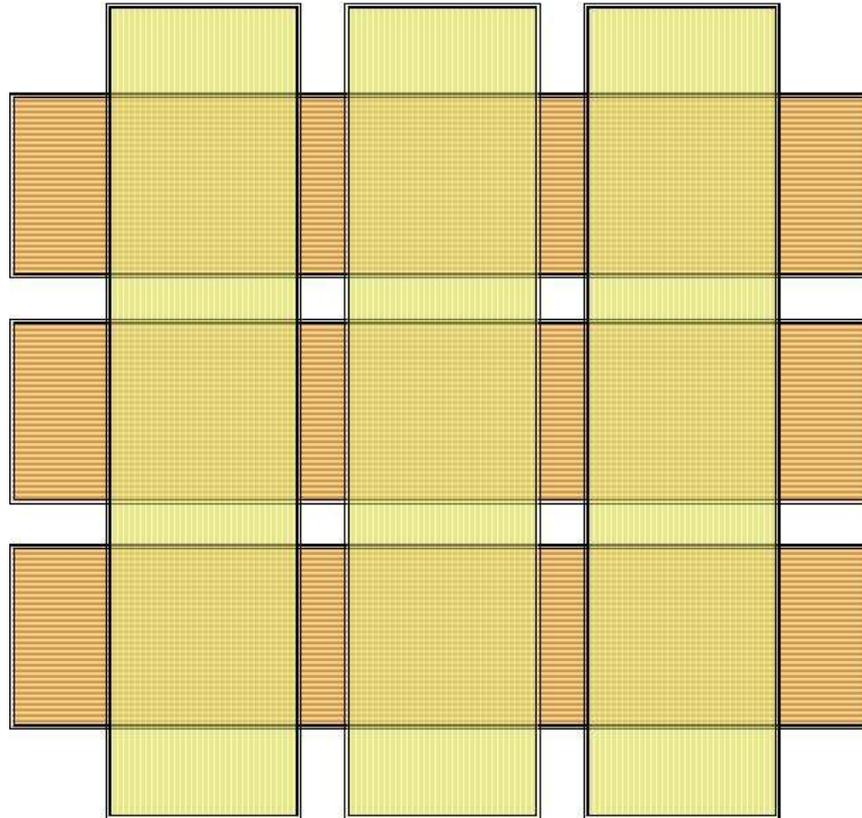# RAM Capability Matrix

An agile and versatile approach to asses IT disciplines

Presenter: René Schaap

- **President of iNTCCM**
  - **iNT**ernational **C**ertification of **CM** professionals
  - http://www.intccm.org

- **Principal Consultant QM/CM**
  - @ SQS Netherlands
  - European assignments
  - http://www.sqs-group.com

- Experience
  - over 33 years IT development
  - over 20 years Change & Configuration Management
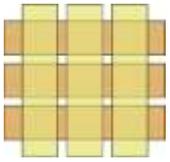 - over 3 years process assessments

Management disciplines in IT
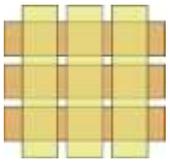
- **Examples**
  - Project management
  - Test management
  - Defect / problem / incident management
  - Change management
  - **Configuration management**
  - Quality management
  - Requirements management
  - Software development management
 - … and many more …

Definition in Wikipedia

Management in all business and organizational activities is the act of getting people together to accomplish desired goals and objectives using available resources efficiently and effectively.

Management comprises planning, organizing, staffing, leading or directing, and controlling an organization (a group of one or more people or entities) or effort for the purpose of accomplishing a goal.

Resourcing encompasses the deployment and manipulation of human resources, financial resources, technical resources and natural resources.

Implementation / improvement
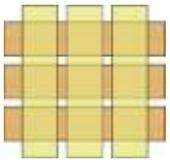
- Aspects to consider
  - Finding & assigning the right human resources
  - Training aspects to fulfill tasks
  - Define the tasks to execute (efficiently & effective)
  - Relate roles to tasks
  - Selecting the right technology resources
  - Etc.

- Aspect categories
  - **H**uman, **P**rocess, **T**echnology
  - Constraints

Aspect balance within discipline

Problems.
Illness

Reorganisations,
Customers,
Economics

Culture,
Competence,
Commitment,
Communication

Environment

H

Organisation

P

T

Supplied.
Developed
Leased

Objectives

Regulations,
Maturity level,
Standards (ISO)

.....

Implementation aspects

Human aspects

- Professional approach
- Define career paths
- Set sponsorship
- Arrange commitment
- Define organization

- Define roles
- Setup training paths
- Provision mandates
- Setup knowledge center

- Assign roles
- Train the people
- Define responsibilities
- Setup project support

Process aspects

- Define company policy & strategy

- Setup guidelines
- Define processes
- Define audit plans
- Define charters

- Define plans
- Define procedures
- Execution of steps

Technical aspects

- Landscape
  - Technology
  - Applications
- Tool strategy

- Technology design
- Tool implementations
- Structures

- Define instructions
- Local automation
- Control objects

Goals

Implementing aspects
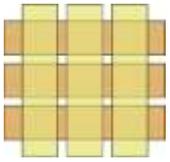
- Implementation aspects depends on
  - Goals & objectives
  - Available budgets, resources and time

