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THE LAW AND POLICY OF PEOPLE ANALYTICS

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INTRODUCTION

Recently, leading technology companies such as Google and IBM have started experimenting with “people analytics,” a new data-driven approach to human resources management.¹ People analytics is just one example of the phenomenon of “big data,” in which analyses of huge sets of quantitative information are used to guide a variety of decisions.² Applying big data to workplace situations could lead to more effective work outcomes, as in *Moneyball*, where the Oakland A’s baseball franchise used statistics to assemble a winning team on a shoestring budget.³ People analytics is the name given to this new approach to personnel management on a wider scale.⁴

1. Don Peck, *They’re Watching You at Work*, ATLANTIC, Dec. 2013, at 72.

2. For examples of the uses of data analytics in various fields, see LEEROM SEGAL ET AL., *THE DECODED COMPANY* (2014); ERIC SIEGEL, *PREDICTIVE ANALYTICS* (2013); NATE SILVER, *THE SIGNAL AND THE NOISE* (2012); Thomas H. Davenport, *Analytics 3.0*, HARV. BUS. REV., Dec. 2013, at 64; Michelle FlorCruz, *China to Use Big Data to Rate Citizens in New “Social Credit System”*, INT’L BUS. TIMES (Apr. 28, 2015, 9:51 AM), <http://www.ibtimes.com/china-use-big-data-rate-citizens-new-social-credit-system-1898711> [<http://perma.cc/TB9C-44XS>]; Mark McClusky, *One Man’s Quest to Track Every NBA Shot Remade Basketball*, WIRED (Oct. 28, 2014, 6:30 AM), <http://www.wired.com/2014/10/faster-higher-stronger/> [<http://perma.cc/9U4X-KVWN>]. For specific discussions of data analytics in human resources, see Susan McLean et al., *Big Data and Human Resources: Letting the Computer Decide?*, BLOOMBERG BNA (Mar. 30, 2015), <https://www.bna.com/big-data-human-n17179924700/> [<http://perma.cc/VEW2-GDCW>]; Thomas H. Davenport et al., *Competing on Talent Analytics*, HARV. BUS. REV., Oct. 2010, at 52 [hereinafter Davenport et al., *Competing*]; Ryan Fuller, *People Analytics Will Change the Way You Manage Your Business*, AM. MGMT. ASS’N, <http://www.amanet.org/training/articles/People-Analytics-Will-Change-the-Way-You-Manage-Your-Business.aspx> (last visited Mar. 23, 2017) [<http://perma.cc/2E2D-7MFL>].

3. MICHAEL LEWIS, *MONEYBALL* (2003).

4. Ryan Fuller, *People Analytics: Forever Changing the Way You Manage*

Although people analytics is a nascent field, its implementation could transform the ways that employers approach HR decisions.⁵ Data may help firms determine which candidates to hire, how to help workers improve job performance, and how to predict when an employee might quit or should be fired.⁶ In addition, people analytics could provide insights on more quotidian issues like location of the employee offices and use of break times.⁷ The data that drives these decisions may be collected in new ways: through the use of innovative computer games,⁸ software that monitors employee electronic communications and activities, and devices such as ID badges that record worker locations and the tone of conversations.⁹ Data may also be collected from sources outside the employer which have been gathered for different purposes, like real estate records, or for undefined purposes, like Google searches.

While people analytics has great potential, no one has yet comprehensively analyzed the employment law or business ethics implications of these new technologies or practices. To date, most of the discussion centers on the uses for the data, not on its effects or its interactions with the law of the workplace.¹⁰ This Article seeks to survey these effects and interactions. Part I provides an overview, reviewing the history of employment testing, defining data mining, and describing the most current trends in people analytics. Part II describes

Your Business, VOLOMETRIX: PEOPLE ANALYTICS: BLOG (Feb. 18, 2014), <http://www.volometrix.com/blog/people-analytics-forever-changing-the-way-you-manage-your-business> [<http://perma.cc/GZ8D-QLS8>] (“People Analytics is the use of people-related data to optimize business outcomes (and solve business problems) at the individual, team or organizational levels.”).

5. Bruce Fecheyr-Lippens et al., *Power to the New People Analytics*, MCKINSEY Q. (Mar. 2015), <http://www.mckinsey.com/business-functions/organization/our-insights/power-to-the-new-people-analytics> [<http://perma.cc/3LPP-Y8Y8>] (“The latest data and analytics buzz comes from the field of advanced HR analytics, where the application of new techniques and new thinking to talent management is becoming more mainstream.”).

6. See Peck, *supra* note 1.

7. See Benjamin N. Waber et al., *Sociometric Badges: A New Tool for I.S. Research* (Mar. 17, 2011) (unpublished manuscript), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1789103 [<http://perma.cc/L9VR-XY37>].

8. See *infra* Part II.

9. See Waber et al., *supra* note 7.

10. See, e.g., BEN WABER, *PEOPLE ANALYTICS* (2013) (discussing potential uses and applications, but mostly bracketing discussion of legal or ethical implications).

the use of computer games and other technology to gather information. Part III examines the implications of people analytics on workplace privacy norms and laws. Part IV discusses the impact on equal-opportunity norms; while more and better information should lead to more merit-based decisions, disparate impact or unconscious bias could still operate to harm already-marginalized workers. Part V concludes with normative observations and preliminary policy notes. As the field of people analytics continues to develop, we must keep the values of employee voice, transparency, and autonomy as guiding principles.

I. OVERVIEW OF PEOPLE ANALYTICS

People analytics seeks to explore age-old questions with new analytic techniques. It is an approach to human resources management using huge pools of quantitative data, rather than simply managerial judgment or personal assessments.¹¹ The core idea is that unstructured, subjective opinion is not rigorous or trustworthy as a way to assess talent or create human resources policies. Instead, data—large pools of objective, generally quantitative data—should form the foundation for decisionmaking in the HR space.¹² Technological advancements in our abilities to collect and analyze this data have unlocked the potential for its use. But additional creativity, insight, and mastery are also needed to tailor and crunch the data for particular jobs and companies. The revolution is, at best, in its infancy.

Of course, maximizing the productivity of workers has long been a focus of business. In the eighteenth century, Adam Smith wrote not only about the invisible hand of markets, but also about the division of labor amongst pin makers as a method of increasing production.¹³ Smith noted: “The rapidity with which some of the operations of those manufactures are

11. Peck, *supra* note 1, at 74 (defining people analytics as “[t]he application of predictive analytics to people’s careers”).

12. Adam Bryant, *The Quest to Build a Better Boss*, N.Y. TIMES, Mar. 13, 2011, at BU1 (“H.R. has long run on gut instincts more than hard data. But a growing number of companies are trying to apply a data-driven approach to the unpredictable world of human interactions.”).

13. ADAM SMITH, *THE WEALTH OF NATIONS* bk. I, ch. 1 (Simon & Brown 2016) (1776) (discussing the difficulty of one person making a complete pin, but the ease with which a group of workers can make hundreds of pins daily).

performed, exceeds what the human hand could, by those who had never seen them, be supposed capable of acquiring.”¹⁴ In the late nineteenth century, Frederick Taylor further refined the deconstruction of work through scientific management, or Taylorism, which sought to carefully calibrate each worker’s actions to achieve the highest level of efficiency.¹⁵ Building on the division of labor, scientific management involved breaking down workplace tasks into their smallest possible units and then creating rigorous protocols for these task units to maximize efficiency.¹⁶ Taylor intended for his system to eliminate conflict between workers and management by applying natural law to determine the “one best way” to address production issues.¹⁷ However, his failure to recognize the importance of the individual worker was what led, in part, to the field of personnel management, a.k.a. human resources.¹⁸

Personnel management based its methodology on psychological research to look at workers from an individual and social perspective.¹⁹ The result was an outpouring of books and articles in the 1920s from psychologists and business practitioners about the needs and wants of the modern employee.²⁰ One personnel-management proponent was Henry

14. *Id.* at para. 6. Smith also believed the division of labor would lead to greater wealth across the classes. *See generally id.*, at bk. I, ch. 1.

15. Stephen M. Bainbridge, *Privately Ordered Participatory Management: An Organizational Failures Analysis*, 23 DEL. J. CORP. L. 979, 983 (1998); *see also* Frederick Taylor, *A Piece-Rate System*, 16 TRANSACTIONS 856 (1895) (recommending that piece rate pricing be set to incentivize both speed and quality instead of only speed). Taylor was perhaps the most prominent member of the “systematic management” movement between 1880 and 1920. Sanford M. Jacoby, *A Century of Human Resource Management*, in INDUSTRIAL RELATIONS TO HUMAN RESOURCES AND BEYOND 147, 148 (Bruce E. Kaufman et al. eds., 2003).

16. *See* Bainbridge, *supra* note 15, at 983–84 (“These principles were implemented by industrial engineers and management experts, who broke down a given production process into a large number of small steps, each allocated to a single worker, who was closely supervised.”).

17. BRUCE E. KAUFMAN, THE ORIGINS & EVOLUTION OF THE FIELD OF INDUSTRIAL RELATIONS IN THE UNITED STATES 22 (1993).

18. *Id.* at 24; *see also* GORDON S. WATKINS, AN INTRODUCTION TO THE STUDY OF LABOR PROBLEMS 476 (1922) (“The old scientific management failed because it was not founded upon a full appreciation of the importance of the human factor. It was left to the new science of personnel management to discover and evaluate the human elements in production and distribution.”).

19. KAUFMAN, *supra* note 17, at 24.

20. *Id.* Ordway Tead and Henry Metcalf authored the first university textbook devoted to personnel management in 1920. Bruce E. Kaufman, *Evolution and Current Status of University HR Programs*, 38 HUM. RESOURCES MGMT. 103,

Ford. Ford famously paid his workers well,²¹ but he also endeavored to shape his employees' lives by managing off-duty habits that might affect their performance. He created a "Sociological Department" to address the problems of boredom, absenteeism, and turnover amongst Ford workers.²² The Department deployed a team of 150 to investigate the lifestyle of each Ford employee and their personal vices, such as smoking, drinking, and gambling.²³ The Department also monitored employees' spending and saving habits; if inspectors detected problems, they could offer employees advice and social services.²⁴ Although the Department was well received at the time, Ford later disbanded it, stating: "[w]elfare work that consists in prying into employees' private concerns is out of date."²⁵

In appreciating the difference between various categories of employee proficiencies, personnel management opened the door to choosing employees for particular roles through testing. A few employers, such as the American Tobacco Company and the Boston Elevated Company, used psychological tests to measure employees' traits and aptitudes in the early twentieth century.²⁶ But intelligence testing was not introduced on a wide scale until World War I, when the army enlisted the American Psychological Association and the National Research Council to administer the Army Alpha and Army Beta tests to 1.75 million draftees to sort soldiers according to their abilities and potential.²⁷ The large data set produced by the Army

104 (1999).

21. Ford was the first car manufacturer who paid five dollars a day—a significant premium over market rates. STEPHEN MEYER III, *THE FIVE DOLLAR DAY* 6 (1981).

22. M. Todd Henderson, *The Nanny Corporation*, 76 U. CHI. L. REV. 1517, 1540 (2009).

23. *Id.* at 1541.

24. *Id.* (footnotes omitted).

25. HENRY FORD, *MY LIFE AND WORK* 130 (1922); see also GREG GRANDIN, *FORDLANDIA* (2009) (describing Ford's rubber tree plantation in Brazil and its paternalistic approach to personnel management).

26. Maureen E. Mulvihill, *Karraker v. Rent-A-Center: Testing the Limits of the ADA, Personality Tests, and Employer Preemployment Screening*, 37 LOY. U. CHI. L.J. 865, 873 (2006).

27. Andrea L. Silverstein, *Standardized Tests: The Continuation of Gender Bias in Higher Education*, 29 HOFSTRA L. REV. 669, 672 (2000). These tests were designed by American psychometricians Henry Goddard, Robert Yerkes, and Carl Brigham. Kimberly West-Faulcon, *More Intelligent Design: Testing Measures of Merit*, 13 U. PA. J. CONST. L. 1235, 1258 (2011).

exams laid the scientific foundation for aptitude testing more generally.²⁸ Numerous psychological tests were developed in the post-war era, and employers adopted many of these tests to measure employees' abilities in managerial and professional positions.²⁹ World War II brought the development of a new generation of tests, some of which are still used extensively in employment screening.³⁰

Meanwhile, the field of personnel management—by then often called human relations or human resources—was flowering in the American workplace. The American Society for Personnel Administration was founded in 1948 with only twenty-eight original members; by 1964, it had grown to over 3,000.³¹ The Hawthorne Works experiments—conducted at a Western Electric plant in the 1930s—were popularized in a 1941 *Reader's Digest* article, and served as the basis for a new approach to the study of human relations.³² The experiments initially endeavored to test the effects of changes in the lighting levels in the plant and other changes to the workplace environment.³³ However, worker productivity ultimately rose no matter the changes that were imposed.³⁴ The researchers concluded that the productivity gains were correlated with the degree of social solidarity within the workgroup that had been fostered by the experiments themselves.³⁵ Over time, the human resources field both fueled and was fueled by a relationship with the behavioral sciences, particularly organizational psychology and its focus on experimental

28. *Id.* at 1258–59.

29. Mulvihill, *supra* note 26, at 873.

30. *Id.* at 873–74; see also ANNE ANASTASI, PSYCHOLOGICAL TESTING 3–4 (4th ed. 1976); DAVE ULRICH ET AL., HR FROM THE OUTSIDE IN 32 (2012) (noting that researchers asked pilots “what behaviors and actions occurred in a specific situation in which they had witnessed exceptional flying” instead of “what people thought a good pilot should do.”).

31. Matthew T. Bodie, *The Roberts Court and the Law of Human Resources*, 34 BERKELEY J. EMP. & LAB. L. 159, 168 (2013).

32. See Fritz J. Roethlisberger, *The Hawthorne Experiments*, in CLASSICS OF PERSONNEL MANAGEMENT 16, 16–17 (Thomas H. Patten, Jr. ed., 1979).

33. *Id.*

34. *Id.*

35. *Id.*; see also Katherine Van Wezel Stone, *The Post-War Paradigm in American Labor Law*, 90 YALE L.J. 1509, 1567 (1981) (“This hypothesis led to a general theory of industrial relations which said that factory life has a complex internal social organization of cliques and status hierarchies Thus, the theory concluded that informal work groups, not management, regulated productivity.”).

tinkering with employee behavior and outcomes.³⁶

People analytics is distinctive, however, in its new methods of approaching old problems.³⁷ It endeavors to reduce the role of human subjectivity in perception by culling data from more objective means and subjecting that data to examination and statistical analysis.³⁸ The idea of people analytics is often compared to the baseball strategies popularized in *Moneyball*, in which Oakland Athletics manager Billy Beane relied on data analysis, rather than subjective scouting reports, in choosing players for his team.³⁹ Beane himself had been a player of great promise amongst scouts but had never achieved success at the major-league level.⁴⁰ The secret to the Oakland Athletics's scouting success was an emphasis on data, particularly college performance, over subjective evaluations, as well as a focus on lesser-known statistical measures, like on-base percentage, rather than on traditional measures like batting averages (which excluded walks).⁴¹ By crunching numbers to find out what types of performances did better in creating runs, and then finding players who had historically performed well on those measures, the Athletics hired a unique set of players and made the playoffs, despite a significantly smaller payroll than other playoff teams.⁴²

The idea of applying "*Moneyball*" techniques to other fields has caught on as businesses and industries seek an edge over their competitors through data analysis. Even legal academics have endeavored to bring *Moneyball* into the realm of law faculty hiring.⁴³ But *Moneyball* is also an example of people

36. See Jacoby, *supra* note 15, at 158–59.

37. See Josh Bersin, *The Geeks Arrive in HR: People Analytics Is Here*, FORBES (Feb. 1, 2015, 6:12 PM), <http://www.forbes.com/sites/joshbersin/2015/02/01/geeks-arrive-in-hr-people-analytics-is-here/> [<http://perma.cc/R77G-8KD5>] (discussing how the term "people analytics" has had more Google searches over time than the related terms "talent analytics" and "HR analytics").

