SECOND BRAIN, GTD AND SEEK/SENSE/SHARE: AN INTEGRATION OF PERSONAL KNOWLEDGE MANAGEMENT WORKFLOWS

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Abstract: in the Information Society, Personal Knowledge Management (PKM) is essential to curate content and avoid infoxication. In order to create a more robust, streamlined, and effective PKM workflows, this article proposes an integration of three prominent PKM workflows: CODE from Building a Second Brain (BASB), Getting Things Done (GTD) and the Seek/Sense/Share (3S) workflow. Each component contributes uniquely - CODE for content collection and organization, GTD for task and time management, and Seek/Sense/Share for continuous learning. Together, they form a cohesive workflow aiming to enhance personal productivity, decision-making, and continuous learning, enabling individuals to better manage their knowledge, tasks, and time while fostering creativity, decision-making, and continuous learning in an information-dense world.

Keywords: personal knowledge management; second brain; getting things done; workflow; productivity

Resumo: na Sociedade da Informação, a Gestão Pessoal do Conhecimento (PKM) é essencial para curar conteúdo e evitar a infoxicação. Com o objetivo de criar fluxos de trabalho PKM mais robustos, otimizados e eficazes, este artigo propõe uma integração de três fluxos de trabalho PKM proeminentes: CODE do Building a Second Brain (BASB), Getting Things Done (GTD) e o fluxo de trabalho Seek/Sense/Share (3S). Cada componente contribui de forma única - CODE para coleta e organização de conteúdo, GTD para gestão de tarefas e tempo, e Seek/Sense/Share para aprendizado contínuo. Juntos, formam um fluxo de trabalho coeso visando aprimorar a produtividade pessoal, tomada de decisão e aprendizado contínuo, permitindo que os indivíduos gerenciem melhor seu conhecimento, tarefas e tempo, enquanto promovem criatividade, tomada de decisão e aprendizado contínuo em um mundo denso de informações.

Palavras-chave: gestão do conhecimento pessoal; segundo cérebro; getting things done; fluxo de trabalho; produtividade

Resumen: en la Sociedad de la Información, la Gestión Personal del Conocimiento (PKM, por sus siglas en inglés) es esencial para curar contenido y evitar la infoxicación. Con el objetivo de crear flujos de trabajo PKM más robustos, simplificados y efectivos, este artículo propone una integración de tres flujos de trabajo PKM destacados: CODE de Building a Second Brain (BASB), Getting Things Done (GTD) y el flujo de trabajo Seek/Sense/Share (3S). Cada componente contribuye de manera única: CODE para la recolección y organización de contenido, GTD para la gestión de tareas y tiempo, y Seek/Sense/Share para el aprendizaje continuo. Juntos, forman un flujo de trabajo cohesivo que busca mejorar la

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productividad personal, la toma de decisiones y el aprendizaje continuo, permitiendo a las personas gestionar mejor su conocimiento, tareas y tiempo, fomentando la creatividad, la toma de decisiones y el aprendizaje continuo en un mundo saturado de información.

Palabras clave: gestión del conocimiento personal; segundo cerebro; getting things done; flujo de trabajo; productividad.

1 INTRODUCTION

Where information is abundant and constantly changing, there is a need to curate the content that is consumed, either through personal information collection and processing or other management mechanisms. The information overload, an issue in the Cyberculture and Information Society (Bawden & Robinson, 2020; Lévy, 2005), occurs when the amount of information available to a person becomes a hindrance rather than a help, even though the information is potentially useful (Bawden & Robinson, 2009). This "infoxication" is usually associated with a loss of control over the situation and sometimes with feelings of being overwhelmed (Benito-Ruiz, 2009). In the extreme, it can lead to anxiety and other damages to health (Roetzel, 2019).

