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Knowledge retention framework and maturity model: improving an organization or team's capability to retain unique, critical knowledge

Rocio Sanz and John Hovell

Knowledge retention (KR) can be considered a broad practice within the larger field of knowledge management (KM). KM has many frameworks and maturity models to support itself, and by correlation, knowledge retention has an opportunity to create frameworks and maturity models. Following a peer-reviewed process, Rocio and John offer their thoughts and experiences drawn from their efforts to create a knowledge retention framework and a knowledge retention maturity model. The framework aims to create a shared definition for knowledge retention, and the maturity model aims to create an approach for assessing a team or organization's knowledge retention maturity. The maturity model outlines steps to increase the maturity of knowledge retention, based on data and evidence to support action. Overall, this paper presents a vision of an ecosystem in which knowledge retention is institutionalized practice, embedded in everyone's tasks and part of the way we work.

Keywords: knowledge retention; maturity; framework; knowledge transfer; talent management; succession planning; knowledge lost; knowledge drain; exit interview; handover report; job shadowing; retirements; job movement

Introduction

The focus of this paper is to offer a comprehensive approach and peer-reviewed research to knowledge retention. Further it is for supporting teams' and organizations' understanding of knowledge retention as a discipline within the broader domain of knowledge management (KM). For comparison, knowledge retention leverages the umbrella of KM for the specific purpose of ensuring unique and critical knowledge/capability is not lost during retirements, or any other type of job movement. The potential of knowledge retention goes beyond job shadowing, handover reports or exit interviews. Rather it is a broader approach that contributes to culture, process improvement, tools, technology, learning and innovating across teams and within

organizations. Our research places knowledge retention at the center of everyday activities, and therefore it can be initiated during onboarding, as opposed to waiting until the time of job transition. Knowledge retention ensures that teams understand the past, and have the capability to improve upon successes and failures. It aims to create an environment where everyone can contribute to creating, finding and implementing solutions in a more effective and efficient future.

We recognize that the world is changing, especially the work environment and organizational culture. The Covid-19 pandemic has shaken many assumptions that were already wobbling. Even before the arrival of Covid-19, many studies had already highlighted how global forces such as demography, technology, increasing changes and choices, and individual sophistication were reshaping the world of work (Manpower Group, 2017). As far back as 2003, some organizations were already experimenting with new processes as they began to consider the mass departure of long-term baby-boomers, alongside the millennials' arrival with no apparent intention to remain employed by one company for their entire career. Companies that couldn't find the talent they needed in one country were already using remote working to employ people elsewhere. And around the world, employers were experimenting with new policies to improve their appeal to underrepresented groups including women, young people, minorities, people with disabilities, migrants, etc. The long-term, permanent staff force was being transformed into an agile and/or outsourcing model. Alongside these changes, the desire for rapid innovation had become the new utopia.

The primary emphasis inside organizations during 2020 was not 'brain drain.' Yet, it has been a major factor as people, roles, customers and stakeholders have dramatically shifted during the pandemic. It is yet another example of unique and critical knowledge being lost during change. The bulk of the research for this article was conducted during 2020. It includes the experiences, work, study, practice, and application of over 20 years of effort through both authors and the peers who offered their review and feedback. We are indeed grateful to everyone who has contributed to elaborate a framework and maturity model for knowledge retention.

From our side, the authors met at Henley Business School in the UK in February 2020, mere weeks before the Covid-19 pandemic began. We connected through our shared excitement, research and decades of experience in knowledge retention. Following the conference, we continued to meet via video conferencing. During one of our discussions, we found ourselves fascinated by our understanding that there were many KM frameworks and maturity models, but we were unaware of any specific knowledge retention frameworks or maturity models. We thought: 'Let's create one, involve many knowledge management practitioners and see where it goes!'

Overview of knowledge retention

Knowledge management versus knowledge retention

By establishing a distinction between KM and knowledge retention, we do not intend to separate the two concepts, rather we desire to highlight how one can contribute to the other. Knowledge retention is indeed an area of KM. We should acknowledge that many organizations may not have included KM strategy, concepts and implications in their priorities and goals. Yet, they may be aware of and concerned with knowledge retention challenges. There does seem to be a relatively wide understanding of the organizational challenges related to retaining, transferring, using and re-using knowledge and capabilities. There appears to be a felt and visible sense that errors and frustration will increase as we see the departure of long-term colleagues, new rotation policies, profile changes and increased outsourcing.

Building upon KM considerations, knowledge retention can be implemented with or without an existing KM approach in place. Suppose that KM aims to respond to the organization's goals by optimizing the flow of knowledge with consideration to people, processes and technology. Likewise, a knowledge retention approach should consider an organization or team's capability to retain unique and critical knowledge (whether tacit, implicit or explicit), with consideration to people, processes and technology. Many approaches typically considered as KM can also have knowledge retention benefits. For example, a community of practice could be considered ideal for elicitation, retention and transfer of critical knowledge – particularly tacit knowledge – while it is also a recognized and critical KM approach that builds trust and strengthens collaboration.

To help bring distinction to knowledge retention, we could say that certain KM practices are more specifically designed to retain and/or transfer unique and critical knowledge. In contrast, other KM practices are more intended to create, organize, share or otherwise apply knowledge. For example, the flow of knowledge can be optimized through organizational structures, knowledge cafes, organizational network analysis, and/or specific technologies. Knowledge retention could also be part of the KM approach to optimize the flow of knowledge. In other words, some KM practices are knowledge retention-focused and other KM practices are focused on other aspects of KM.

In conclusion, KM is the broader practice, but knowledge retention is a broad field in its own right. KM has many different definitions depending upon the organizational need, whereas knowledge retention almost always focuses on the retention of unique and critical knowledge. There are techniques within the area of knowledge retention that could be considered 'pure KM techniques', and there are techniques within knowledge retention that are specific to ensuring

unique and critical knowledge is embedded within organizational learning and memory. They are related and complementary fields.

