Tutorial: Establishing ISO/IEC 15504-Based Process Capability Profile to drive Process Improvement

Clênio F. Salviano
clenio.salviano @ { cti.gov.br, gmail.com }
www.cti.gov.br pro2pi.wikidot.com

Research Context (SPI to PRO2PI) and this tutorial

- Model Driven Engineering (MDE)
- Peter Drucker’s Knowledge Worker
- Strategy, Innovation and Business Model
- Diversity of strategy
- Process and model relationship
- Generalization of software
- Current Successful Software (and System) Process Improvement (SPI)
- SW-CMM
- Process Capability Profile to drive Process Improvement PRO2PI
- Proposed Model-Driven Process Capability Engineering for Knowledge Working Intensive Organization (MDPEK)
- Establishing ISO/IEC 15504-Based PRO2PI
- Underlying principles
- ISO/IEC 15504 vision
- Models from CMMI, ISO/IEC 15504, ...
- Commoditization of process
- Multiple models

© CTI, Clênio F. Salviano, 2004-2009
Tutorial: Establishing ISO/IEC 15504-Based Process Capability Profile to drive Process Improvement

This tutorial

... Establishing ...

... ISO/IEC 15504-Based Process Capability Profile ...

... as a relevant reference ...

(actual, also from CMMI or any other best practice sources)

... as feasible cycles to be achieved with (few) resources in a (short) period ...

... integrated with strategy and business goals...

Tutorial Agenda

1. Tutorial Introduction
2. Context Methodology
3. Method Overview
4. Method Analytic Tools
4.1. Business Model and Strategy
4.2. Improvement Cycle Goals
4.3. Process Area Relevance
4.4. Process Capability Profile
5. Method Considerations
6. Final Comments
Why we are here?

... To share and discuss:

Expectations.

Other objectives?

In order to construct together a better knowledge ...

1. Tutorial Introduction
2. Context Methodology
3. Method Overview
4. Method Analytic Tools
   4.1. Business Model and Strategy
   4.2. Improvement Cycle Goals
   4.3. Process Area Relevance
   4.4. Process Capability Profile
5. Method Considerations
6. Final Comments
An Information Technology Research Center from The Ministry of Science and Technology of Brazil

Centro de Tecnologia da Informação Renato Archer
Ministério da Ciência e Tecnologia

Mission: To create, apply and disseminate knowledge in Information Technology, in articulation with other social and economic agents, promoting innovations to comply with the society demand.

Founded in 1982 in the city of Campinas, São Paulo State, Brazil

About 500 people. 300 of them in technical work: 23% PhD, 26% MSc, 34% BSc, 17% Tch

www.cti.gov.br

R&D Areas

Microelectronics:
- Hardware and Integrated Circuit Design
- Microsystems and Packaging
- Qualification of Electronic Products
- Surface Interaction and Displays

Software:
- Software Quality and Process Improvement
- Information System Security
- Software Development Technologies

Applications:
- Robotics and Computer Vision
- Decision Support Systems
- 3D Technologies
Software Quality and Process Improvement

Research, Development, Application and Innovation on:

- Process Capability Models and Frameworks
  - SW-CMM, CMMI, ISO/IEC 15504 (SPICE), MPS-BR, eSCM, ...
- Software (and Systems, Services) Process Improvement
  - Helped more than 120 organizations in the last ten years
- Process Improvement for Government
- Software Quality (Requirements, Product Quality and Test)
- More research in
  - Software Process Improvement in Small Settings
  - Methodology on Process Capability Profile to drive Process Improvement (PRO2PI)
  - Process Improvement in Emergent and Complex Systems
  ... always in cooperation with other groups ...

This tutorial: PRO2PI, with Unicamp, UFSC, UNIVALI and others

Clênio Figueiredo Salviano

Bsc and MSc in Computer Science (DCC-UFMG, 1982 and 1987)
PhD in Computer Engineering Area, on Process Improvement, FEEC-Unicamp 2006
Manager of Software Quality and Process Improvement Group at CTI (Campinas, SP)
Professor pos-graduation in Proc. Improv. at FIAP, UFLA, SENAC-SP, UNIMEP, ...
25 years of experience in Software Development, Research, Process Consultancy and Assessment, ...
Areas of interest:
  - Strategy, Innovation, Software Patterns and Process Improvement with ISO/IEC 15504, CMMI, ...
  - Co-editor ISO/IEC 15504-5 (1999-2005), member of SPICE Group, ABNT 15504, SPIN Cps e SP, Simpros, PBQP-Sw, ...
  - SEI SCAMPI Lead Appraiser

1. Tutorial Introduction
2. Context Methodology
3. Method Overview
4. Method Analytic Tools
   4.1. Business Model and Strategy
   4.2. Improvement Cycle Goals
   4.3. Process Area Relevance
   4.4. Process Capability Profile
5. Method Considerations
6. Final Comments

With power comes responsibility

... with the continuous architecture, introduced by ISO/IEC 15504, we have the flexibility and the power to define a process capability profile for process improvement that fits better our business goals. With power comes responsibility. In order to do this well, we need methodologies to support us ...

Spider man movie (2002)
Context Methodology

As a context for the method, the next set of slides presents:

- a) Forces for a methodology
- b) "4 + 1" terms and concepts
- c) Model and model-driven
- d) Methodology overview and elements (including the method)

Research Context (SPI to PRO2PI) and this tutorial

- Model Driven Engineering (MDE)
- Peter Drucker’s Knowledge Worker
- Strategy, Innovation and Business Model
- Process Capability Profile to drive Process Improvement
- PRO2PI as Exemplar Methodology for MDPEK
- Process Model-Driven Engineering for Knowledge Working Intensive Organization (MDPEK)
- Diversity of strategy
- Commoditization of process
- Process and model relationship
- Underlying principles
- Generalization of software
- ISO/IEC 15504 vision
- Current Successful Software (and System) Process Improvement (SPI)
- Multiple models
- Models from CMMI, ISO/IEC 15504, ...
- SW-CMM