With this angle, Personal Information Management (PIM) or Personal Knowledge Management (PKM) can serve as allies for this challenge. PKM can help individuals cope with infoxication by providing strategies and tools to effectively acquire, organize, evaluate, and utilize information (Forte, 2022; Jefferson, 2006). Not only information overload, but also the problem of unstructured information and the problem of leveraging tacit knowledge can be addressed by Personal Knowledge Management (Diao, Zuo & Liu, 2009).

Conceptually, Personal Knowledge Management refers to the process of acquiring, organizing, storing, retrieving, and utilizing knowledge for personal growth, learning and decision-making (Wang, Gao & Wang, 2010). It involves individual-level practices and strategies for managing one's own knowledge effectively. Personal Knowledge Management encompasses activities such as seeking and acquiring information, organizing and categorizing knowledge, reflecting and sense-making, and sharing and applying knowledge (Jarche, 2014; Alves & da Costa Ramos Filho, 2022). PKM also refers to organized, intentional, and specific handling and execution of intellectual capital (IC) assets and processes associated with knowledge. These processes could be centered on individuals, technology, management, or resources (Świgoń, 2011). PKM encompasses strategic and

tactical measures implemented over a more extended period to generate, develop, utilize, and protect IC assets and knowledge.

PKM applications can serve as an "external memory prosthesis" by supporting users in saving and information in a more organized manner in external artifacts and enabling them to easily find and revisit all information they consider worth remembering (Schneegass, Wojcicki & Niforatos, 2021). Beyond a memory system, PKM can also impact individual work performance and self perceived employability (Rakotoarison, 2018).

According to Óskarsdóttir and colleagues (2022), with a proposed conceptual framework for Knowledge Worker Productivity (KWP), there are six groups of concepts relevant to individuals in their works: organizational commitment and engagement, communication and relationships, personal characteristics and development, personal knowledge management, well-being and job satisfaction, and task approach.

Personal Knowledge Management, in the work environment, is directly related to Organizational Knowledge Management (OKM). While OKM involves the creation, sharing, and use of knowledge within an organization to improve its performance and achieve its goals, PKM, on the other hand, is focused on the individual's ability to manage their own knowledge to enhance their personal and professional development (Mittelmann, 2016). By practicing PKM, employees can improve their ability to seek out and evaluate information, make connections between different pieces of information, and communicate effectively with others in their network (Cheong & Tsui, 2011).

Serving as a compass in the vast "sea of information", PKM also enables individuals to hone practices for more effective sensemaking, cultivate and maintain communities of practice for guidance, and engage with professional social networks to stay relevant (Alves & da Costa Ramos Filho, 2022).

In order to leverage the benefits of Personal Knowledge Management, some prominent workflows are used nowadays. Proposed by Allen (2015), the Getting Things Done (GTD) approach offers a comprehensive task and time management system, aiming to enhance personal productivity and reduce the mental load (Heylighen & Vidal, 2008). The CODE (Collect, Organize, Distill, Express) framework, from Building a Second Brain (BASB) approach, streamlines the process of transforming raw information into valuable insights, enhancing individuals' creativity and productivity (Forte, 2022). Furthermore, the Seek/Sense/Share (3S) model underscores the importance of sense-making, continuous learning and knowledge sharing (Jarche, 2014). These workflows offer structured approaches

to improve productivity, handle the vast information streams encountered in daily life and better manage personal knowledge.

Therefore, the present work aims to present an integrated system between these three PKM workflows and discuss theoretical and practical implications, offering insights into its potential effectiveness in professional and personal contexts.