Knowledge retention definition

Many examples from organizations have shown how losing critical knowledge has contributed to negative performance. One example shared by scholar DeLong (2004), comes from the National Aeronautics and Space Administration (NASA). NASA lost the knowledge and capacity to replicate the model, navigation and learnings of how the first man was sent to the moon. Due to a decade of cost-cutting and downsizing during the 1990s, this unique and critical knowledge was lost. Engineers were encouraged to take early retirement and many years of experience were lost. This is not only about the loss of documentation, but also the loss of individual and collective experience (e.g. tacit knowledge that can't be documented). If NASA were to try to get to the moon and back again, they would have to re-create and re-learn most of the experience.

Thirty years have passed and still similar challenges remain in many organizations and teams. However, if we were to define knowledge retention today, we would not be limited to the impact of knowledge drain caused by retirements or job movements. We know now that it also reduces the capacity to innovate and co-create; it challenges an organization/team's ability to pursue growth strategies, strengthen networks, relationships and partnerships; it increases vulnerability due to the loss of memory; and it hampers a culture of collaboration and even the development of expertise. Knowledge retention is defined as **an organization/team's capability to retain unique and critical knowledge, whether tacit, explicit or implicit** (see Figure 1). It helps to improve the organization/team's learning, memory and performance, while avoiding knowledge drain and low employee engagement.

Figure 1: Knowledge retention definition

Knowledge retention process

The process of retaining critical knowledge requires the identification, translation and shaping of the knowledge that needs to live on, so that it can be further utilized when it is required (DeLong, 2004). Its actual use requires ensuring its transfer; in other words, the knowledge must be acknowledged and reproduced to be retained. The knowledge that needs to live on, or that we could consider 'critical' for a particular audience, could be of no use for another. The intended final audience (local, regional, global) can help determine the level of engagement required for the process and its intended immediate impact. Addressing knowledge retention as a holistic approach requires a flexible and initial practical effort, being 'opportunistic' by responding to the intended audience's needs, and calculating the level of engagement, resources and time available. Establishing a 'customer focus' implies understanding who your intended audience is, their needs, and what knowledge they have to share, which may contribute to initiating the cycle.

The process of retention can happen before, during or after the knowledge has left, or the cycle has closed. However, a continuous effort to maintain the process of retention can contribute to generating a learning environment, strengthening a culture of collaboration and, with that, the capacity to co-create, to create new knowledge, to innovate. Understanding the reasons for carrying out a knowledge retention process may help with fine-tuning the process development and workflow. The scope will define whether the focus of the retention process is on the person, role or task. It will also help to determine whether the process addresses an individual, a team, departments, an organization, or even extends across organizations working in partnership (see Figure 2).

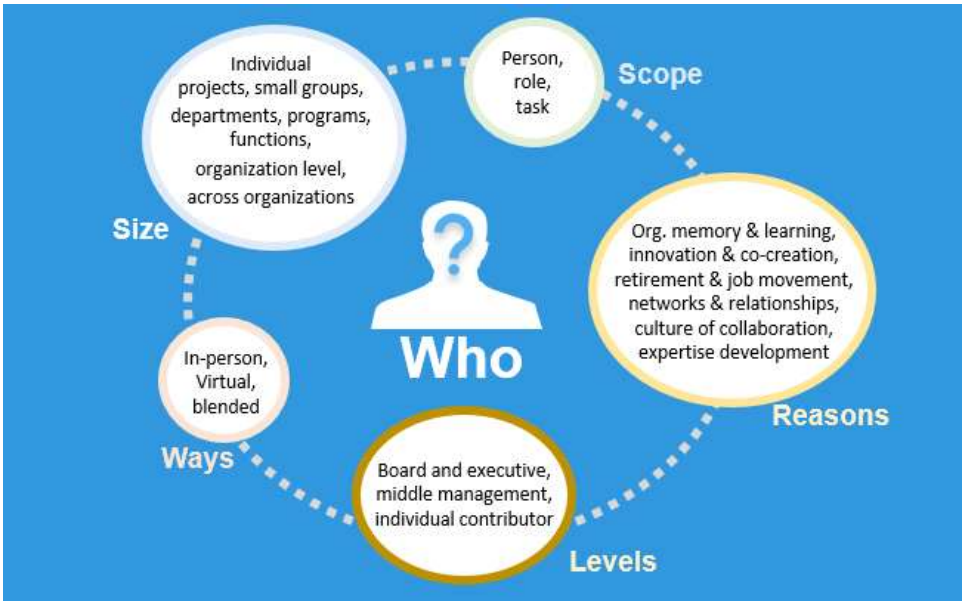

Figure 2: Defining knowledge retention audiences

The process of identification, retention and transfer of critical knowledge, and, mainly, the process of giving and receiving, is generally voluntary. Therefore, a systematic approach requires an environment of trust and a collaborative culture that recognizes contributions.
A retention/transfer system requires the engagement of relevant stakeholders, internal processes, and infrastructure and mechanisms for measuring achievements, learning from failures and improving (see Figure 3).