Establishing ISO/IEC 15504-Based PRO2PI

This Tutorial
### Current SPI
- **is an** approach
- for improving a software and system intensive organization
- acting in *some given* relevant processes
- based on the concept of process capability
- aligned with the organization strategy
- aiming better business results
- using as a reference one Process Capability Model (most of the cases a CMMI maturity level or similar)

### Proposed SPI evolution
- **is a** model driven engineering
- for improving a knowledge work (including software and system) intensive organizations
- identifying and acting in *any selected* relevant processes
- founded upon the concept of process capability
- integrated with the organization strategy
- aiming better business results
- driven by a Process Capability Profile defined with elements from one or more Process Capability Models and other types of models
Context Methodology

As a context for the method, the next set of slides presents:

- a) Forces for a methodology
- b) “4 + 1” terms and concepts
- c) Model and model-driven
- d) Methodology overview and elements (including the method)

Next Slides: Terms and Concepts

"[the majors SPI] approaches today are considered competitors.
In reality they are all based on very similar concepts and techniques.
The packaging obscures the underlying principles.
Eliciting and refining underlying principles is the role of science" [Card, 2004]

The next slides present
“4 + 1” more generic terms and concepts for process capability engineering

Four basic (and more generic) concepts (1 of 8)

- **Process Capability Area (PCA)**
- **Process Capability Profile (PCP)**
- **Process Area Capability Profile (PACP)**
- **Process Capability Level (PCL)**

Four basic (and more generic) concepts (2 of 8)

**Process Capability Profile (PCP)**

**Process Area Capability Profile (PACP)**

**Process Capability Level (PCL)**

**Process Capability Area (PCA):**

- A set of related specific good practices on “what to do” something independently of “how good to do” it
- May be defined in many levels of composition

Four basic (and more generic) concepts (3 of 8)

Process Capability Area (PCA) Examples: [from CMMI-DEV]

- Requirements Development (RD)
- Technical Solution (TS)
- Product Integration (PI)

Select Product Component Solutions (SG1)
Develop the Design (SG2)
Implement the Product Design (SG3)

“Product components, and associated support documentation, are implemented from their designs. Product components are implemented from the designs (...). The implementation usually includes unit testing of the product components before sending them to product integration and development of end-user documentation.”

Four basic (and more generic) concepts (4 of 8)

Process Capability Profile (PCP)
Process Area Capability Profile (PACP)

Process Capability Level (PCL):
- A set of related generic good practices on “how good to do” anything, independently of “what to do” it
- May be defined in many levels of composition
- Organized in cumulative levels

Examples: Performed, Managed and Established in CMMI: Process institutionalization, Capability level and Generic goal
in ISO/IEC 15504: Capability level and Process attribute
Four basic (and more generic) concepts (5 of 8)

Process Capability Level (PCL) Examples: [from ISO/IEC 15504]

- Performed (PCL 1)
- Managed (PCL 2)
- Established (PCL 3)
- Performance management (PA2.1)
- Work product management (PA2.2)

"It is a measure of the extent to which the performance of the process is managed. As a result of its full achievement:
  a) objectives for the performance of the process are identified;
  b) performance of the process is planned and monitored;
  c) performance of the process is adjusted to meet plans;
  d) responsibilities and authorities for performing the process are defined, assigned and communicated;
  e) resources and information necessary for performing the process are identified, made available, allocated and used;
  f) interfaces between the involved parties are managed to ensure both effective communication and also clear assignment of responsibility."

Four basic (and more generic) concepts (6 of 8)

Process Capability Profile (PCP)

Process Area Capability Profile (PACP):
- A given Process Capability Area at a given Process Capability Level

Ex: "Implement the Product Design" PCA at "Managed" PCL:
  "Product components, and associated support documentation, are implemented from their designs in a managed fashion (planned, monitored and adjusted) and its work products are appropriately established, controlled and maintained."
Four basic (and more generic) concepts (7 of 8)

Process Capability Profile (PCP):
- A set of one or more Process Area Capability Profiles
Note 1: The Process Capability Areas do not have to be necessarily at the same Process Capability Level
Note 2: A Process Capability Area should not appear more than one time
Example: (next slide)
In CMMI: Maturity level and process profile
In ISO/IEC 15504: Organizational maturity level and process profile

Process Area Capability Profile (PACP)

Process Capability Level (PCL)

Process Capability Area (PCA)

Four basic (and more generic) concepts (8 of 8)

Process Capability Profile (PCP) Example

PCL 5: Optimizing proc.
  5.1: Proc. innovat.
  5.2: Cont. optimiz.

PCL 4: Predictable proc.
  4.1: Proc. measur.
  4.2: Proc. control

PCL 3: Established proc.
  3.1: Proc. definition
  3.2: Proc. deploym.

PCL 2: Managed proc.
  2.1: Performance man.
  2.2: Work prod. man.

PCL 1: Performed proc.
  1.1: Proc. performance

PCL 0: Incomplete proc.

Process Capability Levels and Process Capability Areas
(from ISO/IEC 15504-5)
One more basic (and more generic) concept

<table>
<thead>
<tr>
<th>Process Capability Model (PCM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A reference model of good practices organized by the concept of process capability.</td>
</tr>
<tr>
<td>Examples: CMMI-DEV, ISO/IEC 15504-5,</td>
</tr>
<tr>
<td>Note 1: SEI’s Capability Maturity Models are PCMs</td>
</tr>
<tr>
<td>Note 2: 15504’s Process Assessment Models are PCMs too</td>
</tr>
<tr>
<td>Note 3: PCM’s Good practices can be viewed as collections of Process Capability Areas and Process Capability Levels, that could form Process Capability Profiles.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Process Capability Profile (PCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process Area Capability Profile (PACP)</td>
</tr>
<tr>
<td>Process Capability Level (PCL)</td>
</tr>
<tr>
<td>Process Capability Area (PCA)</td>
</tr>
</tbody>
</table>

Four + one basic (and more generic) concepts

- Process Capability Model (PCM)
- Process Capability Area (PCA)
- Process Capability Profile (PCP)
- Process Area Capability Profile (PACP)
- Process Capability Level (PCL)
Context Methodology

