

Organisation Quality Maturity and Assessment.

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Abstract

The presenter poses the question: "Why improve only a little, when you can improve a lot?"

The ISO standard for process assessment (ISO 15504) has been formally released this past 12 months. The standard assumes that assessments occur with some level of independence (similar to quality audits), and most assessments occur in this manner. In this presentation, the speaker highlights how more mature organisations more effectively use the standard for self-assessment and improvement. This includes various forms of self-assessments and alternative 'design first' improvement approaches. Several organisations with high quality maturity have effectively and efficiently moved to 'design first' improvement using the standard, followed by assessment of the results, with increased success and better motivation of the staff involved. Their approach translates to greater competitive advantage.

While suited to organisations with higher quality maturity, lessons learnt can be applied by organisation starting to improve quality at lower levels of maturity.

The presentation is based upon material in the author's new books on ISO/IEC 15504 [7] [8].

Background

Organizations, which adopted a process-oriented approach in knowledge-based industries, specifically in systems and software design, also adopted process assessment as one measure of their effectiveness.

During the early 1990s, an international working group was formed to create a standard for process assessment. The working group called this the SPICE project. The standard is now known as ISO/IEC 15504. [1] [2]

In this period the author worked at CelsiusTech Australia, a high quality maturity organisation that adopted use of the working drafts of the proposed standard as a measuring mechanism. The author maintained a professional association with the quality people in Motorola who had located their Australian Software Centre of Excellence in the same technology park. While Motorola adopted the SW CMM, as their assessment standard, the overall approach to

improvement and assessment was very similar to CelsiusTech.

This paper briefly highlights the approach of such organisations to process assessment and improvement.

Preparing for Process Assessment

Within the executive management of CelsiusTech, the author raised the proposal to use process assessment as a way to focus quality improvement activities. Quality audits had become mere formalities, and did not provide any value to the organisation (we exceeded the ISO9001 requirements).

In the proposal, a specific software project (with 60 staff) was chosen. This project was causing management concern by under performing. An internal project would train staff as both process assessors and participants in assessments. The latter training was to not only prepare staff for assessments but to help optimise the use of the results. Participation and commitment of the executive management, the project management and staff was considered crucial.

The team would make use of expert consultants within the Software Quality Institute (editors of SPICE) for training and assessment.

The proposal was agreed. Training was held for 20 people including full training for 5 assessors, 2 day training for software staff proposed for the assessment, and 1 day training for executive management. Involvement of executive management helped inform them and align the aims of assessment.

Recommendation: Train management. This promotes commitment to successful use of process assessment, overcomes politics, and prepares them for funding use of the results for improvement.

Recommendation: Use external experts to get started. Formal training and supervision of assessments by experts reduces the learning curve and provides needed supervision of the assessment teams. I estimate an ROI of 2:1 based upon reduction of effort.

Recommendation: Encourage participation. Staff were asked if they wished to become qualified lead assessors and software project staff were invited to participate in training to learn as much as possible.

Performing Process Assessment

The initial assessments consisted of two groups: the assessment team and the assessed organisation. I call this *independent self-assessment*, as we led the teams, assisted by the external expert. The approach follows that recommended by ISO/IEC 15504 and described in my book of the standard [7].

It was decided that in order to more effectively train the assessors and provide more lead assessor opportunities to assess two projects in parallel. One project had successfully delivered an outstanding software based system to the customer, achieving world's best practice in doing so. The other project was the software project that was the one that concerned management.

Simplistically, the approach could be seen as:

Assessors → Assessed project organisation 1
→ Assessed project organisation 2

A positive aspect of the approach was that the process assessment results could be compared between the 2 projects, one of which had a known world-class result.

The inclusion of the external expert lead assessor helped promote both positive assessor attitudes and correct mistakes that could have resulted in abandonment of process assessment, and also ratify the assessment results as valid.

Despite the training that members of the assessed organisations had received and the fact that the assessment team was comprised of 4 internal staff and 1 external expert consultant, it became obvious that the assessed organisations developed a separate (somewhat defensive) attitude to the assessments.

Several worthwhile improvement opportunities were found in the assessments, and about 1/3 were funded for implementation. Of these, about 3/4 were *successfully completed* (hence around 1/4 of what we proposed). Subsequent surveys by SQI during the SPICE trials and the SEI [3] show that this is not atypical.

However, this was considered only a partial success (after all 2/3 of the results were not used).

Since we were assessable as a high quality maturity organisation, we recognised the gap between assessors and assessed caused lower acceptance of results for improvement.

This is something that lower quality maturity organisations often fail to recognise.

Improving the Assessment Approach

After these first two assessments, the executive management, the assessment team and the project managers met to discuss how to improve the assessment approach to reduce the negative aspects of the independent assessment approach. It was decided to try to specifically reduce the gap between assessors and the

assessed organisation. The assessment team decided to try to have the people in the assessed organisation participate in the assessment in greater depth.