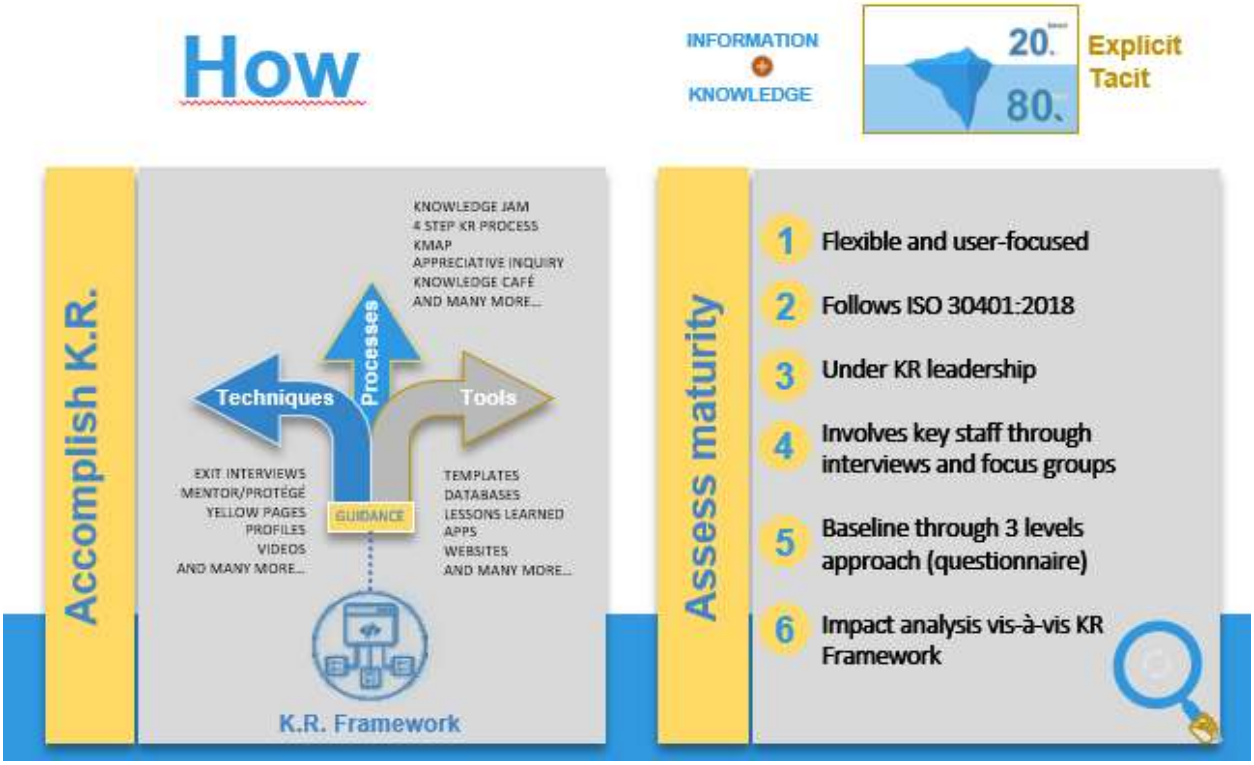

Figure 3: Knowledge retention approaches

The **knowledge retention framework** offers a single and consistent approach for understanding knowledge retention within any particular purpose. It provides an overall vision for knowledge retention, and creates a broader understanding of it beyond the specific techniques, processes or tools already available.

The **knowledge retention maturity model** can be used to assess an organization/team's current status, help to clarify the desirable future state and provide recommendations for how to achieve it. The maturity model will guide a team/organization through self-assessment of and reflection on future goals. It is not meant to be used to establish a system for comparison among organizations or teams, as their needs and objectives may vary (see Figure 4).

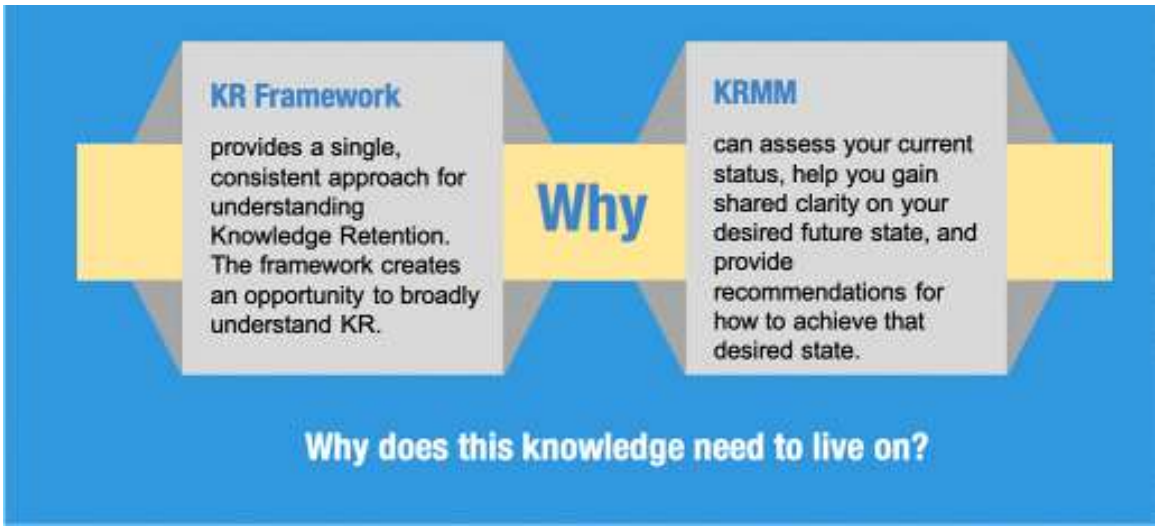

Figure 4: Purpose of the knowledge retention framework and maturity model

Challenges and resistance to establishing a knowledge retention program

The main challenges and resistance are organized into four areas (see Figure 5):

1. **Senior management engagement:** lack of commitment, buy-in or leadership can seriously hamper the development and sustainability of the retention program.
2. **Cultural issues** may be driven by: damaged interpersonal relationships; resistance to share and receive; lack of encouragement for learning; fear of losing one's job if knowledge is shared; the belief that knowledge retention won't change or improve business operations; knowledge retention not seen as central to performance; fear of being exposed; not being prepared, etc.
3. **Lack of follow-through and application:** belief that information repositories in themselves provide for knowledge transfer and learning; lack of attention to proper dissemination and application of lessons learned; limited recognition that low knowledge retention leads to knowledge drain, and decreased operational efficiency, effectiveness and performance.
4. **Other common barriers** are: lack of prioritisation and time management; lack of governance; concerns about litigation; lack of technological infrastructure or a central repository; lack of definition and acknowledgment for knowledge retention and transfer.

