FACULDADE DE ENGENHARIA DA UNIVERSIDADE DO PORTO

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Mestrado Integrado em Engenharia Informática e Computação

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February 3, 2015

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Nelson Mendes

Mestrado Integrado em Engenharia Informática e Computação

February 3, 2015

Abstract

Here goes the abstract written in English.

Resumo

O Resumo fornece ao leitor um sumário do conteúdo da dissertação. Deverá ser breve mas conter detalhe suficiente e, uma vez que é a porta de entrada para a dissertação, deverá dar ao leitor uma boa impressão inicial.

Este texto inicial da dissertação é escrito no fim e resume numa página, sem referências externas, o tema e o contexto do trabalho, a motivação e os objectivos, as metodologias e técnicas empregues, os principais resultados alcançados e as conclusões.

Este documento ilustra o formato a usar em dissertações na Faculdade de Engenharia da Universidade do Porto. São dados exemplos de margens, cabeçalhos, títulos, paginação, estilos de índices, etc. São ainda dados exemplos de formatação de citações, figuras e tabelas, equações, referências cruzadas, lista de referências e índices. É usado texto descartável, *Loren Ipsum*, para preencher a dissertação por forma a ilustrar os formatos.

Seguem-se umas notas breves mas muito importantes sobre a versão provisória e a versão final do documento. A versão provisória, depois de verificada pelo orientador e de corrigida em contexto pelo autor, deve ser publicada na página pessoal de cada estudante/dissertação, juntamente com os dois resumos, em português e em inglês; deve manter a marca da água, assim como a numeração de linhas conforme aqui se demonstra.

A versão definitiva, a produzir somente após a defesa, em versão impressa (dois exemplares com capas próprias FEUP) e em versão eletrónica (6 CDs com "rodela" própria FEUP), deve ser limpa da marca de água e da numeração de linhas e deve conter a identificação, na primeira página, dos elementos do júri respetivo. Deve ainda, se for o caso, ser corrigida de acordo com as instruções recebidas dos elementos júri.

Acknowledgements

The Name of the Author

"You should be glad that bridge fell down.
I was planning to build thirteen more to that same design"

Isambard Kingdom Brunel

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Abbreviations

ADT	Abstract Data Type
ANDF	Architecture-Neutral Distribution Format
API	Application Programming Interface
CAD	Computer-Aided Design
CASE	Computer-Aided Software Engineering
CORBA	Common Object Request Broker Architecture
UNCOL	UNiversal COmpiler-oriented Language
Loren	Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Sed vehicula lorem commodo dui
WWW	*World Wide Web*

Chapter 1

Introduction

This chapter presents the context and motivation of this thesis, describing the main goals, it's objectives and the expected results of work.

1.1 Context and Motivation

Nowadays current markets are changing, we can see more often the globalization phenomenon and with that organizations are compelled to streamline their business in order to achieve a favorable market position and be able to maintain or increase their competitiveness.

In our everyday lives software takes an important role, he is everywhere and is needed more often. When he is in development it is important to make it more efficiently and with more quality. For organizations that have software currently in development failures and errors are not allowed and each one of them implies increased costs and resources being wasted. To avoid this scenario and to achieve maximum efficiency and agility, their processes and their methodologies need to be less time consuming and more effortless so good practices need to be followed in order to allow them focus on what really matters: value creation. This will provide them advantages and make them more trustful.

Organizations need to ensure that their products and services consistently meet customer's requirements, and that quality is consistently improved and certifications are a formal recognition of those ideals. Sadly those recognitions take too much time and effort and time being in some cases very painful and expensive.

SCAMPI is the Standard CMMI Appraisal Method for Process Improvement, the evaluation method of CMMI model. CMMI is a model for organizations to improve their processes and is required by many U.S. Government contracts, especially in software development. SCRAIM is the tool that is going to provide us the background and the base to work and simplify those kind of evaluations in order to save time and money. That way companies will deliver their products and services better, faster, and cheaper.

