



THOMAS GREB CONSULTING

IT-Project and Process Management

Aligning CMMI to Business Objectives

Dr. Thomas Greb

Dr. Ralf Kneuper

SEPG Europe 2008

June 10-13th

Munich, Germany



THOMAS GREB CONSULTING

IT-Project and Process Management

Presenters

Dr. Ralf Kneuper

- Independent consultant for quality management, in particular CMMI
- SEI-authorized CMMI (SCAMPI) Lead Appraiser
- Coordinator of German CMMI Lead Appraiser and Instructor Board (CLIB)
- Author of a book on CMMI and more than 30 other publications

Dr. Thomas Greb

- Independent consultant for IT-Project and Process Management
- Many years experience implementing CMMI as process consultant, project manager and senior manager
- Focus is on implementing CMMI to generate substantial business value for customers



THOMAS GREB CONSULTING
IT-Project and Process Management

1

Performance and Business Objectives

2

Business Objectives in the Model

3

Business Objectives First

4

Business Objective-Guided Improvement Process

5

Measuring Contribution

6

Conclusions



THOMAS GREB CONSULTING
IT-Project and Process Management

1

Performance and Business Objectives

Organizations using CMMI – even those reaching a maturity level - are often not fully satisfied

→ As a result, organizations wonder whether to implement the next maturity level, instead of going for it with enthusiasm immediately



Experience from different companies and sectors

- People using the new processes in most cases feel the improvement
- Management expects measurable contribution to a company's business objectives
- Customers sometimes feel burdened with "CMMI"-things such as change control procedures



1

Performance and Business Objectives

Can we prove the contribution of CMMI to business objectives?

- Very few relevant data available
- Performance study of SEI from Gibson et al. published in 2006
- Table shows performance data from different maturity and capability levels

Performance Category	Median Improvement	Lowest Improvement	Highest Improvement
Cost	34 %	3 %	87 %
Schedule	50 %	2 %	95 %
Productivity	61 %	11 %	329 %
Quality	48 %	2 %	132 %
Customer Satisfaction	14 %	-4 %	55 %
Return-on-Investment	4.0:1	1.7:1	27.7:1



THOMAS GREB CONSULTING

IT-Project and Process Management

1

Performance and Business Objectives

Conclusions

- Performance data results are significantly positive, but variance is worrying
- CMMI can be implemented with quite different impact on business objectives

Possible reasons

- Do some organizations implement CMMI the wrong way?
- Is model support for business objectives not strong enough?



Key question for companies in a market economy

- How do we implement CMMI maximizing support for business objectives and competitiveness?



THOMAS GREB CONSULTING

IT-Project and Process Management

2

Business Objectives in the Model

Introductory part of CMMI-DEV v1.2

→ Introduction

- Contains a number of references regarding alignment of processes to business objectives

→ Discussion of staged and continuous representation

- Decision for representation should be based on business objectives
- Continuous representation allows more freedom in using CMMI

However, this freedom can be used to better concentrate on relevant processes for process improvement, or to skip the processes difficult to implement!



THOMAS GREB CONSULTING
IT-Project and Process Management

2

Business Objectives in the Model

Level 2 and 3

- MA SP 1.1 „Establish and maintain measurement objectives that are derived from identified information needs and objectives“
- GP 2.1 „Establish and maintain an organizational policy for planning and performing the process“
- GP 2.10 “Review the activities, status, and results of the process with higher level management and resolve issues”
- OPF SP 1.1 „Establish and maintain the description of the process needs and objectives for the organization“
- Several references to business objectives in informative parts (explanations, subpractices and examples) of CMMI, mainly in OPF and OPD



THOMAS GREB CONSULTING
IT-Project and Process Management

2

Business Objectives in the Model

Little explicit mention of business objectives up to level 3

In most cases, CMMI allows an interpretation neglecting business objectives

- GP 2.1: Organizational expectations for processes can concentrate on CMMI compliance
- GP 2.10: Management reviews can neglect impact of processes on business objectives



THOMAS GREB CONSULTING

IT-Project and Process Management

2

Business Objectives in the Model

Level 4 and Level 5

- Business objectives mentioned explicitly
- Process areas of maturity level 4
- Generic practices
 - GP 4.1 “Establish and maintain quantitative objectives for the process, which address quality and process performance, based on customer needs and business objectives.”
 - GP 5.1 “Ensure continuous improvement of the process in fulfilling the relevant business objectives of the organization.”
- Alignment of processes with business objectives required explicitly
 - but not really much model support how to do this



