2013	100.8
2012	12% revenues overseas	770.0	2012	92.6
2011	10% revenues overseas	775.7	2011	71.5





École de technologie supérieure
ÉTS is part of the Université du Québec network

[ÉTS Home Page](#)
[Français](#)



SOFTWARE ENGINEERING
RESEARCH LABORATORY

- Home
- Research areas
- Team
- + Research and innovation
- Publications
- Contact us

The Software Engineering Research Laboratory (GÉLOG) oversees various research projects both in the area of the definition of the Software Engineering principles as well as on specific technologies of this new engineering discipline. Members of the GÉLOG are involved in standardization activities as well as in the development of the international consensus on SWEBOK: the *Guide to the Software Engineering Body of Knowledge*. It also conducts research on specific technologies: Software Measurement, Quality Assurance, Cloud Computing, Software Maintenance, Design Patterns and Architecture. Working jointly with industry and various research centers, GÉLOG conducts applied research. GÉLOG's research activities are overseen and supervised by five ÉTS professors. Graduate and postgraduate students also participate in its activities.

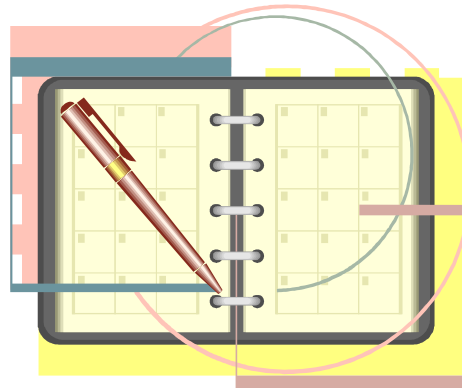
The mission of the Software Engineering Research Laboratory is to develop, for our software engineering managers to improve their skills and knowledge.

gelog.etsmtl.ca





- ✓ Introduction
- ✓ Tailoring & Customizing
- ✓ Maturity & Capability Models (MCMs)
- ✓ The LEGO (Living EnGineering prOcess) Approach
- ✓ (Some) conclusions & Next Steps for learning (more)
- ✓ Q & A



*You have more potential
than you believe to do.*

(Anonymous)

Introduction





OVERRUNS AND FEATURES

Time and cost overruns, plus percentage of features delivered from CHAOS research for the years 2004 to 2012.



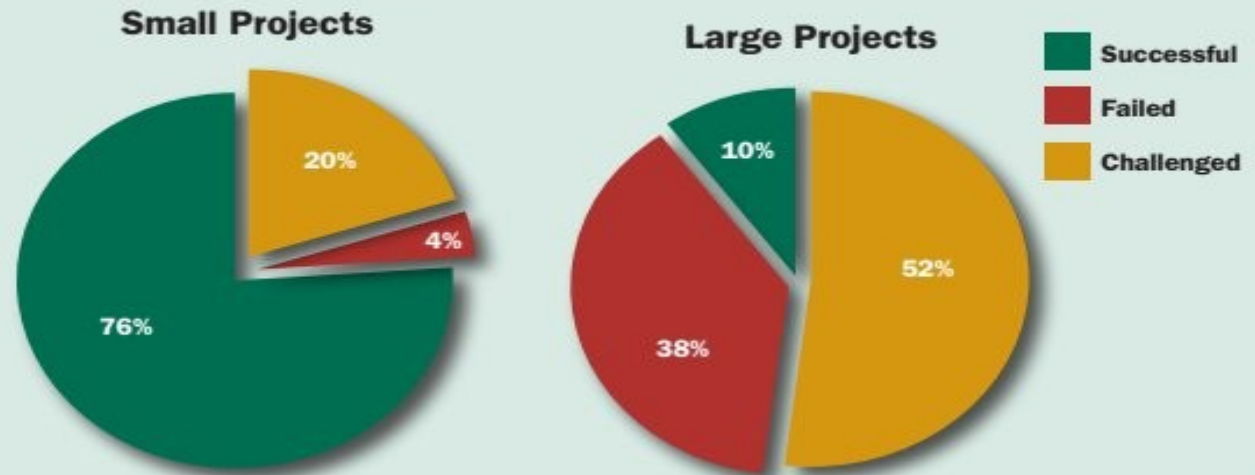
URL:





CHAOS RESOLUTION BY LARGE AND SMALL PROJECTS

Project resolution for the calendar year 2012 in the new CHAOS database. Small projects are defined as projects with less than \$1 million in labor content and large projects are considered projects with more than \$10 million in labor content.



10 Success points for Skilled Resources in Small Groups

1. Competency
2. Position
3. Motivation
4. Togetherness
5. Training
6. Mentoring
7. Chemistry
8. Toxic
9. Turnover
10. Hot Groups



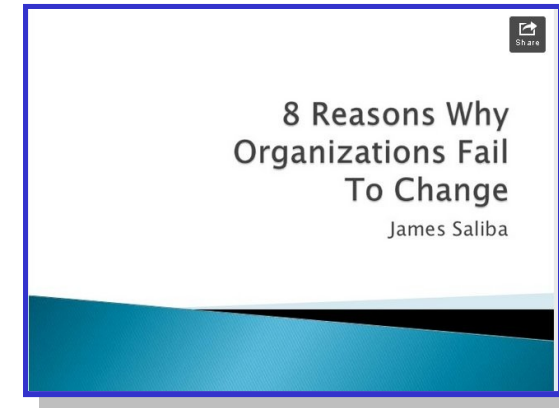
URL:





	A Losing Organization 9 Signs
1	Fuzzy Vision
2	Lack of Leadership Skills
3	Discouraging Culture
4	High Bureaucracy
5	Lack of Initiative
6	Poor Vertical Communication
7	Poor Cross-functional Collaboration
8	Poor Teamwork
9	Poor Idea and Knowledge Management
© Vadim Kotelnikov 1000ventures.com	

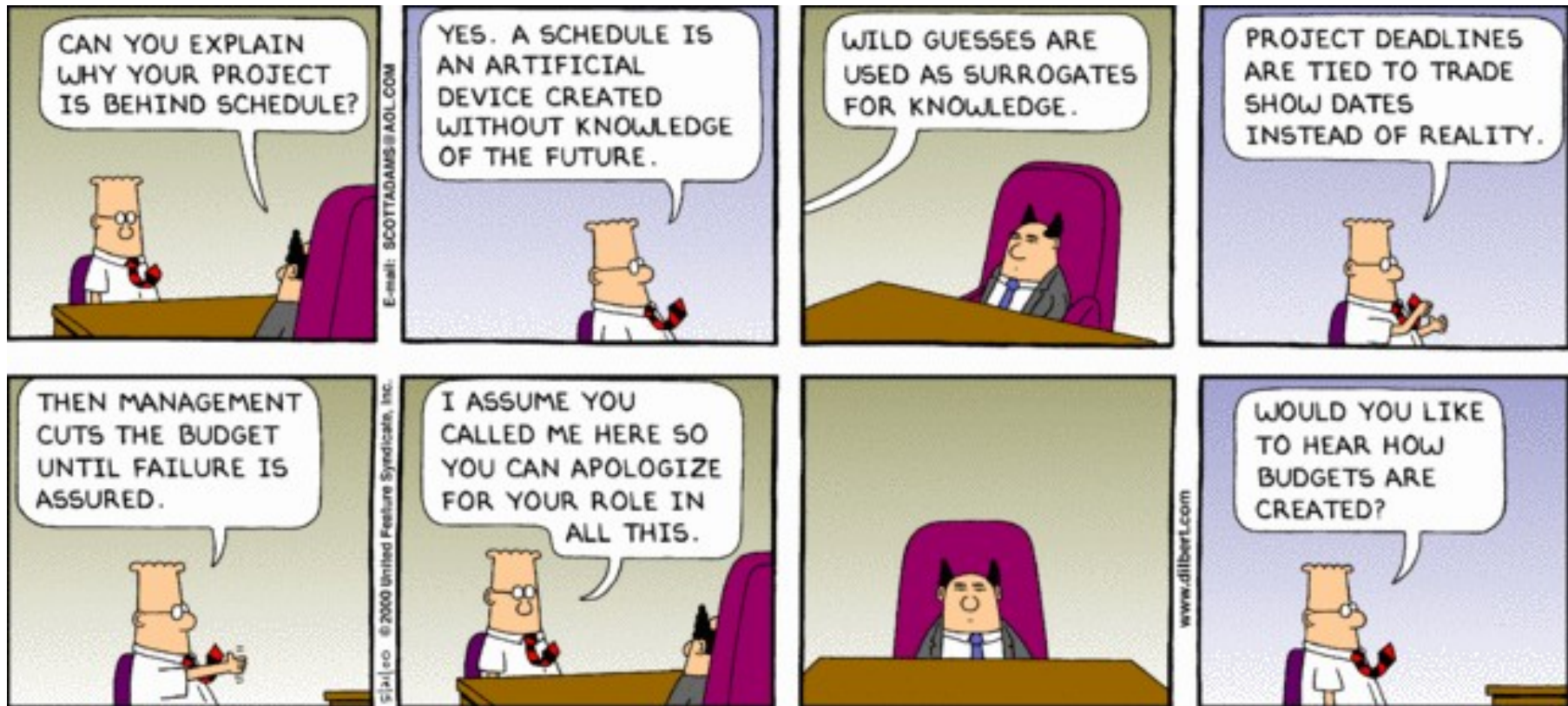
URL:



URL: <http://>

1. Allowing too much complacency
2. Failing to create a powerful coalition
3. Underestimating the power of Vision
4. Under Communicating the Vision
5. Permitting Obstacles to Block the Vision
6. Failing to Create Short-Term Wins
7. Declaring Victory too soon
8. Neglecting to Anchor Changes Firmly





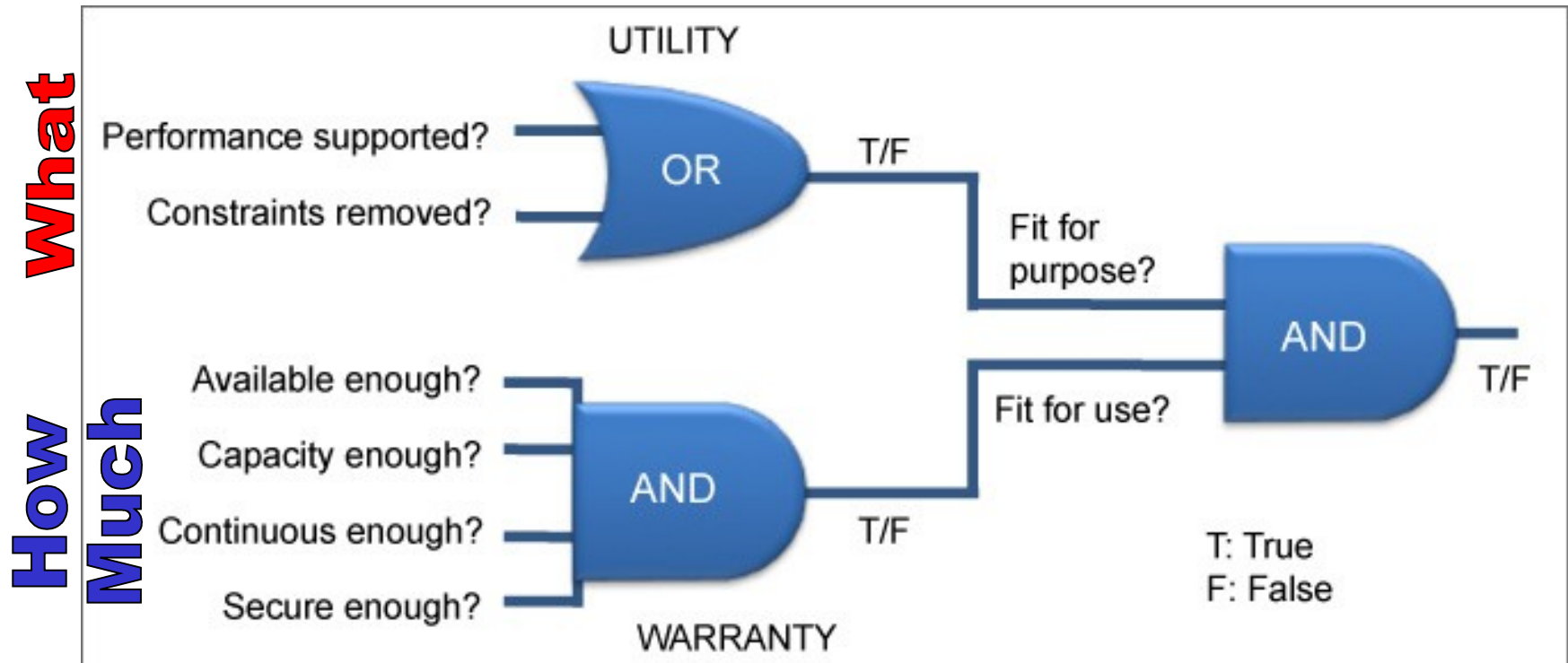
URL:
www.dilbert.com





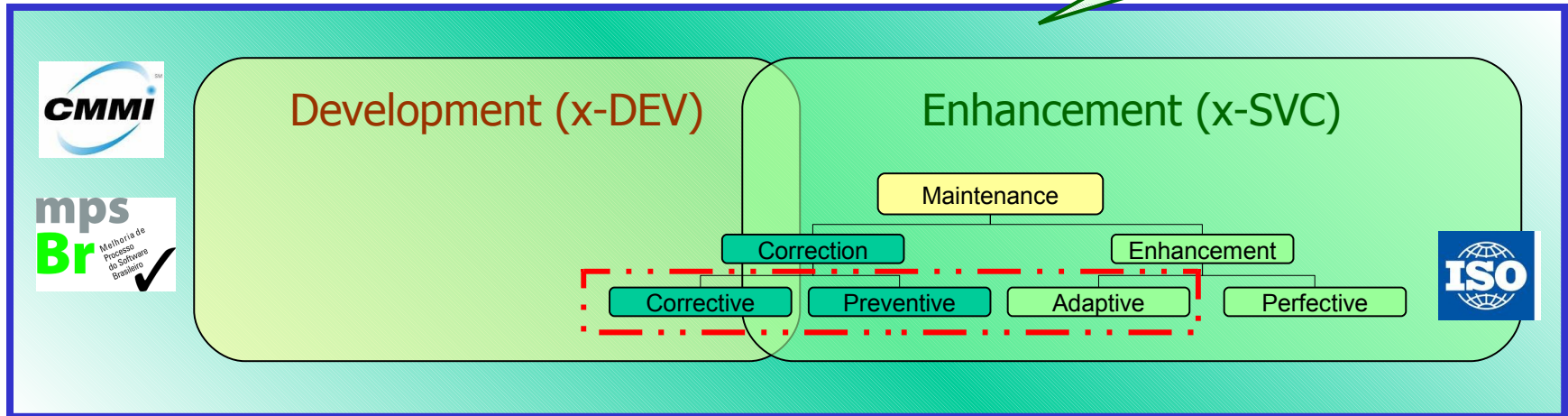


- **Value** ← **Utility** + **Warranty**



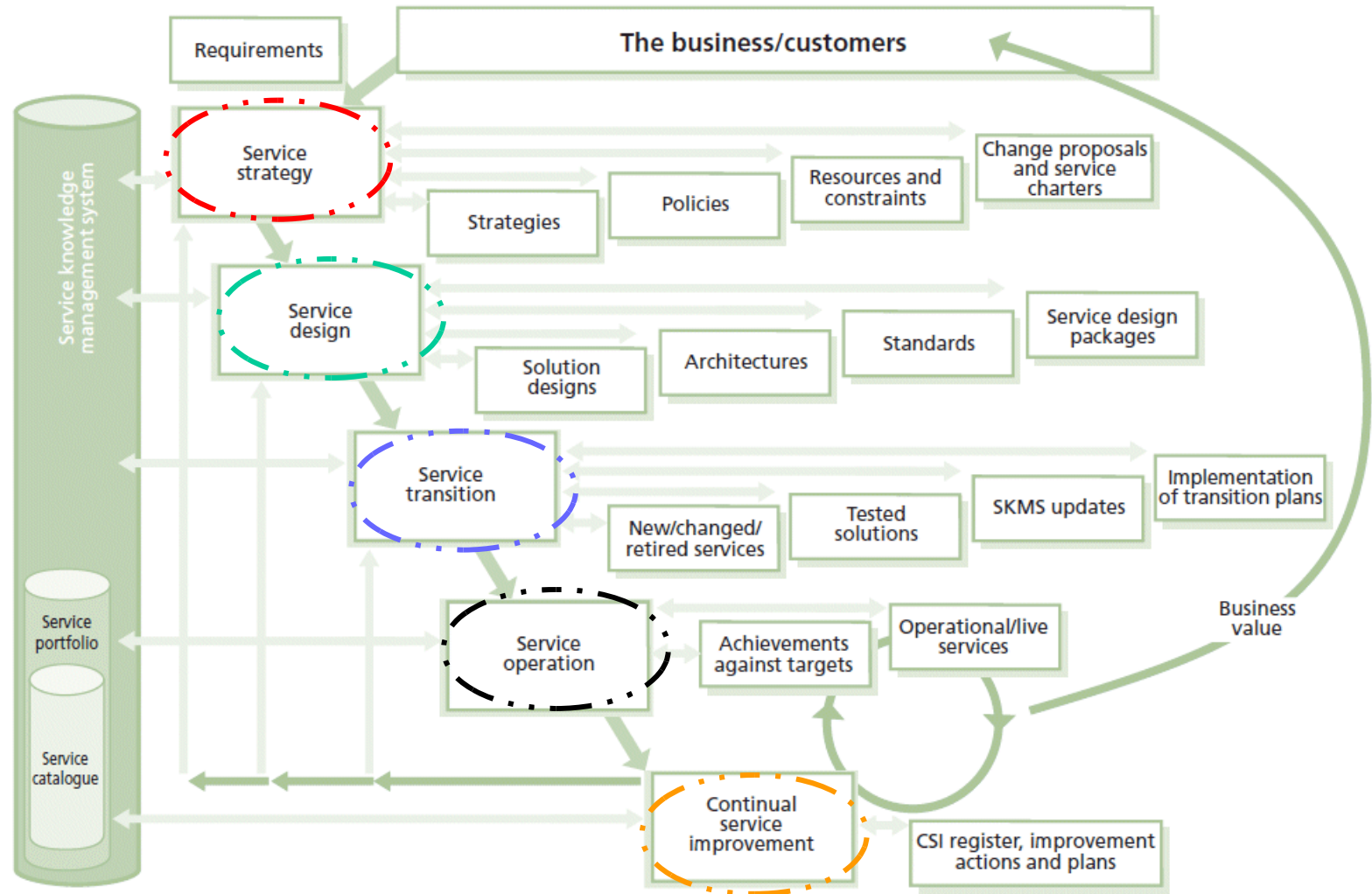


Project Scope



- **Service** → A **means** of delivering value to Customers by facilitating Outcomes Customers want to achieve without the ownership of specific Costs and Risks.
- **Project** → A **temporary organization**, with people and other assets, that is required to achieve an objective or other outcome. Each project has a lifecycle that typically includes initiation, planning, execution, and closure. Projects are usually managed using a formal methodology such as PProjects IN Controlled Environments (PRINCE2) or the Project Management Body of Knowledge (PMBOK).

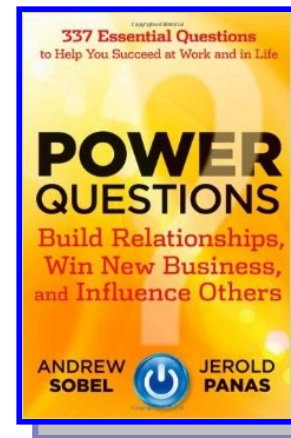
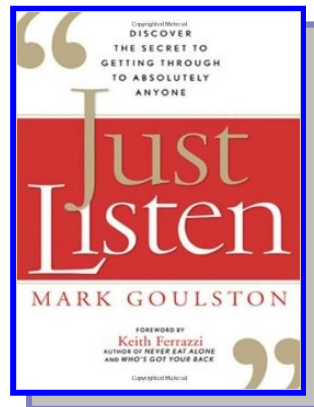
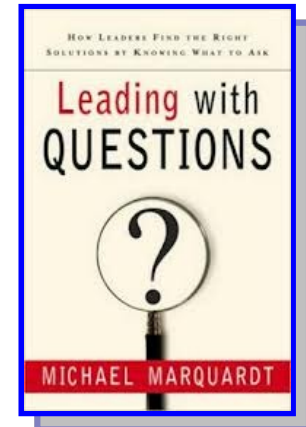
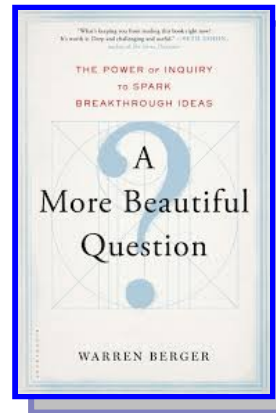
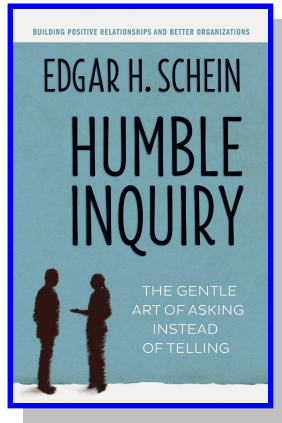






Where to start?

Questions **FIRST**, answers **LATER**!





Where to start?

Questions **FIRST**: The '5W+2H' rule

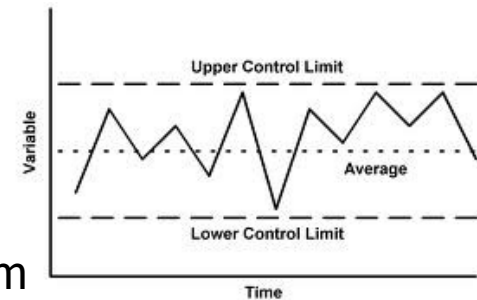
• The original '5W+H' journalist rule

- ✓ Typically a good paper should contain:
 - ✓ Who, What, Why, When, Where, How
- ✓ Who: not well expressed now → **RACI matrix** for describing who should collect, prepare, and analyze data



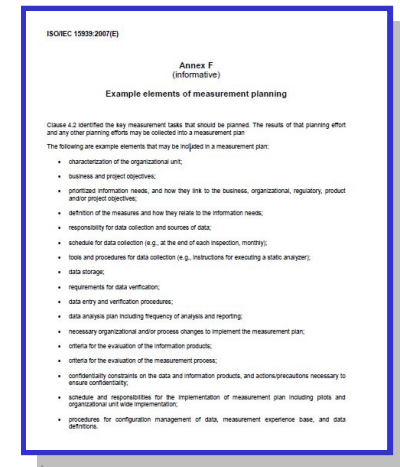
• The 2° H – a possible addition

- ✓ '**How Much**' → threshold(s) value(s)
- ✓ As in Control Charts (TQM), possibly two (2) thresholds:
 - ✓ UCL (Upper Control Level)
 - ✓ LCL (Lower Control Level)
- ✓ Threshold(s) should be periodically (re)evaluated from MEB data



• Utility and applicability

- ✓ Same suggestion for a good (whatever) plan: Project, Quality, Communication, Measurement, Improvement plan...
- ✓ In such way it could be possible to check easily with a structured manner what has/hasn't included in a plan





• **Open-Ended Questions**

→ Explore possibilities, feelings, reasons why, freedom to answer, useful for problem-solving

- Why...?
- How...?
- What do you think about...?
- ...



• **Closed Questions** →

Facts, quick, easy to answer, useful at the end of a conversation

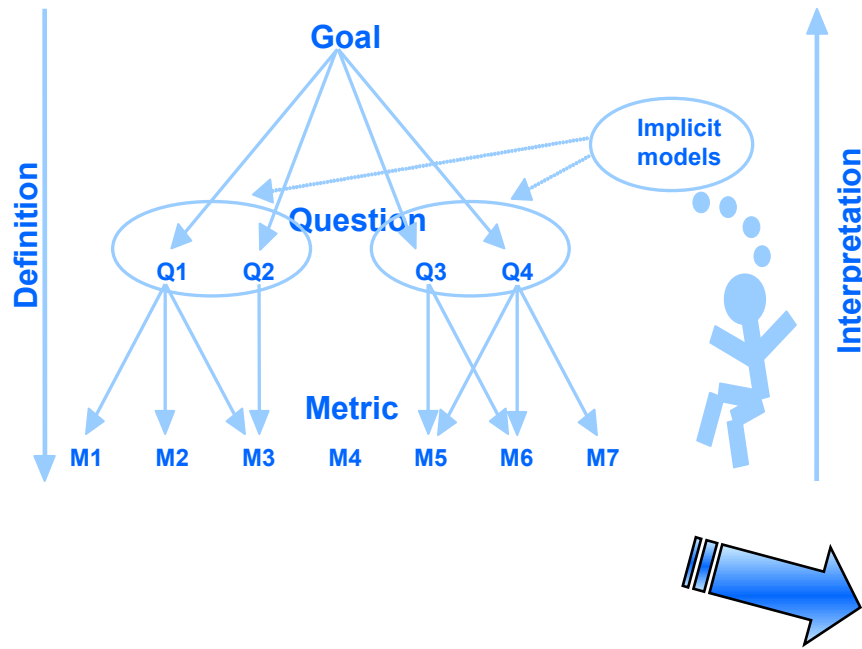
- What...?
- How Many...?
- Did you agree...?
- When...?
- Who...?
- ...



