

***The Science of Science Policy: A Response to Jesper Eckhardt Larsen***  
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We are grateful to Jesper Eckhardt Larsen (2014) for his comments on our article (2013). Among other things, these comments give us a chance to clarify our views, and elaborate upon certain elements of our argument that were left somewhat sketchy in the original paper. Our response follows in three parts.

**Part I**

Eckhardt Larsen raises two main objections. The first one has it that we represent Habermas as an instrumentalist with respect to science. Eckhardt Larsen insists that this is not the case: On the contrary, in his classical texts on knowledge and interest (Habermas 1966, 1971), Habermas adopts a staunchly non-instrumentalist view both of the *Geisteswissenschaften* and of the "critical" academic disciplines. This position is further articulated in Habermas's later writings, prominently in his theory of the *Lebenswelt* which is a societal sphere structured not by the rationality of the natural sciences but by the logic inherent in human interaction (which makes it an object of the humanities) (Habermas 1988). The same position is expressed in Habermas's writings on the role of the universities in modern society (Habermas 1987).

Larsen's objection to our narrative is based upon a misunderstanding of our position, however, springing from divergent readings of the term "instrumentalism". As used in our paper to articulate Habermas's position, instrumentalism refers to the view that all human cognition serves to satisfy certain general human interests, of diverse kinds, and are shaped by that function. This applies *a fortiori* to the sciences (in the broad German sense of *Wissenschaften*), which are regimented and disciplined versions of basic human modes of cognition. All sciences are thus *instruments* for the satisfaction of a specific associated interest. Hence, the term "instrumentalism" is appropriate and warranted.

Habermas famously claimed that there are three basic "knowledge-guiding" interests: the technical, the practical and the emancipatory. These interests are derivable *a priori* by reflection on the hybrid nature of Man as simultaneously a biological, a cultural-historical and a rational being. The technical interest is directed towards the control of nature, the practical interest towards the formation of an integrated individual personality, while the emancipatory interest is directed towards the liberation of mankind.

Now in philosophical parlance, an "instrumentalist" conception of science is often understood to imply that science serves only the first-mentioned interest, viz. the technical control over our material surroundings. Or, more precisely, that *natural* science serves this purpose, while the social sciences and humanities are not linked in the same intimate manner with any distinctive social interests. The humanities in particular are not thought to have any essential societal function but to be largely ornamental, from a societal point of view. Habermas's agenda, like that of the Frankfurt School in general, is precisely to correct such a view, and to show that other sectors of science (in the broad sense of *Wissenschaften*) serve a general interest as well. Indeed, Habermas's argument is

that the humanities and social sciences should be recognized and made room for in society because of their important functions, and that we should take care not to apply methods appropriate to one sector of reality to other sectors. In particular, we should not use methods and concepts from natural science in other sectors of society. This is the Frankfurt School's well-known campaign against the dominant and invasive "technical rationality" of modern Western society.

In our discussion of Habermas, we use the term "instrumentalism" to refer to this general conception. But since the brevity of our account may have left our meaning ambiguous, we will use Larsen's comments as an opportunity to elaborate upon this point.

Habermas takes great pains to bring out the exact parallelism in the relationship between the three respective types of cognition and their associated interest, in order to show that cognition and interest are everywhere as intimately and inherently linked as are natural science and the technical interest, and that the *Geisteswissenschaften* too have a crucial societal role.

First, each interest determines the nature of the mode of cognition that satisfies it, the way that any tool is shaped by the end it serves to bring about. Second, the interests are "transcendental", implying that the sector of reality that is the object of any particular mode of cognition is shaped by that mode, and hence, indirectly, by the corresponding interest. Third, on a more mundane level, there are specific social sectors correlated with each of the three interests. Their satisfaction is not achieved primarily through individual thought or effort, but through societal praxis, especially in so far as such satisfaction is delivered by the refined modes of cognition that we find in the sciences. The societal sector corresponding to the technical interest is *work*, that corresponding to the practical interest is *language*, and the one answering to the emancipatory interest is *authority* (Habermas 1966, 296).

## **Part II**

As we argue in the article, however, Habermas's efforts to document a clear anthropological and societal role for the humanities must in the end be deemed unsuccessful. This failure is significant, since it undermines the usefulness of Habermas's philosophy with respect to rehabilitating the humanities. The problem resides in Habermas's difficulty in characterizing the objectives of the practical and the emancipatory interest with sufficient clarity (one matching the clarity and precision with which he characterizes the technical interest). Due to this shortcoming, Habermas may be thought to have shown that the knowledge produced by natural science has a clear and definite societal function, whereas the function of the others is moot.

