

# Case Study

## Benefits of Business Focused CMMI

This Case Study shows how SMS supported Maersk Data's transformation from CMMI Level 1 to Level 3 over a 3 year period. It look particularly at the business drivers and benefits achieved from this change programme.

### Background

In 2000 Mærsk Data faced a challenging business environment. It was undergoing significant organisational growth from 450 in 1999 to 3000 in 2003, and the company had changed from 'favoured supplier' within the AP Møller Group to a competitive situation, with a range of customers.

As a commercial supplier, Mærsk Data needed to be able to...

- Understand customers' problem & application domains
- Agree goals with customers that were feasible
- Estimate effort, staffing, duration and costs accurately to avoid loss-making development projects
- Formulate pragmatic plans
- Execute projects to achieve the agreed goals

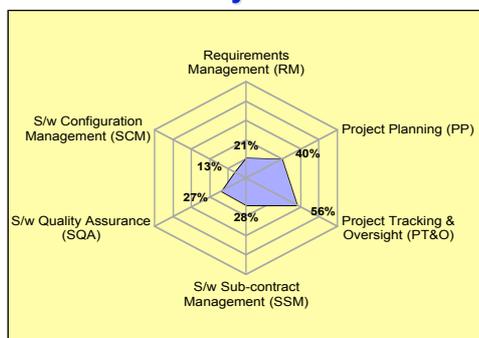
To achieve this, it was recognised that there was a need for better integration both internally between groups and externally with suppliers and customers.

The Project Office was given the task to find a means to assess and improve Mærsk Data's processes and decided to adopt a CMM approach. They engaged SMS to coach them on the CMM journey.

### Business Goals

From the start, Maersk's CMM programme had a business focus. The business goal set for the programme was to "help all projects return a profit".

### Maturity Level 2



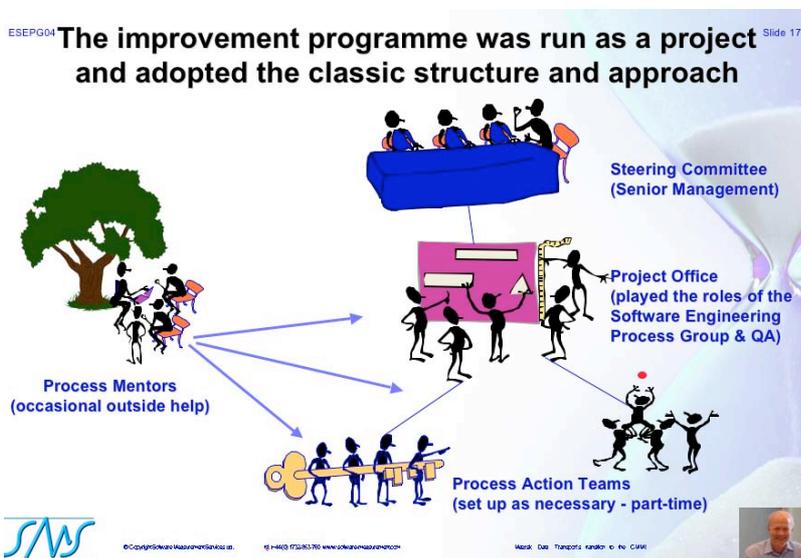
The baseline appraisal rated Mærsk Data as a Maturity Level 1 organisation, finding less than 50% of recommended practices were performed.

During the on-site period, the Appraisal Team asked each interviewee "What one wish would you make to improve life at Mærsk Data?". The responses were categorised and used both to provide feedback to the senior management and to support the programme by identifying 'quick wins' and reinforcing cultural change.

### Baseline

Maersk conducted good Appraisal Team preparation with 4 days of off-site training and planning workshops held a month before the on-site Refresher in the content of the CMM-SW.

The baseline CMM-Based Appraisal was planned and performed over a period of 14 weeks, and involved 23 days external effort by an SMS Appraisal Team Leader. The process scope for this appraisal focused on the Maturity Level 2 and Level 3 key process areas.



The output of the baseline appraisal was a **Management Action Plan** which focused the improvement programme on specific process areas and needs. The Action Plan prioritised goals; structured the work; and allocated roles and responsibilities

## Measuring Progress

Senior management wished to see the results of 15-18 months of improvement activities and so a 2nd appraisal was held in November 2001. By this time, the number of personnel had grown from 450 to around 1000. The CMM model itself had been improved to the CMM Integration® but while Maersk recognised the benefit of adopting the CMM Integration® they wanted to maintain comparability with previous appraisal results in order to measure progress. SMS supported the Maersk team to create a 'hybrid' process scope, taking some process areas from CMM-SW and some from CMMI.