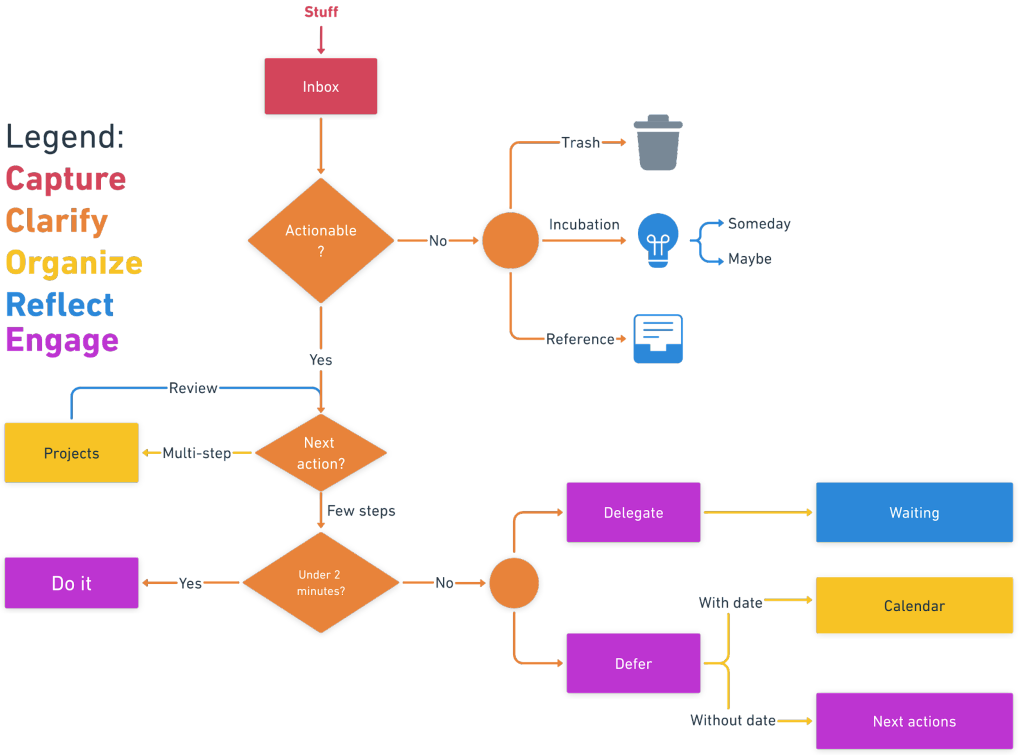
2 THE PKM WORKFLOWS

2.1 GTD WORKFLOW

The Getting Things Done method has the fundamental premise of recording planned tasks and projects externally and breaking them into actionable work items, thus freeing the mind for focused task execution (Allen, 2015). This approach helps individuals focus their attention on executing the tasks instead of remembering them. Task and time management, with the help of GTD, is highlighted as an important professional skill, specially for knowledge intensive work, such as software engineering and others in the tech sector (Heller, 2020; Fenton & Lord, 2019). Adapted versions of GTD are also being used for arts and education in order to organize accessible, safe, and affordable cultural activities to improve learning communities' self-image, stability, and culture (Lee, 2020).

In the GTD workflow, with the flowchart presented in Figure 1, all tasks or "stuff" are initially gathered in an inbox for processing. Each item is evaluated for its actionability. Non-actionable items are either discarded, incubated for future consideration, or stored for reference. If an item is actionable, the next action is determined. Actions estimated to be completed within two minutes are done immediately, longer tasks are deferred or scheduled, and those that can be delegated are assigned to others. Every actionable item is assigned a "next action" which can be organized by context, priority, or time. Tasks requiring more than one step are identified as projects and reviewed periodically for progress and identification of new actions.

Figure 1 – GTD workflow

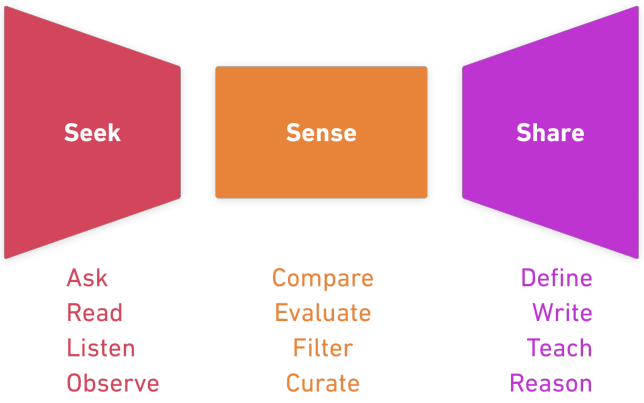


Source: From the authors. Adapted from Allen (2015).