Since our current topic is the role of humanities, we shall restrict ourselves to characterizing their purpose, leaving the critical (emancipatory) disciplines on one side.

True to his characteristic style of thought, Habermas derives the specific characteristics of "practical" thought through an account in which historical and systematic strands are intimately interwoven (Habermas 1971). The chief historical source is Wilhelm Dilthey

and Diltheyan efforts to develop a methodology for the human sciences (*Geisteswissenschaften*). Famously, Dilthey's approach is based upon a strict division between the natural sciences, which serve to *explain* events in external nature, and the method of *understanding* (*Verstehen*) as used by the humanities, which helps to grasp the subjective contents of other peoples' minds. The latter is described as a method of projecting oneself in imagination into the minds of other people, contemporaneous as well as historical figures, and recreating their psychic life in oneself. Here, we see *Verstehen* as a tool in the service of intersubjective understanding and the interpretation of our historical heritage.

This, however, is only one aspect of Dilthey's thought. *Verstehen* is not only at work in establishing intersubjective communication but has a crucial intra-subjective function as well: *Verstehen* serves to establish individual human self-identity through a person's life-long efforts at re-interpretating events of his or her own past in order to generate an inclusive and coherent narrative. Here, we find elements of thought that would later reappear in Heidegger's conception of human existence as essentially historical and "hermeneutical", i.e. as a constantly ongoing self-interpretation on the part of *Dasein* (Scharff 2012).

The processes of intersubjective communication and intra-subjective identity-formation though self-interpretation are not disparate elements in Dilthey's system, but are combined in the idea that the categories that the individual uses in his or her self-formation are of necessity derived from the intersubjective, public sphere. There are strong echoes of Hegel here and his doctrine that the "subjective spirit" of the individual human being is shaped by the "objective spirit", i.e. the culturally engendered ideas that are embodied in social institutions such as the law, in works of art, in the literary heritage, and so on.

In his characteristic style of reasoning, Habermas simultaneously critiques and appropriates elements of Dilthey's thought. Thus the ideas that are at play in Habermas's reflections about "interpretive" thought and its underlying "practical" interest are profoundly shaped by a characteristic phase of late German idealism, and are quite alien to a modern audience, in particular one steeped in Anglo-American philosophy. They are basically intelligible only to an audience with a certain knowledge of that intellectual tradition.<sup>1</sup>

By contrast, Habermas's reflections upon the practical utility of natural science read almost as commonplaces. Although in the context of the book they are derived from a detailed reading of C.S. Peirce, they actually represent a way of looking at scientific knowledge as essentially a tool for man's control of his surroundings that has been common wisdom since the days of Francis Bacon. Habermas combines his analysis of human interests with an analysis of scientific concepts and laws which, in an Anglo-American context, is familiar from Percy W. Bridgman's "operationalist" interpretation

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<sup>1</sup> It is significant that, in his *Theory of Communicative Action*, written after his "linguistic turn" which is simultaneously a turn towards more recent Anglo-American philosophy, Habermas partly replaces the Diltheyan elements with ideas from G.H. Mead about identity formation.

(Bridgman 1927).

There is an additional problem. With respect to the knowledge produced to aid mankind in controlling nature (i.e. in service of the technical interest), it is easy to see how sophisticated knowledge produced by natural science serves this purpose, and is indeed a much superior instrument than everyday knowledge. Highly esoteric findings of natural science concerning the conduct of elementary particles are eventually put to use in sophisticated electronical gadgets that have changed the living conditions for the majority of human beings on our planet in countless ways: Radar, x-rays used for medical purposes, computers, telecommunication, etc. These gadgets are important for the ordinary person although he or she may have no inkling of the scientific knowledge behind them; that knowledge is effectively "black boxed" into them, to use Latour's suggestive phrase.

The situation is not so obvious with respect to the knowledge garnered by the human sciences. It is no doubt true that knowledge of history, languages, art and literature etc. are transmitted to children through schools and hence help to shape their identities. But the efficacy of this function is not proportional to the degree of academic sophistication of the knowledge transmitted. This is fortunate, for, unlike what is true for the technical sciences, humanistic knowledge will only serve its purpose to the extent that it is grasped and absorbed by the recipients.