- Implementation need decisions on
  - Senior management on organizational level
  - Middle management level
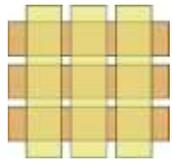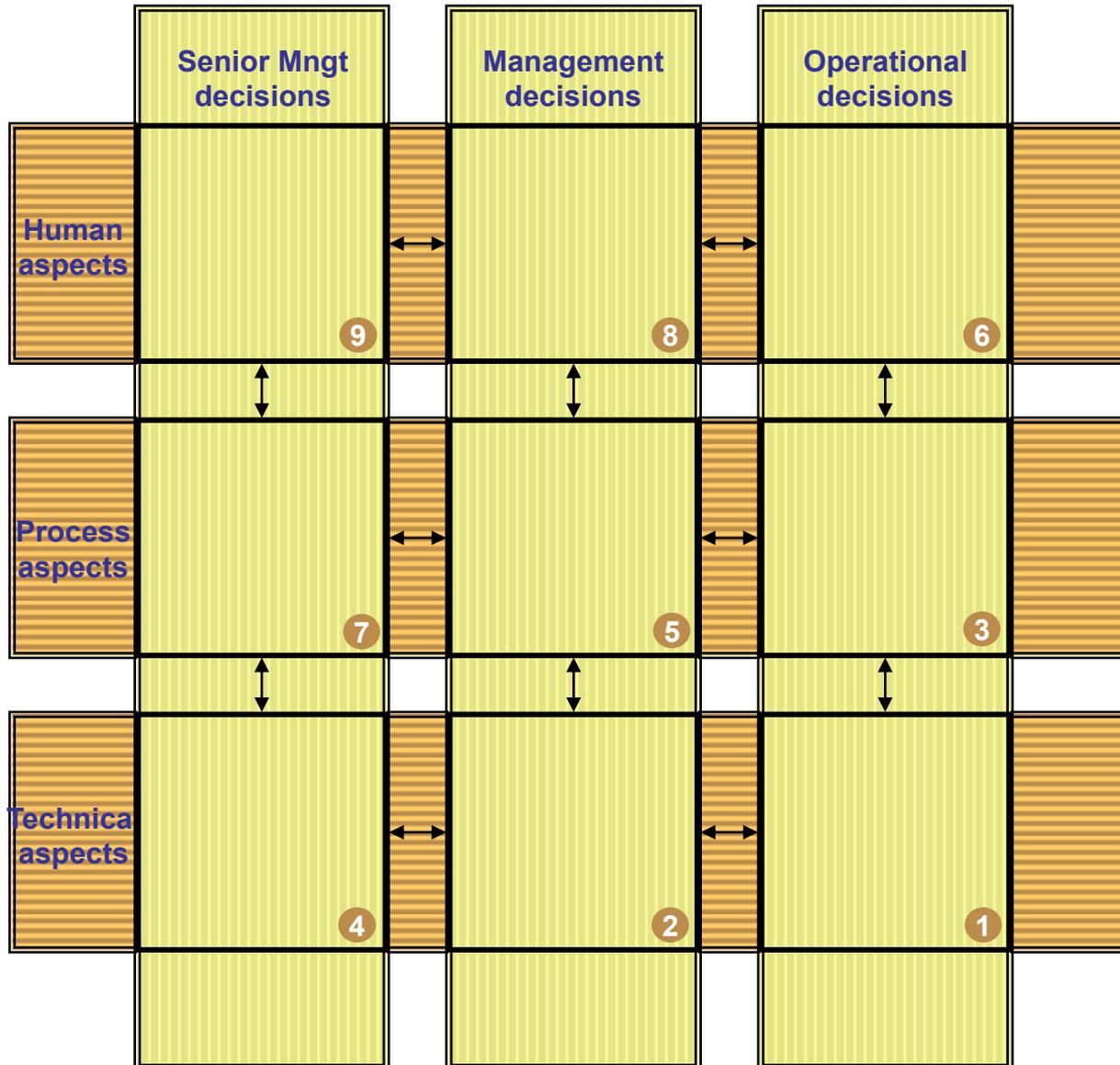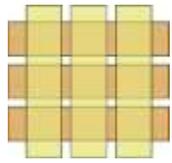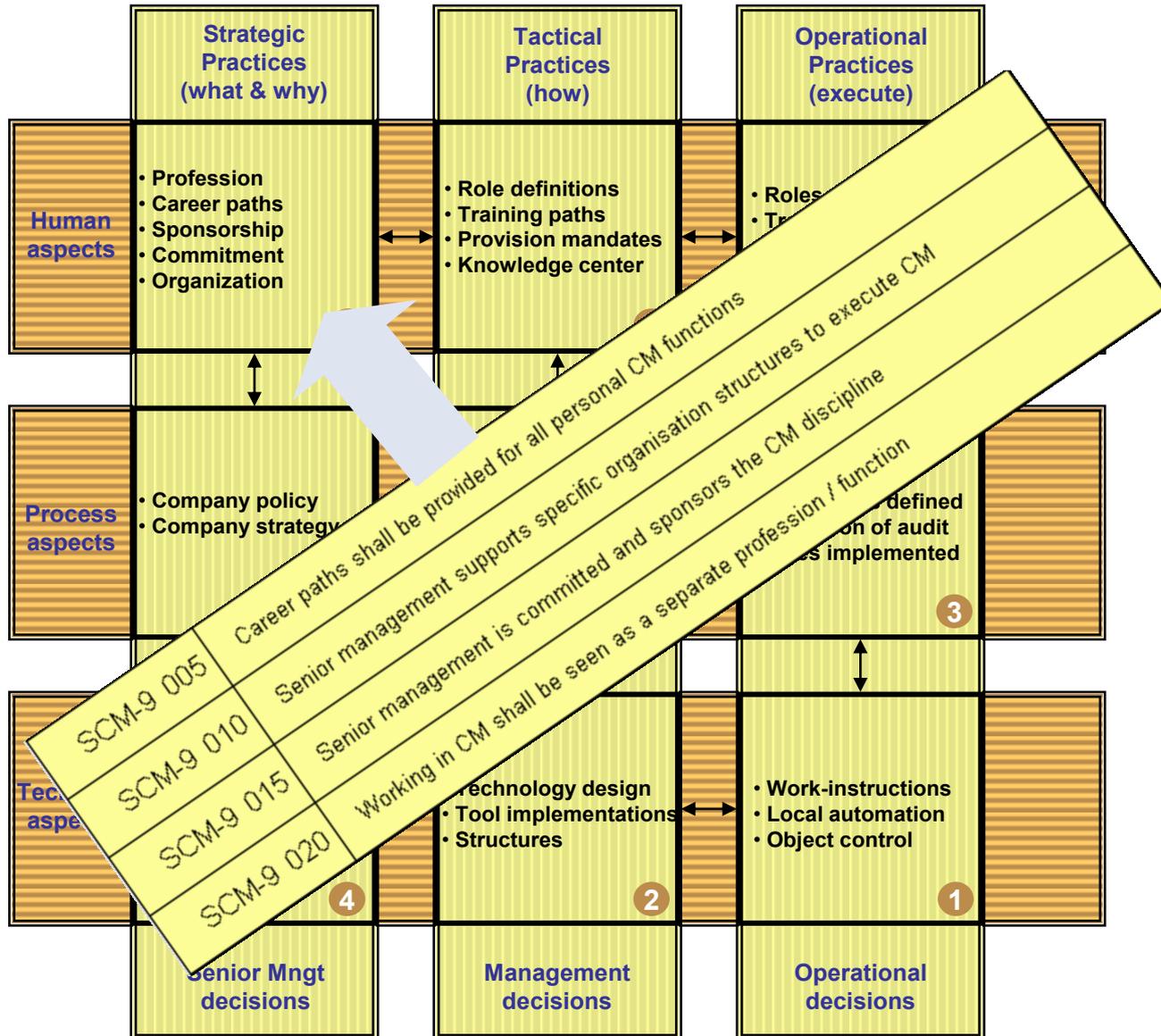 - Execution / operational level