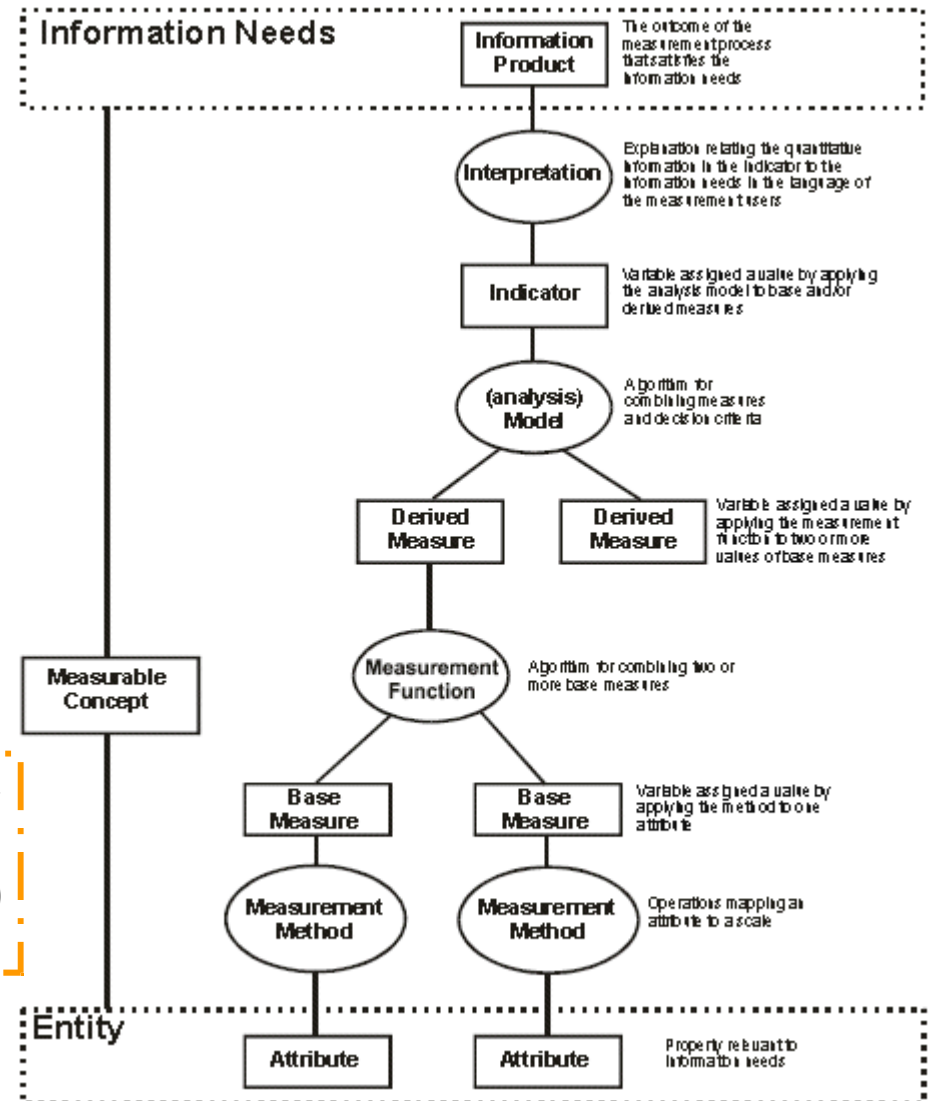


Where to start?

Questions **FIRST**, answers **LATER**!



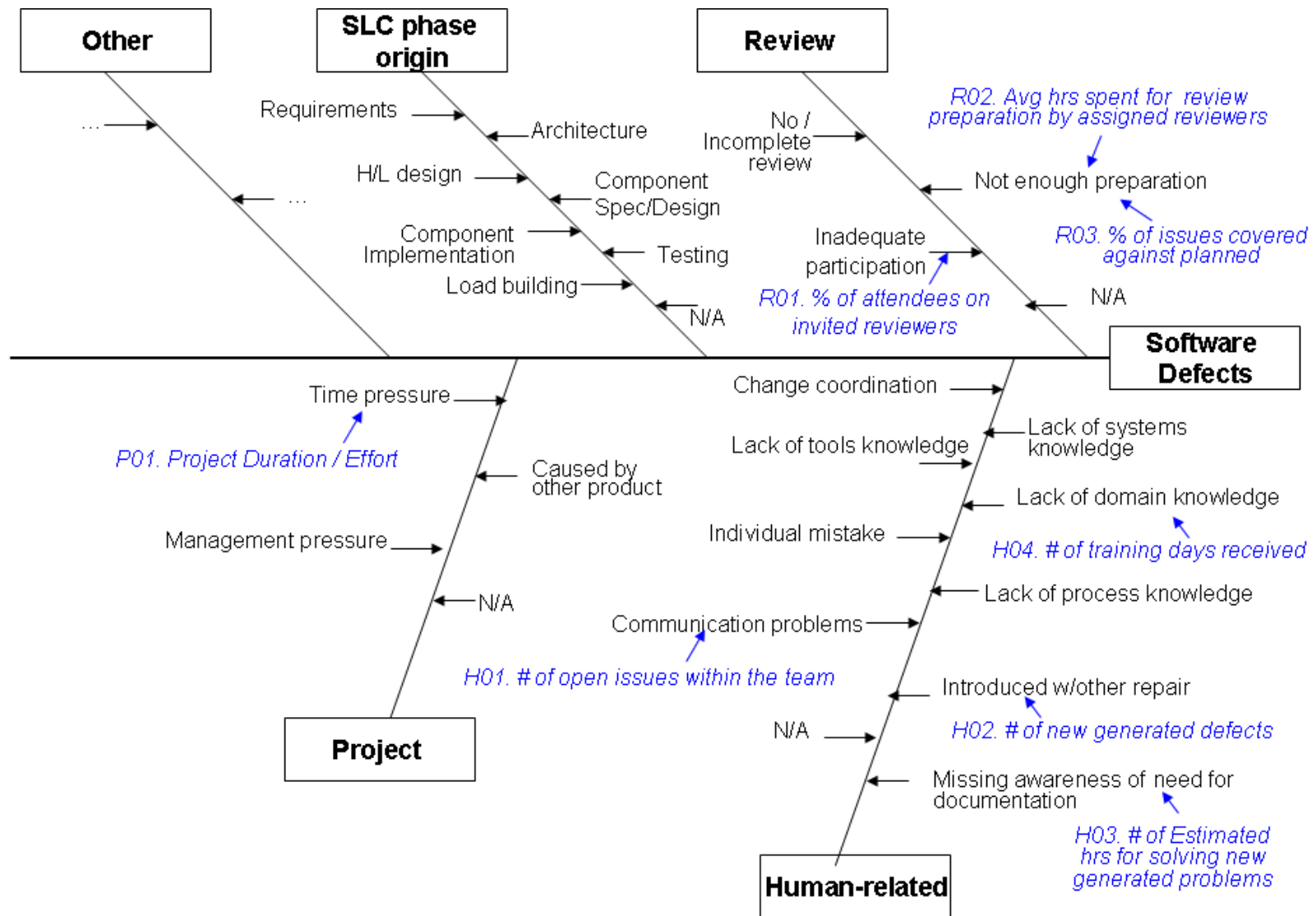
- **GQM** (Goal-Question-Metric) [V.Basili, 1984]
- **MIM** (Measurement Information Model) [ISO/IEC 15939:1999 (R2007)]



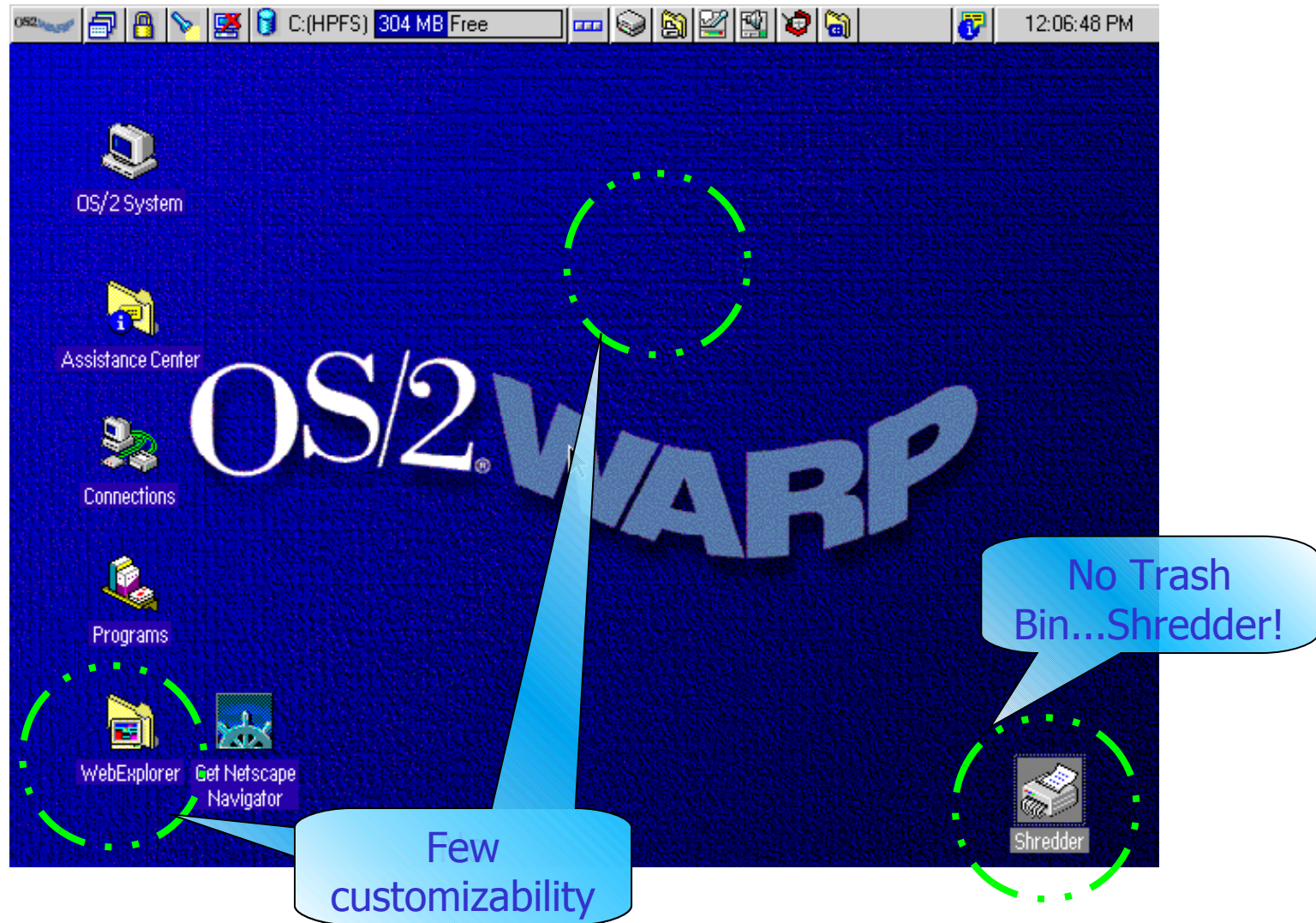


Where to start?

Questions **FIRST: RCA** (Root-Cause Analysis)









© <http://blog.daveburrows.com>

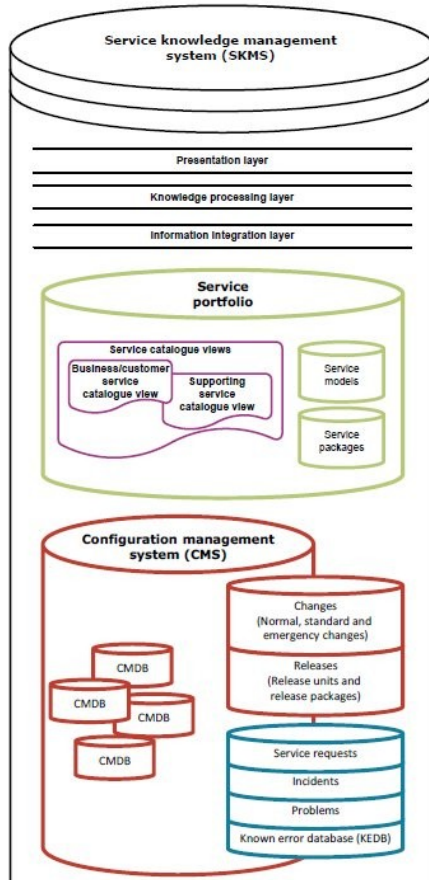




Windows 8.0

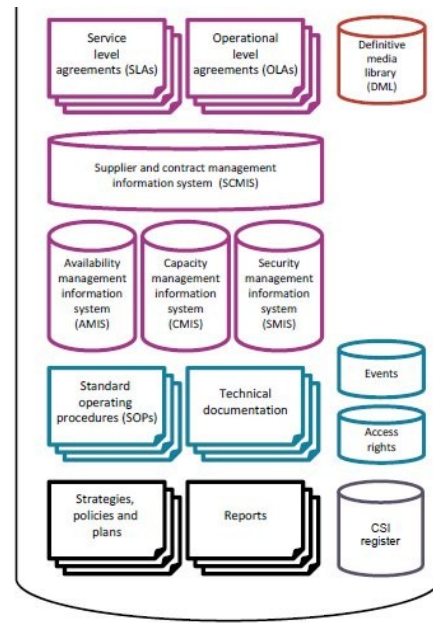
Windows 8.1





• SKMS – Service Knowledge Management System

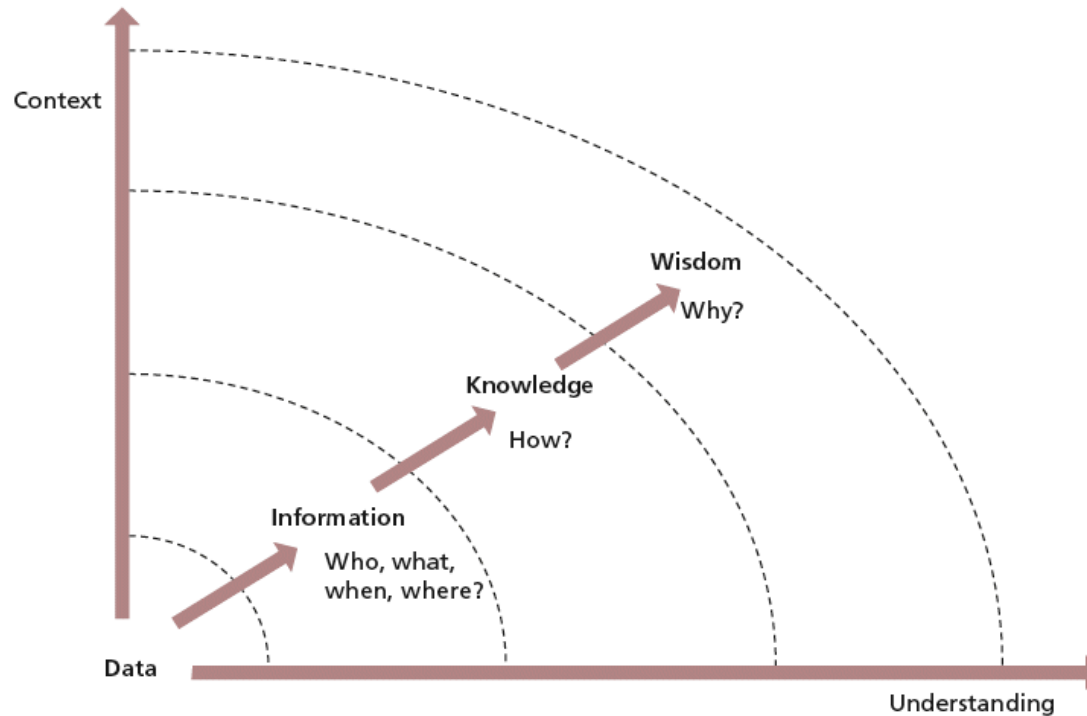
- ✓ It's the logical summation of ALL the data, information, knowledge available in an organization
- ✓ Quantitative + Qualitative data (experience, lessons learned, ...)
- ✓ CMS but also a Risk Register
- ✓ ...

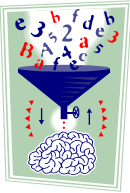




- **DIKW – Data/Information/Knowledge/Wisdom**

- ✓ Four KM waves
 - ✓ **Verifying (DIKW):** Data → Information → Knowledge → Wisdom
 - ✓ **Building (WKID):** Wisdom → Knowledge → Information → Data
- ✓ **'5W's+H' rule** (who, what, when, where, how, why)
- ✓ Two dimensions: **Context**; **Understanding**



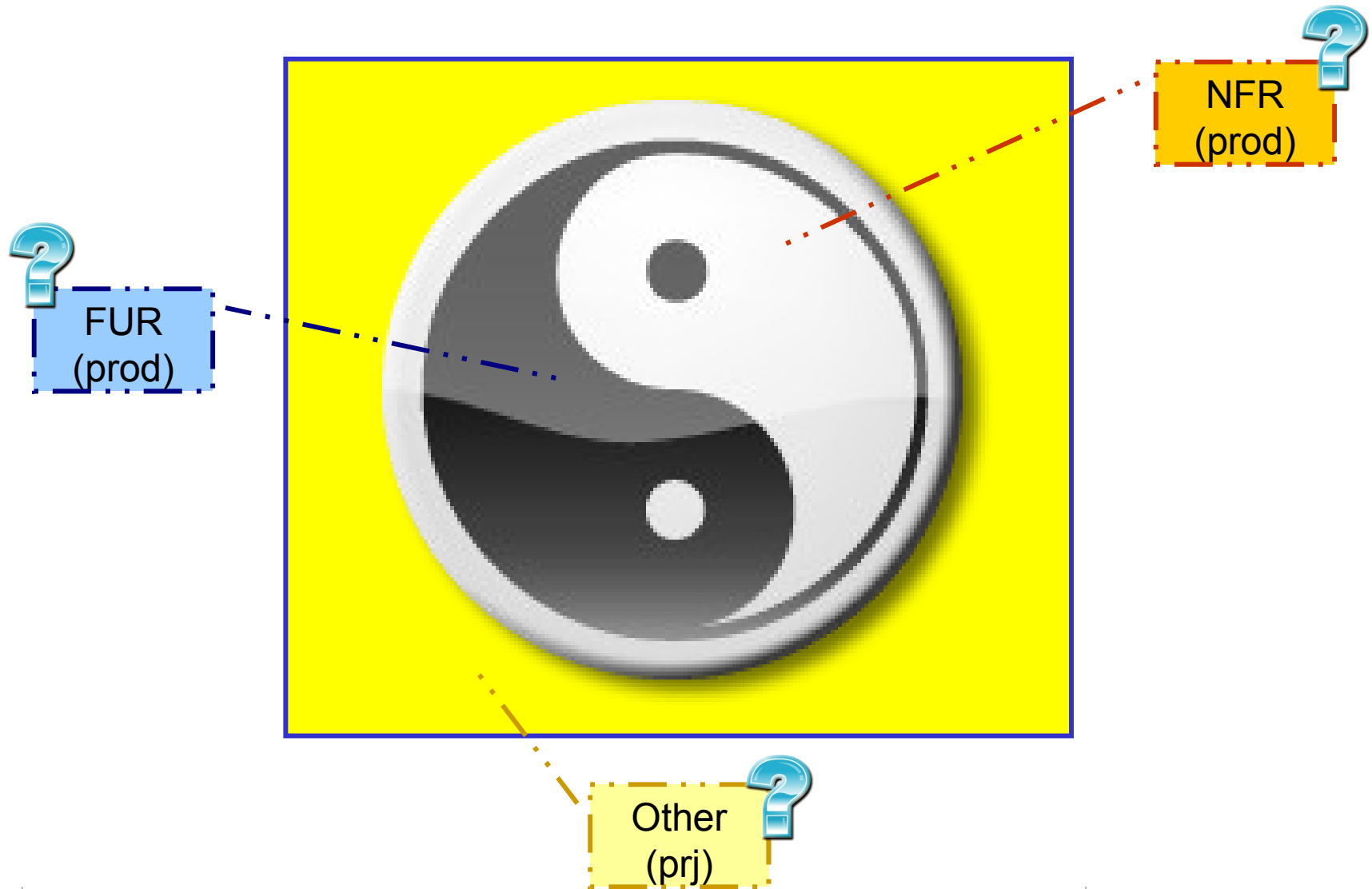


- **Requirements** → WHY, WHAT's (e.g. EAM analysis)
- **Stakeholders** → WHO
- **Communication** → HOW, HOW MUCH
- **Measurement** → HOW MUCH
- **Reuse** → WHAT, HOW
- **Benchmarking** → WHAT, HOW
- **Scope Management** → WHERE
- ...



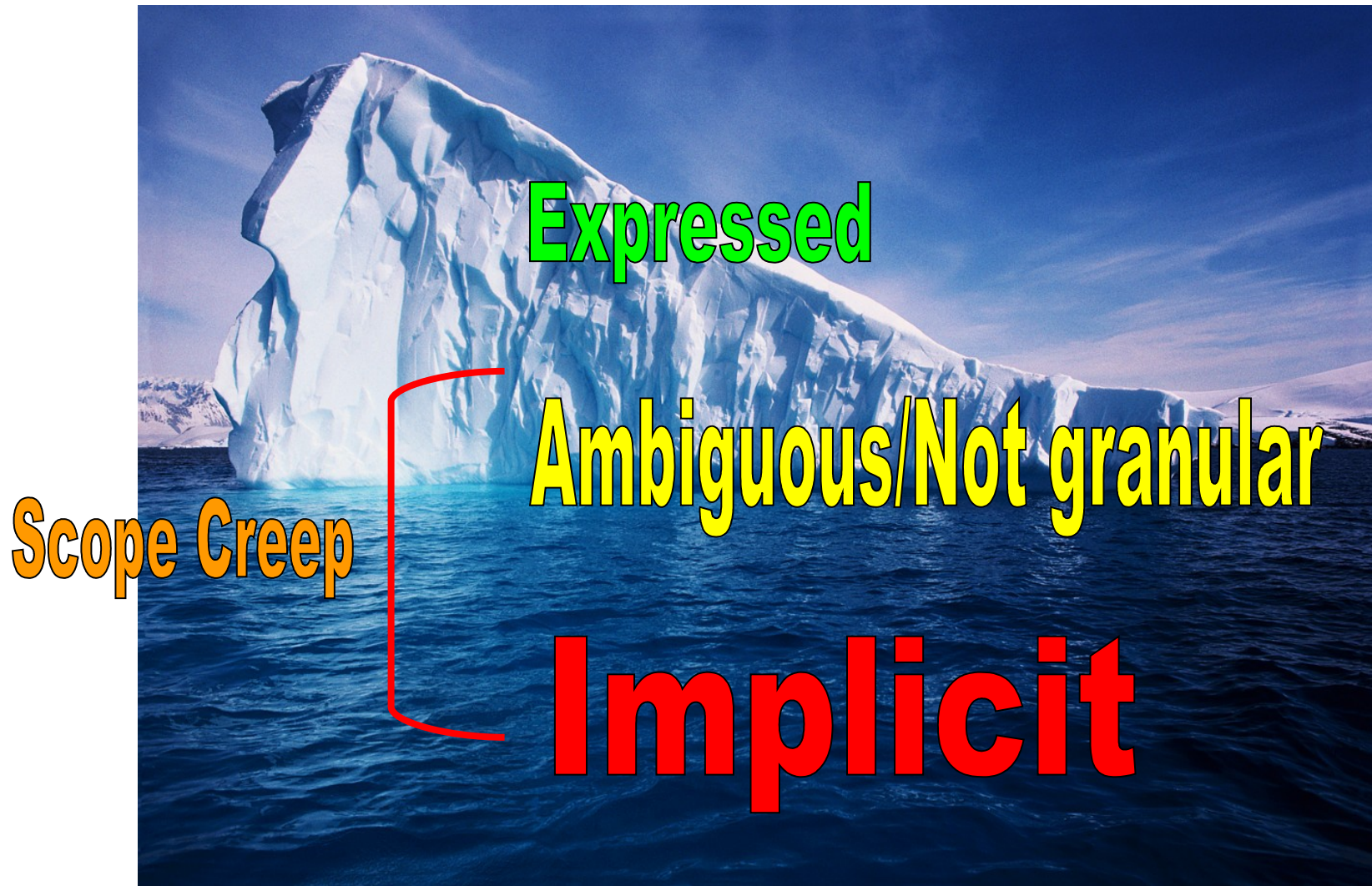
Which main issues?

Manage **Requirements**, that's the issue!



Which main issues?

Which requirements?





- Communication issues

- ✓ Partly addressed, even if fundamental
 - E.g. CMMI-x GP2.7 on stakeholders' involvement
- ✓ Heavily documented and discussed how communication pitfalls represent a major problem which may make a process improvement initiative unsuccessful



© Scott Adams, Inc./Dist. by UFS, Inc.



Which main issues?

Is **Communication** an issue?



• Social Media

- ✓ How do you communicate?
- ✓ Which Social Media are you using? How?
- ✓ Are you overloaded or not?
- ✓ Are they taking you the right time? Or not?
- ✓ How many interruption during the day typically are you doing while working?
- ✓ ...how (real) hour are you working per day?





