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Journal of Open Innovation: Technology, Market, and Complexity

Provided in Cooperation with:

Society of Open Innovation: Technology, Market, and Complexity (SOItmC)

Suggested Citation: Antonczak, Laurent; Burger-Helmchen, Thierry (2022) : Creativity on the move: Nexus of technology, slack and social complexities, Journal of Open Innovation: Technology, Market, and Complexity, ISSN 2199-8531, MDPI, Basel, Vol. 8, Iss. 2, pp. 1-14, <https://doi.org/10.3390/joitmc8020064>

This Version is available at:

<https://hdl.handle.net/10419/274365>

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Article

Creativity on the Move: Nexus of Technology, Slack and Social Complexities

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Abstract: While creativity is most commonly associated with idea generation and problem solving at the individual or team level, it is likewise associated with environments, technologies, tools and artefacts favouring or hindering creative capabilities. Research struggles to bring these elements together. We develop a model for the integration of mobile devices into creative processes. More specifically, we elaborate on existing works on creativity to define how firms can make good use of mobile technology in order to enhance the creativity of their employees. Therefore, we suggest a model revisiting the notion of “creative slack” (with the introduction of the notion of *mobile slack*, or *m-slack*) and absorptive capacities, explaining how firms might better integrate digital natives; subsequently, we discuss the managerial and theoretical implications.

Keywords: creativity; mobile device; affordance; mobility; slack



Citation: Antonczak, L.; Burger-Helmchen, T. Creativity on the Move: Nexus of Technology, Slack and Social Complexities. *J. Open Innov. Technol. Mark. Complex.* **2022**, *8*, 64. <https://doi.org/10.3390/joitmc8020064>

Received: 17 February 2022

Accepted: 28 March 2022

Published: 31 March 2022

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1. Introduction

The capacity of organisations to face daily challenges as well as novel demanding situations depends on the individual and collaborative creativity of their employees. Increasingly, employees’ creativity is influenced by advanced technologies such as mobile devices. We use different conceptual lenses to study the potential of mobile devices to influence individual and team creativity in organisations. To contribute meaningfully to individual and collective creativity, the use of mobile devices must go together with managerial disposition. Management needs to favour technology affordance (to create trust and virtual proximity) and give slack time to employees (to collect, recollect and exchange pieces of information, leading to creative insights). The literature on the management of creativity has not investigated in depth how mobile devices should be included in a theory of innovative firms. In this paper, we propose a model to characterise the place and usage of mobile devices for creative work and formulate some propositions.

We reflect on how mobile devices relate to creativity in organisations. We explore this connexion in the light of the theory of the innovation firm proposed by Cohendet et al. [1], a theory based on the existence of communities, specific places, and adequate connexions between them to foster creativity. This focus on mobile device is motivated by the commonplace observation that such tools are prevalent in our professional and private lives.

Similar aims, for different technologies, have already been proposed by many scholars from different fields, including historians, technologists, sociologists, economists and management science scholars [2]. However, we believe that we lack an adequate theory on how mobile devices can positively influence creativity in organisations [3].

Drawing selectively from a fragmented literature, centring around the work of Cohendet et al. [1], we aim to bring mobile devices into the light of individual and team creativity. Indeed, we believe that mobile devices are just a small part of a greater technological change; we focus on mobile devices because their usage is now widely common in all aspects of our professional and private lives. Among others, the use of mobile technology

fits in with the development of new usages in open innovation, linked to stronger social interactions such as through crowdsourcing and the use of extensive data [4–8].

Through work on creativity [9] or organisational creativity [10–12], we have been able to see new economic development perspectives. Since then, despite some characteristics being established by some academic works [13,14], it is difficult to find a single theoretical definition on creativity management including the use of mobile devices. With the constantly evolving dynamics of digital data, we claim that Marchlup's [15] question on the difference between flow and stock is more topical than ever, with the ephemerality and trace being more and more pertinent thanks to digital means. Consequently, this paper aims to examine digital technologies, in particular, mobile technology in relation to the notion of affordances, slack and absorptive capacity. We selected these notions as essential theoretical bricks for our model. With the help of these concepts, we investigate how mobile devices can be used for “creative slack”. One decade later after their work, with regard to a new digital paradigm, we will present a new perspective on Cohendet et al.'s concept of creative slack by examining and highlighting some of the attributes and limitations of mobile technology.