What is the knowledge retention framework?

The knowledge retention framework provides a consistent methodology for establishing and maintaining a knowledge retention ecosystem beyond ad-hoc activities. This transforms the knowledge retention process – it becomes a continuous source of knowledge and an accessible

learning resource. The framework enables a broader understanding of knowledge retention, its purpose and its impact (see Figure 6).

Figure 5: Challenges and resistance to knowledge retention

The framework is structured in three parts in order to provide a holistic and systems-thinking view of how the team/organization manages and improves itself using the knowledge that it already has. These three parts are: 1) An overview of the team/organization's current KM awareness and understanding, culture, and level of senior management engagement/buy-in; 2) A definition of the knowledge retention purpose, stakeholders, processes, and the infrastructure to support the system; and 3) Monitoring and measuring the impact on learning, transfer or capacity for replication. Examples of questions that can be used for each of the three areas are as follows:

1. Creating awareness and understanding

Understanding the current engagement with KM, the capacity to recognize and apply knowledge, and what is the current approach to knowledge retention. Potential questions include:

- Is there a KM strategy? What is the level of KM maturity?
- What is the current balance across people, processes and technology?
- What are the knowledge flows?
- Are there KM policies and governance?
- Has the collaborative aspect of culture been assessed?
- What is the level of senior management engagement?

2. Defining purpose and stakeholders

Map the involvement of critical stakeholders and flow of information/knowledge, current infrastructure and processes that may contribute to the knowledge retention ecosystem. Potential questions include:

- What is the overall purpose of knowledge retention? Who is the primary audience? What is the strategic time-frame for knowledge retention?
- Stakeholder analysis: who has the knowledge, who needs the knowledge, what are each of their needs, and what can they offer?
- Defining the scope: what type of knowledge? How long will the knowledge be valuable? Is the knowledge focused on a person, a role or a capability? What are the current processes that incentivize knowledge retention and transfer? How does infrastructure technology facilitate the processes and access?
- Which polarities do you need to manage, and how? Which processes can enable knowledge retention?

3. Improving, learning and measuring

Understand the relationship of knowledge retention with the organization's performance appraisal process, the relationship to knowledge-drain, how learning contributes to performance and how the current strategy, processes and systems impact on the organization's performance. Assess the impact of knowledge loss and gaps. Potential questions include:

- Are there feedback loops and examples of continuous improvement?
- What is the feedback from customers, intended audiences and stakeholders?
- What is the quality of each of the processes?
- How much are we learning and how quickly?
- What is important for us to measure?
- What tools do you use to measure and visualize and analyse the data?

What is the knowledge retention maturity model?

A maturity model shows how capable an organization or system is of achieving continuous improvement. Basically, maturity is being judged by how good your organization or system is at self-improvement. Based on this definition, our Knowledge Retention Maturity Model will look at five different levels of process optimization, assessed on the basis of the three areas represented in the framework. The maturity model serves as a self-assessment to provide insights into where to improve, based on needs, capacities and goals. It certainly is not meant to provide a comparison model with other groups or organizations, but is rather a self-guide for improvement. We also consider the fact that best results do not need to come from the best optimization

processes, but from those that have more coherence with the current structure, systems and capacities (see Figure 7).

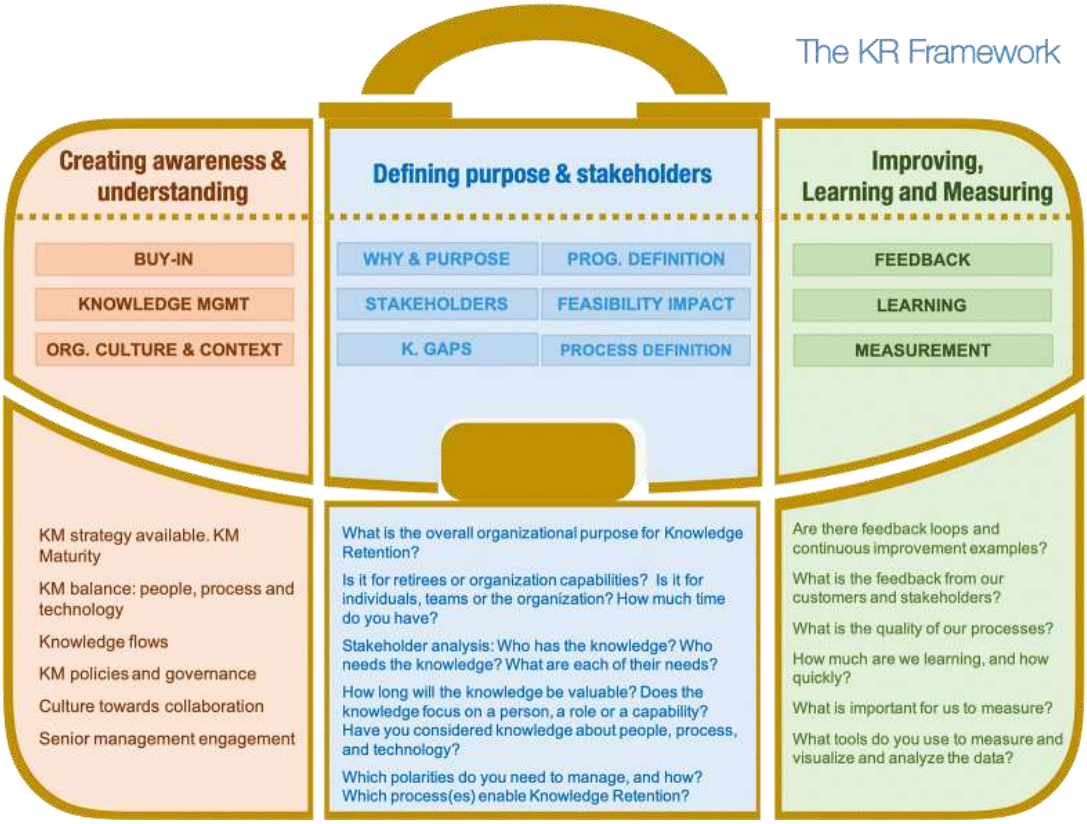

Figure 6: Knowledge retention framework

The purposes for assessing the three areas are:

- Awareness and understanding offers a shared clarity for the overall context.
- Stakeholder and processes: map the capacities, processes, and resources providing a judicious alignment of needs and resources.
- Measuring, learning, and improving ensures the development of a sustainable knowledge retention program with checks and balances.

At the same time, each of the three areas for assessment includes further analysis through three sub-categories, as follows:

1. **Awareness and understanding**: KM assessment, capacity assessment and current knowledge retention approach.

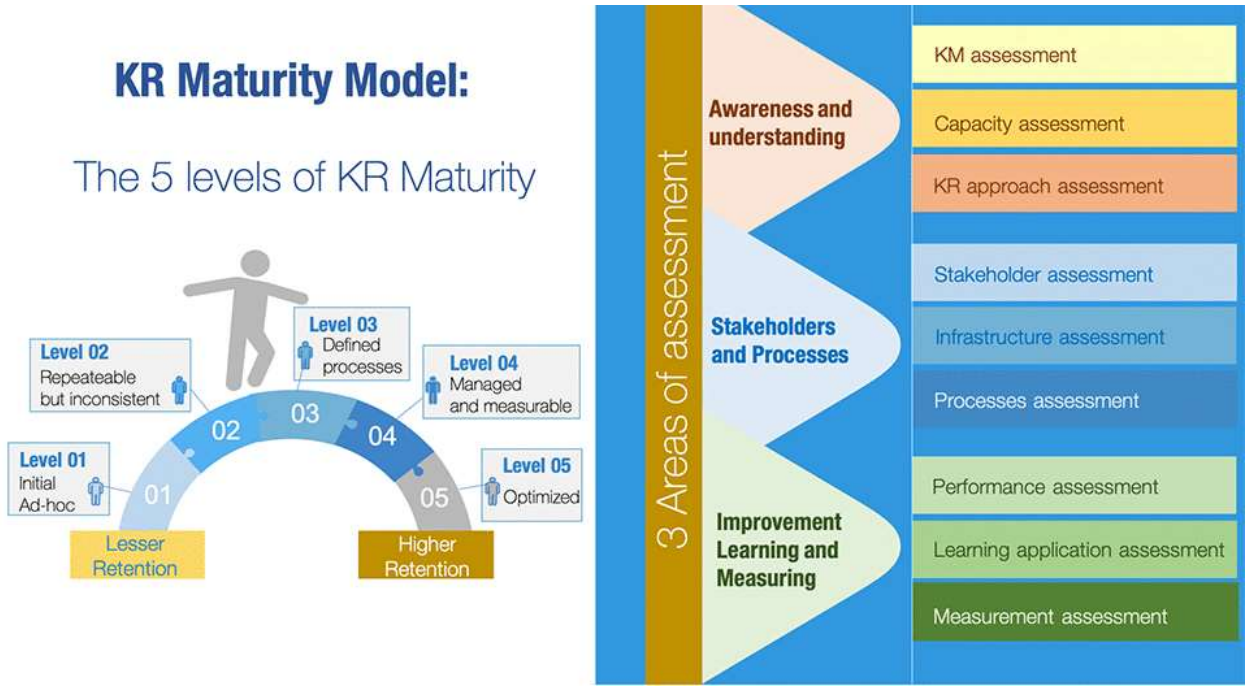

Figure 7: Knowledge retention maturity model

a. Understand the existing level of KM engagement and commitment, specifically looking at management engagement, culture, processes, and tools for the possibility of initiating/improving/aligning knowledge retention, building upon KM culture, processes and systems.
b. Understand capabilities to recognize and apply knowledge - from complete dependence on individual skills and abilities to expertise integration and knowledge leverage.
c. Understand the current approach to knowledge retention and aspirational approach: where 'they believe they are' and 'where they want to be.'

2. Stakeholders and processes: stakeholder, infrastructure and processes assessments.

a. Understand the involvement of critical stakeholders in enforcing knowledge retention and supporting learning and career development, motivation and incentives.
b. Understand how stakeholders contribute or not to the retention of critical knowledge; searchability, findability, usability and knowledge elicitation processes.
c. Understand how structure, processes and tools contribute to retention of tacit, implicit and explicit knowledge

3. Improving, learning and measuring: knowledge retention's relation to performance assessment, learning application and feedback, and measurements for improvement.

a. Understand whether knowledge retention is considered as part of performance appraisal, its relation to knowledge drain and how important it is to performance.
b. Understand how learning contributes to performance, the impact of learning and application beyond statistics.
c. Understand how the knowledge retention strategy, processes and systems impact on the organization's performance and the impact of knowledge loss.

The results of the assessment provide a visual tool that helps in understanding which areas require improvement. But more importantly, it also provides an honest reflection of where you think you are in response to a particular area, versus where you actually are and where you want to reach. This is important because by targeting one or two categories, the efforts by default will help improve all other areas (see Figure 8).