In sum, what we claim to be the unintended consequence of the Habermasian framework is the conception that the natural sciences are productive and future-directed, while the humanities are purely symbolic, interpretative, retrospective and hence non-productive. This claim does not ignore Habermas's significant contribution to the philosophy of the humanities. Rather, our paper raises concerns about the fruitfulness and political consequences of distinguishing different scientific disciplines in terms of their supposed societal functions, rather than in terms of their cognitive programs. Our argument springs from the premise that both the humanities and the natural sciences are engaged in producing objective and reliable knowledge based on empirical principles. Basic human interests in understanding and explaining the world are just as significant in the human sciences as in the natural sciences.

Hence, our criticism of Habermas is that the strict demarcation of the natural and technical sciences from the human and social sciences in the end leads to an overly stylized dichotomy between "explanation" and "interpretation", or between the "nomothetic" and the "idiographic" sciences, which does not improve the situation of the humanities but rather makes it appear as if they belong to a particular, somewhat detached region of society, the "cultural sphere" that government can prioritize or down-size as it wishes, with no harm done to the rest of society. By contrast the progress of natural science and technology is made to look like a permanent societal concern that deserves a steady infusion of resources. While this unfortunate state of affairs was surely not the intention of Habermas himself, we believe that his thinking may unwittingly have contributed to it.

### **Part III**

Next to Larsen's second criticism. According to Larsen, we greatly overestimate the influence of the Frankfurt School and STS in shaping the policy conditions for modern universities. On Larsen's account we present an overly idealistic picture in which philosophical and sociological debates (such as the one presented by the Frankfurt School as described above) not only inform the articulation of research policies but are the causal driver of new demands, incentives and regulation. Larsen rejects this idea and stresses instead that the emergence of the entrepreneurial university, which in its turn represents the latest stage in a process of ever increasing government control of the universities, started right after World War II and was promoted on purely "external" grounds.

In fact, we largely agree with Eckhardt Larsen's historical analysis, which to us seems to differ only little from the position we articulate in our original paper. For instance, we do not claim that the Frankfurt School or STS scholarship have caused the emergence of the entrepreneurial university. On the contrary, we state that the "the efforts of both the German and the British argument on behalf of the humanities were pushed aside by other, more resolute developments. We are referring to the emergence of the entrepreneurial university" (64). Our key claim is that the efforts, both within the Frankfurt School and STS, to come to terms with the dominance of natural science and technology and find a space for the humanities, was in the end powerless to stem the tide of these developments.

We do go on, however, to point out an irony in these developments. Contrary to its authors' intentions, the reconceptualization of science as a "social construction" that is a crucial premise in almost all STS work and, in the "transcendental" version, in Habermas's thought, actually abetted this development rather than hindered it. It did so by supplying a rhetorical framework for this transformation. The forces that wanted to transform the universities were up against a fairly well established rhetoric designed to protect academic autonomy. This was the rhetoric established by Vannevar Bush in the post-war period with its distinction between basic and applied research. This rhetoric was chiefly intended to protect basic research in the natural sciences but, as a side effect, had also secured a safe haven for the humanities, which were able to represent themselves as doing basic research.

Throughout the last part of the 20<sup>th</sup> century this separation of basic and applied research was increasingly challenged by a reconceptualization of science which would construe even its most esoteric achievements as essentially instruments for the satisfaction of socially articulated human needs. A key element in this line of reasoning was the famous move by Bruno Latour to collapse the very distinction between knowledge and technology, or in Ian Hacking's terminology between representation and intervention, and see the two as just different names for an entity better referred to as "technoscience". Unfortunately, the merits of the humanities would not only be judged to be very poor instruments in this respect; they would also be neglected as objects of study by large segments of the STS community— amounting to a huge deficit of humanities studies within the STS literature (Dayé 2014). In this context, we agree with historian of science Lorraine Daston in her observation that the humanities have never had a distinct

epistemology or history of science—at least not up until recently (Daston 2015, Bod 2014).

We also agree with Eckhardt Larsen that the academic developments internal to British and German philosophy have not been the primary driver of political events or university reforms in the Western world. Larsen puts the point well when he writes: “Of course, the tools of politics are discursive; politicians do things with words—and wordings tend to travel from the realm of social and human life into the political agendas. So, yes, a philosopher may end up being used for legitimizing a political trend, but is hardly a “cause” of this trend”. We agree. But this admission should not lead us to neglect how Science and Technology Studies have provided an attractive rhetorical climate for directing research priorities towards specific “external” goals. The externalism present in today’s science policy is the product of various economic and ideological forces some of which have been successfully adopted and even accelerated by STS.

