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Where does all the 'know how' go? The role of tacit knowledge in research impact

Vincent-Wayne Mitchell ^a, William S. Harvey ^b and Geoffrey Wood ^c

^aBusiness School, University of Sydney, Sydney, Australia; ^bBusiness School, University of Exeter, Exeter, UK; ^cFaculty of Social Science, Western University, London, Canada

ABSTRACT

Higher Education Institutions are increasingly called upon to demonstrate their real world impact, which, in many instances, remains elusive. We believe this is partly due to the undercounting and under-estimation of the importance of tacit knowledge by researchers and regulators. We propose this as a missing contingency in the research–impact relationship. To better acknowledge and utilize tacit research knowledge in the impact process, we emphasize processes of praxis, reflexivity and dialogical sense-making, which help externalize implicit tacit knowledge, and socialization processes, which facilitate enactment, emulation and feedback to develop inherent tacit knowledge. Examples from management research are used to exemplify these processes. The implications of accepting the importance of tacit knowledge in creating impact call for changes in how researchers, universities, funders, assessors and governments, fund, create and assess real world research impact.

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Introduction

Many governments now formally assess, or are considering assessing, how university research impacts on society (e.g., US, UK, Australia, Spain, France, Italy and the Netherlands) (Reed et al., 2020). However, even for applied disciplines like management, the evidence suggests they may be underperforming on impact (Kellard & Sliwa, 2016; Tourish, 2020). In addition, many scholars have been critical of the impact agenda (Chubb et al., 2017; Chubb & Watermeyer, 2017; Martin-Sardesai et al., 2017; Watermeyer & Chubb, 2019; Woolcott et al., 2020), but both governments and scholars have failed to adequately outline the underlying knowledge conditions needed to generate impact.

Our contention is that impact and impact assessments are too focused on knowledge transfer viewpoints which favour explicit knowledge, and underplay or ignore the central role of tacit knowledge in creating the know-how which practitioners need to use the research. Tacit knowledge is the knowledge that we draw on while doing (e.g., driving or teaching), but is difficult to express in language or be conscious of (Polanyi, 1966).

CONTACT Vincent-Wayne Mitchell  vince.mitchell@sydney.edu.au

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For example, a map is explicit knowledge, but working out where you are and where you need to go requires tacit knowledge (Tsoukas, 2005). With explicit research, ‘*knowledge must rely on being tacitly understood and applied*’ (Polanyi, 1966, p. 6) to be impactful. However, in many research projects, tacit knowledge remains undisclosed, under-represented and undervalued when thinking about how to use explicit research findings for impact. To address this issue, we focus on three related questions. First, what is problematic with the current approach to creating and assessing real world impact from research? Second, what is the role of tacit knowledge in helping to create impact from research knowledge? Third, what are some of the challenges and implications of better understanding the role of tacit knowledge for researchers, universities, funding bodies and government impact assessment exercises?

In answering the above questions, we challenge the value of current research impact practices that ignores tacit knowledge. We contribute to existing debates by problematizing the established dominant explicit-knowledge viewpoint of research impact. This expands existing impact debates to include tacit knowledge (Aguinis et al., 2014; Doyle, 2018; MacIntosh et al., 2017; Perkmann et al., 2013). We add a potentially powerful theoretical explanation, tacit knowledge, to the growing calls to see research impact as a process of managing stakeholder relationships (e.g., Doyle, 2018; Haley et al., 2017; MacIntosh et al., 2017). Finally, we advance on work (Rynes et al., 2001) through extending and deepening the externalization and socialization framework (Nonaka & Konno, 1998) into implicit and inherent tacit knowledge. We add new socialization processes of enactment, emulation and feedback, as ways for researchers and impact assessors to conceptualize how to address these issues.

We begin by problematizing the current dominant viewpoint on research impact and discuss why tacit knowledge is a *sine qua non* of impact creation, before elaborating on processes of externalization and socialization to achieve a better understanding of how tacit knowledge can be created. We conclude by calling for changes to how researchers, universities, funders and governments can create and measure research impact.

