

Assessing Knowledge Management Maturity within NASA's Johnson Space Center



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Background



- **Goals:**

- Provide a clear picture of the strengths, weaknesses and risks of the current state
- Identify highest value targets for “corrective” action and refinement of KM strategies

- **Focus Areas of Investigation:**

- Organizational learning processes and practices
- Community of practice and cross-organizational sharing
- Knowledge stewardship and utilization
- Strategic alignment with business and performance objectives
- Roles, accountabilities and resources
- Behavioral incentives/rewards and disincentives/barriers
- Technology enablers and usage to support knowledge stewardship and collaboration

Assessment Methodology

- **Condition “As Is”**

- **Qualitative Data Collection**

- Focus Groups – data call
- General Interviews
- Case Studies

- **Quantitative Data Collection**

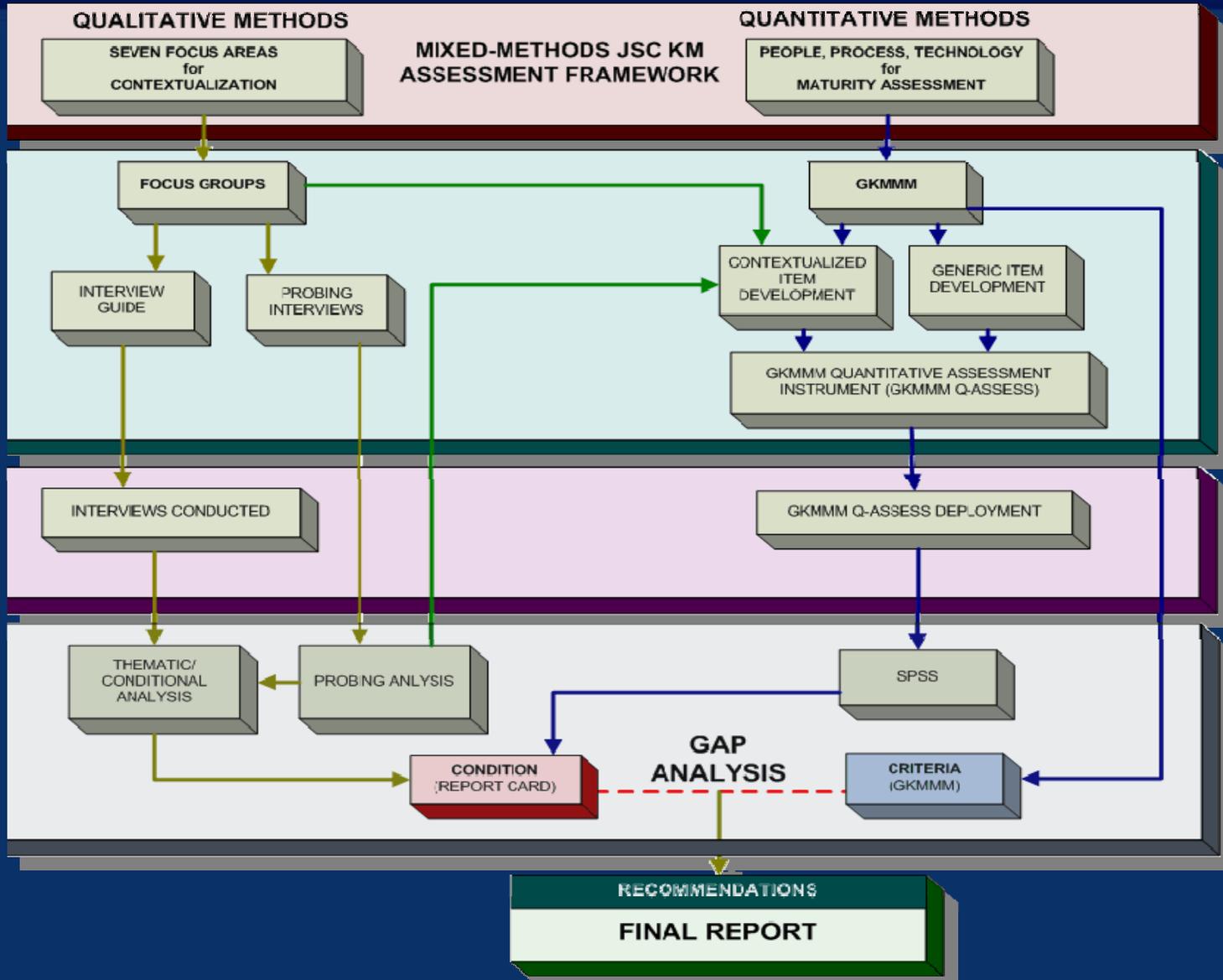
- Q-Assess Center-Wide Survey

- **Criterion “To Be”**

- General Knowledge Management Maturity Model (GKMMM) – a rubric of industry best practices – measures an organization’s maturity across three Key Performance Areas (KPA): People, Process, & Technology on 5 maturity levels.
- Quantitative scoring to gain JSC overall KPA score and people, process & technology-related scores



Mixed Methods



GKMMM Maturity Levels

- **Level 1 Initial** – There is little or no intention to make use of organizational knowledge
- **Level 2 Aware** – The organization is aware of and has the intention to manage its organizational knowledge, but it might not know how to do so.
- **Level 3 Defined** – The organization has put in place a basic infrastructure to support KM.
- **Level 4 Managed/Established** - KM initiatives are well established in the organization.
- **Level 5 Optimizing/Sharing** – KM is deeply integrated into the organization and is continually improved upon. It is an automatic component in any organizational processes.

GKMMM Maturity Levels

Maturity Level		General Description	Key Performance Areas			
			People / Organization	Process	Technology	