• Interruptions and Social Media

The screenshot shows the Gallup Business Journal website. The main article is titled "Too Many Interruptions at Work?" and is dated June 8, 2006. The subtitle reads "Office distractions are worse than you think -- and maybe better". The article is a Q&A with Gloria Mark, an associate professor at the Donald Bren School of Information and Computer Sciences at the University of California, Irvine. The article discusses how constant e-mails and phone calls to coworkers can be distracting and how it's discouraging to put in a busy 10-hour day and feel like you haven't accomplished anything.

The abstract is titled "A Diary Study of Task Switching and Interruptions" and is authored by Mary Czerwinski, Eric Horvitz, and Susan Wilhite from Microsoft Research. The abstract describes a study that aimed to characterize how people interleave multiple tasks amidst interruptions. The study revealed the type and complexity of activities performed, the nature of the interruptions experienced, and the difficulty of shifting among numerous tasks. The abstract also discusses the findings and the implications for the design of software tools for task management.

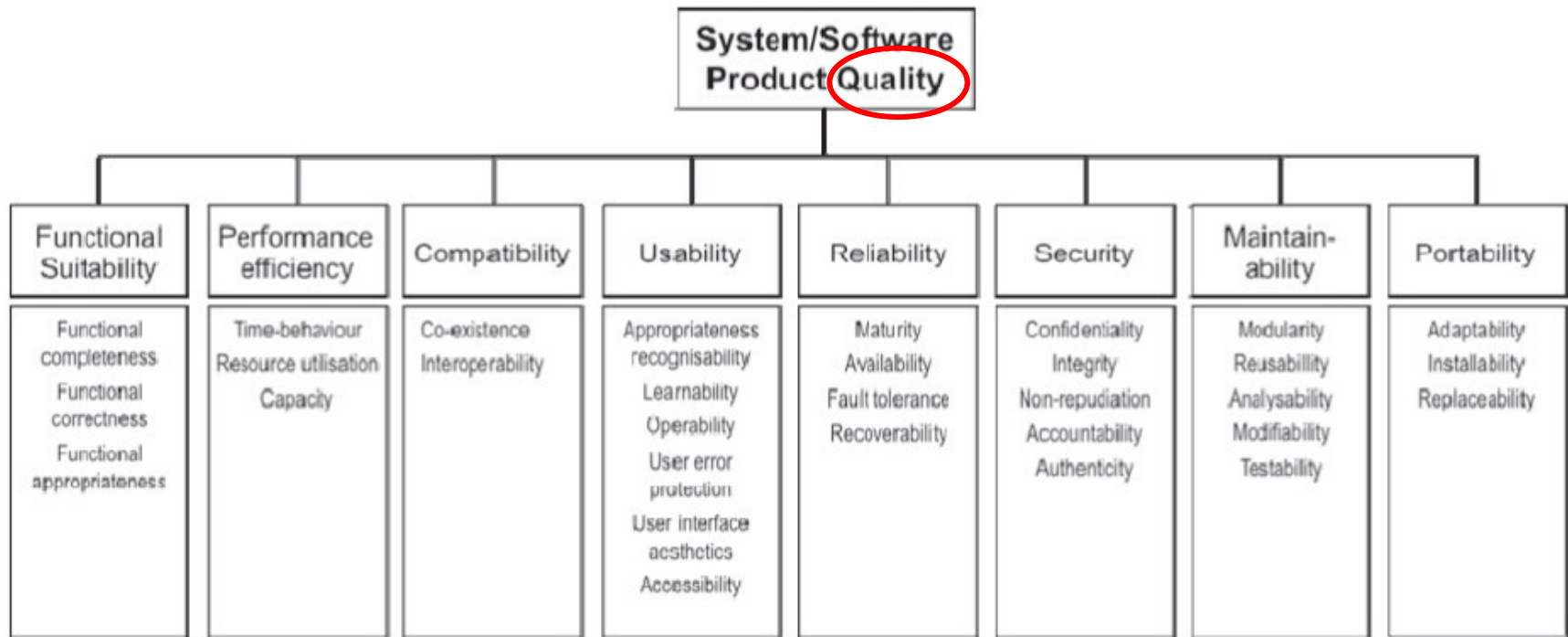
The image shows the CubeSmart, Inc. logo, which consists of a stylized cube made of four colored triangles (blue, green, yellow, and red) and the text "CubeSmart, Inc." to its right. Below the logo, the title "Social Interruption and the Loss of Productivity" is displayed in a bold, black font.



Which main issues?

Requirements: FUR vs NFR





- Evolution of **ISO/IEC 9126-x** series, good starting point for depicting a correct scope
- Valid also for services, not only products – see how much do they fit!
- Good checklist for not losing/miss requirements from early stages when estimating



Which main issues?

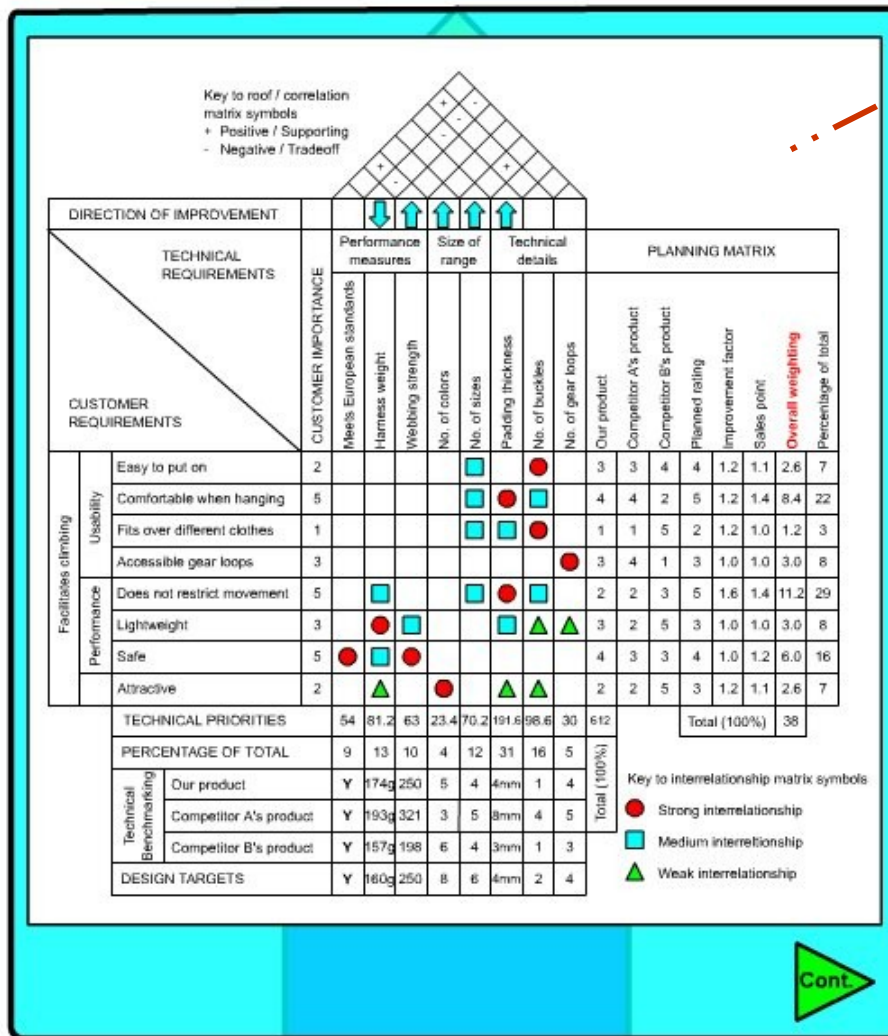
Manage **Requirements**, that's an issue!



Quality Function Deployment (QFD)

URL: www.webducate.net/qfd/qfd.html

- Technique proposed by Dr Yoji Akao in 1966
- Combine the 'Voice of Customer' (VoC) with Technical Requirements
- Help in prioritizing requirements
- Allow to do competitive benchmarks before producing a product/service
- Focus on the 'internal' knowledge of a provider, able to hear the other 'stakeholders'



Cont.



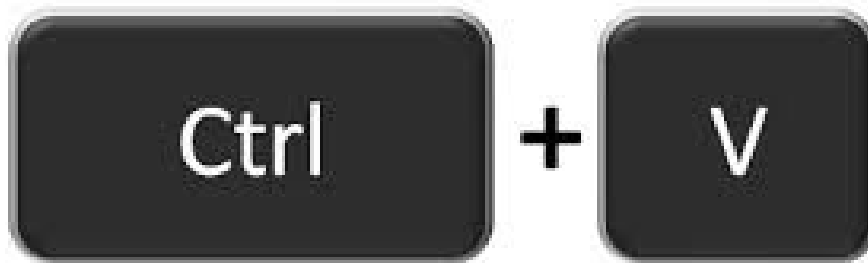
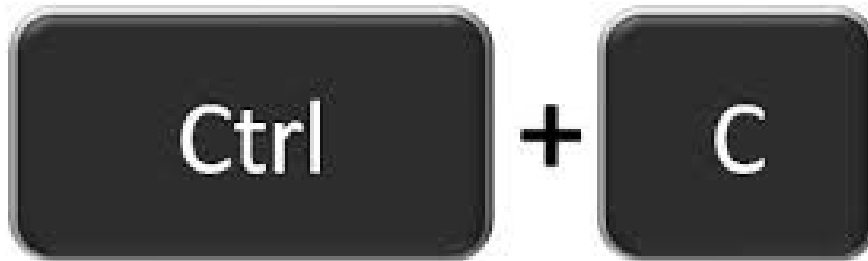


Did You Know: The Lines on a Solo Cup are Measurement Marks



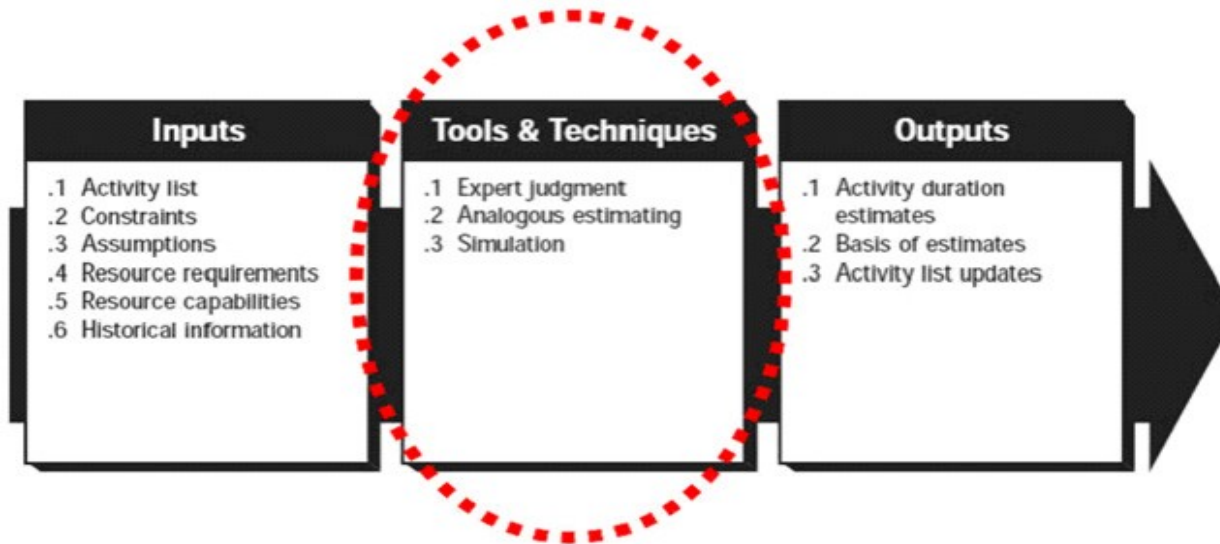
Which main issues?

Some common forms for **Reuse**...



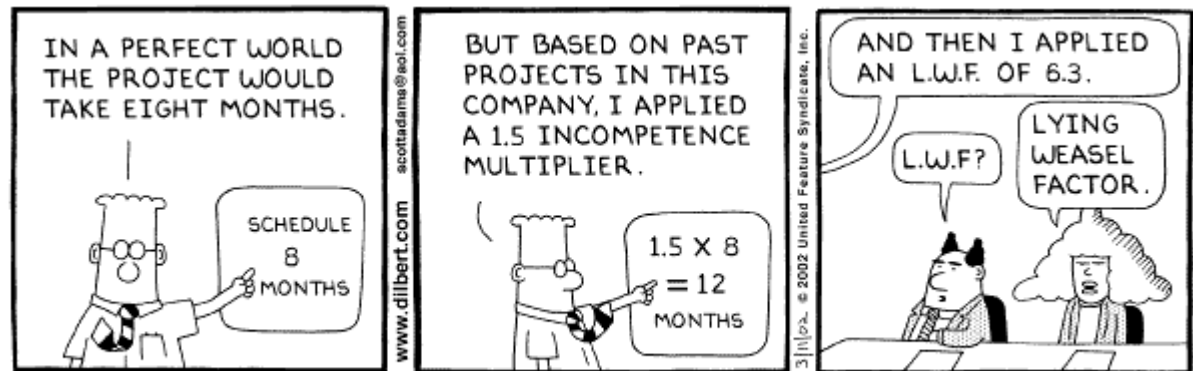
Which main issues?

...Reuse, also in Estimation...



• **Source:** PMI's PMBOK 4, Chapter 6.3

• **Source:** www.dilbert.com



Copyright © 2002 United Feature Syndicate, Inc.





Which definition of **reuse** do you apply?



Is it yours a **functional** or **technical** reuse?

Have you a Reuse **repository**? Are you planning to have a **QIP-like experience**?



How much are you **mature** about Reuse practices?





You cannot control what you cannot measure but...

You cannot measure what you cannot define but...

You cannot define what you don't know...





What is a LOC?

- ✓ **Physical or Logical?**
- ✓ **With/without comments?**
- ✓ **Which variability (abs, %) in estimations?**

```
XPEDIT Editor /home/gjcullen/rms/cbl/rmschangestr.cbl
File Edit View Fonts Info Revision Date: 03/04/2008 A
Command ==>
Prefix Editable Text Map
000016 ENVIRONMENT DIVISION.
000017 CONFIGURATION SECTION.
000018 SOURCE-COMPUTER, IBM-9672.
000019 OBJECT-COMPUTER, IBM-9672.
000020 INPUT-OUTPUT SECTION.
000021 FILE-CONTROL.
000022 DATA DIVISION.
000023 WORKING-STORAGE SECTION.
000024 01 IX PIC 9(8) COMP-5 VALUE ZERO.
000025 01 FOUND PIC 9(1) COMP-5 VALUE ZERO.
000026 01 TEMP-OBJECT PIC X(2048).
000027
000028 LINKAGE SECTION.
000029 01 PARAMETERS.
000030 02 STRING-ADR USAGE IS POINTER.
000031 02 STRING-LEN PIC 9(8) BINARY.
000032 02 CHGFROM-ARG PIC X(32).
000033 02 CHGFROM-LEN PIC 9(8) BINARY.
000034 02 CHGTO-ARG PIC X(32).
000035 02 CHGTO-LEN PIC 9(8) BINARY.
000036 02 STRING-RESULT PIC 9(8) BINARY.
000037 01 STRING-OBJECT PIC X(2048).
000038
000039 PROCEDURE DIVISION USING PARAMETERS.
000040 BEGIN.
000041 COMPUTE FOUND = 0.
000042 MOVE SPACE TO TEMP-OBJECT.
000043 SET ADDRESS OF STRING-OBJECT TO STRING-ADR.
000044 COMPUTE FOUND = 0.
000045 EVALUATE TRUE
000046 WHEN CHGTO-LEN = 0
000047 PERFORM CHANGE-STRING-TO-NUL THRU NULL-EXIT
000048 VARYING IX FROM 1 BY 1
000049 UNTIL (IX > STRING-LEN)
000050 WHEN OTHER
000051 PERFORM CHANGE-STRING THRU CHANGE-STRING-EXIT
000052 VARYING IX FROM 1 BY 1
000053 UNTIL (IX > (STRING-LEN - CHGFROM-LEN))
000054 END-EVALUATE.
000055 COMPUTE STRING-RESULT = FOUND.
000056 GOBACK.
000057
000058 CHANGE-STRING.
```

TextType: COBOL Offset: 1728, [Row 41], [Col 29], [PrevBlock 0,0], FileSize: 97, INSERT MODE



What to Measure?

EAM taxonomy



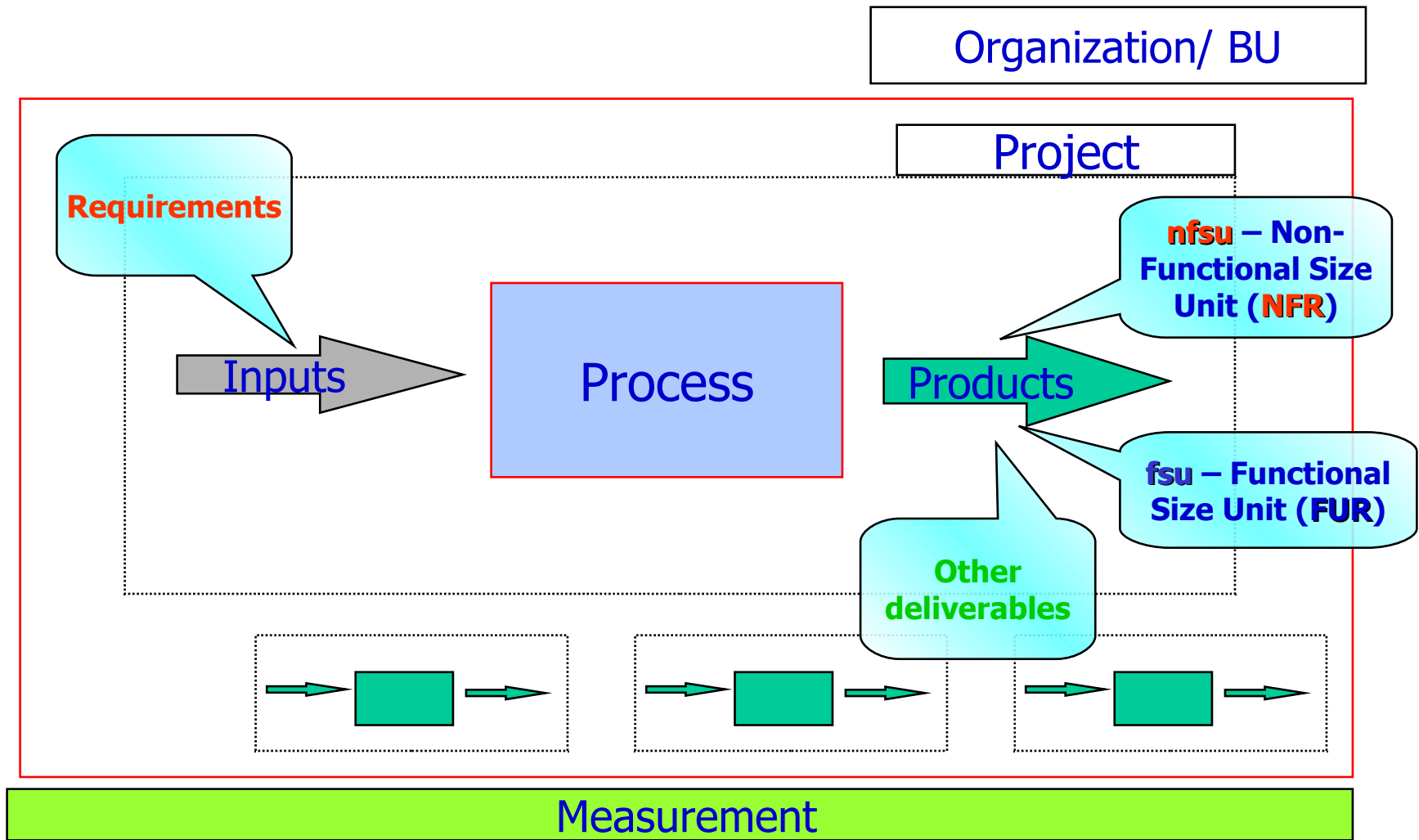
E – Entity	People	People	People
A – Attribute	Height	Weight	Intelligence
M - Measure	Cm / m / ...	Kg / lbs / ...	QI / ...



E – Entity	(software) product	(software) product	(software) product
A – Attribute	Source code length	Functionalities	Complexity
M - Measure	LOC – Lines of Code	Function Point	V(G) – McCabe compl.

Source: Buglione L., Ebert C., *Estimation, Encyclopedia of Software Engineering*, Taylor & Francis Publisher, June 2012, ISBN: 978-1-4200-5977-9





Fonte: L.Buglione & A.Abram, ICEBERG: a different look at Software Project Management, IWSM2002 in "Software Measurement and Estimation", Proceedings of the 12th International Workshop on Software Measurement (IWSM2002), October 7-9, 2002, Magdeburg (Germany), Shaker Verlag, ISBN 3-8322-0765-1, pp. 153-167





Q: which control level (granularity) has your project?

(a)



or

(b)