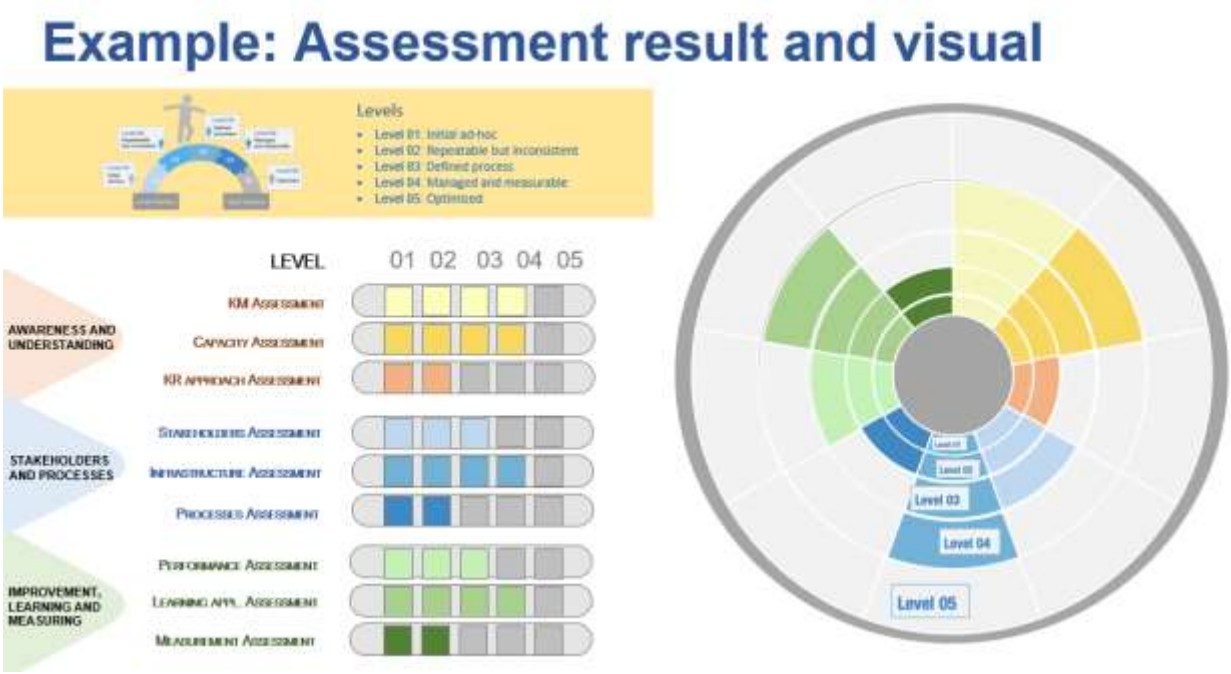

Figure 8: Knowledge retention assessment result

Following the knowledge retention framework, the maturity model offers a roadmap whereby the organization/team assesses itself with view to where it wants to reach. This is not about comparing with others, but rather understanding where the focus can be to reach the goals. In that sense, the comparison would come from the analysis of 'where you think you are', or what is the assumed level of maturity versus 'where you actually are', through evidence-based level of maturity. And from here assess, 'where you wish to reach' in terms of aspirational level of maturity (see Figure 8).

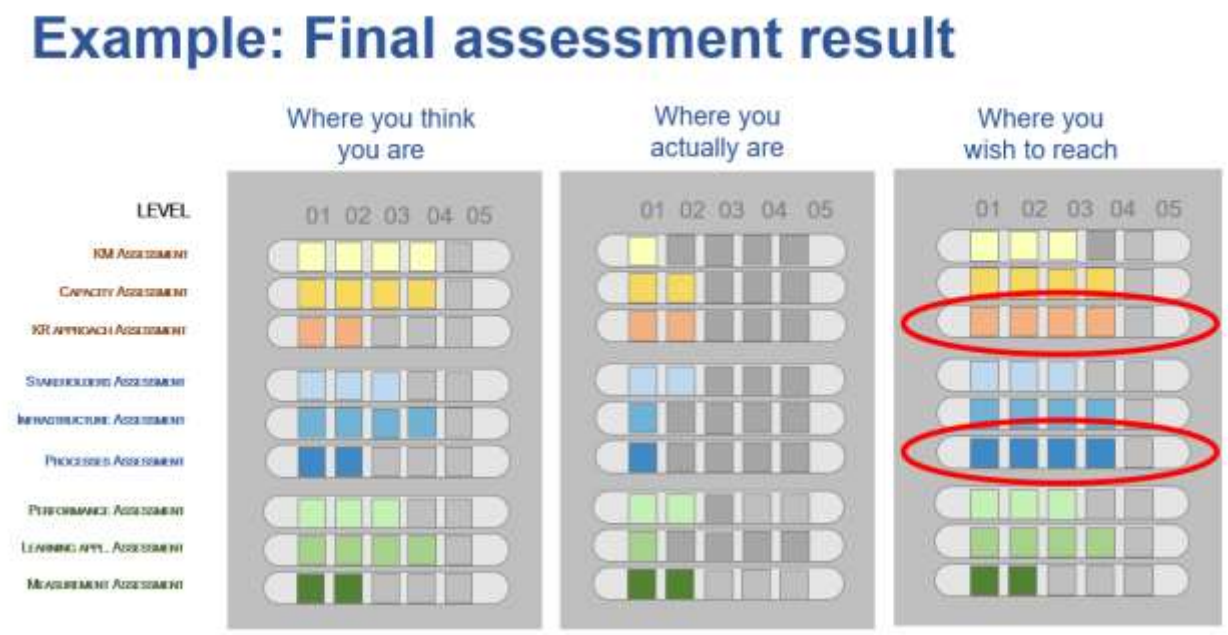

Figure 9: Knowledge retention final assessment result

How and when to apply the knowledge retention framework and maturity model

The model for creation for a knowledge retention system is based on adding value to the work of the team/organization and the knowledge that is already available. The knowledge retention framework helps teams/organizations to understand their overall environment, whereas the maturity model assesses the knowledge retention ecosystem and identifies areas for improvement. An assessment should ideally lay the groundwork for long-term, continuous learning that leads to improvements at each step in the process. Whether or not the exercise is carried out internally or with external support, it is advisable to initiate the process by assessing the actual resources that will support the efforts. Examples of resources include time, priority, people and funds. Creating an internal or external team can ensure engagement and commitment to completing the initial exercise.