THOMAS GREB CONSULTING

IT-Project and Process Management

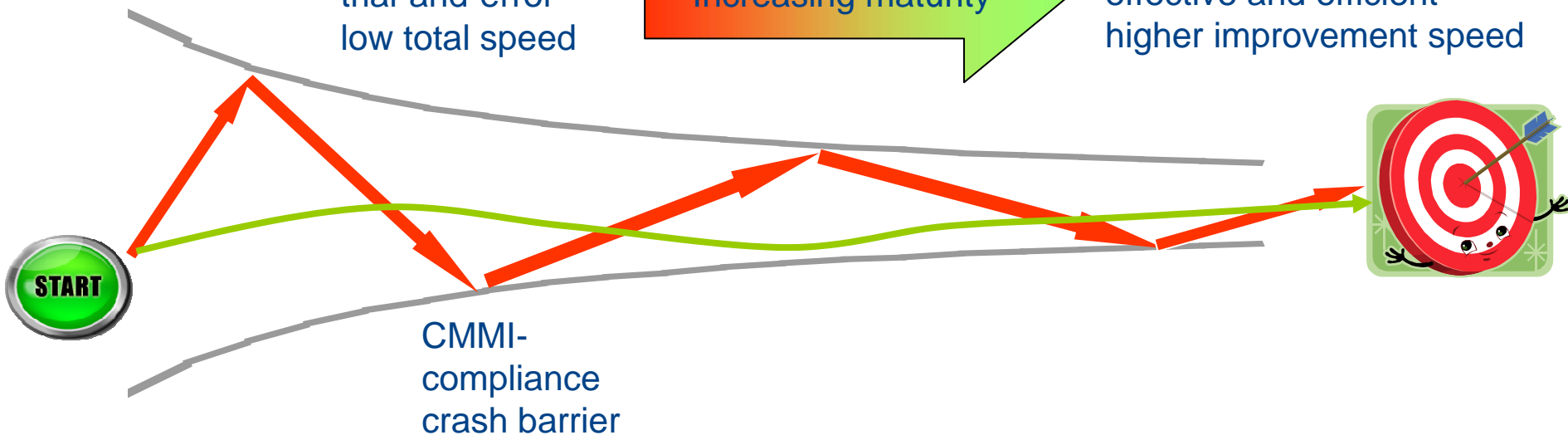
2

Business Objectives in the Model

compliance focus
trial-and-error
low total speed

Increasing maturity

business objective focus
effective and efficient
higher improvement speed



Compliance-based
process improvement path

Business objective-based
process improvement path



THOMAS GREB CONSULTING

IT-Project and Process Management

2

Business Objectives in the Model

Consequences

- Risk of losing time and money for reaching maturity level 2 and 3 with little business benefit
 - To reach level 2 or 3 takes on average 2 years and a large investment
- Ineffective process improvement program



Solution

- Use flexibility of the CMMI model and start alignment with business objectives at the beginning of the improvement initiative

3

Business Objectives First

Derive process objectives top-down from competitive environment and business objectives





THOMAS GREB CONSULTING

IT-Project and Process Management

3

Business Objectives First

A business objective-based CMMI improvement program

- must be supported and directed by the organization's top management
- considers external as well as internal requirements for process improvement
- uses CMMI as a means to generate business value, not as an objective in itself
- is aware of the limitations of CMMI, which e.g. can't resolve deficits in production

While concentrating on business objectives, don't forget the basics!

- Ensure management commitment and support through all hierarchy levels
- Consider the process maturity and process culture of the organization
 - If process maturity is very low, concentration mainly on business objectives could be risky!



THOMAS GREB CONSULTING

IT-Project and Process Management

3

Business Objectives First

Initial SCAMPI B or C rates the organization's processes

- not only against the best practices of the CMMI,
- but additionally against their contribution to the identified business objectives.

Appraising process contribution to business objectives needs

- more detailed coordination between sponsor and appraisal team leader about the objectives and boundaries of the appraisal
- additional input, preparation effort and time
- in some cases additional interviewees
- probably additional management skills in the appraisal team



THOMAS GREB CONSULTING
IT-Project and Process Management

3

Business Objectives First

Is CMMI the right approach to support our business objectives?

→ Use appraisal results for a broad and intensive analysis within the organization

Final result of the analysis should be

- an objective, realistic and common understanding
- between managers and people performing the processes
- about current strengths and weaknesses of the organization processes
 - compared to the best practices of the CMMI,
 - compared to it's business objectives,
 - compared to the strength and weaknesses of it's competitors,
 - compared to the needs of it customers.

