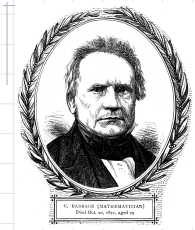
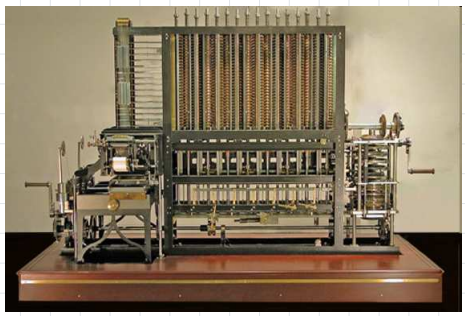
Practice Knowledge

Robert Fabian
www.fabian.ca
2010.11.23

Babbage – Difference Engine





Design: 1849 / Construction: 2002

Last Week

- What it means to be a professional
- Professional knowledge
  - Theory knowledge
  - Practice knowledge
- Trustworthy
  - Trustworthy intentions
  - Trustworthy competence
- Best Practices!

3

My Background

- Long involvement with "practice"
  - "Teaching current practice", 1975 SEE Conference
- 2000: Best Practices become practical
- IT Risk Management
  - CIPS IT Risk Management Guideline
- IT Service Management (ITIL)
  - Canadian itSMF National Conferences
- IT Governance (COBIT)
  - Toronto COBIT Users Group

Knowledge Mix

- Background knowledge
  - Mathematics; natural language; psychology; etc.
- Knowledge of "facts"
  - Languages; operating systems; markets; etc.
- Knowledge of theory
  - Computation; communications; hardware; etc.
- Knowledge of practice
  - Experience using computing
  - Professional ethics; practices
  - Established **best practices**

Achilles Heel

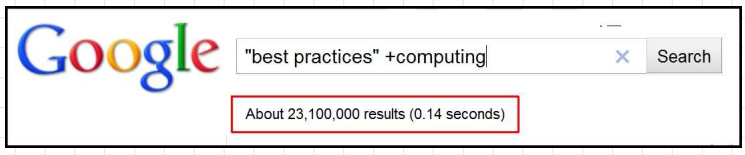
- Best Practice Knowledge
  - Happens during internship
  - But no internship in IT
- Best Practice Coverage
  - Read, study best practice
  - Apply best practice
- Programme Percentage
  - Today: less than 1%
  - Future: more than 5%

Best Practices

- Best Practice knowledge
  - Key professional responsibility
- Awareness of Best Practices
- Selective use of Best Practices

- It's the ethical thing to do
- It's the professional thing to do
- It's the prudent thing to do

But …



Best Practices / Standards

- IT Governance : COBIT
- IT Service Management : ITIL
- Systems Engineering : CMMI

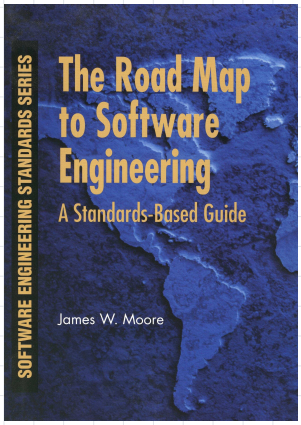
- International & US
  - IEC, ISO, ANSI, AIAA, EIA, IEEE, INCITS, INCOSE, PMI

- Governments, Military Establishments, Industries, Special Interests

Canadian Standards Association

996 IT & Telecom Standards

Useful Text



- Published 2006
- IEEE "inspired"

- Requirements
- Design
- Construction
- Testing
- Maintenance
- Configuration
- Quality

Limited Time – Big 3

- COBIT – Control Objectives for Information and Related Technologies v.4.1 [ITGI]
- ITIL – IT Infrastructure Library v.3 [UK OGC]
- CMMI – Capability Maturity Model Integrated v.1.3 [CMU SEI]

Software Engineering Institute

Recent SEI Papers

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Strategic Planning with Critical Success Factors and Future Scenarios: An Integrated Strategic Planning Framework
(November 2010) Strategic Planning with Critical Success Factors and Future Scenarios: An Integrated Strategic Planning Framework (CMU/SEI-2010-TR-037)

