BATAN KM Maturity Self Assessment Review

Pelatihan Manajemen Pengetahuan Nuklir

29-31 Oktober 2018

Sudi Ariyanto

Pusat Pendidikan dan Pelatihan

Badan Tenaga Nuklir Nasional

MENGABDI UNTUK NEGERI

batan

IAEA KM Maturity Assesment

KM Maturity Analysis tool forms the basis of the IAEA KM assessment methodology to help identify strengths and development areas an the organization's overall KM strategy.

BATAN is applicable to the **higlighted** types of nuclear organization:

1. Nuclear Power Plant Operators
2. Nuclear Regulators
3. **Nuclear Technical Support /Design/Consultancy Organizations**
4. **Nuclear R&D Organizations**
5. Nuclear Decommissioning Management Organizations
6. **Nuclear Waste Management Organizations**
7. **Nuclear Education Providers**
8. **Other Nuclear Organizations, Agencies or Bodies**

MATURITY ASSESSMENT VIABLE WAYS

1. In a group workshop environment

2. By distribution of the Excel workbook to candidates after an initial briefing

3. By use of configurable IT survey tools

Organizational or Functional Categories Criteria Assessed

1. Policy and Strategy for KM

2. Human Resource (HR) Processes for KM

3. Training and Competence Development for KM

4. Methods, Procedures & Documentation Processes for Improving KM

5. Technical Solutions for KM
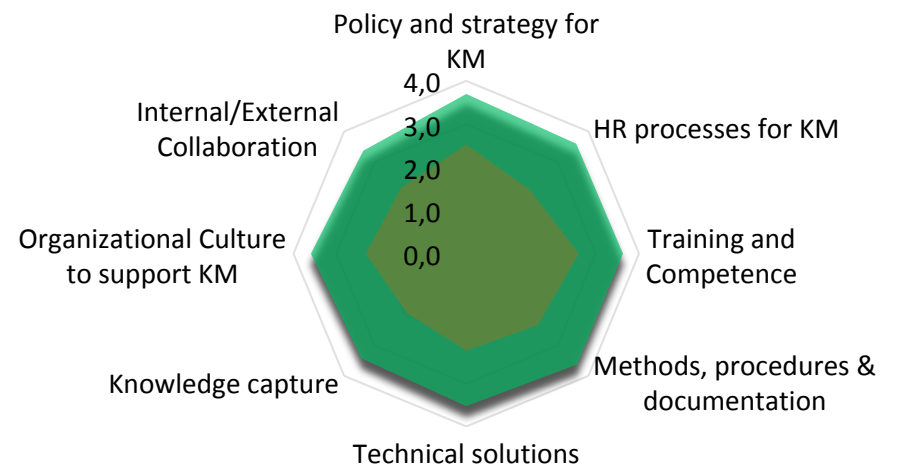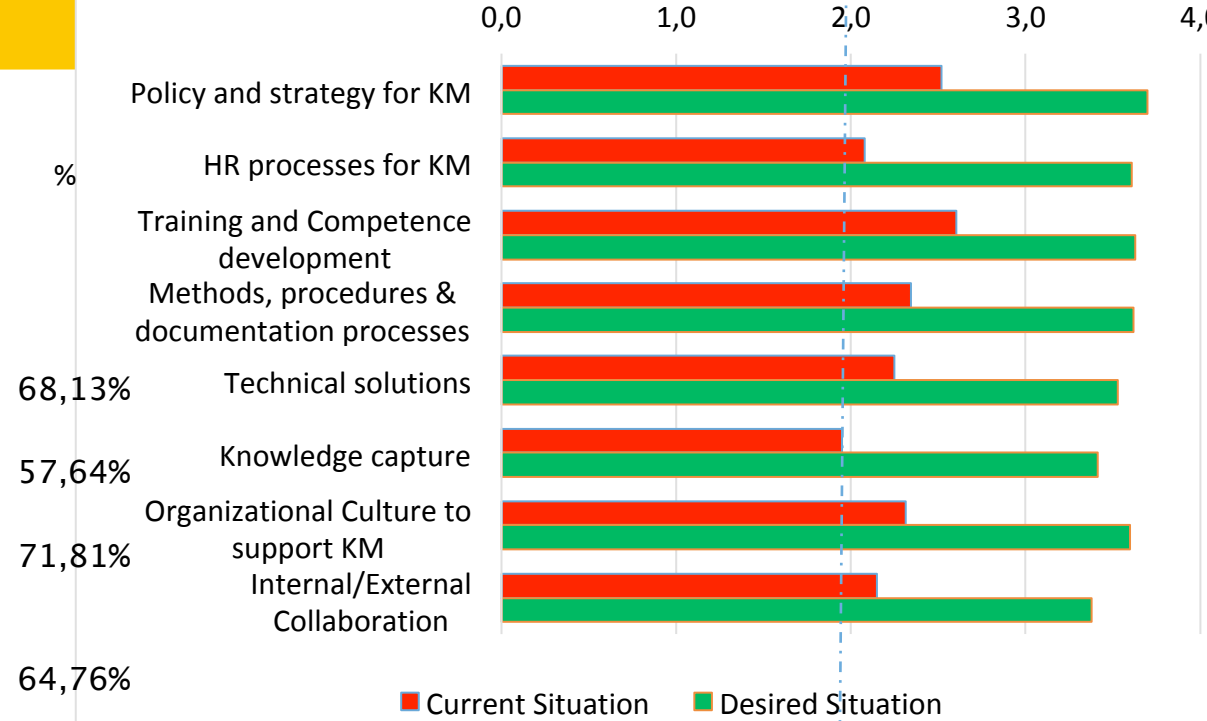
6. Approaches to the Capture/ Transfer of Knowledge

7. Organizational Culture to Support KM

8. Internal/External Collaboration for KM

Summary of Results

| No.	Short description of the criteria	Current Average	Desired Average	%
1	Policy and strategy for KM	2,5	3,7	68,13%
2	HR processes for KM	2,1	3,6	57,64%
3	Training and Competence development	2,6	3,6	71,81%
4	Methods, procedures & documentation processes	2,3	3,6	64,76%
5	Technical solutions	2,2	3,5	63,77%
6	Knowledge capture	1,9	3,4	57,08%
7	Organizational Culture to support KM	2,3	3,6	64,27%
8	Internal/External Collaboration	2,1	3,4	63,60%
		2,28	3,56	63,88%

Results of IAEA Review

IAEA Knowledge Management Assist Visit to BATAN to Reinforce Knowledge Management Programme for Performance Improvement

25 – 28 June 2018

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Tantangan BATAN

1. Transfer pengetahuan yang kurang efektif
2. Penyusutan jumlah pegawai: 500 orang akan pensiun selama lima tahun ke depan
3. Restrukturisasi dapat sangat mengganggu dan berdampak besar pada program KM
   - Pengaturan kembali staf: pergeseran pengetahuan

Kekuatan BATAN
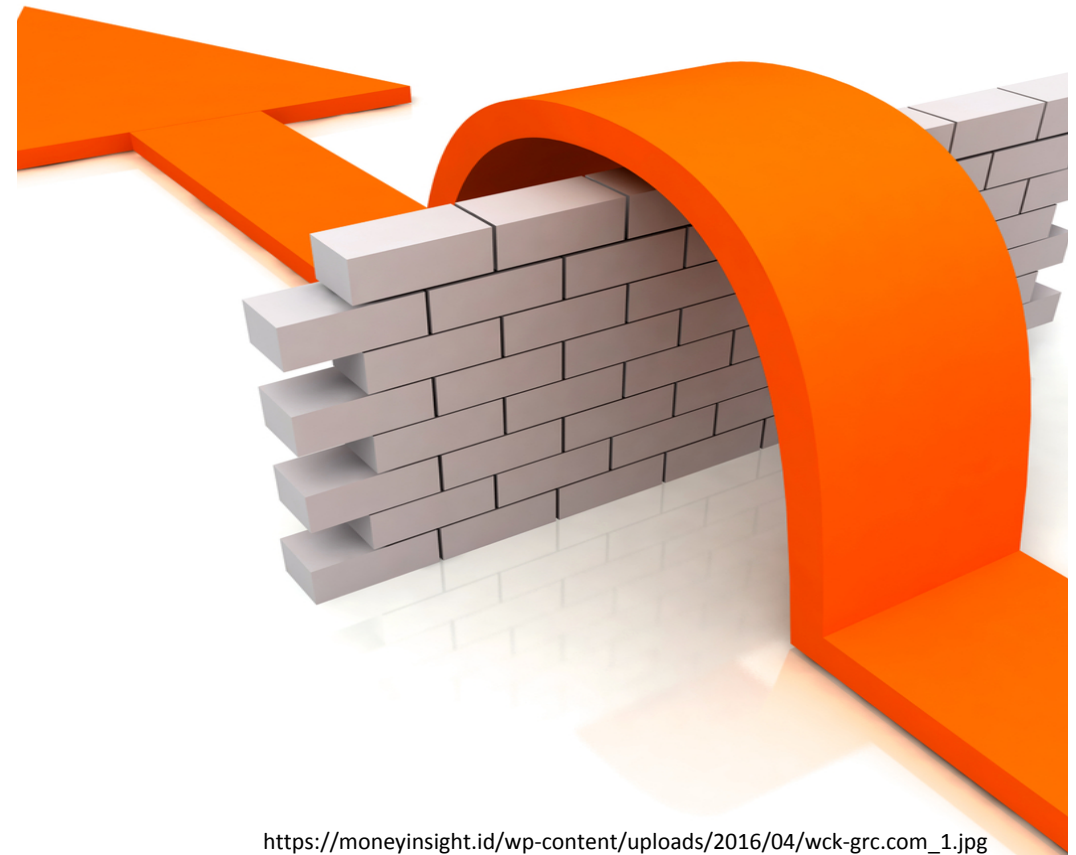
1. komitmen kuat dari manajemen senior
2. semangat staf yang lebih muda, dan
3. sifat diskusi yang hangat dan terbuka

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BATAN's Areas of Good Practice

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1. BATAN has initiated a Knowledge Management programme: addressing the most pressing needs of knowledge and skills retention in the organisation
   - Effective in short-time
2. Identification of Critical Knowledge: identified the critical knowledge in detail
3. Job profile development: Detailed job profiles for all technical positions have been developed.
   - Competences and requirements are clearly defined.

