

Achieving wider impact in Business and Management: Analysing the case studies from REF2014

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Abstract:

Universities, across the globe, are increasingly judged on social and economic impact. An important initiative in the UK is the Research Excellence Framework (REF) 2014, which assessed the wider impact of university research. The Impact Case Studies, produced for REF2014, provide a rich new source of information to explore the wider impact of Business and Management (B&M) research. Each B&M case study, from a structured sample of 194, was read and analysed for this paper. The detailed findings show significant differences between sub-disciplines in demonstrating impact and illustrate why some research reaches a wider audience. The findings show a relatively low level of Mode 2 knowledge production, but a wide range of levels and types of engagement with research users across disciplines. The implications of the findings are discussed in relation to building more nuanced theory on modes of knowledge production and in relation to policy and academic practice.

Keywords:

Engagement; Research impact; Rigour and relevance; Policy and practice

Introduction

Over the past decade, universities have increasingly been encouraged to share the results of their research and demonstrate its impact on society and/or the economy. This is encouraged and driven by governmental initiatives and the quest to demonstrate value for money. The common global issue of the role that universities should play in society and the economy has been discussed extensively in the literature (Perkmann et al., 2013, provide a review) and yet it is under researched (Watermeyer, 2014a). The context for this article is the achievement of user impact in Business & Management (B&M), an applied field, but one that has been criticised for not being relevant to practicing managers (Bartunek and Rynes, 2014). While there has been extensive debate around the rigour/relevance gap in

management research there is little empirical evidence around the utilisation of B&M research (Kieser et al. 2015).

In the UK, the Research Excellence Framework (REF) 2014 required universities to provide case studies demonstrating the wider impact of their research across different subject fields. The majority of these case studies are publically accessible and provide a richer body of evidence than has ever been available before, illuminating “the multiple ways in which business and management research has made an impact across the economy, policy, environment and society” (Pidd and Broadbent, 2015:577). The impact case studies included within the B&M Unit of Assessment (UoA), as part of REF2014, were generally rated highly by the panel (80.1% internationally excellent), providing “clear evidence of the reach and significance of the impact” (Pidd and Broadbent, 2015:575). The purpose of this article is to analyse this evidence in order to further the understanding of how B&M academics are engaging with research users to achieve impact. The empirical evidence comes from analysing a sample of impact case studies covering the Marketing, Human Resources Management (HRM), Operations Management, Strategy, Organisation Studies, Entrepreneurship & Small Business and Economics disciplines. The subsequent discussion is structured around Perkmann et al.s’ (2013) conceptual framework of antecedents to engagement, relating this to theoretical considerations of modes of knowledge production (Gibbons et al. 1994), research policy implications and areas for further research.

The policy context

The increasing emphasis on the wider social and economic impacts of university research stems from a call for universities to demonstrate value for the money that is allocated for research. In many countries the primary way to implement policy in this area is to influence research funding (Benner and Sandstrom, 2000). The literature indicates that

universities can play a significant role in regional innovation and economic development (MacKenzie and Zhang, 2014) and universities are seen as an integral part of the innovation eco-system across the world (Etzkowitz, 2011). In the UK, the Wilson Report (2012) emphasised the importance of supporting the supply of university knowledge into business message, reinforced by the Witty Report (2013) and by the Dowling Review (2015). Similar pressures on the higher education sector to be more outward facing and engaged are apparent internationally (Watson et al. 2011). In the EU, the 2020 Research Strategy includes impact as one of the key dimensions, while the US STAR METRICS initiative is designed to monitor the impact of science investment (LERU, May 2012). Thus the information provided in the REF2014 Impact Case Studies is of potential interest to policy makers globally in considering academic engagement and its effectiveness in terms of the impact on users.

Modes of engagement

The theoretical basis for the generation of impact adopted in REF 2014 relates strongly to the need for engagement with user communities at all stages of research (Pettigrew, 2011; Watermeyer, 2014a). The model of engaged knowledge production was put forward by Gibbons et al. (1994), who argued that the exploitation of knowledge requires co-production, with research users participating in the generation of new knowledge. This interactive mode of knowledge production (Mode 2) requires institutions to be more permeable and better networked. However, the UK PACEC Report (2012) found that while the majority of universities in the UK were taking steps to embed knowledge exchange, there was an urgent need for academics to engage with the research impact agenda. Potential users of research may often find it difficult to access universities and the appropriate academics (House of Commons Business, Innovation and Skills Committee

2014-2015 report) and there is a particular problem in engagement with small and medium sized enterprises (Thorpe and Rawlinson, 2013). The strategy of firms in relation to innovation is an important factor in relation to their openness to engagement, as recognised by Rothwell (1994) in identifying five patterns of innovation from Technology Push (similar to Mode 1) through to Network (systems integration in a wide ecosystem). Later literature has focussed on open systems (Chesborough, 2003) and the incorporation of open innovation into strategy (Vanhaverbeke, 2013).

