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Abstract:

We support the call by Nik Hassan for a more nuanced account of the value of Information Systems (IS) research situated in "the intellectual ideals of the academic field, its goals and mission, intellectual structures activities and relationship with its environment" (paper in this issue). In this paper we examine the process by which this notion of 'knowledge value' is increasingly being marginalised in the IS discipline by more pragmatic measures of the value of research as a 'product' in certain academic 'markets'. We argue that the increasing centrality that maximising this 'product value' assumes in the lives of IS academics helps make sense of the IS 'discourses of anxiety' that Nik Hassan documents. Further, the distortion of research practices that widely accepted ideologies of measurement and efficiency bring about, threatens to diminish the holistic knowledge value of research that Nik Hassan articulates. In short, we argue that we are at risk of putting the score ahead of the game. We make our case by showing that the mechanisms by which this value displacement is transpiring in IS, exhibit strong parallels to those that have been shown to underpin disastrous episodes of large-scale efficiency-motivated social reengineering more generally.

Keywords: IS research value, academic practice, measurement, efficiency, high modernist ideology, social engineering.

Editor's Note: The article was handled by the Department Editor for Debates.

I. PREAMBLE: A TALE OF FORESTS AND TREES

In the late eighteenth century a state sponsored program of scientific forest management was introduced in Prussia and Saxony. It was part of a wider 'age of enlightenment' push to apply science to managing national fiscal resources. Even before this time, forests were viewed by states largely through a fiscal lens, as just so much lumber and firewood that had direct commercial value as a product, ignoring the complex ecological and social network of indirect values derived from real forests. However, scientific forest management brought the tools of mathematics and accounting to this view. Based on the geometric approximation of a cone, an abstract tree was defined as a certain volume of commercial wood for a given size-class, and was combined with tree counts to produce tables of ordered rows of numbers representing the state's inventory of commercial timber. Now at last the state could 'see', and thus control, the forests of (abstract) trees in a panoptical way, even without ever visiting a forest.

But crucially, scientific forest management went a step further. Inspired by this new accountability, and driven by an emerging efficiency ideal, plantings were done in a way that made counting and control easier: underbrush was cleared, the number of species drastically reduced, and trees were planted in orderly rows. Soon the appearance of the forests came to mirror the accounting representation, and the very image of a well managed forest was geometric order similar to the accounting tables. This tendency was completed when a virtual monoculture of Norway Spruce became the dominant forest form. Now the abstract tree of the manager's accounting had become the actual tree of the forest, not just in its simplification, but even in its geometric form!

The first crop rotation (about 80 years) was a resounding success, at least for the state. Managed forests produced high yields of a single valuable commodity; forest management was greatly simplified to the point where it could be scripted and taught to unskilled workers; it was heavily imitated across Europe and the New World. However, after the second crop rotation (by the twentieth century) all the factors that were absent from the abstract tree returned to haunt the managed forest, captured by the emerging term 'forest death' [Scott 1999]. The problem was that the rows of abstract trees, now realised, were not a viable forest. In fact everything that would make a forest viable had been omitted for the sake of simplification, measurement and control. Given that the problems of monoculture are now general knowledge, suffice it to say here that what had been left out of the abstract forest were diversity, ecological connectedness, social embeddedness, and indirect forms of value, all of which are the very life of a sustainable forest ecosystem. Now the (real) forest could not be seen for the (commercial) trees.

The response of forest managers was to attempt to reintroduce elements of the former ecosystem (animals and birds) into these now inhospitable monocultures in a planned and narrow economically motivated way. For instance, peasants whose own traditional uses of the forest had been disrupted by the loss of secondary forest value, were paid as gamekeepers over contrived fauna resettlement. This was costly and largely ineffective in restoring the former value producing complexity.

This case is drawn from a book by James Scott [1999] which examines how an ideology of efficiency and measurement is implicated in failure of many large-scale social engineering projects. Scott argues that measurement *per se* is not the problem. Measurement is necessary for administration and *always* involves simplified models that rightly ignore variables that are not part of a given narrow administrative interest. However, problems arise when these simplified representations become connected to operational action through policy, generally motivated by a certain 'high modernist' ideology that values progress through efficiency and control above all. This sets up the conditions for a network of largely uncoordinated decisions by individual actors within the system that are locally optimal against these measures. However, the global and largely unintended effect of this distributed, self-organizing process is the gradual transformation of a social reality into the very image of the impoverished measurement model, usually with disastrous consequences.

