# EDITOR'S COMMENTS

## Inflection Point:  Looking Back or Looking Forward?

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In my many presentations and participations in panels as Editor-in-Chief of *MIS Quarterly*, I like to say that *MISQ* is the face of the IS field.  What we publish reflects the collective minds of the IS research community.  The journal also works as a collection of sensors that capture what is presently going on in the many subareas of the field, because we have access to what the IS community is working on months (and years) before publication.

One very valuable sensor we have out there is the Issues and Opinions (IO) section. Through submissions to the IO section, IS scholars offer their view on issues that are of concern to them.  Here is *MISQ*'s definition of IO submissions:

> *This category provides a forum for the communication of well-developed and well-articulated position state-ments concerning emerging, paradoxical, or controversial research issues.  An Issues and Opinions article may be described as rigorously argued and/or relying on scholarly evidence.  Issues and Opinions submissions should open new areas of discourse, close stale areas, and/or offer fresh views on research topics of impor-tance to the discipline.*

As EIC, I am fortunate to personally handle all of the IO submissions as their Senior Editor.  In the last few months, we have experienced a considerable surge in IO submissions.  Interestingly, the majority of them are not specifically about "research topics."  They are about the general state of the field, the state of our research approaches, and our impact as a research discipline. What I firsthand "sense" in these submissions is an echo of the private discussions that go on among colleagues, in public panels and conference interactions.  In what follows I try to pictorially capture the essence of these issues that, according to the IO sensor, are of high concern to the IS community.  From the IO submissions, I feel the IS Community is at a crossroads and feels chal-lenged at this juncture. It is kind of a continuation of the identity crisis feeling that percolated though the community a decade ago, but this time in an environment that offers potential avenues to break out. Have we reached an inflection point with our own perception of our value as a research discipline?[1]

We have always been puzzled that while there is widespread recognition of the information age and the digital revolution on its rapid path of disruption and transformation of everything in our society, the relative importance of the IS field in our own institutions, especially in business schools, has been generally challenged.

If we plot on a chart some measure of the IS field recognition within our institutions (for example, total number of new IS faculty hires) versus time, I submit we will obtain the shape of the curve as portrayed in Figure 1(a).  From the early 1990s, the field experienced an upswing in recognition and prominence up until around the early to mid-2000s.  With the dot.com bust, the economic downturn and the cost cutting efforts including outsourcing, the concavity of the curve is very apparent up to now.

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[1] I must also say that by interacting with the various subcommunities of the IS field, the concerns are not universally shared by all groups.  For example, I feel that the economics of IS community is currently a very vibrant community, in which these issues are generally absent.