Dependency on decision levels

Senior Mngt decisions	**Management decisions**	**Operational decisions**
• **Professional approach** • **Career paths** • **Sponsorship** • **Commitment** • **Organization** • **Policies** • **Strategies** • **Technology landscape** • **Tools**	• **Define roles** • **Setup training paths** • **Provision mandates** • **Knowledge center** • **Guidelines** • **Process definitions** • **Audit plans** • **Charters** • **Technology design** • **Tool implementation**	• **Assign roles** • **Train people** • **Responsibilities** • **Setup project support** • **Planning** • **Procedures** • **Execution** • **Work instructions** • **Automation of local tasks** • **Control object**
Strategic Practices (what & why)	**Tactical Practices (how)**	**Operational Practices (execute)**

Combined – 2 dimensional matrix

	Senior Mngt decisions	Management decisions	Operational decisions
Human aspects	9	8	6
Process aspects	7	5	3
Technical aspects	4	2	1

Requirements per aspect / cell

	Strategic Practices (what & why)	Tactical Practices (how)	Operational Practices (execute)
Human aspects	• Profession • Career paths • Sponsorship • Commitment • Organization	• Role definitions • Training paths • Provision mandates • Knowledge center	• Roles • Tr…
Process aspects	• Company policy • Company strategy		…defined …on of audit …s implemented **3**
Tech… aspe…		• Technology design • Tool implementations • Structures	• Work-instructions • Local automation • Object control **1**
	Senior Mngt decisions	**Management decisions**	**Operational decisions**

|	
SCM-9 005	Career paths shall be provided for all personal CM functions
SCM-9 010	Senior management supports specific organisation structures to execute CM
SCM-9 015	Senior management is committed and sponsors the CM discipline
SCM-9 020	Working in CM shall be seen as a separate profession / function