As a context for the method, the next set of slides presents:

- a) Forces for a methodology
- b) “4 + 1” terms and concepts
- c) Model and model-driven
- d) Methodology overview and elements (including the method)

---

Next Slides: Model and Model-driven

The next five slides present

- the concepts of model and model-driven
- types of process models used in process improvement

---

© CTI, Clenio F. Salviano, 2004-2009
Model and Model-driven

Model is a simplified representation of the world
• as a matter of fact, of only a part of the world
called the system, under a given aspect
• "be a model of" is a relationship with a system
not an intrinsic characteristic of something

A model of a system is a description or specification
of that system and its environment for some certain purpose
• new systems are produced from specification models
• descriptive models are produced from existing system

Model-driven engineering
is a subset of system engineering
in which the process heavily relies
on the use of models and model engineering

Model and the “Limited Substitutability Principle”

“The purpose of a model is always to be able to answer some specific sets of questions in place of the system, exactly in the same way the system itself would have answered similar questions.” [Bézevin 2005]

We don’t know the process of a given organization. We know, however, that CMMI ML3 is a model of this process.

What questions can I answer for this process?
For example, Q: "Can we have a good confidence that this organization will deliver a good software, on time?" A: "Yes"

What questions I can not answer for this process?
For example, Q: "Will this organization deliver incremental versions during the development or everything at the end? A: "We don’t know, depends on the life cycle model"

“What people do”, Process and Types of Process Models

<table>
<thead>
<tr>
<th>Types of Process Models</th>
<th>Process Capability Profile (process areas and capability levels)</th>
<th>Process Performance Description (life cycle, roles, activities and artefacts)</th>
<th>Process Performance Measures (information needs, information product, indicator and measures)</th>
</tr>
</thead>
</table>

Process Improvement though Process Models

What is going on?
Most projects seem to be very late

What we are doing?
"Pray and try to implement something"

Who can help?
CMMI-DEV

How are we using these good practices?
Implement just few CMMI-DEV ML2 elements

Most projects are on time in a 10% range

"estimate using UCP; develop increments; weekly status review; ..."

CMMI-DEV ML2

Plan to implement good practices

Who can help?

“CMMI-DEV ML2” could be replaced with some other Process Capability Profile model

Context Methodology

As a context for the method, the next set of slides presents:

1. Tutorial Introduction
2. Context Methodology
3. Method Overview
4. Method Analytic Tools
4.1. Business Model and Strategy
4.2. Improvement Cycle Goals
4.3. Process Area Relevance
4.4. Process Capability Profile
5. Method Considerations
6. Final Comments

✔ a) Forces for a methodology
✔ b) “4 + 1” terms and concepts
✔ c) Model and model-driven

d) Methodology overview and elements (including the method)
Next Slides: PRO2PI Methodology

The next seven slides present the PRO2PI Methodology as a context for a method of a workshop to establish a PRO2PI (PRO2PI-WORK) using the “4 + 1” more generic terms and concepts and model and model-driven concepts.

PRO2PI Methodology

A Methodology for Process Improvement driven by Process Capability Profile

PRO2PI: Process Capability Profile to drive Process Improvement
Tutorial: Establishing ISO/IEC 15504-Based Process Capability Profile to drive Process Improvement

PRO2PI Methodology

More specific Process Capability Model

Define Profile

Use Profile

Assess Process

Process improvement actions

organizational unit process

process performance results

Organisation`s strategic business goals; and Experiences and results from other organisations

Models, methods, techniques and other knowledge for processes

PRO2PI Methodology version 3.0

Sustainable model PRO2PI-SMOD

Metamodel PRO2PI-MMOD

(including "Sinal Aberto" Concept Map and "Geraes" Class diagram)

Properties PRO2PI-PROP

Measures PRO2PI-MEAS

Process improvement cycle process PRO2PI-CYCLE

Exemplar unified model PRO2PI-EUMOD1

Exemplar notation PRO2PI-EN1

Process improvement workshop method PRO2PI-WORK

Method framework for models PRO2PI-MFMOD

PRO2PI-WORK for education PRO2PI-WORK4E

PRO2PI-WORK for appraisal PRO2PI-WORK4A

Repository PRO2PI-REPO

© CTI, CFS 2004-2009

Phases for Process Improvement Cycle:

1. Decision and commitment for improvement
   - Assess current practices
   - Plan improvement actions
   - Implement improvement actions
   - Institutionalize improvements
   - Prepare improvement institutionalization

Improved organization

References for Process Improvement Cycle:

1. Decision and commitment for improvement
2. Organizational strategic business goals
3. Good practices from process capability models (SW-CMM, ISO/IEC 15504-5, iCMM, CMME-DEV, OPM3, COBIT, eSCM-SP/CL, MR-MPS, COMPETISOFT, ...), other reference models (ISO 9001, PMBOK, ISO/IEC 12207, SWEBOK, EFQM, PNQ, RUP, ...)) and/or any other sources
4. Models, methods, techniques and other knowledge for processes
5. Experiences and results from other organizations
Tutorial:
Establishing ISO/IEC 15504-Based Process Capability Profile
to drive Process Improvement

Process Capability Profile
to drive Process Improvement:

1. Organizational strategic business goals
2. Decision and commitment for improvement
3. Initiate improvement cycle
4. Assess current practices
5. Plan improvement actions
6. Define and use PRO2PI
7. Implement improvement actions
8. Institutionalize improvements
9. Prepare improvement institutionalization
10. Improved organization

PRO2PI-CYCLE: Cycle for Process Improvement driven by Process Capability Profile

1. Organizational strategic business goals
2. Decision and commitment for improvement
3. Initiate improvement cycle
4. Assess current practices
5. Plan improvement actions
6. Define and use PRO2PI
7. Implement improvement actions
8. Institutionalize improvements
9. Prepare improvement institutionalization
10. Improved organization