38. People analytics is generally seen as a quantitative, as opposed to qualitative, approach to HR. See *id.* ("After years of talking about the opportunity to apply data to people decisions, companies are now stepping up and making the investment. And more exciting than that, the serious math and data people are flocking to HR.").

39. LEWIS, *supra* note 3, at 62–63.

40. *Id.* at 43–52.

41. *Id.* at 169–72 (discussing the underappreciated offensive skills of Scott Hatteberg).

42. *Id.* at 123–24.

43. See Paul L. Caron & Rafael Gely, *What Law Schools Can Learn from Billy*

analytics.⁴⁴ People analytics focuses on both culling new sources of data on worker performance and subjecting that data to high-level statistical analysis.⁴⁵ In so doing, it hopes to find the true sources of productivity in workers, catalog how employees are doing on those metrics, and then properly incentivize those behaviors for future performance. It shares the same broad goals as scientific management, but rather than creating a set method and applying it to workers, it seeks to find the proper methods from amongst the workers and then to highlight those methods as best practices.

Analytics is a term often used in a business context to describe the discovery of meaningful patterns in data, also known as knowledge discovery in data.⁴⁶ It is a multidisciplinary field combining statistics, computer programming, and operations research to create explanatory and predictive models.⁴⁷ The analytic process generally has a series of steps: data collection, data preparation, data mining, interpretation, and acting upon the discovered knowledge.⁴⁸ Data collection can be done for a particular use, like the games and tests described in Part II; it can be collected for no particular use, but for sale to others, as Facebook and Google do; or it could have been collected in the past for a different

Beane and the Oakland Athletics, 82 TEX. L. REV. 1483, 1552 (2004).

44. Steven Pearlstein, *People Analytics: "Moneyball" for Human Resources*, WASH. POST (Aug. 1, 2014), https://www.washingtonpost.com/business/people-analytics-moneyball-for-human-resources/2014/08/01/3a8fb6ac-1749-11e4-9e3b-7f2f110c6265_story.html [<http://perma.cc/9YEJ-85SK>].

45. People analytics is traditionally associated with sophisticated statistical and econometric analyses. See, e.g., Bersin, *supra* note 37 (discussing a people analytics meeting involving "eight PhD statisticians, engineers, and computer scientists together, all working on people analytics for their companies").

46. See, e.g., Ron Kohavi et al., *Emerging Trends in Business Analytics*, 45 COMM. ACM 45 n.1 (2002), <http://robotics.stanford.edu/~ronnyk/cacmEmergingTrendsInBI.pdf> [<http://perma.cc/X4RZ-PJUV>] ("Note that the terms data mining and analytics are used interchangeably here to denote the general process of exploration and analysis of data to discover and identify new and meaningful patterns in data.").

47. See Neil M. Richards & Jonathan H. King, *Three Paradoxes of Big Data*, 66 STAN. L. REV. ONLINE 41, 42 (2013) ("Big data analytics depend on small data inputs, including information about people, places, and things collected by sensors, cell phones, click patterns, and the like. These small data inputs are aggregated to produce large datasets which analytic techniques mine for insight.").

48. See Bart Custers, *Data Dilemmas in the Information Society: Introduction and Overview*, in DISCRIMINATION AND PRIVACY IN THE INFORMATION SOCIETY 3, 7–10 (Bart Custers et al. eds., 2013).

use, like medical records or property records.⁴⁹ Data preparation involves rearranging and ordering the data, which sometimes involves aggregating very granular information into bigger categories.⁵⁰

The next step is data mining, an automated process of analysis of large databases to find new patterns and relations.⁵¹ The databases are large in the sense of size—they may contain millions of records—but they are also large in the variety of types of data, some of which might not be numerical at all.⁵² Data mining usually does not begin with a hypothesis, but instead uses a variety of tools to generate hypotheses and test them against the available data.⁵³ Data mining reveals patterns or creates group profiles through algorithms that cluster data into groups with similar properties, classifies data by mapping them onto predefined classes, or describes correlations through regression analysis.⁵⁴ Professor Bart Custers has described some of the important technical terms this way:

In data mining, a *pattern* is a statement that describes relationships in a (sub)set of data such that the statement is simpler than the enumeration of all the facts in the (sub)set of data. When a pattern in data is interesting and certain enough for a use, according to the user's criteria, it is referred to as *knowledge*. Patterns are interesting when they are novel (which depends on the user's knowledge), useful (which depends on the user's goal), and nontrivial to compute A pattern is not likely to be true across *all* the data. This makes it necessary to express the certainty of the pattern. Certainty may involve several factors, such as the integrity of the data and the size of the sample.⁵⁵

Once the data is mined, the results must be interpreted using graphs, tables, or a description of causation, depending on what the user decides will be useful in a particular

49. *See id.* at 8.

50. *See id.*

51. *See* Richards & King, *supra* note 47.

52. Custers, *supra* note 48, at 7.

53. *Id.*

54. *Id.* at 9.

55. *Id.*

context.⁵⁶ And finally, the user must determine what actions the new knowledge should be used for, predicting future health, future productivity, or likely tenure with an employer, for example.⁵⁷ Data analytics are popular within the HR community because they are efficient and effective at using information to find or identify groups or individuals who have desirable skills, attributes, needs, or tastes.⁵⁸

Under the umbrella of “people analytics” spread a variety of practices that seek to follow this basic formula with different emphases on the types of data analyzed. In his book *People Analytics*, Ben Waber focuses on employee interaction across the organization as an underappreciated source of employee productivity and business success.⁵⁹ Waber’s perspective is based on organizational theory about the importance of organizations within society and the importance of interpersonal networks within the organization.⁶⁰ He argues that employers need to improve the interpersonal interactions of their employees with each other and, in retail establishments, with customers in order to boost workplace loyalty and efficiency.⁶¹ But rather than relying on subjective assessments by managers about their employees’ interactions, Waber uses a “Sociometric Badge” that incorporates a microphone, an infra-red device, and a motion detector to measure various aspects of human interactions.⁶² Using the badge, employers can collect data on an employee’s movements, can determine when employees are interacting, can analyze the tones of employees’ voices, and then can break down quantitative data to determine which employees are interacting, where, for how long, and with what general type of emotional valence (based on sound data).⁶³ According to Waber, this approach to organizations will “allow[] companies to look at how people work together and how to help them do that effectively.”⁶⁴

Google also applies a brand of people analytics to its

56. *Id.*

57. *Id.* at 10.

58. *Id.* at 13–15.

59. WABER, *supra* note 10.

60. *Id.* at 21–55.

61. *Id.* at 109–21.

62. *Id.* at 14–16.

63. *Id.* at 179–81.

64. *Id.* at 182.

human resources department, which it calls “People Operations.”⁶⁵ As one might expect, Google places a high premium on data in making labor-related decisions.⁶⁶ The company starts with the premise that “accurate people management decisions are the most important and impactful decisions that a firm can make.”⁶⁷ Google prides itself on taking discretion over these decisions out of the subjective judgment of supervisors and managers.⁶⁸ Instead, traditional HR decisions are made “either by a group of peers, a committee, or a dedicated, independent team” using data and data-crunching algorithms.⁶⁹ Google has taken a number of other innovative approaches, including: paying talented workers unusually more than average workers in a particular job; shrinking plate sizes in the corporate cafeteria to reduce caloric intake; and adding perks like ATMs, microkitchens, and onsite laundry machines to help workers balance their professional and personal lives.⁷⁰

An anecdotal example of the Google approach is Project Aristotle, an internal initiative to study the differences in success between Google teams.⁷¹ The project team collected data along a myriad of lines to determine what components created a top team.⁷² Ultimately, the initial analysis did not yield any answers: there were no consistent characteristics among teams or team members that led to success.⁷³ The researchers then turned to surveys about group norms to determine if those norms were influential.⁷⁴ The project

65. Bryant, *supra* note 12 (noting that “people operations’ . . . is Googlespeak for human resources”).

66. LASZLO BOCK, *WORK RULES!* 12 (2015).

67. John Sullivan, *How Google Is Using People Analytics to Completely Reinvent HR*, TLNT (Feb. 26, 2013), <http://www.ere-media.com/tlnt/how-google-is-using-people-analytics-to-completely-reinvent-hr/> [<https://perma.cc/R2Q9-UNQV>].

68. BOCK, *supra* note 66, at 12.

69. *Id.*

70. *Id.*

71. Project Aristotle is described in Charles Duhigg, *Group Study: What Google Learned From Its Quest to Build the Perfect Team*, N.Y. TIMES MAG., Feb. 28, 2016, at 20, 21–26, 72, 75.

72. *Id.* at 23 (looking at a plethora of characteristics about groups and their members, such as whether they socialized out of the office and what their individual hobbies were).

73. *Id.* (“No matter how researchers arranged the data, though, it was almost impossible to find patterns—or any evidence that the composition of a team made any difference.”).

74. *Id.*

determined that the creation of “psychological safety”—namely, a safe space for individual risk-taking and participation within the larger group—had the strongest connection to the more successful teams.⁷⁵ Using this insight, Google developed protocols for teams and team managers that encouraged psychological safety and emotional connections between team members.⁷⁶

Thus, while the term people analytics can cover a variety of approaches to HR management, they, as a group, generally follow a particular pattern: (1) the search for new pools of quantitative data that are correlated with business and employment success, and (2) the use of such data to make workplace decisions and to replace subjective decisionmaking by managers. In searching for new data pools, employers have developed a variety of tools to uncover and extract information related to employees. Some of those tools include activities meant to be fun. The next Part explores how people analytics has led to the development of games designed to develop new methods of employee assessment.

II. PEOPLE ANALYTICS AND GAMIFICATION

In attempting to make more data-driven and accurate personnel decisions, proponents of people analytics have experimented with various types of predictive and data-gathering methodologies. Most recently these people analytics have taken the form of computer games.⁷⁷ Especially during the job interview phase, where the candidates’ abilities are largely unknown and require assessment, games that yield data about candidate talents and skills show the potential to improve hiring processes. As noted above, one argument in favor of such analytics is that using skill-related information to make staffing decisions should result in increased merit-based hiring.

In this Part, we first discuss the recent trend toward the gamification of work. From there, we turn to the intersection of

75. *Id.* at 26.

76. *Id.* at 26, 72, 75 (describing how a team leader opened a conversation about group norms by first revealing something that made him emotionally vulnerable, and then allowing other members of the group to share something emotionally difficult that was unrelated to work or the discussion of group norms).

77. Peck, *supra* note 1.

gamification with people analytics. Cherry, along with a faculty fellow for the project, played the games that are currently touted as the new frontier of data-driven hiring. After playing these games and receiving our results, we then analyzed the results and drew broader implications from them. This Part ends by examining the legal implications, which derive from earlier iterations of personality tests administered as part of the job application process.

A. *The Gamification of Work and Intersection with People Analytics*

In a previous essay, Cherry described a recent trend toward the gamification of work.⁷⁸ In general, “gamification” is defined as transforming a mundane task through ingenuity (and often technology) to make the task enjoyable.⁷⁹ Turning chores and work into “fun” is not a new concept; in fact, in her book, *Reality is Broken*, Jane McGonigal notes that since ancient times, societies have used games to motivate, inspire, and prompt productivity.⁸⁰ Today, with the help of technology, gamification can be employed in diverse contexts. As McGonigal and other scholars have noted, gamification can be used to improve health and wellness outcomes for patients⁸¹ and even assist in efforts toward ecological sustainability.⁸²

Work—traditionally set as the opposite of fun, games, or leisure—could be fundamentally transformed through gamification. For example, labeling photos for a website might

78. Miriam A. Cherry, *The Gamification of Work*, 40 HOFSTRA L. REV. 851 (2012).

79. See generally KEVIN WERBACH & DAN HUNTER, FOR THE WIN (2012).

80. See JANE MCGONIGAL, REALITY IS BROKEN 62 (2011). Specifically, McGonigal notes that the ancient Lydians used games to help their society cope with famines and other instances where they were deprived of resources. *Id.* at 5–6.

81. Lenard Marcus, *Four Real Life Examples of How Gamification is Changing the Healthcare Industry*, EDISON PARTNERS: BLOG (Dec. 19, 2014), <http://www.edisonpartners.com/blog/4-real-life-examples-of-how-gamification-is-changing-the-healthcare-industry> [https://perma.cc/6WYU-L9LF] (noting that games can help surgeons improve accuracy and that games can also help patients adhere to medication and dosing regimes).

82. See MCGONIGAL, *supra* note 80, at 302–13, describing a game called “A World Without Oil.” The game encouraged players to think through possible scenarios and solutions in the event that oil reserves were depleted. *Id.* Many users implemented novel and interesting conservation solutions in their quest to complete the goals of the game. *Id.*

on its own be a boring and repetitive task. But if someone is called a “player” and asked to do the same labeling task but given a timer countdown and awarded a prize at the end, that task might become more fun. By adding a gaming component, many jobs can increase worker engagement, especially if those jobs require or are comprised of tedious or repetitive tasks.⁸³ As described in the psychological literature, when we play a game, we draw on what Professor Mihaly Csikszentmihalyi terms “flow.”⁸⁴ Flow exists when the participant uses concentration, skills, learning, and adaptation to perform a task or activity.⁸⁵ Workers might find the “play” that a game provides to be a welcome break from drudgery.⁸⁶ Yet gamification has potential drawbacks. If used in a reflexive way, games could potentially cause harm—for example, if the “losers” in an unfair game suffer adverse employment action.

At the intersection of gamification and people analytics, computer games are being used for yet another purpose. In people analytics, games are being used for their predictive power, often to quantify or measure particular skills or aptitudes or to screen job candidates.⁸⁷ The stream of responses provided by a job candidate in a computer game could tell an employer how that candidate would respond to a work challenge. At the same time, having a game as part of a job interview could perhaps encourage the candidates to play, have fun, relax, and, perhaps, let their guard down. The hope is that the candidates may reveal their true colors instead of the stilted and perhaps narrow affect that a candidate typically shows in an in-person interview.⁸⁸

Looking at gamification and people analytics, we have a series of questions to answer: What types of games are firms using as they adopt components of people analytics? What are the mechanics of these games? What data is being collected from job candidates? Are the insights provided to applicants and employers accurate and correct? We sought to gain

83. *See id.* at 95–115.

84. *See generally* MIHALY CSIKSZENTMIHALYI, *FLOW* (1990).

85. *Id.* at 6–7.

86. MCGONIGAL, *supra* note 80, at 62.

87. Peck, *supra* note 1 (“These games aren’t just for play: they’ve been designed by a team of neuroscientists, psychologists, and data scientists to suss out human potential.”).

88. *Id.* (noting that the games reveal “creativity, persistence . . . and even social intelligence”).

insights to these questions by playing some of the most popular people analytics games on the market today. The next section describes our experiences.

B. Playing the Career Game: Professor, Lawyer, Facilities Support, Chocolatier?

As part of the research for this Article, one of the authors and a faculty fellow for the project tested the new people analytics games and personality quizzes that are being touted as interview tools. We had several reasons for doing so. First, we wanted to learn the mechanics of game play, and to discern whether these people analytics games had entertainment value. In addition, we were curious to see the analysis of our personalities and skills. We hoped that we might gain some insights into our own abilities, or, at the very least, that we could assess the accuracy of the results based on our own self-knowledge.