**Figure 1. IS Field Recognition and Research Output**
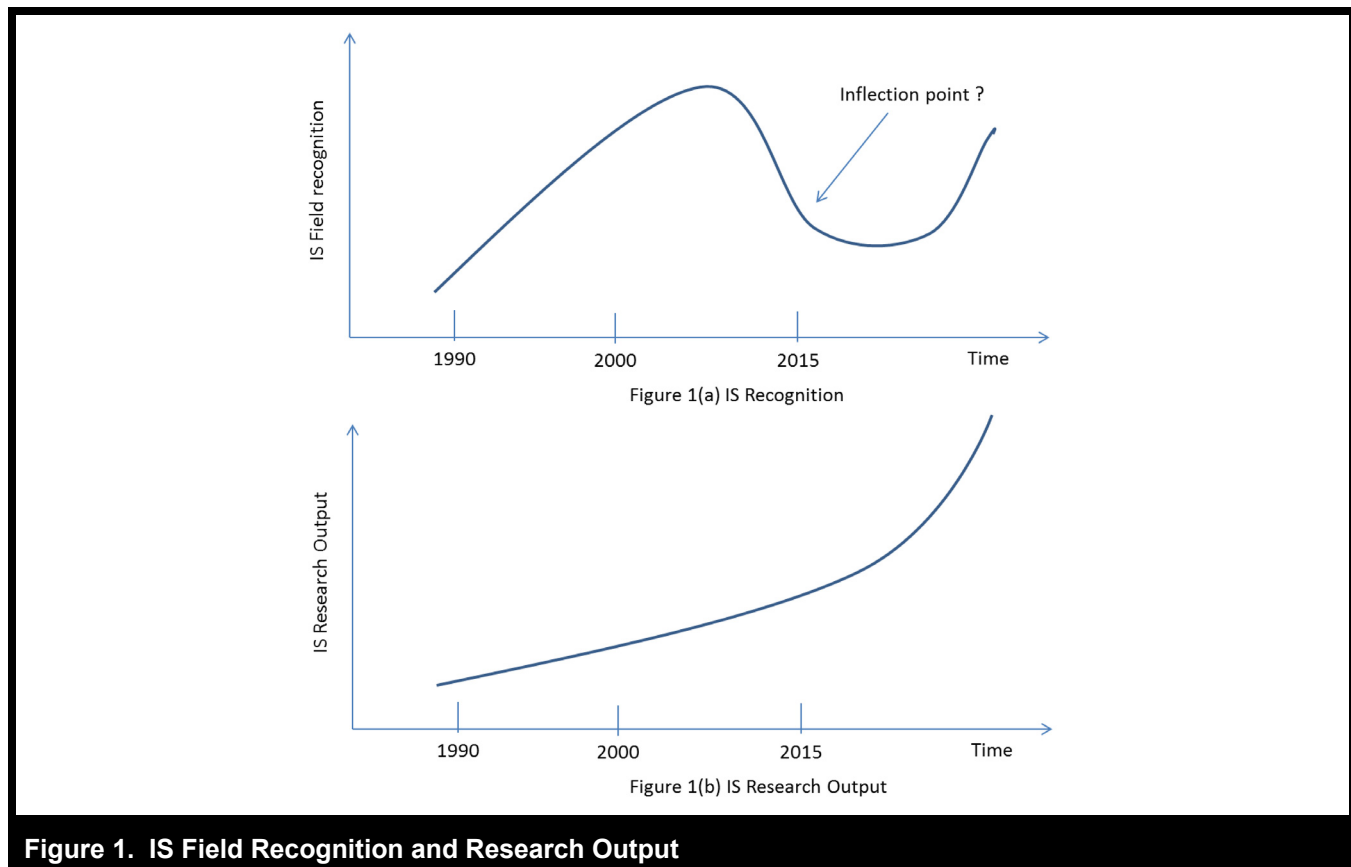
In Figure 1(b) I plot another stylized curve covering the same period of time, representing IS research output. One can measure it in number of publications, number of submissions to peer-reviewed journals, number of publications in the Basket of Eight journals, etc. Notwithstanding issues with publication capacity in top journals, which has increased, the research output of the IS community has been growing over the years. The field has established itself with high impact factors journals and a very healthy research community. During my tenure as EIC of *MISQ*, the total number of submissions has increased substantially to a 700+ level in 2014. We have a very active and large group of IS researchers who are at the peak of their careers and are producing solid research with increasingly sound methodological approaches.

It is clear the curves tell inconsistent stories. How can we be producing more and better research and at the same time the relative perception of the importance of the field has gone down? Are we hopefully approaching or have approached the inflection point in 1(a) in which concavity will become convexity, and IS research recognition will grow again? Where do we go from here? After all, the information revolution marches on. As John King (2011) writes in a fascinating and thought-provoking article, "The dot.com bust was not a false alarm; it was the harbinger of much bigger changes, including the end of the 20th century managerial orthodoxy." Changes are indeed upon us, in the form of analytics and digital transformation. IS programs seem to be back on the spotlight. Student demand is up and opportunities to lead efforts in business analytics are on the rise. Digital transformation is a reality. Is there a change in the concavity of the recognition curve 1(a)? Are we, as a discipline on the verge of riding a convex upward curve again, as we move away from the inflection point? Will the research output we see in 1(b) take us there? Or is it time to reorient our research and its paradigms?