1.2 Goals and expected results

The main goal is of this dissertation is to develop a group of methodologies, techniques and tools integrated in the SCRAIM interface, that will make evaluations and certain parts of certifications easier and less painful for the SCRAIM users. Although there are a number of life cycle and project management tools, few combine this with process management techniques. SCRAIM combines the two and will provide the users new features that will semi-automate the assessment for certification of an organization.
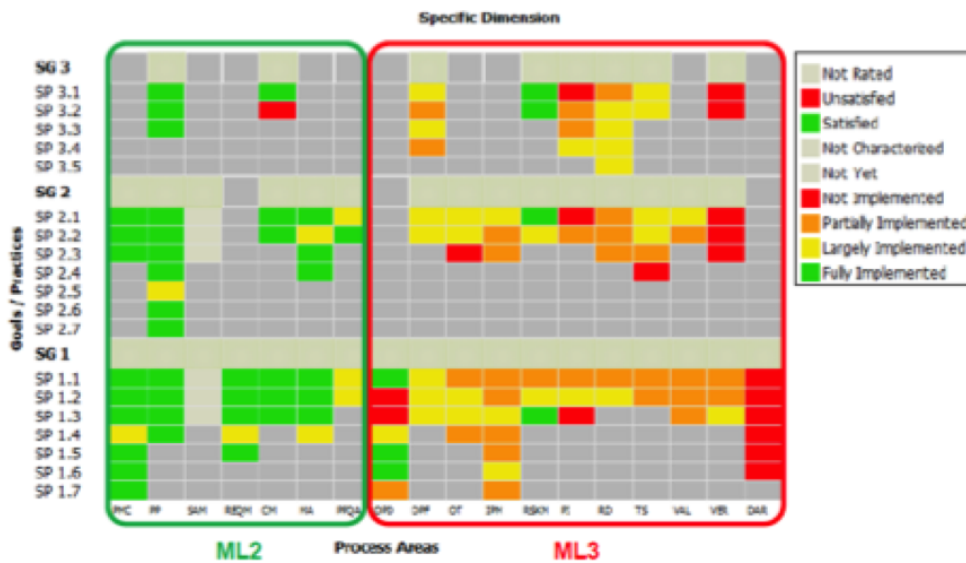
Figure 1.1: SCAMPI results

This image shows a matrix that is expected to have as output, and what is intended to do is:

- Having SCRAIM as the basis for project activity take a sample of projects;

- Analyze the project activity in SCRAIM;

- Map the information of the produced articles to CMMI;

  - Determine what are the good practices presented in SCRAIM, that can be mapped to CMMI;

  - For each one of them investigate and conclude if that practice is being followed and fully satisfied;

- Generate an matrix like the previous picture:

  - Each column represents a good practice that needs to be followed and be satisfied;

The full-automated process is not yet feasible, so human intervention is still mandatory. With the use of SCRAIM, good practices will be followed and in the end the generated information will facilitate the decision making process. We can see many advantages of this innovation, and we believe that the application of this innovation will help reducing the costs and time of one evaluation using the SCAMPI method.

1.3 Document structure

Introduction

Chapter 2

Problem analysis

The evaluation for certification is one complex process, and requires many approaches, some acquired knowledge and some experience. To understand the problem and objectives of this dissertation, it is necessary to understand what is CMMI, in particular the SCAMPI method and what is SCRAIM.

2.1 CMMI

To understand better what is CMMI we need to understand what is Capability model.

2.1.1 CMM

A CMM (Capability Maturity Model), including CMMI, is a simplified representation of the world around us. Capability Maturity Models contain essentially elements of effective processes, this elements are based on concepts developed by Crosby, Deming, Juran, and Humphrey.

The SEI (The Carnegie Mellon Software Engineering Institute that is a federally funded research and development center headquartered on the campus of Carnegie Mellon University in Pittsburgh, Pennsylvania, United States) adopted the process management premise, "the quality of a system or product is highly influenced by the quality of the process used to develop it and keep it" and defined CMMs that incorporated this premise.

2.1.2 What is CMMI

CMMI stands for Capability Maturity Model Integration and is a process of improvement training, an appraisal program and a service that is administered and sold by the Carnegie Mellon University, and for some business activities is required and mandatory like many DOD (United States Department of Defense) and U.S. Government contracts, especially in software development.

History of CMMs

CMM for Software V1.1 (1993)

INCOSE SECAM (1996)

Systems Engineering CMM V1.1 (1995)

Software CMM V2, draft C (1997)

Software Acquisition CMM V1.03 (2002)

EIA 731 SECM (1998)

Integrated Product Development CMM (1997)

V1.02 (2000)

V1.1 (2002)

CMMI for Development V1.2 (2006)

CMMI for Acquisition V1.2 (2007)

CMMI for Services V1.2 (2009)

CMMI for Acquisition V1.3 (2010)	**CMMI for Development V1.3 (2010)**	**CMMI for Services V1.3 (2010)**

Figure 2.1: History of CMMs

Carnegie Mellon University says that CMMI can be used to guide an organization, a division and process improvement across projects. The CMMI processes and methodologies can be classified according to maturity levels.