Here, it is worth keeping in mind that the “externalist turn” in STS itself has been an ongoing project since at least Thomas S. Kuhn and Robert K. Merton. The focus on external political and economic factors in science articulated in the work of Latour, Callon, Collins, Wynne, Jasanoff and other proponents of STS, makes it clear that STS scholarship has been instrumental in providing academic legitimization of commissioned or mission-oriented research. In this regard, critical science scholars such as Aant Elzinga, Hans Radder, Philip Mirowski and Steve Fuller are the exception rather than the rule in mainstream science and technology studies.

As Fuller notes in his 2006 book *The Philosophy of Science and Technology Studies*, it has become commonplace in STS to regard knowledge as a commodity traded in markets by its producers. In the emerging political economy of knowledge production, traditionally state-supported institutions like universities no longer enjoy any special privilege. Indeed, to increase their competitiveness, universities have become much more sensitive to potential research “clients” (Fuller 2006, 29). This in turn applies also to STS scholarship itself.

The “technoscientific turn” may be radical from the standpoint of the intellectual history of STS, but it also provides an explanation, perhaps even legitimation, for associated social tendencies that have accompanied the decline of the welfare state and the rise of neo-liberalism. These are associated with the claim that we live in “knowledge societies” in need of “knowledge management” (Fuller 2006, 27).

Fuller perceives STS as both an intellectual basis for and potential legitimation of new knowledge regimes based on the influential idea that those who maintain the strongest networks for the longest time “simply come to be defined as both the most knowledgeable and the most powerful, with the former predicate used to explain the latter” (Fuller 2006, 29). After all, the agency implied by actor-network-theory is no more than the capacity to act, to intervene, to produce and to become profitable, Fuller argues.

This integration of STS scholarship with real-world politics is associated with a tendency since the late-1980s to erase any strong distinction between science and society. This conclusion has been adopted as the foundation for the 1990s Mode II and Triple Helix knowledge producers, for whom science is tantamount to engineering. Mode II knowledge production is marked by scientific ideals perfectly adapted to a late-modern neo-liberal reality.

Now, if only the Mode II and Triple Helix theses were reserved as purely descriptive devices suited for explaining the emergence of contemporary knowledge society, Eckhardt Larsen's point could be granted. However, this is not the case. As has been pointed out both conceptually and empirically, STS scholarship has served a performative function. Conceptually, in the sense mentioned by Terry Shinn and Benoit Godin (both of whom we reference in the original paper), the Mode II thesis was influenced by and used to influence European science policy circles. Empirically, Hessels et al. (2008) show how the concept of Mode 2 knowledge production quickly became fashionable both within academic circles and in the science policy community itself.

The circulation and recirculation of STS ideas, such as the co-production of knowledge and co-evolution of innovation networks, has been a strong driving force in modern day science policy debates. None of these conceptual influences rule out or suggest that the traditional "institutionalist" story about the development of R&D policy in the Western world from Vannevar Bush through the OECD and onwards is wrong. On the contrary, the combination of policy ideas stemming from real-world institutions, science advisers, and policy influencers, such as the leading figures in STS, together constitute the complex policy mix of today's science and university management regime.<sup>2</sup>

As is clearly stated in our original paper, the close links between science studies and science policy invites an in-depth case study that would highlight the large number of STS scholars that have served as members and advisers on governmental expert groups, research councils, foresight panels and bioethical committees. Already present in the literature is an illuminating special issue of *Science Technology Human Values* (July 2007) on the role of STS in science policy. This "entanglement" should come as no surprise to STS practitioners themselves as it follows from the general scheme of thought adopted by STS, namely that there is no principled distinction between representation and intervention, nor a clear border between science and society.

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<sup>2</sup> When surveying a sample of influential policy reports from recent years, one finds extensive citation of STS literature, in particular the policy-oriented publications in which close attention is given to the new research models such as Mode II, Triple Helix, technoscience, and Pasteur's Quadrant (e.g. EC 2003, 2005a, 2005b, 2007a, 2007b; OECD 1996, 1999a, 1999b). It is also emblematic of this reciprocity that the single most influential science policy book, *The New Production of Knowledge*, (Gibbons et al. 1994) was funded by the Swedish Research Council.

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