EMBRACING BIG DATA AND TECHNOLOGY: INTERACTION WITH EMPLOYMENT, IR LANDSCAPE AND PRIVACY

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Legal Briefings – By **Kirsty Faichen**

*"Big data" and the "internet of things" (**IoT**) are fundamentally transforming how resources businesses conduct their operations, and helping companies significantly improve productivity and safety. This article will briefly address the potential employment-related legal ramifications facing resources companies who use big data and the IoT.*

This is a summary of a paper, presented by Kirsty Faichen, at the 2017 Annual AMPLA Conference in Melbourne on 18 October 2017. For a copy of the full paper please contact Kirsty Faichen or Adam Ray.

WHAT IS BIG DATA?

'Big data' is data that has high volume, high velocity and high variety.[1] That is: a large amount of data (high volume), many different types of data (variety) and a high speed of data processing (high velocity). In the employment context (and elsewhere), data can be digitally 'born' (e.g. data generated by performance on psychometric tests or from sensors attached to machinery) or analog 'born' (e.g. video footage captured by workplace surveillance cameras).[2] The primary importance of big data lies in its capacity to be analysed. Operators in the resources industry – and businesses in virtually any industry – may analyse large amounts of data by applying algorithms to find correlations, identify trends and make predictions.

WHAT IS THE IOT?

Whilst there is no generally accepted definition of the IoT, it broadly refers to the connection of everyday objects to the internet. Connected objects exchange, aggregate and process information on their physical environment to provide value added services to end-users, from individuals to companies to society as a whole.[3] Importantly, the IoT enables operators in the resources sector to obtain real-time data from devices connected to or monitoring machinery, vehicles and employees.

WHAT ARE THE USES OF BIG DATA AND THE IOT?

As commentators have observed, when big data is combined with 'traditional' employment data like performance reviews, attendance, absenteeism, and remuneration, employers are able to identify patterns which can be used to predict outcomes for job candidates and employees with similar profiles. Those predictions can guide decision making in nearly all aspects of the human resources life cycle, including recruitment, hiring, promotion, compensation and incentives.[4]

The primary drivers for the increased use of big data and the IoT include:

- Reducing costs: including operating, maintenance and capital costs,[5]

- Better management of workforces: businesses can use big data to identify characteristics of workers who perform well and stay with the company, then incorporate those characteristics into recruitment algorithms;

- Better reporting: Big data and the IoT can make reporting quicker and more accurate, thereby improving efficiency and reducing compliance risks;

- Safer operations: in recognition of the risks to people and the environment inherent in mining and energy production, the sector in Australia is subject to specific and strict safety and environmental regulation. Big data can reduce safety incidents, mitigate environmental impacts,[6] and improve compliance with environmental and safety laws; and

- Improved cybersecurity: big data analysis can be used to analyse incoming information to identify potential cyber threats more quickly, or to find patterns in cyber-attacks.[7] Conversely, however, the accumulation of data and the increase in the number of interconnected devices among the IOT gives rise to new data security risks.[8]

Whilst there are obvious benefits to the integration of big data and IoT services into the businesses of operators in the resource industry, there are also a number of associated risks that need to be managed.

RISKS IN RECRUITMENT

Big data 'people analytics' can make recruitment processes more efficient and allow resources and other businesses to ultimately hire and retain better candidates. However, there is a risk of inadvertent discrimination that must be managed. As some commentators have observed, data is often not neutral, and algorithms can discriminate.[9]

Although the use of big data in recruitment could expose resource businesses to discrimination claims, the risk of a successful claim may be low. Individuals would usually find it difficult to prove why they were not selected for an interview or offered a job. Even if they could establish that, the individual must also prove that the algorithms the business used had an disproportionate effect on them, and this was unreasonable.[10] However, given the likelihood of greater regulation of big data[11] and public criticism, it would not be wise for employers to be complacent about these risks.

OPPORTUNITIES FOR BETTER PERFORMANCE MANAGEMENT

By incorporating data and the IoT into decision-making processes, employers can improve accuracy and objectivity in assessing employees' performance, validating decisions about disciplinary action. Outside of mining, companies like Uber, Deliveroo and Freelancer.com use, among other technologies, algorithmic rating systems to control and discipline their workers.[12] Collecting and having access to more data regarding employee performance may, however, bring a greater responsibility upon employers to consider and act on it. In the writers' view, the input and responsibility of human managers and supervisors will continue to be vital. Employees and unions are unlikely to respond favourably to an employer that justifies disciplinary action solely on the basis of automated data analysis. It will continue to be important for employers to honestly and empathetically communicate and explain to employees decisions that affect them, and to take responsibility for the decision-making that underpins the algorithms in automated technology.