Req. Management

Requirements and Stakeholders



How the customer explained it



How the project leader understood it



How the analyst designed it



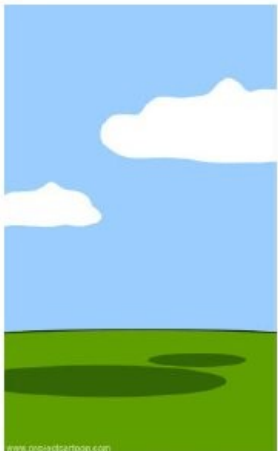
How the programmer wrote it



What the beta testers received



How the business consultant described it



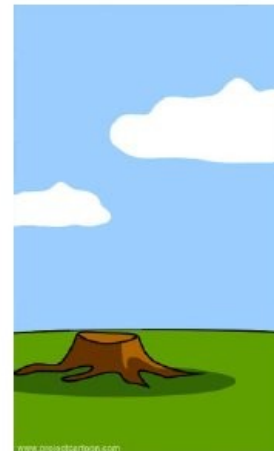
How the project was documented



What operations installed



How the customer was billed



How it was supported

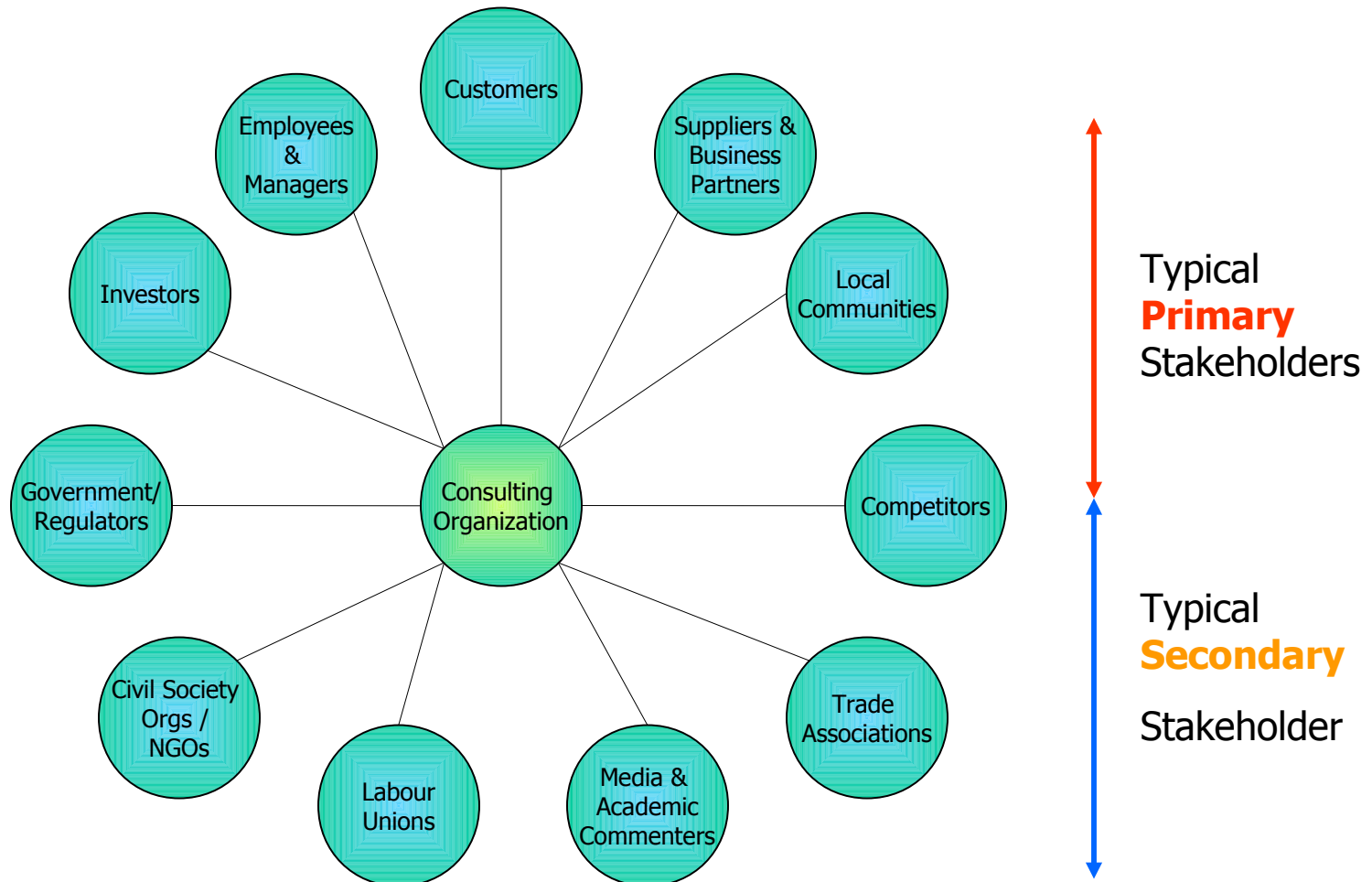


What marketing advertised



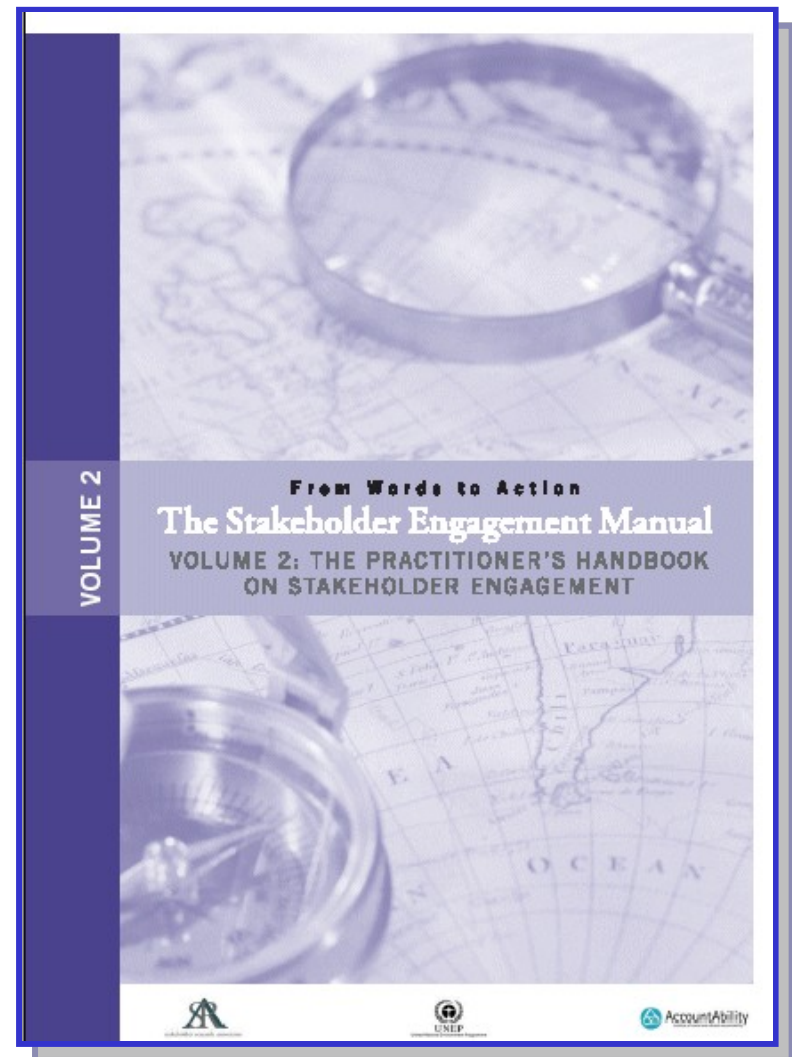
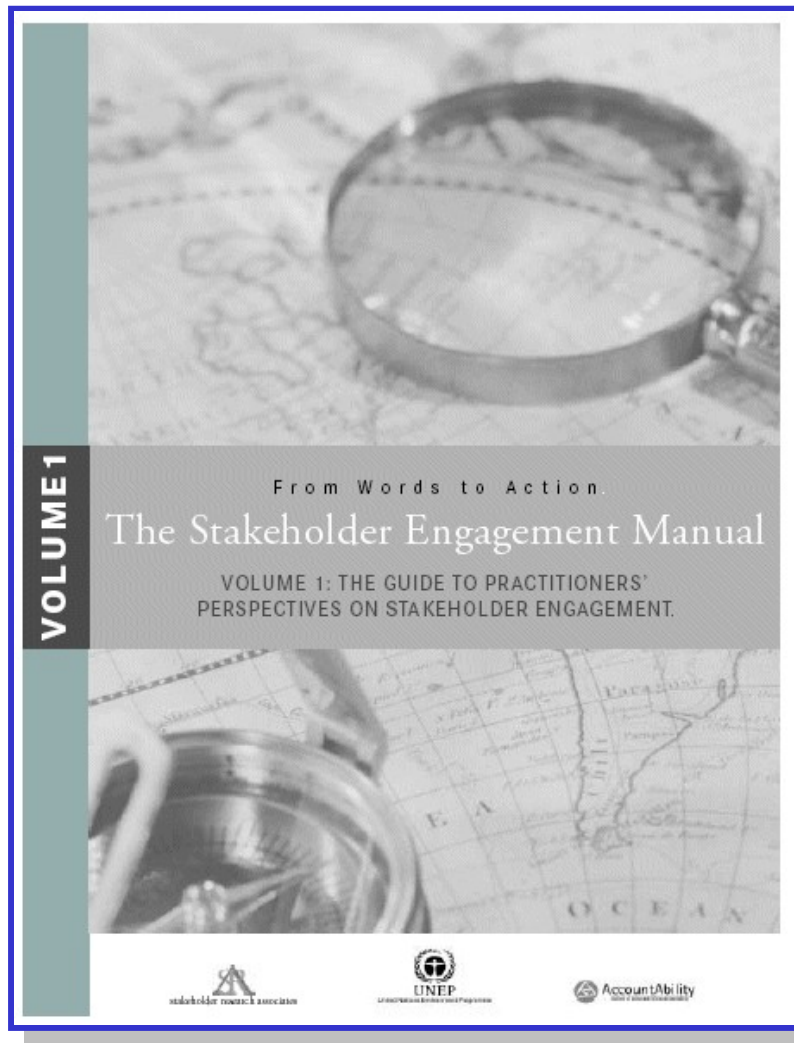
What the customer really needed





Source: SRA, The Stakeholder Engagement Manual, 2005, [URL:http://goo.gl/twKpMw](http://goo.gl/twKpMw)





Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Time Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Resources 6.5 Estimate Activity Durations 6.6 Develop Schedule		6.7 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
				8. Project Quality Management	8.1 Plan Quality Management 8.2 Perform Quality Assurance 8.3 Control Quality
				9. Project Human Resource Management	9.1 Plan Human Resource Management 9.2 Acquire Project Team 9.3 Develop Project Team 9.4 Manage Project Team
				10. Project Communications Management	10.1 Plan Communications Management 10.2 Manage Communications 10.3 Control Communications
				11. Project Risk Management	11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses 11.6 Control Risks
				12. Project Procurement Management	12.1 Plan Procurement Management 12.2 Conduct Procurements 12.3 Control Procurements 12.4 Close Procurements
				13. Project Stakeholder Management	13.1 Identify Stakeholders 13.2 Plan Stakeholder Management 13.3 Manage Stakeholder Engagement 13.4 Control Stakeholder Engagement

• Source: PMI's PMBOK 5 (2013)



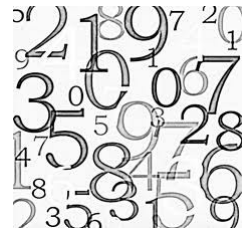


A: ... How to plan an activity if it's not clear the 'action space'?



A: ...in ICT – moreover than **certifications** on FSM – methods there are also **specific paths** (e.g. **NorthernSCOPE**, **SouthernSCOPE**, **ECQA Scope Mgr**, ...), to stress how relevant the topic is

A: ...both PMI's PMBOK than FSM methods ask to define the *scope* as a **preliminary and needed action** to deploy any further activity... **What is in or out?**

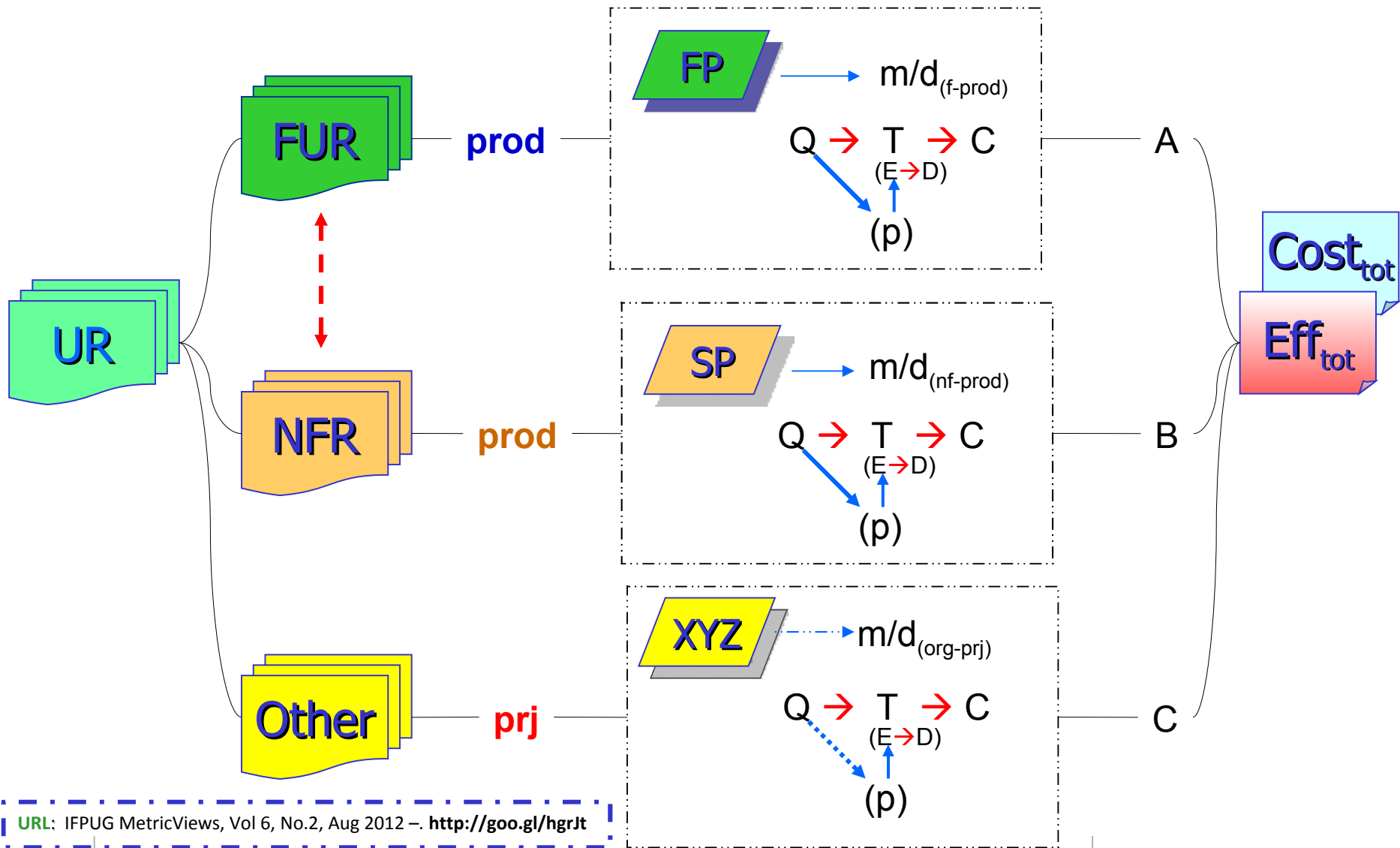


Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Time Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Resources 6.5 Estimate Activity Durations 6.6 Develop Schedule		6.7 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	

• **Source:** PMI's PMBOK 5 (2013)

8. Project Quality Management		8.1 Plan Quality Management	8.2 Perform Quality Assurance	8.3 Control Quality	
9. Project Human Resource Management		9.1 Plan Human Resource Management	9.2 Acquire Project Team 9.3 Develop Project Team 9.4 Manage Project Team		
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Control Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses		11.6 Control Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	12.4 Close Procurements
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Management	13.3 Manage Stakeholder Engagement	13.4 Control Stakeholder Engagement	





URL: IFPUG MetricViews, Vol 6, No.2, Aug 2012 – <http://goo.gl/hgrJt>





✓ Stakeholder Engagement



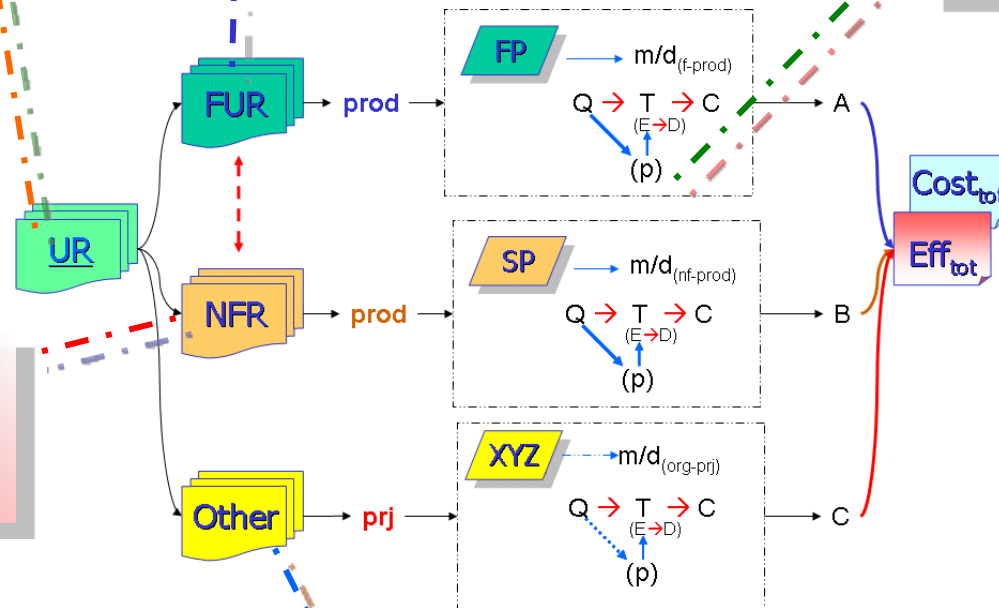
✓ IFPUG SNAP
✓ ISO/IEC 25010:2011 (ex 9126-x)
✓ ...



✓ FSM methods (IFPUG, COSMIC, ...)



✓ ISBSG D&E r12+



✓ WBS / Gantt model(s) -- tasks by nature

URL: IFPUG MetricViews, Vol 6, No.2, Aug 2012 – <http://goo.gl/hgrJt>





Great minds discuss *ideas*
Average minds discuss *events*
Small minds discuss *people*
(*Eleanor Roosevelt*)

Tailoring & Customizing





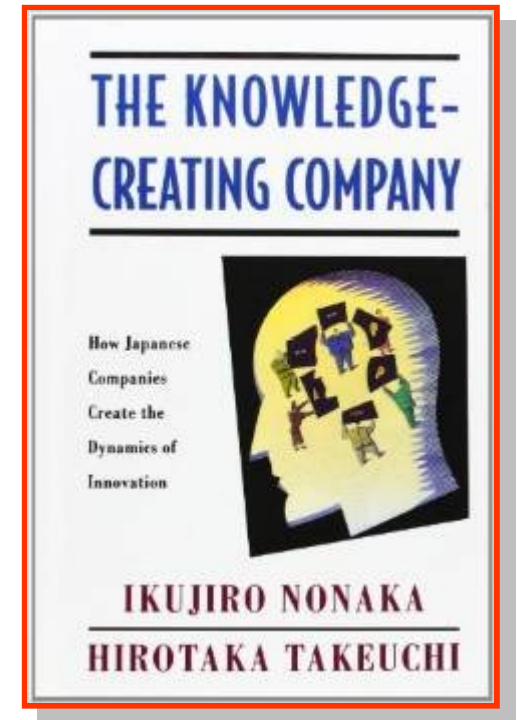
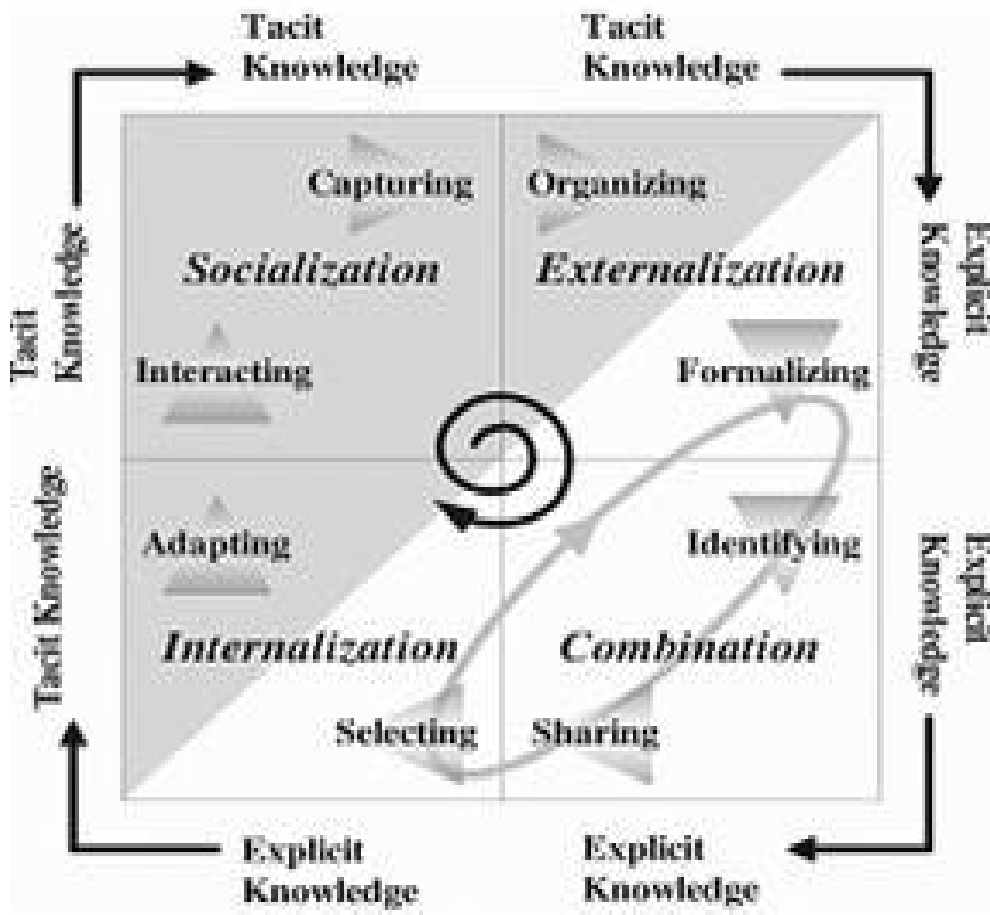
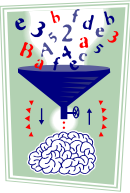
Q: Do you prefer to start from scratch (create) or by something similar and modify later (customize)? Why?



Q: What do you need to do that?

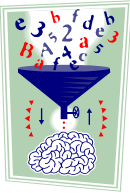
Q: How much time do you spend per week for updating your skills, knowledge and capabilities?





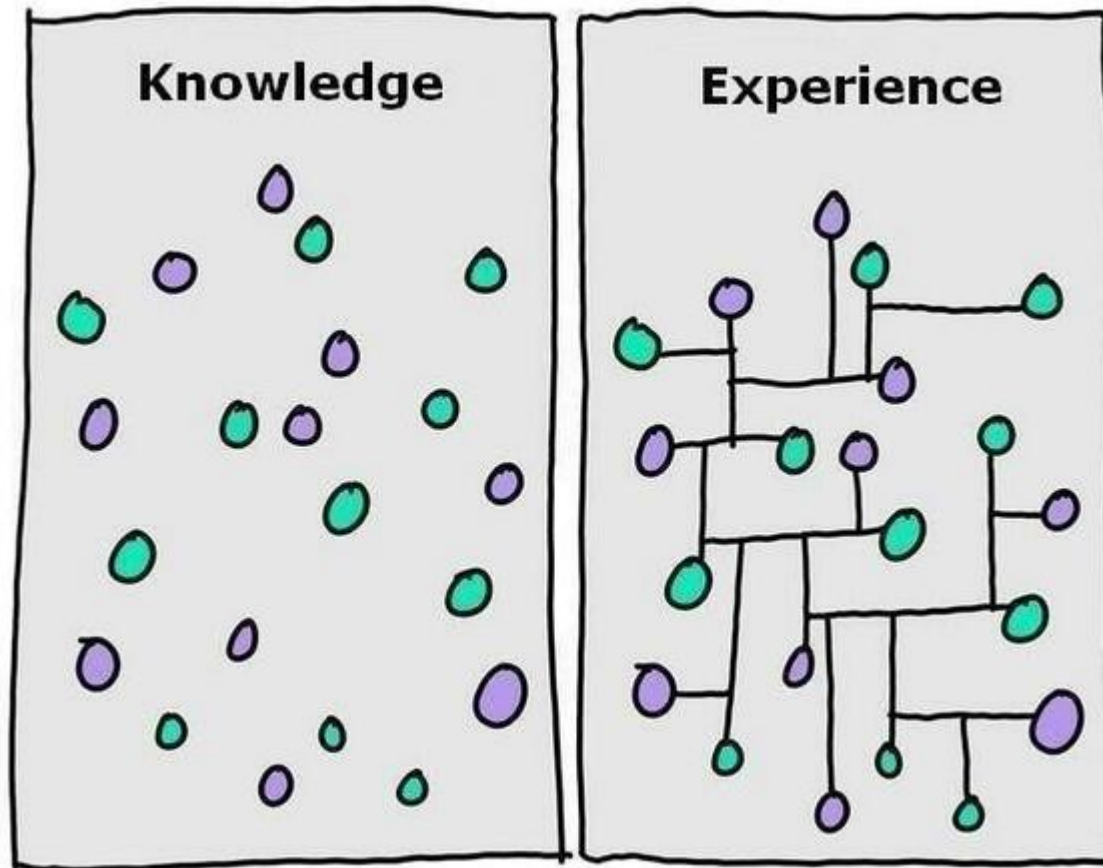
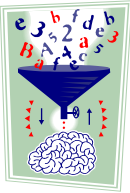
URL: <http://goo.gl/2i3kYT>





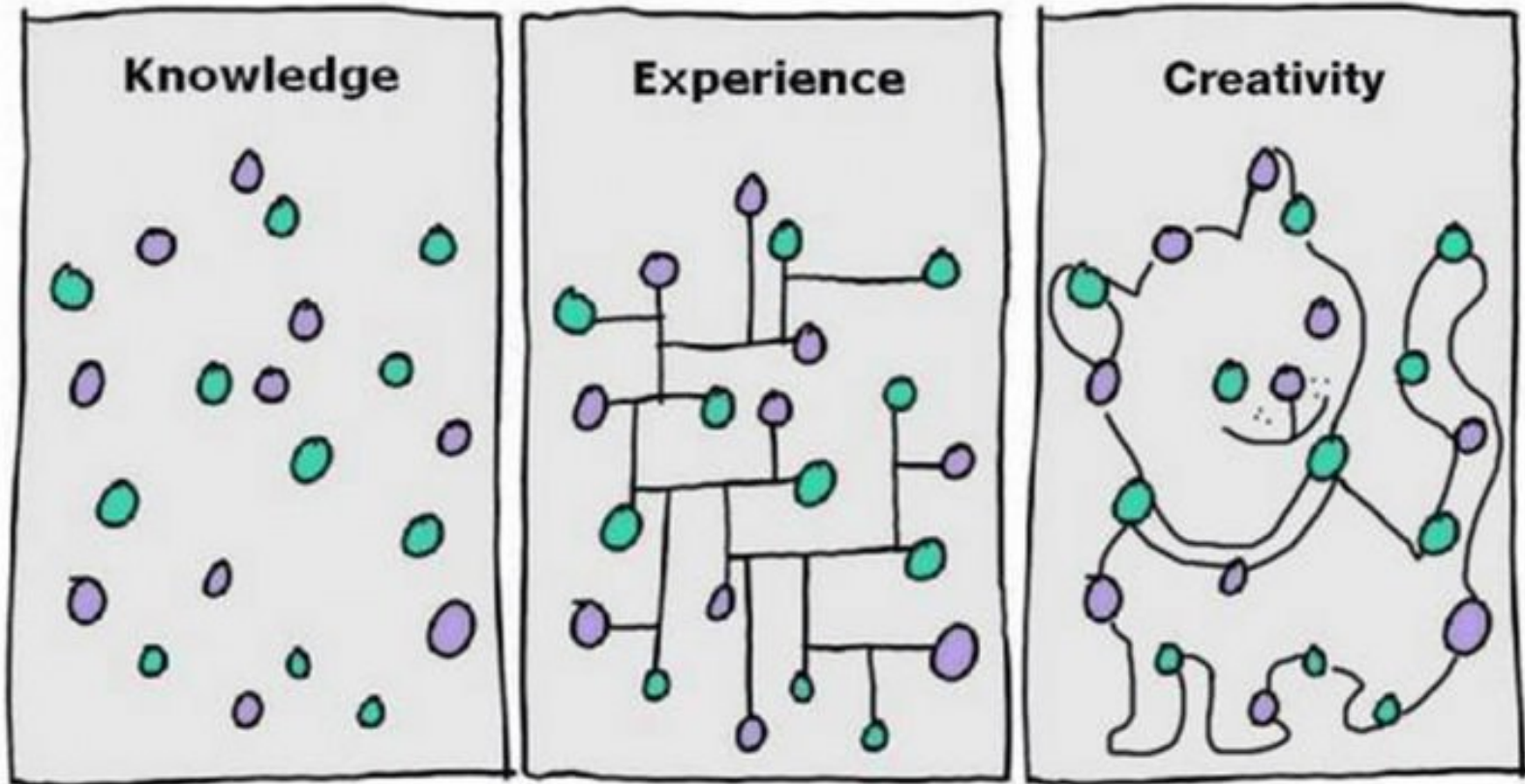
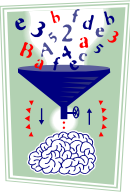
URL: <http://goo.gl/4K5IJJ>