4   **2**

Discipline more than a process
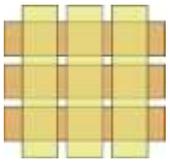
The success of the disciplines in IT development & operations can be assigned to different Key Success Factors:
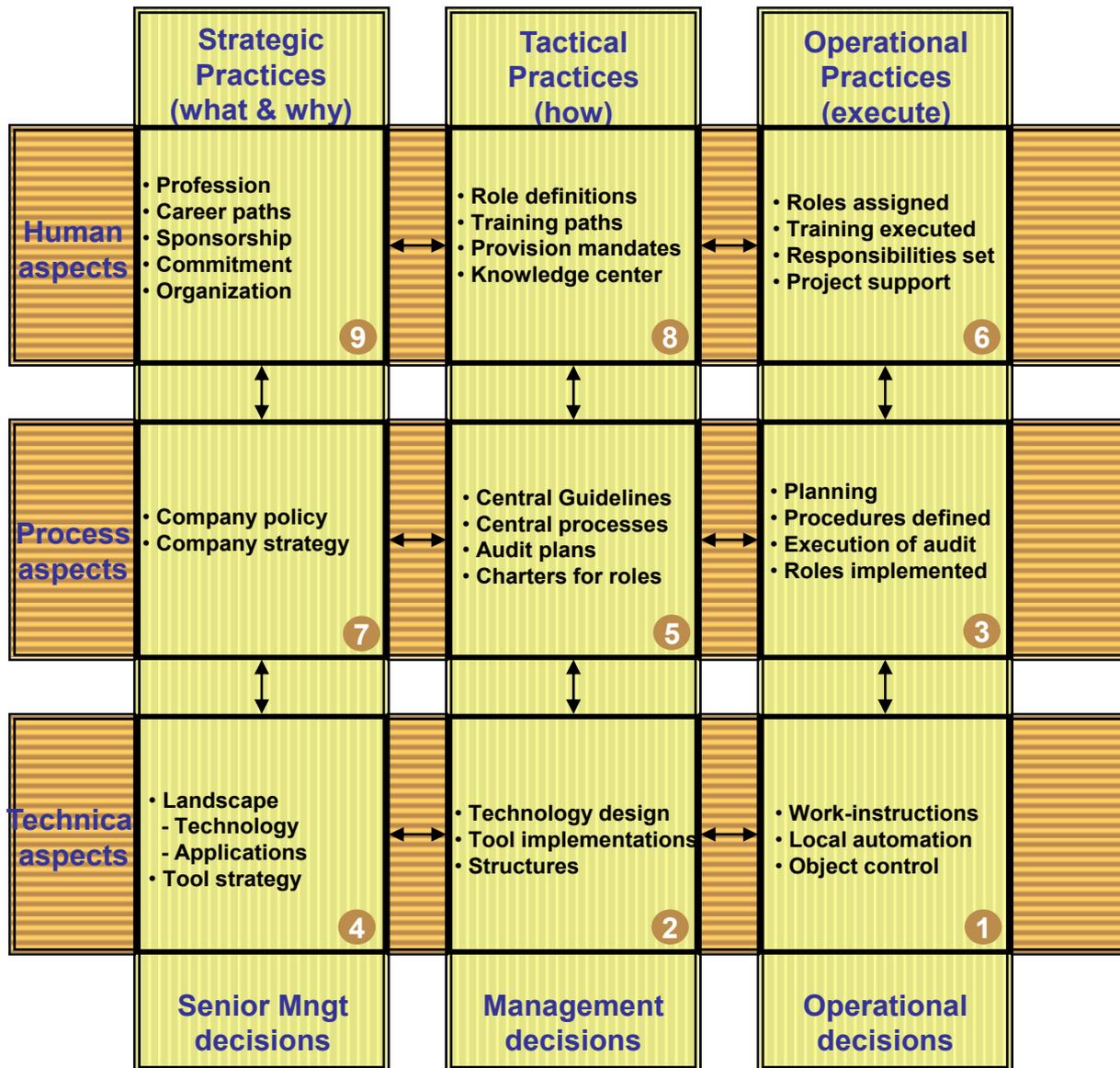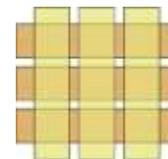
- Key Success Factors can be assigned to <u>implementation aspects</u>
    - Human aspect (roles, organisation, mandate, etc.)
    - Process aspect (standards, plans, process, procedures, etc.)
    - Technological aspect (tool support, work-instructions etc.)

- Key Success Factors can be assigned to <u>decision levels</u>
    - Strategic level (senior management)
    - Tactical level (middle management / line management)
    - Operational level (project management, work floor)

- Key Success Factors can be assigned to <u>compliancy to requirements</u>
    - Goals & objectives of the discipline (reasons)
    - Detailed (business) requirements (IT development & operations) per aspect
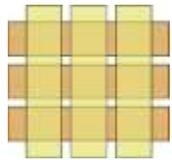
Find the optimal balance
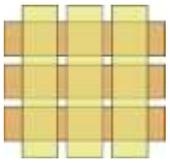
- Combination of
    - Key Success Factors assigned to compliancy to requirements
    - Key Success Factors assigned to decision levels
    - Key Success Factors assigned to implementation aspects

- RAM Capability Matrix elements
    - Capability Matrix
        - 3x3 matrix combining decision levels & implementation aspects
    - Requirements Assessment Model
        - Each cell of the matrix dedicated to specific aspects / objectives
        - Objectives related to discipline requirements
    - Maturity Calculation Method
        - A calculation model to calculate the maturity level

RAM Capability Matrix

	Strategic Practices (what & why)	**Tactical Practices (how)**	**Operational Practices (execute)**
Human aspects	• Profession • Career paths • Sponsorship • Commitment • Organization **9**	• Role definitions • Training paths • Provision mandates • Knowledge center **8**	• Roles assigned • Training executed • Responsibilities set • Project support **6**
Process aspects	• Company policy • Company strategy **7**	• Central Guidelines • Central processes • Audit plans • Charters for roles **5**	• Planning • Procedures defined • Execution of audit • Roles implemented **3**

Technical aspects	• Landscape
	  - Technology
	  - Applications
	• Tool strategy **4**
		• Technology design
		• Tool implementations
		• Structures **2**
			• Work-instructions
			• Local automation
			• Object control **1**

	Senior Mngt decisions	**Management decisions**	**Operational decisions**

# Usage (1) - Capability & Maturity

- Use the matrix to define
  - **Capability**: what could you do (discipline wise)
    - Tailor or define aspects based on goals and objectives
    - Tailor or define detailed requirements per cell
    - Standard capability levels

- Use the matrix to assess & calculate
  - **Maturity**: what do you do (discipline wise)
    - Assess compliancy to requirements
   - Calculate maturity level based on capabilities