WORK HEALTH AND SAFETY IMPLICATIONS

Businesses are using big data in innovative ways to improve the health and safety of workers. By ensuring machines are working at optimum capacity while identifying and preventing potential incidents which may stop work,[13] businesses can achieve the complementary goals of increased productivity and improved safety. An example particular to the mining and resources industry is the introduction of SmartCaps. These wearable devices, which resemble baseball caps, contain sensors that measure brainwaves to monitor fatigue and send alerts when drivers are on the brink of microsleep.[14] When trialled at Hunter Valley Operations in Australia on 83 trucks, SmartCaps almost completely eliminated fatigue-related incidents.[15] Employees are, however, naturally apprehensive about devices monitoring their health and movements, and are particularly concerned about the risk of the information being used against them in disciplinary decisions or otherwise used to discriminate.[16]

PRIVACY LAWS

Many jurisdictions around the world have information privacy regimes regulating the collection, use and disclosure of personal information. In Australia, for example, large business and government organisations are required to abide by 'Privacy Principles' which regulate, among other things, how personal information is collected (including giving notice about collection), used, stored and disclosed , (including overseas disclosures), as well as the security of personal information. Employers in jurisdictions with privacy regimes should consider how their use of big data and the IoT may affect their ability to comply with their obligations, and also whether policies need to be revised or employees otherwise need to be put on notice regarding surveillance or monitoring activities.

CONCLUSION

The resources sector is embracing and often leading the development and adoption of technology and innovation that improves safety, productivity and the ways in which employees are enabled to work. However, data collection is not new and has throughout modern history been used as an employee performance measure or decision making tool. Indeed, the 'general strike' in Australia in 1917, which involved around 100,000 workers in NSW and Victoria, was triggered by the introduction by the NSW Department of Railways of a new card system which recorded the tasks each worker was assigned and the time it took them to complete those tasks. However, resources businesses have traditionally not been custodians of large quantities of personal information. Employers should be mindful not to stifle worker innovation and creativity through an environment of over-surveillance and a disciplinary culture. Resources companies should recognise that big data and the IoT help *people* make better decisions. Ultimately, whilst the volume of data has increased, and the sophistication of the way in which the data can be obtained and analysed has developed, the human, empathetic, decision-making part of business hasn't yet been made redundant.

ENDNOTES

1. Productivity Commission, Data Availability and Use, Productivity Commission Inquiry Report No 82 (2017), 60.

2. Rebecca J. Wilson, Kiley M. Belliveau and Leigh Ellen Gray, 'Busting the Black Box: Big Data, Employment and Privacy' (July 2017) Defense Counsel Journal 1, 5.

3. See Brent Renner-Hahn, 'The Internet of Things and Australian privacy law' (2016) 13(7) Privacy Law Bulletin 163, citing a European Commission definition.

4. Ibid, 8.

5. Australian Academy of Technology and Engineering, 'Natural Resources Action Statement: Improving productivity in the mineral resources sector' (November 2016).

6. Ibid.

7. CSO, 'How Big Data is Improving Cyber Security' (10 November 2016).

8. Michael Swinson, 'The rise of the machines – the "internet of things" (2015) 2(4) Australian Media, Technology and Communication Law Bulletin 35, 36-37.

9. See, for example, Pauline T Kim, 'Data-Driven Discrimination at Work' (2017) 58 William & Mary Law Review 857, 860.

10. Unreasonableness is generally a requirement for indirect discrimination. See, for example, *Equal Opportunity Act 2010* (Vic) s 9(1)(b).

11. For example, the US Equal Employment Opportunity Commission (EEOC) identified 'the increasing use of data-driven selection devices in recruitment as an area of particular concern in its 2017-2021 Strategic Enforcement Plan: U.S. Equal Employment Opportunity Commission, Strategic Enforcement Plan: Fiscal Years 2017 – 2021 (2017), Executive Summary (section II.C.1).

12. Alex J. Wood, Trade unions, the internet, and surviving the gig economy (11 April 2017) openDemocracy.

13. Sandipan Chakraborti, Application of Big Data Solution to Mining Analytics, Wipro Ltd (2016).

14. Aditya Kaul and Clint Wheelock, Whitepaper: Enterprise Wearable Technology Case Studies (Quarter 2, 2016) Tractica.

15. SmartCap, Case Study: Hunter Valley Operations (HVO) (19 April 2016).

16. Aditya Kaul and Clint Wheelock, Whitepaper: Enterprise Wearable Technology Case Studies (Quarter 2, 2016) Tractica.

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