Build common understanding and commitment for the business objectives of the improvement initiative.



THOMAS GREB CONSULTING

IT-Project and Process Management

4

Business Objective-Guided Improvement Process

Important issues planning a business objective-based improvement program

- Use the results of the initial, business objective-based SCAMPI
- Refine and quantify the business objectives
- Which CMMI practices best support the achievement of the business objectives?
 - Set priorities for process improvement activities
 - Define process objectives to support the business objectives

Set priorities in case of conflicting objectives or activities

- Use advice given by the proven improvement path of the CMMI
- Request direction and priorities from top management



THOMAS GREB CONSULTING

IT-Project and Process Management

4

Business Objective-Guided Improvement Process

Once the improvement activities have been started

- Senior management needs to visibly support these activities, emphasizing their impact on business objectives, not on the maturity level
- Processes have to be evaluated for both support of business objectives and CMMI compliance
 - Major process changes need to be reviewed by senior management, EPG and process users
 - Piloting new processes can build confidence in their contribution to business objectives

If key process users are in doubt about positive contribution of process improvements

- take it seriously and
- dig it out until all relevant stakeholders have gained common insight.



THOMAS GREB CONSULTING
IT-Project and Process Management

4

Business Objective-Guided Improvement Process

Review and revise business objectives with management frequently

- In dynamic environments business objectives can change very often
 - Process objectives and improvement plans need to be revised.
- If business objectives change faster than the cycle time of process improvements
 - try to make the improvement process more agile,
 - if this doesn't work: stop the improvement program!

Analyze results of measures frequently and carefully to guide improvement

- Do measures for business objectives give the same results as other, possibly non-quantitative information, e.g. feedback from process users?



THOMAS GREB CONSULTING

IT-Project and Process Management

5

Measuring Contribution

Qualitative view is necessary and useful

- Processes, which „feel better“ for users have a high probably to be institutionalized
- Qualitative view can be used to validate the quantitative view
 - Consider business impact of improvements in appraisals
 - Collect additional information about business objectives in assessments and PPQA-Reviews

Quantitative view

- Contains measurements from different points of view
 - e.g. using Balanced Score Card
- Include customer view



THOMAS GREB CONSULTING
IT-Project and Process Management

5

Measuring Contribution

Measuring the contribution of processes to business objectives is a challenge

- Causes of performance changes are difficult to isolate
 - Not only processes but also key players and organizational structures etc. change
 - Often there are time lags between change and impact
- Processes performed in level 1 or 2 organizations are usually not stable enough to get reliable and comparable performance data



THOMAS GREB CONSULTING

IT-Project and Process Management

5

Measuring Contribution

Activities to address this challenge

- Measurement and analysis capabilities
 - should be set up at the beginning of the improvement activities
 - should focus on the contribution of processes to achieving business objectives
- Processes expected to deliver a substantial contribution to the organization's business objectives should be brought to capability level 3 or higher early on
 - This does not work for processes that are fairly new to the organization!



THOMAS GREB CONSULTING

IT-Project and Process Management

6

Conclusions

- Effectiveness of CMMI can be improved substantially when business objectives are used as a early starting point and compass for all improvement activities.
- Contribution of CMMI-based improvement to business objectives must be made measurable from the beginning.
- Changes are much easier to implement when you can argue for new processes based on business objectives and not with “strange” maturity or capability levels.
- Using CMMI this way – and not only from the compliance point of view – gives a competitive advantage which goes far beyond a better direct return-on-investment.



THOMAS GREB CONSULTING
IT-Project and Process Management





THOMAS GREB CONSULTING

IT-Project and Process Management

Thomas Greb Consulting
IT-Project and Process Management

Dr. Ralf Kneuper Consulting
Software Quality Management
and Process Improvement

Dr. Thomas Greb
Mobil: +49 (0)163 813 86 11
Fax: +49 (0)721 151 29 92 14
Kirchbachstr. 105
D-28211 Bremen
Germany

Dr. Ralf Kneuper
Tel.: +49-(0)173-343 2005
Fax.: +49-(0)1803-5518-01564 (Fax-in)
Philipp-Roeth-Weg 14
D-64295 Darmstadt
Germany

www.thomas-greb-consulting.com
th.greb@thomas-greb-consulting.com

www.kneuper.de
ralf@kneuper.de