The next step will be the identification of the initial assessment, which includes the knowledge retention purpose, who has what knowledge, and which knowledge needs to be shared. It also includes the understanding of how the knowledge is currently shared and with whom it is shared. There will also be questions regarding the organization's available infrastructure and processes, as well as other resources to engage in the retention efforts.

Having gained clarity on the knowledge retention exercise efforts, the assessment results provide a graph that depicts the organization's current perception of its knowledge retention ecosystem. This baseline assessment involves key stakeholders and provides an opportunity to compare 'where you think you are' with 'where you actually are.' From here the organization can focus its efforts on 'where do we want to go' and what specific areas we want to work on to improve the system. An in-depth assessment of the selected area will include a detailed analysis, that includes focus, needs, and gaps. The results of the assessment will be documented and shared with those involved including critical stakeholders. The topic of engagement can be as detailed or generic as required. To see an example of a generic topic related to retirements and job movements; the first step is to assess the topic against the framework using the maturity model to map the current processes and systems in place (see Figure 10).

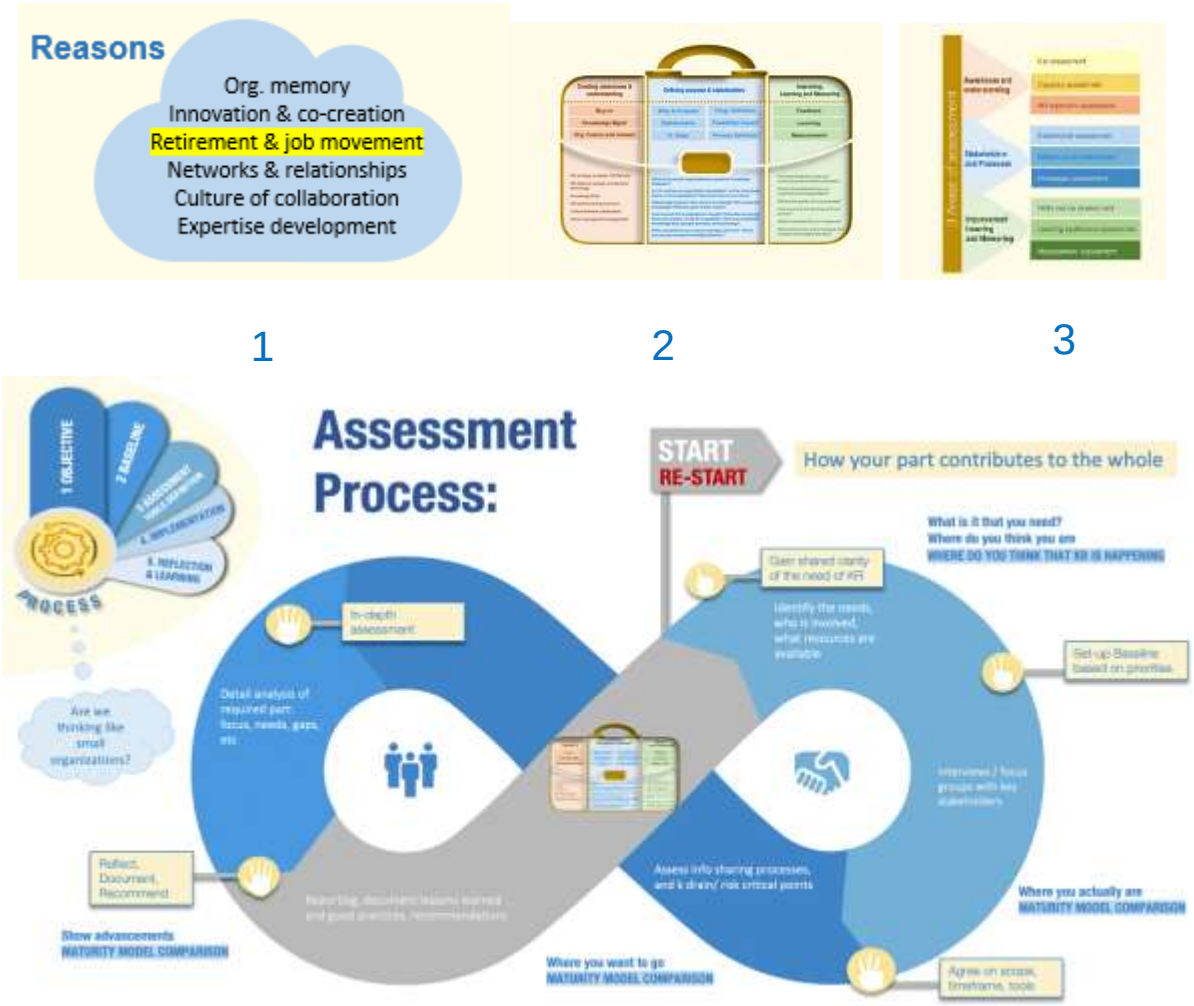

Figure 10: Knowledge retention assessment

The identification of tools will also consider the type of knowledge (e.g. explicit, tacit, and/or implicit) to be retained and transferred. Keeping a flexible and practical approach also implies elaborating on practical strategies for access and transfer. This may include recording of tacit knowledge sharing instead of documenting formal reports, etc.