BATAN's Areas of Good Practice

4. Knowledge Transfer: BATAN has put into place a process to transfer knowledge

5. Mentoring/Coaching: working well.

6. On Job Training: a commendable approach and exceeds the typical practices in many other organizations.

7. Management commitment: The level of management commitment is very high, all in the organization are very keen to make the NKM initiative a success and are open to suggestions to further improve NKM processes..

BATAN's Areas of Good Practice

https://rlv.zcache.com/good_job_emoji_square_sticker-rf9a396806e1f4009a5eba471fda625e2_v9wf3_8byvr_540.jpg

8. NKM awareness: There seems to be a high level of awareness of what NKM is and its relationship to improving the organizations effectiveness.

9. Learning culture: There is a strong culture of learning and willingness to accept new ideas for improvement in all areas. Innovation is clearly demonstrated in a number of areas (e.g. NDT, applications in agriculture).

10. NKM Resources: BATAN have committed resources at various levels within the organization to address NKM aspects.

BATAN's Areas of Good Practice

11. Cross Organization Collaboration: The various business functions (IT, training, HR, Technical Business units) are strongly aligned in a common goal to implement the KM programme..

12. IT Alignment: IT is well aligned and supportive of the NKM programme (constructively following, rather than trying to dictate the NKM strategy).

13. Educational Collaboration: BATAN operates the Polytechnic Institute that provides qualifications and certifications for certain job requirements.

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14. KM Maturity Self-Assessment: Excellent execution in collecting the data for analysis using the IAEA NKM maturity model. The use of translation services to convert English to the native language and also to convert the IAEA-provided Excel file into digital form for network sharing was observed as good practice.

15. Systematic Training: Good, well-balanced strategy is in place addressing the needs of all staff.

BATAN's Areas of Good Practice

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16. Cooperation with the IAEA: BATAN is designated by the IAEA as a Collaborating Centre in three areas

17. Capacity Building for Fuel Cycle Development: This experience seems to be of interest for many newcomer countries developing research reactor or nuclear power programmes. Since Indonesia is not a vendor-country, it gives an opportunity for BATAN to become an international centre in capacity building for fuel cycle development in newcomer countries.

18. Job profile development: Detailed job profiles for all technical positions have been developed.

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Rekomendasi

- High Priority: Within 6 months

- Medium Priority: Within 1 year

- Low Priority: Within 3 years

Rekomendasi

1. BATAN has laid the foundation for a comprehensive KM program. However, implementation of the elements of the KM program will be challenging unless there is a continued focused effort, led by strong leadership and there is buy-in by staff. A more systematic approach is needed with a key person at executive level identified with accountability for the whole NKM programme.

- Responsible Organization: Corporate NKM Team with support of Executive Management Team
- Priority: High

2. It is suggested to further increase awareness of the NKM programme in BATAN through company-wide news articles or through a company Intranet (if available), and to clearly identify a KM Leadership Team to all staff so that co-workers know whom to contact for support or information.

- Responsible Organization: Corporate NKM Team with support of Executive Management Team Priority: High

Rekomendasi

3. NKM practices should be integrated into the ISO 9001-2015 accredited management system

- Responsible Organization: Corporate Quality Assurance Department and Corporate NKM Team
Priority: Medium

Rekomendasi

4. It is recommended to develop Key Performance Indicators and report the health of the NKM programme to senior/executive management to allow corrective action to take place where there are areas of weakness.

- Responsible Organization: Corporate NKM Team to develop KPIs; All technical organizational units to execute.

- Priority: High

Rekomendasi

5. Formal and periodic assessments of knowledge loss risk should be completed to identify critical knowledge areas in people.

Responsible Organization: Corporate NKM Team and all technical organizational units
Priority: Medium

Rekomendasi

6. Health checks should be used to determine the effectiveness of NKM in business units.

The aim of a NKM health check is to:
- Help identify and capture what knowledge is currently known now;
- Help identify what knowledge needs to be known now;
- Identify what knowledge will be needed to be known in the future;
- Understand the current NKM working arrangements and processes;
- Identify knowledge gaps and derive action plans to address shortfalls.

- Responsible Organization: Corporate NKM Team to develop health check process and all technical business units to implement

- Priority: Medium

Rekomendasi

8. NKM objectives should be added to the individuals' objectives and goals for the year and managers should reinforce the need to meet those commitments. Staff appraisals and performance reviews should include NKM activities for personal action and development. This ensures that individuals actively take part in NKM activities as directed by supervising staff.

- Responsible Organization: Human Resources Department (HRD) to develop procedures and guidelines; All units to execute.
- Priority: High

Rekomendasi

9. Exit interviews for all technical staff should be adopted. It is recommended that an NKM project be initiated to actively document knowledge held by experts who are nearing retirement. This should be done through recorded interviews, shadowing, and questioning..

Responsible Organization: HRD to develop procedure and guidelines; All organizational units to execute.
Priority: High

Rekomendasi

10. BATAN should consider an alumni-based approach for retired staff to support BATAN following their retirement. It is suggested that BATAN make arrangements to call in retirees for overload situations. Retirees tend to have high loyalty to the company and in many cases would welcome the opportunity to assist.

- Responsible Organization: HRD to develop procedure and guidelines; All technical units to execute.
- Priority: Medium to Low

Rekomendasi

11. BATAN has indicated that it has identified 132 competencies for the company and that the identification of potential loss of critical knowledge is in progress. A formal database system for competency and competence management should be considered. Such a system could be proprietary or developed in-house.

- Responsible Organization: HRD to develop procedure and guidelines; All organizational units to execute.
- Priority: Medium

12. It is recommended to accelerate the program to transfer critical knowledge to younger staff. If young professionals lack career paths identification early on, this results in reduced retention of staff. Career pathways should be developed with clear competencies required for highly skilled positions being identified. Young professionals should be encouraged to identify areas of expertise they would like to attain, and follow up on these career paths.

- Responsible Organization: All technical organizational units
- Priority: Medium

Rekomendasi

13. BATAN has indicated that it wishes to design a prototype research reactor to gain public support for a future Power Reactor. In order to achieve this, BATAN needs to prepare and implement a full suite of Design Procedures prior to initiating design of the prototype, along with an updated Design QA Manual. The role of the Design Authority should be clearly indicated in the procedures. The Design Procedures will assist in capturing the Design Bases explicitly during the design process

- Responsible Organization: Design Authority within BATAN
- Priority: Medium (time line is dependent on whether plans to design the prototype research reactor proceeds)

14. BATAN has indicated that it wishes to develop greater numbers of nuclear partners within the country through the transfer of IP to outside entities. It is suggested that BATAN review methods to protect the IP that it is transferring and consider commercial opportunities for cost recovery. It is important that the nuclear knowledge that is being transferred is controlled and only used for the intended purposes.

- Responsible Organization: Design Authority, Corporate Contract and Corporate Law
- Priority: Medium to Low (must be in place before any transfer of IP externally)

15. The pipeline for highly qualified individuals from Institutes and Universities for positions in BATAN seems to meet current requirements. However, there may be a shortage in supply if the government proceeds with plans for developing a prototype research reactor. The time line for the development of highly qualified individuals takes years. It is suggested to continue to communicate with the government to obtain advance information regarding timing of a program for a research reactor so that the Institutes and Universities can make plans to increase enrolment.

- Responsible Organization: Executives in contact with Gov't Ministry
- Priority: Medium

Rekomendasi

16. BATAN plans to develop an experimental prototype of HTR-based NPP. There are well recognized activities in the six E&T institutions in Indonesia involved in nuclear education and research activities on advanced nuclear power reactors (e.g. Bandung Institute of Technology). Based on BATAN's mission to support governmental decision-making processes in the domain of nuclear energy development, it is suggested to take an initiative and request the IAEA "Education Capability Assessment and Planning" (ECAP) mission to assess the level of national nuclear education & training system in order to make a recommendation to optimize the graduate flow-in to meet the needs of the nuclear sector.

- Responsible Organization: Corporate NKM Team
- Priority: Medium

Rekomendasi

17. BATAN should revisit some of the technical information for capturing (tacit) knowledge from key staff. One helpful source of information is IAEA TECDOC 1675 – "Knowledge Management for Nuclear Research & Development Organisations".

