As the useful applications of Big Data in the pharmaceutical and healthcare sector become increasingly apparent, 73% of organizations in the industry are set to begin or increase investment in Big Data within the next five years, according to business intelligence provider GBI Research.

The company's latest report states that there are a number of factors promoting the use of Big Data in healthcare. Arshad Ahad, Analyst for GBI Research, explains: "Advances in technology have led to an explosion in healthcare-related data generation. This data represents an invaluable resource, which can bring many commercial benefits to organizations if properly utilized and acted upon, although the fundamental properties of Big Data – its volume, velocity and variability – make this a challenging prospect".

The advancement in technologies and a commensurate decline in costs of genome sequencing, for example, have increased the rate of biological data generation at an exponential rate, evidenced by data from the National Human Genome Research Institute. As costs fall further, it may be feasible in the near future to store genomic data for large subsets of patients, or even every patient. This would represent a huge technical challenge, but the analytical benefits it could provide are enormous.

The commercial benefits Big Data can provide are incentivizing pharmaceutical and healthcare companies to embrace the technology. Mining data in conjunction with predictive modeling, for example, could be used to identify new drug candidates with a greater likelihood of success.

Big Data could also be used to overhaul clinical trial processes, making them more powerful, shorter and less expensive. Other uses of this data include using the technology to detect waste and inappropriate use of resources, aid in the development of personalized therapies, implement value-based healthcare, and collect real-world evidence.

Ahad continues: "Big Data is no longer an abstract concept that could provide benefits in the future. It exists now and is already providing competitive advantages for a variety of organizations. As such, companies which ignore its potential risk falling behind their peers in our increasingly data-intensive world."