II. INTRODUCTION

In asking "Value of Information Systems (IS): Is There a Crisis?" Hassan [2014] argues that the recurring existential anxiety discourses in the IS discipline centre around the issue of the value of IS research. He documents these debates with quotes from a recent Association for Information Systems (AIS)World thread [Hassan 2014] and other sources. IS academics will recognise the sentiments documented as frequently recurring themes in everyday IS discourse. Rejecting certain narrow pragmatic and political framings of the research value issue, Hassan argues for a more holistic conception of IS research value situated in "the intellectual ideals of the academic field, its goals and

mission, intellectual structures activities and relationship with its environment". He articulates three characteristics of valuable research: originality, active ground braking, and challenge to orthodoxy. Using Foucault and others, he emphasises how these values are intrinsically embedded in, and extend, discursive knowledge practices. In what follows we will refer to this conception of research value as 'knowledge value'.

In our contribution to this debate, we want to further investigate the source of the existential anxiety in IS, and to situate it in the conflict between narrowly measured pragmatic 'product value' of research and this more holistic 'knowledge value'. To do this we will point to strong parallels between the ideology and process of recent developments in metrification, simplification and control of academic research and the efficiency-driven social engineering of the forest management story above. Using this parallel we will argue that: 1. In IS we are amid a process of transformation of the notion of value of IS research from the kind of holistic 'knowledge value' Hassan describes, to one that measures narrow forms of direct value of IS research as a 'product' in relation to certain 'markets'; 2. It is around these conflicting notions of research value that the discourses of existential anxiety that motivate Hassan's paper make sense; 3. This transformation is accompanied inevitably by standardization and narrowing of research itself in ways that strongly parallel the mechanisms of diversity destruction in the scientific forest management case; and, 4. As IS research becomes transformed into the very image of its simplistic measures, as in the forest case more holistic forms of value are ultimately threatened. The trends that we describe are not unique to IS and arise from belief systems that are becoming entrenched in most disciplines as well as other walks of life.

III. THE FOREST AND TREES OF IS RESEARCH

Evaluation, assessment and even certain kinds of measurement are not only integral parts of academic practice, they are essential to ensuring its success, in the peer review process as well as in awards or promotion committee decisions. Traditionally, evaluation of research is undertaken by experts - senior academics who are enrolled in the practices and values of academic research and are knowledgeable about the relevant research areas. The factors taken into account in such evaluation include originality, significance within current discourses, impact, and potential to change discourses. These are the traditional notions of knowledge value that Hassan advocates in his paper. They evaluate the contribution of research within the complex knowledge ecology of the discipline, its neighbours, IS practice, and society.

Running parallel is a different and more pragmatic interest in the issue of evaluating research by governments, funding agencies and university administrators. Quite rightly, administrators want to position their organisations favourably in increasingly difficult, competitive and fiscal environments. A normal tool of administration is measurement. In academia this manifests as counting and rating research outputs, and more recently, impacts on external practices such as business and government policy. Measurement quite naturally involves simplification of complex practices to bring to the fore a selection of variables of administrative interest ('output') in order to make these practices 'legible' [Scott 1999] to administrators. With this narrower view in mind, research becomes measured by counting and classifying publications and other outputs, and impact becomes measured by citation and other use measures. When first introduced, the pragmatic and simplistic nature of these measures is often quite explicitly acknowledged and accompanied by promises about the limited scope of intended use for getting a rough aggregate view of academic practices.

However, every administration is also always in the business of control – changing behaviours, changing organisational arrangements, enhancing competitive advantage. Against our current Western background assumptions that centre on efficiency, resource optimisation and utility [Spinosa et al. 1997], control is generally conceived in terms of a corporate model that defines 'products', 'customers' and 'business models', and seeks to enhance efficiency and productivity through modelling, engineering and cybernetic feedback control. For this purpose, traditional peer evaluation of knowledge value is cumbersome and problematic, not only because of its apparent subjectivity, but also because of its illegibility to those remote from the particular academic specialties in which it is intrinsically situated. Consequently, the objective accounting measures, based on simplified product models of the practice, become much more attractive, not only because they can provide a synoptic view of the practice but because they effectively bypass those who would otherwise act as translators and potential barriers to measurement-driven reengineering.

The result, as in the forest management story, is that these simplified measurements become linked to operational control. This often happens quite incrementally. Previous promises that measures will only be used for analysis are forgotten in the quest for improvement, often unnoticed. Individual instances of inappropriate use of these surrogate measures of academic performance seem harmless enough and do not invite resistance, but they incrementally gain traction as alternatives to more nuanced knowledge value assessments. What is more, against the dominant efficiency ideology of our times, the logic of improvement that underpins such uses appears self-evidently

reasonable and normal, and this plausibility of the *process* obscures the simplistic nature of accounting measures in relation to the actual practice.