1	Initial	↔	Little or no intention to make use of organizational knowledge	Organization and its people are not aware of the need to manage its knowledge resources	No formal processes to capture, share and reuse organizational knowledge	No specific KM technology or infrastructure in place
2	Aware	↔	Organization is aware of and has the intention to manage its organizational knowledge, but it might not know how to do so	Management aware of the need for KM	Knowledge indispensable for performing routine task is documented	Pilot KM projects are initiated (not necessarily by management)
3	Defined	↔	Organization has put in place a basic infrastructure to support KM	- Management is aware of its role in encouraging KM - Basic training on KM are provided (e.g. awareness courses)	- Processes for content and information management is formalized - Metrics might be used to measure the increase in productivity due to KM	- Basic KM Infrastructure in place (e.g. single point of access)
4	Managed / Established	↔	KM initiatives are well established in the organization	-Common strategy and standardized approaches towards KM - KM is incorporated into the overall organizational strategy	Quantitative measurement of KM processes (i.e. use of metrics)	- Enterprise-wide KM systems are fully in place - Usage of KM systems is at a reasonable level
5	Optimizing Sharing	↔	KM is deeply integrated into the organization and is continually improved upon It is an automatic component in any organizational processes	Culture of sharing is institutionalized	- KM processes are constantly reviewed and improved on - Existing KM processes can easily be adapted to meet new business requirements	Existing KM infrastructure is continually improved upon

Results

- Overall Level 2 for KM Maturity for JSC
- Derived from KPA Scores on People, Process, & Technology



Level 1	Level 2	Level 3	Level 4	Level 5
N/A	67%	49%	38%	66%*
Initial	Aware	Defined	Managed Established	Optimizing Sharing
There is little or no intention to make use of organizational knowledge	The organization is aware of and has the intention to manage its organizational knowledge, but it might not know how to do so.	The organization has put in place a basic infrastructure to support KM.	KM initiatives are well established in the organization	KM is deeply integrated into the organization and is continually improved upon It is an automatic component in any organizational processes