CMMI for Acquisition, Version 1.3
(October 2010) The CMMI-ACQ model provides guidance for applying CMMI best practices in an acquiring organization. Best practices in the model focus on activities for initiating and managing the acquisition of products and services to meet the needs of customers and end users. (CMU/SEI-2010-TR-032)

CMMI for Development, Version 1.3
(October 2010) The CMMI-DEV model provides guidance for applying CMMI best practices in a development organization. Best practices in the model focus on activities for developing quality products and services to meet the needs of customers and end users. (CMU/SEI-2010-TR-033)

CMMI for Services, Version 1.3
(October 2010) The CMMI-SVC model provides guidance for applying CMMI best practices in a service provider organization. Best practices in the model focus on activities for providing quality services to customers and end users. (CMU/SEI-2010-TR-034)

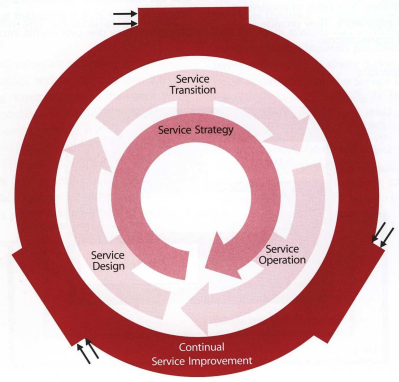
Aside …

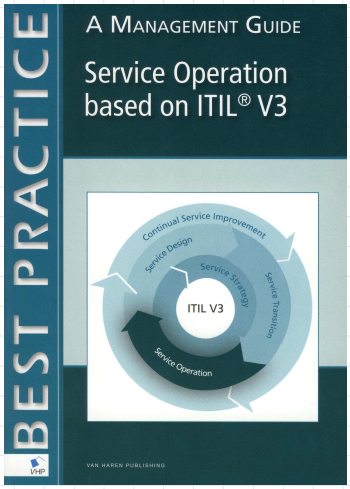
Wikipedia is often a good place to start