Higher education and the research impact agenda

In this section, we summarize work on the problems of and solutions to the impact agenda. Impact has been defined as: ‘*an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia*’ (REF¹, 2014), or in short, an ‘*auditable or recordable occasion of influence*’ arising out of research (Haley et al., 2017, p. 3). Despite its apparent clarity, little guidance is given on how to create or measure impact. Current guidance relies on the case study as the dominant form of assessment which requires evidencing the effect, change or benefits to non-academic stakeholders (ARC, 2018; Mitchell, 2019). There has been much criticism of the impact agenda for focusing on ‘wide and shallow’ economic effect-based views that are ex-post, linear and uni-directional (Woolcott et al., 2020), sacrificing scholarly integrity when researchers sell non-academic impact research ideas to research funders (Chubb & Watermeyer, 2017), commodifying academic labour and restricting academic freedoms (Martin-Sardesai et al., 2017), misaligning personal, moral and disciplinary identities which gives rise to emotional dissonance and disquiet (Chubb et al., 2017) and introducing biases of user-assessors who are

prone to emotional and intellectual vulnerabilities (Watermeyer & Chubb, 2019). Additionally, any outcome evidence is largely based on explicit research knowledge which is straightforward to communicate, store and distribute through books, websites and other visual and written means to create impact. This mainstay of how research knowledge is created, disseminated and captured for impact assessment is illustrated by 80% of UK REF 2014 impact cases including at least one testimonial or project report, 30% using websites and a quarter using media coverage (Hughes et al., 2019).

The privileging of explicit knowledge as a yardstick for impact ignores the fact that much research knowledge gained in research projects is not easily codified, recorded or formally shared. Indeed, much of the knowledge created by a research project cannot be put into a research paper, so much knowledge remains latent within the knowledge creator (Agrawal, 2006). Ironically, the case-based system of evidencing impact itself perpetuates this problem since it is written in codified form containing mainly explicit knowledge. As a result, it is a restrictive account of the research which undervalues and underestimates the tacit knowledge. Hence, impact assessments invariably favour research whose results contain explicit knowledge rather than research that leads to tacit knowledge (Parks et al., 2018) which creates a systematic bias towards certain types of projects that are deemed impactful (McAdam et al., 2007).

In terms of solutions to the impact creation problem, there are many suggestions including: enhancing the ‘transferable’ skills which researchers utilize in evidence-gathering (Wilkinson, 2019), allowing students to be vehicles for impact (Mitchell & Harvey, 2018), reviewing accreditation criteria (e.g., AACSB, 2018), providing better implications for practitioner sections in articles (Bartunek & Rynes, 2010), changing reward structures and mentoring (Haley et al., 2017) and properly funding impact work (Mitchell, 2019). A common theme involves thinking about impact during the processes of undertaking the research itself as opposed to afterwards (Doyle, 2018; Woolcott et al., 2020). Such engagement includes: situated, relational and ongoing interactions and creating space for generative dialogue (Johnson & Orr, 2020), broadening participation, initiating consortia, building impact evaluation groups, mentoring (e.g., Haley et al., 2017), promoting engaged scholarship (see Van de Ven & Johnson, 2006), dialogue, praxis, and reflexivity (MacIntosh et al., 2017), sabbaticals in business practice (Aguinis et al., 2014, p. 627) and more ‘Mode 2’ research (Gibbons et al., 1994), all of which should be carried out over long time periods (Upadhyaya & Pillai, 2019). These academic-practitioner engagement activities underpin the view that ‘impact is a process, not (solely) an outcome’ (MacIntosh et al., 2017; Perkmann et al., 2013) and reflect a perspective that impact is the process by which research makes a difference, rather than the product of having made a difference (Doyle, 2018). What is missing is why these interactions are so important. We now offer an explanation as to why processes are necessary. We argue that when utilizing the explicit knowledge within a research article, a practitioner or practitioner organization requires tacit knowledge to achieve the required impact.

Why tacit knowledge is a *sine qua non* for creating research impact?

The importance of tacit knowledge has been recognized for some time in scientific and technological knowledge (Rosenberg & Nelson, 1994) and in a wide range of organizations (Park & Gabbard, 2018; Faulconbridge, 2007; Aoki, 2010). Most researchers

accept ‘the importance of tacit knowledge for enabling individual and organizational performance’ (Hadjimichael & Tsoukas, 2019, p. 688). Indeed, superior results often rest on knowledge that is tacit, complex and embedded in networks and routines (Nelson & Winter, 1982), especially in R&D (Howells, 1996, p. 100) and manufacturing (Grant & Gregory, 1997) where organizations may gain competitiveness by granting space to nurture, develop and share tacit knowledge (Moeen & Agarwal, 2017). Teams collectively build relevant shared cognitive capabilities that transcend the potentially substitutable knowledge of one individual (Aoki, 2010) and tacit knowledge solutions are often more accommodating of the needs of people, production systems, and societies (Chuang et al., 2016).