But we do not want to paint this crucial step of linking simplified measures to operational activity as a management conspiracy. Much more pernicious systemic forces than top-down power are at work here. Academics at all levels themselves subtly conspire in the simplification and reduction of the practice they love. The reason is that once these simplified and supposedly objective measures become embedded, it becomes locally optimal for a wide range of actors to make use of these measures in various political and self-interested ways. Academics present their achievements using them, selection committees compare candidates using them, promotion committees use them to set standards, PhD supervisors use them to focus coursework content and select projects, journal editors use them to position their journals. Each of these actions has local validity derived from the peer review system. However, the unintended effect of the collective use of these metrics as a currency is to increasingly endow them with an objectivity that is unjustified when their use is removed from specific academic contexts. All of this is supported and enabled by increasingly sophisticated and accessible measurement technologies, and by decreasingly challenged ideologies of productisation and efficiency that are shared at a broad (even global) cultural level.

As in the forestry story, the results of these output management initiatives are initially promising. In the short term, academic units may double or triple their publication output. These results give further legitimacy to the simplified product value measures. Imitating these performance gains, even third tier universities declare their strategy is to be in the top 100 on some list, and tenure committees require impossible performances from new hires. Continued improvement of output appears to administrators to be mainly a matter of measurement-driven incentivising. Research administrators argue for limiting research diversity in the name of focusing strengths and increasing efficiency, and declare narrow lists of journals as desirable outlets. Research training becomes explicating and passing on the 'script' for publication in these journals. While peer review remains the gold standard of academic evaluation at the micro-level it operates increasingly on more homogenised input.

As this process increasingly takes hold globally, IS research itself comes to imitate the notion of 'product' that inspired these simplified measurement models. Research becomes a 'thing' with certain easily measurable objective attributes that capture its 'saleability' within certain 'markets', for example, of employers, competing academics, PhD candidates, funders, and 'research users' (IS professional practice and other target societal consumers).

At the same time, research value becomes increasingly redefined in terms of this simplistic product view of research as the objective saleable value of the product in these academic markets: it becomes a form of currency for coordinating and linking these markets with the wider market economy. This takes its most extreme form in recent rhetoric portraying academic institutions as 'industries' [Ernst and Young 2013] needing re-engineered 'business models' that 'monetise research' [Hommel and Lejeune 2013]. It is as if the quantity of lumber in a tree stands for the complex value of a forest for a community. In competition with this new 'product value' of research, the more indirect holistic forms of value of knowledge to academia (viewed as a societal institution), business and the community are severely devalued and deprecated as 'old-fashioned' or 'nostalgic' and ultimately under threat of being crowded out. These knowledge values include the new discourses that might be opened by the research, the challenging of entrenched orthodoxies laying the seeds for the next Kuhnian paradigm shift, the knock-on products of original minds put to work in societies that value knowledge; in short, those more holistic and indirect 'ecological' values that are the subject of Hassan's analysis.

IV. MISTAKING THE SCORE FOR THE GAME

Against the backdrop of this analysis, we now consider how these changes are experienced by the academic actors themselves, and how each of us contributes, for the most part tacitly and unwillingly, to their proliferation. In doing so, we will be able to make sense of many of the sentiments expressed in the AISWorld discussion that motivated Hassan's paper as expressions of existential anxiety and ongoing tensions between knowledge value and product value. To illustrate this thesis we will use a number of quotes from IS academics collected by Hassan. The interpretation of these statements will be ours (we do not imply they were the authors' intended meaning, necessarily) and we use them as typical expression of sentiments we hear frequently in IS discourse. Our point will be that as we increasingly focus on creating product value to satisfy the metrics, we collectively contribute to sidelining the knowledge value of the academic enterprise. In short, we increasingly mistake the score for the game.

Increasingly an academic career depends on measurement. Collecting points on the scoreboard becomes a necessity to secure a faculty position, to achieve tenure, and to get promoted. It becomes locally optimal to focus on the scoreboard. This in turn leads to noticeable changes in the game itself. Publication as a means for academic discourse and dissemination has always been important, but now threatens to become an end in itself with research relegated to a means to fulfil this end. For example, targeted publication outlets increasingly drive the selection of

research questions, the choice of methods and the design of projects. This further leads to a tendency toward conservative writing, a focus on what can be published reliably, on low hanging fruit. Research endeavours for which publication success seems too distant or uncertain are abandoned; young researchers are advised to "stick with non-controversial research until they reach full professorship". At the same time, increased band-width is devoted to publication in academic discourse, threatening to crowd out discussion of ideas. At conferences colleagues exchange publication war stories and compare their publications scores. The mechanics of the journal publication process take centre stage and workshops are organised to teach 'how to get published'. In the quest for the publication formula, research itself becomes increasingly scripted, again recognised by multiple quotes in Hassan's paper. In essence, the academic game is being changed to make scoring more predictable, to make academic success a technical process rather than a predominantly intellectual achievement. As a result the game itself is changed; the scoreboard becomes the end. Playing the knowledge creation game becomes a luxury for senior academics who have already achieved tenure.