The organisational scope and scale of the 2nd appraisal was similar to the 1st, with minor extensions. Effort for the 2nd appraisal was also similar to that for the 1st, but at 10 weeks duration it was quicker. Once again, Appraisal Team Training & Planning Workshops were held off-site 4 weeks before the on-site period.

The appraisal results indicated that progress had been made, especially in the areas selected for attention (Requirements Management, QA) but there was still a long way to go to achieve ML2. The areas requiring urgent attention were identified as:

- Improved co-ordination and communication of strategies & mandate procedures
- Formulated policies to implement strategy & obtain assurance that policies are followed
- Steering Groups and QA should be used more effectively
- Sharing of expertise and knowledge so that Maersk staff could capitalise on the organisation's skills and apply lessons learned.

SMS worked with the Project Office to re-cast the improvement programme to consolidate achievements and provide further training in "The Mærsk Way":

- Focus on stakeholder analysis
- Implement Configuration Management
- Implement selection, evaluation and registration of subcontractors
- Define and implement a measurement programme
- Finalise procedures for estimating and planning with special focus on size, work/product break down structures and schedules
- Implement/coach QA and review procedures in each department/project
- Extend use of the Lessons Learned database

By the 3rd appraisal in January 2003 the organisation had settled into a new HQ and high growth led to reorganisation. Crucially, sponsorship from senior management was sustained throughout the changes.

The 3rd appraisal was planned and performed over 13 weeks and appraised 21 process areas from CMMI® SE/SW/IPPD/SS v1.1 ML2 and ML3. Results showed all ML2 goals were achieved and better than 60% of practices for the ML3 engineering process areas were achieved.

## Results

**For the business:** The CMMI provided the benchmark MDT required. Most projects now make a profit. The on-going challenge was to sustain improvement and achieve the benefits of ML3. MDT has achieved significantly improved practices for Requirements Management, Configuration Management, Testing, Supplier Management, Project Planning & tracking, Risk Management

**For MDT's customers:** Customer satisfaction has improved in areas such as product quality, test results, project execution and reporting. Fewer projects overrun their schedule and budget, and there is less waste.

**For the staff:** Each appraisal resulted in higher awareness of processes, procedures, templates, consistent implementation and reuse. Staff are more aware of the importance of good, well documented plans

It is easier to transfer staff from one project to another.



## Summary

### Critical Success Factors:

Mærsk Data Transport's goals for the improvement programme have always focused on performance. The organisation wanted to know how it compared with respect to the CMM scales but more importantly to track progress in improvement. Certification has never been a direct goal.

Visible and continuous commitment from management was maintained throughout the programme, even when other distractions (growth, moving HQ, etc.) were occupying management time and attention.

### Appraisals - lessons learned

**Plan ahead.** Time spent planning is time well-spent. Staff need to be equipped to deliver results - good preparation and appropriate training is essential.

**Good communication is vital.** Rules, expectations and operational definitions for the Appraisal Team need to be communicated early and stated unambiguously. Be very clear when asking Project Teams and Departments to provide documentary evidence

**Be inclusive.** Cycle some project staff through the Appraisal Team during each appraisal - this helps spread knowledge and experience

Involving people from around the organisation in the appraisal team helped improvement become a company issue rather than the concern of the Project Office and QA

**Be disciplined.** Don't let project leaders or department managers substitute interviewees; and don't mix managers and staff in the same interview. Discussions should be time-boxed to cut fruitless chat

Slicker planning and a longer Document Review minimises the effort for the On-Site Period. Get organisation-level documentation not just projects.

### Effort consumed

Membership of the Appraisal Team varied over time, but experience was gained leading to a more efficient and effective process. The organisational scope remained stable across the 3 appraisals, but the process scope broadened from 13 to 21 process areas

			Duration (elapsed days)			E.weeks	Effort (work hours)		
	No. of in-house ATMs	No. of Consultants	Document Review	On-Site Period	Writing FF Report	Total	In-House Effort	External Effort	Total
Jun-00	8	1	1	7	10	14	1019	235	1254
Nov-01	6	2	2	5	4	10	648	225	873
Jun-03	6	1	3	6	6	13	774	194	968

(2000 & 2001 estimated)

## SMS Services

This case study is taken from a joint presentation made by SMS Appraisal Team Leader Grant Rule and Flemming Frederiksen from the MDT Project Office to the European SEPG Conference in 2004.

SMS had provided measurement work to Maersk's supplier Tanning Technology, and the Maersk Project Office staff were impressed by the depth of knowledge and the pragmatic business focus of SMS consultants. These attributes were successfully brought to bear on Maersk's improvement programme to deliver the results MDT needed.

The relationship between Maersk and SMS continued throughout Maersk's improvement journey until MDT was bought by IBM. Flemming Frederiksen subsequently contributed to SMS' Software Measurement and Improvement Forum series.