Service Management

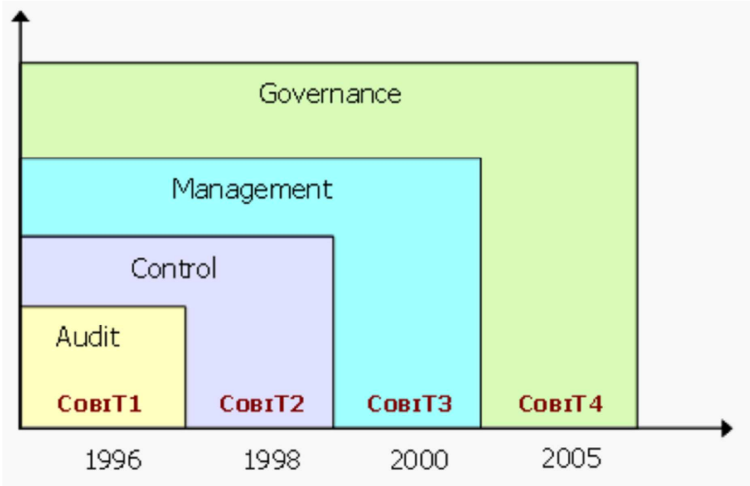
BOOKS:
- 5 High Leve
- 5 Detailed

ITIL



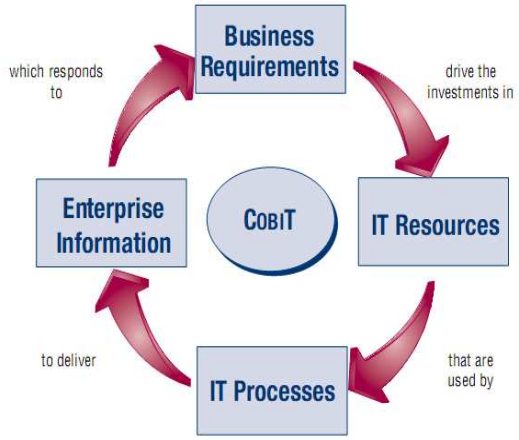


Information and related Technology – COBIT

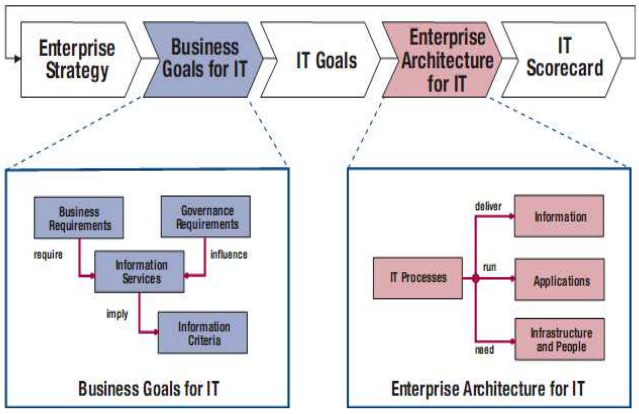


Plus Val IT & Risk IT

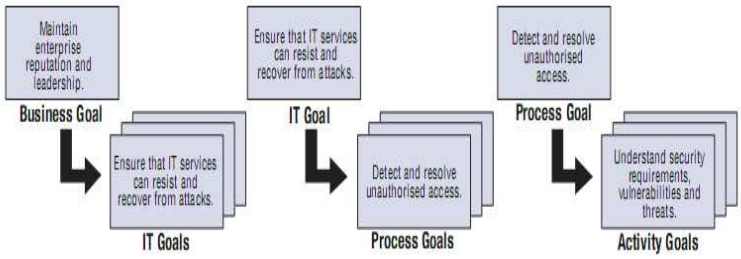
Basic Principle



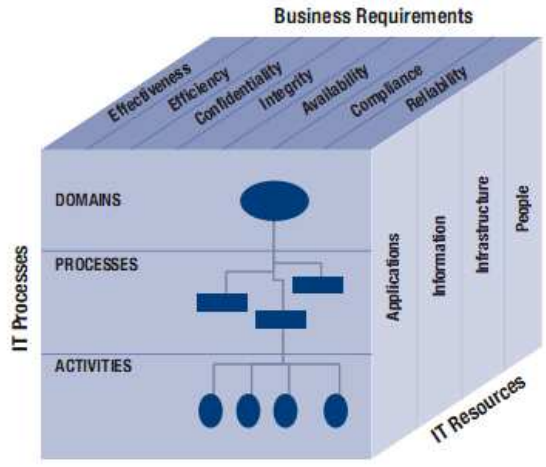
IT Goals



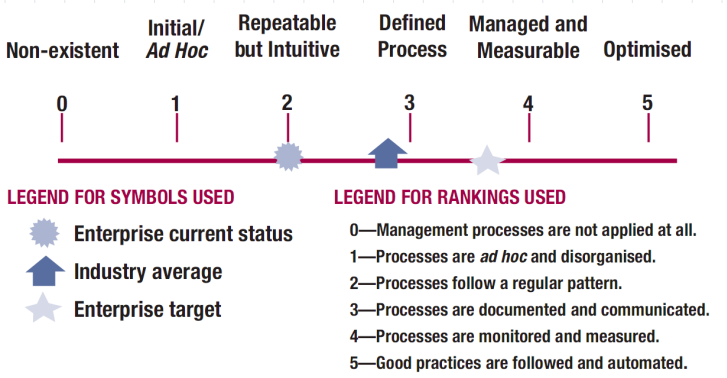
Goal Connections



CobiT Cube



Maturity Model



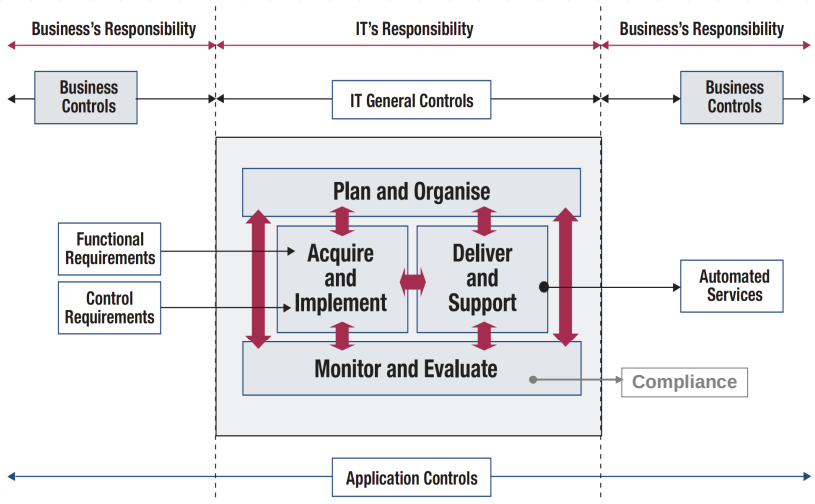
Maturity Model: Translation

0 Non-existent – can't even spell it
1 Initial – only a hero can pull it off
2 Repeatable – but only for standard stuff
3 Defined – can handle everything
4 Measurable – can manage by numbers
5 Optimized – auto self-improvement

