Joint CMMI Level 3 and MPS Level C Appraisal: Lessons Learned and Recommendations

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ABSTRACT

This paper reports a joint CMMI/MPS appraisal experience performed in Belo Horizonte, Brazil, at Synos Technologies, in June and July 2009, under four points of view: from MPS assessors', from the CMMI lead appraiser's, from the MPS Implementing Institution, and from the appraised company. The lessons learned and a set of recommendations for future appraisals using such new modality are also presented.

1. OVERVIEW

The MPS.BR Program is a nationwide mobilization program that aims at improving software process in Brazilian organizations both large companies and small and medium-size enterprises (SME). Thus, it was created the MPS Model with three components: MPS Process Reference Model (MR-MPS), MPS Process Assessment Method (MA-MPS) and MPS Business Model (MN-MPS). MR-MPS and MA-MPS are conformant with the International Standards ISO/IEC 12207 [ISO/IEC, 2008] and ISO/IEC 15504 [ISO/IEC, 2003], compatible with CMMI-DEV® [SEI, 2006], based on software engineering best practices, and according to the reality of Brazilian firms.

The MPS.BR Program (acronym of the Portuguese expression "Melhoria de Processo do Software Brasileiro" or Brazilian Software Process Improvement) was created in December 2003 by the Association for Promoting the Brazilian Software Excellence (SOFTEX), a private not-for-profit organization aiming at promoting competitiveness of the Brazilian software industry, which holds a network of 22 SOFTEX agents (in 23 cities of 13 Brazilian states). There are over 1,300 SOFTEX affiliated firms companies – 70% are micro and small-size enterprises (see www.softex.br).

Recently, the MPS.BR Program coordination has introduced the joint CMMI/MPS appraisal modality. Such appraisals can be performed by observing the following conditions:

- The MPS competent assessor (equivalent to the SCAMPI lead appraiser) must be an experienced competent assessor¹;
- The CMMI lead appraiser must be a member of the MPS appraisal team, must have attended the course "Introduction to MPS.BR", and must have no bounds with the company responsible for implementing the CMMI or the MPS at the company to be appraised;
- The CMMI lead appraiser must speak Portuguese in order to reduce translation problems and to improve communication and interaction to the interviewees and team members;
- The entire appraisal team must have attended the MPS.BR and the CMMI Introductory courses, and fulfill the requirements for becoming a member of both MPS and CMMI appraisal teams;

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¹ The MPS.BR Program has one level of provisional assessor and three levels of competent assessors: initial (authorized to lead MPS.BR appraisals on levels G and F); intermediary ((authorized to lead MPS appraisals on levels E, D and C) and experienced (authorized to lead MPS appraisals on level B and A).

- The initial MPS appraisal must be carried out during the same time and place as the CMMI readiness and must not be done virtually, with a duration longer than or equal to the duration recommended to the MPS level to be appraised;
- All appraisal team members must be present at the initial appraisal and at the final appraisal;
- The presence of an official MPS based SPI consultant hired by the appraised organization must be granted in all moments during the initial MPS appraisal. This is important to assure the organization will correctly understand what must be fixed before the final appraisal and also the organization it will have proper guidance of the SPI consultant.
- The appraisal must be approved by the SOFTEX considering, besides the above-listed items:
 - o the appraisal process that will be adopted by the CMMI lead appraiser, which must be described in details and attached to the appraisal hiring communication to SOFTEX submitted by the Assessment Institution (AI) of MPS hired for the MPS appraisal.
 - ♣• CMMI lead appraiser's statement indicating that neither he/she, nor the Implementation Institution (II) of MPS and/or the SEI Partner he/she belongs to has provided consulting services for the last three years to the company that will be appraised.

By observing such criteria, the first joint CMMI/MPS appraisal was successfully performed at Synos Technologies. On such appraisal, the CMMI lead appraiser was Mr. Andrés Rubinstein from Liveware Inc. and the MPS competent assessor was Dr. Ana Regina Rocha from COPPE/UFRJ Assessment Institution (AI) of MPS. The appraisal also had the participation of three provisional assessors, two from COPPE/UFRJ and one from QualityFocus, as well as two Synos representatives. The Implementation Institutions (II) of MPS actuating at the company were FUMSOFT and ASR.