In line with the suggestions of Corley and Gioia [16] and Shepherd and Suddaby [17], we follow the path taken by Jarvenpaa and Välikangas [3] for theorizing about advanced technology and its usage. This is a literature-based projection of conception to assess what researchers and managers should take into account in relation to mobile devices and creativity. We structured this article as a literature review, using a narrative approach [18]. We will first present a model incorporating creative slack and the role of mobile technology in professional environments. This model is built on notions such as process, flow-stock and slack (and mobile slack), absorptive capacity, and affordance in a digital environment, notions that we will subsequently discuss. We then infer how mobile devices might influence individual and collaborative creativity depending on the presence of slack, affordance and adequate networks. These cases serve as the basis for some propositions and managerial insights.

2. Mobile Devices and Creativity in Professional Context: A Model

The link between technologies and creativity has been studied using various approaches, including specific tools from email on mobile devices to various types of mobile software, as direct effects or through mediating concepts going from empowerment [19] to affordance and other classical innovation management concepts [20]. Mobile devices and smartphones in particular are organisational forces [21].

For instance, Mazmanian et al. [22] proposed a model based on a study of 48 managers and their use of mobile email devices. They show that mobile devices increase task engagement but also significantly increase stress at work. At the same time, the use of mobile devices reduces the sociability of managers but increases their autonomy. Lastly, the use of mobile devices changed work routines, employees' behaviours towards others and the type of information exchanged. Prasopoulou et al. [23], in another study on mobile phones with a sample of 15 managers, highlighted that each individual is more accessible, with instantaneity becoming the norm (raising the expectation of rapid if not instant answers to all solicitation). Only senior managers could use mobile devices in a sparser way, letting them have time to think and strategize. Ryden and El Sawy [24], in an international survey of managers, show that the possibility of instant access to some information via technology, as well as the capacity to take notes and share them, had a positive impact on productivity and creativity under the condition that the managers can have some time “away” from the technology. They introduced the notion of ambitemporality to underline the need for managers to be able to evolve in different time pressure situations to increase their creativity.

Based on these observations, we propose a model introducing a new form of slack that might be important for organisations. In some cases, knowledge sharing could be problematic due to flawed interpersonal relations or group/community typical features

such as team characteristics and process, diversity, and social networks. Contextual and/or environmental changes can increase knowledge barriers over time. This peculiar aspect is eminently important for small teams or communities. However, Burkhardt and Lubart [25] described three (mobile) technology characteristics with regard to bolstering creativity: “(1) to help people develop skills related to creativity or creative thinking; (2) to support people’s creative process while engaging in a creation task; and (3) to engage people in new kinds of experiences”. Hence, we ascertain that the management of people, organisations and technology are linked, connected, and, perhaps more interesting than the management of technology itself is the culture of technology. Indeed, Carayannis et al. [26] proclaimed that “the cultural mobility evolution relates to a cultural shift out of necessity for doing business” (p. 468) because it impacts all the components of an organisation, from relational processes to organisational creativity, “whereby creative acts take place in and at the intersection of communities, platforms, and networks”. Referring back to Amabile [10], who identified that teams should be autonomous, composed of individuals with different perspectives and profiles and free of action, we assert that mobile technology can enable creativity and foster the hidden architecture of creativity.

Thriving the Creative Slack

Cohendet et al. [1] brought to light that being connected with numerous communities enhances “boundary spanning, knowledge broking and knowledge sharing” (p. 159), which is beneficial to creative outputs. Taking a congruent but distinct view, Antonczak [27] identified that mobile technology fosters the concept of “ATAWAD” (Any Time Any Where Any Device) and some of his findings showed that some workers particularly appreciated the ability to work in more relevant surroundings to enhance their creativity, such as cafés or parks [28], which allows them to change their perspectives, get into another headspace, or feel more inspired or relaxed. Some participants even argued that mobile technology can allow a good transition between places and inspiration, between formal and informal learning environments, with the informal type being more authentic. Conjointly, mobile technology can support different cognitive dynamics. Therefore, the use of mobile technology, thanks to its affordance, functionality and capability to record and/or recall any interactions or transactions, is considered a “nimble approach” [27] in collaborative practices. It can augment multitasking or multifunctioning, and immediacy, facilitate complex interactions and stimulate network creation [29]. Thus, mobile technology can foster what Aral et al. [30] defined as ‘information workers who receive a greater volume of novel information or who receive it sooner complete projects faster and generate significantly more revenue for the firm’ (p. 22). To go one-step further in terms of (co)creation, Cohendet and Simon [31] propose the notion of “creative slack” which is “shaped by the culture of the firm and is essentially understandable through the jargon of the organisation”. They echo the notion of slack proposed by Penrose [32]. Penrose defined organisational slack as being the result of a company/association’s accumulation of some kind of stock of inexorable residual, or stock-still during the various phases of creating any product or service. Furthermore, in order to keep the creative slack economical, they determined crucial conditions, one of them being the autonomy of communities of practices by maintaining the production and conservation of any relevant knowledge.