We each tested three games that are typical of the games being used for people analytics, all made by the company Knack: Wasabi Waiter, Mega Maze, and Balloon Brigade Blitz.⁸⁹ All three were available on iTunes and were downloaded as mobile applications (apps) onto our cellphones. Each of the games was comprised of several levels, which became more difficult during the course of play. Even though we played twice to gauge the nuances of the games, only the results from the first time would “count” toward our scores.⁹⁰

The first Knack game we played was Wasabi Waiter, in which the player is cast in the role of a single waiter at a busy lunch counter. The object of the game is to determine the emotions of restaurant customers and then serve as many

89. While the list of companies that use Knack games for hiring are always changing, their website lists many well-known companies that make use of their app. KNACK, <https://www.knack.it/> (last visited Mar. 23, 2017) [<https://perma.cc/WK8D-QX9B>]. These include companies as diverse as Krispy Kreme (doughnut makers), Tom Tom (GPS navigation), and Citi (banking and mortgages). *Id.* Note that these games were played during March 2016. Since that time, the names of the games have shifted, with Wasabi Waiter now called Dashi Dash and Balloon Brigade Blitz now called Bomba Blitz. *Id.*

90. Ostensibly the game is more accurate the first time, perhaps before the player has become aware of the loopholes. A player could use multiple email accounts to achieve the same result but that would take additional effort. As the games become more popular, we anticipate that there might be a rise in people attempting to “game the games.”

meals matching their mood as quickly as possible. The initial level meals were labeled “anger,” “sadness,” “happiness,” and more advanced levels had additional meals labeled “disgust” and “contempt.” If unsure about an emotion being displayed by a customer, the player could serve an “any mood” dish but there were only a few of those available and not using them supposedly earned the player a bonus. On the first level, it was relatively easy to identify the customers’ emotions and serve the corresponding meal. As the levels progressed, however, the customers’ emotions became increasingly difficult to discern. Those of us who played are still confused about the ambiguous or angry facial expressions on the customers. In terms of play experience, the graphics were fun and cartoony. That did mean, however, that the task of reading emotions was actually harder than it would be if looking at a real human face. The tasks involved in the game were challenging—the player needed to multi-task and keep track of incoming customers. However, while requiring fast reflexes and quick decisions, the game did not seem to engage any deeper level of intellectual thinking, analysis, or problem solving. Had this been a real setting, the waiter would engage some of the patrons in conversation to figure out why so many seemed angry.⁹¹

The second Knack game, Meta Maze, had mechanics more like a traditional puzzle game (like Tetris). In Meta Maze, the player must connect two endpoints by tapping on the spaces in between to choose a path. The in-between spaces sometimes contained obstacles that required rotation. There were ten levels in the Meta Maze game, but the instructions provided were minimal. The puzzles toward the end were much more difficult than the ones at the beginning. In fact the author had to pass on the puzzle at level eight because she ran out of time and was concerned that it might negatively impact her score. This game, unlike Wasabi Waiter, had music and sound effects, but the graphics in Meta Maze were relatively minimal.

The final Knack game was Balloon Brigade Blitz, in which the player flings water balloons from a whimsical contraption. The balloons are used to water flowers and then, in advanced iterations of the game, to extinguish marauding fire imps who

91. What kinds of issues could make most of the customers angry? I wondered if perhaps the weather outside was bad? Had something happened in the news that had them upset? This was not an element of the gameplay, however, so those kinds of additional observations would not earn the player any extra points.

threaten the contraption. The mechanics of the game were similar to the popular game Angry Birds. The later levels required the player to fill the water balloons while simultaneously fending off the fire imps. The graphics, water balloon premise, and cartoon mad scientist behind the contraption were whimsical and cute.

All three games involve countless decisions, actions, and reactions on the part of the candidate. The stream of responses and actions (micro-behaviors) are then analyzed by Knack's algorithms, with the ultimate goal of producing, per their website, a "rich scientific insight to help [users] find their talents, chart their direction, and take the right actions."⁹² The gameplay data from all three games was then assembled and assessed to create "knacks" (i.e., a skill and personality profile). The assessments for both the author and the faculty fellow included "knacks," (i.e., personality traits), "powerknacks," (i.e., composites that indicate valuable competencies within certain jobs), and "superknacks," (i.e., aptitude for a certain career).

When obtaining results, the player is first hectored to share their ratings on their LinkedIn or Facebook page. Why anyone would want to make their skill ratings public before having a chance to look them over was confounding. We assumed that those default settings were designed to maximize Knack's publicity on social media. Interestingly, the idea of a job candidate advertising their Knack capabilities on a LinkedIn profile—which is often used for networking or job hunting—is intriguing and might be another way for an applicant to market himself.

At first, our results made us proud that our knacks and superknacks included teamwork, poise under pressure, a positive outlook, principled conduct, intellectual curiosity, learning ability, attention to detail, and diplomacy. It was ego-sustaining to find out that whatever the game was testing, we had clearly excelled at it. However, we were taken aback and puzzled when we examined the three superknacks/career competencies that Knack awarded. Our faculty fellow, who had spent over a decade in a challenging position leading a skilled nursing home facility and who is now a law student, received three superknacks/careers: hospitality front desk, hospitality guest service support, and customer service. Knack ultimately

92. KNACK, *supra* note 89.

recommended our faculty fellow for a position as a Fountain Associate/Chocolatier at the Ghirardelli Chocolate Company.⁹³

Meanwhile, one of the authors was given three superknacks/careers: facilities support, STEM, and accounting. The aptitude for facilities support seems ludicrous to the author, who has trouble implementing rudimentary household repairs. In terms of STEM and accounting, it is true that the author has an analytical turn of mind and likes finance, but mathematics by itself has never been an interest. Further, the author's own self-assessment includes an interest and talent for creative writing and other forms of communication. While STEM and accounting may have some elements of communication and creativity, these are likely only secondary components.⁹⁴

After thinking through the results, our evaluation was that Knack awarded a bunch of "feel good" badges and talents, but that the superknacks/careers were far off-base. Our faculty fellow thought that the analysis might have been accurate at an earlier stage of her career but was vaguely insulting given her present levels of experience.⁹⁵ The author, on the other hand, felt that the Knack results were wholly incorrect, pointing out careers that played to her weaknesses, rather than her strengths.⁹⁶ Overall, we were uninspired with the assessments that the games provided.

However, the law students in the author's people analytics class found the Knack games enjoyable and seemed more positive about the accuracy of the skill assessments than the author. After playing the three Knack games, students proclaimed them "fun," "entertaining," and "like the other free games on my phone that are played to pass the time." The

93. Interview with Holly Gibson, Faculty Fellow, Saint Louis University School of Law, in Saint Louis, Mo. (July 21, 2015). Our faculty fellow did note, however, that she began her career working at the front desk in hospitality/reception, and that if she had been given this assessment at the beginning of her career, it might have been more accurate. *Id.* She also noted that perhaps she was given the recommendation to work with Ghirardelli Chocolate because they seemed to be in a business partnership arrangement with Knack. *Id.* Maybe the recommendation was less about her skills and more about Ghirardelli's needs. *Id.*

94. Unless, of course, the accountant works for Enron or Bernard Madoff Securities.

95. Interview with Holly Gibson, *supra* note 93.

96. Either that or the author needs to be interviewing with KPMG accounting right now.

students were curious to see how their skills would be assessed, but beyond that they concluded that the games were fun enough that they would play them if they were offered for free.

Overall, in a class of fourteen law students, four received the career recommendation that they become lawyers. This was affirming, and the students felt the results were on point. Two students who had a background in science before arriving at law school received the recommendation that they become doctors or medical researchers. While not aligned with their current career path, the students felt that this selection reflected their aptitudes at one point in time. Another student whose undergraduate major was computer science was recommended a career as a software engineer. Interestingly, and what seemed to tip the class to the conclusion that the Knack games were accurate was one student's particular results. This student came to law school after completing a doctorate in pharmacy, and he is currently studying health law and policy. The Knack results told him that he had an aptitude for pharmacy, and students described that match as being "weirdly correct" and even "uncanny."

C. *Personality and Personnel*

Aside from games, people analytics also advocates the use of personality quizzes and tests to gather data and match employee personality traits with particular vocations or career opportunities. New online personality testing claims to be much more advanced than the fairly standardized Myers-Briggs test that has largely become the standard for personality tests.⁹⁷ We examined two new online, app-driven personality tests, Good.Co and VisualDNA.

Good.Co is available as an app, and users take a series of Discovery Quizzes to reveal their personality traits.⁹⁸ Dubbed "the job-hunting lovechild of e-Harmony and LinkedIn," Good.Co claims to tap into "career psychometrics and

97. Ilana E. Strauss, *Soul Searching Through the Myers-Briggs Test*, ATLANTIC (Sept. 16, 2015), <http://www.theatlantic.com/health/archive/2015/09/people-love-the-myers-briggs-personality-test/404737/> [<https://perma.cc/2REH-7F7K>]. One report found that "eighty-nine of the Fortune 100 companies" used the Myers-Briggs Type Indicator. Malcolm Gladwell, *Personality Plus*, NEW YORKER, Sept. 20, 2004, at 42, 43.

98. *About Us*, GOOD & CO, <http://good.co/corporate/about-us/> (last visited July 15, 2015) [<https://perma.cc/KY2J-XVP4>].

psychological analysis, helping people identify their professional style for a better fit with current and potential employers and teams.”⁹⁹ There are five different Discovery Quizzes, each containing eighteen questions in the areas of how a person is perceived by others, unique strengths, networking strengths, approach to getting things done, and type of coworker a person would be.¹⁰⁰ At the conclusion of each quiz, the app provides a brief overview of the results called “insights.”¹⁰¹ Once you take all of the Discovery Quizzes, the app assigns Strength Cards also known as “archetypes” (i.e., the user’s social style, work style, and key traits).¹⁰² The Strength Cards and insights make up a “fit score” that can be used to make matches with employers.¹⁰³

Each Discovery Quiz had a series of questions with two answers that were ostensibly polar opposites, with the answer bar to be moved in the direction of the answer. The user could move the answer bar all the way towards one answer or leave it in the middle between the two answers. There were several questions that we answered “in the middle” because we had no strong opinion on a question. Some of the questions were unusual or difficult to answer: “You would be happier if you won: the lottery or a nobel prize. . . . Aliens offer you a ride, you get to see all of time and space but run the risk of being eaten: no thanks or yes, please. . . . In grade school you were more likely to be: in time out or the hall monitor.”¹⁰⁴ Despite the creative ways the questions were phrased, we were unimpressed with the personality profiles that were received; the assessments were rather vague and general.

The final online personality test we explored was “Values” created by the company VisualDNA.¹⁰⁵ The Values quizzes, “Who Am I” and “Personality,” are rapid, single-click visual answer interfaces where the user selects a picture that most accurately reflects the response to the question.¹⁰⁶ According to the VisualDNA website, the program “captures subconscious

99. *Id.*

100. *Id.*

101. *Id.*

102. *Id.*

103. *Id.*

104. *Id.*

105. *Quizzes*, VISUALDNA, <http://www.visualdna.com/quizzes/> (last visited July 15, 2015) [<https://perma.cc/Z6A2-2MRE>].

106. *Id.*

thoughts, impulses, emotions, and inherent likes and dislikes” to create a personality profile.¹⁰⁷ The Values tests had some unusual questions as illustrated by the following examples: “How would you make the most of a morning off?” (pictures of people sleeping, watching TV, reading, exercising, and a to-do list); “How large is your vocabulary?” (pictures ranging from one book to a library full of books); “How emotionally secure are you?” (pictures of sand castle, tepee, cottage, large house, or a castle); “What does love look like?” (pictures ranging from friendship to romantic relationships). Some of the questions and pictures seemed appropriate to determine a personality profile, but many were oddly intimate and unlikely to predict the type of employee a job candidate would be.

The Values quiz asked an entire series of questions that dealt with relationship issues and attitudes, such as: “What does love mean to you?” “Are you in a relationship?” The Values quiz also asked for demographic information, including the test-taker’s gender and age, which seemed to be tied to the next set of questions about purchases the test-taker planned to make in the future. We were asked to select the picture of the next purchase that we planned to make, with choices including clothes, a washing machine, and a car. The questions about shopping and brand choices seemed at odds with a personality test, but the explanation given was that the website was looking for connections between an affinity for certain brands and personality traits.

Ultimately, both of us were rated Alchemists—spontaneous dreamers who make out-of-the-ordinary decisions, quick as a flash, with the author rating Openness 97 percent, Conscientiousness 42 percent, Extraversion 92 percent, Agreeableness 92 percent, and Neuroticism 16 percent. Both of us had low “conscientiousness” scores, which is puzzling and somewhat disturbing. In addition, the author feels her neuroticism quotient is likely much higher than 16 percent.¹⁰⁸

We found both online tests enjoyable. After all, many people indulge in BuzzFeed quizzes to figure out entertaining questions, like in what decade they should have been born, what 80s rock singer they most resemble, or what Star Wars

107. *Id.*

108. This was probably the part about the quiz that made the author most question the results.

character they would be.¹⁰⁹ In some ways the Values quizzes resembled these BuzzFeed questions; one Values question asked us to select a picture of the animal that we resembled.

Apart from entertainment value, however, the descriptions that the quizzes gave us and the percentages assigned were so general that while we could certainly relate to the personality descriptions, likely, so could a majority of people. It reminded us of newspaper horoscopes that are written so broadly that they could apply to nearly anyone. Neither of us felt confident, based on these anecdotal personal results, that either of the online personality tests were particularly accurate. It was therefore concerning to think that employers might base the decision of who to hire, promote, or fire based on quizzes or games that were so general or, in some instances, wrong. From these first-hand experiences, we now turn to the legal implications of these games and quizzes.

D. Employment Implications of People Analytics Games

Currently, the information that people-analytics games collect from their users is largely a black box.¹¹⁰ Users are not sure of the inputs, the measures, or how their actions in a game or quiz will affect their scores. The information gathered and what the apps were doing with that information are far from obvious. We have some hypotheses about what the game creators may have been trying to examine, but as test-takers, we are fundamentally on the outside of an information asymmetry.

Wasabi Waiter seemed to be testing the ability to read people's facial expressions and discern their emotions. Another skill that seemed to be tested was multi-tasking and quick reflexes since the faster the player could move the character, the more customers the player could serve. As noted earlier, however, some of the expressions on the cartoon faces were incredibly ambiguous. While a player could serve these ambiguous cartoons the "any emotion" meal, we were told doing so could lower your score. Other assessments may have

109. *Quizzes*, BUZZFEED, <https://www.buzzfeed.com/quizzes> (last visited Mar. 5, 2017) [<https://perma.cc/7VMD-CEGP>].

110. *See generally* FRANK PASQUALE, *THE BLACK BOX SOCIETY* (2015) (exploring how secrecy about the collection and use of information hurts people and advocating for greater transparency).

been occurring, too; after all, the rounds were timed, and you were supposed to “clean up” after the customers, but such cleanup apparently garnered the player no points. Maybe it was testing the player’s ability to “play by the rules” or to flaunt them in favor of serving customers. We were at a loss to understand some of the mechanics of scoring and how the scores were ultimately translated into Knacks and career competencies.

The main “assessments” in Meta Maze seemed to be problem solving, spatial relationships, ingenuity, and dedication. Most obviously, seeing how the path went from one end to the other seemed to be a type of “puzzle” test similar to many tests of spatial sensing ability. In addition, the later puzzles required moving various pieces around to try to find solutions different from the most obvious one—requiring ingenuity and problem-solving skills. Finally, finding the path from one blinking dot to another could get frustrating. It would be easy for the user to give up and pass on a level—indeed, the author did just that. If the user kept trying different combinations, however, he or she would eventually reach a solution. So the game probably did serve to test the player’s determination to stick with a problem and see it through to the end.

Finally, in Balloon Brigade Blitz, we were wholly unsure of what was being tested. The game seemed to be mostly based on how quickly one could fill and fling the water balloons. This tested only reflex. On the other hand, some of the ground was set on a slope, and so if the player aimed the water balloons in the right place, “gravity” would give the water an increased effect. This was not intuitive, and the player needed to figure that out. In addition, the game could be measuring risk-taking since the closer the imps approached, the more you could extinguish, but also the greater the threat to the contraption. That said, the skills that were tested in this game were opaque.

