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Biotech and bioeconomy: six of one and half a dozen of the other?

Stephane Lhuillery, Chaire de Bioeconomie Industrielle, Neoma BS.

Samih Athmane, Chaire de Bioeconomie Industrielle, Neoma BS.

Nicolas Befort, Chaire de Bioeconomie Industrielle, Neoma BS.

Important efforts are done to delineate the Bioeconomy according to a sectoral rationale (e.g. Ronzon, et al., 2017) or institutional rationale (Befort, 2019). Whereas the feasibility of a sectoral definition is questionable, a second avenue is to define the Bioeconomy according to its technologies. In this regard, the Bioeconomy is often assimilated to biotechnologies (e.g. OECD 2009). The idea is interesting because, since the 2000s, the biotechnology is now well defined by institutions (OECD, 2009) and used in a routinised way by scholars (See Lecocq and Van Looy, 2016) and thus would provide a workable definition and delineation of the Bioeconomy. Assuming that patents provide an accurate view of technological competencies, the present article evaluates the relevance of the definition comparing the technologies covered by biorefineries considered as the role model of the bioeconomy to biotechnologies covered by biotech firms.

Using USPTO and EPO data, we built the IPC code profile of a unique set of biorefineries that we compare with the OECD definition of biotech[1]. The is first step underline that biorefineries use technologies that cannot be reduced to biotechnologies. In a second step, we build the IPC code profile of French biotech firms using the French annual R&D survey in order to evaluate to what extent the non-biotech technological skills from biorefineries match the non-biotech technological skills of biotech firms following Lhuillery et al. (2006).

The article takes also the opportunity to come back on the heterogeneity of biotech chasing to compare the bioeconomy with subsamples of the biotech such as “white biotech” and “green biotech” (Neuhäusler and Frietsch, 2013; Friedrichs, 2018). The definition of the Bioeconomy also insist explicitly or implicitly on the environmental dimension of the Bioeconomy (EU, 2018): taking stock of this dimension, we explore to what extent the Y02 class of the CPC classification (Veefkind et al., 2012). can also be a useful tool to delineate the Bioeconomy.

1 The biotechnologies is defined by OECD (2009) as technologies classified in the following IPC classes: A01H1/00,A01H4/00,A61K38/00,A61K39/00,A61K48/00,C02F3/34,C07G(11/00,13/00,15/00), C07K(4/00,14/00,16/00,17/00,19/00),C12M,C12N,C12P,C12Q,C12S,G01N27/327, G01N33/ (53*,54*,55*,57*,68,74,76,78,88,92).

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