Consequently, it seems reasonable to assume that mobile technology can bring a new dimension to creative slack by augmenting the possibilities of documenting, transferring/exchanging or sharing, archiving/retrieving ad hoc, spontaneous or impromptu moments, ideas, thoughts, feelings, hunches and, foremost, by shifting its geolocalisation beyond the organisation itself, within a phygital (physical and digital) shared space.

The attributes and advantages of mobile devices increase the probability of creative and efficient outcomes, whereas social interactions [29] and/or faster and authentic communication are carried out through “social technology” [33]. Accordingly, mobile technology could provide collaborators with more inducement and by the same token alleviate the sunk cost, which could generate a powerful competitive advantage for firms [34]. In line

with Cohendet et al.'s [1] demonstration about the competitive advantage of the “creative slack” resulting from a constant interaction between working groups and “knowing communities” (p. 140), we infer that mobile technology fosters “creative slack” as it facilitates the circulation of a “micro-creative” idea “that has emerged during a project” and which appears “to be relevant” (p. 153). Smartphones can incur opportunity costs in terms of the effectiveness and efficiency of conducting business by causing a distraction and disruption of the otherwise regular and natural flows of daily business and personal lives [26]. We postulate that mobile technology can ensure “creative slack” in innovative organisations helps them thrive in terms of accessibility to information, knowledge and contextuality, wherefore it can strengthen the growth of absorptive capability. To sum up, we infer that the transient character of mobile technology and its attributes can facilitate the introduction of creative slack, and we propose to name this new finding “mobile slack”, or “*m-slack*”.

Based on [35,36], Figure 1 represents a up-to-date understanding of the absorptive capacity and slack in relation to mobile technology (IT capabilities) in organisations.

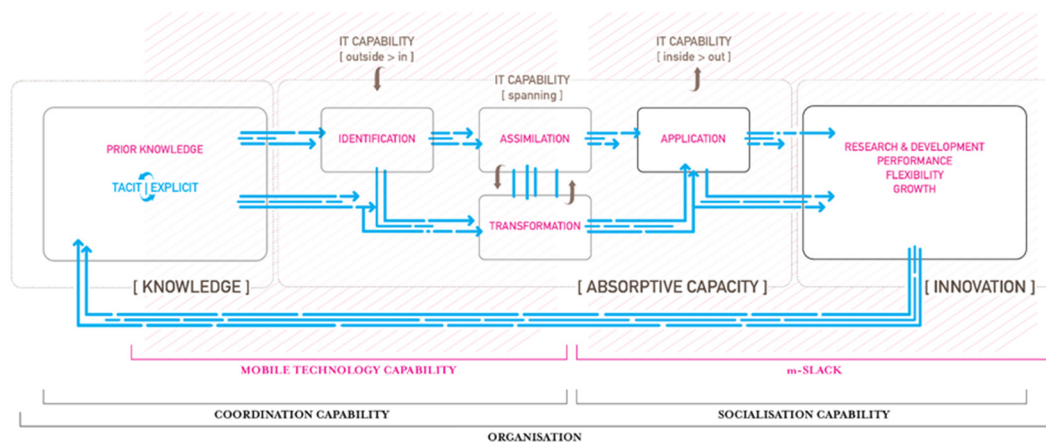


Figure 1. Mobile technology capability and *m-slack*.

The flow of knowledge is represented in dashed lines, and the discontinuity of the arrows visualises knowledge retention and knowledge loss. It also features the “technology opportunity” and “absorptive capability [35] for KI in relation to IT capabilities [37]; consequently, it envisions creative slack with regard to mobile technology.

In other words, *m-slack* is a result of new methods of cooperation, collaboration and/or co-creation thanks to mobile technology, which enables more fluidity in exchanges (memorisation and interaction), and flexibility to “enact” knowledge beyond an organisation’s borders. Hence, *m-slack*, by responsively influencing processes rather than just controlling them, can foster productivity for firms.