© CTI, Clenio F. Salviano, 2004-2009
**Context Methodology**

- a) Forces for a methodology
- b) "4 + 1" terms and concepts
- c) Model and model-driven
- d) Methodology overview and elements (including the method)
1. Tutorial Introduction
2. Context Methodology
3. Method Overview
4. Method Analytic Tools
   4.1. Business Model and Strategy
   4.2. Improvement Cycle Goals
   4.3. Process Area Relevance
   4.4. Process Capability Profile
5. Method Considerations
6. Final Comments

**PRO2PI-WORK Objectives**

- Present fundaments, techniques, models and some process capability areas for process improvement to selected staff of an organization
- Consolidate relevant information about the organization
- Consolidate strategic goals for process improvement
- Consolidate a representation of current macro processes
- Propose a preliminary process improvement program
- Define a “Process Capability Profile to drive Process Improvement” (PRO2PI) to be achieved in a short period
- Understand current processes for the defined PRO2PI
- Define orientations to achieve the defined PRO2PI
- Reinforce the motivation for process improvement
Phases and Activities of PRO2PI-WORK Method

Phase 1: Work Preparation
A.1.1: Get information about the organization
A.1.2: Analyze information about the organization
A.1.3: Prepare next activities

Phase 2: Preliminary PRO2PI
A.2.1: Present work and method
A.2.2: Identify Organizational Unit
A.2.3: Identify business model and strategy
A.2.4: Identify process improvement cycle goals
A.2.5: Identify process areas relevance
A.2.6: Define preliminary profile
A.2.7: Present and review preliminary profile

Phase 3: Established PRO2PI
A.3.1: Prepare next activities
A.3.2: Present additional techniques
A.3.3: Identify current practices
A.3.4: Consolidate information and revise profile
A.3.5: Define orientations for improvement
A.3.6: Consolidate information and revise profile
A.3.7: Present profile and orientations

Phase 4: Work Conclusion
A.4.1: Consolidate final report
A.4.2: Deliver final report
A.4.3: Evaluate and conclude the work

Work products

<table>
<thead>
<tr>
<th>Id</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WP01</td>
<td>workAgreem</td>
<td>Agreement for the work (template)</td>
</tr>
<tr>
<td>WP02</td>
<td>workPlan</td>
<td>Plan for the work (template)</td>
</tr>
<tr>
<td>WP03</td>
<td>workSched</td>
<td>Schedule for the work (template)</td>
</tr>
<tr>
<td>WP04</td>
<td>confAgreem</td>
<td>Confidentiality agreement (template)</td>
</tr>
<tr>
<td>WP05</td>
<td>finalReport</td>
<td>Final report about the work (template)</td>
</tr>
<tr>
<td>WP06</td>
<td>workEval</td>
<td>Evaluation about the work (form)</td>
</tr>
<tr>
<td>WP07</td>
<td>questForOU</td>
<td>Questionery for Organizational Unit (OU)</td>
</tr>
<tr>
<td>WP08</td>
<td>presMaterial</td>
<td>Material for presentations (Slides)</td>
</tr>
<tr>
<td>WP09</td>
<td>relevancePCA</td>
<td>Relevance of a PCA for the OU (template)</td>
</tr>
<tr>
<td>WP10</td>
<td>relevanceAll</td>
<td>Overview of relevance of all PCAs (template)</td>
</tr>
<tr>
<td>WP11</td>
<td>presPRO2PI</td>
<td>Presentation of PRO2PI (template)</td>
</tr>
</tbody>
</table>
1. Tutorial Introduction
2. Context Methodology
3. Method Overview
4. Some Method Activities
   4.1. Business Model and Strategy
   4.2. Improvement Cycle Goals
   4.3. Process Area Relevance
   4.4. Process Capability Profile
5. Method Considerations
6. Final Comments

• PRO2PI-WORK version 1.1 is described (in Portuguese) in [chapter 6 and Annex A.3 of Salviano 2006]
• Version 1.2 is under development
• In this tutorial, four groups of activities:
  - Business Model and Strategy
  - Improvement Cycle Goals
  - Process Area Relevance
  - Process Capability Profile
• For each activities
  - Activity description, including examples of work products
  - Examples from actual utilization
  - Notes about the activities, including technical references
Activity 2.2
Identify Organizational Unit

Purpose:
Identify and describe the Organizational Unit (OU)

Note:
OU is a part of the organization that is going to be improved and assessed. It deploys one or more processes that have a coherent process context and operates within a coherent set of business goals. [adapted from ISO/IEC 15504-1]

Example:
SX (not the real name) is a private company established in 1988 with the objective of developing and marketing software to automate human resources department. SX has in the market about 8,000 copies of its products in about 5,000 companies all over Brazil. Its distribution chain has 75 partners. SX has 200 employees directly working at SX, plus 80 consultants qualified by SX to implant software. From just one software system in 1988, SX now develops, commercializes, installs, implants, provides training and customer support to three software systems.
Activity 2.3
Identify business model and strategy  (1 of 8)

Purpose:
Identify current business model and strategy

“a business model tells a logical story about who your customers are, how you deliver value to them, how you make money. A strategy explains how you'll differ from rivals: by performing different activities, or similar activities in different ways. A compelling strategy lets you sidestep "competitive convergence" — companies' tendency to become indistinguishable after copying each other's best practices." [Porter 2000]

Activity 2.3
Identify business model and strategy  (2 of 8)

The tasks involves:
Meetings with senior managers
Revision of documents
Modeling the general macro process
Filling some questionnaires
Analysis of the questionnaires' answers
Consolidation of strategic goals
Presentation and discursions about the results

Techniques used:
SWOT [Stanford Research Institute]
Balanced Scorecard Strategy Maps [Kaplan e Norton]
"Asking what keeps you awake at night" [Reo 2001]
Activity 2.3 (Example of processes flow overview)

**Identify business model and strategy (3 of 8)**

<table>
<thead>
<tr>
<th>Client</th>
<th>Technology Area</th>
<th>Purchase Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request a Project</td>
<td>Analyze Project</td>
<td>Analyze The buying And ask for a meeting</td>
</tr>
<tr>
<td>No</td>
<td>Requirements OK?</td>
<td>Elicit Requirements</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>Prepare Documents For buying</td>
</tr>
<tr>
<td>No</td>
<td>External Resource</td>
<td>Prepare Supplier Selection</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>Analyze proposals</td>
</tr>
<tr>
<td>No</td>
<td>Available Resources?</td>
<td>Start a buying process</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Decide which supplier is going to be selected