- Responsible Organization: Corporate NKM Team to request all technical organizational units

- Priority: Medium

18. BATAN should make themselves familiar with other IAEA NKM support documents
Responsible Organization: Corporate NKM Team
Priority: Medium

19. BATAN is encouraged to follow up with IAEA TC regarding its request to host IAEA Regional NEM and NKM Schools as part of the regular activity of BATAN's Collaborating Centre.
- Responsible Organization: Corporate NKM Team and HRD
- Priority: Medium

19. BATAN is encouraged to actively take part in the collaborative work of the IAEA initiative "International Nuclear Management Academy" (INMA) for Nuclear Technology Management (NTM)

- Responsible Organization: Corporate NKM Team and HRD
- Priority: Low

Rekomendasi

20. It is suggested that a follow-up mission be organised in 6-12 months' time to help consolidate the improvements made by BATAN based on the findings and recommendations suggested during this KMAV. The follow-up mission could also include very focused expert discussions on specific aspects of NKM.

- Responsible Organization: Corporate NKM Team with Executive Management Team support
- Priority: Medium

Ringkasan Status untuk TL

1.	continued focused effort, led by strong leadership and there is buy-in by staff, more systematic approach is needed	
2.	further increase awareness of the NKM programme	
3.	NKM practices should be integrated into the ISO 9001-2015 accredited management system	
4.	It is recommended to develop Key Performance Indicators and report the health of the NKM programme to senior/executive management to allow corrective action to take place where there are areas of weakness.	

Ringkasan Status untuk TL

5.	**Formal and periodic assessments of knowledge loss risk should be completed to identify critical knowledge areas in people.**	
6.	**Health checks should be used to determine the effectiveness of NKM in business units.**	
8.	**8. NKM objectives should be added to the individuals' objectives and goals for the year and managers should reinforce the need to meet those commitments. Staff appraisals and performance reviews should include NKM activities for personal action and development.**	
9.	**Exit interviews for all technical staff should be adopted.**	

Ringkasan Status untuk TL

10.	BATAN should consider an alumni-based approach for retired staff to support BATAN following their retirement.	
11.	A formal database system for competency and competence management should be considered	
12.	accelerate the program to transfer critical knowledge to younger staff	
14.	It is suggested that BATAN review methods to protect the IP that it is transferring and consider commercial opportunities for cost recovery. It is important that the nuclear knowledge that is being transferred is controlled and only used for the intended purposes.	

Ringkasan Status untuk TL

|		
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18.	**accelerate the program to transfer critical knowledge to younger staff**	
20.	**It is suggested that a follow-up mission be organised in 6-12 months' time to help consolidate the improvements made by BATAN based on the findings and recommendations suggested during this KMAV.**	

LAMPIRAN:
Hasil Kaji Diri

batan

1. Policy and Strategy

| No.	Key words	
1,01	KM policy	68,75%
1,02	Integration of KM procedures	61,36%
1,03	Communication of KM policy	67,25%
1,04	Responsibilities for KM implementation	64,12%
1,05	Continuous learning	68,79%
1,06	Safety culture / KM alignment	73,86%
1,07	Security of knowledge & information	76,14%
1,09	IP policy	74,27%
1,10	KM project management	66,27%
1,11	KM effectiveness	62,72%
1,12	KM resources	57,56%
1,13	Access to knowledge	74,86%
1,14	Knowledge sustainability	69,06%
	Average	**68,08%**
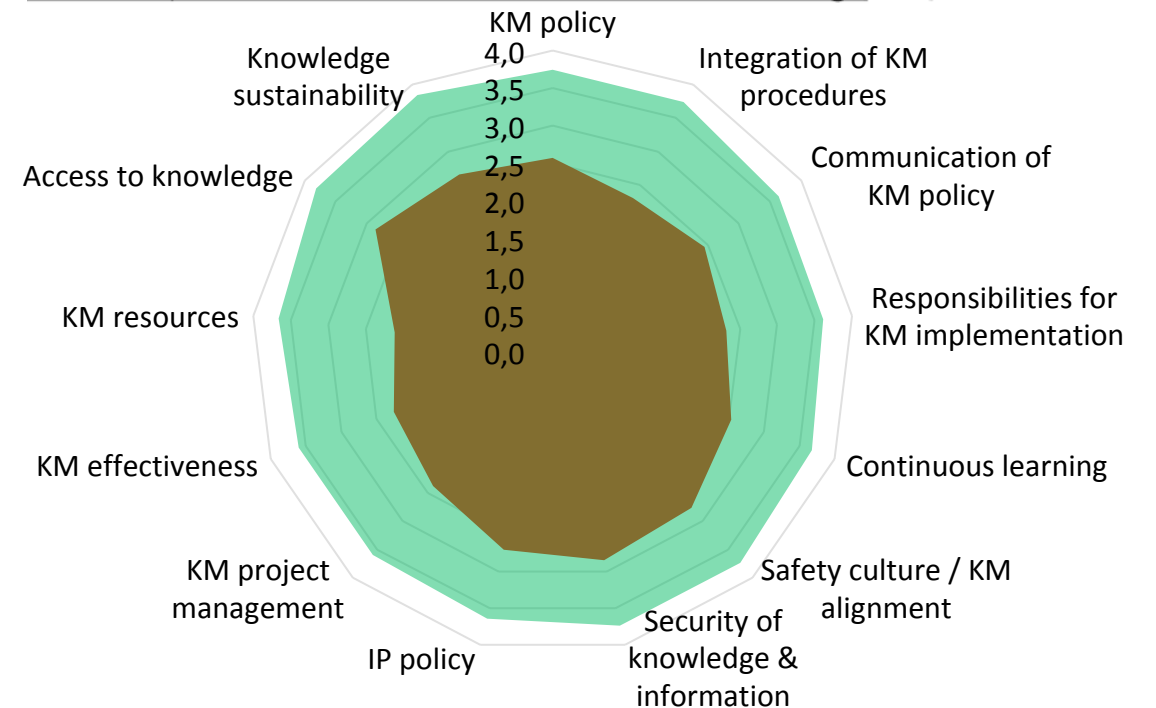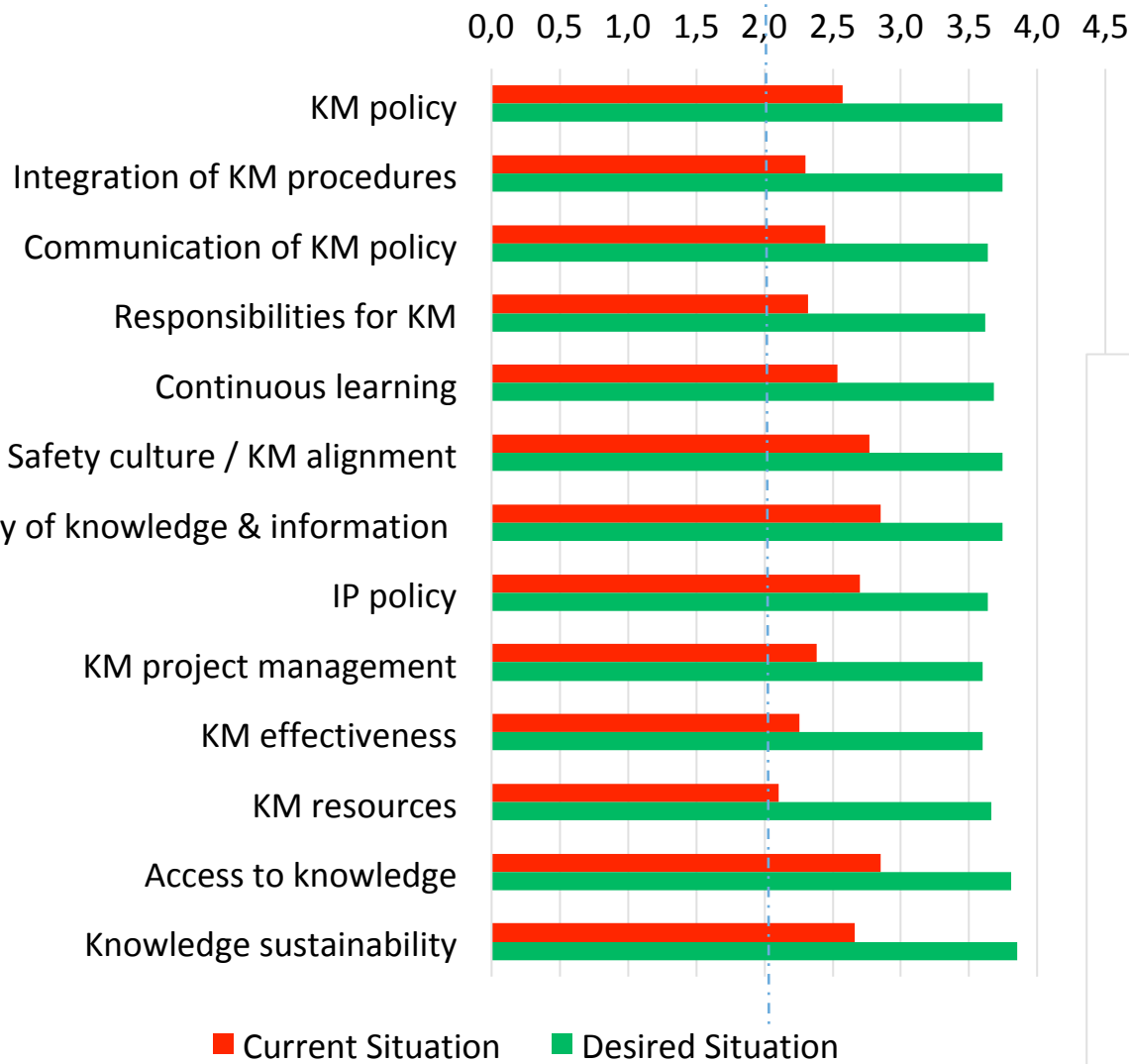
1. Policy and Strategy