2.2 SEEK/SENSE/SHARE WORKFLOW

Proposed by Jarche (2014), the Seek/Sense/Share workflow emphasizes continuous learning and knowledge sharing. The "Seek" process involves finding the right sources and resources of information, the "Sense" process involves making sense of the information and adding personal insights, and the "Share" process involves sharing these insights with relevant networks and communities.

Figure 2 – Seek/Sense/Share workflow



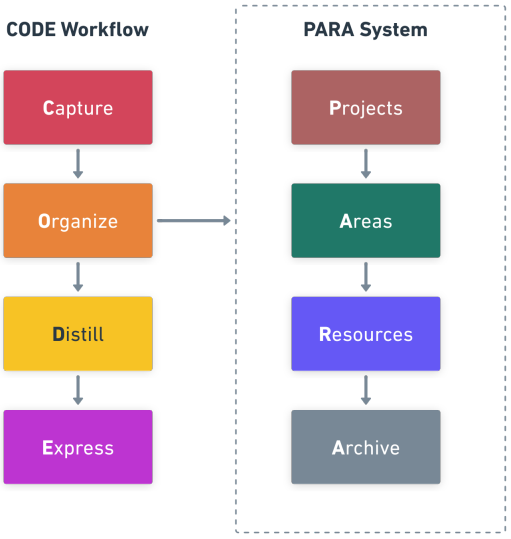
Source: From the authors. Adapted from Jarche (2014).

This framework promotes a cycle of learning, where one's understanding is continuously improved through repeated cycles of seeking, sensing, and sharing. Adopting this practice encourages innovation in the organization through knowledge sharing and narrated work (Jarche, 2014). It also recognizes the ongoing construction of ideas and understanding, acknowledging that no perfect format exists (Silva & Alves, 2019). A Seek/Sense/Share workflow representation is presented in Figure 2.

2.3 CODE WORKFLOW

The third workflow, CODE, proposed by Tiago Forte (2022), comes from the Building a Second Brain approach and is centered around the idea of creating a digital repository that can store, process, and retrieve information effectively. It simplifies complex information and assists in converting ideas into actionable tasks, in a way that enhances creativity and productivity. According to Forte (2022), a Second Brain (SB) is "a trusted place outside your head where you can collect and organize your most important ideas and insights and use them to do your best work". An SB is a systematic approach to note-taking and information or knowledge management, where content follows the CODE flow: Collection (C), Organization (O), Distillation (D), and Expression (E).

Figure 3 – Code workflow with PARA system



Source: From the authors. Adapted from Forte (2022).

The process begins with gathering diverse information (Collect), categorizing and structuring it meaningfully (Organize), extracting valuable insights and eliminating redundant

details (Distill), and finally sharing the consolidated knowledge, reinforcing one's understanding (Express). The PARA system (Projects, Areas, Resources, and Archives) provides an organization method based on usage and importance. Projects relate to task series with specific deadlines, Areas denote ongoing activity spheres, Resources cover ongoing interest themes, and Archives store inactive items for potential future reference. The representation of the CODE workflow with the PARA system is presented in Figure 3.

3 METHODOLOGY

In alignment with a pragmatic epistemological perspective, this study accepts that there can be multiple perspectives and interpretations of reality, and the knowledge we gain depends on the context of the situation (Creswell, 2017). The pragmatic approach emphasizes the application of what works in practice and recognizes that there may not be a single “correct” method of inquiry. It is recognized that there can be multiple, interacting realities that are context-dependent and shaped by the individuals who are experiencing them (Morgan, 2014). This is especially important for the research as it involves the integration of different PKM workflows, which can be understood and experienced in various ways depending on individual perspectives and contexts. The goal is to create practical knowledge that can be applied in real-world contexts, thus facilitating the integration of the three approaches.