Engagement is important because knowledge is socially constructed (McAdam and Reid, 2000) and does not move easily between separate communities of practice (Brown and Duguid, 1998). Change requires a co-mingling of institutional logics over an extended period of time (Swan et al. 2010). Therefore interaction between academics and practice is of crucial importance (Cohen et al. 2002; Rynes et al. 2007; Shapiro et al 2007; Perkmann et al. 2013) particularly in converting explicit knowledge into tactical knowledge and vice-versa (Rynes et al. 2001). The extent to which new modes of research are emerging and the linear Mode 1 is declining is contested. For example, by Hessels and van Lente (2008), who argued that the context of application has always existed and that it is simplistic to take the perspective that there has been an historical move from Mode 1 towards Mode 2. If Modes 1 and 2 represent extremes on a continuum, the reality of day to day engagement between scholars and practitioners is likely to involve a number of different ways of interacting together (Antonacopoulou, Dehlin and Zundel, 2011). At one extreme (Mode 2) this may involve co-creation of knowledge, but it often may be possible to have less continuous dialogues that lead to co-creation over time.

The common theme of the literature, in this section, relates to creating the conditions for interaction and engagement between academics and research users, but

there is a lack of research on wider forms of engagement and collaboration generally within the arts and humanities (Perkmann et al. 2013). The Impact Case Studies in the B&M Unit of assessment provide an opportunity to look at the evidence provided on the nature of the outside engagement of UK university academics in B&M. Specifically, exploring how far Gibbon's et al. (1992) Mode 2 working, involving users from the start of the research, is associated with achievement of impact. This led us to formulate the following research question.

RQ1: What is the nature of the engagement between academics and user communities in the case studies?

The utilisation of B&M research

The inclusion of the need to demonstrate wider impact, as well as academic quality, reflects a fundamental debate around the need for research findings to be utilised outside of academia. In the field of B&M, this discussion around 'rigour and relevance' has been ongoing since the 1940s (Caswill and Wensley, 2007). As management has developed as a science, it is said to have become separated from the management profession (Pfeffer and Fong, 2002). A gap between academia and practice has opened up (Rynes et al. 2007). As a result, it is claimed that much of the teaching and research carried out in universities is irrelevant to the needs to business (For example: Huff, 2000; Starkey and Madan, 2001; Bennis and O'Toole, 2005; Hitt and Greer, 2012; Bartunek and Rynes, 2014).

The question of the relationship between management research and practice is fundamentally important because it relates to the quality of management theory and knowledge (Amabile et al., 2001; Christensen and Raynor, 2003). Theory needs to be based in the reality of human experience and action needs to inform the development of knowledge (Jarzabkowski, Mohrman and Scherer, 2010) and therefore the conditions under

which the knowledge is produced are important (Knights and Scarborough, 2010).

Interaction with practice in developing knowledge allows theory to evolve and transform over time during the process of exchange (Mason, Kjellberg and Hagberg, 2015). However, others are concerned that the pursuit of relevance leads to a narrow focus and a loss of objectivity (Grey, 2001; Wilmott, 2012).

The management researcher needs to move between the fundamentally different communities of practice of academia and business (Shrivastava and Mitroff, 1984; Brown and Duguid, 1998) and to deal with the contradictions and paradoxes that stem from different approaches (Bartunek and Rynes, 2014). The researcher needs to be equipped with the required competencies (Hodgkinson, Herriot and Anderson, 2001), skills and motivation (Pettigrew, 2011) to overcome the many communication difficulties (Kieser and Leiner, 2012). The pressure to produce high quality academic outputs may also make it very difficult for academics to find the time to engage with the business world (Martin, 2012). At the same time, there may be many barriers for practitioners in engaging with academics such as lack of motivation, lack of time and different priorities (Ottesen and Gronhaug, 2004).

While there are strong arguments for research to be both rigorous and relevant to practice (Pettigrew, 1997) there is little consensus on how higher relevance can be achieved. Van de Ven's (2007) engaged scholarship advocates collaborative enquiry between academics and practitioners, suggesting the need for a Mode 2 approach. Some have advocated a design science approach to management research and emphasised the development of valid knowledge relating to field problems (Van Aaken, 2005; Huff et al. 2006). Evidence based management has also been put forward as another approach to bridging the gap (Rynes et al. 2007). These approaches are all predicated on a high level of

cooperation and collaboration and therefore while they may be effective in certain circumstances, close collaboration may be difficult, as discussed above.