- 1.02 - How are KM policies/processes integrated into the management system?
- 1.03 - Large spread of responses suggests need to have strong and regular messaging from the top of the organization to all staff. The message should permeate throughout the whole company.
- 1.12 - KM resources need clarification as apparently resources are available for NKM.
- 1.09 - IP policy – large spread of results here – what is the policy and how is it communicated?
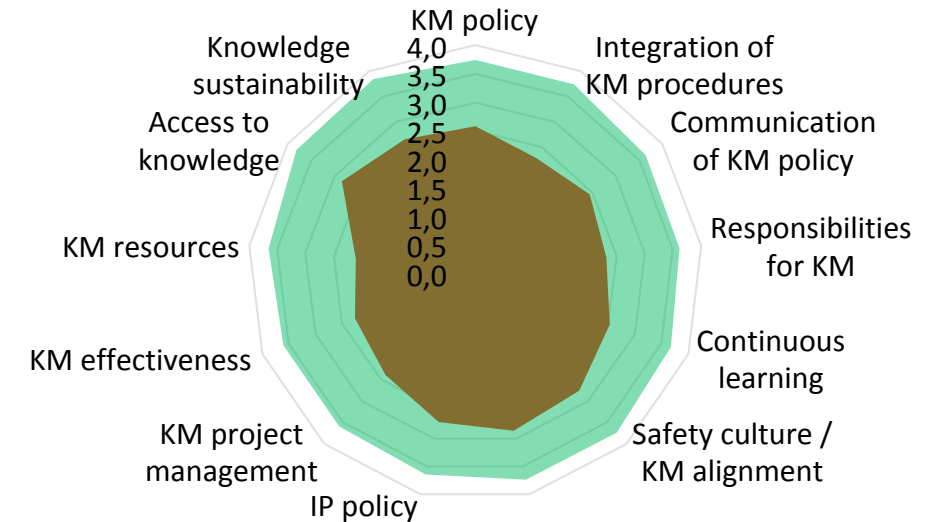
2. HR Processes

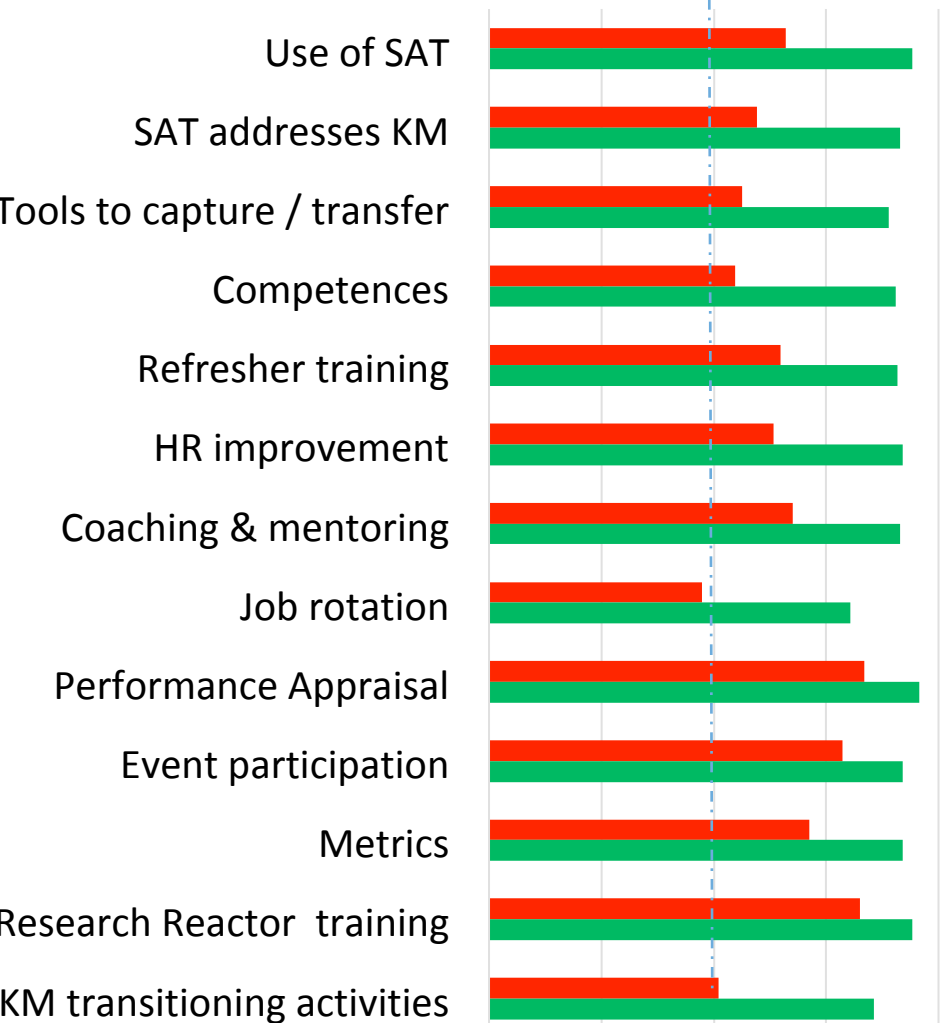| No.	Key words	
2,01	Workforce planning	62,36%
2,02	Succession planning	57,71%
2,03	Knowledge risk assessment	54,29%
2,04	External risk assessment	48,39%
2,05	Exit interviews	43,87%
2,06	Talent programme	54,34%
2,07	Job profiles	73,45%
2,08	Leadership	66,47%
2,09	Staff performance reviews	54,88%
		57,31%
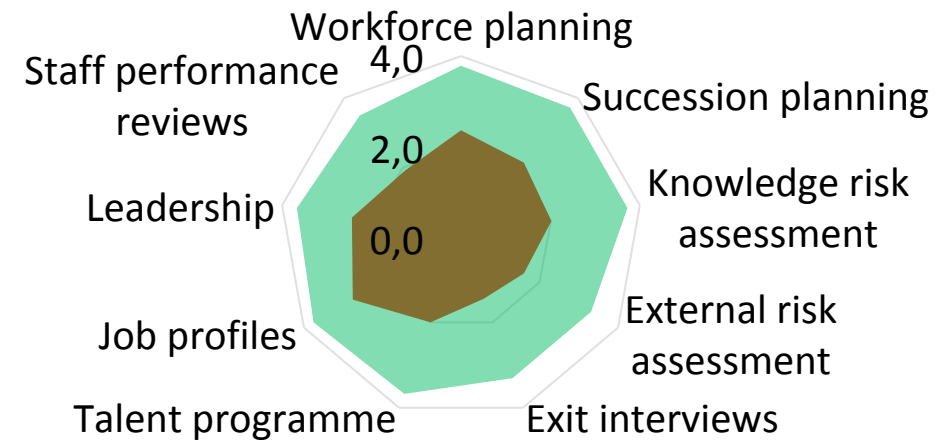
2. HR Processes

- 2.03 - Large spread of responses suggests that efforts to transfer critical knowledge might be occurring in isolated pockets of staff, and there is no general overview of the overall health of all the areas of risk to the corporation. The development of key performance indicators (KPIs) would be beneficial.

- 2.05 - Exit interviews – This is an unexpected result. This is one of the biggest gaps in this section and perhaps the easiest to resolve.

- 2.09 - Staff performance reviews – not mentioned in BATAN's HR presentation. How are these conducted with regards to NKM objectives?
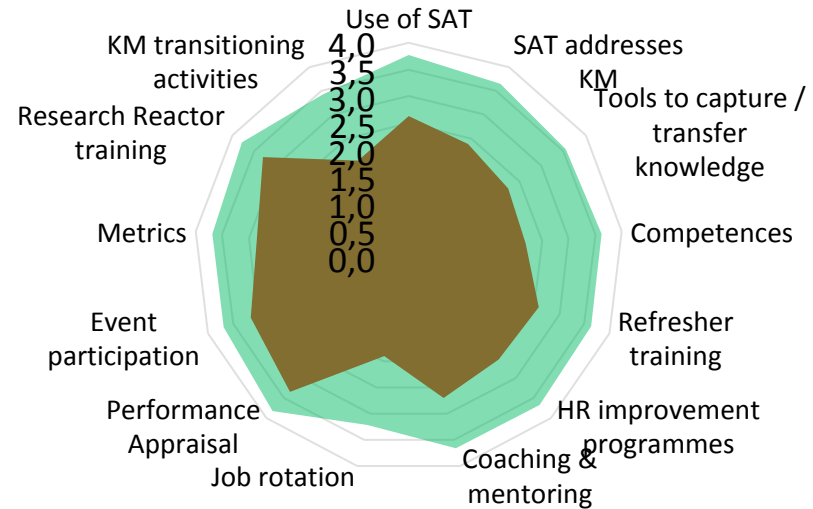
3. Training & Competence Dev.