The personality tests were more up-front in eliciting information. The test-taker could see what the questions were and could contemplate what information would be revealed by answering them. That said, personality tests actually do not rely on the answers to any one particular question; they depend on scoring correlations over a series of unrelated answers.¹¹¹

111. H. Beau Baez III, *Law’s Failure to Keep Pace with Empirical Science: An*

Also, the information solicited by VisualDNA asked questions about age, marital status, and household income that could possibly reveal sensitive information. We were unclear whether this information was solicited for employment purposes, or whether it was done as a survey for advertisers who are its clients. Either way, the reason for collecting this demographic information was never explained to the test-takers.

Ultimately, however, we can only guess what skills, abilities, or traits were being tested through these people analytics apps, especially with the games. The players are not told in any of these games what the assessment criteria are or how they might improve. It is therefore difficult, if not impossible, to say definitively what information Knack might have been interested in or has been collecting through these games. That said, existing employment law norms around privacy and anti-discrimination provide some guidelines about what types of data and questions to avoid. The personality tests tend to run afoul of some of these norms. Personality quizzes should focus on job-related questions, rather than inquiring into sensitive information that implicates issues such as religion or sexuality.

III. PEOPLE ANALYTICS AND EMPLOYEE PRIVACY

People analytics depends on data analysis to do its work. It takes information—often information that has not been previously collected or categorized—and transforms that information into a new way of seeing the workplace. The promise of people analytics is that it will find data that makes workers happier, more efficient, more productive, and more loyal to their employer.¹¹²

However, people analytics also raises important privacy questions for workers. Employee privacy has a fraught history within the workplace. While workers clearly give up many privacy expectations when they start working with a new organization, they still have not given up their common-law

Examination of Personality and Emotional Intelligence Testing in the Workplace, 41 OHIO N.U. L. REV. 1, 23 (2014).

112. See, e.g., Farhad Manjoo, *The Happiness Machine: How Google Became Such a Great Place to Work*, SLATE (Jan. 21, 2013, 5:41 AM), http://www.slate.com/articles/technology/technology/2013/01/google_people_operations_the_secrets_of_the_world_s_most_scientific_human.single.html (discussing Google's use of data analytics to improve their employees' experience).

rights against “highly offensive” intrusions into their private lives.¹¹³ But the patchwork of state common-law regulation adds to the complexity and ambiguity.¹¹⁴ Although the federal government plays a significant role in health privacy (through the Affordable Care Act (ACA) and the Health Insurance Portability and Accountability Act (HIPAA))¹¹⁵ and, increasingly, consumer data privacy (through the Federal Trade Commission),¹¹⁶ it plays little role in privacy protections for private-sector employees.¹¹⁷

The people analytics process raises different privacy concerns at different steps within its process. Privacy scholar Daniel Solove has set forth three distinct contexts of information use that raise privacy concerns: information collection, information processing, and information dissemination.¹¹⁸ We will use Solove’s rubric as a guide to the types of privacy concerns that arise within the context of people

113. “Highly offensive” comes from William Prosser’s definition of privacy in the *Restatement (Second) of Torts*. RESTATEMENT (SECOND) OF TORTS § 652B (AM. LAW INST. 1977). The Restatement requires that privacy invasions be highly offensive to state a cause of action for intrusion upon seclusion or public disclosure of private facts. *Id.* (“One who intentionally intrudes, physically or otherwise, upon the solitude or seclusion of another or his private affairs or concerns, is subject to liability to the other for invasion of his privacy, if the intrusion would be highly offensive to a reasonable person.”); *id.* § 652D (“One who gives publicity to a matter concerning the private life of another is subject to liability to the other for invasion of his privacy, if the matter publicized is of a kind that (a) would be highly offensive to a reasonable person, and (b) is not of legitimate concern to the public.”).

114. For a discussion of state common law in the area of employee privacy, see RESTATEMENT OF EMPLOYMENT LAW §§ 7.01–7.06 (AM. LAW INST. 2015).

115. See Nicolas P. Terry, *Big Data Proxies and Health Privacy Exceptionalism*, 24 HEALTH MATRIX 65, 67–76 (2014) (discussing the HIPAA privacy regime, as supplemented by the ACA).

116. See Daniel J. Solove & Woodrow Hartzog, *The FTC and the New Common Law of Privacy*, 114 COLUM. L. REV. 583, 585 (2014).

117. Public-sector employees have the benefit of constitutional protections, particularly the Fourth Amendment, vis-à-vis their privacy at work. See, e.g., *O’Connor v. Ortega*, 480 U.S. 709, 725–26 (1987). However, the Supreme Court has recently deferred to the reasonableness of the searches conducted by public employees in several different contexts. See *City of Ontario v. Quon*, 560 U.S. 746, 756–57 (2010); *NASA v. Nelson*, 562 U.S. 134, 149–50 (2011). As a result, commentators have suggested that the Court is synchronizing public-employee protections with private-employee protections. Paul M. Secunda, *Privatizing Workplace Privacy*, 88 NOTRE DAME L. REV. 277 (2012).

118. DANIEL SOLOVE, UNDERSTANDING PRIVACY 103 (2008). In his taxonomy of privacy, Solove also includes a fourth category, called “invasion,” which concerns physical or disruptive invasions as well as interference with personal decisions. *Id.* Because this category has less relevance in the people-analytics context, we only focus on the first three “information”-related categories. *Id.*

analytics.

A. *Information Collection*

Employers have always monitored employees to determine how they perform on the job. People analytics methods seek to capture masses of quantitative data to reveal hidden patterns that are correlated with employee success or failure. Sometimes that data will relate solely to the employee's job performance.¹¹⁹ However, it may also relate to aspects of the employee as an individual, such as her overall aptitude in various skills and settings, her health, her psychological disposition, or even what she had for breakfast.¹²⁰ Any pool of data is fair game if it could lead to insights about employee satisfaction and job performance.

Of course, for data to be used, it must first be captured. We are accustomed to thinking of data as entries into a spreadsheet, but the huge growth in data analysis is coming through tools that can work with unstructured data.¹²¹ Thus, data can come from literally anywhere: emails, text messages, video and audio recordings, social media posts, and cell phone usage.¹²² We throw off incredible amounts of data just by carrying out our daily activities. But taking and digesting such huge chunks of information about people brings with it significant privacy concerns. Never have employers been able to know so much about their employees, and so easily.

Information collection concerns generally fall into two categories: surveillance and interrogation.¹²³ Both categories are discussed further below.

119. As an example, statistics like batting average and on-base percentage concern a baseball player's performance on the field. *See also* OFFICE SPACE (Judgmental Films 1999) (supervisor criticizes employee for not wearing enough "flair").

120. *See, e.g.*, BOCK, *supra* note 66, at 270 (discussing available snacks at Google); Manjoo, *supra* note 112 ("[A]fter running an experiment, Google found that stocking cafeterias with 8-inch plates alongside 12-inch plates encouraged people to eat smaller, healthier portions.").

121. Andrew Kasabian, *Litigating in the 21st Century: Amending Challenges for Cause in Light of Big Data*, 43 PEPP. L. REV. 173, 174 (2015) ("Unstructured data is data that lacks any predefined structure and does not fit into traditional row-column databases.").

122. *Id.* at 174 n.6.

123. SOLOVE, *supra* note 118, at 106.

1. Surveillance

Surveillance is a term for “watching,” but with a negative valence—a sense of continuous, invasive, unrelenting monitoring. In some respects, we experience “surveillance” as part of being a member of society: when we are around others, they naturally see what we do and hear what we say. But certain forms of surveillance can feel disturbing and oppressive. The sense that we can never escape the view—and therefore, judgment—of others can create real senses of anxiety, discomfort, and the need for artifice.¹²⁴

In the workplace, there is no legal protection against surveillance *per se*. The employer is allowed to monitor employees through supervisors, video cameras, computer software, or other methods that capture employees working within the scope of employment.¹²⁵ The need for monitoring follows from our legal conception of employment, which is based on control: an employee is one whose work is controlled by her employer.¹²⁶ It is the notion that the employer can specifically direct the employee on what to do that separates employees from independent contractors.¹²⁷

Even if continual electronic observation may feel more oppressive than an occasional check-in from a supervisor, the employer’s right to observe employees’ work is well established. In *Vega-Rodriguez v. Puerto Rico Telephone Co.*,¹²⁸ employees worked in a large, open communications center and were monitored through cameras, which continually surveyed the work space.¹²⁹ Dismissing the employees’ constitutional privacy

124. *Id.* at 107–08.

125. *See, e.g., Vega-Rodriguez v. P.R. Tel. Co.*, 110 F.3d 174 (1st Cir. 1997).

126. RESTATEMENT (SECOND) OF AGENCY § 220(1) (AM. LAW INST. 1958) (“A servant is a person employed to perform services in the affairs of another and who with respect to the physical conduct in the performance of the services is subject to the other’s control or right to control.”); Guy Davidov, *The Three Axes of Employment Relationships: A Characterization of Workers in Need of Protection*, 52 U. TORONTO L.J. 357, 367 (2002) (“Control/subordination is still the leading (and sometimes the single) characteristic of employment relationships in many countries.”).

127. Ronald H. Coase, *The Nature of the Firm*, 4 *ECONOMICA* 386, 404 (1937) (asserting that “it is the fact of direction which is the essence of the legal concept of ‘employer and employee’”).

128. 110 F.3d 174.

129. *Id.* at 176. The cameras were visual only; there was no audio monitoring. *Id.*

claim,¹³⁰ the court noted that the communications center was “a vast, undivided space—a work area so patulous as to render a broadcast expectation of privacy unreasonable.”¹³¹ The employees argued that “when surveillance is electronic and, therefore, unremitting—the camera, unlike the human eye, never blinks—the die is cast.”¹³² However, the court discounted this argument, saying that cameras were not “sinister” and that privacy protections do not “preclude[] management from observing electronically what it lawfully can see with the naked eye.”¹³³

Despite the general permissibility of employer surveillance, there are limits. First, under the common law of privacy, the employer generally cannot surveil the employees in personal locations away from work.¹³⁴ Thus, it is an invasion of privacy¹³⁵ to trespass onto an employee’s property,¹³⁶ to use a telephoto lens to peer into an employee’s house,¹³⁷ or to obtain access to an employee’s apartment under false pretenses.¹³⁸ However, employers are free to observe their

130. *Id.* at 184. The employer was a quasi-public corporation, and the employees brought a claim under the Fourth Amendment alleging an unreasonable search. *Id.* at 178.

131. *Id.* at 180.

132. *Id.*

133. *Id.*

134. See RESTATEMENT OF EMPLOYMENT LAW § 7.03 cmt. d (AM. LAW. INST. 2015).

135. The intrusion-upon-seclusion tort prohibits invasions of privacy that are highly offensive. RESTATEMENT (SECOND) OF TORTS § 652B (AM. LAW INST. 1977) (“One who intentionally intrudes, physically or otherwise, upon the solitude or seclusion of another or his private affairs or concerns, is subject to liability to the other for invasion of his privacy, if the intrusion would be highly offensive to a reasonable person.”). The *Restatement of Employment Law* similarly provides for liability for wrongful employer intrusions. RESTATEMENT OF EMPLOYMENT LAW § 7.01 (AM. LAW INST. 2015) (“Employees have a right not to be subjected to wrongful employer intrusions upon their protected privacy interests.”).

136. See *Ass’n Servs., Inc. v. Smith*, 549 S.E.2d 454, 461 (Ga. Ct. App. 2001).

137. *Saldana v. Kelsey-Hayes Co.*, 443 N.W.2d 382, 384 (Mich. Ct. App. 1989) (finding intrusion (but no liability) when investigator took pictures inside employee’s home using a telephoto lens); see also *Pemberton v. Bethlehem Steel Corp.*, 502 A.2d 1101, 1117 (Md. Ct. Spec. App. 1986) (holding that the use of a listening device within personal areas is generally actionable).

138. *Burns v. Masterbrand Cabinets, Inc.*, 874 N.E.2d 72, 77 (Ill. App. Ct. 2007) (remanding for further proceedings on intrusion claim when the employer’s investigator secretly videotaped an employee in his home after gaining entry on false pretenses); *Dalley v. Dykema Gossett*, 788 N.W.2d 679, 690 (Mich. App. Ct. 2010) (finding that “defendants’ entry of plaintiff’s apartment under false pretenses and their disregard of his instructions about the location of the [employer]-related information they desired could be found objectionable by a

employees' activities from a public vantage point, such as watching an employee mow his lawn from the sidewalk across the street.¹³⁹ Within the workplace, employees have much more limited privacy expectations. A bathroom, for example, is generally considered private,¹⁴⁰ and there may also be expectations of privacy in desks, private offices, and lockers.¹⁴¹ But in general, an employer can create and shape employees' privacy expectations, and, therefore, the privacy protections afforded to them.¹⁴²

There are certain types of secret monitoring that are prohibited under federal statute: for example, an employer cannot intercept an employee's telephone or other electronic communications, even from the employer's phone, without specific consent.¹⁴³ However, for the most part, monitoring is

reasonable juror").

139. See, e.g., *I.C.U. Investigations, Inc. v. Jones*, 780 So. 2d 685 (Ala. 2000) (no intrusion when videotaped in front yard); *York v. Gen. Elec. Co.*, 759 N.E.2d 865, 866 (Ohio Ct. App. 2001) (no intrusion when employer representative observed the employee arriving at work, going into his chiropractor's office, visiting a lawnmower repair shop, mowing his lawn, and riding a motorcycle).

140. See, e.g., *Johnson v. Allen*, 613 S.E.2d 657, 661 (Ga. Ct. App. 2005) (potential privacy claim for hidden camera in bathroom); see also *Acuff v. IBP, Inc.*, 77 F. Supp. 2d 914 (C.D. Ill. 1999) (potential privacy claim for videotaping of medical examination in nurse's room).

141. *O'Connor v. Ortega*, 480 U.S. 709 (1987) (finding a potential expectation of privacy as to desk drawers); *Hernandez v. Hillside, Inc.*, 211 P.3d 1063 (Cal. 2009) (holding that the employees had a reasonable expectation of privacy in their office as to the installation of a secret video camera); *K-Mart Corp. Store No. 7441 v. Trotti*, 677 S.W.2d 632 (Tex. App. 1984) (finding expectation of privacy in employer-provided locker).

142. For example, employers are allowed to monitor their workplace computers and the internet activity conducted therein if they provide boilerplate notice. Matthew W. Finkin, *Information Technology and Workers' Privacy: The United States Law*, 23 COMP. LAB. L. & POL'Y J. 471, 476 (2002) ("[T]he law licenses employers to monitor their employees' computer utilization with impunity; it requires no calibration of the monitoring against the reason given to justify it . . ."). However, a few courts have found expectations of privacy as to private employee email accounts, even when accessed through the employer's computer and ISP. See, e.g., *Nat'l Econ. Research Assocs., Inc. v. Evans*, No. 04-2618-BLS2, 2006 WL 2440008, at *4 (Mass. Super. Ct. Aug. 3, 2006); *Stengart v. Loving Care Agency, Inc.*, 990 A.2d 650, 663 (N.J. 2010). An employee who used his work-provided laptop for personal projects at his home was held to have no expectation of privacy in the laptop, since he had signed a form acknowledging that the computer was an instrumentality of the employer. *TBG Ins. Servs. Corp. v. Superior Court*, 117 Cal. Rptr. 2d 155 (Cal. Ct. App. 2002).