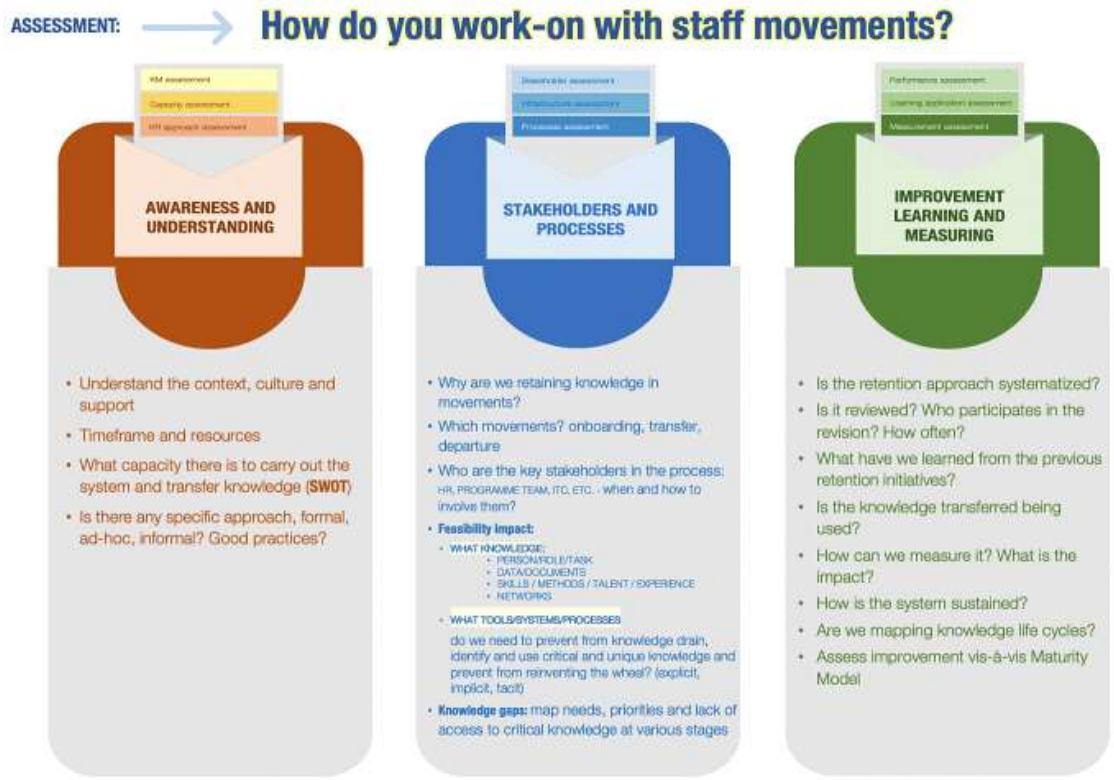

Figure 11: Knowledge retention framework initial steps

It is therefore advisable not to consider knowledge retention approaches as one-off, but rather to engage in the continuous practice of retention from an employee's first day of work, and thus use retention as a business risk mitigation tool. We know now that certain practices for knowledge transfer and retention cannot be imposed, yet there is a need to institutionalize the sharing and transferring of what is considered unique and critical for business continuity. Institutionalization of a knowledge retention ecosystem mitigates the vulnerability of organizational memory.

The concern remains as to what is considered unique and critical knowledge, and how teams/organizations can retain it in a way that it is regularly updated and easily accessible. Tacit and implicit knowledge, as well as explicit knowledge, need to be acknowledged.

The effort of retaining and transferring is not about "recycling" what we know, but rather bringing critical thinking and building upon that new thinking to construct the new learning. It is about seeing where we want to reach, understanding what we do not know, and mapping what we need to know to reach our objectives. This implies a culture of renewal that allows time to reflect and consider what we have learnt so far, and where we need to put more focus in order to reach the final goals. In addition to learning the tasks of a job, a knowledge retention ecosystem offers a team/organizational the capability to deeply understand their situation, learn from success and failure, and be as productive as possible. It is no longer about repeating the same answers but leveraging the knowledge to be able to change and evolve faster. Innovation builds upon understanding, knowledge and experience. Knowledge retention practices need to be reviewed and renewed as no one solution fits all needs (see Figure 12).

Figure 12: Knowledge retention approaches

Knowledge management and knowledge retention structures contribute to performance and organizational effectiveness. It is therefore important to involve people who are aware of unique and critical knowledge, and engage them with people who need to know and learn. This enhances the learning process and leverages the internal organizational knowledge. The knowledge retention framework and maturity model are intended to address a team/organization's needs and contribute to the purpose of being more efficient and effective for your defined goals.

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About the authors

Rocio Sanz, currently based in Geneva, Switzerland, serves organizations, UN and governments, teams, and individuals as a knowledge broker to improve their knowledge management strategies, competitive and business intelligence, work on developing frameworks, support information, networks, facilitation, capacity building and training development materials as well the development of participatory information management tools for knowledge sharing and retention as well as other targeted and tailored innovative tools required for knowledge elicitation and generation. Rocio works on communities, networks and holistic teams as a key to develop a comprehensive approach that supports the performance of any organization. Assessing knowledge needs and evaluating the possibilities may include, but not limited to, the establishing of tools to capture, process and disseminate knowledge and information through lessons learned, good practices, case studies, news, dashboards, info-graphics, videos and public information or educational campaigns, as well as web format – whether through intranets, repositories or public sites, depending on the needs. Rocio is actively engaged in many knowledge-based communities of practice such as the Knowledge Management for Development (KM4Dev), the Swiss Knowledge Management Forum and is co-signatory member of the Knowledge for Partnership Development (K4DP). She holds a Master of Science by Kent State University, USA on Information Architecture and Knowledge Management (2018) with theses on Knowledge Retention in International Organizations with focus on Retirement. She also holds a Master of Arts in International Relations and Communication by the Complutense University of Madrid, Spain (1996-1998); and Expert on Evaluation of Policies, Programs, Projects for Development by the Complutense University in Madrid, Spain (1999). Email: sanz_rocio@hotmail.com

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