This article describes the lessons learned on this joint appraisal and some recommendations for future appraisals, considering different points of view: from MPS assessors', from the CMMI lead appraiser's, from the Implementation Institution (II) of MPS, and from the appraised company.

2. ABOUT SYNOS

Synos Technologies was founded on February 2003 with a business vision based on its partners' experience: worldwide acknowledged IT companies. With strong market relationship, Synos is acknowledged by its professionalism by major global companies, such as Oracle, IBM, Microsoft, and Red Hat, with whom it maintains business partnerships. During its first year of operation, Synos achieved its first million in sales. On its second year, it registered a 300% growth. In June 2009, its turnover is around R\$12.000.000,00 (US\$ 6 million) per year, and for 2009 the forecast is reaching R\$20.000.000,00.

Synos Technologies is a company focused on technological integration solutions. Through its business lines, which are software house, outsourcing/body shop, consulting, training, and software licensing, it operates on different segments of the Brazilian national market, always providing solutions with the highest quality standards and fidelity to its customers' demands. With more than 90 customers all over the country, and more than one hundred projects, Synos currently counts with 120 employees, being 50 of them allocated at its Software House.

Synos has a philosophy strongly oriented towards processes and software quality. Its main software development process, Synos UP, has undergone continuous improvements in order to extend its productivity, add new Software Engineering techniques, and adhere to the main quality

² All MPS.BR appraisals are previously approved by SOFTEX.

models in terms of market processes, such as CMMI [SEI, 2006], MR MPS [SOFTEX, 2009a], and ISO 9001 [ABNT, 2000].

Synos UP has been created for organizing and optimizing Synos Software House production. Its processes have been structured based on several models, references and techniques consolidated on the market, such as UML, PMBOK and agile methodologies. Since March 2006, Synos has decided to invest on implanting MR MPS, starting from level F, investing approximately R\$ 600.000,00, being appraised on May 2007. On November 2007, it started a new improvement cycle, seeking MR-MPS level C. This new cycle was a challenge for the company since it is a major maturity leap, by incorporating twelve new processes, besides evolving the already deployed processes for the new capability required by level C. The company's SEPG was restructured by admitting new employees skilled on the new processes to be implemented. The activities have followed the process improvement flow of the Synos UP itself, which consists on the following steps *Conception* (defining the scope and work goals), *Preparation* (creating new processes and improving the already existing ones), *Implantation* (defining pilot projects, training teams, and process usage follow-up), and *Appraisal* (official evaluation employing some kind of maturity model).

When the improvement project was close to the appraisal step, a major opportunity occurred to the company, with the possibility of simultaneously performing CMMI (level 3) and MPS (level C) model appraisals. In spite of the greater complexity arising from meeting both models simultaneously and the fact of the works originally focusing only on MR MPS level C, the Synos Management Board, the Software House Management Board, and SEPG have decided to accept this major challenge, knowing that gains would be equally large for the company and that both models, MPS and CMMI, are compatible, thus enabling the simultaneous appraisal.

This way Synos started its simultaneous CMMI and MPS appraisal on June 2009, obtaining a unique achievement on the following month, thus becoming the first company to perform and succeed on a joint appraisal of such two models. This was the best prize for eighteen months of effort, approximately R\$ 500,000.00 worth of investments and tens of employees involved on this achievement.

Soon after this appraisal, the process improvement works continued for MR MPS level A and CMMI level 5, besides continuing its ISO 9001:2008 project, intending to certify the entire company on this quality model and that is on the final implantation phase.

3. LESSONS LEARNED FROM JOINT CMMI/MPS APPRAISAL

□This first joint CMMI/MPS appraisal was a very enriching experience, which has provided countless learned lessons. For a better understanding they will be grouped according to four points of view: from MPS assessors', from the CMMI lead appraiser's, from the Implementation Institution (II) of MPS, and from the appraised company. For better appraising each testimony, they will be transcribed below.