These developments are experienced by many in our field as an existential crisis. For experienced academics, the changing game is in conflict with their own induction into an academia where the game was about knowledge creation, in the sense that Hassan outlines in detail in his paper: originality, challenging orthodoxies, paving new paths. This is expressed by the sentiment that "it seems that promotion and tenure objectives compete with a desire to pursue academic ideals". For rising academics there is a need to get firmly on the scoreboard before they can start engaging in the main game, such as "researching big ideas that make a difference." At the same time, junior academics also find themselves in a perpetual state of crisis as they are tasked with fulfilling more and more unrealistic scoreboard requirements on the road to achieving tenure, which seems more distant than ever. They meet in junior faculty workshops where again publication success is the dominant topic. Facing up to this anxiety, it is not surprising that many young colleagues display disproportionate interest in scoring points.

The result is a move toward a practice that puts following the script ahead of producing original knowledge, again expressed in the sentiment that "we can do very good research, but that doesn't mean we are producing good knowledge". And herein lies a real danger: if we continually play the score rather than the game, what are we actually producing? What is more, how can young academics learn to play the real game, when they are narrowly trained in scoring points? This is quite clearly expressed in the following quote: "If a discipline indirectly discourages innovation and risk taking in their PhD students and early career researchers, how can these young researchers suddenly show an interest in the opposite to what they built their career on?" Ultimately, if we expect junior academics to accept an impoverished version of the game, it is not clear why they would even want to become academics in the first place.

V. CONCLUSION: CRISIS OF VALUE OR FOREST DEATH?

What the forest management case tells us, corroborated by many other examples of narrow efficiency-oriented social reengineering [Scott 1999], is that when complex social practices become rendered into the simplistic counterparts used by measurement practices, they become stripped of their real sustaining value and cannot survive. Importantly, they fail not only in terms of losing their original, broader notions of value, but ultimately also against the narrow notion of product value. If our analogy to the forest management case is valid then IS research is not just suffering a crisis of value but a systemic destruction of value – a slide toward 'forest death'. There is no reason to doubt that the forest case validly points to a future of impoverished IS research because all the conditions that drove the forest destruction also underlie the current productization and reduction of IS research practices, as we have tried to show in the above discussion.

However, the forest management case also indicates that resisting and reversing this trend from knowledge value to product value will be exceedingly difficult. Because the most potent underlying force in this distributed and self-organizing transformation is the ideology of measurement and efficiency that pervades Western management thinking - and is becoming taken for granted in everyday sense making [Spinosa et al. 1997] - finding effective points of leverage for resistance will be difficult. Narrowly focused 'repair jobs' will have limited effectiveness, as the failure of early efforts to re-complexify the forests in the case showed. The Declaration on Research Assessment (DORA) [2013] initiative, which advocates reducing the use of metrics as academic currency, correctly points to the behaviors by academics, administrators and journal editors that reinforce the legitimacy of metrics as a substitute for evaluation of the knowledge content of research. But for these behavior changes to happen the widespread belief that complex social practices such as research can be adequately conceptualized in terms of production models must be challenged, since this provides the plausibility and motivation of these behaviors. A shift in understanding as profound as that of the ecology movement that has begun to reverse forest death will be required. An important part of this is keeping the debate on core research values and how they are being challenged (in IS as well as in academia more generally) firmly at the disciplinary center, as Hassan's paper has done.

We note that in making this argument we could be accused of nostalgically hanging on to antiquated 'traditional values' against a tide of modernization and a search for more efficient resource utilisation. To counter this view, first we would point out that the holistic notion of knowledge value that we and Hassan advocate only appears 'unrealistic' when viewed from the vantage point of the high modernist efficiency-oriented worldview that we argue is the root-cause of the problem. Secondly, it is in fact the stripped-down and productised research practice that is 'unrealistic' because, as the forest management case makes highly plausible, it will be unable to perform the function of continually renewing a capability, and a respect for, knowledge creation that is the primary contribution of academic research to society. Finally, we are not advocating the academic equivalent of a return to the eighteenth century wild forest. We accept that the nature of IS research will change in intended and unintended ways as its market context changes. What we do advocate is that the nature, effects and mechanisms of this change should be an active topic of analysis in IS, as encouraged by this debate.

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