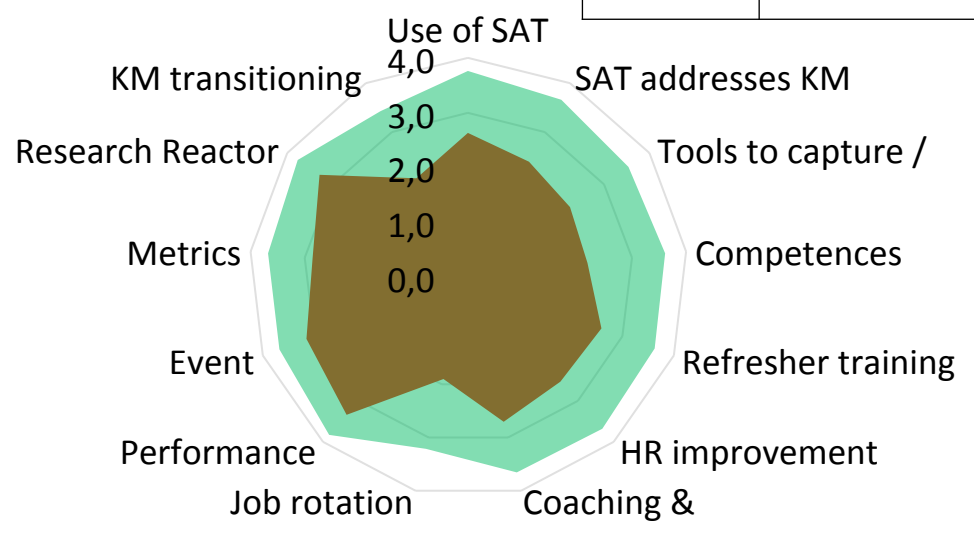| Key words	
Use of SAT	
SAT addresses KM	70,06%
Tools to capture / transfer knowledge	65,12%
Competences	63,47%
Refresher training	60,59%
HR improvement programmes	71,35%
Coaching & mentoring	73,84%
Job rotation	68,79%
Performance Appraisal	58,94%
Event participation	87,22%
Metrics	85,55%
Research Reactor training	77,46%
KM transitioning activities	87,57%
	59,63%
	71,51%

3. Training & Competence Dev.

- 3.08 - Job rotation – This is contradictory result. The BATAN's HR presentation suggests that this is the strategy for new staff.
- 3.04 - Is competence measured? How?

4. Methods, Procedures & Documentation Processes for Improving KM
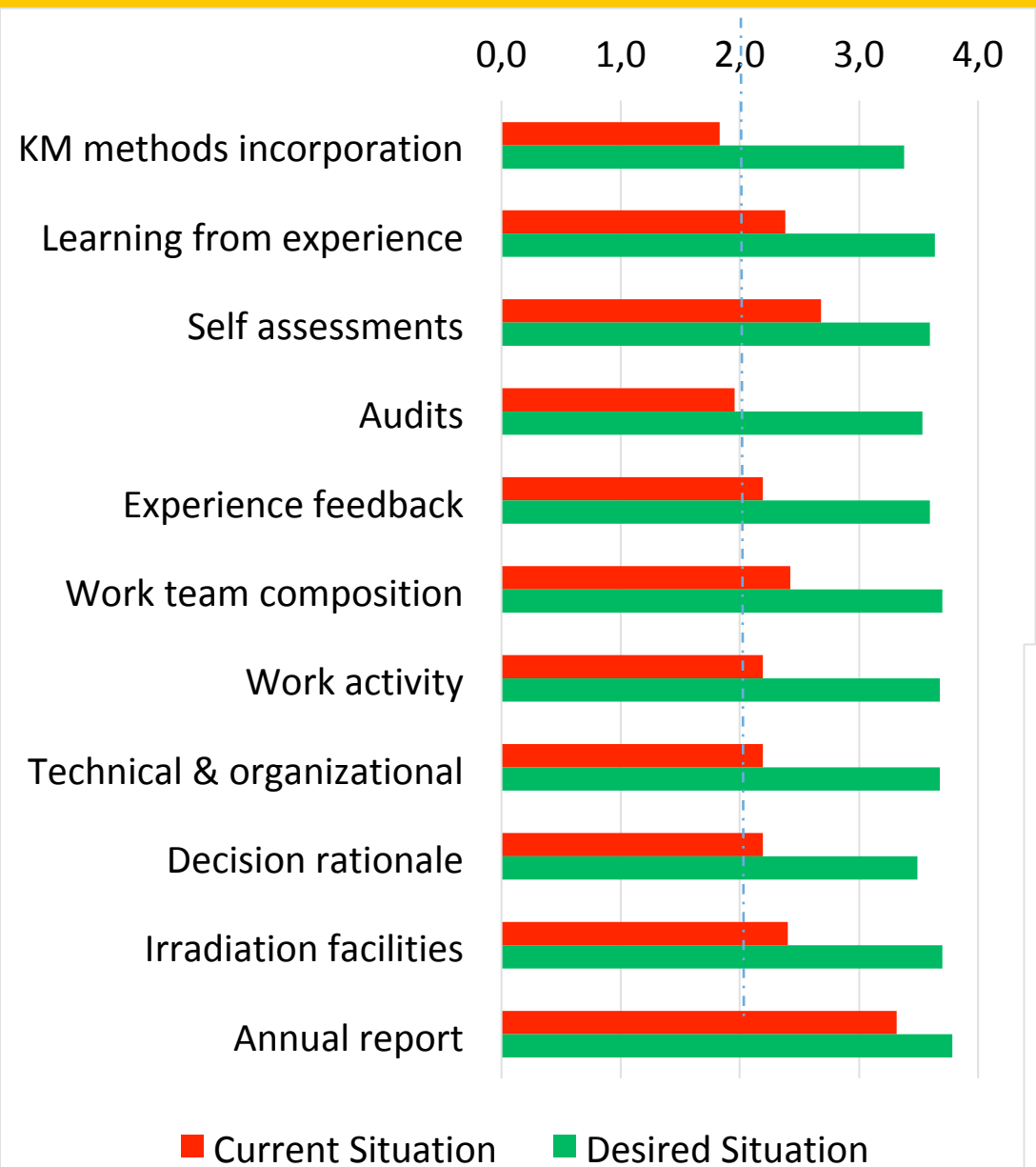
No.	Key words	
4,01	KM methods incorporation	54,09%
4,02	Learning from experience	65,50%
4,03	Self assessments	74,56%
4,04	Audits	55,42%
4,05	Experience feedback	60,95%
4,07	Work team composition	65,52%
4,08	Work activity documentation	59,54%
4,09	Technical & organizational changes	59,54%
4,10	Decision rationale	62,80%
4,12	Irradiation facilities	64,94%
4,13	Annual report	87,64%
		64,59%

Bar chart categories (Current Situation / Desired Situation):
- KM methods incorporation
- Learning from experience
- Self assessments
- Audits
- Experience feedback
- Work team composition
- Work activity
- Technical & organizational
- Decision rationale
- Irradiation facilities
- Annual report

Legend: 🟥 Current Situation 🟩 Desired Situation

Radar chart axes:
- Use of SAT
- SAT addresses KM
- Tools to capture /
- Competences
- Refresher training
- HR improvement
- Coaching &
- Job rotation
- Performance
- Event
- Metrics
- Research Reactor
- KM transitioning

4. Methods, Procedures & Documentation Processes for Improving KM

- 4.01 - Procedures for KM – Are there any?
- 4.04 - Are KM system health checks incorporated?
- 4.05 - A Learning Organization reviews all relevant past information before embarking on new work. Spread of responses suggests need to reinforce that good practice. This will assist in preventing recurrence of errors and also promote the good habit of documenting any Lessons Learned.