In summary, the theoretical and practical challenges of achieving relevance in B&M research have long been debated and are not resolved. Kieser et al. (2015) argue that the B&M research community needs to turn the rigour/relevance debate into a research programme on the utilisation of management research. The REF2014 case studies provide an opportunity to analyse work that has been going on over recent years in UK B&M schools and to learn more about the way B&M research has been utilised. This led us to formulate the following research question.

RQ2: What do the impact case studies tell us about the way B&M research is utilised?

Impact and REF2014

REF2014 was interested in “all kinds of social, economic and cultural benefits and impacts beyond academia, arising from excellent research” (REF2014 Report). It did not take into account academic impact beyond stipulating that the case studies needed to be based on excellent research (REF2014 report). Impact case studies were required to describe both ‘reach’ and ‘significance’, using a compelling narrative that linked the research undertaken to the impact depicted. In the social sciences generally, with diverse research approaches (Gardner, 2011) and different opinions over what is a valuable output (Walsh et al. 2013), the influence of research may take many years to emerge and can be difficult to trace and attribute to specific research projects.

The REF2014 guidelines made it clear that it was not enough to just communicate research findings to a wider audience (REF2014 report). It was necessary to demonstrate that a benefit or change beyond academia had taken place as a result of the research, but the means to demonstrate this was left quite open: “The onus will be on institutions to

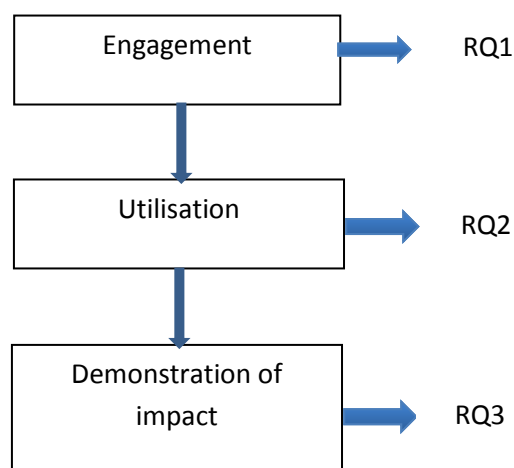
provide evidence within each case study to demonstrate the particular impact or benefit claimed” (REF2014 report). In the face of the challenges of proving impact, the question arises, relating to the nature of the evidence provided. This is more than just a technical question, but one that is highly pertinent to the current debate in the B&M literature about the problematical nature of measuring the results of B&M research on management (Butler et al. 2016). This led us to formulate the third research question.

RQ3: What evidence was provided in the case studies to demonstrate that impact took place?

A conceptual framework

The REF 2014 case studies provide an opportunity to explore some key areas, identified in the literature, relating to the creation of wider impact. These relate to the nature of engagement, the ways that research is utilised and the methods used to demonstrate that impact has taken place, as conceptualised in Figure 1.

Figure 1 Components of impact in REF 2014



The nature of the REF 2014 data and the way it was analysed in order to address these questions is outlined in the next section.

Methods

The REF2014 impact case studies are publically available in a database for the B&M Unit of Assessment (<http://impact.ref.ac.uk/CaseStudies/Results.aspx?UoA=19>), but the distinct B&M disciplines are not all identified separately. Because the authors wanted to make comparisons between B&M subjects, all of the B&M cases were read and then categorised into core B&M subject areas. The criteria used for classifying the subject area was that of the underlying publications quoted in each case study. The REF2014 B&M database separately identifies publications in the Marketing and Economics disciplines and these were also included in our sample. Through this process the authors developed a structured sample of 194 case studies that were downloaded from the REF website. As can be observed from Table 1, 37.1% of the sample was from Economics and 21.6% was from HRM with the remaining 41.3% of the sample coming from a further five disciplines. Thus the sample included all the case studies identified from the five disciplines and half those from Economics. As such, the sample represented what was submitted to REF 2014 rather than being representative of the relative significance of the different subjects within Business Schools across the world. The implications of this will be considered in the Discussion section of this article.

Table 1: Discipline of impact case studies

Discipline	Frequency	Percentage
Economics	72(50% of the Economics cases)	37.1
Entr & Small Bus	21	10.8
HRM	42	21.6
Marketing	13	6.7
Operations Man	22	11.3
Organisation Studies	13	6.7
Strategy	11	5.7
Total	194	100.0

Although there are clear differences in the perspectives of the range of disciplines under investigation here, the authors developed a common framework for our analysis of the research issues and research questions (RQs), as highlighted in Table 2. All the case studies in the sample were read individually and analysed based on this common framework.

