Commentary

Situating Humans, Technology and Materiality in Value Cocreation

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Mele et al. (2018) raise a number of important points in their editorial. Of particular interest is how technology and humans are linked and what role each plays in value cocreation. The issue can actually be considered as part of a bigger issue: the tendency for humans to alienate all things that are not human, that is, the idea that there are dynamic, rational humans and related social systems and then there is all else, such as inanimate objects (usually including technological artefacts) and the natural world.

The roots of this conceptual alienation can most likely be traced back to *The Enlightenment* (Porter, 2001) and, in that context, this separation probably served a very useful purpose of providing a perspective on the control of human destiny, both singly and collectively. However, like all perspectives, it came with a price: a restricted vision. In this case, it privileges humans and, thus, overstates their role. A particular and somewhat paradoxical case of this alienation is the human–technology divide. Though created by humans, once created, technology is often seen as something 'out there', apart from humans, part of the natural environment and, thus, also alienated.

But it no more makes sense to divide the world ontologically into humans and nature—what is more 'natural' than people—than it does to conceptualize technology as something extra-human, the idea that we can act on technology but it cannot have agency or act on us. As Mokyr (2002) tells us, *technology* is applied useful information (see also Arthur, 2009). It is, thus, integral to all human interactions for value cocreation. As Mele et al. (2018) point out, humans and technology are entangled and, thus, inseparable, except perhaps for analytical purposes, and even then caution should be exercised.

Technology is also at the root of *service provision*-dominant (S-D) logic (e.g., Vargo & Lusch, 2016, 2017), indirectly introduced by Mele et al. (2018), in the discussion of value cocreative processes. In S-D logic, 'service'—using one's resources for another's benefit—captures the *essential interaction* among actors *for value creation*. Technology, as noted, is defined in terms of applied resources (i.e., useful knowledge). Hence, *service equals technology used beneficially*.

As Akaka and Vargo (2013) have argued, based on S-D logic, technology is an 'operant resource'—it is capable of acting on other resources to provide benefit (i.e., creating value). S-D logic is most often thought of in terms of its applicability to human-centred activities through *service ecosystems*, its unit of analysis for value cocreation. However, service provision in service ecosystems is intertwined with the service of 'natural' systems—*ecosystem services* (Schumacher, 1999)—thus should be seen as more generally applicable (Vargo & Lusch, 2017).

Even more generally, the issue raised by Mele et al. is, as stated, tied to the nature versus agency divide—the idea that only humans have agency. It is becoming progressively recognized, that the position that agency can be singly privileged to humans is untenable (Latour, 2005; Orlikowski & Scott, 2008; Scott, 2008; Vargo, 2019). Perhaps this is especially apparent in an increasingly connected world, but it is no less the case before the Internet of things (IoT) and does not apply just to higher technology. It is just indefensible to claim that naturally occurring systems, such as fire and weather, do not have agency, except perhaps in a very restricted sense of making conscious intent as a condition of agency.

Arguably, it is also indefensible to assert that humans are as consciously intensional as is often asserted. At least as a general rule, don't humans mostly perform in accordance with institutional structures, such as social norms and attitudes, rather than through situationally specific, intensional decision making, as it is often depicted (Simon, 1969)? Are we really as rational as we would like to think? Either way, what is accomplished by reserving the concept of agency for humans?

Often, this conceptualization of extra-human agency is discussed in relation to 'materiality' or, especially as it relates to technology, 'sociomateriality' (e.g., Orlikowski & Scott, 2008) but it is actually a broader issue. More generally, it is 'institutional structure' that must be considered as the prime mover in the issue of agency, at least as it relates to value cocreation. That structure can take many forms; it can be virtual as well as material. In the social world, we see these structures in term of norms, rules and laws. In the natural world, we see them as the 'laws' and other forces of nature. In both cases, they have enabling and restricting characteristics and, most importantly, they are both, similarly, systemically generated and entangled with each other.

The bottom line of this discussion is that value cocreation takes place in self-regulating service ecosystems, usually conceptualized in terms of human actors and their institutions. However, these systems are elements of larger ecosystems, often categorized as natural, which provide ecosystem service and are also self-regulating. Thus, understanding value cocreation as well as related issues, such as sustainability, requires the diminution, if not dismissal of the human/social-natural divide and a fuller understanding of the role of self-regulation in systems. Of particular importance is the role of institutions, including both those classified as natural and 'artificial' (Simon, 1969), and especially their interaction.

Progress in technology and the related concerns they raise force us to zoom out to this more encompassing perspective. Mele et al. as well as the authors of the special issue on technology and value cocreation should be commended for contributing to this conversation.

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