Requirements to comply with
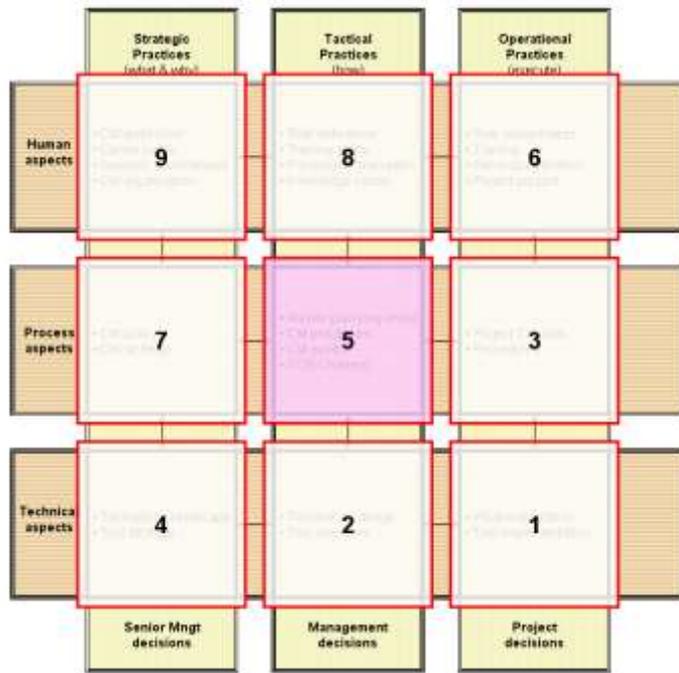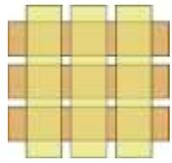
- Increased attention for human aspects on strategic levels will increase the capability level

- Maturity levels of the discipline have a direct relation to the fulfilment of requirements of certain cells.

Capability Levels
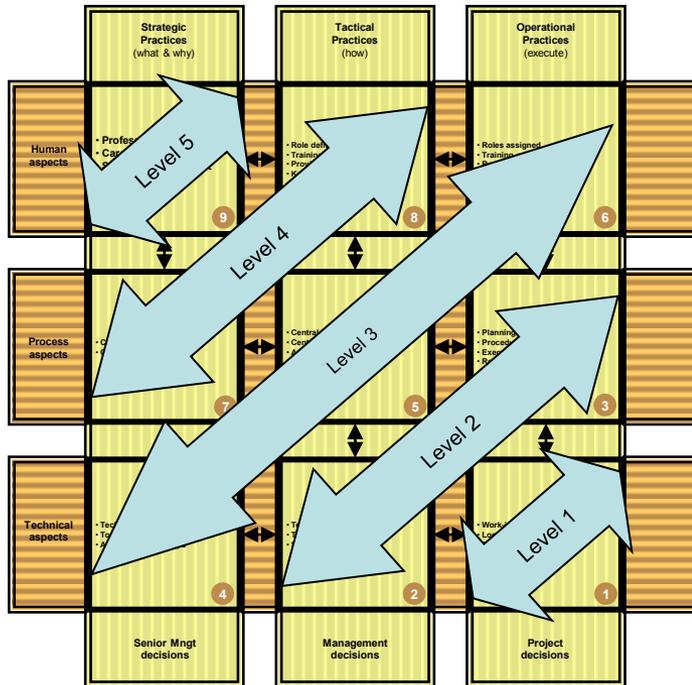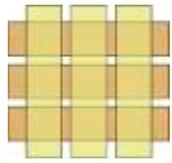
- Level 0 – incomplete discipline
  - not recognised as discipline or process

- Level 1 – uncontrolled discipline
  - unpredictable, ad hoc, poorly controlled
- Level 2 – controlled discipline
  - basics of discipline implemented
- Level 3 – mature discipline
  - well characterised and understood
- Level 4 – guided & measured
  - based on policy, strategy, defined roles
- Level 5 – professional approach
  - executed in organisation as profession

Maturity Calculation Method
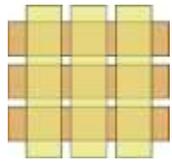
1. Each requirement shall be rated by a percentage of achievement. For these ratings the rating model from the ISO15504 standard (software engineering – process assessment) is used:
   – N – Little or no evidence that requirement is fulfilled (0-15%)
   – P – The requirement is partially fulfilled (15-50%)
   – L – Requirement largely fulfilled (50-85%)
   – F – Requirement fully fulfilled (85-100%)

2. Each rating will be translated to a value:
   N = 0.00, P = 0.35, L = 0.70, F = 0.90.
   The same values must be used when comparing levels over time.

3. An average value is calculated of all requirements belonging to the same capability level. This indicates how many of the requirements for that level are achieved. Optional colour status indicators can be used as dashboard.

☞ A maturity level will be reached when at least 75% of the requirements for that level are achieved. For higher levels it is required that also all lower levels must have reached this 75% achievement.

Example of Maturity Calculation
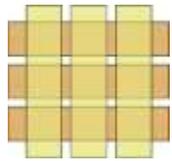
Matrix cell	SCM level	Requirement description (List of Requirements based on BSCM issue 2010.12 version 0.4.77)	Rating	Value
9	5	Career paths shall be provided for all personal CM roles	n	0.000
9	5	Senior management supports a specific organisation to support CM	n	0.000
9	5	Senoir management is committed and sponsors the CM discipline	n	0.000
9	5	Working in CM shall be seen as a seperate profession	n	0.000
8	4	Education paths shall be defiend for all personal CM roles	n	0.000
8	4	All CM roles shall be formalised and described	n	0.000
8	4	Management mandates shall be provided to implement CM in projects	n	0.000
8	4	A CM knowledge center to support projects shall be implemented	p	0.350
7	4	A configuration management policy shall be put in place	p	0.350
7	4	A configuration management strategy shall be put in place	p	0.350
6	3	All CM roles shall have sufficient training before project start	p	0.350
6	3	Responsibilities for all CM roles shall be clear and recorded	p	0.350
6	3	CM shall be introduced to all project members at the start of project	p	0.350
6	3	A Build manager shall be appointed for an application / configuration	p	0.350
6	3	A CM engineer shall be appointed for an application / configuration	p	0.350
6	3	A CCB shall be installed for an application / configuration	n	0.000