Table 2: Framework for analysis

Items reviewed in impact cases	Related RQs
<p>Timescales of initiation of both the research and the activity that created the impact:</p> <ul style="list-style-type: none"> • Pre-REF2014 • During REF2014 <p>Initiator of impact activity:</p> <ul style="list-style-type: none"> • Practitioner • Academic • Research Call • Joint practitioner & academic <p>Funding:</p> <ul style="list-style-type: none"> • University • Commercial • Research Grant • Other 	<p>RQ1</p> <p>RQ1</p> <p>RQ1</p>
<p>Routes to impact:</p> <ul style="list-style-type: none"> • Commercial organisations • Public sector organisations • Government/government agencies: Reports • Government/government agencies: Committees • Third sector • Professional associations • User workshops/training 	<p>RQ2</p>
<p>Impact claimed:</p> <ul style="list-style-type: none"> • Society, Economic, Political, Technology, Environment, Cultural, Legal • Specific actions by practice or policymakers • Specific and quantified results from these actions • Indirect influence on the public • Direct influence on the public 	<p>RQ2</p>
<p>Evidence for impact:</p> <ul style="list-style-type: none"> • Testimonials, project reports/citations in reports • Websites/blogs • Media coverage • Document outlining users • Honours conferred 	<p>RQ3</p>

Findings

The nature of engagement between academics and research users (RQ1)

Submissions from Economics strongly emphasised that the research was initiated by the academic, in some cases in responding to a research call. A similar profile can be found in the Entrepreneur and Small Business discipline. The influence of the practitioner on initiating the activity was much higher in Marketing and Organisation Studies, as can be seen from Table 3. However, overall the role of practitioners, as initiators, was surprisingly low at 7.7%. This suggests that the genesis of research questions in relation to claimed impact is not generally dictated by practitioners and that full Mode 2 working is not common. More often the research was initiated by a specific research call from a funding body.

Table 3: Initiator (%)

Discipline	Practitioner	Academic	Research call
Economics	2.8	86.1	26.4
Entr & Small Bus	0	71.4	28.6
HRM	14.3	66.7	14.3
Marketing	23.1	38.5	23.1
Operations Man	0	45.5	31.8
Organisation Studies	23.1	46.2	15.4
Strategy	9.1	72.7	9.1
Total	7.7	69.1	22.7

The source of funding for the research varies strongly across disciplines, as shown in Table 4. It appears to be the norm for universities to be involved in initially funding the research (72.7%), although the Marketing discipline appears to receive a particularly low proportion of support on this front (46.2%). One of the reasons for the low funding of Marketing could be that there is an expectation that Marketing projects will be funded by the commercial sector (61.5% of the Marketing case study submissions receiving funding from this source). This is in stark contrast to the very low proportions of funding coming

from commercial sources for case studies in HRM and Economics. Significantly, in relation to the research question, only a relatively low overall level of cases was sponsored commercially.

Table 4: Funding source (%)

Discipline	University	Commercial	Research grant
Economics	83.3	5.6	48.6
Entr & Small Bus	71.4	19.0	81.0
HRM	69.0	9.5	54.8
Marketing	46.2	61.5	76.9
Operations Man	63.6	22.7	86.4
Organisation Studies	76.9	53.8	53.8
Strategy	63.6	54.5	72.7
Total	72.7	19.6	61.3

A very high proportion of impact case studies were partially or totally funded by research grants, with particularly high proportions in Entrepreneurship and Small Business (81%) and Operations Management (86.4%). In contrast, a relatively low proportion of case study submissions from Economics were based on funding from research grants (48.6%); however this still represents a large amount of case studies, due to the overall number of economics cases submitted.

Table 5 provides an indication of when the underlying research was initiated and when the work done to achieve impact was undertaken. The vast majority of the research and the impact activity was started at a time before the REF2014 assessment period (1st January 2008); this is not surprising given the amount of time it can take for research to have a measureable impact. However, there are clear extremes in the behaviours across the disciplines: only 7.7% of submissions from Organisation Studies included impact activity undertaken pre-REF whereas the comparable percentage for Economics submissions is 88.9%. The submissions from the Operations Management and Strategy disciplines are

completely different to the Economists' in that all of these included impact activity taking place during the REF2014 period.