143. See 18 U.S.C. § 2511(1)(a) (2012) (criminalizing the actions of a person who "intentionally intercepts, endeavors to intercept, or procures any other person to intercept or endeavor to intercept, any wire, oral, or electronic communication"). The tap is not illegal if one of the parties (namely, the employee) consents to the

fine if employees are aware of the monitoring. The employer can trammel upon employee expectations of privacy if employees do not know that they are being watched, even if they are monitored in a public area.¹⁴⁴ However, courts may still require that the employee have some underlying expectation of privacy in the location or information for the surveillance to count as a tortious intrusion.¹⁴⁵ Courts have been more amenable when secrecy is employed for significant and legitimate business reasons, such as to catch a thief.¹⁴⁶ But such reasons are not a panacea. In *Johnson v. K-Mart Corp.*, the employer sent undercover investigators, posing as employees, into its warehouse workforce in response to concerns about employee thefts and drug use.¹⁴⁷ However, the investigators reported back a much broader array of information, including details about employees' family matters, romantic interests, and future employment plans.¹⁴⁸ The court

tap. *Id.* § 2511(2)(c). However, courts have not been disposed to find implied consent. *Watkins v. L.M. Berry*, 704 F.2d 577 (11th Cir. 1983) (notice as to employer policy of interception did not establish consent). There is also a "business extension" exception that allows for monitoring "in the ordinary course of its business." 18 U.S.C. § 2510(5)(a)(i). However, listening in to personal calls is not generally within the ordinary course of business. *See Watkins*, 704 F.2d at 583.

Wiretapping is also problematic under state common law. *See Narducci v. Vill. of Bellwood*, 444 F. Supp. 2d 924 (N.D. Ill. 2006) ("Eavesdropping via wiretapping has been conspicuously singled out on several occasions as precisely the kind of conduct that gives rise to an intrusion-on-seclusion claim.").

144. *Vega-Rodriguez v. P.R. Tel. Co.*, 110 F.3d 174, 180 n.5 (1st Cir. 1997) ("We caution, however, that cases involving the covert use of clandestine cameras, or cases involving electronically-assisted eavesdropping, may be quite another story.").

145. In *Schibursky v. Int'l Bus. Machines Corp.*, 820 F. Supp. 1169 (D. Minn. 1993), the employer engaged in "extensive workplace surveillance" through supervisory personnel, her computer terminal, and a controlled building access system. *Id.* at 1183. This surveillance was not disclosed until the employee was terminated. *Id.* The court held the surveillance to be permissible. *Id.* at 1184. Stating that "[e]mployers routinely engage in a variety of practices in order to confirm the accuracy of employee records, including time cards," the court held that the surveillance did not constitute "conduct utterly intolerable in a civilized society" and therefore was not actionable. *Id.* at 1183 (citation omitted).

146. *See Marrs v. Marriott Corp.*, 830 F. Supp. 274 (D. Md. 1992) (permitting secret videotaping after hours to uncover thief); *Sacramento Cty. Deputy Sheriffs' Assoc. v. Cty. of Sacramento*, 59 Cal. Rptr. 2d 834 (Cal. Ct. App. 1996) (theft of inmates' property justified secret surveillance). *But see Acuff v. IBP, Inc.*, 77 F. Supp. 2d 914, 927 (C.D. Ill. 1999) (videotaping nurse's office during medical exams not justified by concerns about theft).

147. 723 N.E.2d 1192, 1194 (Ill. App. Ct. 2000).

148. *Id.* at 1194–95.

found that this massive data collection effort potentially violated the employees' privacy interests.¹⁴⁹

The *Johnson* case provides insight into privacy problems that may be created by creative and overzealous collection of employee data. Social science experiments often hide the ball by collecting information without revealing the overall purpose of the study or the import of the subject's responses. Employers may be tempted to secretly comb through data to find correlations that tell them whom to fire or promote, or how to encourage maximum employee performance. But the more personal the information, and the less informed the employees are about the collection of the data (and the purpose of the collection), the more likely the employees' expectations of privacy will be compromised. In one case, the employer provided its employees with credit cards for their personal use.¹⁵⁰ When one employee went on sick leave, the company accessed his credit-card account to determine if he had used the card during his sick leave, and for what purposes.¹⁵¹ The court held that such monitoring was properly considered tortious.¹⁵²

To collect data without tipping their hand as to the analyses behind the data, employers may be tempted to obtain broad, vague, and undifferentiated consent from their employees at the beginning of the employment relationship. But such consent may be legally insufficient.¹⁵³ Moreover, this sleight of hand raises concerns about employee participation and awareness in the data collection. People analytics should ideally operate in the realm of transparency and trust, even if employers do not completely show their cards as to the purposes to which all the collected data are put.¹⁵⁴ Employers must carefully balance these concerns when considering whether and how to implement a people analytics system.

149. *Id.* at 1197 (finding that "a material issue of fact exists regarding whether a reasonable person would have found defendant's actions to be an offensive or objectionable intrusion").

150. *Pulla v. Amoco Oil Co.*, 882 F. Supp. 836, 844 (S.D. Iowa 1994), *aff'd in relevant part and rev'd in part*, 72 F.3d 648 (8th Cir. 1995).

151. *Id.* at 847.

152. *Id.* at 867.

153. RESTATEMENT OF EMPLOYMENT LAW § 7.06 cmt. h (AM. LAW INST. 2015) (arguing that "employee consent obtained as a condition of obtaining or retaining employment is not effective consent to an employer intrusion and does not in itself provide a defense to wrongful intrusion").

154. See Neil M. Richards & Woodrow Hartzog, *Taking Trust Seriously in Privacy Law*, 19 STAN. TECH. L. REV. 431 (2016).

2. Interrogation

If surveillance describes the process of collecting data through observation, interrogation refers to the process of requesting that individuals provide data.¹⁵⁵ Like surveillance, interrogation carries negative undertones—there is an element of compulsion, force, or at least doggedness to the word “interrogation” that implies that the questioned party is not a completely willing participant. In collecting people analytics data, employers may wish to survey their employees or collect information from them through questionnaires, tests, or even medical procedures. Employees may have expectations of privacy that are protected against offensive intrusion when it comes to this employer questioning.¹⁵⁶

In evaluating the propriety of employee interrogation, courts have looked primarily to the type of information collected.¹⁵⁷ When it comes to employment decisions, the law tends to look more favorably on data collection that is job-, skill-, or qualification-related.¹⁵⁸ Personality testing has long been a staple of employers, and mainstream tests have generally not been legally problematic. The Minnesota Multiphasic Personality Inventory (MMPI), the Myers-Briggs Type Indicator, the Rorschach Test, and the Thematic Apperception Test are among the most well-known and popular testing schema.¹⁵⁹ The MMPI has been given to countless job applicants and serves as the foundation for many of the tests that employers use to assess applicants.¹⁶⁰ These popular personality tests incorporate the use of the Big Five Model along with the concept of emotional intelligence to identify an

155. SOLOVE, *supra* note 118, at 113–14 (“Interrogation is the pressuring of individuals to divulge information.”).

156. See RESTATEMENT OF EMPLOYMENT LAW §§ 7.01 & 7.06 (AM. LAW INST. 2015).

157. W. PAGE KEETON ET AL., PROSSER AND KEETON ON TORTS § 117, at 121 (5th ed. 1984) (“[H]ighly personal questions or demands by a person in authority may be regarded as an intrusion on psychological solitude or integrity and hence an invasion of privacy.”).

158. As discussed below, these standards for examination and the requirement of job-relatedness had their genesis in the Supreme Court’s discussions of examinations in the context of disparate impact in employment discrimination law. *Griggs v. Duke Power Co.*, 401 U.S. 424, 436 (1971).

159. Elizabeth D. De Armond, *To Cloak the Within: Protecting Employees from Personality Testing*, 61 DEPAUL L. REV. 1129, 1139 (2012) (finding these to be “among the most popular tests”).

160. *Id.* at 1130.

applicant's personality traits.¹⁶¹ The Big Five Model includes five basic dimensions that capture most of the variation in human personality.¹⁶² The traits include neuroticism/emotional stability, extraversion, openness to experience, agreeableness, and conscientiousness.¹⁶³ It is generally accepted that these traits can forecast job performance.¹⁶⁴

In addition, some people analytics tools tout their ability to measure so-called emotional intelligence. Note that emotional intelligence is not considered a personality trait, but rather a type of intelligence.¹⁶⁵ It concerns the ability to perceive emotions in one's self and others and the ability to express one's own emotions.¹⁶⁶ It is an awareness of how one's emotions shape one's thinking, decisions, and coping mechanisms, as well as the ability to regulate emotions to dampen negative emotions and make effective use of positive emotions.¹⁶⁷ Employees with high emotional intelligence are more likely to stay calm under pressure, know how to resolve conflict effectively, be empathetic to team members and react accordingly, lead by example, and make more thoughtful business decisions.¹⁶⁸ Research on the validity of emotional intelligence to predict job performance is not as well-supported as the Big Five Model, but many personality tests have incorporated emotional intelligence nonetheless.¹⁶⁹

While information on personality traits and emotional intelligence are arguably job-related, tests and examinations that look beyond those elements and into confidential information or that detect demographic information are on more shaky legal ground. For example, in *Soroka v. Dayton Hudson Corp.*, applicants for security guard positions at Target challenged the appropriateness of some of the questions on the store's psychological screening tool and alleged a violation of their privacy rights.¹⁷⁰ Target required all applicants for

161. *Id.*

162. Tomas Chamorro-Premuzic & Christopher Steinmetz, *The Perfect Hire*, SCI. AM. MIND, July/Aug. 2013, at 42, 43.

163. *Id.* at 44.

164. *Id.*

165. Baez, *supra* note 111, at 18.

166. *Id.*

167. *Id.* at 19.

168. *Id.* at 19–20.

169. *Id.* at 20.

170. *Soroka v. Dayton Hudson Corp.*, 1 Cal. Rptr. 2d 77, 79 (Cal. Ct. App. 1991), *superseded by* 822 P.2d 1327 (Cal. 1992), *review dismissed by* 862 P.2d 148

security guard positions to take its psychological test called “Psychscreen,” a test used to screen out applicants who were emotionally unstable.¹⁷¹ The “Psychscreen” test included questions about an applicant’s religious attitudes and sexual orientation.¹⁷² The completed tests were scored by a consulting psychologist firm, which interpreted the responses and rated the applicant on five traits: emotional stability, interpersonal style, addiction potential, dependability and reliability, and socialization.¹⁷³ Applicants were concerned with the nature of the questions and alleged that these invasive questions about religion, sexuality, and sexual orientation were not job-related.¹⁷⁴

Ultimately, the court held Target’s pre-employment requirement of psychological screening violated the applicant’s right to privacy and also violated statutory prohibitions against improper pre-employment inquiries and discriminatory conduct when it inquired into religious beliefs and sexual orientation.¹⁷⁵ The court noted that employees may not be compelled to submit to a violation of their right to privacy unless “a clear, direct nexus exists between the nature of the employee’s duty and the nature of the violation.”¹⁷⁶ The court concluded that Target had not demonstrated that its Psychscreen questions were job-related nor were they relevant to the emotional stability of its security guard applicants.¹⁷⁷ Before the California Supreme Court had the opportunity to review the ruling, the parties reached a settlement.¹⁷⁸ Target promised to stop using the Psychscreen examination for a period of five years, destroy the test records, and pay a settlement amount to each of the 2,500 applicants who were

(Cal. 1993).

171. *Id.* at 79–80.

172. Some of the statements that applicants were asked to agree or disagree with included: “I feel sure that there is only one true religion. . . . I believe in the second coming of Christ. . . . My soul sometimes leaves my body. . . . I wish I were not bothered by thoughts about sex. . . . I am very strongly attracted by members of my own sex. . . . My sex life is satisfactory. . . . Many of my dreams are about sex matters.” *Id.* at 79–80.

173. *Id.* at 80.

174. *Id.*

175. *Id.* at 89.

176. *Id.* at 85.

177. *Id.*

178. *Soroka v. Dayton Hudson Corp.*, 862 P.2d 148 (Cal. 1993).

administered the test.¹⁷⁹

Certain federal statutory regimes also prohibit certain types of employer questions on grounds that are copacetic with privacy concerns. For example, the Americans with Disabilities Act (ADA) prohibits certain inquiries into employee disabilities or other health conditions, either prior to or contemporaneous with an offer of employment.¹⁸⁰ In *Karraker v. Rent-A-Center*, the Seventh Circuit held that an employer's administration of the MMPI as part of a management test was a medical examination and violated the ADA.¹⁸¹ Rent-A-Center did not argue that the test was "job-related and consistent with business necessity," but instead sought a finding that the MMPI was not a medical examination and not regulated by the ADA.¹⁸² Rent-A-Center argued that it had used the MMPI only to measure personality traits using vocational scoring.¹⁸³ In contrast, if the test were used to diagnose a mental defect or illness, a clinical protocol would be used.¹⁸⁴ The court noted, however, that the test was designed, at least in part, to reveal mental illnesses.¹⁸⁵ Thus, the test had the effect of hurting the employment prospects of those with disabilities.¹⁸⁶ Ultimately, the court reasoned that the MMPI was best categorized as a medical examination prohibited pre-offer by the ADA.¹⁸⁷

Other federal and state laws prohibit the employer from seeking specified kinds of employee information. The Genetic Information Nondiscrimination Act of 2008 (GINA) prohibits employers from requesting or acquiring employee genetic

179. Peter F. Merenda, *The Settlement of the "Target" Case and its Aftermath*, 75 PSYCHOL. REP. 1485, 1486 (1994). Some have wondered what impact there might have been on employment testing if the California Supreme Court had heard the appeal. *Id.*

180. See 42 U.S.C. § 12112(d) (2012).

181. *Karraker v. Rent-A-Center, Inc.*, 411 F.3d 831, 832 (7th Cir. 2005).

182. *Id.* at 835.

183. *Id.*

184. *Id.* at 835–36.

185. *Id.* at 836.

186. *Id.* at 836–37 (concluding that "whether or not RAC used the test to weed out applicants with certain disorders, its use of the MMPI likely had the effect of excluding employees with disorders from promotions").

187. *Id.* at 837. But see Jennifer Gonzales-Frisbie, *Personality Tests in Jeopardy: An Evaluation of the Seventh Circuit's Decision in Karraker v. Rent-A-Center and Its Impact on the Future Use of Personality Tests in Pre-Employment Screening*, 9 U. PA. J. LAB. & EMP. 185, 185 (2006) (noting that the employer did not raise the issue of job-relatedness).

information.¹⁸⁸ Various polygraph test restrictions, including the Federal Employee Polygraph Protection Act, prohibit or limit the use of polygraph tests in collecting employee biometric data in response to substantive questions.¹⁸⁹ In addition, a number of state statutes specifically prohibit lines of questioning, such as HIV status¹⁹⁰ or prior arrests or misdemeanor convictions.¹⁹¹ Concerns about employers pressuring employees to provide access to personal social-media accounts, such as Facebook, have sparked a set of new state legislation.¹⁹²

Because people analytics is interested in data that is related to the employee and off the beaten path, concerns about its propriety will likely be an ongoing issue. But at the same time, courts have given employers a fair degree of latitude in exploring various subject areas that may have relevance to employment success. In *NASA v. Nelson*,¹⁹³ the employer conducted background checks on employees that included personal questions about drug use as well as wide open questions about the applicant's trustworthiness, financial integrity, and mental or emotional stability.¹⁹⁴ The Court held that the questions were reasonable, noting that they "aid the Government in ensuring the security of its facilities and in

188. 42 U.S.C. § 2000ff-1 (2012) (making it an "unlawful employment practice for an employer to request, require, or purchase genetic information with respect to an employee or a family member of the employee").

189. See, e.g., Employee Polygraph Protection Act of 1988, 29 U.S.C. §§ 2001-09 (2012); D.C. CODE § 32-902 (2016); CAL. LAB. CODE § 432.2 (2016); IDAHO CODE §§ 44-903-44-904 (2016); N.J. STAT. ANN. § 2C:40A-1 (2017).

