**CONCLUSIONS**

The Big Data conceptual framework will soon become a core key component for ITS. As a result, practitioners and researchers in this field have recently focused on mastering advanced tasks and gaining valuable skills all across the Big Data life cycle, particularly data collection and analytics. The newest breakthroughs in implementing Big Data ideas, technologies, and techniques for transportation and mobility have been critically examined in this manuscript. In addition, we examined research contributions dealing with data-based technologies in our survey, all of which aimed to create an integrated ecosystem of people, roads, and vehicles producing and sharing data that Big Data methods and techniques could exploit. Some new research trends that will soon become a reality driven by the rapid growing of transportation and mobility domain in an era of disruptive technologies:

* Future modes of transportation: research aims to make transportation safer, more efficient, convenient, and appealing to users. The use of energy-efficient technologies and the assurance of increased safety are the keys to designing futuristic modes of transportation. As a result, the way we travel in the future could be very different, with magnetic levitation, jetpacks, nuclear-powered cars, hyperloop, supercavitation, sky-trains, and non-stop trains being more common.
* Future of urban transportation: the link between Smart City and Big Data is primarily due to two factors: the growing population gathered around the urban metropolis and the constant generation of data in these environments (measures taken at fixed intervals or generated by user events) in a variety of (structured and unstructured) forms. In a Smart City, this context clearly shows where the two basic vertices of Big Data – data and underlying technologies – are located. Furthermore, citizens and their activities generate data. As a result, technologies must be capable of storing, managing, and analyzing these data while meeting the unique needs and requirements of a Smart City. Furthermore, processing all of these data will help generate even more information flows from various domains, including mobility and transportation. Therefore, a burgeoning research trend will focus on Big Data technologies capable of dealing with the massive amounts of data generated by the coexistence of data-enabled vehicles and the Smart City itself.
* Mobile services: most mobile phones and personal devices have location sensors, providing different granularities of location data using multiple positioning methods. As a result, motion-sensing applications are increasingly being used in domains other than transportation and mobility, such as precise indoor location tracking in Industry 4.0 to improve human-machine interaction and worker safety [32].
* New intelligent transport systems: efficient real-time management and smart fees and payments for multimodal transportation have recently piqued the interest of the research community, which is attempting to support the vision for future ITS technologically: to design truly multimodal ITS that integrate data streams from air, land, and sea in order to gain predictive insights and jointly optimized operations based on real-time traffic information, from vehicles to parking meters [33]. Big Data technologies are at the heart of this paradigm because of their ability to integrate data from various sources, standardize it into a unified repository, and extract practical knowledge from it.

Based on the literature review results, we conclude that the exploitation of new data sources and the development of new Big Data Analytics models to create valuable data-intensive services and applications for transportation and mobility is a critical aspect that deserves more attention in the future. Certainly, the number of companies and startups utilizing the Big Data paradigm's capabilities for the aforementioned domains has increased dramatically over the last decade. According to the community, more research should be conducted to ensure that the Big Data technologies portfolio grows mature, scalable, and functional enough to support applications and services of practical value for new companies and business models to emerge. The cornerstone of Big Data is to capture, ingest, and mine massive substrates of evolving, heterogeneous data (as provided by Smart Cities and IoT environments, for example) and thus improve the user experience in transportation and mobility to previously unimaginable levels. If new disruptive Big Data technologies are not designed to ingest and process data with increasingly challenging properties in terms of volume, heterogeneity, and dynamism, they will fail when applied to transportation and mobility problems.