Focusing on the role of mobile technology in the creative process with particular attention paid to the notions of slack, affordances and absorptive capacity, we will discuss the theoretical, conceptual underpinnings of the model we have introduced.

3. The Concepts Impelling Creativity on the Move

To start, we will highlight some of the key findings of Cohendet et al. [1] and other authors who investigated slack and creativity [38–40]; then, we will concentrate on specific definitions of a few relevant concepts in relation to technology, notably mobile technology, through references in the broader literature in order to build a dictionary of common terms. We consider the nature of the environment for knowledge enactment and performance based on the work of Cohendet et al. [1] and we will investigate how mobile devices can help introduce “creative slack” and thus how mobile technology can endow absorptive capacity [37,40].

In a nutshell, Ref. [1] stated that innovative organisations can cultivate and flourish projects founded on their enterprising creative slack while using some of the “locuses of creativity” (p. 143) which improve and develop their absorptive capabilities (p. 166) through their nexus of communities (p. 167). In other words, they explained that knowledge

creation for creative firms relies on the interactions between people, some knowledge transfer, and the enactment of knowledge (p. 166). During their demonstration, they used a few examples of organisations without much detail of their size and state of market's maturity.

These findings correlate Cohen and Levinthal's [35] observations about external knowledge acquisition, "outside-in", and internal knowledge dissemination, "inside-in", as being the two fundamental factors with regard to absorptive capacity. Before going into too much detail about "absorptive capacity" and "creative slack", we need to be more specific about some of the terms used.

3.1. Creative Economy and Creative Industries

In order to examine the impact of mobile technology on organisational, innovative, and financial performances in Knowledge-Intensive (KI) firms, we first need to define our sector of focus: the Creative Industries (CIs). While Cohendet et al. [1] sometimes used the term "techno-creative industries" (p. 159, p. 162), we would like to take one step back and revisit the notion of what Caves [41] defined as "creative industries", which included book publishing, the cinema, music, the theatre, visual arts, architecture, advertising, design, and fashion. In 2008, Potts et al. [42] introduced a new perspective based on "an evolutionary model of the creative industries (CI)" (p. 171); they are characterised by the ability to produce or consume content or information "predominantly shaped by generic and operational feedback from social networks" (p. 172). This "prosumer" model and capability are aligned with what Jenkins et al. [43] portrayed as the "spreadable media", which consists of embracing the logic of participatory culture through co-creating and sharing media content or information. Coming back to Potts et al. [42], "the CIs are ostensibly characterised by the dominance of both social production and consumption through the flow of novel rules (as technologies)" (p. 173). This latter point corroborates Cohendet et al.'s [1] views, who demonstrated that, thanks to regular interactions amongst members of various communities, a "network of cognitive links" (p. 166) is established and, after a while, contributes to a considerable amount of transient knowledge. Additionally, we concur with Cohendet et al. [1] who stated that one of the key elements of CIs is established on the notion of "project based firm" (p. 150); therefore, it implies a specific process.

3.2. Process

Several authors defined that, based on a transactional theory, an organisation is only a "processor of information", whereas, based on an evolutionary theory (knowledge-based) approach, a firm is a "processor of knowledge" [44,45]. Thus, the coordination of the scattered units of knowledge added to the appropriated learning processes define the organisation. Additionally, Cohendet et al. [1] also observed that, in general, CIs are composed of two coexisting systems such as "knowledge processing" (p. 139), also defined as an "exploration", and "information processing" (p. 139), which consists of interactions between agents or communities, or "organisational learning" [46]. So, this structuration represents the creative process of the firm in CIs. Rosenberg [47] found that some rapid advancements are the consequences of a "capitalist growth process" and the agent of "extremely disorderly process", as well as the catalyst for unpredictable "stock of technological knowledge" (1982, pp. 123–124) but technology is rapidly obsolete; therefore, we need to focus on its role in general rather than on a particular technical attribute. This approach echoes Rogers' seminal "Theories of diffusion" [48], where innovation exposition and adoption are manifested in "processes by which participants create and share information with one another in order to reach mutual understanding" (p. 17). Hence, "the essence of the diffusion process is the information exchange through which an individual communicates a new idea to one or several others" (pp. 17–18). Therefore, the process of creation of resources for firms dwells in the "outside-in" determinant, instead of the "inside-out" one [49].