Through a literature review, each approach is presented and analyzed, connecting the stages of each workflow to new proposed steps. The GTD workflow diagram is employed as a basis for the system, regarding the structure of actions for time and tasks management. Then, the CODE workflow and the Seek/Sense/Share framework are integrated to contribute about the aspects of information and knowledge management, as well as continuous learning and knowledge sharing.

4 PROPOSED PKM WORKFLOW AND DISCUSSION

4.1 THE “ACEflow”

The diagram for the connection of three workflow stages is presented in Figure 4 and their relations structured in Table 1. This integration results in the so-called Acquisition, Curation and Engagement workflow (ACEflow). The first step proposed is "Acquisition" and aligns with the first “Capture” stage in both the GTD and CODE models. This step is the entry point for new information or tasks into the system, a crucial element for effective PKM.

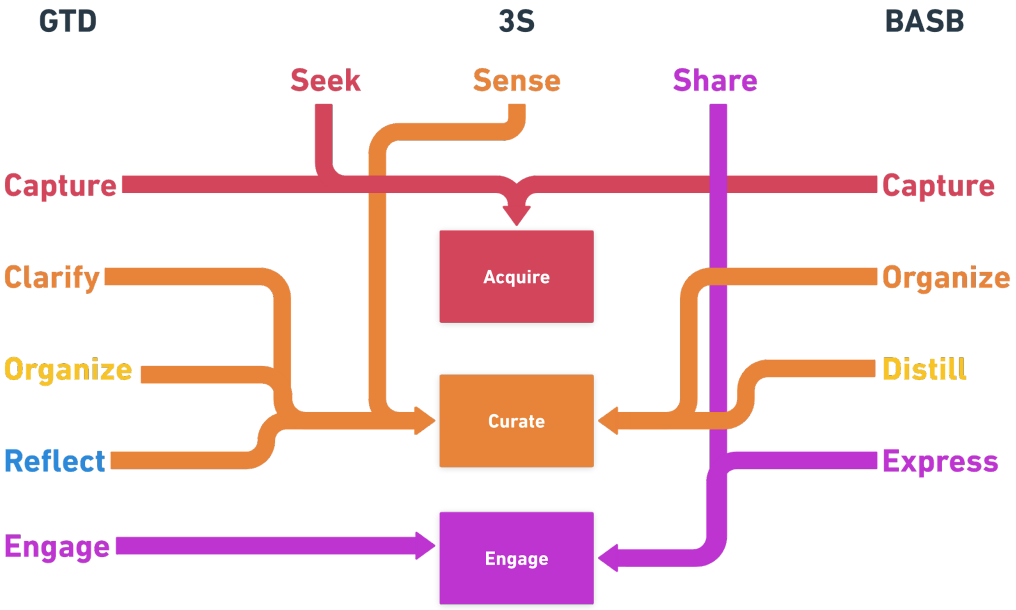
It involves collecting information from various sources, similar to the "Seek" step in the 3S model.

Table 1- Description of each PKM workflow stage

ACE system	Description	GTD	BASB	3S
Acquire	Collect data, information and knowledge	Capture	Capture	Seek
Curate	Process data, information and knowledge	Clarify Organize Reflect	Organize Distill	Sense
Engage	Act with data, information and knowledge	Engage	Express	Share

Source: From the authors.

Figure 4 – GTD, Seek/Sense/Share and CODE workflows integration



Source: From the authors.

Following “Acquisition”, there is "Curation," a stage analogous to “Organization” which is common to both GTD and CODE. This step is about making sense of the captured information by categorizing and structuring it in a coherent and meaningful way, thereby preparing the ground for actionable steps. It also aligns with the "Sense" stage from the Seek/Sense/Share approach and acknowledges the “Clarify” and “Reflect” stages of GTD, crucial steps where individuals review their organized items to ensure they align with their goals and are relevant to their current needs and projects (Allen, 2015).