In terms of university research, early work identified that research ‘knowledge becomes reconfigured in a process that depends as much on the tacit knowledge of the management researcher as it does on the formal findings of the research’ (Thorpe et al., 2011, p. 421) and that tacit knowledge may be particularly useful for non-academic stakeholders (Perkmann & Walsh, 2007). Indeed, some have suggested tacit knowledge is at the core of research impact (Cunliffe & Scaratti, 2017), while patents and other explicit knowledge from universities are only moderately important for innovation, especially of the incremental variety (Perkmann & Walsh, 2007, p. 21). The UK Research Councils (RCUK) have highlighted the importance of: ‘focusing on all intellectual assets flowing from research, and not solely IP rights, given that softer modes of IP exploitation, such as know-how, can have greater impact’ (HEFCE, 2016, p. 52).

Our general argument is that the role of tacit knowledge cannot be underestimated because it gives meaning to explicit knowledge. Tacit knowledge is the background knowledge (Pozzali & Viale, 2006) or situational experience (Aoki, 2010) that determines what people should do in a given situation. It allows practitioners to know which piece of explicit research knowledge is most appropriate to a specific situation. Hence, explicit research knowledge requires *accompanying* tacit knowledge on how it can be contextualized and utilized to achieve impact outcomes. How this is achieved requires a good understanding of tacit knowledge and an appreciation of the differences between *inherent* and *implicit* tacit knowledge.

Implicit and inherent tacit knowledge have been referred to as the interactional perspective and the practice perspective (Hadjimichael & Tsoukas, 2019). Implicit tacit knowledge is the part of tacit knowing how to do things that you can describe to others. It is gained from the experience of doing, but can be made explicit. Although usually hidden and unspoken, implicit knowledge (interactional perspective) can often be teased out of a research subject or practitioner by a researcher who is skilled in identifying this kind of knowledge and how to get people to articulate it. Implicit-tacit knowledge can often be revealed as explicit knowledge through describing the practice of activities.

Inherently tacit knowledge (practice perspective) is the part of tacit knowledge that remains unrecalled and undisclosed as it is ‘imperfectly accessible to conscious thought’ (Nelson & Winter, 1982, p. 79) and it cannot be articulated: ‘If I know how to ride a bicycle or how to swim, this does not mean that I... have the slightest idea of how I do this’ (Polanyi, 1966, p. 4). It ‘cannot be “captured”, “translated”, or “converted”, but only displayed, manifested, in what we do’ (Tsoukas, 2005, p. 157). To illustrate the two types of tacit knowledge, we reference Tsoukas’ (2005, p. 153) comments on

the skill of learning breadmaking. He says that the learner cannot be told the kneading skill in total 'but only its technical part: that which is possible to articulate in rules, principles, maxims' (implicit-tacit knowledge). But even the most complete and explicit accounts of breadmaking will still not capture all tacit knowledge (inherent tacit knowledge). Within Polanyi's (1966, p. 4) memorable phrase: 'we can know more than we can tell' is the notion of inherently tacit knowledge. Inherently tacit knowledge is difficult to separate from its environment, namely the people, processes, products, and politics surrounding what is known (Bozeman, 2000); it is situated and context-dependent (Gourlay, 2006, p. 1430). Inherently tacit knowledge is therefore a different type of contextualized knowledge which is based upon experience and represents a type of knowledge which is not factual, but more an instance of pattern recognition, the whole or the gestalt (Polanyi, 1997).

In a research setting, implicit-tacit knowledge can be brought to the surface through reflections of the subject on their own practice by explaining what they do and why they do it. Take, for example, knowledge about consumers' reactions to unit pricing (Mitchell, Lennard, et al., 2003). The explicit research findings showed consumers do not use unit-price information, but the research also gave people simulated tasks to observe and reveal the inherent tacit knowledge of how they used unit prices in certain situations as well as debriefing participants to get them to articulate their implicit tacit knowledge in using unit prices. In addition, researchers acquired this tacit knowledge through experiences of the research project and although it cannot be articulated, it is crucial to knowing how to use and gain impact from research findings within a given context. Having explained the importance of tacit knowledge for impact and the different types, we now unpack how such general ideas can underpin impact processes.