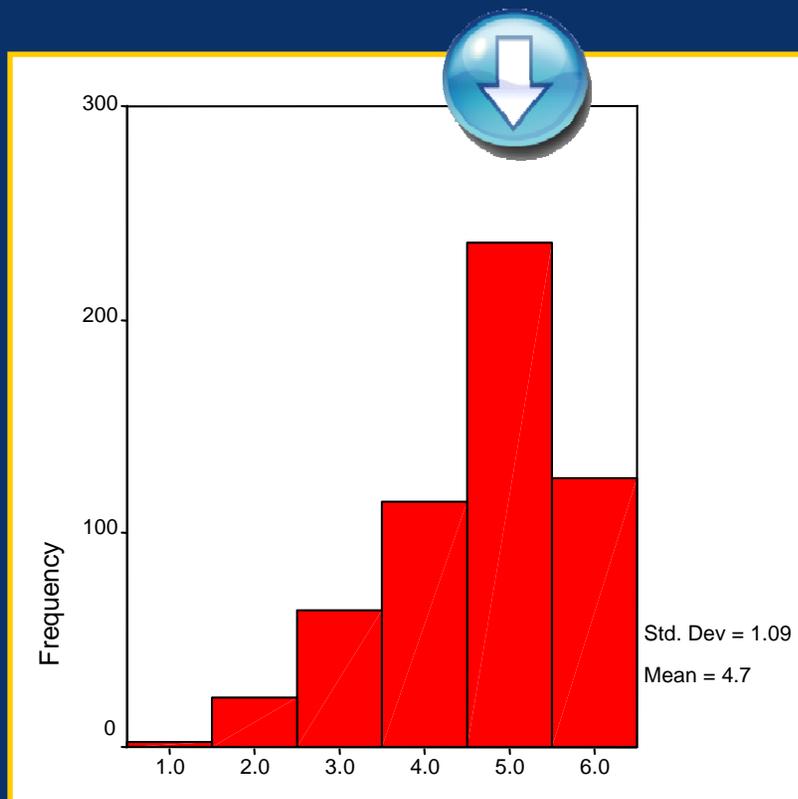
JSC's Strengths in Knowledge Management

- **People – includes culture, strategies, and policies**
 - Social Networks
 - Informal Mentoring
- **Process – includes KM processes & formal and informal learning processes**
 - Official Processes & Procedures
 - Informal Lessons Learned
 - Formal Training
- **Technology – includes KM technology & infrastructure**
 - (Limited Strengths)
 - File shares for storing knowledge and information
 - Existence of large data warehouses and systems
 - Google search capabilities