Start development

[Source: Lobo 2004]

Activity 2.3

**Identify business model and strategy (4 of 8)**

The SWOT analysis:

a) is an useful tool for understanding and decision-making for all sorts of situations in business and organizations.

b) is an acronym for the four dimensions: *Strengths, Weaknesses, Opportunities, Threats.*

c) provide a good framework for reviewing strategy, position and direction of a company or business proposition, or any idea.

d) came from the research conducted at Stanford Research Institute from 1960-1970 about to find out why corporate planning failed and what could be done about this failure. [Humphrey and Chapman 2004]

PRO2PI-WORK uses SWOT and other dimensions to understand the OU and to support the PRO2PI establishment
Activity 2.3 (WP07 Questionnaire - excerpt 1 of 2)

Identify business model and strategy (6 of 8)

3.4 Report one to three relevant strengths for the OU.
(Note: Strengths are conditions of internal environment that present favorable current situation for the OU)
   a) [ ] max 320 cars;
   b) [ ] max 320 cars;
   c) [ ] max 320 cars.

3.5 Report one to three relevant weaknesses for the OU.
(Note: Weaknesses are conditions of internal environment that present no favorable current situation for the OU)
   a) [ ] max 320 cars;
   b) [ ] max 320 cars;
   c) [ ] max 320 cars.

3.6 Report one to three relevant good experiences in the OU
(something done before that worked well and you will do it again)
   a) [ ] max 320 cars;
   b) [ ] max 320 cars;
   c) [ ] max 320 cars.

3.7 Report one to three relevant bad experiences in the OU
(something done before that did not work well and you may not do it again, at least not soon or at least not in that way)
   a) [ ] max 320 cars;
   b) [ ] max 320 cars;
   c) [ ] max 320 cars.

Activity 2.3 (WP07 Questionnaire - excerpt 2 of 2)

Identify business model and strategy (7 of 8)

3.8 Report one to three relevant threats for the OU.
(Note: Threats are variables from external environment, with high future and negative importance for the activities and performance of the OU)
   a) [ ] max 320 cars;
   b) [ ] max 320 cars;
   c) [ ] max 320 cars.

3.9 Report one to three relevant opportunities for the OU.
(Note: Opportunities are variables from external environment, with high future and positive importance for the activities and performance of the OU)
   a) [ ] max 320 cars;
   b) [ ] max 320 cars;
   c) [ ] max 320 cars.

3.10 Report one to three improvement actions that you would like to be performed in the OU (An action may be a new one, reinforce a current one, changing or removing a current one).
   a) [ ] max 320 cars;
   b) [ ] max 320 cars;
   c) [ ] max 320 cars.

3.11 Report one to five differential characteristics of this OU from others (for example, what is unique or what it does better)
   a) [ ] max 320 cars;
   b) [ ] max 320 cars;
   c) [ ] max 320 cars;
   d) [ ] max 320 cars;
   e) [ ] max 320 cars.
Activity 2.3 (Example of SWOT usage)
Identify business model and strategy (8 of 8)

**Strengths**: Technical competence; Base of clients;

**Weaknesses**: Managerial competence; Insufficient financial reserve;

**Opportunities**: There is a new domain for a new product; There are the national and international market in addition to the regional one;

**Threats**: New player in the market; Loss of clients due to quality problems;

Organizational Unit: SX (not the real name) is a private company established in 1988 with the objective of developing and marketing software to automate human resources department. SX has in the market about 8,000 copies of its products in about 5,000 companies all over Brazil. Its distribution chain has 75 partners. SX has 200 employees directly working at SX, plus 80 consultants qualified by SX to implant software. From just one software system in 1988, SX now develops, commercializes, installs, implants, provides training and customer support to three software systems.
Activity 2.4

**Identify improvement cycle goals**

**Purpose:**
Identify compelling goals for the improvement cycle

The tasks involves:
- “1. Establish plan ownership.
- 2. State the major goals and problems.
- 3. Group the problems related to each goal.
- 4. Ensure that the goals and problems are crystal clear and compelling.
- 5. Set goal priorities.
- 6. Derive measurements for the goals.”

setting compelling goals
from The Goal-Problem approach [Potter and Sakry 2002]
Activity 2.5

Identify Process Areas Relevance (1 of 2)

Tasks for each selected Process Capability Area (PCA):

- Present the PCA, including:
  a) Introduction for the concept behind this PCA
  b) Definition and elements of this PCA from its model
  c) Comments about the PCA:
  d) Symptoms that are often seen when practices for this PCA are missing
  e) Reasons why this PCA may be important
  (Note: (d) and (e) are based in [Garcia et. al. 2004])

- Identify PCA in the organizational unit processes
  a) Which processes, sub-processes and/or activities are (or could be) implementations of this PCA.
  (Note: it is possible to divide the PCA and then repeat the next steps for each element)

(...)

[Garcia et al. 2004] Garcia, S., Cepeda, S., Miluk, G. and Staley, M. J.,
Adopting CMMI for Small Organizations, slides from presentation at Fourth Annual CMMI Technology Conference and Users Group, Denver, USA, Nov. 2004

Activity 2.5

Identify Process Areas Relevance (2 of 2)

Tasks for each selected Process Capability Area (PCA):

(…)

- Identify how well it is performed in the OU
  • How the process is performed including an estimation about its current capability level

- Identify the importance for the OU
  • What is the relative importance of this process for the business goals.
  • Expressed in a three value scale: low, medium and high.