Externalization and socialization processes for tacit knowledge

In this section, we explore how researchers can address the under-accounting of tacit knowledge within the research impact process and deal with implicit and inherent tacit knowledge. To do this, we draw on the work of Nonaka and Konno (1998), which outlines the processes of *externalization and socialization*. Externalization is the 'conversion of tacit knowledge into explicit knowledge via word, images and concepts', while socialization is 'the exchange of tacit knowledge through joint activities' (Nonaka & Konno, 1998, pp. 42–44). This work has been critiqued (Gourlay, 2006; Tsoukas, 2005) and it does not explore how these processes relate to implicit and inherent tacit knowledge, nor does it provide much elaboration of the processes involved. We provide both and use these general processes as a useful starting point to build upon.

In deepening our understanding of externalization and socialization processes within research impact we first suggest externalization is applicable for implicit-tacit knowledge while socialization is more attuned to inherent-tacit knowledge. Tacit knowledge involves social interaction, and hence suggests that it is underpinned and sustained by complex patterns of behaviour, as opposed to assumed knowledge, which is not (Johnson et al., 2002). For socialization to engender the creation of inherent-tacit knowledge, we consider both the amount of time the activity takes (tacit knowledge takes more time to create) as well as the degree of 'relational intensity', which describes how a particular activity is dependent on direct personal involvement of the participants

(Perkmann & Walsh, 2007). As an example, communities of practice epitomize high degrees of both: ‘Thinking together, as a trans-personal knowing process, is a good way of sharing tacit knowledge. Knowledge is redeveloped rather than literally transferred from one person to another’ (Pyrko et al., 2017, p. 403). Using these notions of time and relational intensity, we suggest that not all impact interaction processes hold equal potency when conveying different types of tacit knowledge and plot these in four quadrants in Figure 1.

To illustrate the usefulness of our general framework for research impact, we explore it within the context of the business and management discipline. These examples as archetypes from the discipline of management are chosen to illustrate a point. We do not suggest that every activity must always be at the same point in the graph. For example, some longer in-company executive education activities could involve higher levels of socialization and opportunities for thinking together with practitioners, while writing a book about research and its effects² is not always only explicit knowledge. We now explore each of these quadrants more fully to identify the nature of the type of tacit knowledge involved and how it is generated.

Quadrant 1: socializing inherent-tacit research knowledge

Quadrant 1 is important because these activities give the greatest opportunity for socialization and learning through person-to-person interaction, but relatively little externalization. Archetypical examples include DBAs³ (Romme et al., 2015), communities of practice, forms of apprenticeship, consultancy assignments or secondments with other organizations (Sealy et al., 2017). These longer-term socialization processes allow

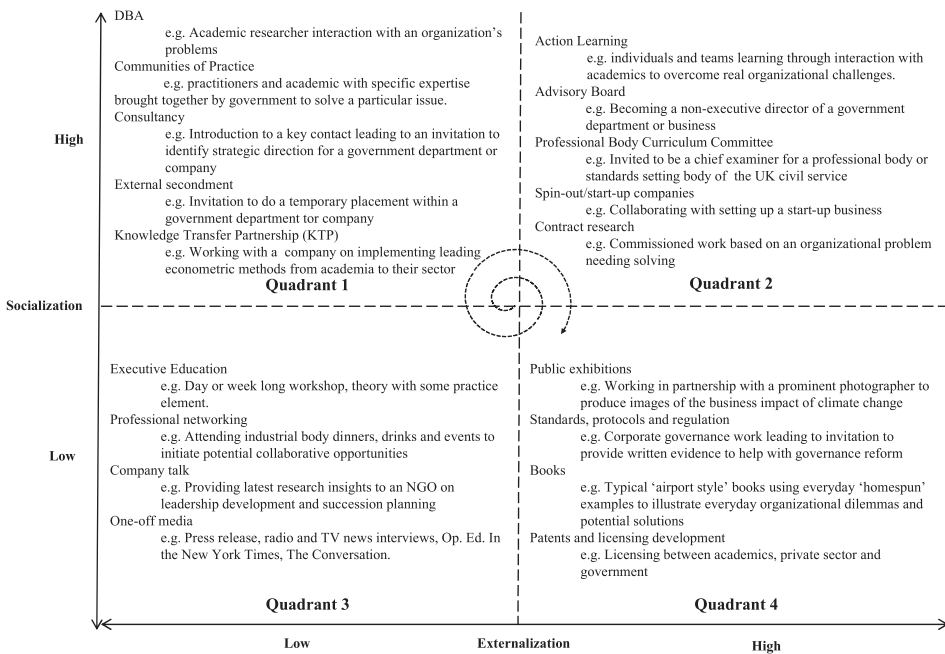


Figure 1. Examples of knowledge generation and dissemination processes allocated by their degrees of socialization and externalization.