3.3. Flow, Stock and Slack

Although Cohendet et al. [1] ascertained that “routine” is pivotal in knowledge creation, we suggest looking at this notion through another theoretical lens. Indeed, routines might be better viewed as flow and stock. Therefore, knowledge flows used in firms can be classified into three types, “transmissions from persons to records, from records to persons, and from person to person without record” (Machlup [10], p. 400), and the knowledge itself can be grouped into two key categories: “knowledge on record” and “knowledge in the mind”. Consequently, Machlup [10] started to query the misused and/or unused knowledge consumption (stock) and production (flow), which led Dierickx and Cool [50] to illustrate this interrogation using the “bathtub metaphor”: “while flows can be adjusted instantaneously, stocks cannot. It takes a consistent pattern of resource flows to accumulate a desired change in strategic asset stocks” (p. 1506). Their argument focuses on the strategic adjustment of flows and stocks to form distinctive competencies for the organisation. In parallel, Bourgeois [34] investigated the necessity to take into account “a cushion of excess resources available in an organisation” (p. 29): the slack. Bourgeois ascertained that “slack can provide resources for creative behavior” (p. 34); he also clearly stated that slack cannot be programmed or engineered in advance. Furthermore, organisational slack can act either “as a buffering mechanism in the workflow process” or “as a facilitator of certain types of strategic or creative behavior within the organisation” (p. 31). Consequently, we believe that our approach of flow and stock fits with what Cohendet et al. [1] proposed: “the creative potential of the firm rests on the optimal balance and continuous interaction between formal and informal structures developed within” (p. 140). It also fits with Roberts et al.’s [37] perspective on technology which can facilitate “knowledge flows” and “processes” as well as constituting an effective system “for applying the knowledge to useful purposes”. The same arguments are put forward for new product innovation and creativity management [51,52].

3.4. Absorptive Capacity

Many analyses of the literature have been conducted, with discussions of the notion of absorptive capacity [53–55]. However, our discussion is based on the seminal paper of Cohen and Levinthal, who revealed that “creative capacity” and “absorptive capacity” are very much alike (p. 130); we found that the relationship between flow and stock can be a source of creative capability for firms from an “outside-in” perspective. Although Cohen and Levinthal stated that an organisation’s absorptive capacity is built upon “the absorptive capacities of its individual members” (p. 130), we concur with Cohendet et al.’s views that “knowing communities” (multiple individuals) have a stronger potential to enhance innovation (p. 148). Complementarily, Roberts et al. [37] claimed that absorptive capacity can be considered from two common perspectives: “as a “stock” of prior related knowledge and as an “ability” to absorb knowledge” (p. 627). This perspective implies the management of the flow and/or the stock of knowledge and/or information inside and/or outside of the organisation itself.

In line with the views of Cohendet et al. [1], we propose considering a firm’s capability to learn in relation to the “unexploited or underexploited productive resources” (p. 153). Additionally, Woodman et al. [11], demonstrated that “a reasonable conjecture within the context of this model is that slack resources also will enhance creative outcomes for the organisation” (p. 313). They also suggested that it is difficult to precisely define the creative processes within organisations and their complex collective structures. Additionally, Héraud et al. [56] explained complexity through the lens of globalisation and they highlighted that the world is becoming more and more connected, which bring more and more unpredictability in spite of technological and economic advancements. Hence, we could query if organisational creative preferences could be enhanced by the capability of slack resources thanks to technology. However, while referring to March, Burger-Helmchen et al. [57] found that the slack provides workers or communities a feeling of freedom, or creative latitude, beyond the expectations and constraints of the organisation

system and structure. Roberts et al. [37] understood this point differently, stating that “modern information technologies perform a critical role in the development and maintenance of a firm’s absorptive capacity” (p. 625). To a certain extent, the role of technology in fostering absorptive capacity has also been acknowledged by Cohendet et al. [1], who stated that “a virtual exchange of knowledge further enables these members to maintain an intense connection to the global world” (p. 165).

