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# Contextual Enablers and Behaviour Outputs for Action of Knowledge Workers

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***Abstract*—**This paper provides guidelines for what constitutes a knowledge worker. Many graduates from non-managerial domains adopt, at some point in their professional careers, management roles at different levels, ranging from team leaders through to executive leadership. This is particularly relevant for professionals from an engineering background. Moving from a technical to an executive-level requires an understanding of those behaviour management techniques that can motivate and support individuals and their performance. Further, the transition to management also demands a shift of contextual enablers from tangible to intangible resources, which allows individuals to create new capacities, competencies, and capabilities. In this dynamic process, the knowledge worker becomes that key individual who can help members of the management board to transform information into relevant knowledge. However, despite its relevance in shaping the future of the organization in its transition to the knowledge economy, the role of a knowledge worker has not yet been studied to an appropriate level in the current literature. In this study, the authors review both the contextual enablers and behaviour outputs related to the role of the knowledge worker and relate these to their ability to deal with everyday management issues such as knowledge heterogeneity, varying motivations, information overload, or outdated information. This study highlights that the aggregate of capacities, competences and capabilities (CCCs) can be defined as knowledge structures, the study proposes several contextual enablers and behaviour outputs that knowledge workers can use to work cooperatively, acquire, distribute and knowledge. Therefore, this study contributes to a better comprehension of how CCCs can be managed at different levels through their contextual enablers and behaviour outputs.

***Keywords*—**Knowledge workers, capacities, competences, capabilities, knowledge structures.

## I. Introduction

KNOWLEDGE workers are those who not only share information but also make an effective use of knowledge built on this information [1]. The term applies to employees in a variety of roles, from senior managers through to engineers whose competences, capacities and capabilities to process data and work together on teams make them unique and allow them to complete their respective goals on time. However, despite the relevance of the concept, the extant literature still lacks a comprehensive understanding of what constitutes a knowledge worker.

Although the concepts of *competency*, *capacity* and *capability* are correlated, each has a distinctive connotation. 'Institutional capacity' is described in [2] as the aptitude of a group of people to work at full capacity to tackle a common problem head on. At an organisational level, competencies are defined as knowledge, abilities and team skills [3]. Organisational capabilities are perceived by [4] as related to the talent to handle a situation using a collection of resources, while [5] defines organisational capabilities as collective structures consisting not only of competencies but also the glue that holds these organisational competencies together along with the interests of different communities and boundary stakeholders, integrating them with organisational goals.

The term proficiency is used in a variety of ways by both scholars and practitioners, most commonly in reference to achieving expected standards. Proficiency levels are the evolution of steps or stages in the organisation's professional domains ranked from an inferior employee to a more senior employee according to the responsibility and concomitant compensation. Moving from lowest to highest levels requires not only a collection of knowledge, education and chance, but also a shift from the worker's skills to learning new CCCs [1].

Proficiency progression encompasses varied forms, including the traditional vertical levels and the horizontal stages (also called 'career lattices'). For an organisation with several functions, knowledge workers can also find opportunities and enriching pleasure when they are moved laterally, and their horizontal responsibilities and competencies are broadened. Thus, engineers who work as knowledge workers, are expected to achieve the competences, capacities and capabilities needed to address the different demands of different kinds of work [6].

This paper provides the guidelines for what constitutes knowledge workers and for the development of their respective CCCs for achieving higher proficiency levels. The paper also provides different structures that can be encouraged to cater for the varying needs of knowledge workers wishing to engage in the vision and goals of the company. Each stage (i.e. individual, group and organisational) includes its contextual enablers and behavioural outputs for carrying out the main functions and moving on to the next stage.

## II. Conceptual Framework

### A. Knowledge Workers

Knowledge workers are typically high-level appointments. Individuals chosen for the role of knowledge workers are

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usually expected to become members of senior management teams [7]. While this role in large companies is often played by the head of the human resources department, in small medium enterprises (SMEs) given the limited resources for hiring new organisational members, this position is usually held by a middle-level manager [8]. A knowledge worker can be described as the person who designs, implements, and oversees the organisation's knowledge infrastructure [6].

Workers have been traditionally classified in accordance with their technical, human and conceptual skills [9]. Under this classification, while workers at the highest level will particularly need conceptual skills to apply knowledge in leading multiple projects, those at the lowest level will require technical skills to perform their job duties [9]. From a practical viewpoint, this aspect is important since the needs of knowledge workers may be modified in response to changes within the hierarchical structure and the workforce. Considering these ideas, we propose that knowledge workers be classified into one or more of the following three groups:

1) The technical level, who hold technical skills that favour daily work and commitment to the company. At this level, employees should be aware of what knowledge is, its importance and the need to create it;
2) The mid-level, active employees with human skills who have not only the commitment to continuity, but also the human skills to discern between right and wrong information;
3) The senior level, managers who have the knowledge and skills to re-orientate the organisation using practices such as data taxonomy, content management, project management discipline.