Currently CMMI is on Version 1.3 and is registered in the United States Patent and Trademark Office by Carnegie Mellon University.

2.1.3   CMMI models and process areas

Best practices of CMMI are published in documents called models, each models is addressed to a different area of interest. The current version of CMMI, version 1.3, has three different areas of interest: development, acquisition and services.

These models are produced taking for base the CMMI framework that contains all the goals and practices used to produce the models that are part of CMMI constellations. The CMMI models contain 16 core process areas, they cover basic concepts fundamental to process improvement in any area of interest.

The material in core process areas it is almost the same for all constellations of CMMI, the rest of the material need to be adjusted to a specific area of interest, so the material wont be the exactly the same.

2.1.4 CMMI model framework

CMMI framework is a basic structure that organizes and groups the CMMI components, elements of the current models, rules, methods for model generations, appraisal methods and training material, contains too process areas that will vary for each one of the CMMI areas that will be used. Process areas are the areas that cover the organization processes.

For the latest version of CMMI for Development (Version 1.3) there are 22 Process Areas, which represents the product aspects and the coverage for the organizational processes.
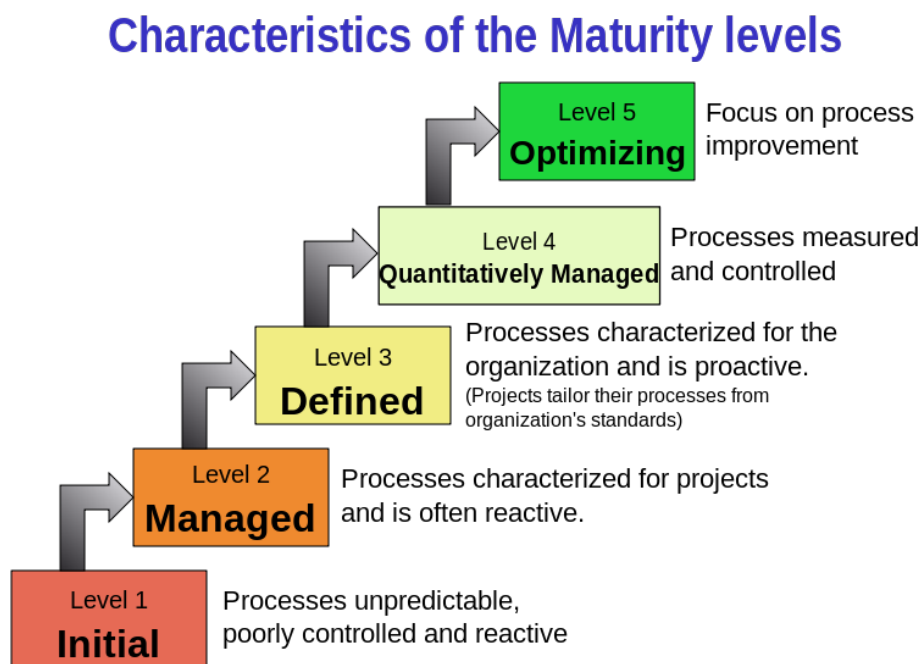
2.1.5 Maturity levels in CMMI for development

Figure 2.2: CMMI maturity levels

Processes under the CMMI methodology are rated and grouped according levels, called maturity levels. There are five levels of maturity levels defined as: Initial, Managed, Defined, Quantitatively Managed, Optimizing. These maturity levels that are rated are presented and awarded for levels 2 through 5. The following process areas listed show us the maturity levels for CMMI for Development:

- Maturity Level 2 - Managed

    - CM - Configuration Management

    - Measurement and Analysis

- PMC - Project Monitoring and Control

- PP - Project Planning

- PPQA - Process and Product Quality Assurance

- REQM - Requirements Management

- SAM - Supplier Agreement Management

- Maturity Level 3 - Defined

  - DAR - Decision Analysis and Resolution

  - IPM - Integrated Project Management

  - OPD - Organizational Process Definition

  - OPF - Organizational Process Focus

  - OT - Organizational Training

  - PI - Product Integration

  - RD - Requirements Development

  - RSKM - Risk Management

  - TS - Technical Solution

  - VAL - Validation

  - VER – Verification

- Maturity Level 4 - Quantitatively Managed

  - OPP - Organizational Process Performance

  - QPM - Quantitative Project Management

- Maturity Level 5 - Optimizing

  - CAR - Causal Analysis and Resolution

  - OPM - Organizational Performance Management

2.2 Appraisal

Organizations cannot be certified in CMMI, so there is something called appraisal and an organization is appraised.