3.5. Affordances

In our investigation, we found that Cohen and Levinthal suggest that, in order to strengthen their “assimilative powers”, an organisation should enable “the individual to make novel associations and linkages” (p. 130). Additionally, Cohendet et al. defined “communities” as being primarily composed of “young professionals” (p. 150), who are “connected to their community on a daily basis” (p. 151). Additionally, recently, Antonczak [27] demonstrated that mobile technology can be a key apparatus for collaboration beyond borders and time thanks to its affordance (ease of use, the fact it fits in one’s hands, and always being connected). We also agree with Swanson [58], who portrayed technology-enabled functionalities as affordances (p. 1009). In different circumstances, Leonardi [59] defined affordance as the interaction that exists “between people and an artifact’s materiality” (p. 153). Moreover, Roberts et al. [37] demonstrated that technology can play a crucial role in fostering individuals to share and exchange amongst themselves, or beyond their community, via “computational and communication abilities” and, as a consequence, broadening the potential for absorptive capacity (p. 640), especially thanks to mobile technology affordance. Alongside this, Roberts et al. [37] argued that (mobile) technology can provide organisations with efficient capability management, which in turn allows “knowledge exchange across intra- and inter-organisational boundaries” (p. 641). Additionally, not long ago, Antonczak [27] unveiled that “mobile devices” affordances sustain ongoing interactions and exchanges, as well as reshape new modes of cooperation via a digital and online culture (p. 29).

3.6. Creative Slack

Cohen and Levinthal appropriately asked if absorptive capacity should be exclusively generated in house or if it is possible for an organisation to buy it out (p. 135). Based on Cohendet et al.’s [1] vision, we believe that the creative potential of an organisation resides in its capability to enact knowledge amidst its “formal” aspects, “the hard architecture of knowledge” (p. 147), and informal aspects, the “soft architecture of knowledge” (p. 147), borderless network. Hannola et al. [60] discovered that technology can empower workers, or collaborators, by sharing “their contributions openly in a communally updated pool of knowledge” (p. 4735). Therefore, “mobile learning” can bring a valuable way “to perform a wider range of tasks and to share more responsibilities”, and “available at the right time in the right place” (p. 4737). Furthermore, “knowledge is subject to continuous change, as work practices evolve and requirements change” (p. 4737). Thus, it can make the innovation process relatively insensitive to geographical distances and time differences. Another output of the innovation process was categorised by Penrose as being either “unexploited” or “underexploited” resources, but Cohendet et al. [1] grouped them differently under the terms “creative slacks” (p. 150). Yet, they extended Cyert and March’s [61] seminal definition of the slack, which enables individuals or communities to reduce conflict, control and/or injunctions with/from hierarchy and/or administration. They also defined “creative slack” as a decisive competitive advantage for organisations for a minor monetary worth, and as a sanity buffer between employees and administration (p. 154). Hannola et al. [60] found that technology enables “new work practices and new organisation of work” (p. 4739). Consequently, referring to the notion of a working environment beyond organisational boundaries to digital spaces enabled by mobile technology [27], we can conjecture that we are moving from a “production worker” perspective to a “creative worker” one, sustained by the notion of “creative slack” [1] and “social complexity” [62].

4. Creativity on the Move and m-slack

The above literature review presents the main underlying concepts that we mobilised in our model (Figure 1). Several authors used these concepts before and combined them in several subthemes. In the following tables, we highlight the main subthemes and important literature related to them. These findings enhance the comprehension of the links and variables of our framework (4.1), and give us the opportunity to present some propositions related to *m-slack*.

4.1. Routines, Networks, Networks, Dynamics and Mobile Devices

Table 1 presents some of the key findings in the literature about the notions of organisational culture, technology and creativity. They are notably congruent with the general notion of organisational routine.

Table 1. Routine and mobile devices, or creativity on the move.

Subtheme/References	Findings Synthesis
Organisational culture [63,64]	Organisational routines strongly rely on individuals' habits and inclinations, rather than action or management. Routines are established in organisational structures and are the result of individuals' habits within the organisation. Thus, "their operation is triggered by cues in the organisational environment" and their intrinsic procedures and cycles are embedded in the culture of the company, or firm.
Technology [58,65]	Technology can change and/or affect routine cycles and/or dynamics, and enable "new sociomaterial assemblages of actors, artefacts, theories, and practices". It also facilitates various processes such as communication, the stock and/or exchange of information, and autonomy by remote access to some data, for instance.
Creativity [66,67]	Creativity could result from a routine enactment, which could generate original and/or innovative patterns on a regular and/or continuous basis. In this case, the context of the routine and the nature of the various contributing actors/agents, pro-routine or not, can be critical, and even decisive in some cases.

Table 2 highlights some important results related to the organisation of individuals, into communities of practice (CoP) or communities of innovation (CoI). Among authors, the literature highlights the ability of communities to help individuals to overcome an overload of information, a common problem with the use of mobile devices.

Table 2. Networks and mobile devices, or creativity on the move.