Table 5: When was the work initiated and when was it done? (%)

Discipline	Research initiation pre-REF	Impact activity pre-REF	Impact activity during-REF
Economics	90.3	88.9	44.4
Entr & Small Bus	90.5	42.9	95.2
HRM	92.9	78.6	95.2
Marketing	84.6	46.2	53.8
Operations Man	81.8	72.7	100.0
Organisation Studies	92.3	7.7	92.3
Strategy	90.9	54.5	100.0
Total	89.7	69.6	74.2

The utilisation of Business and Management research (RQ2)

The routes through which impact was achieved varied across the disciplines (Table 6). The proportion impacting through commercial organisations was much higher in Strategy and Operations Management and much lower in Economics and HRM. Claims of impact through the public sector were most common amongst the Organisation Studies cases, while impact on government reports and government committees was most common in the Economics submissions. Polarisation was found for claimed impact on professional associations, with few claims from Strategy, Operations Management or Economics and much greater probability of claiming impact on professional associations from HRM and Marketing. The most varied category of claimed impact is for the user workshops / training / curriculum changes, quite common in the Entrepreneur and Small Business and Organisation Studies disciplines, but rare in HRM.

Table 6: Routes to impact (%)

Discipline	Commercial organisation s	Public sector	Gov report s	Gov com m	Third sector	Prof. assoc.	User workshops / training / curriculum changes
Economics	37.5	34.7	61.1	63.9	0.0	8.3	12.5
Entr & Small Bus	42.9	38.1	52.4	38.1	19.0	14.3	57.1
HRM	38.1	38.1	59.5	21.4	50.0	28.6	9.5
Marketing	69.2	0.0	30.8	23.1	7.7	23.1	15.4
Operations Man	81.8	59.1	22.7	9.1	4.5	9.1	31.8
Organisation Studies	69.2	76.9	7.7	30.8	15.4	15.4	61.5
Strategy	90.9	45.5	54.5	18.2	9.1	0.0	27.3
Total	50.5	39.7	49.5	38.1	15.5	14.4	23.2

These pieces of evidence suggest that there are differences in the dissemination processes reflecting the underlying perceptions of impact and relevance emanating from each discipline's discourse. The nature of the research is also likely to underscore the ability to source different routes to impact with, for example, many of the Economics case studies emphasising the work they contributed to government policy making, as distinct from commercial routes to impact.

Table 7: Impact on policy and practice (%)

Discipline	Policy	Practice	Both
Economics	61.1	59.7	28.6
Entr & Small Bus	61.9	76.2	38.1
HRM	81.0	76.2	57.1
Marketing	46.2	76.9	23.1
Operations Man	31.8	95.5	27.3
Organisation Studies	46.2	100.0	46.2
Strategy	63.6	81.8	45.5
Total	60.3	74.2	37.1

In general, the type of impact claimed related to either policy and/or a practice (see Table 7), with 74.2% claiming an impact on practice and 60.3% claiming a policy impact. There were clear differences between the disciplines, with a significantly lower proportion of submissions from Economics claiming a practice impact; in contrast, 100% of submissions from Organisational Studies claimed an impact on practice. The HRM case studies had the

highest proportion claiming a policy impact at 81%, whereas the claims of policy impact from the Marketing and Organisational Studies disciplines were relatively low. The proportion of case studies claiming both policy and practice impacts varied strongly across the disciplines with HRM being the strongest in claiming both.

Table 8: Impact claims (%)

Discipline	Specific actions by practice or policy makers	Specific and quantifiable results	Indirect influence on the public	Direct influence on the public
Economics	81.9	52.8	44.4	9.7
Entr & Small Bus	95.2	47.6	4.8	0.0
HRM	100.0	19.0	38.1	0.0
Marketing	100.0	53.8	46.2	7.7
Operations Man	100.0	63.6	13.6	0.0
Organisation Studies	100.0	23.1	7.7	0.0
Strategy	100.0	36.4	9.1	0.0
Total	92.8	43.3	30.9	4.1

Claims concerning the impact of the research tended to be focused on specific actions by practitioners or policymakers (see Table 8), although other impact claims existed. Less than half of the cases claimed quantifiable results, although this varied between disciplines. HRM and Organisation Studies were both low on claiming quantifiable results, perhaps reflecting the greater difficulty in putting figures to impact achieved in these fields. Few of the submissions claimed to directly influence the public at large, although it was common for submissions from Economics, HRM and Marketing to claim that they had indirect influence on the public.

Evidence of impact (RQ3)

Up to ten pieces of evidence to corroborate impact were allowed for each REF case study. About 80% of case studies included at least one testimonial, although this was much higher in Operations Management, Organisation Studies and Strategy. A similar high

proportion of case studies claimed impact via one or more project reports. Corroborating evidence from other sources was far less frequent with only 30% of case studies claiming evidence of impact via websites and only a quarter claiming evidence of impact through media coverage.