**Scientometric analysis alone is not the answer**. The numerous IO submissions I am getting attempt to deal with these and related timely questions. However, after reading many such submissions, I come away with the disappointing feeling that they are hardly adding anything new to the discussion. The preferred approach of the IO manuscripts is to engage in some type of scientometric analysis of the field. Scientometrics is, after all, the study of measuring and analyzing science, based on objective criteria. Such studies are very open to criticism that relates to the methodology employed, the sample utilized, the lack of

qualitative validation, the verifiability of the analysis (David and Frangopol 2015; Hicks et al. 2015). But to me, the biggest shortcoming of such studies is that, because of the way in which they are conducted, they inherently look backward, often at samples of articles that were published a few years ago, and we know the actual research itself was done two or three years before publication. The result of these studies, which can be inherently misguided, is that their findings aren't that interesting. They barely make contributions beyond what is generally known and accepted. Also, because of the difficulties in dealing with the right methodology, sample, and verification, one published scientometric article often invites submission of follow-up ones that propose a "better" way to study the same problem. So they proliferate.

In principle, I am not against scientometric studies. They may provide value for understanding how a field evolves, but with rare exceptions, I would rather limit their publication in *MISQ* if they don't help with the path forward. I personally think we as a field have abused this backward analysis of the state of IS. It started with the identity crisis period of the early 2000s and has gone on way too long. I would rather reserve *MISQ* space to publish research articles that look at important problems and move the field forward.

One excellent IO article that points us to tangible directions for moving forward is the recently published Grover and Lyytinen (2015) article. It does use scientometric analysis to detail the nature of the research that we produce as a field. The authors confirm that the majority of the growing research we produce as a field and publish in our top tier journals, which I characterize through my curve 1(b) above, consists of the application of mid-range theories through very well recognized scripts that we learn and teach our graduate students.

This finding by itself is not, in my opinion, earth-shattering. But it is an important confirmation of what most of us in the field feel. When I play my EIC ambassador role and visit institutions, present at conferences, etc., I also point to *MISQ* statistics that suggest a successful widely used formula for publication. In my own estimation for *MISQ*, that formula is present in about 70 percent of the papers published in the journal. Grover and Lyytinen have not only confirmed there is a formula, but went deeper and explained how such scripts were developed over time. In essence, such an approach for research increases the likelihood of publication, if well executed, but falls short on moving the field ahead.

What I like most about this paper is that the authors offer directions for the field, in what they call the push to the edges. As shown in Figure 2 taken from Grover and Lyytinen, we are stuck in the middle, following scripts that are based in mid-range theories. We can unstuck by moving toward the left edge, in which we work on very relevant and interesting problems with data driven approaches, without preoccupation of applying and testing theories, but concerned about advancing knowledge in a pre-theory context. Or, we need to go after the right edge, and do higher abstraction theorizing that may provide breakthrough ideas. For either scenario to succeed, the field has to transform itself in how it handles and evaluates our manuscripts.
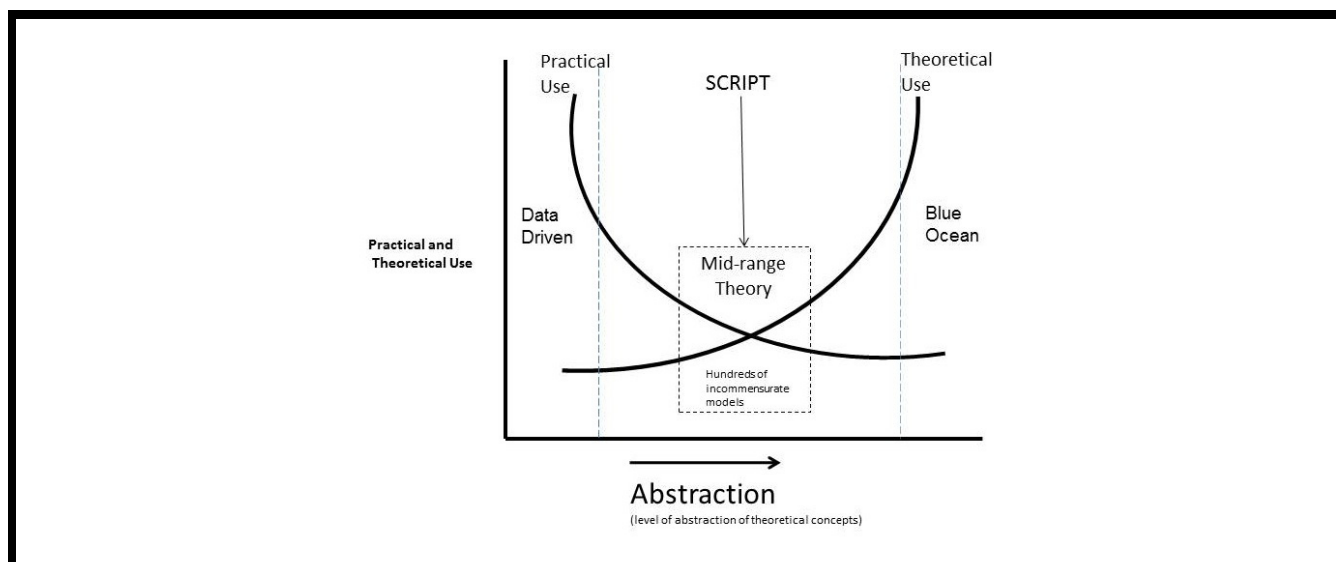