- Identify the risk for the OU
  • What is the relative risk for the organization if it continues to perform this process as it is now
  • Expressed in a three value scale: low, medium and high.
Work Product 09
Relevance of a PCA for the OU

1. Identification
1.1 Organizational Unit Identification: \[\text{max 72 cars.}\]
1.2 PCA Identification: \[\text{max 32 cars.}\]
1.3 Process Capability Model Identification: \[\text{max 32 cars.}\]

2. Process Capability Area and Organizational Unit
2.1 General Comments: \[\text{max 800 cars.}\]
2.2 Which processes, sub-processes and/or activities are (or could be) implementations of this PCA:
\[\text{max 800 cars.}\]
2.3 How the process is performed including an estimation about its current capability level:
\[\text{max 800 cars.}\]
2.4 What is the relative importance of this process for the business goals:
\[\text{max 800 cars.}\]
2.5 What is the relative risk for the organization if it continues to perform this process as it is now:
\[\text{max 800 cars.}\]

Next Slides: Two examples

The next slides present, as examples, excerpts from materials for two Process Capability Areas:

- ISO/IEC 15504-5 Domain Engineering
- CMMI-DEV Technical Solution
Domain Engineering PCA (from ISO/IEC 15504-5)

**Purpose:** “to develop and maintain domain models, domain architectures and assets for the domain.”

**Comments:**
“Domain Engineering, also called (product line engineering) is the entire process of reusing domain knowledge in the production of new software systems. It is a key concept in systematic software reuse.

A key idea in systematic software reuse is the domain, a software area that contains systems sharing commonalities. Most organizations work in only a few domains. They repeatedly build similar systems within a given domain with variations to meet different customer needs. Rather than building each new system variant from scratch, as is common practice today, significant gains are achievable by reusing portions of previous systems in the domain to build new ones.

The process of identifying domains, bounding them, and discovering commonalities and variabilities among the systems in the domain is called domain analysis. This information is captured in models that are used in the domain implementation phase to create artifacts such as reusable components, a domain-specific programming language, or application generators that can be used to build new systems in the domain.” [Wikipedia 2008]

**As a result of successful implementation:**
- **Outcome 1:** the representation forms for the domain models and the domain architectures are selected;
- **Outcome 2:** the boundaries of the domain and its relationships to other domains are established;
- **Outcome 3:** a domain model that captures the essential common and different features, capabilities, concepts, and functions in the domain are developed;
- **Outcome 4:** a domain architecture describing the family of systems within the domain is developed;
- **Outcome 5:** assets belonging to the domain are specified;
- **Outcome 6:** assets belonging to the domain are acquired or developed and maintained throughout their life cycles; and
- **Outcome 7:** the domain models and architectures are maintained throughout their life cycles.
Activity 2.5 (WP08 Slides - Dom.Eng. PCA excerpt 3 of 5)

Identify Process Areas Relevance (3 of 10)

Domain Engineering PCA (from ISO/IEC 15504-5)

**Base Practices:**

**BP1:** Define criteria for domain definitions. Select the domain representation forms, domain classifications and other needed description templates to be used for the domain models and domain architectures, in accordance with the organization's reuse standards. [Outcome: 1]

**BP2:** Define domain models. Develop domain descriptions according to the representation forms. [Outcome: 2, 3, 4]

**BP3:** Define domain architectures. Develop domain architectures and its technical interfaces with other domains. [Outcome: 2, 4]

**BP4:** Develop asset specifications. Develop asset specifications. [Outcome: 5]

**BP5:** Provide domain assets. Submit specified domain assets for use in products. [Outcome: 6]

**BP6:** Maintain domain assets. Analyze and monitor change requests to maintain domain assets and perform required technical implementation activities. [Outcome: 6]

Activity 2.5 (WP08 Slides - Dom.Eng. PCA excerpt 4 of 5)

Identify Process Areas Relevance (4 of 10)

Domain Engineering PCA (from ISO/IEC 15504-5 as CMMI)

**Purpose:** “to develop and maintain domain models, domain architectures and assets for the domain.”

Define criteria for domain definitions

Define domain models

Define domain architectures

Develop asset specifications

Provide domain assets

Maintain domain assets

Domain Models

Domain Architectures

Domain Assets

Activity 2.5 (WP08 Slides - Dom.Eng. PCA excerpt 5 of 5)

Identify Process Areas Relevance (5 of 10)

Domain Engineering PCA (from ISO/IEC 15504-5):

Symptoms when Domain Engineering isn't done well ...
   a) Many new features are needed to sell the product for the next client
   b) Products try to do too many things
   c) There is not a clear explanation about the general functionality of the product

Why You Care? Because ...
   a) Reuse is very important for business and a good domain engineering is essential to reuse
   b) There is a need to "say no to the client" sometimes, when what they are asking is outside the domain of the product
   c) Product may not be able to accommodate technology upgrades and future growth if domain engineering isn't well done

Activity 2.5 (WP08 Slides - Tech.Sol. PCA excerpt 1 of 3)

Identify Process Areas Relevance (6 of 10)

Technical Solution PCA [from CMMI-DEV v1.2]:

"Purpose: to design, develop, and implement solutions to requirements. Solutions, designs, and implementations encompass products, product components, and product-related lifecycle processes either singly or in combination as appropriate."

Notes: It is applicable at any level of the product architecture and to every product, product component and product-related lifecycle process. Throughout it, where we use the terms product and product component, their intended meanings also encompass services and their components. It focuses on the following:
   a) Evaluating and selecting solutions (sometimes referred to as "design approaches," "design concepts," or "preliminary designs") that potentially satisfy an appropriate set of allocated requirements
   b) Developing detailed designs for the selected solutions (detailed in the context of containing all the information needed to manufacture, code, or otherwise implement the design as a product or product component)
   c) Implementing the designs as a product or product component
Activity 2.5 (WP08 Slides - Tech.Sol. PCA excerpt 2 of 3)
Identify Process Areas Relevance (7 of 10)

Technical Solution PCA [from CMMI-DEV v1.2]:

"Symptoms when Technical Solution isn’t done well..."

a) Less than optimal solution is "settled on"
b) Products that don’t meet technical performance requirements and/or user needs
c) Increased testing/rework to resolve design/architecture issues
d) Customer is surprised at the solution that resulted from their requirements

Why You Care? Because...
a) Increased cost to test and address rework
b) Future business is at risk with the customer if performance expectations aren’t met
c) Product may not be able to accommodate technology upgrades and future growth if technical solution isn’t well conceived"

