



# Taking the first step with systems theorizing in information systems: A response



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## ABSTRACT

We address the commentaries of Robey and Mikhaeil, of Mingers, and of Schultze which provided responses to our paper, “Crafting theory to satisfy the requirements of systems science.” We find their responses useful for reflecting on the development of the role of systems theorizing within information systems research and provide our reaction in order to clarify several fundamental considerations pertaining to 1) our proposed set of requirements for systems theorizing, 2) the need for explicit systems theorizing, 3) the supposed overall neglect of systems science, 4) the communicability of systems theory and the path of grand theories, 5) emergence, the observer, and other considerations, and 6) systems theory from the perspective of sociomateriality.

## 1. Introduction

In our essay (Demetis & Lee, 2016), we deliberately presented just one possible set of requirements for systems science to satisfy. Our purpose was for the essay to open up a discussion on the role of systems theory in Information Systems (IS) research. Based on three reactions to our essay (Mingers, 2017; Robey & Mikhaeil, 2016; Schultze, 2017), we are pleased that it has “struck a nerve.” This is exactly the sort of response that we feel is needed for the overall field of IS to take systems theory seriously *for the first time*. And, as in undertaking any journey, it is necessary for the field to begin by taking the first step (Figs. 1–3).

We address the commentary of Robey and Mikhaeil and the commentary of Mingers in the first part of this response, and the commentary of Schultze in the second part. We address the following points: 1) our proposed set of requirements for systems theorizing, 2) the need for *explicit* systems theorizing, 3) the supposed overall neglect of systems science, 4) the communicability of systems theory and the path of grand theories, 5) emergence, the observer, and other considerations, and 6) systems theory from the perspective of sociomateriality.

## 2. On our proposed set of requirements for systems theorizing

In our essay (Demetis & Lee, 2016), we proposed a set of requirements for a systems theory to satisfy. In order to emphasize the context of their development, we would like to highlight the following direct quotations from our essay:

The purpose is not to present all features of systems science... (p. 116)

Based on our preceding discussion of some basics of systems science in general and Luhmann's systems theory in particular, we offer the following as a set of requirements for a theory to satisfy in order to be considered a systems theory. Given the extensive

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diversity of systems approaches, the requirements we offer make up but one possible set, where the set is sufficient to be illustrative of systems theorizing. (p. 121)

We emphasize that what we provide in this paper is not a universal set of systems criteria but just one possible set out of many. (p.126)

All three commentaries argue from a standpoint as if we present our six requirements as the only set of requirements for systems theorizing. For instance, [Mingers \(2017\)](#) says, “The first problem is that the field of systems is so broad as to defy any sort of succinct definition or description as this paper attempts” (p.67) and “The second problem is that even this area is dealt with in a rather cursory manner. In terms of any detail, it covers only a single theorist – Niklas Luhmann” (p. 67) where Mingers characterizes Luhmann as “rather marginal, highly abstract and complex, and not really a representative of GST” (p. 67), ignores our distinction between GST/LST (and second order cybernetics), and underplays Luhmann's contribution.<sup>1</sup> Worth noting is that [King and Thornhill \(2003\)](#) offer their own detailed analysis of how Mingers' view on Luhmann is “misleading in certain key aspects... [and] involves a misunderstanding of Luhmann's sociology and a failure to appreciate the overriding objective that Luhmann set himself in his theoretical work” (2003, p. 276)

Minger's “partial history of systems thinking” is useful; yet, the tomes of past work on systems thinking and systems theory that Mingers brings up have largely been collecting dust as far as the information systems discipline is concerned. The mere existence of knowledge (here, knowledge about *systems*) is no guarantee in itself that the knowledge will be used. Knowledge does not implement itself. Simply pointing to the existence of vast tomes of past, dormant research is a futile effort. How to resurrect them — or rather, in the information systems discipline, to bring them to life in the first place and attempt to implement even a few principles in an application domain is the point that our essay addressed.

Mingers also offers his own set of criteria for what constitutes systems theorizing and we welcome yet additional criteria from other scholars, so as to more fully illustrate the many different facets of systems thinking. This gives us the opportunity to mention (as we do use concepts from GST and LST) that we are not calling for a GST-only application of systems concepts to IS. Our addition of requirements from LST is one way (out of many) for emphasizing some core developments in systems theory. We find Robey and Mikhaeil's perspective on this as particularly fruitful when they mention that “Hopefully, interest in older systems theory, while looking backward, can also serve as a springboard for fresh ideas that engage directly with contemporary technologies and society” (p. 130).

### 3. The need for *explicit* systems theorizing

Our position, which is that it is necessary to begin a journey by taking the first step, directly contradicts the protestations framed as “*déjà vu*” by Robey and Mikhaeil and “back to the future” by Mingers, whose phrasings presume that the journey had begun long ago. Instead, the reality is that the field of information systems *as a whole* has never seriously entertained systems theory in the first place. We have noted a few individual exceptions like [Checkland \(2000\)](#) and [Alter \(2001\)](#), but there has existed no overall body of literature indicating a systems movement in the field of information systems to which they or others have contributed.

An indicative example of how Robey and Mikhaeil perceive the role of systems theory is evident in the following passage (2016, pp. 128–129).

Despite overall neglect of systems science, GST [General Systems Theory] concepts crept into organization studies and IS and remain there. For examples, theoretical approaches drawing from socio-technical systems and sociomateriality ([Leonardi, 2013](#)), structuration theory ([Orlikowski & Robey, 1991](#)), and complexity theory ([Braa, Hanseth, Heywood, Mohammed, & Shaw, 2007](#)) all engage with social systems. Indeed, systems thinking is deeply imbedded in IS design and methodology, which in turn shapes the way we conceive of organizations. We might argue, therefore, that many of the key insights from general systems thinking have become part of the IS lexicon. While the links back to GST as a source for these ideas may be neglected, IS remains enriched due to its adoption and absorption of many of the tenets that Demetis and Lee offer.... In summary, GST did not simply fall out of favor out of mindless neglect. Systems science is already deeply imbued in IS thinking and research.

If indeed systems science is “deeply imbued” in IS thinking and research then it is so deeply imbued as to be unrecognizable and undetectable. One would be at pains to reconstruct any set of requirements for systems theorizing from existing IS research. The point that we are making is not for systems theorizing to remain, if it is present at all, “deeply imbued” and perceived as having “crept into” IS research, but instead for systems theorizing to be conducted *explicitly*. This establishes the need to openly and ardently discuss the requirements for systems-theoretical research within IS and we would agree with Robey and Mikhaeil on the need to explore the reciprocal requirements that IS artifacts would impose on systems science (p.129).

In a manner similar to the above, Mingers notes that “the current paper attempts this task for systems theory,” namely, the task of asking what implications does the approach of systems theory have for crafting theory, “but is too narrow and rather old-fashioned for it to successfully do justice to such a rich and vibrant field.” (p. 67) But from the perspective of information systems, has the field of systems theory indeed been rich and vibrant?

As already noted, there has existed no overall body of literature indicating a general acceptance and broad application of systems theory in the information systems field. Apart from the few individual exceptions noted, the term “systems” in information systems

<sup>1</sup> GST is general systems theory. LST is Luhmannian systems theory.

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