Table 1

| Rating values	Achievement	Value
N - Not achieved	0 - 15%	0.00
P - Partially achieved	15 - 50%	0.35
L - Largely achieved	50 - 85%	0.70
F - Fully achieved	85 - 100%	0.90

Table 2

SCM Capability	SCM Level	Ave
Professional	5	0%
Measured	4	18%
Mature	3	25%
Active	2	75%
Uncontrolled	1	90%

Table 3

| Colour Status Indicator	Min	Max
Green	75%	100%
Yellow	25%	75%
Red	0%	25%

## Outcome is always indicative !

Usage (2) - Improvements
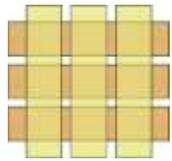
- Use the matrix to calculate maturity (before)
  - Assessment of current situation

- Use the matrix to define improvement steps (plan)
  - Definition of improvement needs (goals)
  - Definition of ambition level (achievement of requirements)
  - Assign improvement drivers
  - Fulfill pre-conditions by senior management
  - Awareness of improvement direction ("good is good enough")

- Improve according to planned steps

- Use the matrix to calculate maturity (after)
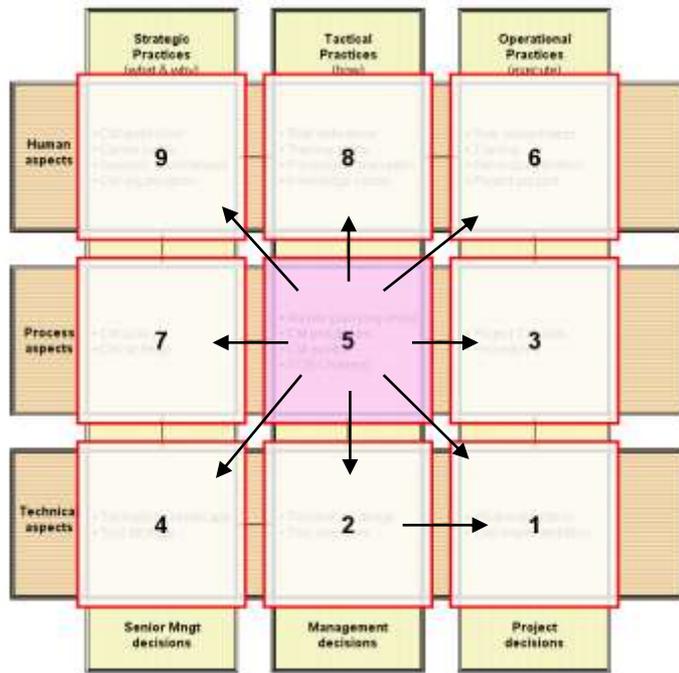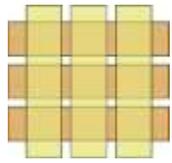 - Assessment of improved situation

Improvement need
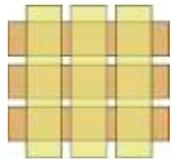
- Goals & objectives plus the weighted risks should dictate the needed maturity level.
  - Helicopter view and strategic thinking

- Goals & Objectives
- Quality risks
- Available budgets
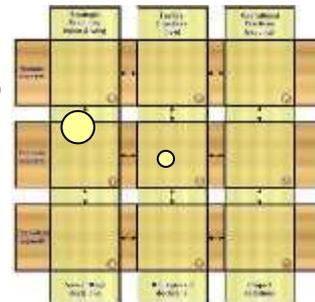
Improvement drivers

- The responsibilities towards the specific discipline within a cell must be assigned to persons and organisational units.

- Cell #5 is the central cell and it is essential that the responsibilities are assigned to a central unit in the organisation.

- Cell #2 is essential to support projects with standard technical solutions
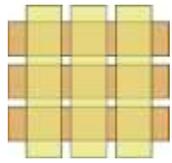
Pre-condition

TOP – DOWN
Strategic support
(e.g. directives)

Competence

Without strategic support and central knowledge centre, improvements bottom-up are NOT possible

