

# **BIG DATA & ARTIFICIAL INTELLIGENCE: STRATEGIC TECHNOLOGY TREND & SMART LEARNING ANALYTICS**

by  
Salleh Abdul Rashid, Zuraidah Mohd Zain, Zul Azhar Zahid Jamal  
Universiti Malaysia Perlis

## **Abstract**

Big Data refers to large data sets that require special technologies and techniques to make sense of. The examination of data sets may uncover patterns, trends, and correlations that are beneficial to organisations in a range of sectors like healthcare, retail, and public services. Artificial Intelligence (AI) is intelligence exhibited by machines, whereby learning algorithms are fed into computers to enable the process of thinking. With the enormous amount of data now available, AI is needed to sort, classify, interpret, and refine data. AI uses Big Data to train algorithms, which then enables thinking to be done by machines. The literature shows that more and more universities use Big Data by identifying qualified potential students, and making themselves (the universities) more appealing so that the candidates would choose them over other universities. Investment in this is understandable, for, rising education costs have led to the reduction in the number of qualified and financially capable students, hence forcing institutions to compete with one another. With Big Data, the university analyses more of the candidates' previous academic performances, hence allowing for more accurate prediction of the candidates' likely future academic performance. There are now programs and applications that track students' learning habits, thus singling out those who require special attention in order to stay academically abreast. Student feedback, acquired often and quickly, allows for continuous gauging of their understanding, which makes it possible to adjust teaching strategies, and to create customized learning programmes. To add, the industry can now narrow down potential employees amongst students by using predictive analytics. Acting upon results of scenario analyses saves enormous amount of money, time, and reputation on the part of the university. Data on actual post-graduation performance help potential students make informed decisions when choosing the right university. In terms of staff records, a lecturer's teaching competencies are linked with research competencies, salaries, and other aspects, and all these become the input to build the best ecosystem that produces the finest quality of work. The university's operating cost can also benefit by, for example, formulating models of energy consumption from numerous data collection devices, leading to reduction in electrical energy usage. These are but a few examples of how Big Data and AI are used to the advantage of universities. In UniMAP, e-learning is a focus area to harness Big Data. There are now approximately 600 courses available online, of which a vast amount of data has been captured, which proves useful in the University's deliberation for future improvement. Unfortunately, although much is already in place, AI is still lacking, hence optimisation of the value of the data is still wanting. The University is working hard to overcome this despite the many challenges confronting it, including accreditation rulings, difficulty in developing skill-based courses, credit transfer, and access to the Internet, to name a few.