There were differences in the evidence of sources of impact between disciplines. Correlation coefficient estimates across the columns presented in Table 9 are provided in Table 10. Although Table 9 reveals that testimonials were often the default, Table 10 suggests that the availability of other pieces of evidence meant that testimonials were less likely to be sought. The nature of the research is likely to underscore the ability to source different impact evidence; for instance, many of the Economics case studies emphasised work for government departments and this naturally resulted in project reports. Differences are also likely to reflect the importance the researcher placed on the means to achieve impact; for example, submissions from Marketing appeared to emphasise impact through websites and were less likely than other disciplines to resort to testimonials.

Table 9: Evidence provided (%)

Discipline	Testimonials	Project reports	Websites	Media	Document outlining users	Honours
Economics	75.0	80.6	30.6	29.2	8.3	5.6
Entr & Small Bus	76.2	81.0	47.6	19.0	0.0	19.0
HRM	83.3	88.1	19.0	35.7	2.4	0.0
Marketing	76.9	69.2	46.2	23.1	7.7	7.7
Operations Management	95.5	72.7	27.3	9.1	0.0	0.0
Organisation Studies	92.3	38.5	15.4	15.4	7.7	0.0
Strategy	90.9	81.8	45.5	36.4	0.0	0.0
Total	81.4	77.8	30.4	26.3	4.6	4.6

Table 10: Correlations between evidence of impact

	<i>Testimonials</i>	<i>Project reports</i>	<i>Websites</i>	<i>Media</i>	<i>Document outlining users</i>	<i>Honours</i>
Testimonials	1					
Project reports	-0.41337	1				
Websites	-0.42121	0.405433	1			
Media	-0.32124	0.581209	0.148552	1		
Document outlining users	-0.37096	-0.4893	-0.28208	0.000912	1	
Honours	-0.71391	0.227906	0.630684	-0.16393	-0.08583	1

Discussion

The conceptual framework in Figure 1 was used to guide the analysis of the case studies provided for REF 2014. The analysis reveals the variety and range of ways in which impact occurs at each stage. While engagement may happen from the beginning of a research project and continue through all stages this does not seem to be the case most of the time. In most cases the academic initiated the project with other academic colleagues, often supported by a research grant. Engagement with practice has then taken place after the initial research has been done. Utilisation of research is facilitated through many different routes with distinct differences between disciplines. A wide range of evidence is provided to substantiate impact claims. In discussing the implications of these findings, the three salient factors (individual, organisational and institutional) that Perkmann et al. (2013) identify as driving university/industry relations will be referred to.

Theory on modes of engagement

The evidence from REF 2014 does not support the idealised and normative model of Mode 2 knowledge production (Gibbons et al. 1994). At the same time, there was little evidence that wider impact was achieved purely through knowledge flowing from research to practice in a linear Mode 1 way. The reality of the range of modes of engagement

evidenced in the B&M impact cases suggests that the polar opposites of Mode 1 and Mode 2 research are not particularly helpful. This supports the contention of Swan et al. (2010) of a co-mingling of modes. It also supports the claim that the reality of engagement between scholars and practitioners involves many different ways of interacting together (Antonacopoulou, Dehlin and Zundel, 2011). The forms of engagement varied in relation to the subject area and that subject area's definition of its user community. The variety of collaborations in the case studies also suggests that while ways of conceptualising a close relationship with practice, such as Design Science (Van Aaken, 2005), may be applicable in specific contexts and situations, they do not provide a panacea for achieving relevance across the range of B&M research. The view of equal relationships, in engaged scholarship, put forward by Van De Venn (2007), may be an unobtainable ideal in most cases, leading to an overvaluing the role that managers play, as co-researchers in the academic discourse (Kieser and Leiner, 2012). Further research could usefully explore the balance between academics and practitioners taking the lead in research in respect to achieving impact.

Organisations will vary in their culture and their development in terms of openness to external engagement in innovation (Rothwell, 1994; Chesbrough; 2003; Vanhaverbeke, 2013) and the dialogue between academics and practitioners may not be continuous, but still lead to utilization of knowledge over time (Beech, MacIntosh, and Maclean, 2010). The variety of routes through which impact was achieved (Table 6) illustrates the importance of understanding the role of an appropriate research audience or research partner in constructing impactful research. At a fundamental level, the academic cannot create impact themselves, but needs to get a third party to change their behaviour or take an action as a result of the research. As Knights and Scarborough (2010) point out, the use of management knowledge is highly situation dependent and local. A new approach to developing theory on

Modes of knowledge production, suggested by our conceptual framework (Figure 1), would be to consider types of engagement and their relationship to the way research is utilised in different circumstances. Research could also explore the effectiveness of engagement at various project stages in relation to the type and extent of utilisation achieved. The type of commitment from all those involved in engagement could also usefully be studied in relation to the type and extent of utilisation.