3.1. Lessons learned from MPS assessors' point of view

"Performing a joint CMMI/MPS appraisal is not a trivial task. It requires experience in appraisals, deep knowledge of both models, and great skill for dealing with the points where differences arise. Not only the MPS competent assessor and the CMMI lead appraiser shall be experienced and knowing both models. The provisional assessors have a fundamental role on appraisals and shall also deeply know the models and be experienced on CMMI and MPS appraisals. Other decisive factor for the appraisal success is the CMMI lead appraiser evaluation process (provided that there is not a defined process for SCAMPI appraisals) being compatible with the MPS appraisal process".

"The requirement's differences noticed between both models were very interesting, generating different results for the organization process characterization on each model. As this was the first joint appraisal, some adaptations were required on both methodologies of MPS and CMMI leading appraisers, as the needs have been detected. It became clear the need of making both methodologies flexible so the joint appraisal could be feasible. The appraisal team consisted of highly experienced and capable professionals on both models, thus providing an even richer learning".

"During the joint Synos appraisal, it can be noticed that the participation of a team of experienced assessors/appraisers with encompassing knowledge on both the CMMI and MPS models has enabled a time reduction regarding the discussion of the differences between such models and, consequently, on the total appraisal time. Besides that, it is important that assessors/appraisers and company representatives in the appraisal team have previously understood the subtle differences and compatibilities between these models, so no double appraisal takes place instead of a joint appraisal. It is also important to highlight that the synergy between appraisal team members makes consensus easier when model's differences occur during the appraisal".

"Generally speaking, the joint appraisal has flown very well, even considering the differences between the appraisal methods (MA-MPS [SOFTEX, 2009b] and SCAMPI A [SEI, 2006b]), and models (MPS and CMMI). It enabled optimizing time and costs involved, not only mobilizing company employees only once, but also reducing logistics costs and providing the Local Coordinator with a bigger emphasis on preparation and execution works for both appraisals. On the other hand, it has somehow made the Local Coordinator work difficult due to the need of simultaneously meeting both leaders' demands (MPS Competent Assessor and CMMI Lead Appraiser), which has never compromised the work execution.

An initial well-detailed process presentation and the use of a joint CMMI and MPS spreadsheet has made revision easier, since a single evidence was used for fulfilling both models. This, however, did not reduce the total scheduled revision time due to different interpretation of the required results for some expected outcomes or practices on both models. So, sometimes it was a little difficult for issuing the MPS Initial Appraisal Report as some problems detected may be declared differently on each model as a "required item" or an "improvement opportunity"³. After some occasionally long discussions a consensus was reached. Likewise, already on the Final Appraisal, the same statement on an interview can be used for fulfilling either an expected result or a related practice, thus enabling to simultaneously serve both models. On one hand, if the presence of two leaders has provided a more dynamic interview, with questions more focused towards covering models; on the other hand, it was more difficult during the interviews to simultaneously follow the already obtained coverage regarding both models. The use of a checklist featuring a summary of both models has made this task easier. The Consensus Meeting ended up consuming more time than the initially planned, especially due to discussions about meeting each model particularities.

□ The appraisal works have been made easier due to the team's objectivity and previous experience with CMMI and MPS appraisal processes. The provisional assessors have already participated on several MPS appraisals and on some CMMI ones and the company representatives have already experienced a previous MPS appraisal. Both leaders knew the two appraisal processes, and were always aware of their specific process and tried to meet the needs of both appraisals. The leaders' concerns and interest in defining a proper and common working approach for both appraisal

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³ In an initial MPS appraisal it is necessary that all problems identified by the appraisal team are categorized as "required" to be fixed before the final appraisal or as an "improvement opportunity" that may or not be fixed by the organization.

processes and generating a joint (preliminary and final) presentation for the models has made the findings and results exposition dynamic and interesting. These factors are added to the excellent follow-up and preparation that the company has received from II FUMSOFT, what has certainly made the work easier and has lead the company towards success. Summing up, the joint appraisal has enabled balancing, with quality, effort, time and resources employed on both appraisals, achieving a successful result both for the appraised company and for both models. Undoubtfully, a victory, not only of the company, but also of CMMI and the MPS.BR Program."