**Figure 2. The Satisficing Nature of Mid-Range Theory Scripts (Grover and Lyytinen 2015)**
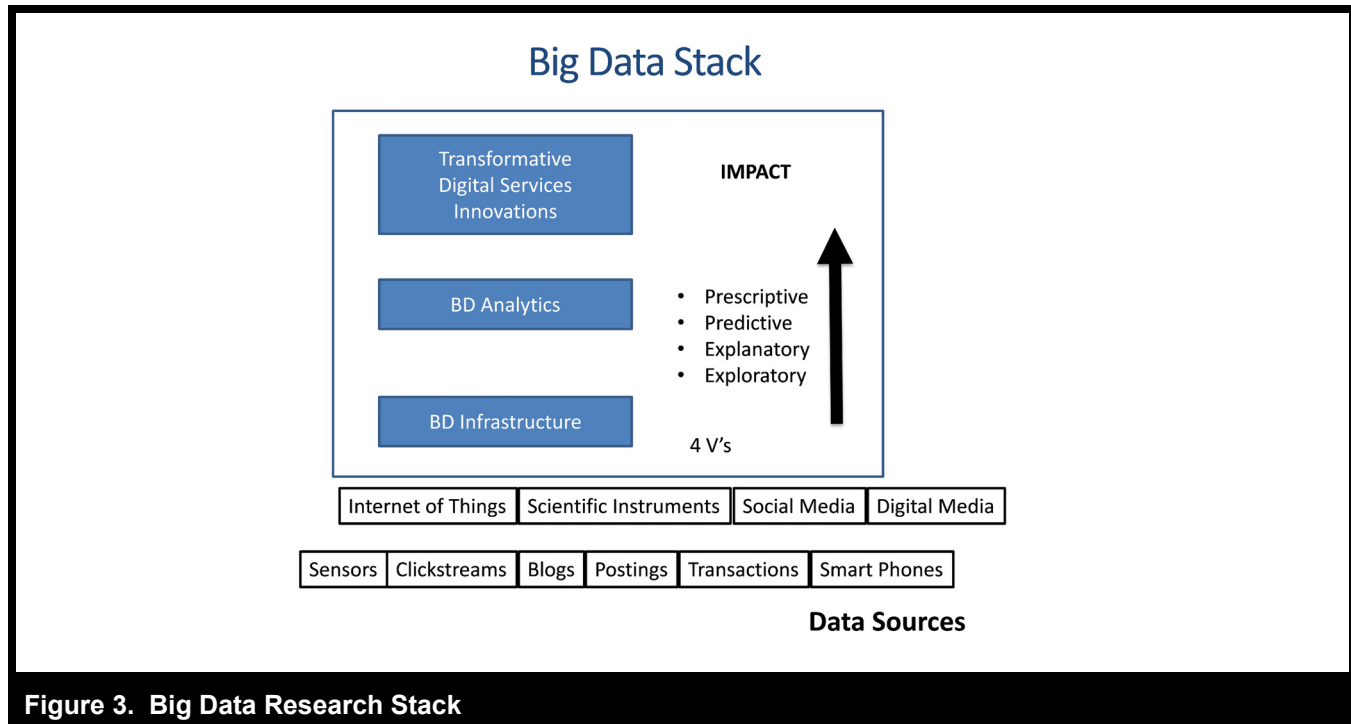
## Big Data Stack