In an appraisal the organization gets awarded a maturity level from one to five or a capability level achievement profile. As said before many organizations are required to get some kind of recognition and others find value measuring their progress such determine how well the processes adopted by the organization are compared to CMMI best practices, to meet contractual and customers requirements and to know which areas they can improve and appraisals are the right way to do it.

Appraisals using a CMMI model must comply with the requirements set out in the Appraisal Requirements for CMMI (ARC) document. There are three classes of appraisals, A, B and C, all of them compare the processes used in the organization to CMMI processes and best practices, that way is identified improvements to make. From all three classes of appraisals the most formal is class A and it is the only one that can output a level rating.

When an appraisal is done teams use a CMMI model and an ARC document. The results from the teams are used to plan improvements for the organization.

Statistics are made and updated every six months in a maturity profile since the release of CMMI show us that the median times to move from Level 1 to Level 2 is 5 months, from that to Level 3 more 21 months.

2.2.1 SCAMPI

SCAMPI is the abbreviation for Standard CMMI Appraisal Method for Process Improvement and is an appraisal method that meets all the ARC requirements. In SCAMPI appraisals there are three types of distinct classes: Class A, B and C appraisal methods. The most rigorous method and officially recognized as that is the Class A method, it is the only method that can result in a benchmark quality rating. SCAMPI B and C provide organizations improvements less formal than the class A, however still can identify improvements to be done.

Results SCAMPI appraisal can be published on the CMMI web site of SEI, if the organizations approves this. This appraisal supports the conduct of ISO/IEC 15504, Software Process Improvement and Capability Determination (SPICE), a set of technical standards documents for the computer software development process and related business management functions.

The ARC Class A appraisals is normally conducted by SCAMPI A appraisal. The SCAMPI A Method Definition Document is where its defined rules to ensure the consistency of the appraisal ratings, so the same maturity rated in two companies means they are equal in methodologies and business processes.

2.2.2 Principals

As said before the class A appraisal is the only full comprehensive appraisal method that involves an ARC class A method and uses CMMI models as reference models.

This appraisal will allow organizations to gain insight about their capability by identifying the strengths and weaknesses of its current processes, prioritize improvement plans, focus on those improvements, correcting weakness that will generate risks, derive capability rating as a maturity level rating and identify risks relative to capability and maturity determinations.

This appraisal follows this principals:

- Start with a process reference model.

- Use a defined appraisal method.

- Involve senior management as an appraisal sponsor.

- Observe strict confidentiality and non-attribution.

- Approach the appraisal collaboratively. (When SCAMPI is used for Supplier Selection or Process Monitoring modes, it may not be possible to use a collaborative appraisal approach.)

- Focus on the sponsors business objectives

2.2.3 The SCAMPI Process

The Method Definition Document is a document that describes SCAMPI appraisal method, this document sets the key elements of appraisal planning and the rules of conduct. Is also included in this document the level of process tailoring permitted, qualifications of the team members, evidence requirements, how to scope the appraisal and more.

There are essentially three phases to the process:

- Phase I - Plan and Prepare for Appraisal

- Phase II – Conduct Appraisal

- Phase III – Report Results

The following graphs shows us this phases, the last one includes the results report phase.
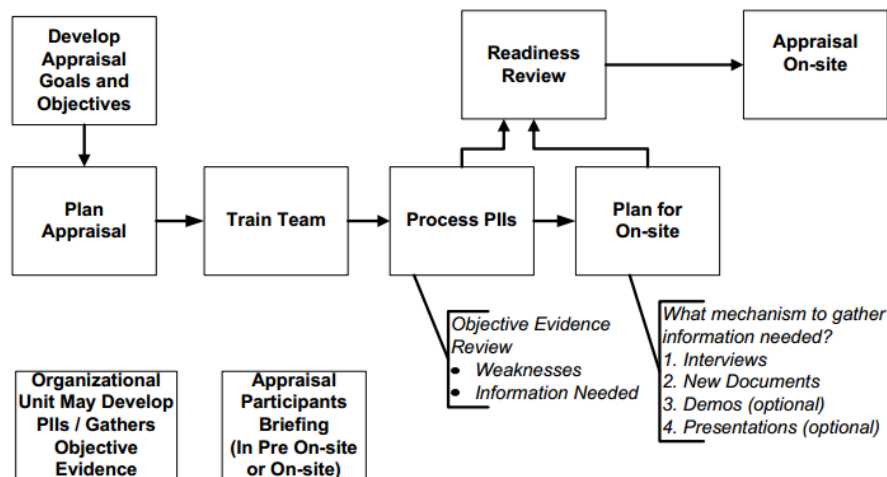