Individual factors

Knowledge creation is said to begin with individuals (Rynes, Bartunek, and Daft, 2001) with individual discretion being the main determinant of engagement with industry (Perkmann et al. 2013). The case studies demonstrate the role of individual academics in initiating engagement and nurturing engagement with research users over an extended period of time to achieve utilisation (Tables 3 and 5). In the vast majority, the underlying research had begun before the beginning of the REF2014 period. Considerable time and effort is put into building research teams, connecting with potential users and influencers, building appropriate networks and establishing relationships. This confirms other findings (PACEC Report April 2009; Perkman et al. 2013) that there are certain individuals who are motivated to engage over a sustained period to achieve impact.

This has implications for how individual researchers in B&M manage their careers. For early career researchers the challenge of establishing their own research track, getting published in high quality journals and teaching already puts a high burden on the individual and engaging with practice on top of this may be very difficult to fit in. However, the longevity of engagement needed to create impact suggests the need to start early. The Matthew effect, identified by Merton (1973), suggests that those individuals with existing scientific prestige are given greater credit for research than those with less prestige. As

previously mentioned, there is a need to equip the researcher with the competencies and skills (Hodgkinson, Herriot and Anderson, 2001; Pettigrew, 2011) from the start. Therefore the young academic will need support in engaging with practice, in particular in being involved in practitioner projects by more senior colleagues. The Wilson Review (2012) recognises the need for a culture change amongst academics to meet the needs of the new agenda. As Pettigrew (2011) notes, real change will only occur when scholars change their scholarly routines. The introduction of impact, as part of the research assessment in the UK, is a potential motivator for academics to engage with practice. However, if the academic culture is to change then the habit of working with practice needs to be established early on and creating the conditions to support and encourage academics in this depends on the environment created by academic organisations and institutions (Shapiro, Kirkman, and Courtney, 2007; Abreu and Grinevich, 2013).

Organisational factors

The analysis of REF 2014 shows that most research was initially funded through the UK's dual support system comprising general university funds and a research grant, rather than by commercial funding (Table 4). This suggests the importance of providing funding to nurture engagement and engaged research, particularly in the early years of a research career. Relying on commercial funding to buy-out researchers' time is insufficient and particularly constraining in some sectors, such as SMEs (Thorpe and Rawlinson, 2013). Research training is an important element of doctorates, but in B&M subject areas it needs to encompass the skills that are required for engagement and the creation of impact and perhaps provide opportunities for researchers to gain experience of working with user communities. Individual academic's motivation will be shaped by the systems for reward and recognition (Shapiro, Kirkman, and Courtney, 2007; Abreu, Grinevich, 2013).

Engagement and progress towards achievement of impact needs to be recognised and rewarded alongside research excellence in terms of career progression.

Alongside the creation of an internal environment that is supportive of academic engagement, B&M faculties have an important role to play in communicating their willingness to engage with business and community and in supporting the development of collaborative ecosystems (Rothwell, 1994, Cohen et al. 2002; Rynes, Giluk and Brown, 2007; Shapiro, Kirkman, and Courtney, 2007; Perkmann et al. 2013). A better understanding of the extent to which potential research users comprehend and react to the impact agenda would be valuable to the B&M and wider university communities and research is needed to capture this information. What type of knowledge is valued and do academics understand business or government needs? This would help in shaping policy to guide complex research institutions, such as universities, in effectively communicating their strengths and capabilities to appropriate potential users.

Institutional factors

The research was revealing in relation to the number of cases submitted by different disciplines. There were 144 Economics impact cases submitted, compared with a total of 122 cases from the six management disciplines included in this study. It is perhaps surprising that a discipline, such as Marketing, that might be expected to be conducting a lot of applied research (Mentzer and Schumann, 2006; Reibstein, Day and Wind, 2009; Mason, Kjellberg and Hagberg, 2015), only contributed a total of 13 cases (see Table 1). One explanation may be that research funding may be more available to some disciplines than others. The Marketing cases were particularly dependent on commercial funding (Table 4) which may be limited in availability, particularly for projects that also need to demonstrate high quality academic outputs. In contrast, the HRM discipline submitted 42 case studies and 50% of