Subtheme/References	Findings Synthesis
Organisation [30,68]	A network is often considered as a concealed form of procedure and structure that enables the management of a complex system in organisations. Hence, they induce an organisational dichotomy between static, stability (unseen and intangible) and dynamic aspects (visible action and consequences), and support virtual environments.
CoP/CoI [69,70]	Network attributes and abilities can also be encompassed in communities of practices, between the individual and the practices at different organisations' levels. They can serve as a buffer between reactivity and inertia during innovation and/or the development phase for organisations. Its collective and collaborative enactment can have important consequences for distinctive organisational dimensions, such as cognitive, coordinative and motivational ones.
Interaction [71,72]	The "strength of ties", the degree and level of interactions, fosters the continuity and development, or not, of a network of interpersonal and inter-organisational relationships. Therefore, diverse interactions between people can enable creativity and knowledge sharing and/or recombinations. However, excessive interactions can lead to saturation, an overload of information.

Table 3 shows the nature of the dynamics inherent to the use of mobile devices. Sharing, social capital and collective creation are at the centre of these dynamics.

Table 3. Dynamics and mobile devices, or creativity on the move.

Subtheme/References	Findings Synthesis
Sharing [29,73]	An organisation's knowledge-sharing culture can empower employees and/or actors. Hence, it can enable collaborative and innovative practices within companies, and/or amongst multiple working parties. Consequently, a socially constructed knowledge-sharing environment and/or organisational culture can enhance the codification of tacit knowledge into explicit knowledge and lifelong learning.
Social Capital [58,74]	Knowledge conversation dynamics such as "metavoicing" (multiple actors' voices), "triggered attending" (technology-enabled environments), network-informed combinations (mixed CoP), and creative role taking (trusted interactions) can support organisations and/or firms to engage with workers and/or collaborators as a consequence to foster social capital.
Collective [75,76]	Collective and/or cross-functional teams need to take into consideration some characteristics such as "interpersonal conflict", the "cocreation of intermediate scaffolds", and creative engagement support and/or encouragement, for instance. Consequently, collective knowledge can be attained through the cogeneration of complementary and/or supplementary personal competencies and skills.

Table 4 give details on trust, proximity and technology related to the use of mobile devices. The ATAWAD implications related to these notions are presented.

Table 4. Affordance and mobile devices, or creativity on the move.

Subtheme/References	Findings Synthesis
Trust [77,78]	Trust in technological affordance differs from person to person in the way they consider whether technology is either "human-like" either "system-like". Hence, in terms of social affordances and affordances for sociality, the outcome can be radically divergent. However, technology enables tacit knowledge sharing via social media in an easy way using a "swift trust" approach.
Proximity [79]	Spatial proximity and cognitive proximity can be enhanced through technology, networks, CoP and/or clusters, where tacit knowledge can be shared, converted, into explicit knowledge, and co-produce new knowledge. Therefore, the ATAWAD "anywhere, anytime, any device" fosters a "socially appropriated, negotiated, legitimised, and institutionalised affordance for individual and organisational communications, practices and/or collaboration.
Technology [80]	More and more business models consider technology affordances for financial and organisational reasons. Indeed, technology can enable "conditions in which "sharing" is regarded as not only routine and benign but pleasurable". Furthermore, online affordances can trace the process of collaboration and innovative practices. Thus, it can enhance trustworthy dynamics across networks or numerous working actors.

4.2. Some Implications of *m-slack*

The above tables and previous literature review allowed us to make Table 5. In this table, we compare situations where individuals have some *m-slack* and access to affordance and networks. A classical four-square matrix emerged. Starting in the lower left square, the individual has no slack and limited networking capabilities. Without this, they are unable to develop any special individual creativity. In the absence of slack, and being highly integrated in a network, it a quasi-obligation for the individuals to follow the teamwork (lower right).

Table 5. *m-slack* combined with affordance and network dimensions.

<i>m-slack</i>	Present	Underused tool time but no interaction; some individual creativity not enhanced by tools or interaction	Positive impact on individual creativity and possible feedback to team creativity
	Absent	No time for development of individual creativity or team-oriented creativity	Obligated team creativity; no individual contribution but interaction with other
		Negative	Positive
Affordance and network			

When an individual has some slack time, they use their devices in a more creative way. Only with network interactions can the full potential of mobile devices be released.

From this table and Sections 3 and 4.1, some propositions can be formulated for further investigation.