Figure 2.3: Plan and Prepare for Appraisal Activities

2.2.4 Special Terms

There are some terms to consider with special meaning, Organizational Unit (OU), Organizational Scope, Subgroup, Basic Unit, Support Function, Objective Evidence, Instantiation, Database of Objective Evidence, Practice Characterization.
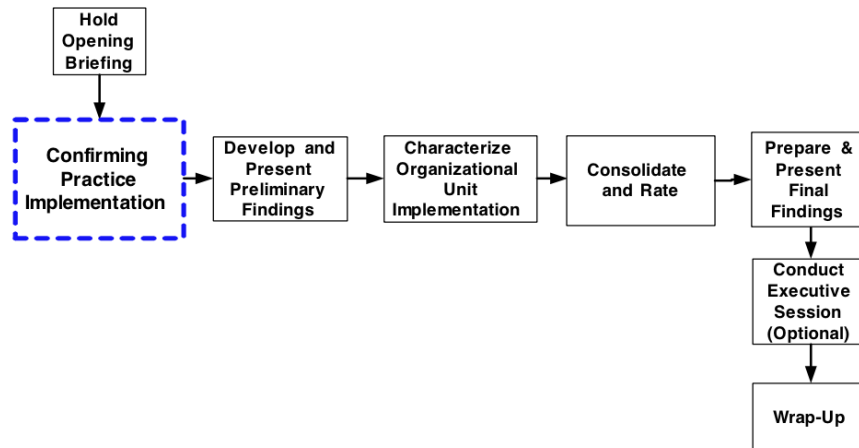
Figure 2.4: Conduct Appraisal Activities

Organizational Unit is the subject of an appraisal. Can be deployed one or more processes that have a consistent process context, operates in a coherent set of business objectives and is typically part of a larger organization. In a small organization, this unit can be the whole organization.

Basic Unit stands for a set of interrelated and managed resources that delivers products or services to a customer and usually works like planned. The plan is documented and specifies the services or products delivered or implemented, the funds, the future work and the work that is currently being done.

A collection of basic unit and support functions that represent practices used within and organizational unit is the Organizational scope.

A Subgroup is a cluster of basic units that are shared between similar process implementations and a common sampling factor alternatives.

Support Function is an organizational group that for a certain and well defined set of activities needed by other parts of the organizations provides products and/or services.

Objective Evidence (OE) are indicators of the implementation or institutionalization of model practices. Verifying practice implementation is the review of Objective Evidence to determine whether a practice is implemented within a basic unit, support function, and/or organization. Can be of two types artifacts or affirmations. The artifacts are a tangible form of evidence indicative of work being done, which is both the main output of a practical model or a consequence of the implementation of a model of practice. Affirmation is an oral or written statement confirming or support the implementation (or lack of implementation) in a practical model provided by the practice performers, provide through an interactive forum in which the evaluation team has control over the interaction. In certain cases for some practices, documents are accepted as artifacts even if they are not the primary desired result of practical practice.

Instantiation is the implementation of a model practice used in its context in the organizational unit boundaries.

2.2.5   Practice Characterization (table)

2.2.6   Appraisal Participants

In a appraisal there are several participants with roles and responsibilities crucial to its success.

The Appraisal sponsor is responsible to sponsor the appraisal and owns the appraisal results and signs the Appraisal Disclosure Statement.

Middle managers are originally from the line or staff management positions and are interviewees and data providers and if they are participant they review preliminary findings.

Basic Unit leaders have leadership responsibilities for a project, service. They are too interviewees and data providers and if they are participant they review preliminary findings too.

Support Function as the past roles are interviewees and data providers, they are practitioners and review preliminary findings.