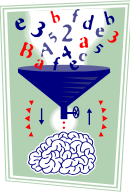
URL: <http://goo.gl/SKVNmc> (original) + <http://goo.gl/7BAFAk> (elaboration)





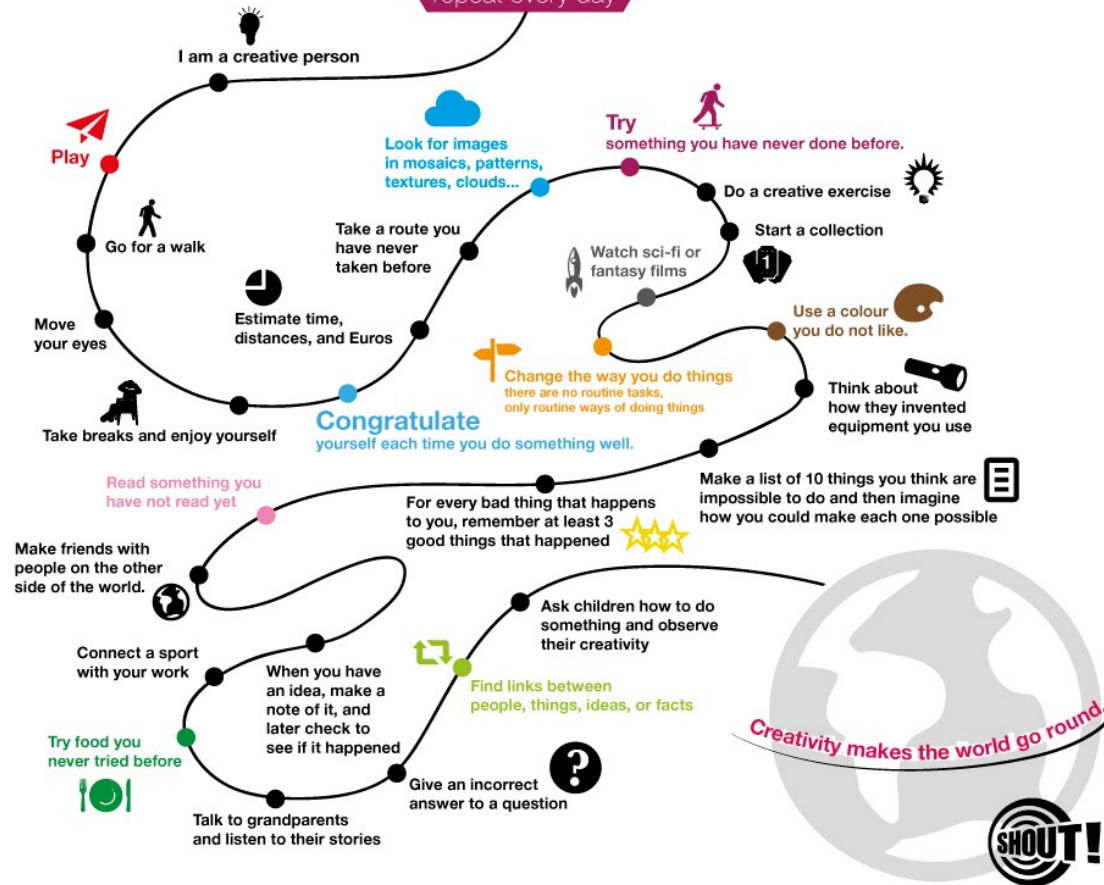
URL: <http://goo.gl/SKVNmc> (original) + <http://goo.gl/7BAFAk> (elaboration)





simple Ideas to stimulate creativity

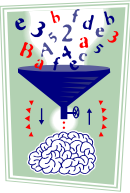
repeat every day



URL: www.edudemic.com/stimulating-creativity-infographic/







• Q-RCA (Quantitative RCA)

- ✓ **Idea:** Fishbone diagram stops at root-causes...how to help in prioritizing causes for taking corrective/improvement action?
- ✓ **Potential (added) value:** refining Fishbone diagram, adding the 'measurement' leaf + making it easier to be worked using a mind maps
- ✓ **Source:** Buglione L., *Strengthening CMMI Maturity Levels with a Quantitative Approach to Root-Cause Analysis, Proceedings of the 5th Software Measurement European Forum (SMEF 2008), Milan (Italy), 28-30 May 2008, ISBN 9-788870-909999, pp. 67-82*

• QF²D (QFD through Quality Factor)

- ✓ **Idea:** QFD is an 'open' tool...but how to repeat the technical spec's using standards?
- ✓ **Potential (added) value:** using the ISO sw product quality model as 'tech spec' dimension
- ✓ **Source:** L.Buglione & A.Abran, *QF2D: a different way to measure Software Quality, IWSM2000 (10th International Workshop on Software Measurement), Berlin, Germany, October 4-6, 2000*

• LEGO (Living EnGineering prOcess)

- ✓ **Idea:** A model is just a model, not the absolute truth...is there a way to keep the best from any model/framework of interest? How?
- ✓ **Potential (added) value:** The target is my refined process model, keeping best pieces from valuable sources after a comparison and extractions
- ✓ **Source:** Buglione L., Gresse von Wangenheim C., Hauck J.C.R., Mc Caffery F., *The LEGO Maturity & Capability Model Approach, Proceedings of 5WCSQ, 5th World Congress on Software Quality, Shanghai (China), Oct 31- Nov 4 2011*





- **Definition:** *"A mind map is a diagram used to represent words, ideas, tasks or other items linked to and arranged radially around a central key word or idea [...]"* (from Wikipedia)

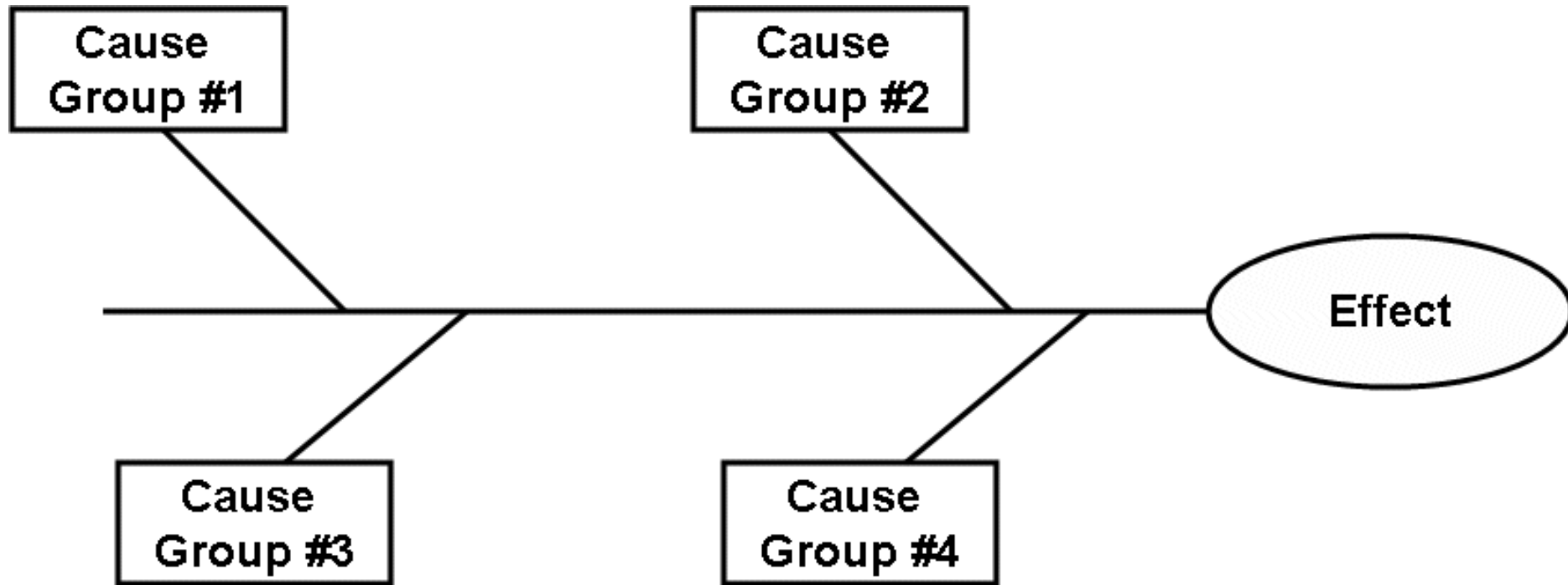
Origins

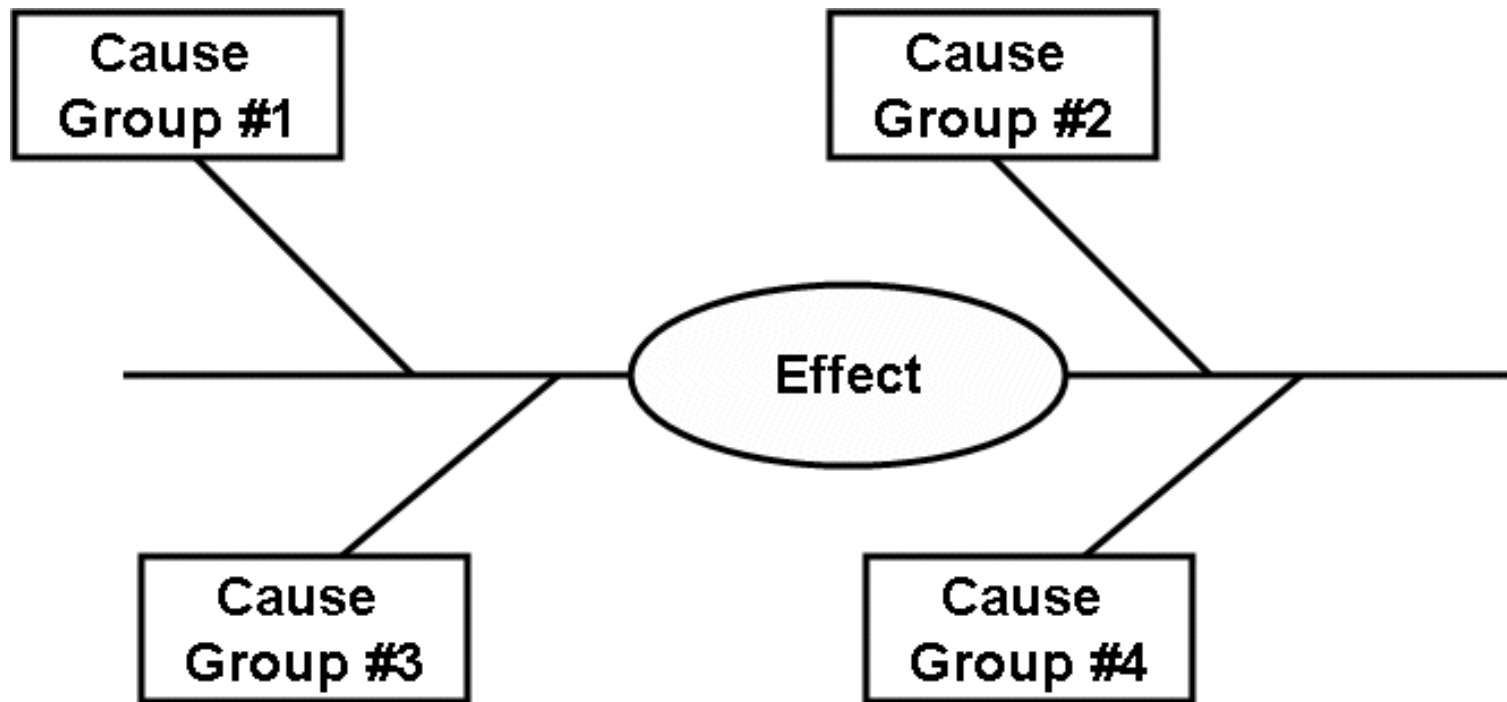
- ✓ at least from the 300BC on (i.e. Porphyry of Tyros, a noted thinker)
- ✓ more recently proposed by psychologist Tony Buzan

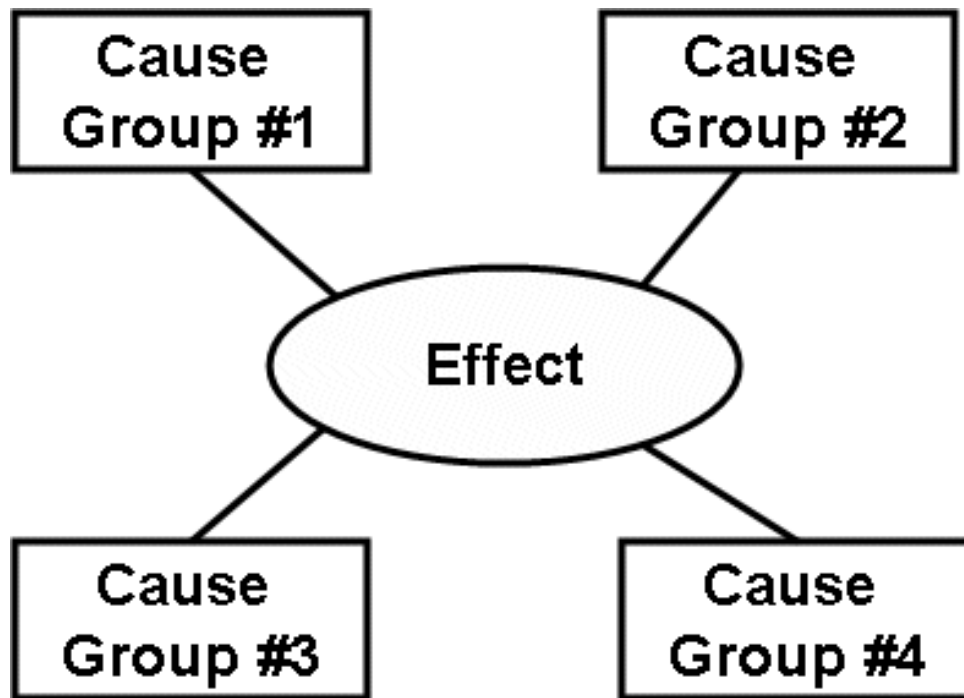
Perspectives

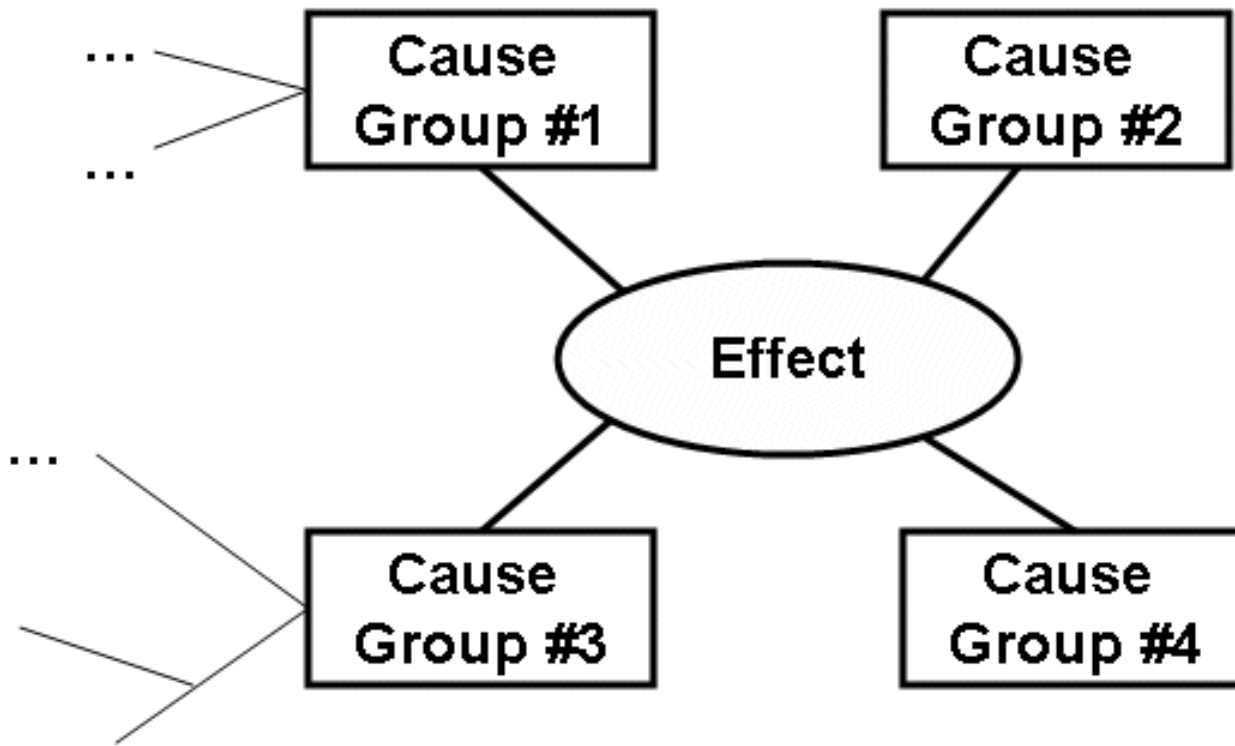
- ✓ several possible usages, with the common aim to represent concepts grouping them by some criteria
- ✓ brainstorming, creating a hierarchy of concepts, note-taking, etc...

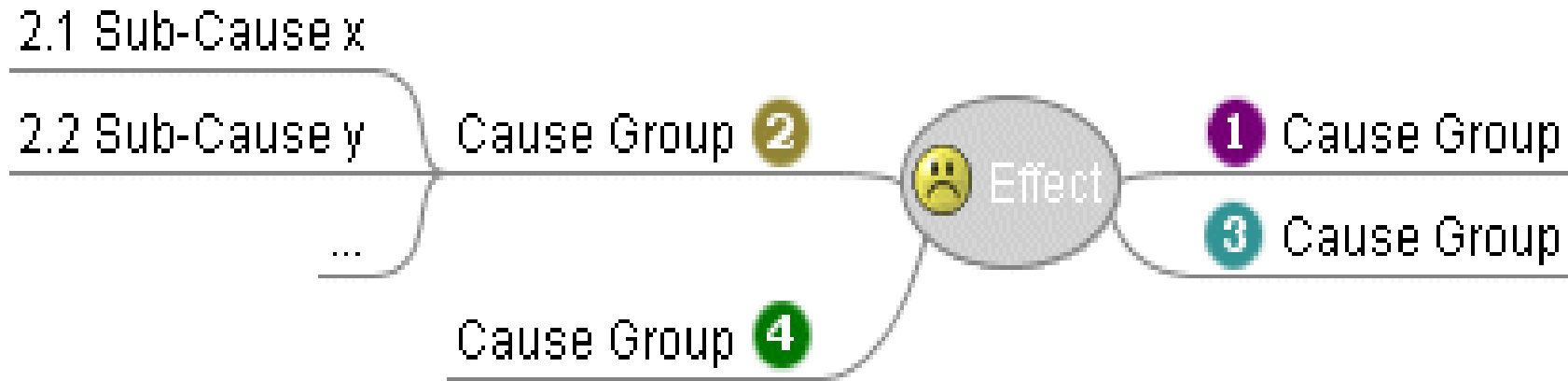












• Mind Maps software: <http://goo.gl/ltxfao>





Tailoring examples

Q-RCA: Possible Applications

✓ Meeting Reports (3 pages)

Atos Origin

Meeting Report

Meeting Report

Project Name:

Client:

Project Manager:

Meeting Date:

Attendees:

Name	Company
Luigi Magliocco	Atos Origin
Mario Rossi	Atos Origin
Francesco Rossi	Atos Origin
Antonio Rossi	Atos Origin
Antonio Rossi	Atos Origin

Meeting Recorder:

Distribution List:

Name	Company
Guido Rossi	Atos Origin
Francesco Rossi	Atos Origin

Meeting Report

Company Confidential

Atos Origin

Root Cause Analysis (RCA)

ROOT-CAUSE ANALYSIS (RCA)



Root Cause Analysis (RCA)

Company Confidential

Atos Origin

Action Plan

ACTION PLAN

Item	Customer/Requirement	Impact	Responsible	Deadline	Status
1	Project planning	Impact analysis for next working week	Atos Origin	2014-01-01	OK
2	Project execution	Impact analysis for next working week	Atos Origin	2014-01-01	OK
3	Project monitoring	Impact analysis for next working week	Atos Origin	2014-01-01	OK

Legend:
O: Open, C: Closed, TBA: To Be Assigned

Action Plan

Company Confidential





✓ Within a wiki

collaborate with

Sandbox

Log in or Register

- Sandbox Web
- Create New Topic
- Index
- Search
- Changes
- Notifications
- RSS Feed
- Statistics
- Preferences
- Register
- Welcome

Wiki Tip of the Day
Control table attributes with TablePlugin
 The TablePlugin gives extra control of table display. Allows sorting. Changing table properties ... [Read on](#)

Webs
 Blog
 Codev
 Main
 Plugins
 Sandbox
 Support
 TWiki
 TWiki01
 TWiki02
 TWiki03
 TWiki04
 TWiki04i01
 TWiki04i02

Jump Search

Edit WYSIWYG Attach Printable

You are here: TWiki > Sandbox Web > CallCenterStatusBoard > CallCenterStatusBoardV2 > CallCenterStatusBoardV3

Tags: twiki_application 1 ... cgsa

NOTE: This TWiki is not configured for international characters - please see the [setup notes](#) if you need this on your TWiki site. — PeterThoeny - 03 Feb 2008

Call-Center Status Board, v3

Start	End	Primary	Backup	Comments
07:30am	11:30am	PeterThoeny	ColasNahaboo	
11:30am	03:00pm	ColasNahaboo	ArthurClemens	lunchtime cover needed
03:00pm	07:00pm	ArthurClemens	RichardDonkin	

[Bj.](#)

Meeting Report (2008-02-14)

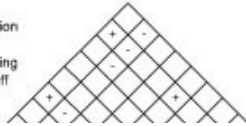
[Edit](#) [WYSIWYG](#) [Attach](#) [Printable](#) [Raw View](#) [Backlinks](#) [Web](#) [All Webs](#) [History](#) [r35](#) < [r34](#) < [r33](#) < [r32](#) < [r31](#) [More](#)
 topic actions

the contributing authors. All material on this collaboration platform is the property of the contributing authors. Ideas, requests, problems regarding TWiki? [Send feedback](#)

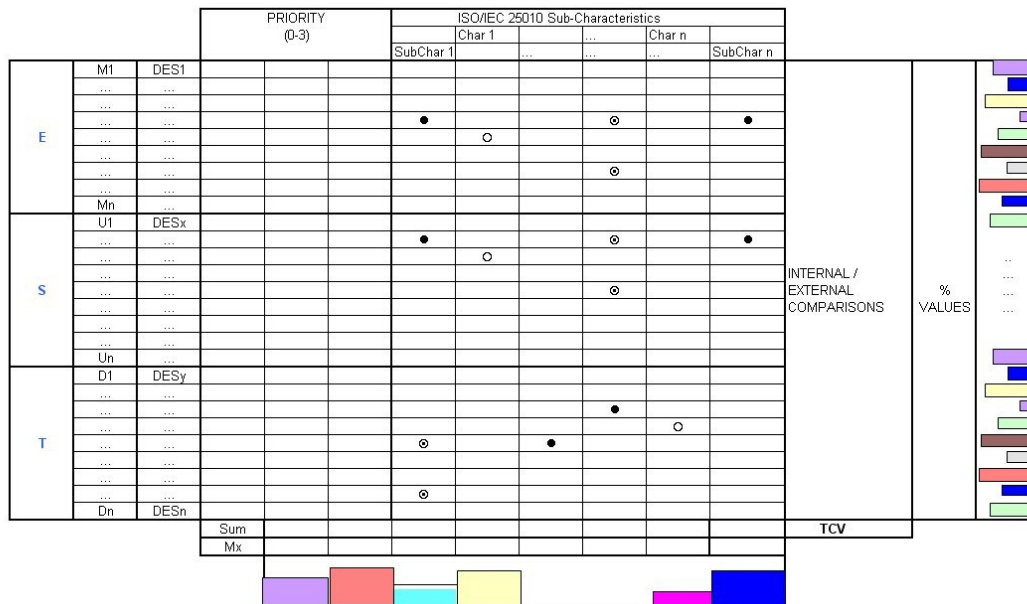




Key to roof / correlation matrix symbols
+ Positive / Supporting
- Negative / Tradeoff