several important aspects of inherent-tacit knowledge learning to happen, namely: enactment, emulation and feedback. Since inherent tacit knowledge cannot be communicated even verbally, ‘I cannot explain very well how I do this, so let me show you’ (Maskell & Malmberg, 1999, p. 172), it needs to be transferred by enacting ways of thinking and doing through real-time performance and demonstration. This allows tacit knowledge to be shared ‘as people discover each other’s performances in practice and they learn together and from each other, rather than being acquired or replicated’ (Pyrko et al., 2017, p. 406). Following this, emulation and imitation needs to happen. Emulation can allow inherent tacit knowledge to be acquired without awareness through a process of unconscious learning (e.g., Berry & Zoltan, 1993) as well as through experiential learning, copying behaviour and learning by doing (Kolb, 1984). However, ‘to learn by example’, as Polanyi (1962, p. 53) says, requires a knowledgeable person to learn from, therefore the archetypal example here is the master–apprentice relationship. This relationship has been explored among expert scientists (Pyrko et al., 2019), but not with reference to the roles of tacit versus explicit knowledge. Emulation allows learners to develop their own inner inherent-tacit knowledge of how to use the research in practice. This adds a ‘personal coefficient’ (Polanyi, 1962, p. 17) to knowledge and reflects that all knowing is ‘personal knowing’ (Polanyi & Prosch, 1975, p. 44).

A second consideration is feedback and correction of the self, or by others. Self-learning develops inherent-tacit knowledge during these socialization processes through the process of trial and error. As Gourlay (2006) observes, people regularly learn new skills without direct personal contact with an expert; this testifies to the centrality of learning-by-doing or experimentation for acquiring skills. This form of self-learning by self-doing is one way inherent tacit knowledge can be gained, without individuals being able to identify what it is that they have come to know (Polanyi, 1966, p. 5). Feedback is not a necessary condition for the development of inherent-tacit knowledge, but it can accelerate the learning process. With practice, our proficiency will improve on its own, however it benefits from feedback. Sometimes this feedback might be implicit-tacit knowledge, which is verbalized, individualized, and as it is only made explicit during performance being delivered face-to-face. Continuous feedback and correction in different circumstances also helps to develop a person’s ability to answer the question: ‘What should I do if ...?’, when faced with a situation which is different from that in the research article.

Quadrant 2: externalizing implicit tacit knowledge while socializing

In quadrant 2, the activities present opportunities for working closely together such as contract research, advisory boards or professional body curriculum committees. Our assumption is that these are opportunities for externalization of implicit-tacit knowledge created during these close working relationships. This differs from quadrant 1 where there may be little externalization. These close working opportunities between academics and practitioners can be used to externalize, convert, create and convey implicit tacit knowledge using the processes of dialogue and reflexivity (MacIntosh et al., 2017). For example, dialogical sense-making might elicit implicit-tacit knowledge through the ‘lived experience of research participants ... in collaborative researcher–practitioner conversations by surfacing, questioning and exploring

multiple meanings and imagining new possibilities for moving on' (Cunliffe & Scaratti, 2017, p. 29). Such conversations encourage reflexivity and dialogic discourse (Antonacopoulou, 2009; Beech et al., 2010), by drawing on practitioners' knowledge of their own organizational practices, which enables better usage of research findings in their contexts (Plsek et al., 2007) and reduces risks of interacting (Mitchell, Moutinho, et al., 2003).