Reference [10] differentiates competency, capacity and capability concepts as follows: 'capacity' is a process that strengthens the ability to (re)learn or unlearn something and achieve lasting outcomes; 'competency' refers to the state of being ready to do something; 'capability' is the art of doing and performing a core competency over time (i.e. preserving the competitiveness). In this study, CCCs are defined as knowledge structures that reflect "where" is produced the learning and the "nature" of what is learned [11], [12].

As much of the most important strategic decisions in companies is accomplished by interconnecting the right people using knowledge structures, it is necessary to study the relationship between the problems derived from the integration of the above three groups and the knowledge structures needed to mitigate these issues.

### *B. Problems Faced by Knowledge Workers*

A good knowledge worker should be able to integrate the different interests of the three groups previously discussed, which is not an easy task given that each of these groups has a different knowledge base and potentially different priorities (i.e. knowledge heterogeneity). For example, imagine that the company has not met the market share target. The technical people will tell us that there was a technical problem (e.g. the technical obsolescence of the original solution). People with human skills can tell us that the problem was in the limited ability of those sellers to fix the problem (e.g. receiving a negative evaluation). Top-level managers will argue that they even consciously made a wrong decision, maybe a decision based on wrong assumptions.

A common theme in all three situations is the need to "listen" [13]. Effective listening is only achieved when the listener is able to assimilate and interpret all information related to the problem with full meaning and is capable of driving a solution [13].

Another problem that knowledge workers face, particularly the ones that work in competitive environments, is 'information overload'. Due to reasons such as the amount of information available, the lack of veracity, or the uncertainty of its content, we often get more information than we can interpret [14]. Under this framework, we need to ensure an appropriated capacity for assimilating knowledge. Otherwise, knowledge workers may feel overwhelmed with more information than they can analyse and synthesise [15]. In addition, combining strengths to transform knowledge is another requirement for knowledge workers, they may filter and update information, which help managers to check what they know and what they should know to bring innovation to the organisation [15].

An important issue in the above process is how the administration delegates, shares, or retains the authority to mobilise knowledge by initiating, framing, and terminating participative processes [16]. As pointed out by [15], fostering a learning context in which organisational members are prepared and trained, either through a new design or transition from a previous one, supports them to rethink the structure and goals of the organisation. This change involves how individuals interact and define their roles in order to transform their habits into a collective behaviour.

A climate of safety in the workplace is also important for a healthy corporate culture, and can help in implementing knowledge structures [17]. In this regard, it is argued that change can only happen in a permissive working environment that allows team members to pursue new skills and actions and even be wrong repeatedly [18]. Some also suggest that senior management has to help as one more and support those who despite their failure have tried it with all their heart [19].

Based on the above, knowledge workers at the executive level have an important part to play in supporting and implementing an open-minded culture. This issue is also recognised by [16], who argues that executive managers should help employees understand the organisation's vision and translate it into decisions and actions. Acquiring knowledge relies on the enthusiasm of knowledge workers to observe new ideas, evaluate them and finally implement them. In this process, unlearning becomes a requirement for change and for the ability to be both committed to a view and open to the possibility that this view may be wrong [20]. According to [21], open-mindedness is a concept related to the idea of unlearning. The way managers operationalise it lies in creating new knowledge that replaces the former through practices such as lateral communication, coopetition, empathy or readjustment skills [22].

Building consensus among stakeholders on a common mission for addressing the challenges faced and opportunities available to the organisation is another task for knowledge workers to undertake. It should be highlighted that a large number of managers believe that the key to maintaining a sustainable competitive advantage is through the articulation of a long-term vision. That means that they need to prevent the organisational vision from being lost in the course of time. In doing so, it is necessary to articulate the vision in policies and procedures that not only guide actions but also thoughts efficiently [23].

If we think of a private company operating in a competitive industry, we would agree that customers are among its most important agents. Under this framework, one would think that while actions are guided by customers' current needs, thoughts are largely defined by the needs of potential customers [24]. Since maintaining a balance between customers' current and future needs is key to sustain a competitive advantage, knowledge workers should pay attention to any obstacles or knowledge gap that hinders this balance [25], [26]. Thus, the relationship between the manager's perishable vision and the "company's mission" is something that knowledge workers should bring to the attention of the executive team [27], [28].

The influence of a knowledge worker can be extended to those individuals who contribute to exercising business judgments and who lead people towards the collective mission and improved performance. It should be noted here that as the profile of its customer changes, an organisation's mission must also change [29]. In doing so, knowledge workers need to make active use of the information derived from both current and potential customers [1]. Otherwise, the company will be unable to update its mission [30].