The third and last step of the proposed integrated workflow is "Engage". Borrowed and matching the homonymous stage from GTD, this step aligns with the "Express" stage from CODE and is akin to the "Share" process in 3S. Engage is where knowledge becomes active: it's put into use, decisions are made, and tasks are executed. Sharing the knowledge or output with others ensures it becomes part of the larger knowledge community, closing the loop of this integrated PKM workflow.

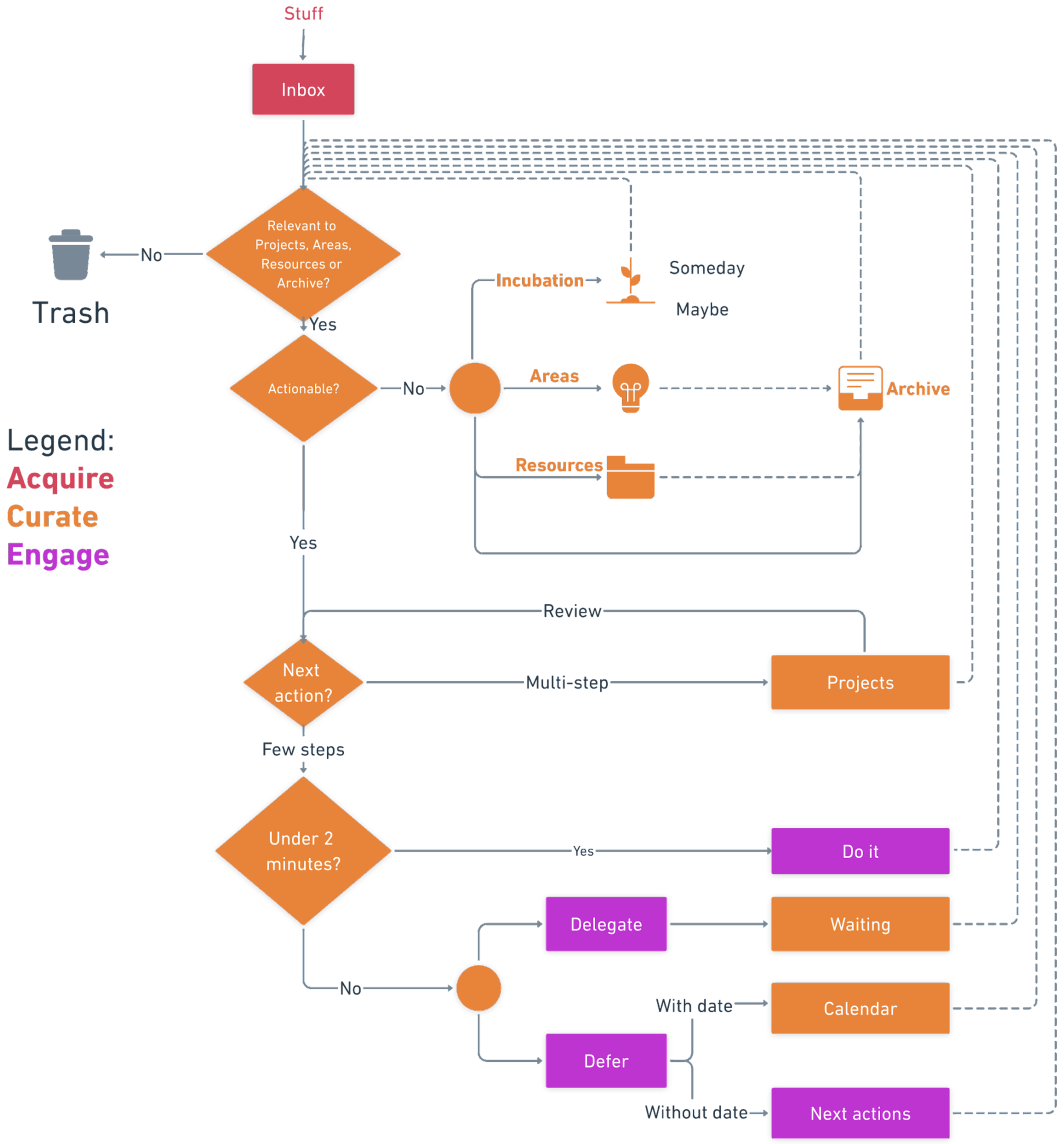
The three steps proposed align with knowledge integration usually seen in Organizational Knowledge Management. Knowledge integration involves consolidating knowledge from various sources to execute complex tasks including: (1) procurement of necessary knowledge, (2) fusion of the newly obtained knowledge with pre-existing information, and (3) utilization of this resultant knowledge to achieve a specific goal (Saadaoui & Mekkaoui, 2015). Also, the coordination and implementation of knowledge management processes as part of daily activities facilitate transforming personal knowledge into corporate knowledge that can be of benefit to the whole organization (Kordab & Raudeliūnienė, 2018).