3.2. Lessons learned from CMMI lead appraiser's point of view

"On the joint appraisal conducted over MPS and CMMI models, apart from having a very good experience both personally and professionally, I can highlight the following points, among others:

3.2.1.Regarding the comparison between models:

- Although the CMMI model has been structured on Process Areas with specific objectives implemented at practice level, and the MPS model is structured on Processes with expected outcomes, in general both models feature a large parallelism, allowing similar interpretations, thus enabling a shared vision;
- On the CMMI model, the institutionalization is shown, on its different levels, by means of Generic Practices (GP) of Generic Objectives per Process Area; while on the MPS, it is seen through Process Attributes implemented by means of expected Process Attributes Results (RAP). Although such difference exists, it is possible to confirm that there is great similarity between GPs and RAPs.

3.2.2.Regarding the comparison between appraisal methods:

- The two methods start from a common base regarding evidence review, based on direct indicators and corroboration by means of indirect indicators and statements, being the main difference the coverage appraisal of the latter and the differences between implementation characterizations at organizational level, especially regarding institutionalization (CMMI Generic Objectives, MPS Process Attributes), where the MPS model, from level C, has a higher requirement over Process Attributes than lower levels.
- Although both methods consider the execution of a first review step of the evidence, logistics and team status (MPS Initial Appraisal, SCAMPI Readiness), the MA-MPS requires a formal review with the presence of the entire appraisal team, while SCAMPI allows a greater flexibility, being the sole responsibility of the Lead Appraiser.
- In order to assemble an appraisal team, both methods require that the appraisal is conducted by a leading evaluator (MA-MPS Competent Assessor, SCAMPI Lead Appraiser), certified or authorized by a competent organization (SOFTEX for MA-MPS, SEI for SCAMPI) and the participation of a skilled team with an official introduction for each Model. Additionally, the MA-MPS method has one more requirement regarding the participation of at least one provisional assessor (non existent role at SCAMPI)".

3.3. Lessons learned from the Implementation Institution's point of view

□ "One of the critical success factors of a joint appraisal, as the one conducted by Synos, is the chemistry among both model assessors/appraisers. Although convergent, the models feature points that require a perfect concept tuning, without which the appraisal process can become slow and unproductive. Such vision affinity goes directly through the personal style of each evaluator as it will require, when divergences occur, approaches adopted with maturity and balance. That's why it is important that the involved assessors/appraisers, especially each model leaders, feature a wide

experience in appraisals and have developed a certain personal affinity, which will enable them to give up inflexibilities and focus on the success of the this new modality".

3.4. Lessons learned from the company's point of view

"For us at Synos Management Board, this joint CMMI and MPS appraisal has brought several advantages, being the main one the certain of a higher market recognition regarding the quality of Synos-created products and on our effort in continuously improving our processes. For us, simultaneously obtaining CMMI Level 3 and MPS Level C is an evidence that it is worth investing in processes. Additionally, we had a major time and effort saving by performing both appraisals once, besides being a great opportunity for us. We would like to also highlight the transparent way the works have been conducted by the appraisal team, making the entire process as a single one and imperceptible for the Management Board, which has always received feedbacks as they were just one model, and not two, as it was really happening."

"As Technical Director, I understand that regardless the implemented model, either MPS or CMMI, the control and quality level we have expected would be achieved. However, at the moment we have the opportunity of being jointly appraised, we noticed that we could participate on a new way of appraisal, saving time and resources. We believe that the result would be positive and now we are pioneers on an appraisal format that will be certainly the objective for several companies.