Proposition 1: *Mobile devices increase the need for slack if creativity is team based.*

Proposition 2: *Mobile devices can lead to more interactions, as well as easier, freer interactions with team colleagues, and therefore result in more creative collaboration.*

Proposition 3: *Mobile devices, in presence of “negative affordance” and no slack, can lead to less individual and team creativity.*

5. Conclusions

We investigated Cohendet et al.’s concept of “creative slack” [1] in relation to mobile technology by investigating some core notions: “process”, “flow and stock”, “slack”, “absorptive capacity”, “affordances”, and “creative slack”. We aimed to rejuvenate this theory along the lines of Cohendet et al. [1], especially taking into account a bricolage perspective rather than “routines” in a creative environment. Hence, we also raised awareness of mobile technology as a catalyst for knowledge and value creation, an intercessor for creative slack growth and/or resourcefulness. In short, this study broadened and deepened what can be summarised as “Entrepreneurs who leverage mobile technologies tend to increase their chances in the generation of additional resources” ([26], p. 470). Although, for our empirical examination we only considered absorptive capacity, and so creative slack needs further investigation.

5.1. Contribution to Scholarship

This paper pays particular attention to mobile technology as an intercessor between “organisational slack” [81] and “creative slack” [27] over and above organisational frontiers. It also extends the definition of creative response, which can always be understood ex post, but it can practically never be understood ex ante in relation to technology. Finally, we propose a freshened understanding of mobile technology’s capability and its relationship with creative slack (Figure 1), otherwise known as *m-slack*.

5.2. Contribution to Practice and Management

Mobile technology, if leveraged effectively, can enhance collaborative teamwork through making “informational and social resources more accessible and transparent” [82]; it could support a kind of open organisational architecture, with a greater fluidity of exchanges and flexibility to act. Although indirectly mentioned, managers should further consider mobile technology as a catalyst for creativity and collective engagement [12] and therefore productivity [30]. Way too often managers do not perceive that slack and what looks like recreative use through smartphone practices in appearance can help ensure a

relevant, or pertinent, flow of information and/or content for organisations. Consequently, both work-oriented and “digressive” and “divergent”, smartphone applications or practices can be used in a professional context during creative phases for simply collecting information (flow) and/or nurturing the firm’s knowledge (stock).

5.3. Future Research Steps: Mobilising Bricolage

As implied by the discussion above, “most of the learning activity results from a learning by doing process”, which instigates the creation of a “common cognitive framework” [1] (p. 145). Moreover, Carayannis et al. [20] also stressed that mobile technology is a key element to increase competitiveness and leads to considerable benefits by enabling “knowledge acquisition and social networking connectivity” (p. 448) through “interactions and connections between various participants within their respective network system” (p. 450). Cohendet et al. [66] understood “constant friction” and “abrasion” within “formal and informal structures” as routines interactions (p. 140); we think that *m-slack* is the key to a newly defined bricolage combined with mobile potential.

Indeed, mobile technology’s “memory function makes possible both the collection and recording, and the consultation and regaining of ideas, impressions, thoughts, facts, feelings, to name a few, afterwards” [29] (p. 525). Hence, our intention is not to adjudicate among different perspectives on “routines” and/or “dynamic capabilities”, but to challenge their pertinence for KI, which often leans on improvisation and sense making while dealing with uncertainty and ambiguity compared to larger enterprises. In other words, “other serendipitous opportunities may also take place by the user accessing content for an unspecified purpose, which can lead them to something unexpected” [26] (p. 455), which means that mobile technology affordances can enhance a “techno-bricolage” mindset that in turn will feed *m-slack*; vice versa, *m-slack* can improve the knowledge of organisations’ workers and community members “to provide for one another social affordances that scaffold knowledge creation in practice” [69] (p. 203).

Author Contributions: Conceptualization, L.A.; methodology, L.A.; investigation, L.A.; resources, L.A.; writing—original draft preparation, L.A.; writing—review and editing, T.B.-H.; visualization, L.A.; supervision, T.B.-H.; project administration, L.A. and T.B.-H.; funding acquisition, T.B.-H. All authors have read and agreed to the published version of the manuscript.

Funding: Partnership for the Organization of Innovation and New Technologies, funded by the Social Science and Humanities Research Council of Canada: 895-2018-1006 and the Chair in Management of Creativity sponsored by Schmidt Groupe at the Foundation Université de Strasbourg.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Acknowledgments: The author thanks the referees for their suggestions.

Conflicts of Interest: The authors declare no conflict of interest.

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