Merging the steps reviewed and adapting them to the GTD workflow from Figure 1, the resulting diagram from Figure 5 emerges. The main steps from GTD are preserved, however the input decision is changed after the PARA system: items not relevant to Projects, Areas, Resources or Archives are trashed out. Areas, Archives and Resources fields, with the latter substituting “Resources”, are present in the non-actionable items section along with the Incubation element from the original Getting Things Done model.

There are directed relations, represented by the dashed lines, after the end points (Incubation, Archive, Do it, Waiting, Calendar and Next Actions), which is intended for post-action review. This makes the workflow a closed-loop (or “cybernetic”) system, considering the reuse of information and knowledge after the actions have been done. Feedback and closed-loop systems play a crucial role in knowledge management, enabling individuals and organizations to continuously improve and adapt their knowledge processes (Liu, Long & Liu, 2023).

All of the stages in the workflow are classified into the Acquire, Curate and Engage steps. It is worth saying that the Archive plays a significant role in this system, serving as a place for all inactive items, which encompasses projects that have reached completion or have been abandoned, responsibilities that are no longer mandatory and resources that have become irrelevant due to changes in personal interests or indifference towards certain subjects (Forte, 2022).

Figure 5 – The ACEflow diagram



Source: From the authors.

4.2 THEORETICAL, PRACTICAL AND MANAGERIAL IMPLICATIONS

The processes involved in Personal Knowledge Management entail the retrieval, evaluation, organization, collaboration, analysis, presentation, and securing of knowledge within an individual's personal knowledge base (Kassim, Sha'ari & Baharuddin, 2018). These processes reflect the organizational activities of retaining, retrieving, and utilizing knowledge. with the capacity of individuals to systematically perform these activities giving rise to what is termed the Personal Knowledge Management Capability (PKMC). The lessons gleaned

from a mix of practical and theoretical learning need to be stored in an individual's personal knowledge repository for future recall and application.

Workflows such as GTD, CODE or 3S motivate self-reflection on personal knowledge and lifelong learning. Be it through behaviorism, cognitivism, social learning or other learning theories, organizational knowledge creation hinges on individual learning (Saadaoui & Mekkaoui, 2015). It is understood that truly effective individual knowledge management hinges on robust PKM processes (Silva & Alves, 2019). And it is worth highlighting that PKM enhances idea generation at an individual level, by enabling the retrieval and application of knowledge to suggest new ideas. Furthermore, in the relational dimension, it allows for the meaningful interpretation of existing knowledge, which lays the groundwork for new experiences and understandings (do Nascimento, da Costa Ramos & Cribb, 2017).