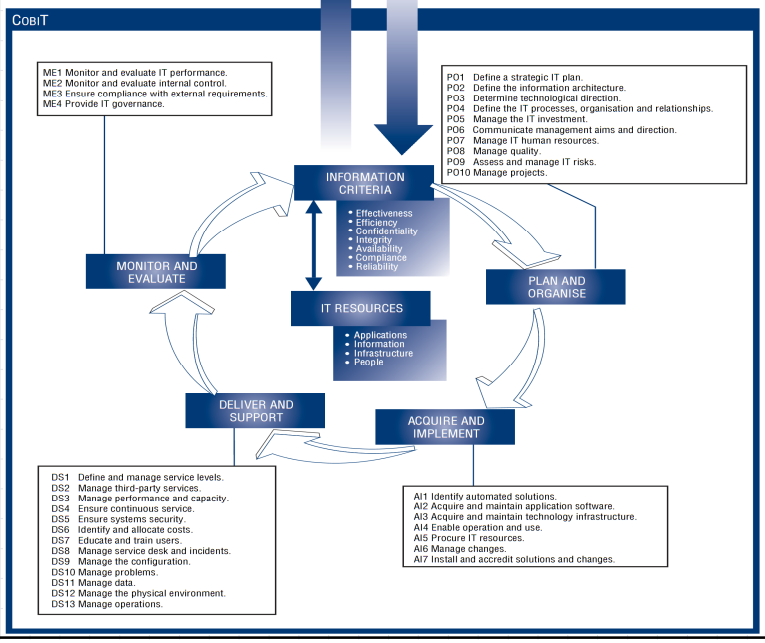
Maturity Models

- Theoretical weakness
  - Not just one improvement path
  - Higher isn't always better
- Practical strength
  - Easy to understand/communicate
  - Effective organizational targets
- Use, but with caution

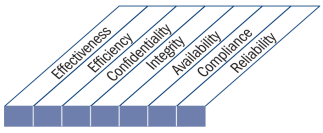
CobiT – The Four Domains



CobiT 34 Processes



Process Framework



Control over the IT process of

process name

that satisfies the business requirement for IT of

summary of most important IT goals

by focusing on

summary of most important process goals

is achieved by

activity goals

and is measured by

key metrics

AI Acquire & Implement

- AI1 Identify Automated Solutions
- AI2 Acquire and Maintain Application Software
- AI3 Acquire and Maintain Technology Infrastructure *(example follows)*
- AI4 Enable Operation and Use
- AI5 Procure IT Resources
- AI6 Manage Changes
- AI7 Install and Accredit Solutions and Changes

AI3 Acquire & Maintain Technology Infrastructure

Control over the IT process of

Acquire and maintain technology infrastructure

that satisfies the business requirement for IT of

acquiring and maintaining an integrated and standardised IT infrastructure

by focusing on

providing appropriate platforms for the business applications in line with the defined IT architecture and technology standards

is achieved by

- Producing a technology acquisition plan that aligns to the technology infrastructure plan
- Planning infrastructure maintenance
- Implementing internal control, security and auditability measures

and is measured by

- Percent of platforms that are not in line with the defined IT architecture and technology standards
- Number of critical business processes supported by obsolete (or soon-to-be-obsolete) infrastructure
- Number of infrastructure components that are no longer supportable (or will not be in the near future)

AI3 Inputs & Outputs

From	Inputs
PO3	Technology infrastructure plan, standards and opportunitites; regular 'state of technology' updates
PO8	Acquisition and development standards
PO10	Project management guidelines and detailed project plans
AI1	Business requirements feasibility study
AI6	Change process description
DS3	Performance and capacity plan (requirements)

Outputs	To
Procurement decisions	AI5
Configured system to be tested/installed	AI7
Physical environment requirements	DS12
Updates for technology standards	PO3
System monitoring requirements	DS3
Infrastructure knowledge	AI4
Initial planned operating level agreements (OLAs)	DS1