2.2.7   Appraisal Team

The appraisal team is composed by two main Key Roles: Team Leader and Team Members. Team Leader is the person who has the overall responsibility for the appraisal, is a SEI - Certified SCAMPI leader appraisal and has experience and training, he signs too the final findings. Team members are those who satisfy requirements of experience and training to be part of the team and they assume one or more specific roles.

2.2.8   Team Leader Responsibilities

One of the key roles of the appraisal team is the team leader who has overall responsibility for the appraisal. He is also responsible for assign team roles for each member, ensuring that the planning activities are complete, that the SCAMPI process is being followed, scheduling monitoring and checking performance, facilitate team resolution in case of conflicts and impasses and reporting results to SEI.

2.2.9   Team Member Responsibilities

For each team member the team leader will assign a role that will ensure the proper function of the team and will facilitate the appraisal, those roles are the following:

- Appraisal coordinator

   Responsible for handling on-site logistics. This position is also composed by more than one member for a multi-site appraisal.

- Librarian

   Documents are managed by this member and in the end of the appraisal they are returned.

- Timekeeper

  For each mini-team can be one Timekeeper and his main purpose is track team time and schedule constraints during interviews and other activities.

- Note takers

  For all PAs is responsible for taking notes during data gathering sessions.

- Appraisal team

  All the work is reviewed by this members.

- Mini-teams

  This teams typically consist of two or three members and verify the implementation of reference model practices, reviewing objective evidence provided and identify weaknesses in the implementation. The practices at instantiation levels are characterised by its implementation extent. They have the power to request addition information if needed.
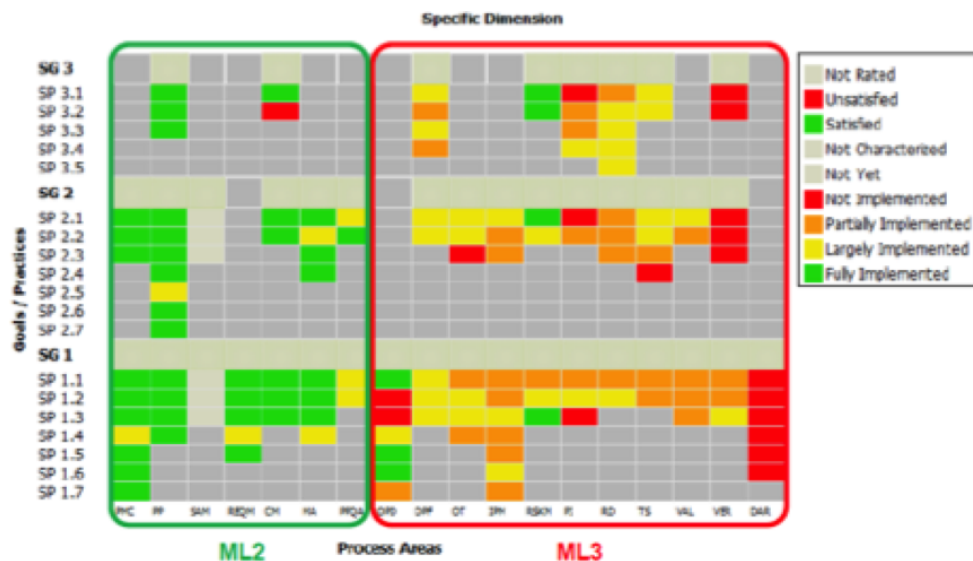
2.2.10 SCAMPI results

Figure 2.5: SCAMPI results

2.3 SCRAIM

Problem analysis

Chapter 3

Conclusões e Trabalho Futuro

Deve ser apresentado um resumo do trabalho realizado e apreciada a satisfação dos objetivos do trabalho, uma lista de contribuições principais do trabalho e as direções para trabalho futuro.

A escrita deste capítulo deve ser orientada para a total compreensão do trabalho, tendo em atenção que, depois de ler o Resumo e a Introdução, a maioria dos leitores passará à leitura deste capítulo de conclusões e recomendações para trabalho futuro.

3.1 Satisfação dos Objetivos

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3.2   Trabalho Futuro

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References

[Apa05]   Apache. Batik *SVG* Toolkit Architecture. Disponível em http://xml.apache.org/batik/architecture.html#coreComponents, Junho 2005.

[Fra95]   M.S.O. Franz. *Code-Generation On-the-Fly: A Key to Portable Software*. PhD thesis, Swiss Federal Institute of Technology Zurich, ETH Zürich, 1995.