Quadrant 3: low socialization/externalization of tacit knowledge

Quadrant 3 includes more traditional and dominant knowledge dissemination approaches which generally present limited opportunities to convert implicit-tacit knowledge into explicit knowledge. Examples include: writing for trade journals, online sites such as *The Conversation*, magazines such as *The Economist*, publishing reports on LinkedIn, webinars, podcasts, PowerPoints, videos or infographics, or directly engaging with the media using press releases. These activities are most commonly simply a repetition or an abridged version of existing explicit knowledge relating to the research, albeit presented in different formats. However other activities, exemplified through networking events and executive education workshops, do allow for limited creation of tacit knowledge via person-to-person socialization processes and user-producer verbal interactions (Gertler, 1995). Although these are not to be underestimated, they are typically lower in externalization value. This is because despite verbal interactions, which allow implicit-tacit knowledge to be made explicit in real-time and potentially tailored to the context or person receiving the knowledge, such verbalizations are rarely recorded. In addition, workshops and similar events are mostly time-limited which restricts their ability to use reflexivity and dialogical-sensemaking, or emulation, repetition and feedback.

Quadrant 4: externalization of implicit tacit research knowledge

Quadrant 4 activities involve very little close interpersonal contact, but often offer opportunities for externalization of implicit-tacit knowledge to become explicit. Simpler processes are often used to convert implicit-tacit knowledge into descriptions in words or formula in the writing of books and journal articles or public exhibitions. These typical externalization processes are simple representations and simplifications of implicit-tacit knowledge; something which is true in general. If you externalize implicit-tacit knowledge, it is by necessity an abstraction and simplification of the tacit knowledge from which it originated, which is a limitation of these activities. However, they can be enriched by more complex forms of externalization using metaphors, analogies, narratives, and explicitly using mediating objects such as pictures, videos or graphs (Eraut et al., 1998) which can represent a more complex view of implicit-tacit knowledge.

Implications of a tacit knowledge perspective for research impact

Our conceptual discussion above has implications for stakeholders such as researchers, funders, governments and assessors, who are trying to measure impact. For researchers

charged with creating impact, there is a question of which activities they should use and who should be involved in these tacit knowledge processes. If their research contains much inherent-tacit knowledge, or considerable inherent-tacit knowledge is required to act on any research results, then researchers need to consider socialization activities as being critical for their research if they wish to create impact. This requires researchers to become more aware of tacit knowledge as a concept in their research and to apply for funding to support a selection of appropriate socialization or externalization processes described in the quadrants. Researchers also need to be mindful of how much tacit knowledge they are acquiring themselves during the research process and use externalization techniques to surface it and make it more valuable and actionable. Our perspective also requires researchers to anticipate which practitioners will be needed to create the necessary tacit knowledge for impact to occur. Ideally, practitioners need to be reflective and have sufficient organizational influence to implement change.

Research funders could encourage applicants to specify how much tacit knowledge is likely to be created by a research project, and how they plan to capture and translate this during the research process. Better guidance to applicants in different disciplines is needed on the range of externalization and socialization activities available to them and [Figure 1](#) is a start in developing this. To further the current evaluative criteria used in grant applications to create impact, [Figure 1](#) could be used to evaluate the appropriateness of any impact plan and as justification for any additional specific funding associated with these activities. Funding is needed because socialization processes can be arduous, time consuming, costly, and externalization processes require high degrees of introspection or expertise guidance to properly implement dialogue, reflexivity and praxis. For example, to help with the creation of inherent-tacit knowledge, which requires intense periods of proximity to allow for enactment, emulation and feedback, funders could be more open to funding communities of practice where researchers and practitioners come together within the scope of a large research grant. In addition, they could fund more forms of apprenticeship, consultancy assignments or secondments of academics with other organizations, or practitioners within universities research centres.

Government assessments of research impact needs to acknowledge tacit knowledge and specifically its crucial role in creating impact. However, as tacit knowledge is tied to the senses such as tactile experiences, movement skills, intuition, unarticulated mental models, or implicit rules of thumb, it is difficult to measure. What can be measured more easily as a proxy are the things in which tacit knowledge is rooted such as action, procedures and routines (Nonaka & Von Krogh, 2009, p. 635). Although some already argue that assessments of impact should encompass qualitative indicators of socialization, such as engagement (HEFCE, 2016, p. 24; Perkmann et al., 2013), improved networks (Martin & Tang, 2007) and direct interactions (e.g., personal contacts) (Spaapen & Van Drooge, 2011), we now have a better understanding of why this is and what these interactions should be trying to achieve from an impact perspective. In addition to [Figure 1](#) being a potential source that governments and research councils could provide to help researchers create impact, it is also helpful as a contextualized starting point for beginning to measure or assess tacit knowledge in impact cases. As a first step, a simple counting of the number and type of externalization and socialization processes within impact case narratives might help. However, this should go beyond