AI3 RACI Chart

RACI Chart

Functions

Activities	CEO	CFO	Business Executive	CIO	Business Process Owner	Head Operations	Chief Architect	Head Development	Head IT Administration	PMO	Compliance, Audit, Risk and Security
Define the acquisition procedure/process.		C		A		C	C	C	R		I
Discuss infrastructure requirements with (approved) vendors.		C/I		A	I	R	C	C	R		I
Define strategy and plan maintenance for infrastructure.				A		R	R	R	C		
Configure the infrastructure components.				A		R	C				I

A **RACI** chart identifies who is **R**esponsible, **A**ccountable, **C**onsulted and/or **I**nformed.

AI3 Maturity Scale

0 **Non-existent** when
Managing the technology infrastructure is not recognised as a sufficiently important topic to be addressed.

1 **Initial/Ad Hoc** when
There are changes made to infrastructure for every new application, without any overall plan. Although there is an awareness that the IT infrastructure is important, there is no consistent overall approach. Maintenance activity reacts to short-term needs. The production environment is the test environment.

2 **Repeatable but Intuitive** when
There is a consistency amongst tactical approaches when acquiring and maintaining the IT infrastructure. Acquisition and maintenance of IT infrastructure are not based on any defined strategy and do not consider the needs of the business applications that must be supported. There is an understanding that the IT infrastructure is important, supported by some formal practices. Some maintenance is scheduled, but it is not fully scheduled and co-ordinated. For some environments, a separate test environment exists.

3 **Defined** when
A clear, defined and generally understood process exists for acquiring and maintaining IT infrastructure. The process supports the needs of critical business applications and is aligned to IT and business strategy, but it is not consistently applied. Maintenance is planned, scheduled and co-ordinated. There are separate environments for test and production.

Business Goals to IT Goals

		Business Goals	IT Goals							
Financial Perspective	1	Provide a good return on investment of IT-enabled business investments.	24							
	2	Manage IT-related business risk.	2	14	17	18	19	20	21	22
	3	Improve corporate governance and transparency.	2	18						
Customer Perspective	4	Improve customer orientation and service.	3	23						
	5	Offer competitive products and services.	5	24						
	6	Establish service continuity and availability.	10	16	22	23				
	7	Create agility in responding to changing business requirements.	1	5	25					
	8	Achieve cost optimisation of service delivery.	7	8	10	24				
	9	Obtain reliable and useful information for strategic decision making.	2	4	12	20	26			
Internal Perspective	10	Improve and maintain business process functionality.	6	7	11					
	11	Lower process costs.	7	8	13	15	24			
	12	Provide compliance with external laws, regulations and contracts.	2	19	20	21	22	26	27	
	13	Provide compliance with internal policies.	2	13						
	14	Manage business change.	1	5	6	11	28			
	15	Improve and maintain operational and staff productivity.	7	8	11	13				
Learning and Growth Perspective	16	Manage product and business innovation.	5	25	28					
	17	Acquire and maintain skilled and motivated people.	9							

IT Goals to IT Processes

	IT Goals	Processes									
1	Respond to business requirements in alignment with the business strategy.	PO1	PO2	PO4	PO10	AI1	AI6	AI7	DS1	DS3	ME1
2	Respond to governance requirements in line with board direction.	PO1	PO4	PO10	ME1	ME4					
3	Ensure satisfaction of end users with service offerings and service levels.	PO8	AI4	DS1	DS2	DS7	DS8	DS10	DS13		
4	Optimise the use of information.	PO2	DS11								
5	Create IT agility.	PO2	PO4	PO7	AI3						
6	Define how business functional and control requirements are translated in effective and efficient automated solutions.	AI1	AI2	AI6							
7	Acquire and maintain integrated and standardised application systems.	PO3	AI2	AI5							
8	Acquire and maintain an integrated and standardised IT infrastructure.	AI3	AI5								
9	Acquire and maintain IT skills that respond to the IT strategy.	PO7	AI5								
10	Ensure mutual satisfaction of third-party relationships.	DS2									
11	Ensure seamless integration of applications into business processes.	PO2	AI4	AI7							
12	Ensure transparency and understanding of IT cost, benefits, strategy, policies and service levels.	PO5	PO6	DS1	DS2	DS6	ME1	ME4			
13	Ensure proper use and performance of the applications and technology solutions.	PO6	AI4	AI7	DS7	DS8					
14	Account for and protect all IT assets.	PO9	DS5	DS9	DS12	ME2					
15	Optimise the IT infrastructure, resources and capabilities.	PO3	AI3	DS3	DS7	DS9					
16	Reduce solution and service delivery defects and rework.	PO8	AI4	AI6	AI7	DS10					
17	Protect the achievement of IT objectives.	PO9	DS10	ME2							
18	Establish clarity of business impact of risks to IT objectives and resources.	PO9									