QFD +
QM (ISO 25010) +
QEST Model
= **QF²D!**

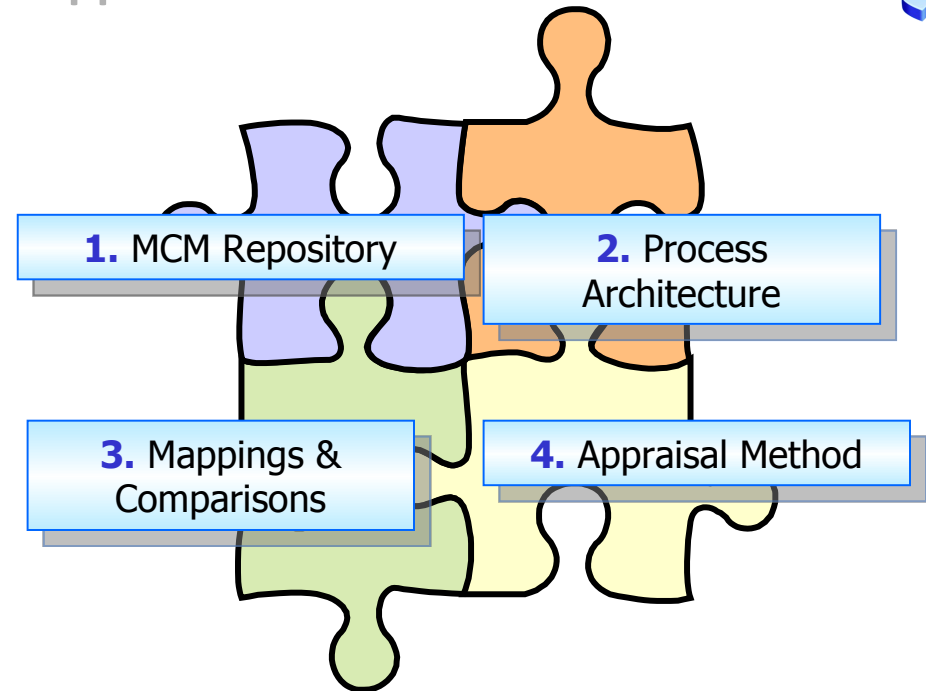
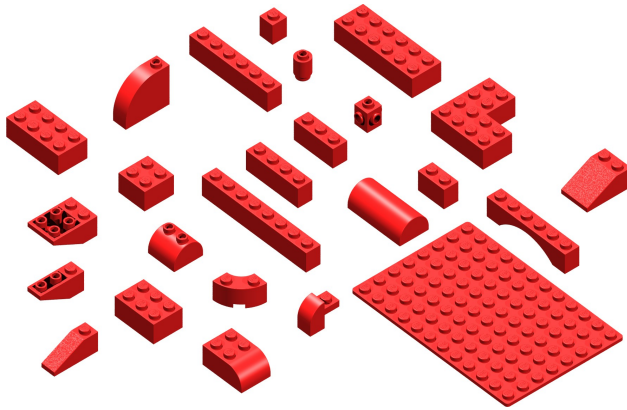


- Customized version by L.Buglione and A.Abran (2002) – www.sem-q.eu
- Introduced the usage of a Quality Model (QM) for grouping requirements (e.g. **ISO/IEC 25010:2011**) for reducing the probability of missing/incomplete requirements from early stages between customer and provider
- Stress the relevance in properly balancing FUR and NFR by each project type looking at stakeholders' needs and viewpoints



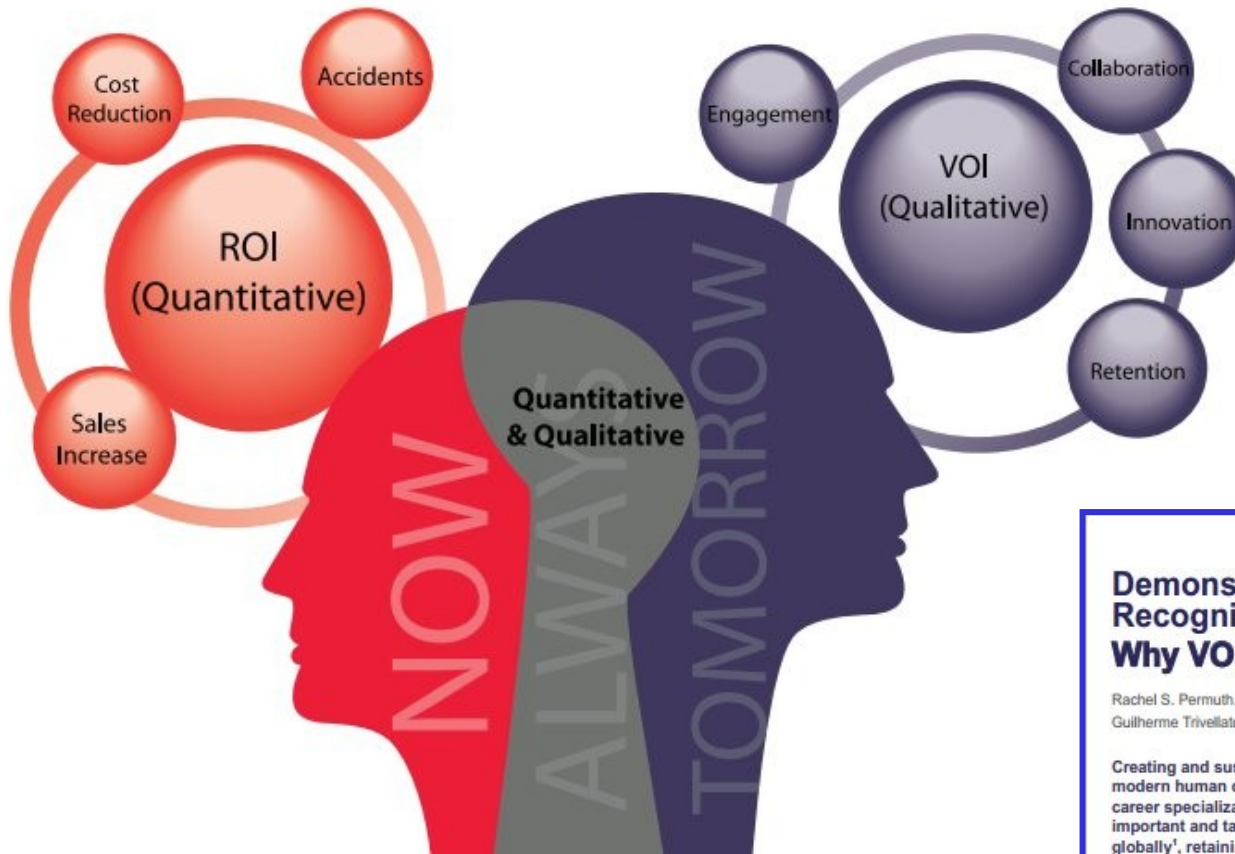
Tailoring examples

The LEGO Approach



Source: Buglione L., Gresse von Wangenheim C., Hauck J.C.R., Mc Caffery F., *The LEGO Maturity & Capability Model Approach*, Proceedings of 5WCSQ, 5th World Congress on Software Quality, Shanghai (China), Oct 31- Nov 4 2011





Demonstrating Value in Employee Recognition Programs: Why VOI Is the New ROI

Rachel S. Permuth, PhD, MSPH - Sodexo
Guilherme Trivellato Andrade, MPH MBA 2014

Creating and sustaining a high performing workforce is the ultimate goal of modern human capital management. As career specialization becomes increasingly important and talent shortage looms globally, retaining human assets and engaging employees to contribute their full potential is vital to competitive success.

“As a growing number of organizations increase the use of rewards and

The link between employee engagement at

Source:



*Maturity is the capacity
to endure uncertainty*

(John Huston Finley)



Maturity & Capability Models (MCMs)





+Luigi Ricerca Immagini Maps Play YouTube News Gmail Drive Calendar Altro ▾

Google "maturity model" 🔍

Web Immagini Maps Shopping Più contenuti ▾ Strumenti di ricerca

Circa 1.450.000 risultati (0,22 secondi)

Suggerimento: Cerca risultati solo in italiano. Puoi specificare la lingua di ricerca in [Preferenze](#).

Maturity model - Wikipedia, the free encyclopedia
en.wikipedia.org/wiki/Maturity_model ▾ Traduci questa pagina
Maturity model. From Wikipedia, the free encyclopedia. Jump to: navigation, search.
Maturity Model may refer to: Capability **Maturity Model** (CMM); Capability ...

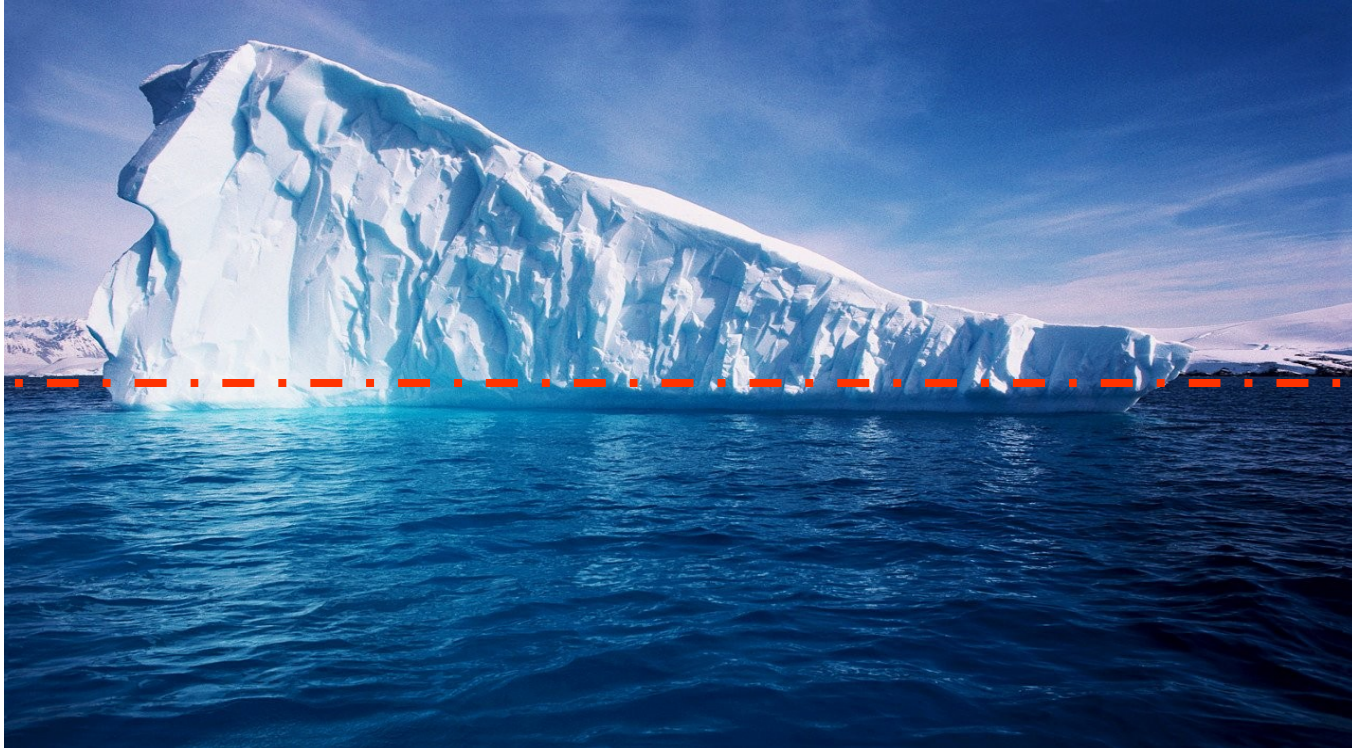
Capability Maturity Model - Wikipedia
it.wikipedia.org/wiki/Capability_Maturity_Model ▾
Capability **Maturity Model** Integration (CMMI) è un approccio al miglioramento dei processi il cui obiettivo è di aiutare un'organizzazione a migliorare le sue ...
[Valutazioni del modello](#) - [Le Process Area](#) - [Note](#) - [Altri progetti](#)

Capability Maturity Model - Wikipedia, the free encyclopedia
en.wikipedia.org/wiki/Capability_Maturity_Model ▾ Traduci questa pagina
The Capability **Maturity Model** (CMM) is a development model that uses data collected from organizations that contracted with the U.S. Army ...

Capability Maturity Model Integration - Wikipedia
en.wikipedia.org/wiki/Capability_Maturity_Model_Integration ▾ Traduci questa pagina
Capability **Maturity Model** Integration (CMMI) is a process model for system development, certification program and service administration.

- A plenty of free ideas...for free!
- Hundreds of Maturity/Capability Models
- Just need to know WHERE to find them
- ...start googling!



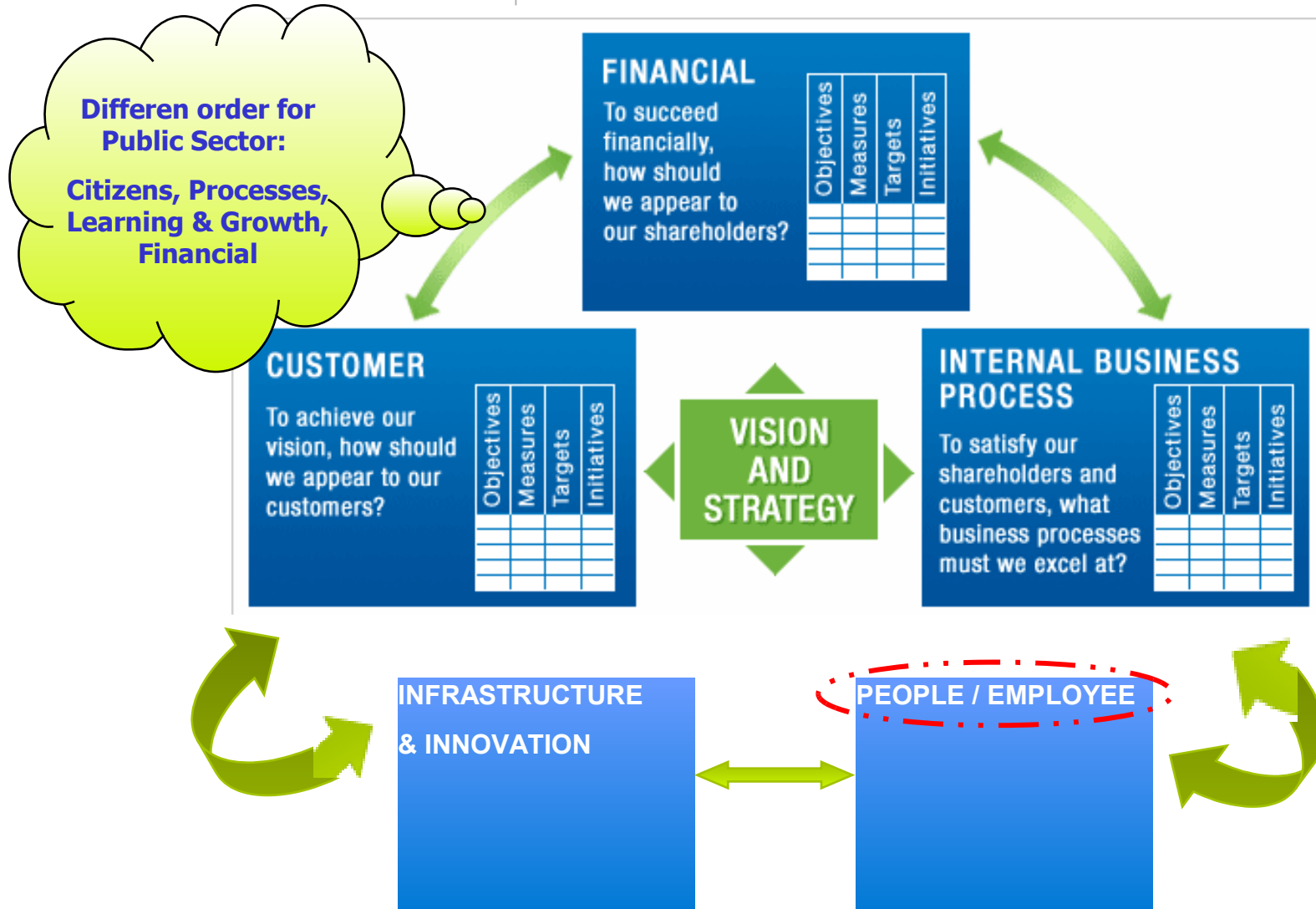


LEARNING AND GROWTH

To achieve our vision, how will we sustain our ability to change and improve?

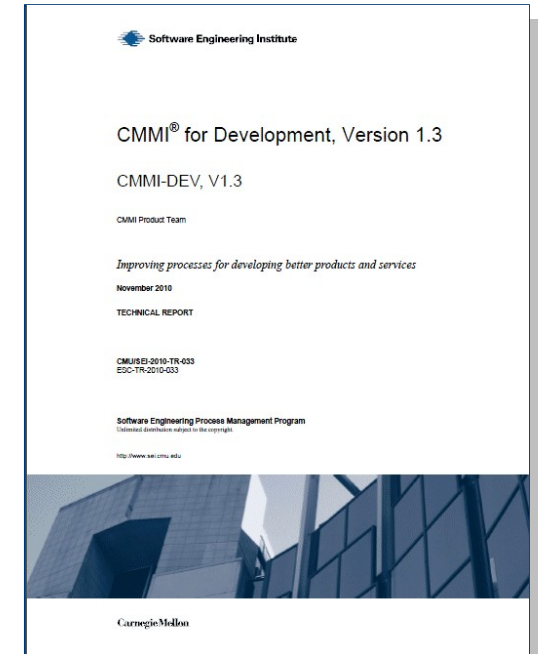
Objectives	Measures	Targets	Initiatives







ML	Focus	Id.	PA Title
5	Optimizing	OPM	Organizational Performance Management
		CAR	Causal Analysis & Resolution
4	Predictable	OPP	Organizational Process Performance
		QPM	Quantitative Project Management
3	Defined	RD	Requirement Development
		TS	Technical Solution
		PI	Product Integration
		VAL	Validation
		VER	Verification
		OPD	Organizational Process Definition
		OPF	Organizational Process Focus
		OT	Organizational Training
		IPM	Integrated Project Management
		RSKM	Risk Management
		DAR	Decision Analysis & Resolution
2	Managed	REQM	Requirement Management
		PP	Project Planning
		PMC	Project Monitoring & Control
		SAM	Supplier Agreement Management
		MA	Measurement & Analysis
		PPQA	Process & Product Quality Assurance



- **ML: 5**
- **PA: 24**
- **N.min PA : ML1 (0)**
- **N.max PA : ML3 (13)**





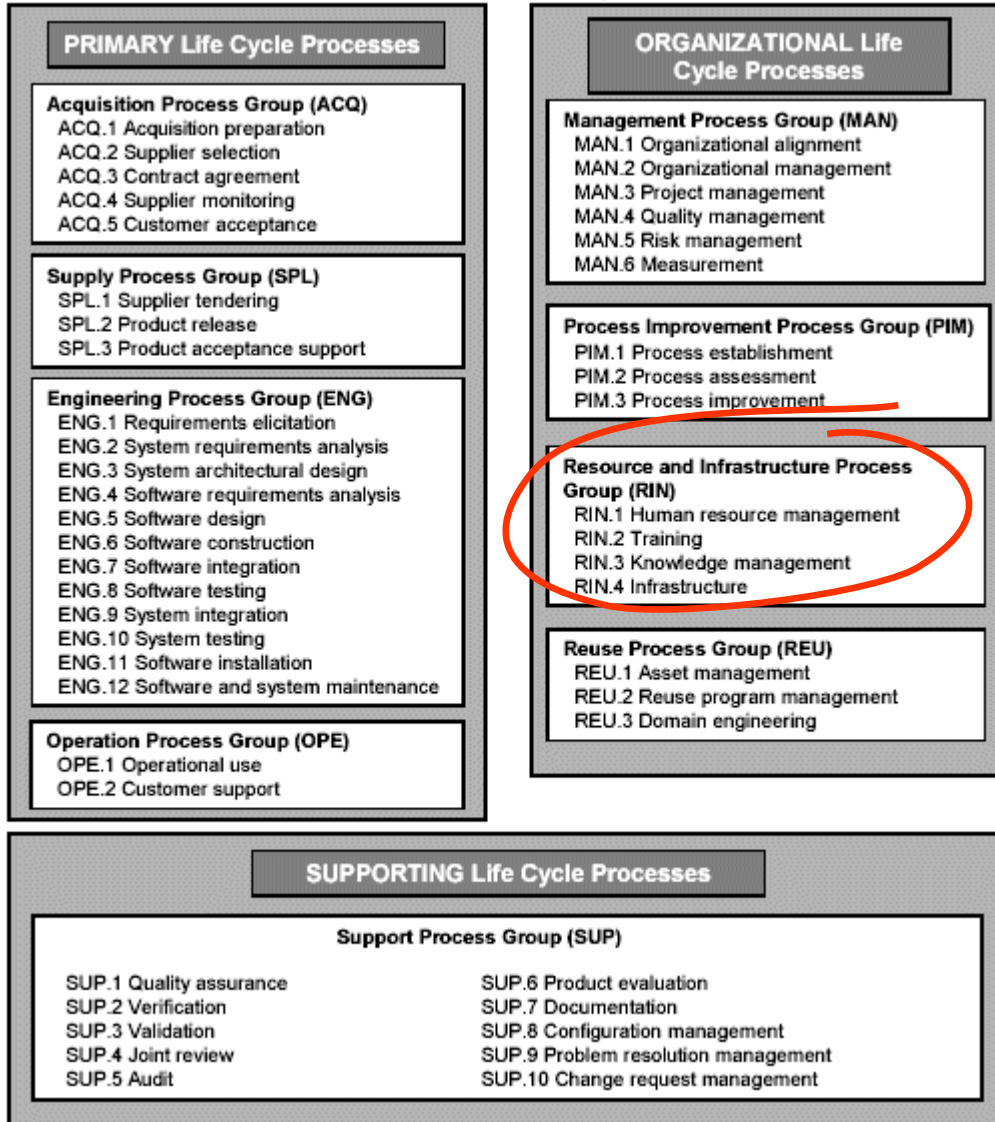
Process Categories Maturity Levels	Process Management	Project Management	Engineering	Support
Optimizing	OPM			CAR
Predictable	OPP	QPM		
Defined	OPF OPD OT	IPM RKSM	RD TS PI VER VAL	DAR
Managed		PP PMC SAM	REQM	CM MA PPQA
Initial	<i>Ad-hoc processes</i>			

- **PA categories:** 4
- **PA:** 24 → **22**
- **N.min PA per Category :** Process Management (5)
- **N.max PA per Category:** Project Management (7)



MCMs

Representations – Continuous (SPICE)



Current **PRM** in ISO/IEC 15504-5 contains 3 macro-groups, 9 process groups and 48 processes:

- **Primary**
 - **ACQ** – Acquisition
 - **SPL** – Supply
 - **ENG** – Engineering
 - **OPE** – Operation
- **Organizational**
 - **MAN** - Management
 - **PIM** – Process Improvement
 - **RIN** – Resource & Infrastructure
 - **REU** - Reuse
- **Supporting**
 - **SUP** - Support



Management Process Group (MAN) MAN.1 Organizational alignment MAN.2 Organization management A MAN.3 Project management MAN.4 Quality management A MAN.5 Risk management A MAN.6 Measurement	Engineering Process Group (ENG) A ENG.1 Requirements elicitation A ENG.2 System requirements analysis A ENG.3 System architectural design A ENG.4 Software requirements analysis A ENG.5 Software design A ENG.6 Software construction A ENG.7 Software integration A ENG.8 Software testing A ENG.9 System integration A ENG.10 System testing ENG.11 Software installation ENG.12 Software and system maintenance	Supporting Process Group (SUP) A SUP.1 Quality assurance A SUP.2 Verification SUP.3 Validation A SUP.4 Joint review SUP.5 Audit SUP.6 Product evaluation A SUP.7 Documentation A SUP.8 Configuration management A SUP.9 Problem resolution management A SUP.10 Change request management
The Acquisition Process Group (ACQ) ACQ.1 Acquisition preparation ACQ.2 Supplier selection A ACQ.3 Contract agreement A ACQ.4 Supplier monitoring ACQ.5 Customer acceptance A ACQ.11 Technical requirements A ACQ.12 Legal and administrative requirements A ACQ.13 Project requirements A ACQ.14 Request for proposals A ACQ.15 Supplier qualification	Resource & Infrastructure Process Group (RIN) RIN.1 Human resource management RIN.2 Training RIN.3 Knowledge management RIN.4 Infrastructure	Operation Process Group (OPE) OPE.1 Operational use OPE.2 Customer support
Supply Process Group (SPL) A SPL.1 Supplier tendering A SPL.2 Product release SPL.3 Product acceptance support	Process Improvement Process Group PIM.1 Process establishment PIM.2 Process assessment A PIM.3 Process improvement	Reuse Process Group (REU) REU.1 Asset management A REU.2 Reuse program management REU.3 Domain engineering

A Automotive-SPICE

not included in ISO/EC 15504

HIS (VW, Audi, BMW, Porsche, D&C)

FIAT

FORD



Softex
TECNOLOGIA DA INFORMAÇÃO BRASILEIRA

A SOFTEX | TIC BRASILEIRA | PROJETOS PARA O SETOR | AGENTES

Menu | **Guias**

MPS.BR
Agenda MPS.BR
Avaliações
Implementação
Instituições Autorizadas
Guias
Cursos e Provas
Comunicados
CoP/MPS – Comunidade de Prática do MPS

Guia Geral de Gestão de Pessoas

- Guia Geral MPS de Gestão de Pessoas: 2014 – versão Beta**
Este guia contém a descrição geral do Modelo MPS e detalha o Modelo de Referência MPS-RH) e as definições comuns necessárias para seu entendimento e aplicação. VIGÊNCIA E TRANSIÇÃO: O Guia Geral MPS de Gestão de Pessoas:2014 – versão Beta entra em vigor a partir da data de sua publicação. Assim, a partir desta data, as avaliações pilotos a partir da data de sua publicação. Assim, a partir desta data, as avaliações pilotos a partir da data de sua publicação. Assim, a partir desta data, as avaliações pilotos a partir da data de sua publicação.