We had a major concern with the model vision difference and the assessors/appraisers" perception. But the persons' experience and transparence who have conducted the appraisal tranquilized us, and we knew that Synos would be very well appraised. Another important lesson was that even with stricter requirements than CMMI level 3 and MPS level C would bring to us, we succeeded in preparing an excellent planning, which enabled an investment reduction regarding Synos UP first improvement cycle, with which we achieved MPS Level F. Finally, the Management Board support and commitment were fundamental for process institutionalization and achieving maturity levels."

"Participating on a joint CMMI and MPS appraisal team was a first-time experience and brought a lot of knowledge to me. On this appraisal, I could work with well-experienced MPS assessors and CMMI lead appraiser who have dictated the quality standard of this appraisal. And, in the end, it became clear that this experience is a fundamental requirement for appraisals of this kind. Besides the experience, the good relationship of the appraisal team was very important for efficiently conducting the works in face of the higher complexity required by this appraisal. The following values have also became evident for me regarding this type of appraisal: need of both method (SCAMPI and MA-MPS) flexibility for achieving a common denominator; capability of being transparent for the involved parties, thus making the independent appraisal of both models; agility, planning and organization of the appraisal team due to the higher work volume arising from both models."

"Synos Technologies is a company of opportunities. This sentence has been circulating through the company for quite a long time, and this joint appraisal is the picture of what the company stands for. Synos was the pioneer company appraised with MPS level F in the Brazilian Minas Gerais State, and today it is also a pioneer in the joint appraisal of both software maturity models. There was the challenge, the overcoming and the harvesting of a well-planned, conducted and supported work by each of the company employees' contribution. Our company had another opportunity of showing to the market that the MPS and CMMI models are compatible and feasible for being simultaneously implemented. The simultaneous achievement of MPS level C and CMMI level 3 was much more than a challenge; it was the confirmation of our process and company maturity, and the consolidation of both models."

4. RECOMMENDATIONS FOR JOINT CMMI/MPS APPRAISALS

□ From the set of lessons learned from the involved parties, several recommendations have resulted for other joint CMMI/MPS appraisals:

4.1. Recommendations from MPS assessors' point of view

"I consider that some aspects can be decisive for the success of a joint appraisal and for approaching them, I recommend: (i) since the need of experience on both model appraisal is very important, it is advisable that the leading and the provisional assessors are experienced in CMMI and MPS appraisals; (ii) regarding the lead appraiser's experience, I recommend that SOFTEX only approves joint appraisals where he/she shows having successfully led a certain number of SCAMPI A appraisals at the level the company will be appraised; (iii) the personal features of both assessors/appraisers who will lead the joint appraisal are extremely important, and the contracting party shall seek, among others, teamwork and flexibility capability."

"Both model leading assessors/appraisers must adapt their appraisal methodologies in order to make the joint appraisal feasible within a favorable timeframe, when compared to the time required by the two separate appraisals. It would be interesting, for the next joint appraisals with MPS and CMMI models, to prepare support material already adapted for meeting both model demands. Some suggestions are: (i) creating an indicators' spreadsheet containing the descriptions of CMMI practices and expected MPS outcomes, besides mapping among them; (ii) creating models for presentations performed for the organizing foreseeing the information required by both models; and, (iii) creating support material for gathering information from interviews containing all appraised practices and expected outcomes, making it easier to check the coverage of such items, and optimizing the appraisal time".

"In order to facilitate the execution of other joint appraisals, it is important that documents and presentations used during the appraisal are also unified, facilitating its filling and reducing the appraisal time. The existence of a unified appraisal spreadsheet, reinforcing the differences among models on each expected result or practice, would also facilitate the results' consensus. Besides that, on a joint appraisal it is important that the company representatives on the appraisal team have full knowledge about the organization process and may proactively help the assessors/appraisers on settling doubts".