Uses of CobiT

- Respond to audit/control
- Plan internal process improvements
  - Identify most important processes
  - Determine the required improvements
  - Build next years' improvement plan
- Use CobiT to identify best practices

Overview of International IT Guidance, 2nd Edition

CobiT Mapping Best Practices

- COBIT
- COSO
- ITIL
- ISO/IEC 17799:2005
- FIPS PUB 200
- ISO/IEC TR 13335
- ISO/IEC 15408:2005/Common Criteria/ITSEC
- PRINCE2
- PMBOK
- TickIT
- CMMI
- TOGAF 81
- IT Baseline Protection Manual
- NIST 800-14

CobiT Mapping (v.4)

Figure 10—High-level Mapping of Guidance to CobiT Domains

	PO	AI	DS	ME
COSO	+	+	o	o
ITIL	o	o	+	-
ISO/IEC 17799	o	+	+	o
FIPS PUB 200	o	+	+	o
ISO/IEC 13335	o	o	o	-
ISO/IEC 15408	-	o	-	-
PRINCE2	o	-	-	-
PMBOK	o	-	-	-
TickIT	-	+	-	o
CMMI	-	+	-	o
TOGAF 8.1	o	-	-	-
IT BPM	o	-	o	-
NIST 800-14	o	+	+	o

(+) Frequently addressed
(o) Moderately addressed
(-) Not or rarely addressed

Details

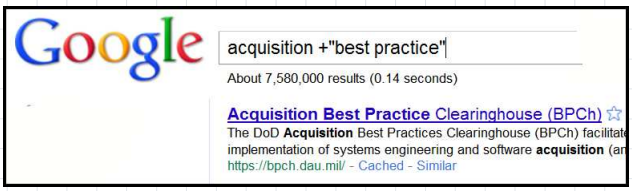
Figure 11—High-level Mapping of Guidance to CobiT Processes

CobiT Process	COSO	ITIL	ISO/IEC 17799	FIPS PUB 200	ISO/IEC TR 13335	ISO/IEC 15408	PRINCE2	PMBOK	TickIT	CMMI	TOGAF 8.1	IT BPM	NIST 800-14
PO 1	+	-	-	-	-	-	-	-	-	-	-	-	-
PO 2	+	-	+	+	+	-	-	-	-	-	+	-	+
PO 3	+	+	+	+	+	-	-	-	-	-	+	+	+
PO 4	+	+	+	+	+	-	-	-	-	-	+	-	+
PO 5	+	+	-	-	-	-	+	+	-	-	-	-	-
PO 6	+	-	+	+	+	-	-	-	-	-	-	+	+
PO 7	+	-	+	+	-	-	-	-	-	-	-	-	+
PO 8	-	-	-	-	-	+	+	+	+	+	-	-	-
PO 9	+	-	+	+	+	-	+	+	-	+	-	-	+
PO 10	-	-	-	-	-	-	+	+	-	+	-	-	-
AI 1	+	-	-	-	+	-	-	-	+	-	+	-	+
AI 2	+	-	+	+	-	+	-	-	+	+	-	-	+
AI 3	+	-	+	+	-	+	-	-	+	-	-	+	+
AI 4	+	+	+	+	-	+	-	-	+	-	-	-	+
AI 5	-	-	-	-	-	-	-	+	+	-	-	-	-

Overall Strengths / Weaknesses

- Covers everything
  - No industry or market focus
- Process maturity model
  - Practical, linear model
- Focus on controls
  - Necessary, not sufficient
  - Add Val IT & Risk IT
- Everything has its place
  - Taxonomy isn't universal

Rapidly Evolving



Personal / Professional

- If you work in an area
  - Pay attention to Best Practices
- Best Practices only a guideline
- But important to pay attention

Excellent, Free Magazines

Thank you

Questions, Comments, …