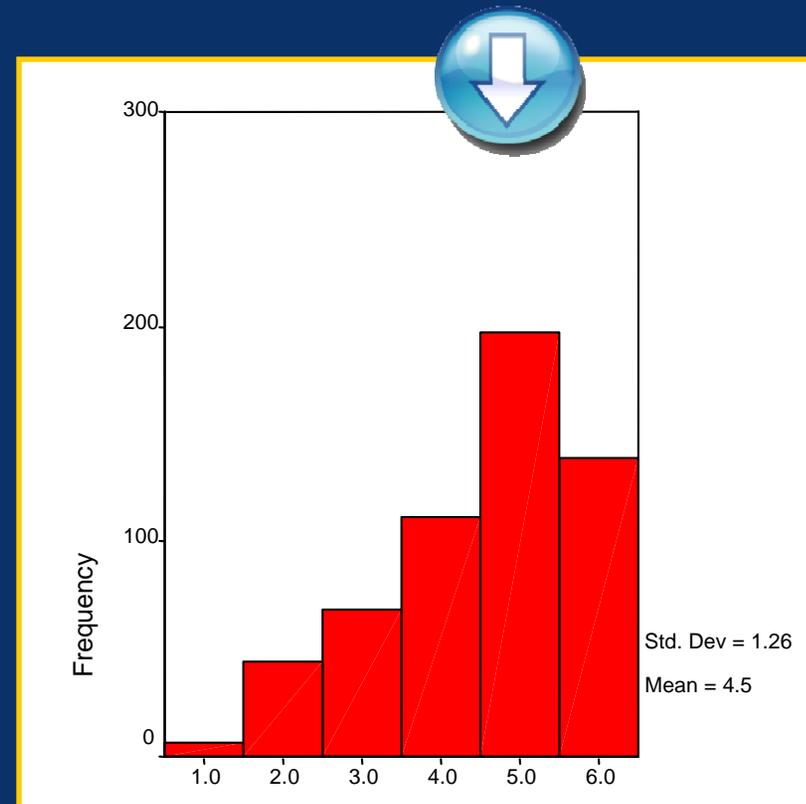
Examples: Strengths

Strength: Social Networks



Employees are ready and willing to give advice or help on request from anyone else within JSC.

Strength: Lessons Learned



Lessons Learned have a positive impact on my division / directorate and support its mission.

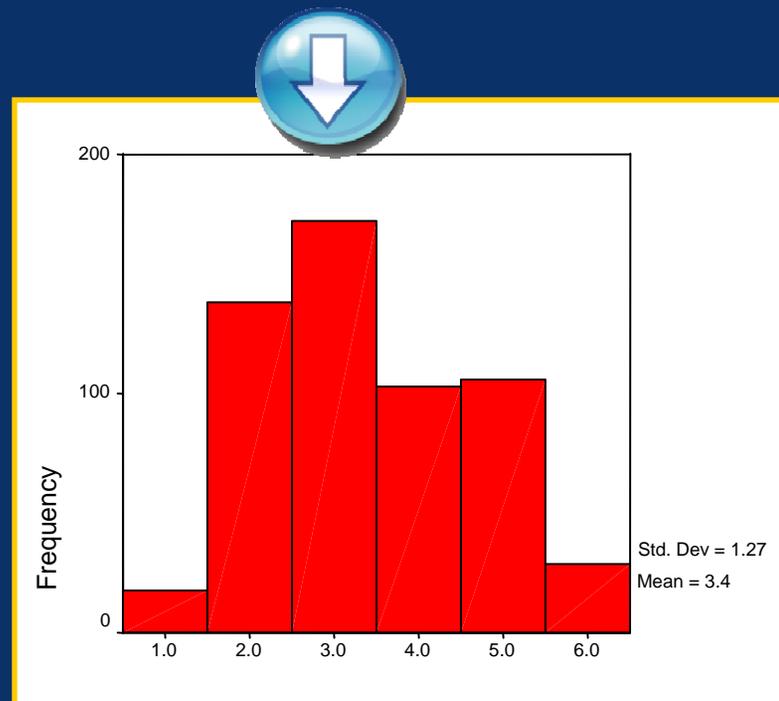
JSC's Gaps in Knowledge Management

- **People – includes culture, strategies, and policies**
 - Lack of incentives for participating for KM activities
 - Barriers to knowledge sharing
- **Process – includes formal and informal learning processes**
 - Informal on the job training
 - Lack of metrics and measurements around KM activities
- **Technology – includes KM technology & infrastructure**
 - No centralized data Infrastructure
 - Security restricting knowledge sharing



Example: Gap

The number one barrier for knowledge sharing was stated as the lack of data structure, policy, procedure, and organization of knowledge.



I am aware of infrastructure or technology (e.g. portals) that supports Knowledge Management activities such as collaboration, sharing, or search and discovery.

Conclusion

- it was possible to successfully assess an organization the size of the JSC by developing a quantitative assessment using the G-KMMM and tailoring it
- When assessing for maturity, characteristics of success were evident by the identification of a number of key issues involving knowledge management activities
- Employees are very willing to share knowledge and collaborate on problem solving, and lessons learned, however, they occur within social networks and on an informal basis
- JSC's challenge lies in formalizing KM activities through incentive structures, embedding KM practices in processes, and establishing common knowledge and technology architectures that ensure preservation for future space exploration programs.

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