190. WIS. STAT. § 103.15(2) (2017).

191. MASS. GEN. LAWS ch. 151B, § 4(9), (9A) (2016).

192. Eighteen states have legislation prohibiting employers from requiring employee disclosure of social-media passwords. ARK. CODE ANN. § 11-2-124 (2017); CAL. LAB. CODE § 980 (2016); COLO. REV. STAT. § 8-2-127 (2016); 820 ILL. COMP. STAT. § 55/10 (2017); LA. REV. STAT. 51:1953 (2016); MD. CODE, LAB. & EMP. § 3-712 (2016); MICH. COMP. LAWS § 37.273 (2016); NEV. REV. STAT. § 613.135 (2015); N.H. REV. STAT. § 275:74 (2016); N.J. STAT. ANN. § 34:6B-5 (2017); N.M. STAT. ANN. § 50-4-34 (2017); 40 OKLA. STAT. § 173.2 (2016); OR. REV. STAT. § 659A.330 (2016); R.I. GEN. LAWS § 28-56-3 (2016); TENN. CODE ANN. § 50-1-1003 (2016); UTAH CODE ANN. § 34-48-201 (2016); WASH. REV. CODE § 49.44.200 (2016); WIS. STAT. § 995.55 (2017). Roughly half of the states had such legislation under consideration. See *Access to Social Media Usernames and Passwords*, NAT'L CONFERENCE OF STATE LEGISLATURES (Feb. 2, 2016), <http://www.ncsl.org/research/telecommunications-and-information-technology/employer-access-to-social-media-passwords-2013.aspx> [<https://perma.cc/6Q85-XCWW>].

193. 562 U.S. 134 (2011).

194. *Id.* at 141-42.

employing a competent, reliable workforce.”¹⁹⁵

In pursuing a line of employee questioning that may request personal, moral, embarrassing, or seemingly irrelevant information, employers may insulate themselves from liability by detaching the questioning from any job consequences—essentially making the queries optional for employees.¹⁹⁶ If a people analytics regime is deigned to be experimental, even playful, then the employer should not punish employees who feel uncomfortable participating in the game. It may be impossible to remove the weight of an employer’s interest entirely; employees who opt out may always feel that they have received at least a demerit for doing so. But employers should not mandate the provision of information if that information contains personal questions that threaten to invade employee privacy.

B. Information Processing

The information-processing category concerns the use of data after it has been collected from employees.¹⁹⁷ It may seem that if the data has been collected without infringing on employee privacy, its use could not possibly be a privacy invasion. However, in the people analytics context, there are three primary concerns with the processes to which data is subjected: aggregation, secondary use, and accuracy.

Aggregation is the gathering of data about a particular person, group, or organization.¹⁹⁸ By taking different bits of information and accumulating them around a particular node, you can tell much more about that intersection than otherwise would be possible. Putting a person’s data together can reveal

195. *Id.* at 150.

196. RESTATEMENT OF EMPLOYMENT LAW § 7.04(b) (AM. LAW INST. 2015) (finding liability only where the employer requires that the information be provided or obtains it through deceit). Relatedly, the employer is liable for terminating an employee for refusing to consent to a violation of her privacy. *Id.* § 7.07 (“An employer who discharges an employee for refusing to consent to a wrongful employer intrusion upon a protected employee privacy interest under this Chapter is subject to liability for wrongful discharge in violation of well-established public policy . . .”).

197. SOLOVE, *supra* note 118, at 117 (“Information processing is the use, storage, and manipulation of data that has been collected. Information processing does not involve the collection of data; rather, it concerns how already-collected data is handled.”).

198. *Id.* at 118.

much more about them than one might expect. This phenomenon is well known in the consumer context, as retailers like Amazon, social media sites like Facebook, and search engines like Google use personal data to create user profiles and direct targeted advertising.¹⁹⁹ In one example that many found troubling, Target used a wide variety of personal data—both generated by the store and purchased from external vendors—to develop consumer profiles.²⁰⁰ The profiles identified consumers with particular needs, such as whether a consumer was expecting a baby, and then Target would aim to meet those needs.²⁰¹

Like retailers, employers can aggregate in the same way—including tracking pregnancies.²⁰² Such aggregation can feel disturbing, even threatening, to employees, as it gives the employer an informational advantage. But currently, there is little in the way of legal protection against such aggregation. If the data is legally obtained, it can generally be analyzed however the employer sees fit.²⁰³ Of course, as discussed in Part IV, the use of aggregated data to discriminate based on race, sex, age, disability, or other prohibited classifications would violate the law. Aggregating data that is associated with such characteristics is dangerous as well. But outside of the discrimination context, courts generally have not found aggregation of non-private information to be problematic.²⁰⁴

Another potential privacy concern with people analytics processes is the reuse of data beyond the scope of the original collection. Sometimes called “mission creep” or “data creep,” secondary use is problematic because it deprives the data

199. *Id.* at 118–19.

200. Charles Duhigg, *How Your Shopping Habits Reveal Even the Most Personal Information*, N.Y. TIMES MAG., Feb. 19, 2012, at 1.

201. *Id.*

202. Valentina Zarya, *Employers Are Quietly Using Big Data to Track Employee Pregnancies*, FORBES (Feb. 17, 2016, 5:36 PM), <http://fortune.com/2016/02/17/castlight-pregnancy-data/> [https://perma.cc/FBZ5-ATCK].

203. SOLOVE, *supra* note 118, at 120 (“Most courts adhere to the secrecy paradigm, which fails to recognize any privacy interest in information publicly available or already disseminated to others.”).

204. One exception is *United States Department of Justice v. Reporters Committee for Freedom of the Press*, 489 U.S. 749, 763–64 (1989), in which the Court held that the FBI could lawfully withhold its internal “rap sheets” from disclosure to the press, under the FOIA privacy exception, because of the way in which different pieces of public information had been collected in one place.

provider of a sense of control over the use of the data.²⁰⁵ Secondary use could be a particular problem in people analytics as data analysts look to crunch or mash up existing data sets to discover novel correlations and insights. There will be a strong temptation to use and reuse data for a variety of purposes, including ways that might distress employees. But while a number of laws restrict the ability of the government to use personal data in different and undisclosed ways,²⁰⁶ private employers are not similarly restricted.²⁰⁷

Finally, employees are justified in being concerned about accuracy of the data used within the processes as well as the conclusions that are derived from such processes. Accuracy may seem unrelated to privacy concerns. But if data is collected and used to judge employees or make consequential decisions within the employment relationship, employees must trust that the data is accurate and the algorithms are meaningful. It is thus not surprising that many privacy-related statutes and policy statements include data accuracy as one of the principles of data privacy.²⁰⁸ The stakes are high. For example, in the context of drug testing, a false positive can deprive a worker of her job and tarnish her reputation for future opportunities. In regulating employee drug tests, courts and legislatures have

205. SOLOVE, *supra* note 118, at 131.

206. *See, e.g.*, Privacy Act of 1974, 5 U.S.C. § 552a(e)(3)(B) (2012); Fair Credit Reporting Act, 15 U.S.C. § 1681b (2012); Health Insurance Portability and Accountability Act (HIPAA) regulations, 45 C.F.R. § 164.508(a) (2015).

207. *Cf. Dwyer v. Am. Express Co.*, 652 N.E.2d 1351, 1354 (Ill. App. 1995) (permitting resale of customer data even in the absence of consent).

208. Council Directive 95/46, art. 6, 1995 O.J. (L 281) 31, 40 (EC) (“[P]ersonal data must be: . . . (d) accurate and . . . kept up to date; every reasonable step must be taken to ensure that data which are inaccurate or incomplete . . . are erased or rectified . . .”); Commission Regulation 2016/679 of Apr. 27, 2016, General Data Protection Regulation, 2016 O.J. (L119) 1, 35 (“Personal data must be: . . . (d) accurate and . . . kept up to date; every reasonable step must be taken to ensure that personal data that are inaccurate . . . are erased or rectified without delay”); Privacy Act of 1974, 5 U.S.C. § 552a(d)(2)(B)(i) (2012) (providing the right to access government-held information in order to “make any correction of any portion thereof which the individual believes is not accurate, relevant, timely, or complete”); FED. TRADE COMM’N, PROTECTING CONSUMER PRIVACY IN AN ERA OF RAPID CHANGE vii (2012), <https://www.ftc.gov/sites/default/files/documents/reports/federal-trade-commission-report-protecting-consumer-privacy-era-rapid-change-recommendations/120326privacyreport.pdf> [https://perma.cc/M9HR-RZT6] [hereinafter FTC CONSUMER PRIVACY REPORT] (“Companies should incorporate substantive privacy protections into their practices, such as data security, reasonable collection limits, sound retention and disposal practices, and data accuracy.”).

looked to the accuracy of the test as one factor in considering its permissibility.²⁰⁹ For example, Iowa's workplace drug-testing statute has extensive procedural requirements for the administration of private-sector employee drug testing, including specifications on the collection of samples, employees chosen for tests, testing procedures, and notification to the employees who test positive.²¹⁰

Accuracy issues are a potential trouble spot for people analytics. Data analytics takes big data sets and crunches them for hidden patterns. Why certain patterns emerge will not always be obvious. Part of the attraction of people analytics is the surprise that results from unexpected and counterintuitive results. Therefore, it may be tougher to reverse engineer the data, or to cross-compare it with other related indicia, in order to ensure its accuracy. In particular, huge data pools—particularly if anonymized to a certain degree—cannot be easily checked for accuracy. As a result, employers need to be sensitive to accuracy issues. One factor is the consequences that will flow from the use of the data.²¹¹ If the employer is collecting data to determine what items to stock in the employee break room, the stakes will be low.²¹² On the other hand, if collected data is used to determine promotion or retention decisions, the stakes are significantly higher. If the

209. See, e.g., COLO. REV. STAT. § 8-73-108(5)(e)(IX.5) (2016) (requiring the drug test to be “conducted by a medical facility or laboratory licensed or certified to conduct such tests”). Cf. *Hennessey v. Coastal Eagle Point Oil Co.*, 609 A.2d 11, 13 (N.J. 1992) (noting that the drug test “included several features in the testing program to ensure minimum intrusion and maximum accuracy”).

210. IOWA CODE § 730.5 (2013). In discussing the statute, the Iowa Supreme Court noted that “the legislature’s intent was to ensure the accuracy of any drug test serving as the basis for adverse employment action.” *Sims v. NCI Holding Corp.*, 759 N.W.2d 333, 338 (Iowa 2009) (quoting *Harrison v. Emp’t Appeal Bd.*, 659 N.W.2d 581, 586–87 (Iowa 2003)).

211. FTC CONSUMER PRIVACY REPORT, *supra* note 208, at 30 (“The Commission agrees that the best approach to improving the accuracy of the consumer data companies collect[ion] and maintain[ence of information] is a flexible one, scaled to the intended use and sensitivity of the information Companies using data to make decisions about consumers’ eligibility for benefits should take much more robust measures to ensure accuracy, including allowing consumers access to the data and the opportunity to correct erroneous information.”).

212. WHITE HOUSE, CONSUMER DATA PRIVACY IN A NETWORKED WORLD 20 (2012) (“The Access and Accuracy principle recognizes that the use of inaccurate personal data may lead to a range of harms. The risk of these harms, in addition to the scale, scope, and sensitivity of personal data that a company retains, help to determine what kinds of access and correction facilities may be reasonable in a given context.”).

data is being used to make important decisions, employees should have access to that data to ensure its accuracy.²¹³ However, there is scant regulation imposing these data-accuracy requirements on employers.

C. Information Distribution

Information distribution, or dissemination, refers to the privacy concerns that are raised when legitimately obtained information is then improperly provided to a third party.²¹⁴ Consider, as a hypothetical example, if Jane consensually provided information to her former employer Acme Co. with the expectation that Acme would not reveal it to others—but then Acme revealed the information to Jane’s new employer, Beta Corp., against Jane’s express command or reasonable expectations. It is erroneous to conclude that once information is provided by one party to another voluntarily, the original party loses all privacy interests in the information. We can provide information to one party and still expect that the information will remain private as to others.

In the employment context, there are few direct statutory or regulatory restrictions on an employer’s use of an employee’s private information when that information was voluntarily provided. The Health Insurance Portability and Accountability Act (HIPAA) protects private medical information from disclosure by covered entities.²¹⁵ However, employers are not covered entities unless they provide self-administered health insurance coverage, and in such instances employers generally construct a firewall between the health plan and the rest of the employer’s organization.²¹⁶ The Federal Trade Commission

213. *Cf. id.* at 1 (“Consumers have a right to access and correct personal data in usable formats, in a manner that is appropriate to the sensitivity of the data and the risk of adverse consequences to consumers if the data is inaccurate.”).

214. SOLOVE, *supra* note 118, at 136 (describing information dissemination concerns as situations that involve “revealing personal data or the threat of spreading information”).

215. *See, e.g.*, 45 C.F.R. § 164.508 (2015) (requiring covered entities to obtain authorization before disclosure of medical information (with certain exceptions)).

216. 45 C.F.R. § 160.103 (2016) (defining “covered entity” as a health plan, a health care clearinghouse, or a health care provider). In addition, covered entities may provide employee health information to employers in order “[t]o evaluate whether the individual has a work-related illness or injury.” *Id.* § 164.512(b)(v)(A)(2); *see also id.* § 164.504(f) (as a condition of providing the information, the covered entity must require the employer to protect the

(the FTC) has assumed the role of enforcing federal data privacy protections, but the FTC's statutory focus on "unfair trade practices" has meant that it largely regulates the use of consumer data.²¹⁷ Connecticut has a specific statute prohibiting disclosures from employee personnel files,²¹⁸ and general state privacy statutes have been interpreted, in some instances, to protect against employer disclosure.²¹⁹ However, employers do not generally have specific statutory or regulatory responsibilities in this area.

The common law has generally recognized the "public disclosure of private facts" tort.²²⁰ The cause of action for public disclosure of private facts requires: "One who gives publicity to a matter concerning the private life of another is subject to liability to the other for invasion of his privacy, if the matter publicized is of a kind that (a) would be highly offensive to a reasonable person, and (b) is not of legitimate concern to the public."²²¹ Although the tort requires that the information be made public,²²² a line of cases has found public disclosure when there is a "special relationship" between the victim and the receivers of the private information.²²³ In these cases,

information and not use it for employment-related actions).

217. Solove & Hartzog, *supra* note 116, at 585 ("Since the late 1990s, the Federal Trade Commission . . . has been enforcing companies' privacy policies through its authority to police unfair and deceptive trade practices.").

218. CONN. GEN. STAT. § 31-128f (2017).

219. In *Bratt v. International Business Machines Corp.*, 467 N.E.2d 126, 135 (Mass. 1984), the Massachusetts Supreme Court held that disclosure of personal medical information to fellow employees could constitute an invasion of privacy under the Massachusetts privacy statute. See MASS. GEN. LAWS, ch. 214, § 1B (1974) ("A person shall have a right against unreasonable, substantial or serious interference with his privacy.").

220. The tort has been adopted in most jurisdictions. See DANIEL J. SOLOVE & PAUL M. SCHWARTZ, INFORMATION PRIVACY LAW 106 (3d ed. 2009) (listing only seven nonadopting states).

221. RESTATEMENT (SECOND) OF TORTS § 652D (AM. LAW INST. 1977); see also RESTATEMENT OF EMPLOYMENT LAW § 7.05(b) (AM. LAW INST. 2015) ("An employer intrudes upon the [employee's] privacy interest . . . by providing or allowing third parties access to . . . employee information [provided in confidence] without the employee's consent.").

222. RESTATEMENT (SECOND) OF TORTS § 652D cmt. a ("Publicity,' on the other hand, means that the matter is made public, by communicating it to the public at large, or to so many persons that the matter must be regarded as substantially certain to become one of public knowledge.").