5. Technical Solution
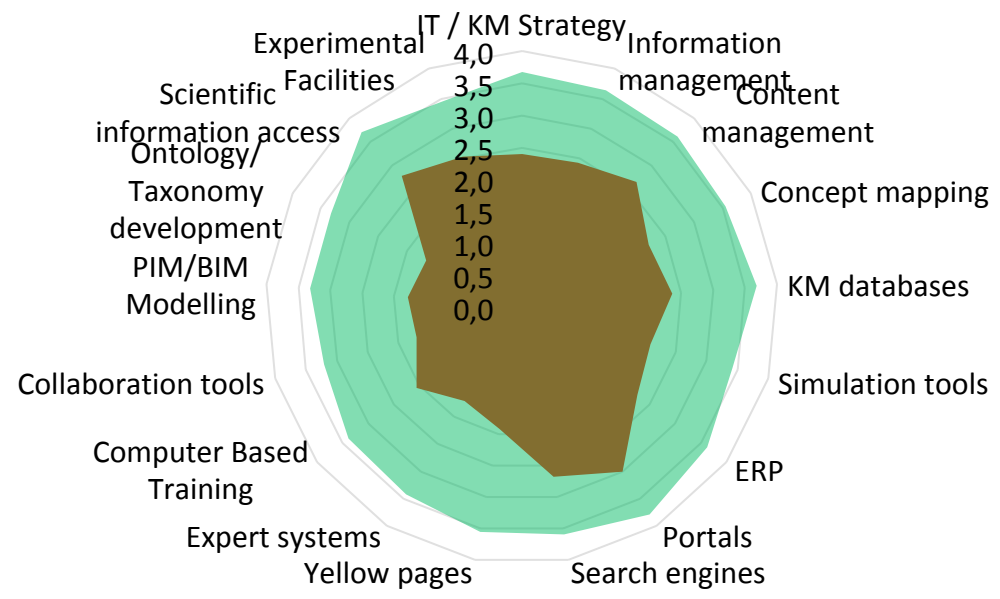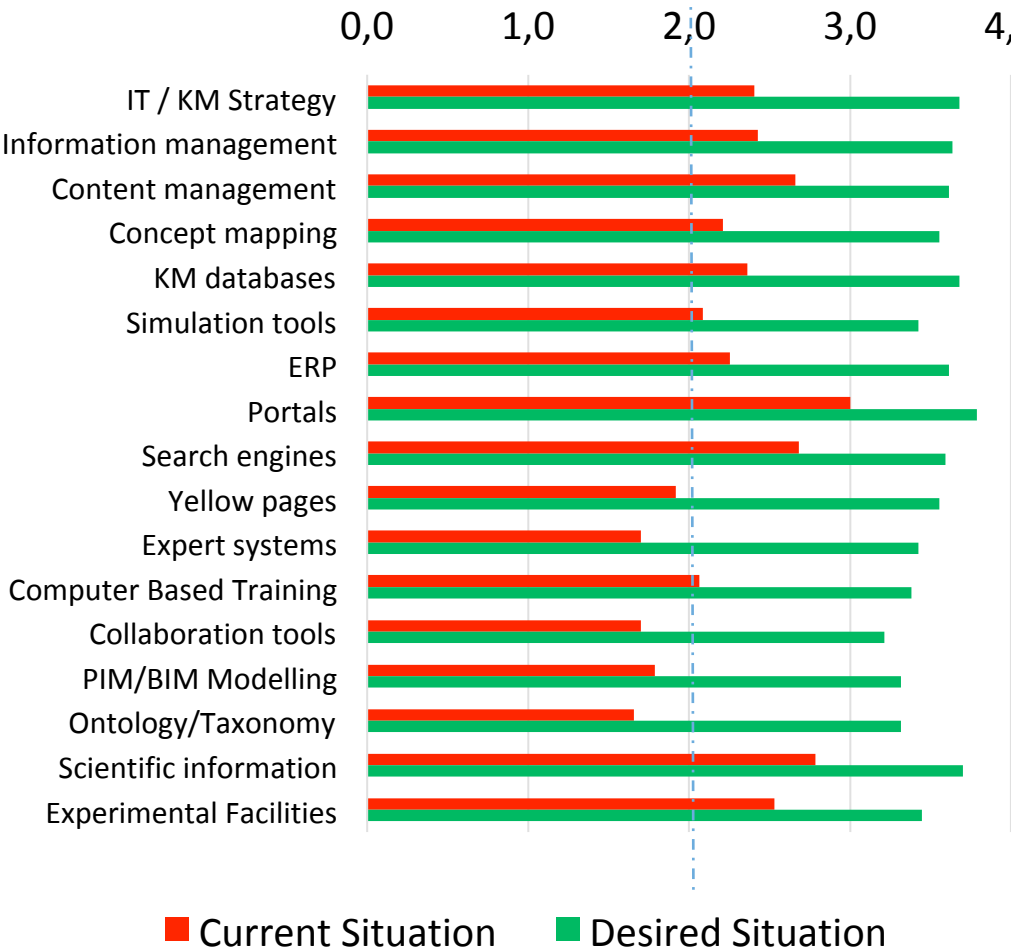
Key words	
IT / KM Strategy	65,32%
Information management	66,67%
Content management	73,53%
Concept mapping	62,28%
KM databases	64,16%
Simulation tools	60,87%
ERP	62,35%
Portals	79,21%
Search engines	74,56%
Yellow pages	53,89%
Expert systems	49,69%
Computer Based Training	61,01%
Collaboration tools	52,98%
PIM/BIM Modelling	53,85%
Ontology/ Taxonomy development	50,00%
Scientific information access	75,29%
Experimental Facilities	73,46%
	63,48%

Current Situation   Desired Situation

5. Technical Solution

- 5.03 to 5.15 - It would be good to see examples of the tools used to support KM

6. Knowledge Capture

No.	Key words	
6,01	Critical knowledge identification	59,64%
6,02	Elicitation interviews	46,20%
6,03	Video capture	52,53%
6,04	OJT	60,63%
6,05	Mentoring / Coaching	73,62%
6,06	Communities of Practice	57,69%
6,07	Explicit capture	60,37%
6,08	Concept sorting	53,46%
6,09	Knowledge mapping	58,68%
6,10	Process mapping	56,17%
6,11	Story telling	51,97%
6,12	Knowledge search and retrieval	55,76%
6,13	Utilization of captured knowledge	57,06%
6,14	Recovery of lost knowledge	54,25%
		57,00%