BOTTOM – UP
Operational improvement

Improvement direction

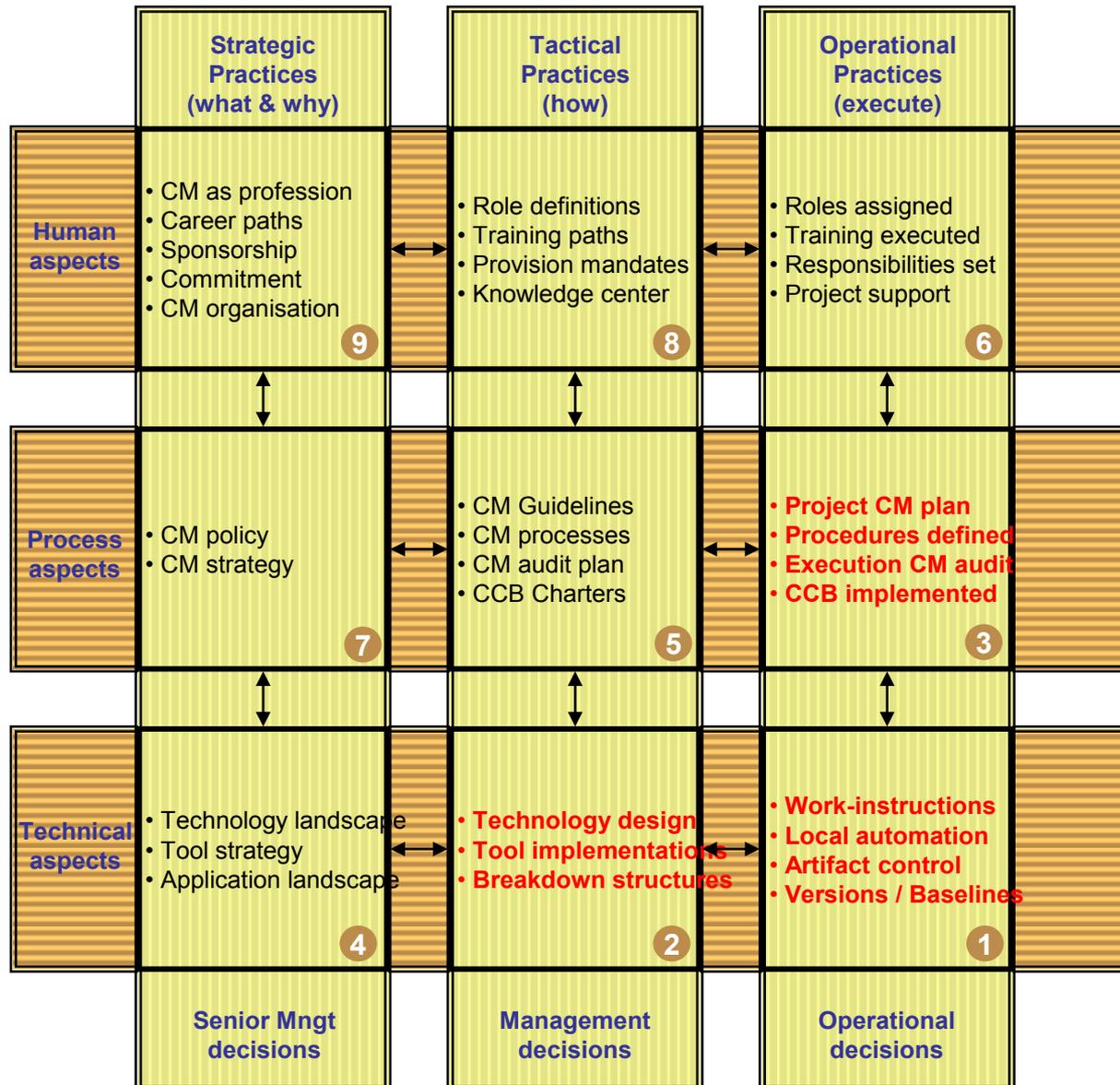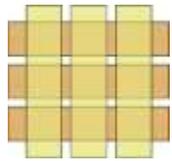|	Strategic Practices (what & why)	Tactical Practices (how)	Operational Practices (execute)
Human aspects	• Profession • Career paths • Sponsorship • Commitment • Organization	• Role... ...mandates ...e center **8**	• Roles assigned • Training executed • Responsibilities set • Project support **6**
Process aspects	• Comp... • Com...		...anning ...edures defined ...on of audit ...lemented **3**
Technical aspects	• Landscape - Technology - Applications • Tool strategy **4**	• Technolog... • Tool impleme... • Structures **2**	...ons ...ation ...ntrol **1**
	Senior Mngt decisions	Management decisions	Operational decisions

← improvement direction ←
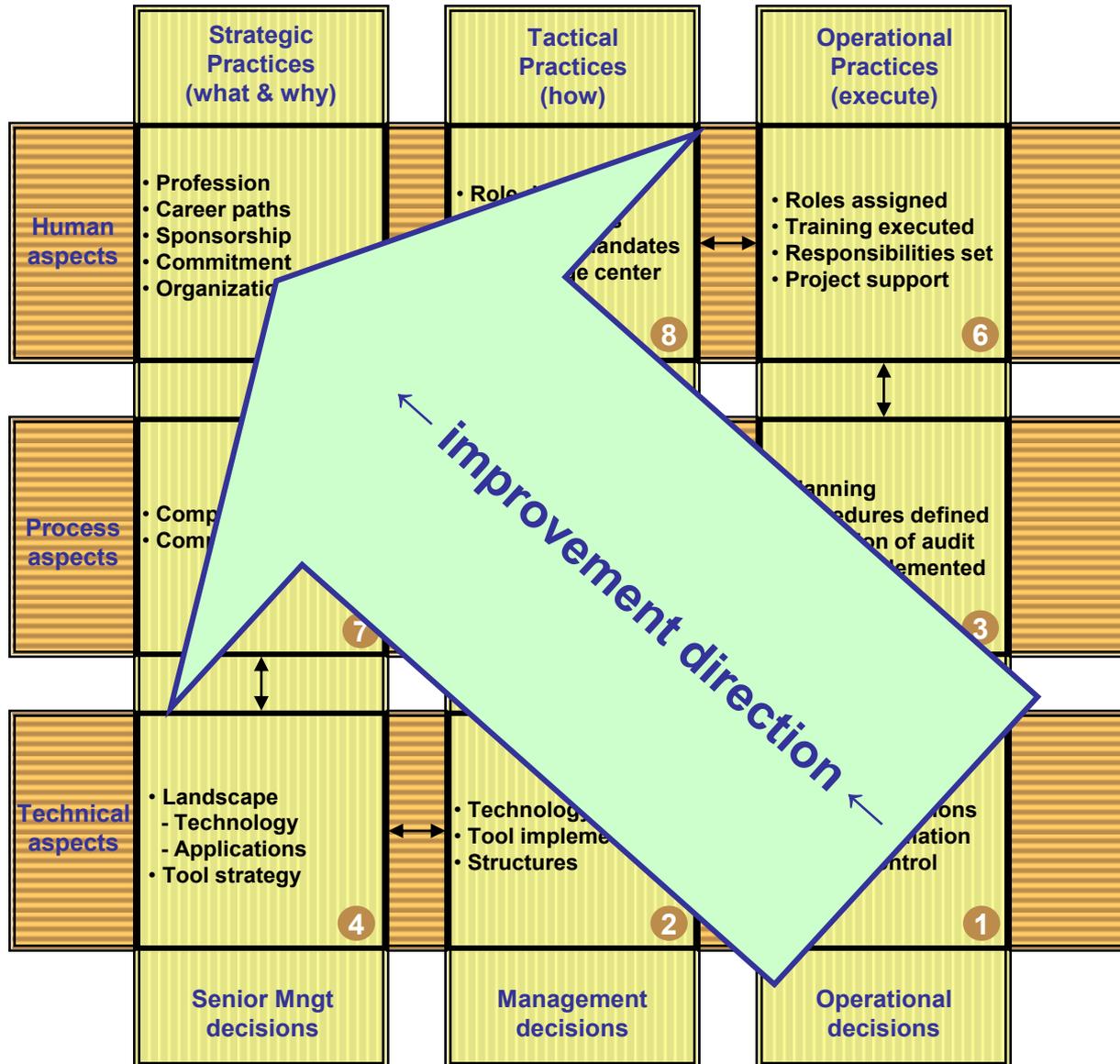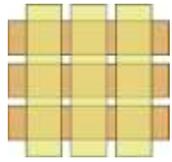
Usage (3) – Real life example
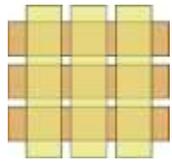
- RAM Capability Matrix used at client X
  - Discipline assessed: Configuration Management
  - Defined objectives & tailored discipline requirements
  - Workshop to assess requirements on level 2
    - Each requirements discussed
    - Each rating needed to be an unanimous decision
    - Each requirement rated according to calculation method
  - Not fulfilled requirements ranked for urgency
  - Defined improvement recommendations