In terms of leveraging individual knowledge to a network, according to Apshvalka and Wendorff (2005), individuals are self-governed systems, making external management challenging. However, this can be advantageous, as personal workflows and PKM rely on individual motivation and responsibility. While organizations can provide tools and processes, the management of knowledge remains deeply personal. Therefore, it is crucial for organizational leaders to foster a positive emotional environment and motivation to achieve organizational goals, as these factors significantly impact knowledge management capabilities (Ye, Liu & Tan, 2022).

Aligned with this, in order to take full advantage of knowledge management in its environments, organizations need to align their needs with what creates value for the individual KM of collaborators, aiming to maximize value contribution towards the organizational goals (Óskarsdóttir et al., 2022). PKM and individual learning resonates with organizational knowledge integration, with the implicit knowledge becoming explicit, being used and shared through the process of combining and practically applying the merged information (Saadaoui & Mekkaoui, 2015).

Furthermore, due to modern technologies, we can transcend traditional information management and in addition to text, we have the capacity to produce and consume audio, visual, and interactive content, bringing us closer to the original source of knowledge. Digital tools, such as SB and other technological developments continue to evolve rapidly, enhancing our ability to communicate and manage knowledge (Apshvalka & Wendorff, 2005).

5 CONCLUSION

The current study proposed an integration between Personal Knowledge Management workflows, notedly, the GTD method (Allen, 2015), the CODE workflow with PARA system (Forte, 2022) and the Seek/Sense/Share model (Jarche, 2014). The integrated workflow merges steps from the three workflows, also presenting the potential alignment with the knowledge integration stages within an organizational context, i.e., Acquisition, Combination and Usage stages (Saadaoui & Mekkaoui, 2015). The artifact presented serves as a framework for information and knowledge repositories (or "second brains"), as well as to productivity and PKM activities in knowledge work. It is believed that this ensures not only effective curation of information but also productive utilization and sharing of knowledge. The theoretical underpinnings of this integrated approach draw from cognitive science, information management, and organizational learning, suggesting a novel way of addressing personal information and knowledge management in the digital age.

Also, from the health perspective, information overload (also known as “infoxication” or “infobesity”), a consequence of the digital age where information is readily available and easily accessible through various sources such as social media and digital platforms, is an experience which can lead to anxiety and other health damages (Benito-Ruiz, 2009; Bawden & Robinson, 2009; Roetzel, 2019). Personal Knowledge Management and its technologies can help individuals thrive within this context, with PKMC and other skills – such as the critical information, digital and media literacy (Leaning, 2019) and “dromoaptitude” (Trivinho, 2006) – being crucial in this transition to Knowledge Society.

Furthermore, it is observed that interdisciplinary approaches to PKM focus on cultivating skills and attitudes that foster more effective cognition, communication, collaboration, creativity, problem-solving, lifelong learning, social networking, and leadership (Pauleen, 2009). Within an appropriate context, individuals can make more effective decisions, especially in matters pertaining to career and life choices.

Finally, the scope of future work can encompass psychological or social benefits and effects on using this proposed workflow, as Heylighen and Vidal (2008) have explored for GTD. The effectiveness of the ACEflow can be evaluated through multiple methods, including participant feedback, self-reflection, and task execution efficiency. Additionally, participant observation and interviews could be used to garner nuanced insights into the experiences of the users. Besides that, the system can be analyzed along with note-taking methods, such as the Zettelkasten or other similar mechanisms which aid individuals in connecting and relating ideas and information (Ahrens, 2022).

Also, although some work has been done on investigating the relation of Personal Knowledge Management systems with Artificial Intelligence / machine learning techniques (López-Quintero et al., 2018; Diao, Zuo & Liu, 2009; Grundspenkis, 2007) and mobile apps / gamification (Ismail & Ahmad, 2015; Toh et al., 2015; Santos et al., 2022), more research is needed concerning PKM and the recent concept of Second Brain with emerging technologies, such as intelligent assistants and metaverses.

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