KNOWLEDGE CAPTURE

Current Situation / Desired Situation
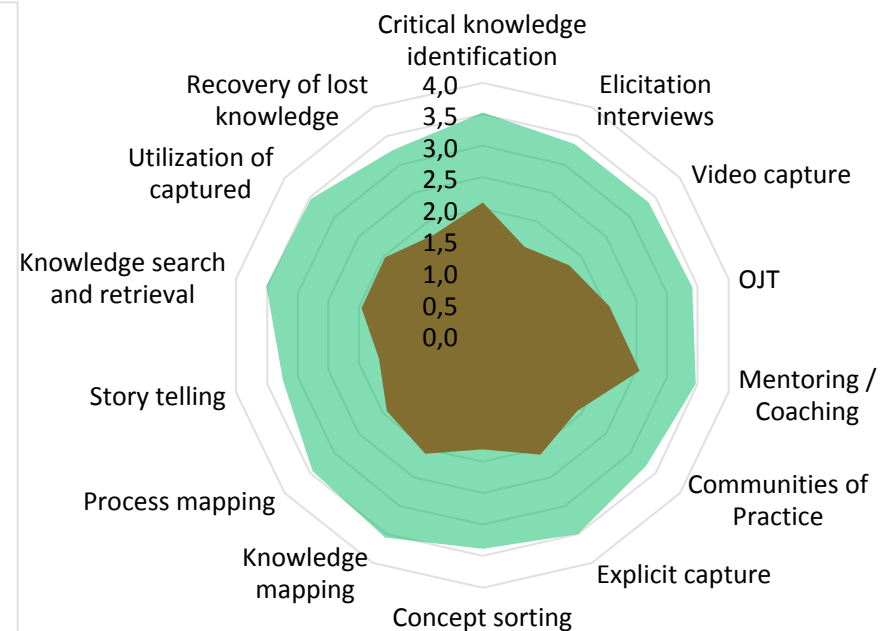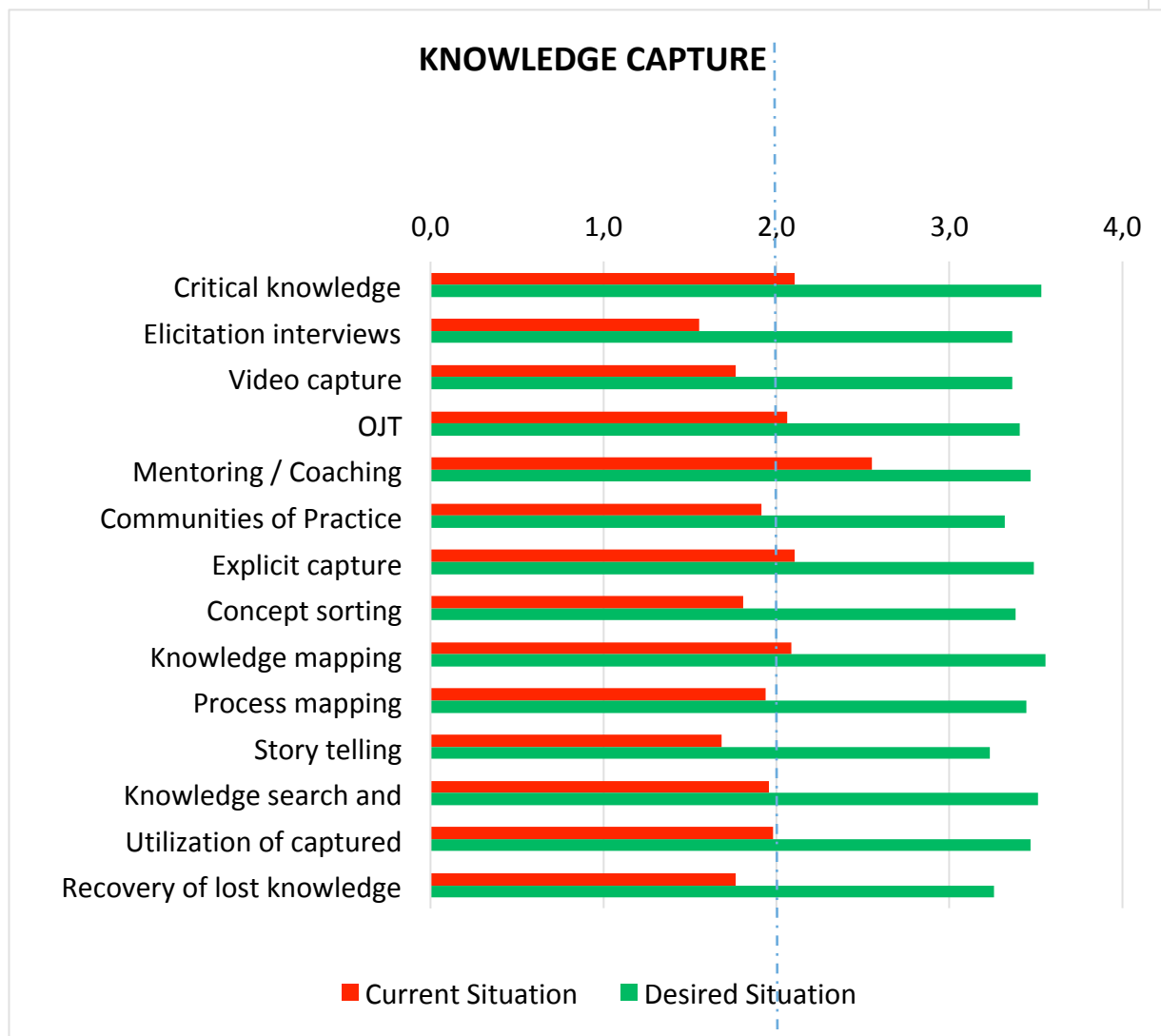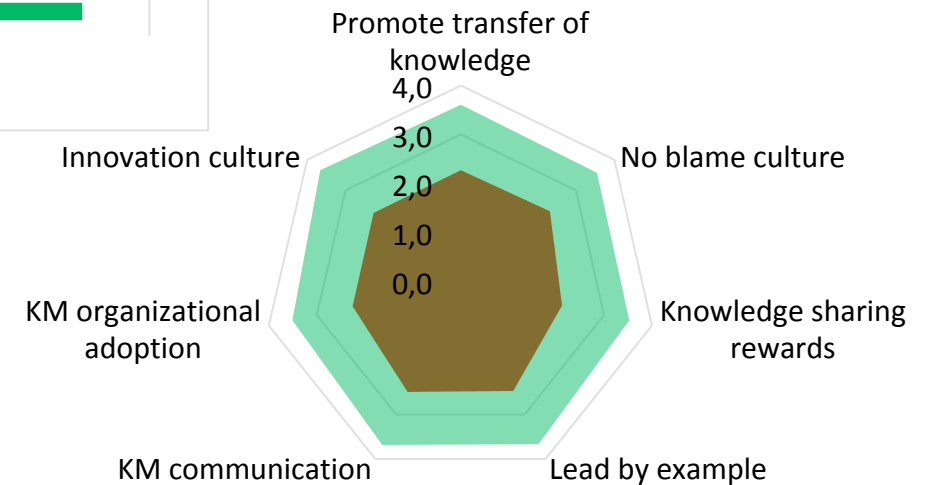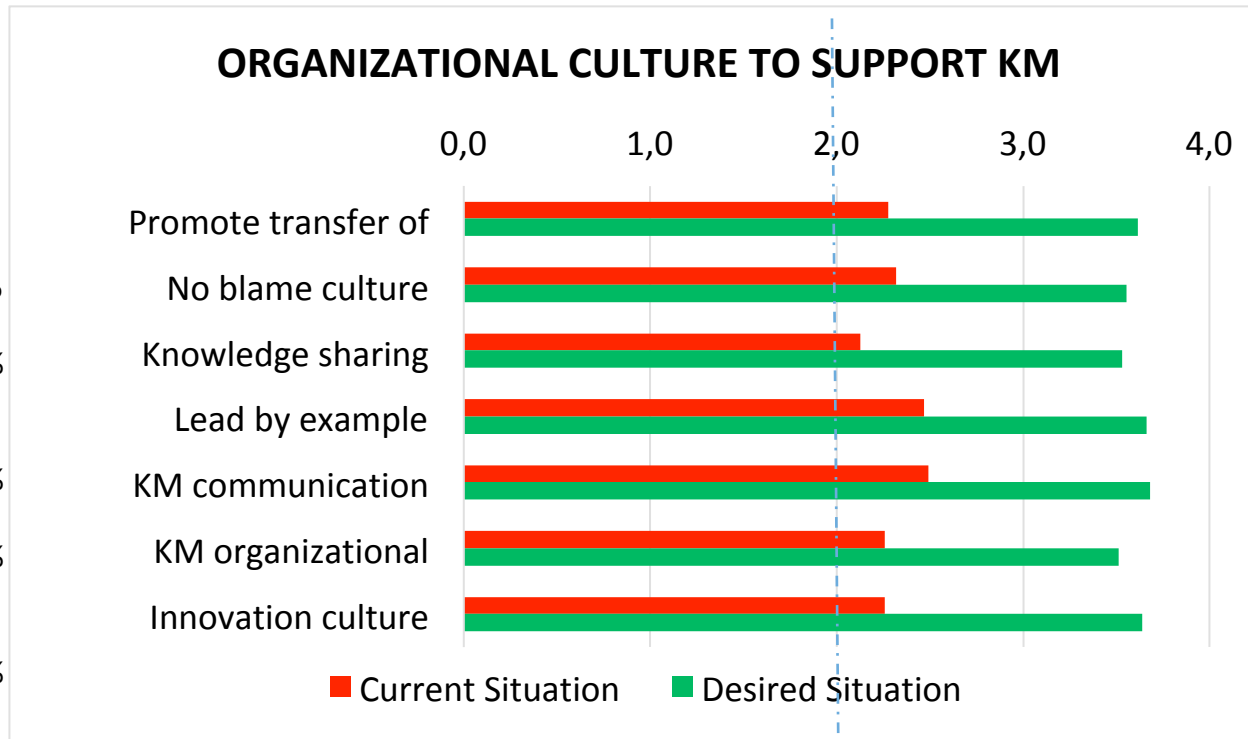
6. Knowledge Capture

- Story-telling, coaching/mentoring, OJT and CoP are mentioned in the presentations, but the other methods may not be used.
- 6.01 - Critical Knowledge Identification is a key starting point for all approaches used for knowledge capture.

7. Organizational Culture to Support KM

No.	Key words
7,01	Promote transfer of knowledge
7,02	No blame culture
7,03	Knowledge sharing rewards
7,04	Lead by example
7,05	KM communication
7,06	KM organizational adoption
7,07	Innovation culture

62,94%

65,27%

60,24%

67,44%

67,63%

64,24%

61,99%

64,25%

ORGANIZATIONAL CULTURE TO SUPPORT KM

Bar chart legend: ■ Current Situation ■ Desired Situation

Categories: Promote transfer of, No blame culture, Knowledge sharing, Lead by example, KM communication, KM organizational, Innovation culture