SCM Capability	SCM Level	Ave
Professional	5	0%
Measured	4	0%
Mature	3	0%
Active	2	54%
Uncontrolled	1	90%

Configuration Management

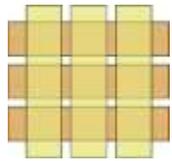|	Strategic Practices (what & why)	Tactical Practices (how)	Operational Practices (execute)
Human aspects	• CM as profession • Career paths • Sponsorship • Commitment • CM organisation ⑨	• Role definitions • Training paths • Provision mandates • Knowledge center ⑧	• Roles assigned • Training executed • Responsibilities set • Project support ⑥
Process aspects	• CM policy • CM strategy ⑦	• CM Guidelines • CM processes • CM audit plan • CCB Charters ⑤	• **Project CM plan** • **Procedures defined** • **Execution CM audit** • **CCB implemented** ③
Technical aspects	• Technology landscape • Tool strategy • Application landscape ④	• **Technology design** • **Tool implementations** • **Breakdown structures** ②	• **Work-instructions** • **Local automation** • **Artifact control** • **Versions / Baselines** ①
	Senior Mngt decisions	**Management decisions**	**Operational decisions**

Thank for your attention
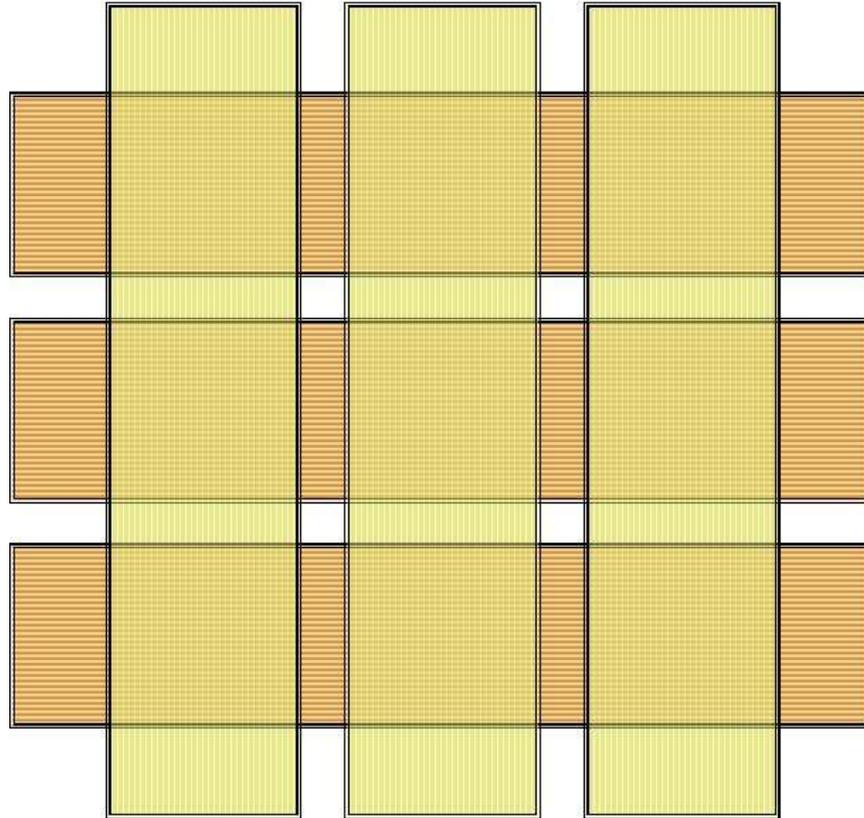
Q & A // Feedback

- Questions & Answers
- How can you use the RAM Capability Matrix for your work or within improvement projects ?

- **Personal data**
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    - rene.schaap@sqs-group.nl
    - http://nl.linkedin.com/in/rschaap