Concurrently, some researchers argue that while big data analytics tools enhance the adoption of systematic strategies in various areas, such as medicine and education, this could concurrently create greater barriers to equality. As a pertinent example, consider precision medicine. While big data analytics tools enable precision medicine in practice, their accessibility to everyone is not guaranteed. For instance, a 2012 research paper notes this concern, stating, “However, to the extent that personalized therapeutics improves health outcomes, and to the extent that this technology is preferentially used by the economically advantaged, the health gap between rich and poor will be predicted to increase.” (Ward, 2012). Undoubtedly, significant lag between supply and demand would characterize the initial stages of this technology's implementation. Technological advancements improving health outcomes might benefit economically advantaged individuals, whereas less privileged populations could continue to suffer. Nevertheless, the economics of such technologies have been significantly impacted by advancements in big data analytics tools. According to (Precision Medicine Needs an Equity Agenda, 2021):

“Since the release of the first draft of the human genetic sequence 20 years ago by The Human Genome Project international consortium, technical improvements in sequencing approaches and a staggering drop in the cost of genome sequencing have enabled an exponential increase in the number and size of genetic datasets” (p.737).

The development of big data analytics tools makes precision medicine increasingly accessible to everyone, due to their enhanced data processing capabilities. Furthermore, the process of building and processing the datasets utilized by big data models is another source of inequality. Historically, participants of European descent have predominantly been included in genetic studies spearheaded by researchers and consortia in the UK or the USA. Consequently, data from continents such as Asia and Africa remain underrepresented. Such inequalities and biases are, however, being actively tackled by scientists through various initiatives. Led by African scientists across 30 countries, the H3Africa initiative is building genetic research capacity and improving the representation of African genomes in genomic databases; this, given their fundamental diversity and inter-individual variation, will expand the human catalog of disease-related genetic associations. Similarly, a map of genetic diversity across Asian populations is being built by GenomeAsia 100K, while the ongoing Polyethnic-1000 project characterizes cancer-predisposing genetic factors across various ethnic groups in the New York City area. Scientists are actively working towards greater equity in the applications of big data analytics tools, with their efforts extending beyond the domain of precision medicine. Finally, the involvement of more people from different backgrounds in these initiatives is also necessitated by the need to increase diversity in such studies. In conclusion, big data analytics tools retain their indispensable role in today’s world as the problem of inequality is being addressed efficiently.