From (Garcia et al. 2004)
Activity 2.5 (WP10 - Example, five process, two models)
Identify Process Areas Relevance (9 of 10)

<table>
<thead>
<tr>
<th>Process Area</th>
<th>Current Execution</th>
<th>Importance for the OU</th>
<th>Risk for the OU</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM - Project Management (15504-5)</td>
<td>There is no a managed process. Each project is responsible for many projects.</td>
<td>Medium</td>
<td>Without delivering the product of the agreed quality the project could be damaged.</td>
</tr>
<tr>
<td>REQM - Requirements Management (CMMI-SE/SW)</td>
<td>There is just a very informal communication with users. There is no standard documentation.</td>
<td>High</td>
<td>The correct understanding of the requirements is important for planning and delivering the results at the agreed time.</td>
</tr>
<tr>
<td>RD - Requirements Development (CMMI-SE/SW)</td>
<td>There is no consistent detail requirements for developing the product.</td>
<td>High</td>
<td>There is a need to elicit good requirements and avoid rework during the development.</td>
</tr>
<tr>
<td>TS - Technical Solution (CMMI-SE/SW)</td>
<td>The technical solution is executed and managed, but there is no standard process for it.</td>
<td>High</td>
<td>A good technical solution process, including standards for test, is very important to avoid losing the people knowledge.</td>
</tr>
<tr>
<td>PR - Product Release (15504-5)</td>
<td>Product is released in a managed fashion, but sometimes there is formal confirm. of such release.</td>
<td>Low</td>
<td>Sometimes there is a need to rework.</td>
</tr>
</tbody>
</table>

Relevance table:
Importance of the process for the OU:
- high
- medium
- low

Risk due to the current process for the OU:
- high
- medium
- low

Activity 2.5 (WP10 - Example for ISO/IEC 15504-5 processes)
Identify Process Areas Relevance (10 of 10)

Organizational Unit: Dep. de Products HAL  
Date: 04/09/2006


<table>
<thead>
<tr>
<th>Process Area</th>
<th>Importance for the OU</th>
<th>Risk for the OU</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG.6 RIN.1</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>ENG.4</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>ENG.12</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>ENG.7 RIN.4</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>ENG.8</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>MAN.2 MAN.1</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>MAN.3</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>ACQ.1 ACQ.4</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>RIN.4</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>EN.1 SUP.8</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>SUP.9 REU.2</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>MAN.5 PIN.3</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>OPE.1</td>
<td>Low</td>
<td></td>
</tr>
</tbody>
</table>

© CTI, Clenio F. Salviano, 2004-2009
1. Tutorial Introduction
2. Context Methodology
3. Method Overview
4. Method Analytic Tools
4.1. Business Model and Strategy
4.2. Improvement Cycle Goals
4.3. Process Area Relevance
4.4. Process Capability Profile
5. Method Considerations
6. Final Comments
Activity 2.5
Define Preliminary Profile

Purpose:
Identify a preliminary "Process Capability Profile to drive Process Improvement" (PRO2PI)

Activities:

a) Review and tag to Process Capability Areas the results from:
   - Activity A.2.3 Identify business model and strategy, and
   - Activity A.2.4: Identify process improvement cycle goals
b) Review Process Capability Areas (PCA) relevance
c) Produce a consolidated PCA relevance from previous activities
d) Review PCA relevance using experiences from others
e) Analyze PCA relevance and select Process Capability Areas
f) Associate selected PCAs to the Business Model (from A.2.3)
g) Associate a Process Capability Level (PCL) to each selected PCA, producing the draft preliminary PRO2PI
h) Review the draft preliminary PRO2PI using the 8 properties
i) Analyze results and define the preliminary PRO2PI

Example for: Review and tag to Process Capability Areas the results from A.2.3 Identify business model and strategy

<table>
<thead>
<tr>
<th>Selected answers to the question: &quot;Report 1 to 3 improvement actions that you would like to be performed in the OU&quot;</th>
<th>ISO/IEC 15504-5 process mapped to each answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>A specific team to provide technical support to clients</td>
<td>OPE.2 Customer support</td>
</tr>
<tr>
<td>Method for controlling the software versions</td>
<td>SUP.8 Configuration Management</td>
</tr>
<tr>
<td>Better communication of the organization strategy</td>
<td>MAN.1 Organizational Alignment</td>
</tr>
<tr>
<td>Definition of a career and salary plan</td>
<td>RIN.1 Human resource management</td>
</tr>
<tr>
<td>Improve project management</td>
<td>MAN.3 Project Management</td>
</tr>
<tr>
<td>Better physical infrastructure</td>
<td>RIN.4 Infra structure</td>
</tr>
<tr>
<td>Better project estimations and planning</td>
<td>MAN.3 Project Management</td>
</tr>
</tbody>
</table>
To be useful and effective for process improvement, a PRO2PI should possess, to a sufficient extend, at least the following properties:

- **Dynamic**: Can be evolved
- **Specific**: To some characteristics of the organization
- **Traceable**: To relevant models
- **Representative**: As an abstraction of the process
- **Relevant**: To organization business model and strategy
- **Feasible**: Given the current state and planned investment
- **Opportunistic**: Explore favorable or advantageous circumstance
- **Systemic**: Is a system

Next Slides: examples

The next slides present, as examples, excerpts from results of PRO2PI establishments
Tutorial:
Establishing ISO/IEC 15504-Based Process Capability Profile to drive Process Improvement

Ex1: Example of a General Macro Process (1 of 3)

- Client
  - Request a Project
  - Analyze Project
  - Elicit Requirements
  - Prepare Documents For buying
  - Start a buying process
  - Analyze The buying And ask for a meeting
  - Prepare Supplier Selection
  - Analyze proposals

- Technology Area
  - Analyze
  - Requirements
  - External Resource
  - Available Resources?