223. See, e.g., *Miller v. Motorola, Inc.*, 560 N.E.2d 900, 903 (Ill. App. 1990) ("Where a special relationship exists between the plaintiff and the 'public' to whom the information has been disclosed, the disclosure may be just as devastating to the person even though the disclosure was made to a limited

employees have been held to have a special relationship with their fellow employees, even when their numbers are relatively small.²²⁴

The duty of confidentiality covers similar territory. The confidentiality cause of action prohibits the breach of an obligation to keep information secret.²²⁵ The obligation generally arises from implicit or explicit promises, fiduciary relationships, specific statutory or regulatory requirements, or ethical rules or codes.²²⁶ The breach of confidentiality tort has been recognized in most states,²²⁷ but it has not been applied to employers.²²⁸ Courts have also found employers potentially liable under intrusion upon seclusion and intentional infliction of emotional distress claims for revealing private employee information.²²⁹

Despite the murkiness of certain aspects of the law, employers have been held liable for releasing private employee data. Medical data is particularly sensitive, and thus its release is more likely to reach the “highly offensive” threshold.²³⁰ One potential gray area is the dissemination of sensitive information within the employer’s organization. Disclosure to the “employer” is, on one level, disclosure to the fictional business entity that represents the business as a whole. On another level, however, the employee provides the

number of people.”).

224. *Id.* (“Plaintiff’s allegation that her medical condition was disclosed to her fellow employees sufficiently satisfies the requirement that publicity be given to the private fact.”); *Karch v. BayBank FSB*, 794 A.2d 763, 774 (N.H. 2002) (concluding that disclosure of employee’s private information to employer’s officers and other employees could constitute sufficient publicity).

225. Neil M. Richards & Daniel J. Solove, *Privacy’s Other Path: Recovering the Law of Confidentiality*, 96 GEO. L.J. 123, 133–46 (2007).

226. RESTATEMENT OF EMPLOYMENT LAW § 7.05, reporters’ notes to cmt. a.

227. The “clear modern consensus of the case law” is to recognize the breach of confidentiality tort. DAVID A. ELDER, *PRIVACY TORTS* § 5:2 (2002).

228. See Scott L. Fast, Comment, *Breach of Employee Confidentiality: Moving Toward a Common Law Tort Remedy*, 142 U. PA. L. REV. 431 (1993) (discussing the potential for the confidentiality tort in the workplace); cf. Richards & Solove, *supra* note 225, at 173–81 (comparing the broad confidentiality common law protection in the U.K. with the overall reluctance of U.S. courts to adopt breach of confidentiality outside of limited settings).

229. *French v. U.S. ex rel. Dep’t of Hum. Health & Hum. Serv.*, 55 F. Supp. 2d 379, 382–83 (W.D.N.C. 1999).

230. See, e.g., *Miller v. Motorola, Inc.*, 560 N.E.2d 900, 903 (Ill. App. 1990) (employee stated cause of action for disclosure of employee’s mastectomy to fellow employees); *French*, 55 F. Supp. 2d at 382–83 (employee stated cognizable intrusion claim when employer disclosed confidential medical information about former employee to potential employers).

information to a person or group of persons, like an HR department, and expects that the information will remain with that person or department. When the employer releases sensitive personal information to other employees without a legitimate business purpose, the employer may be liable for a tortious invasion of privacy.²³¹ Concomitantly, courts have found that disclosure is proper if the information is relevant and necessary for job-related purposes to the employees to whom it is disclosed.²³²

Employees' privacy interests may also be infringed when employers allow their data to be accessed through faulty or negligent security systems. The common law privacy torts cover only intentional behavior.²³³ However, poor security measures may open up an employer to liability. In *Karraker v. Rent-A-Center, Inc.*,²³⁴ employee personality and aptitude test results were kept in personnel files in a filing cabinet, and anyone wishing to view the records needed permission to do so from someone in the payroll department.²³⁵ The filing cabinet was locked at night, and the records were eventually moved into a locked room.²³⁶ When plaintiff-employees challenged the security of the test results, the court ruled: "Although someone could have seen the test results sitting in the fax machine or in

231. *Blackwell v. Harris Chem. N. Am., Inc.*, 11 F. Supp. 2d 1302, 1310 (D. Kan. 1998) (finding a cause of action when employee pled that the employer and its agents "unreasonably publicized personal medical information to other employees").

232. *Karraker v. Rent-A-Center, Inc.*, 411 F.3d 831, 838 (7th Cir. 2005) ("Disclosure to persons with a 'natural and proper interest' in the information is not actionable."); *Ali v. Douglas Cable Communications*, 929 F. Supp. 1362, 1383–84 (D. Kan. 1996) (other employees had a right to be informed of former employees' potential dangerousness); *Rogers v. International Business Machines Corp.*, 500 F. Supp. 867, 870 (W.D. Pa. 1980) ("All information was conveyed only to employees of IBM with a duty, responsibility and a need for such information in order to properly address the concerns of subordinate employees."); *Roehrborn v. Lambert*, 660 N.E.2d 180 (Ill. App. 1995) (disclosure of overall test results to outside training institute did not constitute publicity because the director had a legitimate interest in knowing the performance of potential applicants on the required tests); *Shattuck Owen v. Snowbird Corp.*, 16 P.3d 555, 559 (Utah 2000) (regarding video of employee being sexually assaulted, "the undisputed evidence shows that [only] ten identified people, all legitimately involved with the investigation into the sexual assault, saw the video").

233. RESTATEMENT OF EMPLOYMENT LAW § 7.01 cmt. i (AM. LAW. INST. 2015) ("The Sections on workplace privacy (§§ 7.01–7.07) protect against intentional intrusions upon employees' privacy interests.")

234. 411 F.3d 831 (7th Cir. 2005).

235. *Id.* at 838.

236. *Id.*

the personnel file, that possibility is not sufficient to support a claim.”²³⁷ However, in *Fraternal Order of Police, Lodge No. 5 v. City of Philadelphia*, the court found that failure to secure employee questionnaires with personal financial information violated the city employees’ federal right to privacy.²³⁸ The court enjoined the use of certain questions on the questionnaire until the City “establishe[d] written, explicit, and binding rules that contain adequate safeguards against unnecessary disclosure of the confidential information elicited in response to the . . . questionnaire.”²³⁹

Similarly, inadequate data protection systems seem likely to create employer liability. For example, in the 2014 Sony Pictures hack, 100 terabytes of employee data—including emails and financial, medical, and other personal information—were stolen from Sony’s system.²⁴⁰ As a result of the hack, employees became vulnerable to embarrassment, identity theft, and other fraud.²⁴¹ In a class of employees and former employees, plaintiffs alleged that Sony’s inadequate security measures allowed the hack to take place.²⁴² After the court declined to dismiss several of the plaintiffs’ claims,²⁴³ the case ultimately settled.²⁴⁴ The size of the hack, Sony’s profile, and the embarrassing nature of some of the released information served to generate significant publicity and perhaps the settlement as well.²⁴⁵ But even though other employee claims related to unintentional disclosures have not been successful,²⁴⁶ it seems uncontroversial to assert that

237. *Id.* (citing *Beverly v. Reinert*, 606 N.E.2d 621, 626 (Ill. App. 1993)).

238. 812 F.2d 105 (3d Cir. 1987).

239. *Id.* at 118.

240. *Corona v. Sony Pictures Entm’t, Inc.*, No. 14-CV-09600 RGK EX, 2015 WL 3916744, at *1 (C.D. Cal. June 15, 2015).

241. *Id.*

242. *Id.*

243. *Id.* at *9. Claims for negligence and declaratory judgment as well as violations of the California Confidentiality of Medical Information Act and Unfair Competition Law survived Sony’s motion for summary judgment. *Id.* at *1–9.

244. Assoc. Press, *Sony Pictures Settles with Former Workers in Data Breach Lawsuit*, WALL ST. J. (Sept. 2, 2015, 8:49 PM), <http://www.wsj.com/articles/sony-pictures-settles-with-former-workers-in-data-breach-lawsuit-1441241363> [<https://perma.cc/6HC6-KEER>].

245. *Id.*

246. *See Bodah v. Lakeville Motor Express, Inc.*, 663 N.W.2d 550 (Minn. 2003) (finding no liability when social security numbers were faxed out to sixteen different business locations); *Allison v. Aetna, Inc.*, No. 09–2560, 2010 WL 3719243 (E.D. Pa. Mar. 9, 2010) (dismissing complaint for lack of standing due to the absence of any injury in fact to employees after data breach).

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employers owe some level of data care to their employees in the handling of personal information.²⁴⁷

The law is evolving in this area. The handling of employee data will be an important responsibility for people analytics programs. Employers must take care to manage the data they collect in a way that does not render the data vulnerable to disclosure. Within the organization, the employer should have a data-security “clearance” system in which only those employees with a legitimate business interest have access to sensitive data. And outside the organization, the employer must guard its data pools to prevent intruders from accessing and misusing the data that is collected. As the levels of data care continue to rise in the context of large consumer data programs, employers will also see expectations about their responsibilities increase. It is yet another indication that people analytics is not a program to be implemented haphazardly or half-heartedly. It needs a rigorous set of standards and controls to make sure that employees’ data are not improperly treated.

IV. PEOPLE ANALYTICS AND DISCRIMINATION

Although the legal doctrines are not identical, employee privacy concerns overlap considerably with concerns about discrimination and equality. If an employer cannot discover a sensitive characteristic, it cannot make a decision on that basis. Consider the following hypothetical: Angela is in her late twenties and works as a supervisor for a large corporation that uses Castlight Health, a health care analytics company. Castlight provides a health benefits platform that enables employees to manage their health care and employers to administer benefits efficiently.²⁴⁸ Angela has had good

247. As banks, online retailers, government agencies, and many other employers collect personal information on electronic databases, legal and policy questions have been raised about these pools of information. See Danielle Keats Citron, *Reservoirs of Danger: The Evolution of Public and Private Law at the Dawn of the Information Age*, 80 S. CAL. L. REV. 241 (2007) (discussing the problem of insecure databases of personal information). HIPAA regulations require that covered entities “protect against any reasonably anticipated threats or hazards to the security or integrity” of protected health information. 45 C.F.R. § 164.306(a)(2) (2016).

248. *Health Benefits Platform*, CASTLIGHT HEALTH, <http://www.castlighthealth.com/solutions/> (last visited Mar. 4, 2016) [<https://perma.cc/W7CP-KB88>].

performance reviews and, based on those, has applied for a promotion. Her employer has been gathering data on its employees and specifically asked Castlight to report on the percentage of its supervisory and managerial workforce who might be pregnant and require leave in the next year. Castlight provides this specific service by collecting information on “insurance claims to find women who have stopped filling birth-control prescriptions, as well as women who have made fertility-related searches on Castlight’s health app.”²⁴⁹ Castlight has revealed that 20 percent of these employees are either pregnant or likely to become pregnant, so the manager deciding who to promote decides not to select Angela as a way to minimize the risk that someone else will have to cover the open position within the year. David, another supervisor, also in his late twenties and also with good performance reviews, gets the promotion instead. Angela never finds out why she was passed over. It seems that Angela should have a cause of action under the current employment discrimination statutes because her employer used her sex as a reason not to select her.²⁵⁰ But will she discover that?

This hypothetical may seem far-fetched, but it is based on a real example.²⁵¹ The use of novel techniques to gather new data and of new sources of stored data poses special problems for employment discrimination. Consider hiring. On the one hand, the promise of measuring something “true” about a person that accurately predicts their future value to an employer in a way that does not rely on explicit or implicit biases is attractive. So is a measurement that does not rely on skills or qualities that might be a product of discriminatory educational or social systems. On the other hand, the structure and quality of the data, the way the data is analyzed, and the conclusions that employers might draw may be flawed in ways that are more difficult to detect. The problems are similar in the context of performance reviews or shaping employee behavior. In both situations, the attractiveness of the solution combined with the difficulty of detecting the problems within

249. Rachel Emma Silverman, *Bosses Tap Outside Firms to Predict Which Workers Might Get Sick*, WALL ST. J. (Feb. 17, 2016, 7:58 PM), <http://www.wsj.com/articles/bosses-harness-big-data-to-predict-which-workers-might-get-sick-1455664940?mod=e2tw> [https://perma.cc/Y9XG-973J].

250. See Zarya, *supra* note 202.

251. *Id.*

pose an especially thorny dilemma.

Title VII of the Civil Rights Act of 1964 prohibits failing to hire, discharging, or otherwise discriminating against anyone because of that person's race, color, national origin, religion, or sex.²⁵² It also prohibits limiting, segregating, or classifying people in a way that would tend to deprive them of employment opportunities or otherwise adversely affect their status as employees because of these identity factors.²⁵³ Under disparate treatment theory, this statutory language has been interpreted to prohibit employers from relying on one of these identity characteristics as a reason for one of the acts described, whether that reason is visible to others or hidden and secret.²⁵⁴ Neutral practices that negatively impact members of protected groups are also barred unless those practices are job-related and consistent with a business necessity under the doctrine of disparate impact.²⁵⁵ Other federal statutes prevent discrimination on the basis of older age,²⁵⁶ disability,²⁵⁷ military service,²⁵⁸ and genetic information,²⁵⁹ and use similar language to prohibit discrimination, which means that they are interpreted to prohibit the same kinds of employer conduct for those protected classes. Most states have laws that prohibit discrimination on at least some of these bases, and some prohibit consideration of other characteristics like marital status, sexual orientation, gender identity, or personal appearance.²⁶⁰ They too use similar language to describe

252. 42 U.S.C. § 2000e-2(a)(1) (2012).

253. *Id.* § 2000e-2(a)(2).

254. *Raytheon Co. v. Hernandez*, 540 U.S. 44, 52 (2003); *see also* *McDonnell Douglas Corp. v. Green*, 411 U.S. 792 (1973).

255. *Raytheon Co.*, 540 U.S. at 52–53; *Griggs v. Duke Power Co.*, 401 U.S. 424 (1971).

256. 29 U.S.C. §§ 621–34 (2012) (prohibiting discrimination against those forty or older).

257. 42 U.S.C. §§ 12101–17 (2012).

258. 38 U.S.C. §§ 4301–35 (2012).

259. 42 U.S.C. §§ 2000ff–2000ff-11 (2012).

260. *E.g.*, D.C. CODE § 2-1401.11(a) (2012) (prohibiting discrimination on the basis of “the actual or perceived: race, color, religion, national origin, sex, age, marital status, personal appearance, sexual orientation, gender identity or expression, family responsibilities, genetic information, disability, matriculation, or political affiliation of any individual”); 775 ILL. COMP. STAT. 5/1-102(A) (2015) (protecting on the basis of “race, color, religion, sex, national origin, ancestry, age, order of protection status, marital status, physical or mental disability, military status, sexual orientation, pregnancy, or unfavorable discharge from military service”); MICH. COMP. LAWS § 37.2102(1) (2013) (prohibiting discrimination on the basis of “religion, race, color, national origin, age, sex, height, weight, familial

prohibited discrimination, and so are generally interpreted to prohibit disparate treatment and disparate impact discrimination.²⁶¹

The goal of anti-discrimination law is to eradicate discrimination and provide for truly equal opportunity.²⁶² A focus on diversity is one way that we work toward that goal. A diverse workplace is a sign that an employer does not discriminate, and the authors think focusing on diversity could be a way to root out discrimination based on overt prejudice and more hidden implicit biases. Increasing diversity is one of people analytics' main marketing points.²⁶³ Business has realized that there is value in diversity, either value in increased profitability that a diverse workforce can provide,²⁶⁴ or, more controversially, value in appearing to be a diverse workplace.²⁶⁵ At the same time, because the law often treats any consideration of identity as illegal discrimination, businesses are very careful in how they pursue that goal. Employment practices that result in a workforce that is both highly productive and diverse that can be created without relying on identity characteristics is something of a "holy grail" for human resources.

Clearly, people analytics holds promise on this front. Decisions made by well-meaning people are often flawed by implicit biases that systematically disadvantage historically

status, or marital status").