The best way to maintain a balance between present and future, or in other words, between the needs of current and potential customers, is combining strengths toward them [31]. That is, instead of deciding a priori what the knowledge needs of a key customer are and prioritising the availability of this knowledge at any cost, managers need to seek to address the overall needs of the customer [31]. This allows knowledge workers to identify synergies of collaboration and opportunities between the available internal knowledge and the external one that is latent outside the company [32]. Maintaining a good balance between the knowledge available and the knowledge needed to make decisions also helps knowledge workers identify either sources of non-reliable information or outdated information [33].

In order to reduce any gap between what is known and what should be known to satisfy customers, [16] suggests that 'hearing' is not enough, listening to customers and transforming what knowledge workers learn into efficient solutions is the key. Firstly, customers can bring their concerns and expectations of either the company products and services or their competitors [34]. Secondly, knowledge workers must process and synthesise this information to make it available to those who need it in a timely manner and in the format in which they need it. For example, they can use meetings to transfer impressions (tacit knowledge) or a database of information resources to implement new procedures (explicit knowledge) [35].

It should also be noted that the fact that an engineer has individual competencies (e.g. experience, level of education or training) is not enough to achieve those aims. Since engineers must transform these competencies into capabilities, they should be able to update and sustain them over time. Otherwise, the organisation will not be able to take possession of the income that competencies generate over time. The problem that we face in this case is that the engineer develops their own sense of what is important and takes for granted that the faithful implementation of general rules and principles is adequate. It is something similar to what happens when an older person says they are able to see well even though their vision has not been checked in recent years [36].

Within the above framework, the relational skills, open-mindedness, the mobilisation of best managerial practices, and the emerging business judgments that knowledge workers share with managers may help them observe and learn from incorrect or inappropriate assumptions [37], [38], which in turn helps executive managers lead and manage organisational change more effectively [39].

Table I provides a synopsis of the core competences, capacities and capabilities that could be needed to achieve higher proficiency levels. As it is shown, a knowledge worker at the executive level is expected to have the capability to see beyond their own organisation.

TABLE I
KNOWLEDGE STRUCTURES FOR FACING PROBLEMS

| The main difficulties faced by knowledge workers include: | | |
|---|---|---|
| # People with different backgrounds and skills | | |
| # People with different interests | | |
| # Information overload | | |
| # The presence of either outdated information or unique 'knowledge lens" | | |
| Capacities | Competences | Capabilities |
| Listening | Effective listening | Driving a solution |
| Assimilating knowledge | Sharing and transforming knowledge | Practical application |
| Relational capacity | Leading people | Bringing a balance between current and potential customers |
| Unlearning | Building consensus | |
| Open-mindedness | Combining strengths | Leading change |
| Mobilisation capacity | Bringing innovation harder | Communicating and building coalitions |
| Acquiring knowledge | Exercising business judgment | Being results-driven |

## III. CONTEXTUAL ENABLERS AND BEHAVIOUR OUTPUTS

It is important to note that many of the CCCs showed in Table I are 'metaphors' that help us understand and operationalise certain situations, which are very difficult for us to understand. It is similar to what happens when a toddler is unable to express in words what he/she feels, any resource can be used to aid their communication with parents/carers/ doctors. It is then for parents/carers/doctors to listen and make sense of what the child tries to express. Since managers sometimes cannot measure capacities, competencies or capabilities themselves, they need to use indicators either formative or refractive to operationalise these "metaphors" [20], [40]. In other words, when managers want to operationalise such concepts as listening, open-mindedness,

leading or balance between current and potential customers, they need to identify latent or unobservable variables.

The considerations above imply that one of the knowledge worker's major contributions to the organisation may reside in their ability to foster contextual enablers e.g., pushing new approaches to resolve problems or explore relationships among distinctive ideas, rather than in embracing sameness [41]. This is in line with what authors such as [42] express when they argue that mentoring not only helps to transfer technical knowledge, for example, about materials or designs, but also tacit knowledge in the form of intuitions or subjective interpretations. In other words, the creation of CCCs such as attitudes and values that empower engineers for their daily work, can be aided by the context when this context is provided with appropriated enablers such as alternative perspectives or listening target markets, among others [43].

From the systems perspective of [44] and [45], what the above arguments may mean is that another knowledge worker's contribution to the organisation may involve defining expected results and outcomes (i.e. formative or refractive indicators). Behaviour outputs are used to visualise values achieved with the current CCCs, they provide information to knowledge workers concerning how people CCCs are meeting expectations [46]. In the same way that contextual enablers and behaviour outputs can assist managers in developing skills, they are able to assist knowledge workers at the executive level in developing knowledge structures and providing feedback about them. In fact, contextual enablers may facilitate such personal skills development through specific supporting learning practices [47].