Guia Geral de Serviços

- Guia Geral de Serviços: 2012 (Agosto de 2012)**
Este guia contém a descrição geral do Modelo MPS e detalha o Modelo de Referência MPS-SV) e as definições comuns necessárias para seu entendimento e aplicação. VIGÊNCIA E TRANSIÇÃO: O Guia Geral MPS de Serviços:2012 entra em vigor a partir da data de sua publicação. Assim, a partir desta data, as avaliações pilotos a partir da data de sua publicação. Assim, a partir desta data, as avaliações pilotos a partir da data de sua publicação.

Guia Geral de Software

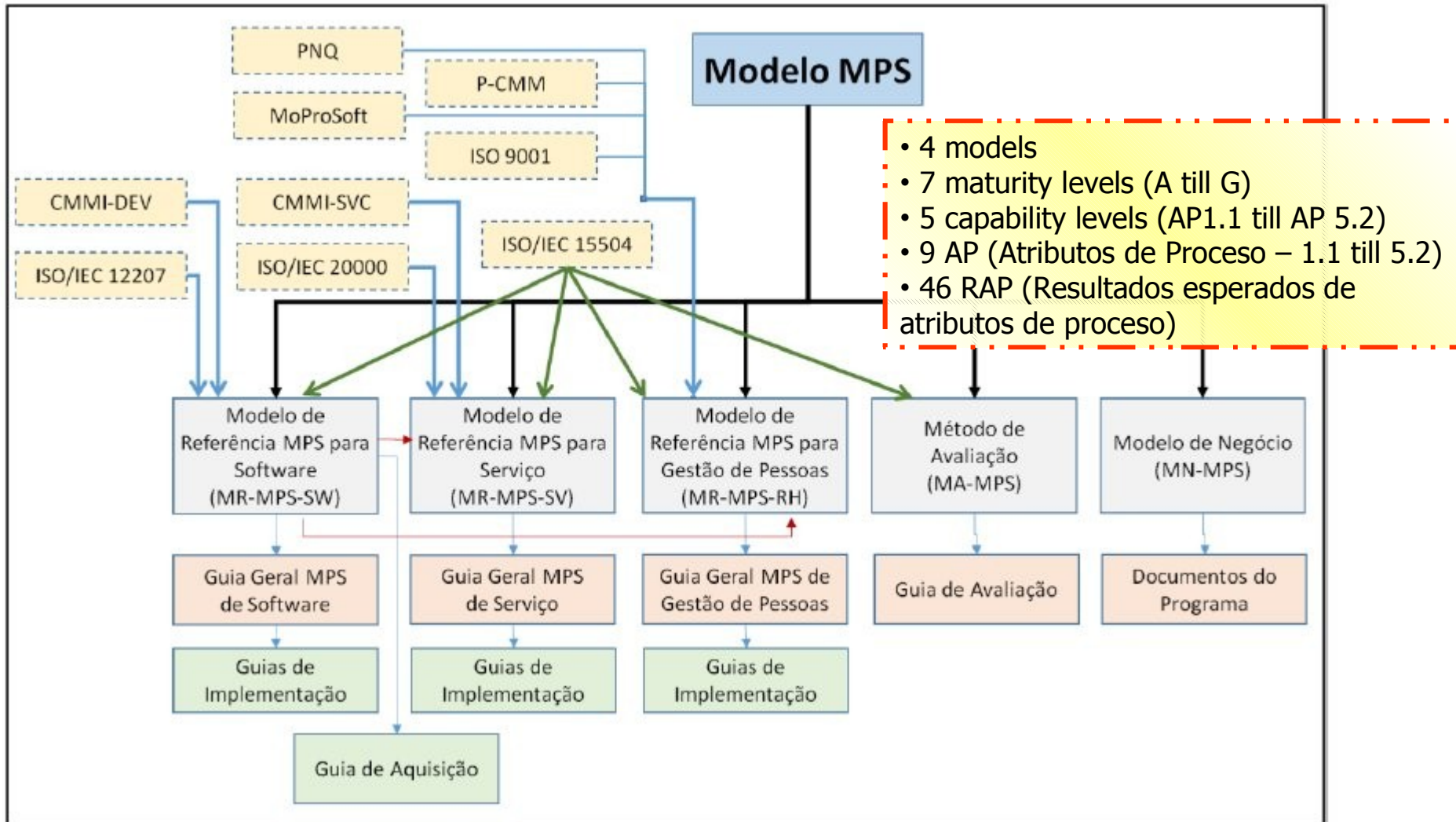
- Guia Geral de Software: 2012 (Agosto de 2012)**
Este guia contém a descrição geral do Modelo MPS e detalha o Modelo de Referência MPS-SW) e as definições comuns necessárias para seu entendimento e aplicação. VIGÊNCIA E TRANSIÇÃO: O Guia Geral MPS de Software:2012 entra em vigor a partir da data de sua publicação. Assim, a partir desta data, as avaliações pilotos a partir da data de sua publicação. Assim, a partir desta data, as avaliações pilotos a partir da data de sua publicação.

Case Study 10 Years of MPS.BR

Kival Chaves Weber
Nelson Henrique Franco de Oliveira
Virgínia Costa Duarte

Softex
mps Br





Nível	Processos	Atributos de Processo
A	Melhoria Contínua da Capacidade – MCC	AP 1.1, AP 2.1, AP 2.2, AP 3.1 e AP 3.2
	Alinhamento do Desempenho Organizacional – ADO	
	Inovação Contínua da Força de Trabalho – ICF	
B	Integração de Competências e Grupos de Trabalho Habilitados – ICG	AP 1.1, AP 2.1, AP 2.2, AP 3.1 e AP 3.2
	Gerência Quantitativa de Desempenho – GQD	
	Gerência da Capacidade Organizacional – GCP	
C	Desenvolvimento de Carreira – DCA	AP 1.1, AP 2.1, AP 2.2, AP 3.1 e AP 3.2
	Mentoring – MEN	
D	Práticas Baseadas em Competências – PBC	AP 1.1, AP 2.1, AP 2.2, AP 3.1 e AP 3.2
	Desenvolvimento de Competências – DVC	
E	Desenvolvimento de Grupos de Trabalho – DGT	AP 1.1, AP 2.1, AP 2.2, AP 3.1 e AP 3.2
	Planejamento da Força de Trabalho – PFT	
	Análise de Competências – ACP	
F	Reconhecimento – REC	AP 1.1, AP 2.1 e AP 2.2
	Gerência de Pessoas – GPE (evolução)	
	Capacitação e Desenvolvimento – CDV	
G	Gerência de Pessoas – GPE	AP 1.1 e AP 2.1
	Gerência de Recursos - GRC	



- Not present a specific KM process ("Gestão do Conhecimento")



- Present processes on Competencies and Capability (individual, group)



Nível	Processos	Atributos de Processo
A		AP 1.1, AP 2.1, AP 2.2, AP 3.1, AP 3.2, AP 4.1, AP 4.2, AP 5.1 e AP 5.2
B	Gerência de Projetos – GPR (evolução)	AP 1.1, AP 2.1, AP 2.2, AP 3.1 e AP 3.2, AP 4.1 e AP 4.2
C	Gerência de Riscos – GRI	AP 1.1, AP 2.1, AP 2.2, AP 3.1 e
D	Desenvolvimento para Reutilização – DRU	AP 3.2
	Gerência de Decisões – GDE	
	Verificação – VER	
	Validação – VAL	
	Projeto e Construção do Produto – PCP	
	Integração do Produto – ITP	
E	Desenvolvimento de Requisitos – DRE	AP 1.1, AP 2.1, AP 2.2, AP 3.1 e AP 3.2
	Gerência de Projetos – GPR (evolução)	
	Gerência de Reutilização – GRU	
	Gerência de Recursos Humanos – GRH	
	Definição do Processo Organizacional – DFP	
	Avaliação e Melhoria do Processo Organizacional – AMP	
F	Medição – MED	AP 1.1, AP 2.1 e AP 2.2
	Garantia da Qualidade – GOA	
	Gerência de Portfólio de Projetos – GPP	
	Gerência de Configuração – GCO	
	Aquisição – AQU	
	Gerência de Requisitos – GRE	
G	Gerência de Projetos – GPR	AP 1.1 e AP 2.1



- Not present a specific KM process (“Gestão do Conhecimento”)



- Present a Reuse process



Nível	Processos	Atributos de Processo
A		AP 1.1, AP 2.1, AP 2.2, AP 3.1, AP 3.2, AP 4.1, AP 4.2, AP 5.1 e AP 5.2
B	Gerência de Trabalhos – GTR (evolução)	AP 1.1, AP 2.1, AP 2.2, AP 3.1 e AP 3.2, AP 4.1 e AP 4.2
C	Gerência de Capacidade – GCA	AP 1.1, AP 2.1, AP 2.2,
	Gerência da Continuidade e Disponibilidade dos Serviços – GCD	
	Gerência de Decisões – GDE	
	Gerência de Liberação – GLI	
	Gerência de Riscos – GRI	
	Gerência da Segurança da Informação – GSI	
	Relato de Serviços – RLS	
D	Desenvolvimento do Sistema de Serviços – DSS	
	Orçamento e Contabilização de Serviços – OCS	



- Not present a specific KM process (“Gestão do Conhecimento”)



- Present processes for Capacity Management and Problem Management

E	Avaliação e Melhoria do Processo Organizacional – AMP	AP 1.1, AP 2.1, AP 2.2, AP 3.1 e AP 3.2
	Definição do Processo Organizacional – DFP	
	Gerência de Mudanças – GMU	
	Gerência de Recursos Humanos – GRH	
	Gerência de Trabalhos – GTR (evolução)	
F	Aquisição – AQU	AP 1.1, AP 2.1 e AP 2.2
	Gerência de Configuração – GCO	
	Garantia da Qualidade – GOA	
	Gerência de Problemas – GPL	
	Gerência de Portfólio de Trabalhos – GPT	
	Medição – MED	
G	Entrega de Serviços – ETS	AP 1.1 e AP 2.1
	Gerência de Incidentes – GIN	
	Gerência de Nível de Serviço – GNS	
	Gerência de Requisitos – GRE	
	Gerência de Trabalhos – GTR	





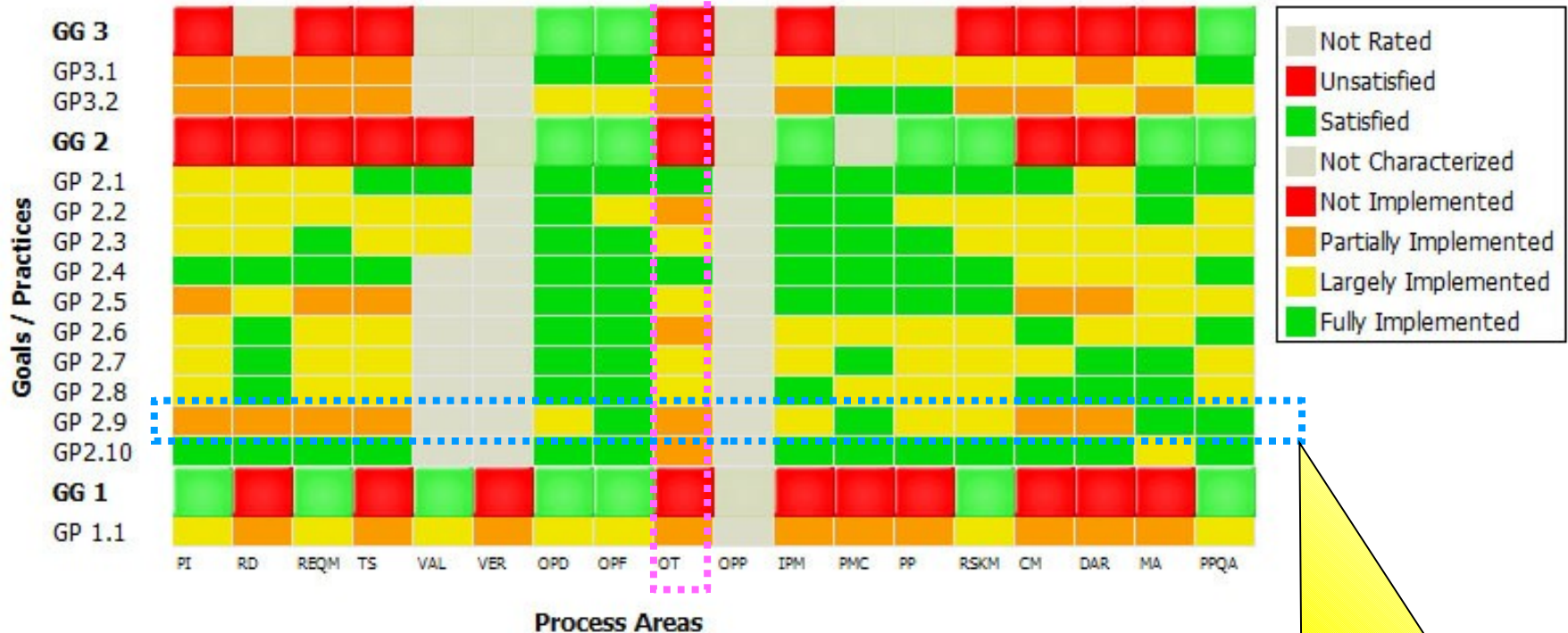
MCMs

Representations – Continuous (example)



- The same can be done using the ISO/IEC 15504 PAM as for MPS.BR

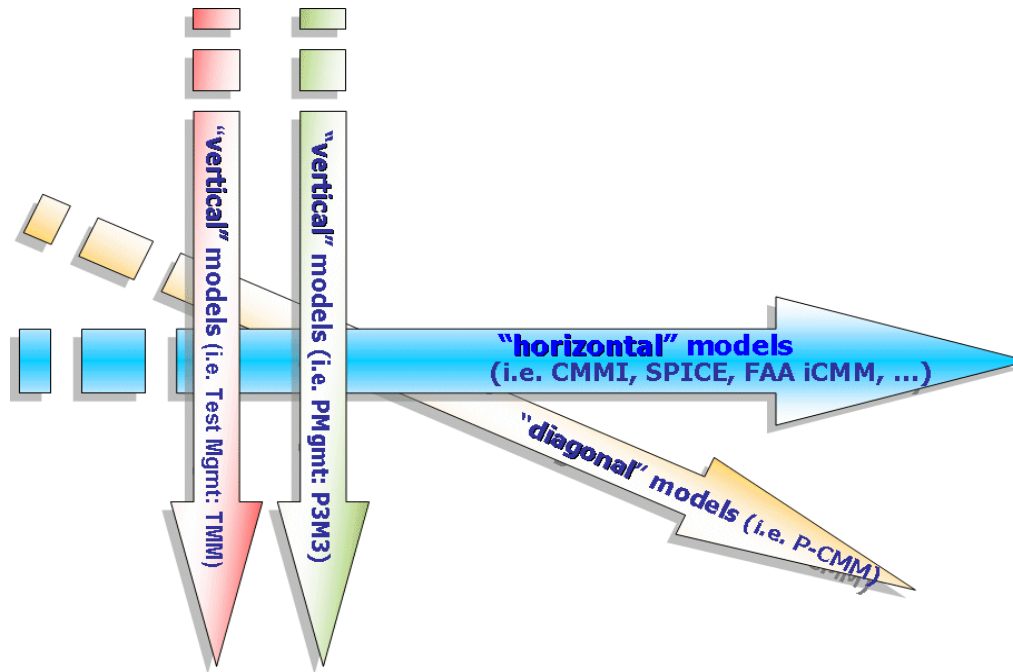
Special cause
(GP.2.2 @ OT)



- **Source:** SQI Appraisal Assistant- <http://goo.gl/i6IvI>

Common cause (GP.2.9 @ +PA)





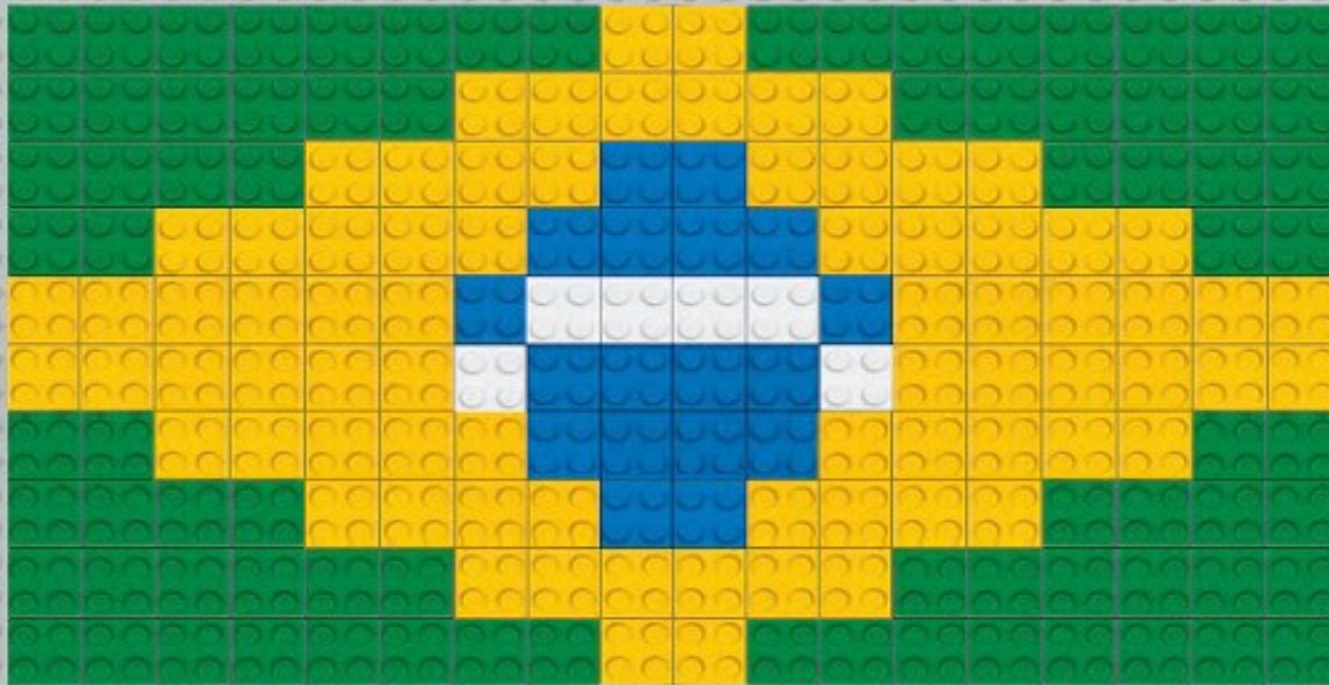
- **Horizontal:** MMs going through the whole supply chain
 - ✓ **SwEng:** ISO/IEC 15504 (SPICE), CMMI, FAA i-CMM, ...
- **Vertical:** MMs focusing on a single perspective/group of processes
 - ✓ **Test Mgmt:** TMM, TPI, ...
 - ✓ **Project Mgmt:** PM-MM, OPM3, ...
 - ✓ **Requirement Mgmt:**
- **Diagonal:** MMs focused on Organizational/Support processes
 - ✓ People CMM, TSP, PSP, ...

Source: Buglione L., *An Ecological View on Process Improvement: Some Thoughts for Improving Process Appraisals*, 4WCSQ, 4th World Congress on Software Quality, Washington D.C. (USA), 15-18 September 2008



Don't forget to play!
(Anonymous)

Construa o Brasil que você sempre imaginou.

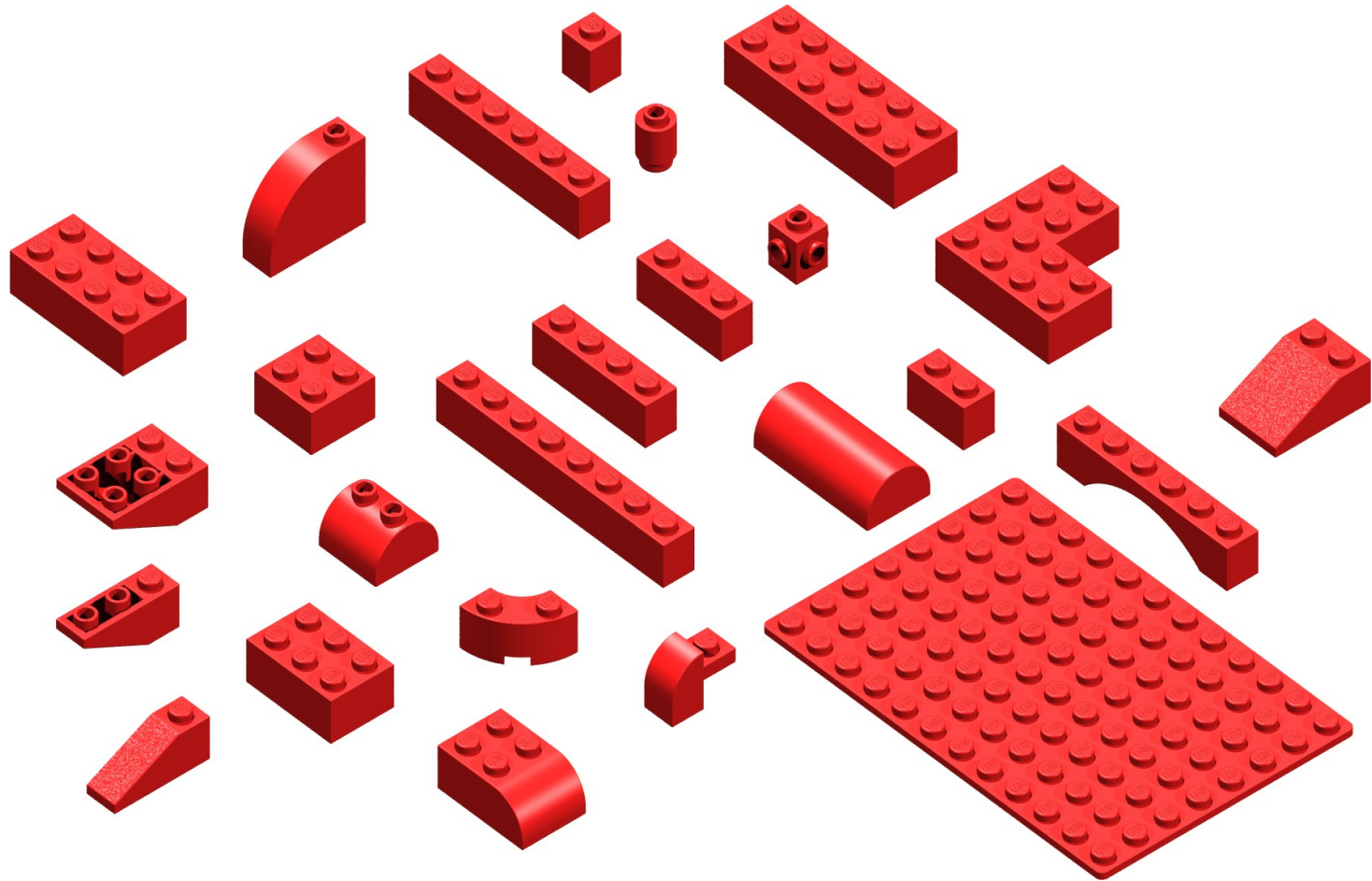


The LEGO (Living EnGineering prOcess) Approach



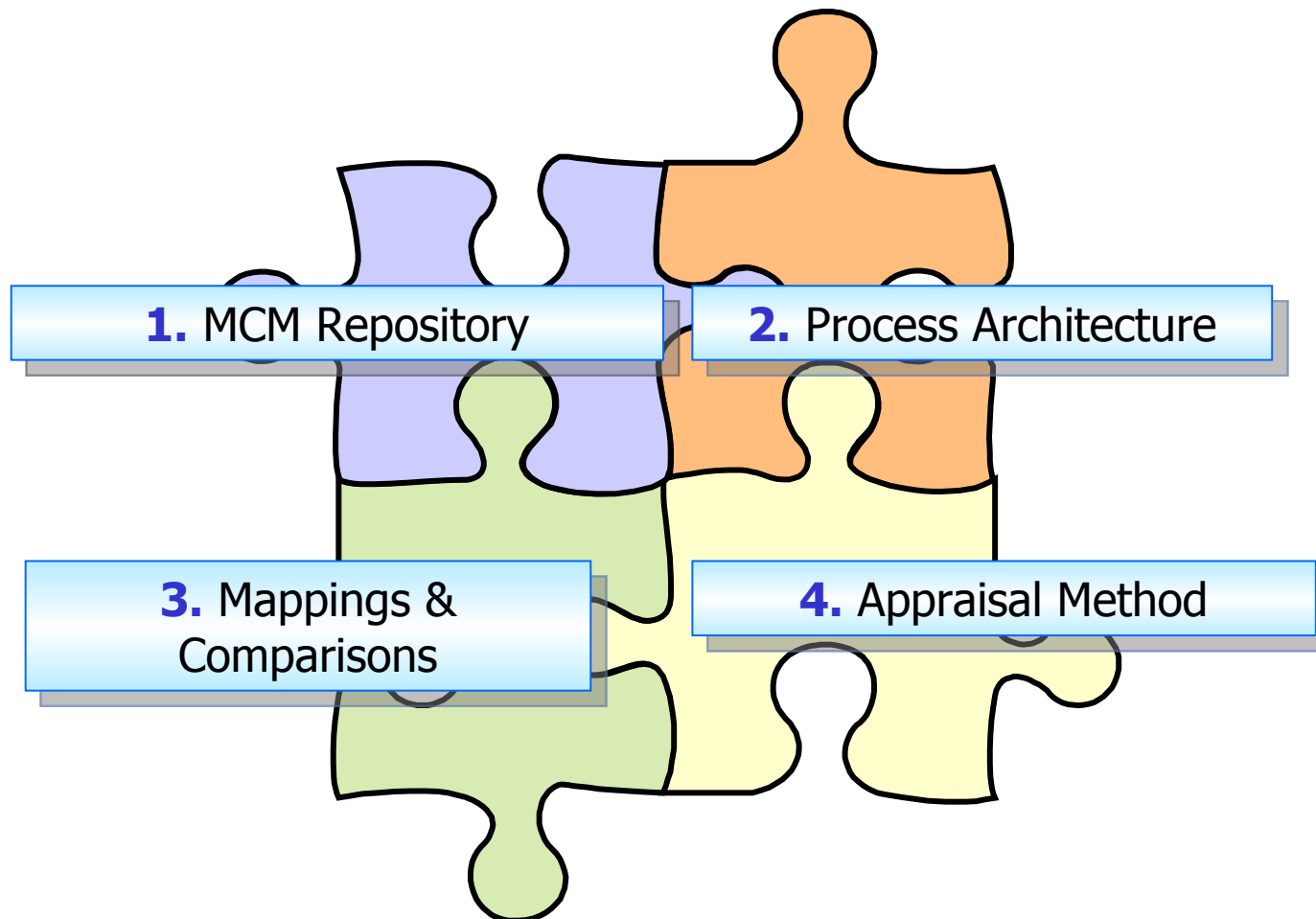
Imagine. É possível.