"To those companies thinking about conducting CMMI and MPS appraisals either together or separately, I recommend they should start the joint process. If, during or after the Initial Appraisal, it is found to be unproductive continuing the joint process, the Final/On-Site Appraisal could be performed separately. Anyway, the company should provide more time and resources for the local work coordination in order to conciliate and meet the needs of both appraisal leaders. To SOFTEX and the MPS Model Technical Team, I suggest preparing a model comparative chart to be submitted and discussed during the appraisal training, as well as support material for performing joint appraisals, including specific spreadsheets, templates and checklists of model coverage. For joint appraisals, the MPS Assessment Institutions (AI) shall allocate their most experienced competent and provisional assessors in order to optimize the appraisal time and assuring high level achieved findings. To CMMI appraisers, I suggest they optimize the planning for joint SCAMPI A appraisals, considering the allocation of an experienced team, in order to consume less time than the one usually defined, since one of the MPS.BR Program objectives is reducing costs, maintaining appraisal quality."

"A factor that shall be considered on these appraisals is the mapping performed over each model expected outcomes. Although they are converging models, MPS and CMMI have overlapping points on their outcomes. It is extremely advisable that the result mapping table of both models is performed and reviewed, in order to facilitate the appraisal. The MPS Implementation Institutions(II) who develop the support centered on MPS concepts shall observe this mapping, paying attention to overlapping and the rigor differences on the required results. There are different grades of required and non-required (improvement opportunity) results, especially between CMMI generic practices (GP) and MPS process attribute results (RAPs) that may suggest such attention. The appraisal spreadsheet, in the Synos case, has been initially defined for MPS and then adjusted to CMMI, leaving the exclusive MPS processes (Development for Reuse, Reuse Management, Human Resources Management, and Project Portfolio Management) on separate documents. The implementing institutions must previously define with the assessors/appraisers which spreadsheet shall be presented on the appraisal, before filling one of the alternatives, avoiding time loss when preparing it. In the Synos case, the guiding spreadsheet was CMMI's, a practice that might be adopted from now on, on other joint appraisals."

□4.3.Recommendations from the company's point of view

"Our recommendations are organized into three items: to the companies to be appraised, to Assessment Institutions, and to CMMI and MPS appraisers

\Box 4.3.1.Recommendations to the companies to be appraised:

- Take MPS Model as reference for preparing the processes because it facilitates meeting CMMI outcomes since MPS is a model with higher requirements and coverage.
- While preparing the processes, assure meeting the outcomes that are specific to CMMI for avoiding problems on the joint appraisal.
- Try to keep the company process culture always fluent on both models, CMMI and MPS. Besides that, the SEPG qualification is fundamental on both models.

□ 4.3.2.Recommendations to Assessment Institutions:

- Keep your personal always qualified and updated regarding both models, CMMI and MPS.
- Try preparing a specialized appraisal method that favors a joint appraisal on organization, standardization and productivity aspects. This method would be a specialization of SCAMPI and MA-MPS methods.
- Pay attention for the total appraisal time, which cannot be too long, even meeting both models, due to market feasibility.

□4.3.3.Recommendations to MPS and CMMI appraisers:

- Capacity of adapting to both model requirements, applying the same degree of dedication and interest to both of them.
- Capacity of being flexible for finding the best way of performing the joint appraisal.
- High degree of organization and method, which is very important in face of the higher volume and complexibility of the work on a joint appraisal."

5. CONCLUSIONS

The joint appraisal, performed at Synos, has shown that it is possible to perform this modality with benefits to the appraised company and without risks, provided that some conditions are observed.

Summing up, the following positive points can be indicated for performing joint CMMI/MPS appraisals:

- It optimizes the company employees' time used in the appraisal (instead of mobilizing the company twice, it is mobilized once), what also helps reducing employees' allocation costs with appraisal-related activities;
- It optimizes costs with logistics for performing the appraisal;
- It allows obtaining two distinct "quality seals" once;
- The joint appraisal tends to be cheaper than two separate appraisals;
- It allows preparing a single indicator spreadsheet (which consumes a lot of time of the appraised company), to be used on both appraisal models and processes;
- One single objective evidence (direct or indirect artifact) can be used for meeting both an expected result and a related practice, thus enabling to simultaneously meet both models and reduce the total appraisal time;
- Both leading assessors/appraisers are aware to the appraisal process, which reduces the chance of occurring flaws at the appraisal process as a whole;
- The leading assessors/appraisers know both appraisal processes, try conciliating their interests, and try defining a suitable working approach and common to both of them, contributing for improving the appraisal process as a whole;
- Higher quality of appraisal findings and results by counting on the experience and knowledge of the two leading assessors/appraisers.