- Purchase Area
  - Start development
  - Decide which supplier is going to be selected

Ex1: Example of a General Macro Process (2 of 3)

Proposed PRO2PI:

CUS.1.1 Acquisition preparation at level 2
CUS.1.2 Supplier selection at level 3
CUS.1.3 Supplier monitoring at level 3
CUS.1.4 Customer acceptance at level 2
ENG.1.2 Software requirements analysis at level 2
ENG.1.3 Software design at level 2
Ex1: Example of a General Macro Process and its mapping to the proposed PRO2PI:

1. Client Technology Area Purchase Area
   - Request a Project
   - Analyze Project
   - Elicit Requirements
   - Prepare Documents For buying
   - Start a buying process
   - Decide which supplier is going to be selected
   - Start development

Ex 2, 3, 4 and 5: Examples of PRO2PI

<table>
<thead>
<tr>
<th>Process from ISO/IEC 15504-5</th>
<th>Capability Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUP.2: Customer Support</td>
<td>2</td>
</tr>
<tr>
<td>MAN.3: Project Management</td>
<td>2</td>
</tr>
<tr>
<td>SUP.5: Quality Assurance</td>
<td>2</td>
</tr>
<tr>
<td>MAN.1: Organizational Alignment</td>
<td>1</td>
</tr>
<tr>
<td>PIM.1: Process Establishment</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Process from ISO/IEC 15504-5</th>
<th>Capability Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUP.10: Change Request Management</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Process from ISO/IEC TR 15504-5</th>
<th>Capability Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPL.1 Supplier tendering</td>
<td>2</td>
</tr>
<tr>
<td>ENG.1 Requirements elicitation</td>
<td>2</td>
</tr>
<tr>
<td>MAN.2 Project Management</td>
<td>1</td>
</tr>
<tr>
<td>ENG.8 Software testing</td>
<td>3</td>
</tr>
<tr>
<td>MAN.6 Measurement</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Process Area from CMMI-DEV</th>
<th>Capability Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>REQM Requirement Management</td>
<td>2</td>
</tr>
<tr>
<td>PP Project Planning</td>
<td>1</td>
</tr>
<tr>
<td>PMC Project Monitoring and Control</td>
<td>1</td>
</tr>
</tbody>
</table>
Ex 6: PRO2PI in a period of three years and assessment results

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ORG.1.0 Org.Alig. SE</td>
<td>PA1</td>
<td>P x N N x x 0</td>
<td>F L L P P P 2</td>
</tr>
<tr>
<td>ORG.2.1 Proc.Est. SE</td>
<td>PA2</td>
<td>P x N N x x 0</td>
<td>F L L P P P 2</td>
</tr>
<tr>
<td>ORG.5.0 Measur. SE</td>
<td>PA3</td>
<td>P x x x x x U</td>
<td>F L L P P P 2</td>
</tr>
<tr>
<td>MAN.2.0 Proj.Man. PA</td>
<td>PA4</td>
<td>P x N N x x 0</td>
<td>F L L N N 2</td>
</tr>
<tr>
<td>SUP.3.2 Qual.Assur. PA</td>
<td>PA5</td>
<td>P x x x x x U</td>
<td>F L L N N 2</td>
</tr>
<tr>
<td>ENG.1.2 Sw.Req. PA</td>
<td>PA6</td>
<td>P x x x x x U</td>
<td>F L L N N 2</td>
</tr>
<tr>
<td>ENG.1.2 Sw.Req. PB</td>
<td>PA7</td>
<td>P x x x x x U</td>
<td>F L L N N 2</td>
</tr>
<tr>
<td>MAN.2.0 Proj.Man. PB</td>
<td>PA8</td>
<td>P x x x x x U</td>
<td>F L L N N 2</td>
</tr>
<tr>
<td>MAN.2.0 Proj.Man. PB</td>
<td>PA9</td>
<td>P x x x x x U</td>
<td>F L L N N 2</td>
</tr>
<tr>
<td>SUP.3.2 Qual.Assur. PB</td>
<td>PA10</td>
<td>P x x x x x U</td>
<td>F L L N N 2</td>
</tr>
<tr>
<td>ENG.1.2 Sw.Req. PB</td>
<td>PA11</td>
<td>P x x x x x U</td>
<td>F L L N N 2</td>
</tr>
</tbody>
</table>

Organizational Unit (O.U.): SE: Senior Sistemas; PA: Business Unit for Product "A"; or PB: Business Unit Product "B".

Process Attributes Ratings: N: not achieved; P: Partially; L: Largely; F: Fully; or x: Not assessed

1999: level 0 processes; ↦ 2002: level 2 processes;

☑ establish the basic management system (level 2)
☑ use processes and indicators to manage the organization:
☒ twelve sets of data related with software development, customisation and maintenance processes, and
☒ four sets related with customer support

Ex 7: A simplified view of the mapping between a PRO2PI, with five TR 15504-5 processes at level 2 and a very small, project oriented, software development organization:

CUS.2: Supply

Software Factory Process:

Prospect -> Contract -> Development -> Deliver -> Close

CUS.3: Requirements Elicitation
MAN.2: Project Management
ENG.1.6: Software Testing

ORG.5: Measurement
Method Considerations

- PRO2PI Methodology (and PRO2PI-WORK Method) has been developed in the last ten years through cycles of exploration, application and consolidation using as a methodology
  - an "Industry-as-laboratory" approach [Potts 1998], and
  - the "Process Capability Levels" themselves
    (It is a "Process Capability Level 2" going to "Level 3")

References for PRO2PI at http://pro2pi.wikidot.com/

- Already used in:
  - about 50 industrial experiences
  - about 200 students projects
  - About 20 others research effort

- About 20 people involved
- About 20 research and industrial experience papers
An Invitation:
PRO2PI is a collaborative, ongoing research effort.
To participate, please contact us:
clenio.salviano@cti.gov.br or clenio.salviano@gmail.com
and visit http://pro2pi.wikidot.com/
“In information society, people need to learn [and] the subjects [to be learned] can be less important than the students' [knowledge workers'] capacity for [identifying the subjects] continuous learning and the motivation to do so” Peter Drucker 1992

“In information society, organizations need to improve the process [and] the process areas [to be improved] can be less important than the organizations' [knowledge workers'] capacity for [identifying the process areas] continuous improving the process and the motivation to do so” PRO2PI vision

Thanks for the attention ... other questions?