For their part, behaviour outputs may help to identify what organisational members are being taught [46]. They indicate the expected results when the capabilities that result from integrating the knowledge, skills and attitudes of workers at different organisational levels are used efficiently [47]. As shown in Table II, the links between contextual enablers and behaviour outputs need to consider not only about the facilitators that knowledge workers need but also about the consequences of the work done by these employees, especially the work performed by senior knowledge workers.

The cause-effect relationship represents the performance evaluation process created to help engineers who are effective contributors improve and become even more effective knowledge workers. Based on [20], Table II summarises the key contextual enablers and behaviour outcomes that may be expected for each level in order to guarantee the most effective cooperation and coordination among knowledge workers. As shown in Table II, this relationship creates a dynamic process, which can be understood by arraying the interaction between the individual, group and organisational levels and one another.

TABLE II
DOMINANT PROFICIENCY LEVELS

| L | CE | BO | R |
|---|---|---|---|
| Individual | Destabilisation–disruptions that create doubt in usefulness of old patterns<br>Seek out alternative perspectives<br>Listen to other people and pay attention to the environment<br>Test leadership skills and leadership style | Identify problems<br>Challenging beliefs and assumptions<br>Questioning the validity and value of obsolete knowledge<br>Recognise mistakes<br>Participation, accountability and effectiveness | [37]-[50] |
| Group | Breaking the stimuli-response connections-<br>Positively self-reinforce<br>Mismatch–difference between group outcomes and individual expectations<br>The promotion of managers<br>Changing positions and responsibilities | Not executing inappropriate behaviours<br>Learn from problems<br>Change inappropriate attitudes and beliefs<br>Learn from own and other people mistakes<br>Changing relationships and deeply rooted behaviours | [50]-[53] |
| Organisational | Taking off senior managers<br>Aligning new understandings and company objectives<br>Coaching context and time for consolidating new understandings<br>Change in ownership due to mergers or acquisitions<br>Joint ventures | Abandoning outdated routines and procedures<br>Removing employees with outdate skills<br>Discarding obsolete technologies<br>Upgrading obsolete technologies<br>Restructuring takes place to ensure alignment with routines of the acquirer<br>New strategic priorities | [54]-[57] |

Notes: Level → L, Contextual enablers → CE, Behaviour outputs → BO, References → R.

## IV. CONCLUDING REMARKS

A knowledge worker needs to work with information and transforms it into knowledge. This means that a senior knowledge worker is not only the overseer of a company's knowledge structure but also the responsible of designing and implementing it. From a practical viewpoint, helping engineers improve their daily work and develop their career paths is another area in which this study makes an important contribution. In doing so, a knowledge worker's first responsibility is to pay attention to gathering, processing and interpreting strategic information. Another important point addressed relates to the classification of CCCs that knowledge workers need to perform that role.

From and individual point of view, a 'capacity' is something that you can do, while a 'competence' is something that you know how to do. For example, although everyone has the capacity to forgive, most of us do not know how to forgive all those who have criticised us just the one-time (i.e. competence), and there will be even less who are able to forgive on an on-going basis (i.e. capability). Taking these circumstances into consideration, and in order to overcome knowledge barriers such as different interests, information overload or outdated information, Table I has classified

knowledge structures into three categories: capacities, competences and capabilities (i.e. CCCs).

This study highlights that the aggregate of CCCs can be defined as knowledge structures. This study also acknowledges that measuring CCCs is difficult and complex, resulting in a wide margin of uncertainty in the literature [58]-[60]. This paper attempts to delineate a way to accomplish this task by leveraging contextual enablers and providing feedback on the adequacy of behaviour outputs. In this vein, we argue that knowledge workers can help improve several types of CCCs that may be associated with the contextual enablers and behaviour outputs collected in Table II.

In summary, Table II shows that it is very important to create a climate of safety where people can enjoy effective participation and ensure the implementation of the strategy. Measures connected with this collectivistic orientation can, however, only be taken after a thorough evaluation and once the knowledge barriers have been overcome [61]. In doing so, it is clear that knowledge workers need to provide sufficient and timely information to managers on what they have just finished doing. Thus, a knowledge worker is responsible for identifying what must be done and what is really done to ensure engineers contribution to the vision and mission of the company.

From a practical viewpoint, the most important challenge for a knowledge worker is to maintain a balance between targeting of resources towards success and managing the demands of stakeholders. In the same way as the game of a basketball team depends on the capability of the team's coach to create a unique portfolio of capacities that provide the team with a series of distinctive competences, in the business domain, knowledge workers should identify which executive competencies are or will be a source of competitive advantages.

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