Both the assessors and the assessed organisation participants would form one team to perform the assessment. The assessors made the final capability rating and report, but all other assessment activities were shared. I call this *participative self-assessment*.

We still employed external assessors as part of the assessment team, but reduced the social interaction distance by encouraging participation of the assessed organisation through the preparation, planning and performance of assessments. This is an important people factor that is reflected in the culture of high maturity organisations [4] [6].

The assessment participants participate in interpreting the assessment indicators, not just in providing evidence requested by the assessors, but also in any need to map or interpret their implemented process(es) against the base and management practices [8].

The assessors act more as guides to the assessed organisation participants.

Using this approach we increased our measure of success by 60%. We now *successfully completed* 40% of the improvement opportunities.

However we felt that even this improvement in success rate was still below the optimum achievable. Our aim was that every improvement opportunity that we recognised had a positive ROI should be 100% successful. We also had determined that the effort to perform improvement should be several factors larger than the effort to perform the assessment to optimise ROI.

We then began migrating to a complete integrated team approach, using *joint assessment* performance, team rating and results preparation.

This approach requires training more people. Everyone involved becomes to some extent an assessor. They understand the fundamentals of the processes and the capability levels, and in an assessment learn how they apply to what they are doing.

The joint assessment approach almost eliminated social distance, as assessments became not just organisational self-assessments, but also an assessed organisation unit self-assessment, facilitated by the lead assessors/assessors. Assessment results were jointly derived and agreed, guided by the lead assessor. In general, disputes of the assessment results, especially improvement opportunities (and any rating) were less frequent (in fact almost absent) compared to the standard assessment approach. In the extremely rare cases where the team could not agree, then the lead assessor made the final judgement and the team members respected this.

We now generated improvement opportunities that we *successfully completed* more than 60% of the time. Comparison with similar high maturity organisations showed that this was a high success rate.

Recommendation: Where improvement is the main focus, joint assessment approaches are more successful.

Recommendation: Plan to invest between 4 and 10 times the effort in improvement as used in assessment.

Recommendation: Invest in process training for all participating people. This leads to higher motivation, better results and greater desire to improve.

Recommendation: Retain an external expert. This smoothes the migration to joint assessment and retains sufficient independence to produce valid results. We continued to use a consultant in this role.

Design First

All the above approaches make use of an assessment as the basis for improvement. They are what I call and '*Assess first*' approach.

There is another approach that we adopted as we matured in our use of ISO/IEC 15504. In the new approach we worked with teams of **people** throughout the organisation to design and improve **processes** with specified capability suited to the **products** they were creating and using. Products in this context mean the infrastructure, tools, technology used as well as what is produced. I call this the *Design first* approach. The approach is to design better processes with help of the standard, which are assessed some time later after a significant amount of use.

In general we aimed to create processes at capability levels 4 and 5. But we also made conscious decisions to sometimes create processes at capability levels 2 and 3. The process capability was deliberately chosen to reflect the products to be produced in the specified project.

This approach makes use of a **People-Process-Product** model [7] [8] that provides a framework to consider all factors required to sustain improvement. It is important that all 3 factors are addressed.

By adopting the design first approach, followed by joint assessment after sufficient time to really implement the processes in several instances, we began to approach **100% successfully completed** improvements. We were able to innovatively design completely new process lifecycles for new projects in minimal time and effort, with staff dedicated to ongoing improvement.

I eventually incorporated this into the Team Based Business Design Improvement approach as described in the Improvement chapter of my book on Process Assessment and Improvement [8]. This provided an even greater qualitative and quantifiable advantage in improvement culture and performance.

Recommendation: Consider design first improvement. Design first improvement by the people using the process, coupled with ISO/IEC 15504 guidance leads greater success in improvement in higher maturity organisations.

Recommendation: Consider use of improvement experts. We used consultants to reach our goals faster and more efficiently. A good consultant can reduce effort

required to prepare and sustain improvements, sometimes by 50% over internal only resources. It is best to use people who have already achieved the desired capability (and understand ISO/IEC 15504) and can teach your people in your organisation how to achieve your aims and goals.

Some conclusions

Higher maturity organisations more often successfully complete valuable improvement actions. They do this by promoting not only participation, but also more importantly the commitment of people to improve.

Management recognises and invests in improvement through training and funding improvement projects and programmes and leading and motivating their staff. Where possible ROI was estimated and captured, but management also had faith (based on past performance) in potential benefits when they clearly aligned with business goals.

The ISO/IEC 15504 standard provides an open-ended approach to improvement through process assessment.

The ability to use the ISO/IEC 15504 standard in a 'Design first' approach can lead to highly successful and innovative improvements.

References

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