In order to formalize joint appraisals as an alternative practice to MPS and CMMI appraisals, it is suggested to:

- Assure the MPS competent assessor's and the CMMI lead appraiser's experience on several previous appraisals at the CMMI/MPS level that is being appraised;
- Assure the MPS competent assessor's and the provisional assessors' experience on CMMI appraisals;
- If possible, assure the lead appraiser's experience with the MPS;
- Prepare specific support material, especially an appraisal spreadsheet, highlighting the mapping between the two models and stressing their differences.

Therefore, one can say that this joint CMMI/MPS appraisal was another explicit demonstration of the two-models convergence, besides showing a high cohesion between the assessors/appraisers is the major success critical factor of this new modality. So, a company contracting a joint appraisal must carefully observe the choice of the appraisal team, in order to avoid discontinuities and risks on such step, which encompasses the intense work developed during months of implementation.

Finally, it can be concluded that for those organizations willing to participate on both the Brazilian and the international market, a joint appraisal with the two models (MPS and CMMI) is a great strategy, because models are sufficiently similar so that the same projects and processes can be used on both appraisals.

More information about the MPS.BR Program and the MPS Model can be found at the MPS.BR website (http://www.softex.br/mpsbr/), in Portuguese, Spanish and English, including:

Published Papers;

Lessons Learned (http://www.softex.br/mpsbr/_livros/default.asp);

Information on the characterization and performance variation of software organizations that adopted the MPS Model (http://www.softex.br/mpsbr/_livros/resultado_desempenho.asp).

References

[ABNT, 2000] ABNT – ASSOCIAÇÃO BRASILEIRA DE NORMAS TÉCNICAS (Brazilian Technical Standards Association) - ABNT. NBR ISO 9001:2000 – Quality management systems – Requirements. Rio de Janeiro: ABNT, 2000.

[ISO/IEC, 2003] ISO/IEC: Information Technology – Software Proc-ess Assessment, Vol. ISO/IEC 15504. Parts 1-9, The Inter-national Organization for Standardization and the International Electrotechnical Commission, 2003

[ISO/IEC, 2008] ISO/IEC: Systems and software engineering – Software life cycle processes, Vol. ISO/IEC 12207:2008. The International Organization for Standardization and the International Electrotechnical Commission, 2008

[SEI, 2006] SOFTWARE ENGINEERING INSTITUTE. CMMI for Development (CMMI-DEV), Version 1.2, Technical Report CMU/SEI-2006-TR-008. Pittsburgh, PA: Software Engineering Institute, Carnegie Mellon University, 2006.

[SEI, 2006b] SOFTWARE ENGINEERING INSTITUTE. Appraisal Requirements for CMMI(ARC), Version 1.2 *Technical Report CMU/SEI-2006-TR-011*. Pittsburgh, PA: Software Engineering Institute, Carnegie Mellon University, 2006.

[SOFTEX, 2009a] - ASSOCIAÇÃO PARA PROMOÇÃO DA EXCELÊNCIA DO SOFTWARE BRASILEIRO (Brazilian Software Excellence Promotion Association) – SOFTEX. MPS.BR – General Guide: 2009, May 2009. Available at www.softex.br

[SOFTEX, 2009b] - ASSOCIAÇÃO PARA PROMOÇÃO DA EXCELÊNCIA DO SOFTWARE BRASILEIRO (Brazilian Software Excellence Promotion Association) – SOFTEX. MPS.BR – Appraisal Guide: 2009, May 2009. Available at www.softex.br.