**Figure 3. Big Data Research Stack**

The environment that currently presents itself to us and that may allow us to change the concavity of curve 1(a) and reorient the research output of 1(b) is business analytics and digital transformation. What can we do about it? What should we do about it?

Through several initiatives at the University of Arizona, I have been involved in big data analytics. I came up with the "Big Data Research" stack depicted in Figure 3 to help explain where the research opportunities are. In a previous editorial (Goes 2014b), I elaborated on the opportunities of the two lower layers, infrastructure and analytics, but I believe the real opportunities for impact lie in the upper layer of transformative digital services and innovations.

Companies have been spending millions of dollars in building the infrastructure for big data, hiring data scientists, and building the analytics layer while the most important element of big data is to create the engine for digital innovation. The transformation power of big data lies in the *design* of innovative digital products and services, the digital processes that will support them, and the new digital ecosystem.

To achieve the transformation, we have to create prescriptive models out of the analytics. Prescriptive models will lead to innovations in the form of policies, interventions, smart interactions, alerts, innovative services, and products.

The design of digital services powered by big data analytics is the ultimate objective. Tremendous opportunities lie ahead for the design science area of IS. Not the design of IT artifacts, but the design of *digital artifacts*, which encompass technology, digital business processes, and business models. Big data prescriptive analytics is what makes it possible. Ironically, design science, which is essential here, is one area of IS that is generally underrepresented in top tier journals and for which the lack of established scripts impacts negatively its publication success (Goes 2014a).

Big data analytics allows for the creation of *individual-at-the center* ecosystems: patients in innovative healthcare environments, citizens in smart cities, consumers, students, members of organizations, so on and so forth. Furthermore, these ecosystems overlap each other. The sky is the limit in what can be done. IS research has to be part of all of this. We have to lead, solve the critical issues (privacy for example), lead with the design of these digital services and systems, and understand their impact on individuals, organizations, and society. The diversity of our research is our strength: the different reference disciplines and our own different research paradigms should position us well to move forward and lead.

My *MISQ* IO sensor indicates the field has woken up.  The discussions are actively taking place in our research forums.  I am optimistic because we have an incredible intellectual power in the field, dedicated to think deeply about these issues.  There are concrete signs of changes.  On one hand, the information revolution and digital transformation is showing us the way to opportunities to turn the inflection point around.   On the other hand, we have to make adjustments to our research paradigms.  The (multi) million-dollar question is, how?

To a large extent, IS research has been trapped by paradigms of management research.  We have been educated to look backward not forward.  Academic institutions have been fixated on journal rankings and impact factors, which lead to the application of recognizable scripts in our research, which in turn lead to incremental work.  My IO sensor also indicates that it is time to have a broader discussion about the role of theory in our research.  These are all fascinating questions we need not only to discuss but to act on.

In my world as EIC of *MISQ*, I recognize that as the "face of the field" the journal has to lead.  With the tools I have at my disposal, I have taken some limited actions.  Special issues are great avenues to use to approach not only emerging topics but test different ideas.  I have been very careful in approving those special issues that move the field forward.  I am confident in the guest editors who are currently working very diligently on the special issues on Innovation, Big Data, Societal Impact.  Some breakthrough articles will surface.  I have also been working with the regular editorial board to encourage risk-taking and breaking away from recognizable scripts.  In our three-tier review system, the editors are empowered to do so.  But reversing concavity of established trends is not easy.  We need all the help we can get.

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