Radar chart with axes: Promote transfer of knowledge, No blame culture, Knowledge sharing rewards, Lead by example, KM communication, KM organizational adoption, Innovation culture
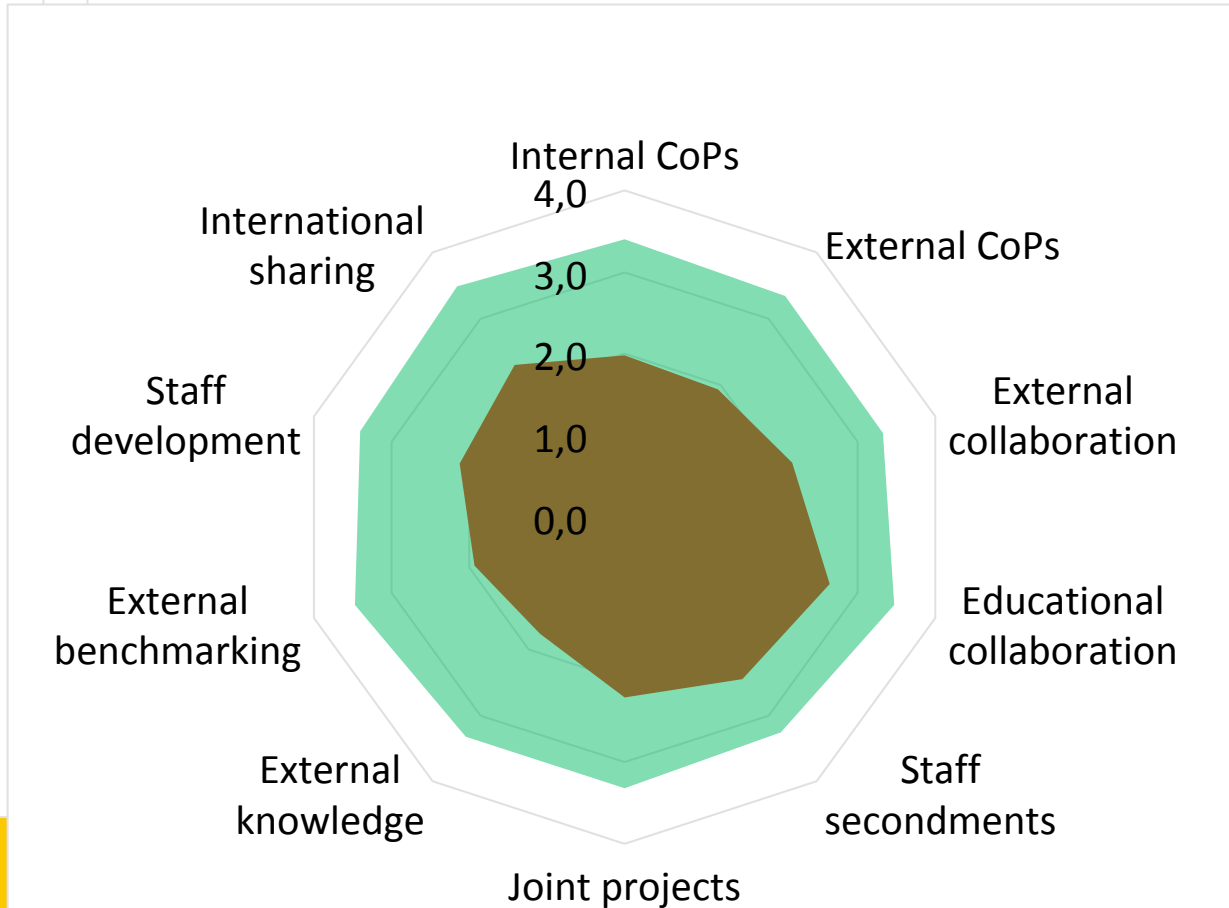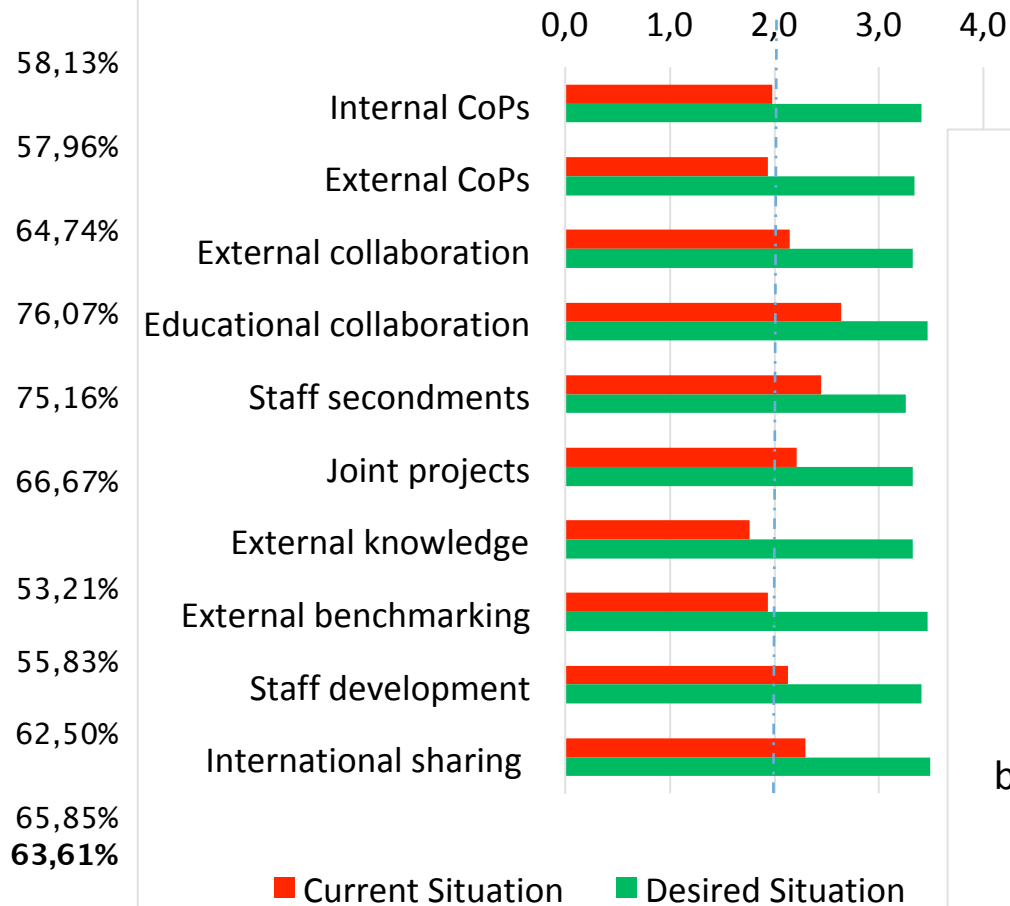
7. Organizational Culture to Support KM

- Is there an employee engagement scheme to support business improvement & innovation?
- Is there an innovation process?
- 7.05 - It is important to communicate effectively to create a greater understanding of the strategic importance to the company of KM over the coming years. The KM Team at BATAN needs to establish a sense of urgency and determination amongst all staff members.

8. Internal/External Collaboration for KM

No.	Key words		
8,01	Internal CoPs		
8,02	External CoPs	58,13%	
8,03	External collaboration	57,96%	
8,04	Educational collaboration	64,74%	
8,05	Staff secondments	76,07%	
8,06	Joint projects	75,16%	
8,07	External knowledge transfer	66,67%	
8,08	External benchmarking	53,21%	
8,09	Staff development	55,83%	
8,10	International sharing	62,50%	
		65,85%	
		63,61%	

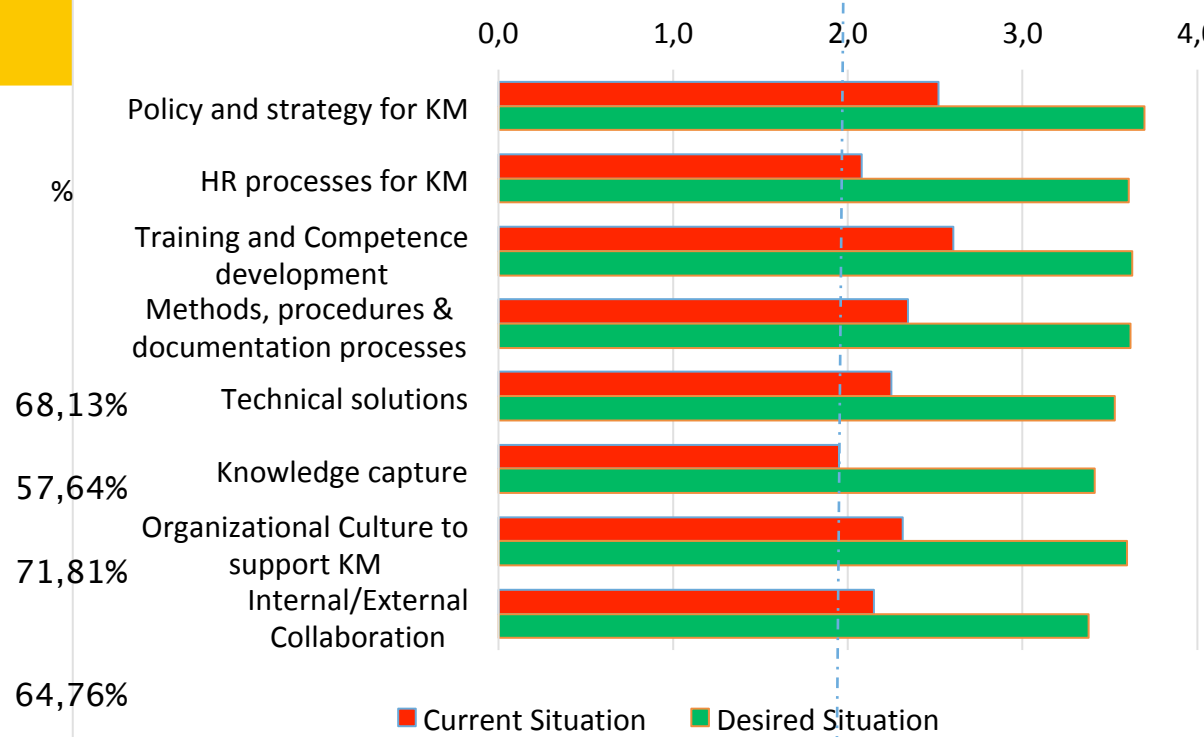■ Current Situation   ■ Desired Situation

- 8.02 - Good practice to get external parties involved in some CoPs.
- 8.07 - Suggests more effort needed to identify key information that must be transferred from external suppliers and written into the contracts with those external entities. There is risk in loss of critical knowledge that is embedded in the suppliers' organizations if this is not done.
- 8.08 - External benchmarking? What is being done?

Summary

No.	Short description of the criteria	Extent currently utilised	Extent desired	%
		Average	Average	
1	Policy and strategy for KM	2,5	3,7	68,13%
2	HR processes for KM	2,1	3,6	57,64%
3	Training and Competence development	2,6	3,6	71,81%
4	Methods, procedures & documentation processes	2,3	3,6	64,76%
5	Technical solutions	2,2	3,5	63,77%
6	Knowledge capture	1,9	3,4	57,08%
7	Organizational Culture to support KM	2,3	3,6	64,27%
8	Internal/External Collaboration	2,1	3,4	63,60%
		2,28	3,56	63,88%