these involved trade unions, which provided an additional route to impact and a source of financial support. Overall, the relatively low number of cases from the core B&M disciplines should be a cause of concern and would seem to support the apprehension of many authors (Huff, 2000; Starkey and Madan, 2001; Bennis and O'Toole, 2005; Hitt and Greer, 2012; Bartunek and Rynes, 2014) with regard to the lack of relevance of much B&M research. It may also be the case that institutions favour more traditional academic areas in deciding which cases to submit. Academic leaders in management sub-disciplines such as Marketing, Strategy and Organisation Studies should consider why these applied subjects are not more strongly represented. The analysis presented here suggests the need for greater initial support and funding from non-commercial sources to conduct research and develop ideas that will subsequently create wider impact. The challenges in gaining research grants in less established subjects may be an inhibiting factor, particularly where commercial funding is not available. Funding for B&M research in the UK declined by 8.2% (19% with inflation taken into account) over the six year period up to 2016 (Chartered Association of Business Schools Report, 2017). The implication is that there is a need to find new ways of funding B&M research to nurture research that has potential to create impact in the future. This could be particularly relevant in providing early support for research that is directly relevant to small and medium sized enterprises (SMEs), the source of future innovation and growth (Higgins, and Elliott, 2011).

Conclusions

Criticisms of B&M Schools in relation to the impact of their research on the wider community have been repeated across global contexts. The REF2014 case studies provide a rich picture of the wider impact activity that has been undertaken in the UK in recent years (Pidd and Broadbent, 2015). However, there are some limitations that suggest the case

studies only provide a partial view. Watermeyer (2014b) questions how far REF 2014 actually measured impact and how far it was a 'tick-box' exercise. The case studies only pick up wider impact that can be evidenced. Examples where evidence is lacking or the impact is commercially confidential or sensitive would have been excluded. In addition, impact that cannot be connected to international level research was also excluded. Thus the focus is on impact where the evidence can be made publically available and that can demonstrate a good degree of rigour as well as relevance. The REF exercise provides an historical perspective and it is important to recognise that the funding environment is changing over time. REF 2014 was the first research assessment exercise to include Impact Case studies and there will be much to learn by comparing these case studies with those in the next REF.

Despite these reservations, this study makes a number of contributions to the research impact literature in which there has been a lack of research on wider engagement (Perkmann et al. 2013) and there is limited knowledge on how research is utilised (Kieser et al. 2015). The evidence from REF 2014 demonstrates the variety of ways in which B&M academics engage outside of academia and the different routes involved in utilisation. It suggests that idealized models of the practitioner, as co-researcher, may not be that helpful and that more subtle models of different modes and stages of engagement are needed. Research utilisation takes many forms, but a fundamental factor seems to be between research that changes practice and research that influences policy with 37% of research in the sample claiming to have impact on both (Table 7). Further research is suggested into the relationship between different types of engagement and different types of utilisation. The study outlines factors at individual, organisational and institutional levels that need attention within B&M in relation to engagement and utilisation. Faculties of B&M need to recognise the timescales involved and provide support, particularly for younger researchers.

The user audience for B&M research will often be practising managers who do not always welcome the findings of management research (Pfeffer and Sutton, 2006). This is not surprising, as in most disciplines one finds contradictory results often with varying contextual arguments. In addition, academic research is not particularly accessible to practicing managers, who tend to be interested in what is useful to them in their particular context (Cohen, 2007). This is one of the key reasons why engagement is important because engaged academics will be better at facilitating the translation of research into the practitioner context. At the university level, support can be given in terms of communicating more clearly the desire to engage with business and to facilitate interdisciplinary approaches to provide opportunities for greater impact than from single discipline research. At the institutional level, a closely connected finding relates to the connection between initial university and grant seed research funding and the subsequent creation of impact. Given the link between funding and subsequent impact, the importance of providing research funds to support management subjects is an important issue. B&M research should have great potential for achieving impact, but may be disadvantaged in getting funding compared with traditional subjects.

The analysis of the REF2014 Impact Case Studies in this article provides a picture of impact in the UK and therefore provides a starting point for further research that might compare the practice across other regions of the world. By building a better understanding of impact in different contexts the B&M field will be in a better position to evolve research practice to achieve rigour and relevance and ultimately improve the quality of research in relation to the ever-changing contemporary world.

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Table headings

Table 1: Discipline of impact case studies

Table 2: Framework for analysis

Table 3: Initiator (%)

Table 4: Funding source (%)

Table 5: When was the work initiated and when was it done? (%)

Table 6: Routes to impact (%)

Table 7: Impact on policy and practice (%)

Table 8: Impact claims (%)

Table 9: Evidence provided (%)

Table 10: Correlations between evidence of impact