[IBM05]   IBM.   Program with SVG.   Disponível em http://www-128.ibm.com/developerworks/xml/library/x-matters40/, Maio 2005.

[Lip08]   Lipsum. Lorem ipsum. Disponível em http://www.lipsum.com/, acedido a última vez em 19 de Maio de 2008, 2008.

[Mat93]   Manuel A. Matos. Normas para apresentação de dissertações, bases essenciais. Technical report, Faculdade de Engenharia da Universidade do Porto, Maio 1993.

[MVL06] Filipe Marinho, Paulo Viegas, and J. Correia Lopes. SVG na visualização de sinópticos. In José Carlos Ramalho, J. Correia Lopes, and Alberto Simões, editors, *XATA2006, XML: Aplicações e Tecnologias Associadas (Portalege, 9 e 10 de Fevereiro de 2006)*, pages 99–112. Universidade do Minho, 2006.

[PP05]   Estelle M. Philips and Derek S. Pugh. *How to Get a PhD*. Open University Press, Fourth edition, 2005.

[Tha01]   Ming Tham.   Writing research theses or dissertations.   University of Newcastle Upon Tyne, disponível em http://lorien.ncl.ac.uk/ming/dept/Tips/writing/thesis/thesis-intro.htm, Maio 2001.

[Wor05a] W3C World Wide Web Consortium. W3C — About SVG. Disponível em http://www.w3.org/TR/SVG/intro.html/, Abril 2005.

[Wor05b] W3C World Wide Web Consortium. W3C SVG Specification. http://www.w3.org/TR/SVG11/, Junho 2005.

[ZPMD97] Debora J. Zukowski, Apratim Purakayastha, Ajay Mohindra, and Murthy Devarakonda. Metis: A thin-client application framework. *Proceedings of the Third Conference on Object-Oriented Technologies and Systems*, pages 103–114, Junho 1997.

REFERENCES

Appendix A

Loren Ipsum

Depois das conclusões e antes das referências bibliográficas, apresenta-se neste anexo numerado o texto usado para preencher a dissertação.

A.1 O que é o *Loren Ipsum*?

Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum [Lip08].

A.2 De onde Vem o Loren?

Contrary to popular belief, Lorem Ipsum is not simply random text. It has roots in a piece of classical Latin literature from 45 BC, making it over 2000 years old. Richard McClintock, a Latin professor at Hampden-Sydney College in Virginia, looked up one of the more obscure Latin words, consectetur, from a Lorem Ipsum passage, and going through the cites of the word in classical literature, discovered the undoubtable source. Lorem Ipsum comes from sections 1.10.32 and 1.10.33 of "de Finibus Bonorum et Malorum" (The Extremes of Good and Evil) by Cicero, written in 45 BC. This book is a treatise on the theory of ethics, very popular during the Renaissance. The first line of Lorem Ipsum, "Lorem ipsum dolor sit amet...", comes from a line in section 1.10.32.

The standard chunk of Lorem Ipsum used since the 1500s is reproduced below for those interested. Sections 1.10.32 and 1.10.33 from "de Finibus Bonorum et Malorum" by Cicero are also reproduced in their exact original form, accompanied by English versions from the 1914 translation by H. Rackham.

A.3   Porque se usa o Loren?

It is a long established fact that a reader will be distracted by the readable content of a page when looking at its layout. The point of using Lorem Ipsum is that it has a more-or-less normal distribution of letters, as opposed to using "Content here, content here", making it look like readable English. Many desktop publishing packages and web page editors now use Lorem Ipsum as their default model text, and a search for "lorem ipsum" will uncover many web sites still in their infancy. Various versions have evolved over the years, sometimes by accident, sometimes on purpose (injected humour and the like).

A.4   Onde se Podem Encontrar Exemplos?

There are many variations of passages of Lorem Ipsum available, but the majority have suffered alteration in some form, by injected humour, or randomised words which don't look even slightly believable. If you are going to use a passage of Lorem Ipsum, you need to be sure there isn't anything embarrassing hidden in the middle of text. All the Lorem Ipsum generators on the Internet tend to repeat predefined chunks as necessary, making this the first true generator on the Internet. It uses a dictionary of over 200 Latin words, combined with a handful of model sentence structures, to generate Lorem Ipsum which looks reasonable. The generated Lorem Ipsum is therefore always free from repetition, injected humour, or non-characteristic words etc.