ticking boxes or mentioning process types to include: ‘*the narrative: the aim of the interactions, the context of research, and the stakeholders involved*’ (Spaapen & Van Drooge, 2011, p. 218). Going further is a major challenge, but a second step could be to add psychometric scales rating the use and value of various implicit-tacit knowledge sharing processes. For example, Puteh’s (2018) tacit knowledge scale asks questions like: ‘*I learnt a lot about know-how and know-why from senior co-workers*’. The advantage of this general approach to assessing tacit knowledge is that it can be used between contexts. However, it does not assess the nature of the actual contextual, situation-specific knowledge which the research project generated. For this, specific practitioner testimonials which talk about how their and the researcher’s implicit-tacit knowledge was surfaced and how this changed their thinking and practice would be needed. For inherent-tacit knowledge, which cannot be articulated or measured, different solutions are needed. Since inherent-tacit knowledge needs to be enacted, apart from counting and explaining the socialization processes used, impact assessment exercises could allow video submissions of impact which would be able to capture the enacted activity. Ideally, these would be in the form of ‘before and after’ videos to highlight the change in practice and impact. Having more socialization processes may also help with attribution problems in impact assessment exercises, where it is often not clear what impact can be attributed to what cause (Martin & Tang, 2007), or what portion of impact should be attributed to the underlying research (Scott et al., 2011). Since socialization processes involve more interaction and dialogue, they may help to reveal some of the multidirectional influences and improve the chances of impact attribution (Morton, 2015). Finally, if tacit knowledge is about working competence, it proves its worth when it is put to the test (Garrick & Chan, 2017). Critical is investment in its construction, ensuring that the process is vested with legitimacy, and it has appropriate dissemination mechanisms (Garrick & Chan, 2017).

Conclusions and further research

To answer our question of where does all the know how go, we suggest that in the current system of evaluating research impact it remains largely latent, under-valued, under-explored and under-exploited in the research–impact relationship. We provide a new theory-driven critique which highlights the limits of research impact frameworks that ignore tacit knowledge. Using the ideas of externalization and socialization for implicit and inherent-tacit knowledge, we bring a new perspective to current debates. A significant missing piece of the current impact jigsaw is tacit knowledge, which is as *sine qua non* of research impact. This leads us to suggest a better acknowledgement and understanding of how it can be created, both during the research design and impact creation phase of the research process.

In unpacking the processes required for adequate understanding of tacit knowledge to create research impact, we recognize that this is not easy, swift or cheap, but it cannot continue to be ignored in the context of creating and measuring impact. Going forward, given that the context-specific tacit knowledge needed for impact resides mostly in practitioners as well as academics, the involvement of practitioners is important in multiple disciplinary contexts. Further work is needed into discipline-specific variations and deeper elaborations, drawing on the issues highlighted in [Figure 1](#) to help

impact stakeholders beyond the management discipline. Of particular interest is investigation in disciplines where performance is a major part of knowledge, such as performing arts or medical surgery, and how they progress and assess impact from inherent-tacit knowledge. Another avenue is further work into the challenge of measuring tacit knowledge, perhaps building on a multi-method approach based on interviews, participant observations and formal concept analysis (Busch & Richards, 2004) to capture and measure it. Overall, there is a need for a much greater volume and breadth of research to address the role of tacit knowledge in research impact. This needs to be conducted in a more systematic and robust way so that it can be used by researchers, universities, funding bodies and governments to further the impact agenda.

Notes

1. Research Excellence Framework in the UK is the national research assessment exercise in which impact was first comprehensively assessed.
2. These categorizations are forms of generalizations about the activities. For example, while a book is explicit knowledge, not all books contain only explicit knowledge. Some can convey implicit-tacit knowledge if the book uses narrative modes of knowing, metaphors and stories as interpretive devices with thick and evocative descriptions.
3. By DBA, we mean a higher degree when a student works on a practical managerial problem for 3–4 years using academic references, recognized scholarly research methods, and work in close contact with both a company sponsor of the project and an academic supervisor. We recognize that not all DBAs may be structured in this way.

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ORCID

Vincent-Wayne Mitchell  <http://orcid.org/0000-0002-6018-9488>

William S. Harvey  <http://orcid.org/0000-0002-8771-4000>

Geoffrey Wood  <http://orcid.org/0000-0001-9709-1823>

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