LEGO (Living Engineering Process)





The LEGO Approach

1. MCM Repository - www.gqs.ufsc.br/mcm



Maturity Model Repository

HOME
LOGIN

Find and share maturity models.

Search

Use the form below to define you search criteria using any kind of combination of the following attributes.

MODEL

Acronym
e.g. CMMI, MEDISPICE.

Name
e.g. AutomotiveSPICE Process.

Owner
e.g. SEI, ISO.

Domain
e.g. SME, small.

Sources
e.g. CMMI, ISO/IEC 15504 etc.

PROCESS

Name
e.g. Knowledge Manager

MATURITY LEVELS

☐ staged representation

CAPABILITY LEVELS

☐ continuous representation available

AND
AND
AND
AND

SEARCH

Maturity Model Repository

HOME
SEARCH RESULTS
LOGIN

Search Results

SEARCH CRITERIA: Acronym= MPS.

1 models found

NEW SEARCH

Maturity Model Repository

HOME
SEARCH RESULTS
LOG

MODEL INFORMATION

NAME: MPS.BR - Brazilian software process reference model
OWNER: Not informed
DOMAIN: SME (Small and Medium Enterprises)
SOURCES: CMMI , ISO/IEC 15504 (SPICE) .
DESCRIPTION: Not informed
WEBSITE: Not informed
YEAR: Not informed

PROCESS DIMENSION

Processes

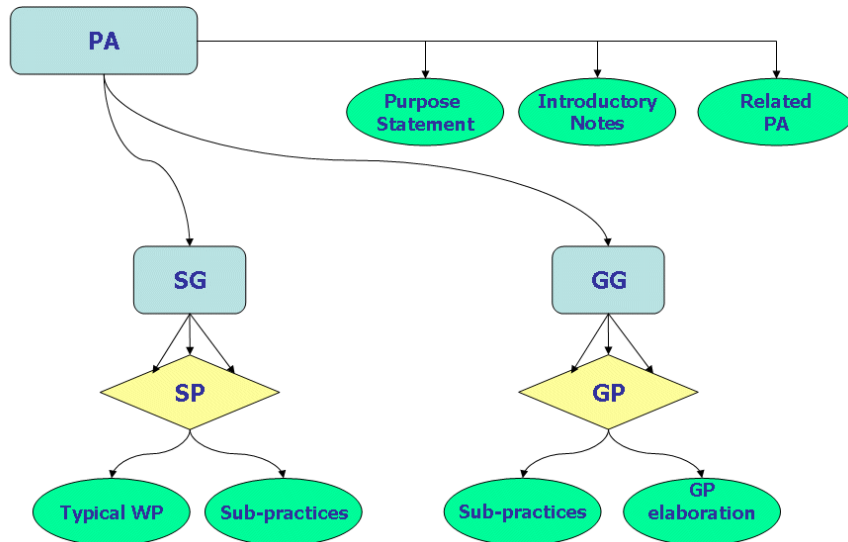
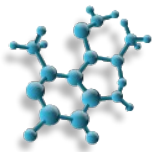
- Gerência de Projetos ? GPR (evolu♦♦♦)
- Gerência de Riscos ? GRI
- Desenvolvimento para Reutiliza♦♦♦ ? DRU
- Verifica♦♦♦ ? VER
- Valida♦♦♦ ? VAL
- Projeto e Constru♦♦♦ do Produto ? PCP
- Integra♦♦♦ do Produto ? ITP
- Desenvolvimento de Requisitos ? DRE
- Gerência de Projetos ? GPR (evolu♦♦♦)

Structure

Process Structure

- Processos
- Level MR-MPS
- Purpose
- Expected Results





Portfolio, Programme & Project Management Maturity Model Level 1: Initial process

Lifecycle function / Key process area description:

1.1 Project definition

The purpose of project definition is to gain a common and agreed understanding within an organisation that it conducts discrete projects, and that these projects are explicitly recognised. In defining projects the organisation should identify some project objectives.

A project should also be managed i.e. subject to at least some management activities, including activity identification. A project is also likely to have some form of project lifecycle, which may be of benefit in high level planning.

Functional achievement / Process goals

- Recognise and establish the objectives for the project.
- Gather the necessary resources to achieve the project objectives, within a specific timescale and agreed budget.

Approach

- Each project should have *agreed objectives* and be given the necessary resources to achieve those objectives.
- The organisation should *recognise* the *projects* they are undertaking.
- Each project manager should possess the ability to *identify* the *key activities* that must be carried out.

Deployment

- *Outline Project plans* are *drawn up* to distinguish project phases and/or stages.
- Any *changes* in project requirements should be *recognised*.

Review

- The *projects* should ideally be reviewed by senior management on a periodic basis.

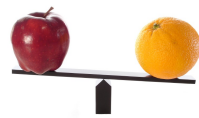
Perception

- The *views of stakeholders* should be sought regarding the project progress.

Performance measures

- Projects may have either qualitative or simple measures of their planned and actual performance relating to *budget and/or timescale*.
- *Change* in project objectives or customer requirements should be *identified*.



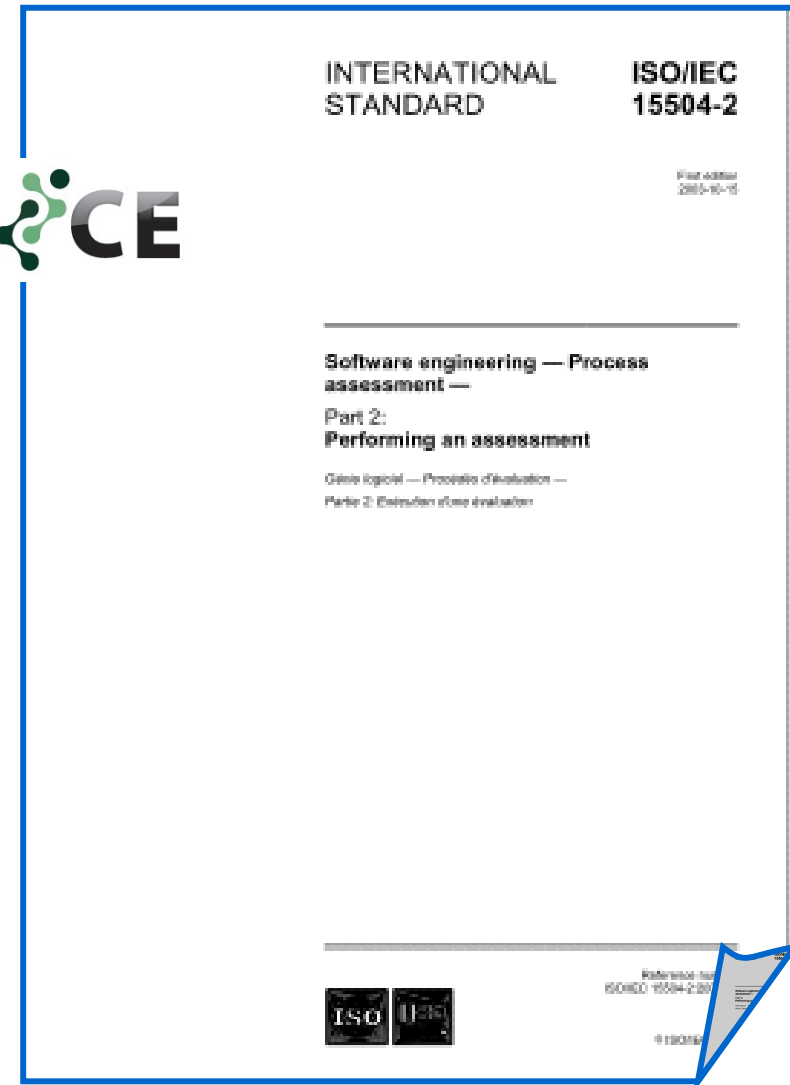
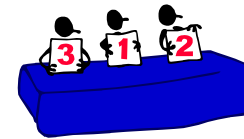


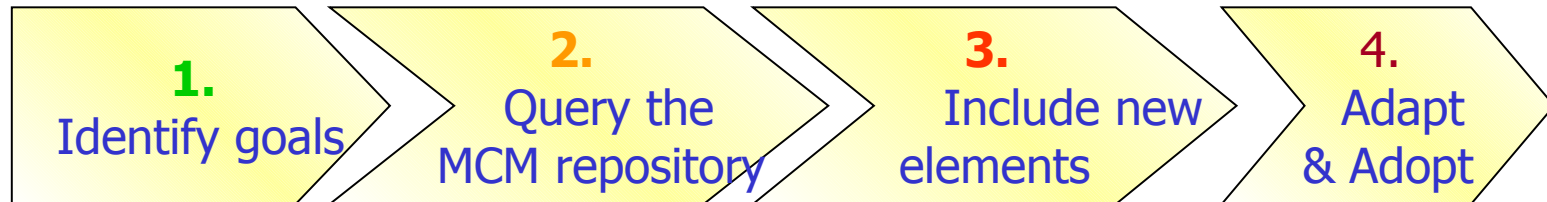
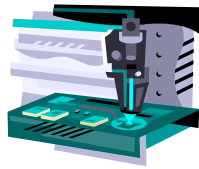
Goal	Specific Practice	Description	ISO 9001:2000
		Project Planning	
SG 1		Establish Estimates	
	SP 1.1-1	Estimate the Scope of the Project	7.1, 7.3.1
	SP 1.2-1	Establish Estimates of Work Product and Task Attributes	7.1, 7.3.1
	SP 1.3-1	Define Project Life Cycle	
	SP 1.4-1	Determine Estimates of Effort and Cost	
SG 2		Develop a Project Plan	
	SP 2.1-1	Establish the Budget and Schedule	
	SP 2.2-1	Identify Project Risks	
	SP 2.3-1	Plan for Data Management	
	SP 2.4-1	Plan for Resource Management	

CoEIT Domain: Plan and Organise PO10 Manage Projects			
Managing projects satisfies the business requirement of setting priorities and delivering on time and within budget. It is enabled by the organisation identifying and prioritising projects in line with the operational plan, and the adoption and application of sound project management techniques for each project undertaken			
CoEIT Control Objective	Key Areas	ITIL Supporting Information	ISO 17799 Supporting Information
PO10.1 Project management framework	Methodology covering responsibilities, task breakdown, budgeting of time and resources, milestones, checkpoints, approvals	ICT Infrastructure Management, Design and Planning, 2.4.4 Design and implementing a plan ICT Infrastructure Management, Annex 3B, Running a Deployment	
			4.1 Information security infrastructure
		Structure Management, Appoint a Project Team	
		Structure Management, Running a Deployment	
		Structure Management, Running a Deployment	
		Structure Management, Running a Deployment	

Project Management Process Groups					
Knowledge Areas	Initiative Process Group	Planning Process Group	Executing Process Group	Monitoring & Controlling Process Group	Closing Process Group
Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project management Plan	4.3 Direct and Manage Project Execution	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
	IPM/ SG1; GP 2.1.	PP/ SG2, SP 2.3, 2.7; IPM/SP 1.1, 1.4; REQM/ SP 1.5; CM/ SP 1.1, 1.2; GP 2.1, 2.2, 2.3.	REQM/ SP 1.3, 1.4, 1.5; IPM/ SP 1.1, 1.5; CM/ SP 1.2, 1.3, 2.1, 2.2, 3.1; PP/ SP 1.2; IPM/ SP 1.2; GP 2.1, 2.6.	PMC/SP 1.1, 1.4, 1.6, 1.7, 2.1, 2.2, 2.3; MA/ SP 1.1; GP 2.8, 2.10.	IPM/SP 1.7; GP 3.2.
Project Scope Management		5.1 Collect Requirements, 5.2 Define Scope, 5.3 Create WBS		5.4 Verify Scope, 5.5 Control Scope	
		PP/ SP 1.1, 1.3; RD/ SP 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2; REQM/ SP 1.3.		RD/ 3.4; PMC/ SP 1.1; CM/ SP 1.3, 3.1.	
Project Time Management		6.1 Define Activities, 6.2 Sequence Activities, 6.3 Estimate Activity Resource, 6.4 Estimate Activity Durations, 6.5 Develop Schedule		6.6 Control Schedule	

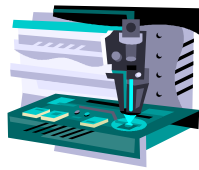






Process Phase	Description
1. Identify your informative/business goals	Clearly identify your needs, moving from the current BPM version and content.
2. Query the MCM Repository	Browse the MCM repository, setting up the proper filters in order to obtain the desired elements (processes; practices; etc.) to be inserted in the target BPM.
3. Include the selected element(s) into the target BPM	Include the new element(s) in the proper position in the target BPM (e.g. process group, maturity level, etc.).
4. Adapt & Adopt the selected element(s)	According to the process architecture of both process models (the target and the source one), the selected elements may need to be adapted, tailoring such elements as needed.





EuroSPI² 2012

EuroSPI² 2012 – 19th EuroSPI Conference
Vienna (Austria), 25-27 June, 2012

The LEGO Strategy

Guidelines for a Profitable Deployment

Luigi Buglione
Christiane Gresse von Wangenheim
Fergal McCaffery
Jean C.R. Hauck

ICSOF 2012

ICSOF 2012 – 7th Int. Conference on Sw Paradigm Trends
Rome (Italy), 24-27 July, 2012

Hybridizing CMMI and Requirement Engineering Maturity & Capability Models

Applying the LEGO Approach for Improving Estimates

Luigi Buglione
Jean C.R. Hauck
Christiane Gresse von Wangenheim
Fergal McCaffery

CSR 13

ICSR 2013 - 13th Int. Conference on Software Reuse
Pisa (Italy), 18-20 June 2013

Knowledge Leveraging Reuse-related Maturity Issues for Achieving Higher Maturity & Capability Levels

Knowledge Leveraging Reuse-related Maturity Issues for Achieving Higher Maturity & Capability Levels

Luigi Buglione
Giuseppe Lami
Christiane Gresse von Wangenheim
Fergal McCaffery
Jean C.R. Hauck

www.slideshare.net/lbu_measure/





Here the four LEGO steps and related activities and outcomes:

1. Identify Goals

- ✓ Improve the estimation capability and results by a refinement in the overall management of requirements (business, technical)
- ✓ Assumed the target BPM (Business Process Model) to improve is *generically* the **CMMI RD** process area

1. Query the MCM repository

- ✓ Considered RE as the summation of CMMI RM (Req. Management) and RE (Req. Elicitation) process areas
- ✓ Filtered the list of available RE MCMs from the MCM repository
- ✓ Next table (**EoI** – Element of Interest) is a filter of the elements by each of the RE MCMs considered

1. Include new elements into the target BPM

- ✓ Next table (Suggested Improvements) lists the possible EoI matched with the **CMMI RD** process (both SPs and GPs)

1. Adapt & Adopt

- ✓ Map each practice of the improved process to the related internal QMS process(es)
- ✓ Validate the mapping results before using it in the daily activities





Model/ Framework	Elements of Interest (EoI)
IAG RMM	• Technology: the introduction of workflow environments for easily sharing information for keeping requirements could be useful → CMMI-DEV RD GP2.3 (Elaboration section in Part 1) • Staff competency: suggested the introduction of Bloom's levels as informative notes for all GP 2.5, not only for those two PAs
PRTM CRMM	• Level 1: link between product and customer requirements, using e.g. QFD (quality function deployment) → it could be introduced also in CMMI-DEV RD SP 3.4, not only in SP 2.1 (as currently done) for closing the analysis
BTH REPM	• RE.SI (Stakeholders and Req. Source Identification) → more specific practice to be added about Requirement Elicitation to CMMI-DEV RD SG1 • RE.GA.a2 (Qualify and Quantify Quality Requirements) → currently missing a more clear and direct link with CMMI-DEV PP SP 1.2 • DS.GA.a2 (Define Requirement Attributes) → currently less stressed (e.g. FUR vs NFR for FSM/FPA – Function Point Analysis, as requested in CMMI-DEV PP, SP 1.4
R-CMMi	• ML2: P20: Institute Process to Maintain Stability within Project → always about the need to minimize 'volatility', in terms of management → same comment than for REAIMS practice 9.8





Model/ Framework	Elements of Interest (EoI)
REAIMS Process MM	<u>Basic practices:</u> • 3.1 Define a standard document structure: missing, could be added in CMMI-DEV RD SG1, stressing the need for having an organizational 'standard' for comparing different types of requirements, having impact also on planning (different roles, productivities and schedules for different activities → PP SP 1.4). Again, it'd help also PP SP 1.2 because it'd address better the • 3.8 Make the document easy to change → criteria for writing better requirements, could be stressed more in CMMI-DEV RD SG1 / RM SG1, SP 1.3 • 6.2 Use language simply and concisely → criteria for writing better requirements could be added as a note for CMMI-DEV RD SP 1.2, sub-practice #1 <u>Advanced practices:</u> • 9.8 Identify volatile requirements: suggested to introduce the concept of 'volatility' also in the RD process definition by an informative note (e.g. "... verifying the new need will not be yet addressed by a formalized requirement...", with a link to RM, SP 1.3), → see also R-CMMi P20 process, same issue
R-CMM	• ML2: P19: Agree and document technical and organisational attributes specific to project → CMMI-DEV RD deals with customer and product requirements, not addressing with further informative notes about which could be possible 'constraints' such as those ones from the analysis of organizational attributes → reinforce RD SP 1.1





CMMI-DEV v1.3 RD process	Suggested Improvements
SG 1 Develop Customer Needs	• Introduce a new SP 1.0 about Stakeholders Identification and Engagement. <u>Rationale</u>: reinforce current formulation, before running SP 1.1. Nowadays, stakeholder engagement is the sub-practice #1 within SP 1.1. • Insert a note about possible standards (de jure/de facto) that could be consulted/useful for a better application of RD process (e.g.. (AccountAbility, 2011)).
SP 1.1 Elicit Needs	• Introduce a sub-practice about the definition of requirement attributes, inserting a cross-link with PP SP 1.2 for the classification of work products (by attribute) to be sized. • Modify the current WP into: 'results of requirement elicitation activities by entity and attribute' (see previous comment)
SP 1.2 Transform Stakeholders needs	• Rephrase and make more general sub-practice #2: not only functional vs. quality (non-functional) attributes, but possibly establish all valuable, possible requirements taxonomies and classifications for the organization (by other criteria)





CMMI-DEV v1.3 RD process	Suggested Improvements
SG 2 Develop Product Requirements	• Introduce a note within the SG text about the need and relevance of define a (standard) document structure (in terms of 'documentability') and suggest – as informative note – some possible criteria to follow and appraise (e.g. readability, simple and concise language for writing requirements, etc.).
SP 2.1 Establish Product and Product components	• Sub-practice #3: refine the Example box, do no mention generic quality attributes, but be more specific about requirement classifications (e.g. ISO/IEC 14143-1:1998 → functional, quality, technical) → cross-link with PP 1.2 about attributes for sizing.
SP 2.2 Allocate Product Components	• ---
SP 2.3 Identify Interface Requirements	• ---





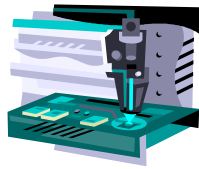
CMMI-DEV v1.3 RD process	Suggested Improvements
SG 3 Analyze and Validate Requirements	• ---
SP 3.1 Establish Operational Concepts and Scenarios	• ---
SP 3.2 Establish a Definition of Required ...	• ---
SP 3.3 Analyze Requirements	• ---
SP 3.4 Analyze Requirements to Achieve Balance	• Introduce an informative note about the possible usage of QFD matrices also here, not only for eliciting and determining requirements in SP 2.1
SP 3.5 Validate Requirements	• ---





CMMI-DEV v1.3 RD process	Suggested Improvements
GP 2.3 Provide Resources	• <u>General</u>: stress the need and opportunity from workflow environments for an easier sharing of information among stakeholders, whatever the (CMMI) process • <u>Specific</u> (RD Elaboration): specific need because RD is the starting process for gathering needs to be translated into solutions
GP 2.5 Train People	• <u>General</u>: introduce the application of the six Bloom's cognitive levels (Bloom et al., 1956) for classifying knowledge (see also IEEE SWEBOK – www.computer.org/swbok) • <u>Specific</u> (RD Elaboration): add 'stakeholder engagement' (AccountAbility, 2011) and 'requirement sizing' (ISO, 2011)
GP 2.8 Monitor and Control the Process	• <u>Specific</u> (RD Elaboration): introduce at least one measure about the effectiveness of RD SG1 goal (e.g. % of proposed vs validated requirements)

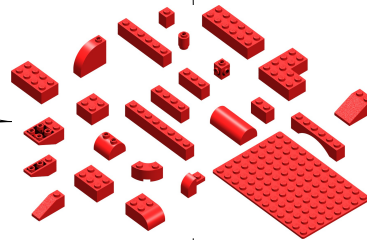
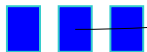




MPS.BR-RH



People CMM



Your xMS



*It's always the **small pieces**
that makes the **big picture**
(Anonymous)*

Some conclusions & next steps for learning (more)

...





• People

- ✓ Even if in ICT, People is the real wheel for innovation
- ✓ “*Nothing is lost, nothing is created, everything is transformed*” (Antoine Lavoisier)
- ✓ ...but you need ideas and somebody modeling knowledge into experience by **creativity**

• Reuse & Learning = Experience!

- ✓ It's the most natural form of evolution...by analogy
- ✓ Not only 'copy&paste', but '**Learn by Experience**' (LbE)
- ✓ The difference from a 'one-shot' application and a structured one is in your historical data
- ✓ SKMS, KMS, Project Historical Database, ...use the acronym you like more
- ✓ **Quantitative+Qualitative**: two sides of the same coin

• Starting point? Knowledge!

- ✓ The basic is to know, but then you need to know how apply your knowledge to the context
- ✓ Any kind of training, and (don't stop) **READING**: we can access anything on the web...
- ✓ Be **CURIOUS**, trying to find **VALUE** from what you're experiencing looking for contact points with you and your next project and **SHARE** it with your peers

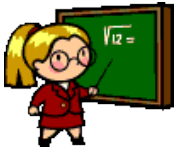
• Next Steps

- ✓ Start doing things **TODAY**, don't wait...include continual **SELF-TRAINING** in your project plan. You can also know the WHAT but not the HOW
- ✓ **...try & see!**



“Creativity is allowing yourself to make mistakes.
Art is knowing which ones to keep.” (Scott Adams)





"I have... seen things you people wouldn't believe... Attack ships on fire off the shoulder of Orion. I watched c-beams glitter in the dark near the Tannhäuser Gate. All those... moments... will be lost in time, like [small cough] tears... in... rain. Time... to die..."

Memory → Data → Experience ... DIKW

Philip Dick, *Do Androids dream of Electric Sheep?*, Del Rey, 1968, ISBN 0-345-40447-5





Obrigado pela sua atenção!
Thanks for your attention!





**Luigi
Buglione**
Engineering Ingegneria Informatica/ETS
luigi.buglione@eng.it

