



Check for updates

**AUTHOR:**  
Ntsibane Ntlatlapa<sup>1</sup>

**AFFILIATION:**  
<sup>1</sup>Centre for the Fourth Industrial Revolution South Africa (C4IR South Africa), Pretoria, South Africa

**CORRESPONDENCE TO:**  
Ntsibane Ntlatlapa

**EMAIL:**  
ntlatlapa@csir.co.za

**HOW TO CITE:**  
Ntlatlapa N. Defining the Fourth Industrial Revolution. Comments on Moll (S Afr J Sci. 2023;119(1/2), Art. #12916). S Afr J Sci. 2023;119(1/2), Art. #15436. <https://doi.org/10.17159/sajs.2023/15436>

**ARTICLE INCLUDES:**  
 Peer review  
 Supplementary material

**KEYWORDS:**  
Fourth Industrial Revolution, 4IR definitions, fusion of technologies

**PUBLISHED:**  
24 January 2023



# Defining the Fourth Industrial Revolution. Comments on Moll (S Afr J Sci. 2023;119(1/2), Art. #12916)

## Significance:

Moll (S Afr J Sci. 2023;119(1/2), Art. #12916) argues that we are not currently living in the Fourth Industrial Age (4IR). In this response to Moll, I contest that Moll's argument does not correctly reflect the understanding or definition of the 4IR as presented in the pivotal texts of the leading global and South African 4IR advocates. I believe that, had Moll focused on the definition of the 4IR presented initially by Schwab, that is, around the fusion of technologies across the digital, physical and biological worlds, he could have come to a different conclusion about the Fourth Industrial Revolution.

On reading Moll's article, 'Why there is no technological revolution, let alone a 'Fourth Industrial Revolution'<sup>1</sup>, my first impression is that there is a lack of precision in the language used in the article in general, with certain concepts seemingly assumed to have agreed or known definitions. The first example of this is the title itself, which, when read alone without delving into the content, leaves the reader with the feeling that the author argues that the existence of a technological revolution is a fallacy. This is not the case, as Moll clearly acknowledges the existence of three historical technological revolutions in the very first paragraph of the article. Moll then proceeds to provide a very good definition of an industrial revolution. Although Moll clearly does not question the existence of a technological revolution, he refutes the notion that the development typically associated with the Fourth Industrial Revolution (4IR) meets the criteria for an industrial revolution.

The second example of this lack of precision in the language is the confusion in the article on what the 4IR is. In the Abstract of the article, Moll states: "Seemingly, this revolution is about deep-seated, rapid, digitally powered techno-scientific change. It is the age of smart machines; it is a new information technology (IT) revolution".<sup>1(p.1)</sup> If this was the only definition of 4IR that had been acknowledged in the article, I would absolutely agree that indeed it does not meet the criteria for an industrial revolution as per the definition given by the author and many others. The problem, however, is that Moll challenges what he calls the pivotal texts of Schwab<sup>2</sup> (the leading global 4IR advocate) and Marwala<sup>3</sup> (the leading South African 4IR advocate), both of whom use very different text to the above to define the 4IR. In Schwab's definition provided in the article there is emphasis on the confluence of technologies and on fusion of technologies. The use of confluence and fusion runs through from the first definition used by the World Economic Forum in 2016 to the latest publications in 2022. It therefore follows that any authors who challenge the notion of the 4IR as introduced by Schwab must use this as a basis and not the mere application of individual technologies.

Moll's argument follows a common trend of removing the confluence and fusion element in the discussion of 4IR application. Where he refers to the confluence and to the fusion of technologies, Moll comments that "a smaller-scale fusion of technologies is not necessarily the harbinger of a socially pervasive technological revolution"<sup>1(p.5)</sup>, but does not go further to examine the impact of the emerging fusion of physical and biological worlds such as the creation of artificial organs or the emerging fusion of the biological and digital worlds leading to understanding and even influencing brain activity, among many applications.

Moll's argument also ends at technological innovations and does not consider other impacts of technological revolutions such as ethics and disruption to industries that lead to re-defining the world of work.

It is important to note that while the arguments made by Moll are seemingly based on a common but very narrow understanding of 4IR, they are correct in so far as the technologies he chose to analyse. Moll's argument, however, does not correctly reflect the understanding or definition of the 4IR as presented in the pivotal texts of the leading global and South African advocates. I believe that, had Moll defined the 4IR in the manner presented by Schwab and focused his arguments on the fusion of technologies across the digital, physical and biological worlds, as opposed to focusing only on individual advanced IT technologies, then he could have come to a different conclusion about the Fourth Industrial Revolution.

## References

1. Moll I. Why there is no technological revolution, let alone a 'Fourth Industrial Revolution'. S Afr J Sci. 2023;119(1/2), Art. #12916. <https://doi.org/10.17159/sajs.2023/12916>
2. Schwab K. The Fourth Industrial Revolution. Geneva: World Economic Forum; 2016
3. Marwala T. Closing the gap: The Fourth Industrial Revolution in Africa. Johannesburg: Macmillan; 2020.