261. See, e.g., CAL. GOV'T CODE § 12921(a) (West 2014) (providing that employment "without discrimination because of" protected class is a civil right); ILL. COMP. STAT. 5/2-102(A) (2015) (defining unlawful employment practice as refusing to hire or taking other employment action "on the basis of unlawful discrimination or citizenship status" and defining "unlawful discrimination" as discrimination against a person "because of" that person's protected status); N.Y. EXEC. LAW § 296 (McKinney 2016) (declaring it unlawful to take employment action "because of" an individual's protected class).

262. ALFRED W. BLUMROSEN, MODERN LAW: THE LAW TRANSMISSION SYSTEM AND EQUAL EMPLOYMENT OPPORTUNITY 4 (1993) (stating "the effort to ameliorate long-standing patterns of race and sex subordination [through Title VII] is perhaps the most ambitious social reform effort ever undertaken in America").

263. See, e.g., *Diversity and Inclusion*, PWC, <http://www.pwc.com/us/en/hr-saratoga/diversity-inclusion.html> (last visited Dec. 26, 2016) [<https://perma.cc/VMQ5-86EM>]; John Schwarz, *Hacking the Diversity Problem with Big Data Analytics*, DATAINFORMED (Feb. 25, 2015 5:30 AM), <http://datainformed.com/hacking-the-diversity-problem-with-big-data-analytics/> [<https://perma.cc/UP45-P64Y>].

264. Sylvia Ann Hewlett et al., *How Diversity Can Drive Innovation*, HARV. BUS. REV., Dec. 2013, at 30.

265. See Nancy Leong, *Racial Capitalism*, 126 HARV. L. REV. 2151 (2013).

disadvantaged groups.²⁶⁶ The ability to analyze accurately what employee traits and skills a business needs to thrive is immensely valuable. And the ability to do that in a way that considers a person's skills accurately without revealing aspects of a person's identity that could trigger bias, whether explicit or implicit, is even more valuable, not just to the business but to the equality project and society more broadly. Analyzing data about people's performance and personality traits is perceived to hold particular promise because it seems likely to be more accurate than judgments made by humans.²⁶⁷ For example, as the Supreme Court has recognized, "giving discretion to lower-level supervisors can be the basis of Title VII liability . . . since 'an employer's undisciplined system of subjective decisionmaking [can have] precisely the same effects as a system pervaded by impermissible intentional discrimination.'"²⁶⁸ Moreover, the employer focus on individual personality traits, rather than simply current skills, may seem a better measure to managers of potential success; mood, attitude, mindset, and other personality traits are often linked with success in managers' minds.²⁶⁹ Finally, use of a technological intermediary to gather information about those attributes could hide sensitive attributes that may trigger bias from the ultimate decisionmaker.²⁷⁰

Using data analytics could help employers discover the traits and behaviors that lead to better products and services, develop better job descriptions, measure merit in applicants and employees, and avoid relying on stereotypes or other

266. See generally MAHZARIN R. BANAJI & ANTHONY GREENWALD, *BLIND SPOT: HIDDEN BIASES OF GOOD PEOPLE* (2013); CLAUDE M. STEELE, *WHISTLING VIVALDI: AND OTHER CLUES TO HOW STEREOTYPES AFFECT US* (2010).

267. See Wu Youyou et al., *Computer-Based Personality Judgments Are More Accurate than Those Made by Humans*, 112 *PROC. NAT'L ACAD. SCI.* 1036 (2015).

268. *Wal-Mart Stores, Inc. v. Dukes*, 564 U.S. 338, 355 (2011) (quoting *Watson v. Ft. Worth Bank & Trust*, 487 U.S. 977, 990–91 (1988) (alteration in original)).

269. Lauren Weber & Elizabeth Dwoskin, *Are Workplace Personality Tests Fair?*, *WALL ST. J.* (Sept. 29, 2014, 10:30 PM), <http://www.wsj.com/articles/are-workplace-personality-tests-fair-1412044257> [https://perma.cc/FW92-G63J] (quoting Fred Morgeson, Management Professor and Organizational Psychologist, Michigan State University).

270. Bart Custers et al., *The Way Forward*, in *DISCRIMINATION AND PRIVACY IN THE INFORMATION SOCIETY*, *supra* note 48, at 341, 351 ("[T]he physical interaction between the decider and the subject are usually non-existent. Thus, the sensory cues which usually trigger discrimination—a different skin color, accent or demeanor—are removed from the process, thus limiting additional opportunities for discriminatory conduct.").

problematic criteria for hiring or distributing rewards. Reliance on a broader range of data about people could generate a deeper commitment to diversity and to skills that are proven to make businesses work better. Moreover, the use of games and other novel technologies to shape employee behavior and train them may allow for greater empathy, collaboration, and connection for diverse employees.²⁷¹

This potential is being marketed to employers by a range of companies, from general business consulting firms²⁷² to technology companies²⁷³ and specialized firms.²⁷⁴ One of the companies best known for gathering and marketing data has been front and center in people analytics research: Google. Books, scholarly articles, industry publications, and articles in the popular press abound, promoting the way that Google has revolutionized human resources through people analytics.²⁷⁵ And the use of data analytics to improve diversity is a frequent focus in that coverage.²⁷⁶

271. See Meghan Casserly, *Women and Gaming*, FORBES (Mar. 25, 2010, 7:00 PM), <http://www.forbes.com/2010/03/25/women-gaming-video-forbes-woman-time-online.html> [<https://perma.cc/X55Y-TJ7Z>] (describing ways that games allow for experimentation and collaboration by employees).

272. E.g., *Bersin* by Deloitte, BERSIN, <http://home.bersin.com/> (last visited Aug. 15, 2015) [<https://perma.cc/6DS5-NVF9>] (providing people analytics services affiliated with traditional accounting and consulting firm Deloitte); *People Analytics*, PWC, <http://www.pwc.com/us/en/hr-saratoga.html> (last visited Aug. 15, 2015) [<https://perma.cc/3C9H-L4C2>] (home page for traditional accounting and consulting firm Price Waterhouse Cooper's people analytics services).

273. E.g., *Modern HR in the Cloud*, ORACLE, <https://www.oracle.com/applications/human-capital-management/solutions/index.html> (last visited Aug. 15, 2015) [<https://perma.cc/53AW-79WF>] (database company providing specialized human resources solutions).

274. E.g., TALENT ANALYTICS, <http://www.talentanalytics.com/> (last visited Aug. 15, 2015) [<https://perma.cc/3JGN-VHXX>] (specialty firm providing data services for hiring and performance); *Transforming Talent*, SKILLSOFT, <http://www.skillssoft.com/> (last visited Aug. 15, 2015) [<https://perma.cc/VAW5-K4ED>] (specialized firm); HUMANYZE, <https://www.humanyze.com/index.html> (last visited Mar. 7, 2017) [<https://perma.cc/3GWE-JTS8>] (specialized firm).

275. E.g., BOCK, *supra* note 66; ERIC SCHMIDT & JONATHAN ROSENBERG, HOW GOOGLE WORKS (2014); Davenport et al., *Competing*, *supra* note 2, at 2, 5; David A. Garvin, *How Google Sold Its Engineers on Management*, HARV. BUS. REV., Dec. 2013, at 75; Bryant, *supra* note 12, at BU1; Adam Bryant, *On GPAs and Brainteasers: New Insights from Google on Recruiting and Hiring*, LINKEDIN (June 20, 2013), <https://www.linkedin.com/today/post/article/20130620142512-35894743-on-gpas-and-brain-teasers-new-insights-from-google-on-recruiting-and-hiring/> [<https://perma.cc/T8GL-ZVSB>]; Sullivan, *supra* note 67.

276. Farhad Manjoo, *Exposing Hidden Bias at Google*, N.Y. TIMES, Sept. 25, 2014, at B1; Sullivan, *supra* note 67 ("Unlike most firms, analytics are used at

However, one need not look far to see that people analytics has not solved the problem of discrimination or created significantly more diverse workplaces. Google itself keeps making the news for its lack of diversity.²⁷⁷

It should not be surprising that trying to predict qualities of good future workers based on the qualities of current workers and existing work culture will not lead to change. In other words, people analytics runs the risk of homosocial reproduction, or replacement of workers with workers that look like them, on a grand scale. Data mining does not necessarily solve the problem of homosocial reproduction, either because of the data that the predictive model comes from or because the designer uses labels or characteristics based on a sense of what made him or herself a good worker.²⁷⁸ Human discretion and policy choices continue to play an important role in the use of people analytics, constructing the data set, defining the parameters of the analysis, setting the acceptable level of false negatives, and interpreting the results.²⁷⁹ And analytics fail to consider ways that historical data about employee behavior might be skewed by the employer's own policies that may have shaped the behavior that resulted in that data.²⁸⁰

Management academics and HR consultants have been enthusiastic about people analytics for good reason. But the

Google to solve diversity problems.”).

277. E.g., Manjoo, *supra* note 276; see also *Getting to Work on Diversity at Google*, GOOGLE OFFICIAL BLOG (May 28, 2014), <https://googleblog.blogspot.com/2014/05/getting-to-work-on-diversity-at-google.html> [<https://perma.cc/K5LT-FFKQ>] (showing that only about 30 percent of Google's employees are women, two percent are black, three percent are Hispanic, and four percent are multiracial). The figures released by Google include all jobs, and not just those in technology and so hide some labor force segregation. In 2015, only 18 percent of Google's tech employees were women, one percent were black, two percent were Hispanic, and three percent were of two or more races. GOOGLE DIVERSITY, <http://www.google.com/diversity/> (last visited Mar. 4, 2016) [<https://perma.cc/78Z5-MLNY>] (scroll down to the chart at the bottom and select “Tech”).

278. See Quentin Hardy, *Using Algorithms to Determine Character*, N.Y. TIMES: BITS (July 26, 2015, 5:30 AM), <http://bits.blogs.nytimes.com/2015/07/26/using-algorithms-to-determine-character/> [<https://perma.cc/7ERD-KL55>].

279. Tal Zarsky, *Transparency in Data Mining: From Theory to Practice*, in DISCRIMINATION AND PRIVACY IN THE INFORMATION SOCIETY, *supra* note 48, at 301, 305.

280. See David S. Pedulla & Sarah Thébaud, *Can We Finish the Revolution? Gender, Work-Family Ideals, and Institutional Constraint*, 80 AM. SOC. REV. 116 (2015) (describing how choices about work change in response to institutional constraints).

initial results suggest that people analytics may not yet be up to the task of solving the problem of discrimination and may even obscure its operation. The following sections explain how people analytics might allow employment discrimination to continue and ways that the current doctrines might address its use.

A. *Data in the Hiring Context*

People analytics may allow discrimination, both disparate treatment and disparate impact, to continue occurring. Access to more data about people can allow those who want to treat people in protected classes differently to mask their motive, for example. Masking is a term that describes how data can be used to hide an explicit discriminatory motive.²⁸¹ Where some neutral-looking characteristic is linked with something like race or sex, a decisionmaker might hide the purpose to base decisions on race or sex by relying on the neutral correlate. A good example of masking could be the use of zip codes to screen out minority candidates.²⁸² Given the history of redlining and continuing residential segregation,²⁸³ some zip codes are more likely to be home to black people and others to white people. A bad actor who does not want to hire African Americans or who wants to hire more white employees can hide this unlawful

281. “Masking” simply means to hide or conceal, and is the term used in many disciplines to describe the process of hiding. *Mask*, OXFORD LIVING DICTIONARIES <https://en.oxforddictionaries.com/definition/mask> [https://perma.cc/XJZ8-F2VV] (last visited Nov. 28, 2016). It has particular relevance in the disparate treatment and data contexts because it is the term used in psychology and in information security fields to describe hiding sensitive attributes. *See, e.g.*, 7 C.G. JUNG, THE COLLECTED WORKS OF C.G. JUNG 192 (1966) (“The persona is . . . a kind of mask, designed on the one hand to make a definite impression upon others, and, on the other, to conceal the true nature of the individual.”); ORACLE, DATA MASKING BEST PRACTICE (2013), <http://www.oracle.com/us/products/database/data-masking-best-practices-161213.pdf> [https://perma.cc/285H-EAS3] (describing why it is important to mask sensitive data and how it can be done); Solon Barocas & Andrew Selbst, *Big Data’s Disparate Impact*, 104 CALIF. L. REV. 671 (2016) (using the term to describe hiding a discriminatory motive); Custers, *supra* note 48, at 10, 17 (describing hiding discrimination as “masking”); Bart van der Sloot, *From Data Minimization to Data Minimumization*, in DISCRIMINATION AND PRIVACY IN THE INFORMATION SOCIETY, *supra* note 48, at 273–75 (using “masking” in this sense).

282. Custers, *supra* note 48, at 8–9.

283. *See generally* DARIA ROITHMAYR, REPRODUCING RACISM: HOW EVERYDAY CHOICES LOCK IN WHITE ADVANTAGE (2014) (describing this history and the current patterns of residential segregation).

motive by basing the decision on zip code, distance to work, or something similar that targets location. Alternatively, an employer might actually consider sensitive information that has been aggregated, which may seem unproblematic, but then use it to discriminate against individuals as in the pregnancy hypothetical at the start of this section.

The use of data to target members of protected classes may sound far-fetched; perhaps more realistic are the ways neutral uses of data could cause disparate effects on historically underrepresented groups. As previously mentioned, problems concerning disparate effects come from four main sources: problems in gathering the data; problems that are a result of data that has been already gathered; problems that are a result of designing the analysis of the data; and problems that result from conclusions about the analysis.

As described in the Introduction, data about employees is being gathered in a large variety of ways, much of which is driven by access to the Internet, use of smart phones, and deployment of new ways for people to interact with data-gathering tools. Access to the Internet and smart phones is not equally distributed to all groups. Those in households headed by people of color are substantially less likely to have internet access at home than are households headed by white people.²⁸⁴ The older and less wealthy a person, the less likely that person is to have internet access at home.²⁸⁵ Smartphone ownership is relatively even across racial lines, but significant differences persist based on age and affluence.²⁸⁶

Comfort with a gaming interface may also not be evenly distributed. While there do not appear to be significant differences on the basis of race or sex,²⁸⁷ older and poorer households are less likely to have a gaming console or portable gaming device.²⁸⁸ Lack of access to the Internet translates to a lack of data about these groups, which might skew the data

284. U.S. COUNCIL OF ECON. ADVISERS, EXEC. OFFICE OF THE PRESIDENT, MAPPING THE DIGITAL DIVIDE 2 (2015), https://obamawhitehouse.archives.gov/sites/default/files/wh_digital_divide_issue_brief.pdf [<https://perma.cc/QVB3-5CJL>].

285. *Id.* at 2–5.

286. MONICA ANDERSON, PEW RESEARCH CTR., TECHNOLOGY DEVICE OWNERSHIP: 2015, at 7 (2015), http://www.pewinternet.org/files/2015/10/PI_2015-10-29_device-ownership_FINAL.pdf [<https://perma.cc/NUC8-YLL9>].

287. *See id.* at 13–14; Casserly, *supra* note 271.

288. ANDERSON, *supra* note 286, at 13–14.

that does exist. In addition, lack of access to or familiarity with the interfaces through which data is gathered means that some people will not have access to the opportunities those interfaces provide.

For data that has already been gathered, some problems are built into the data itself. For example, the output of an analysis—the new knowledge—can only reflect the input. This is especially problematic in predictive analytics. Predictive analytics uses mathematical models that predict an outcome from characteristics of an object based on historical data.²⁸⁹ The main assumption in predictive analytics is that data on which the computational model is learned will follow the same distribution as the data on which that model will have to work.²⁹⁰ If the data analyzed is incomplete or collected when discrimination was legal, the relationships found will mirror those conditions. In more concrete terms, if women were excluded from leadership positions when the data about performance in those positions was collected, the computational model may continue to exclude women as good leadership candidates.²⁹¹

Problems that may occur in the data are sampling bias or incomplete data.²⁹² For example, if the training data comes from only a subset of the population, the training data will not represent the population well. The selection of people to be included may be biased, or the selection of attributes by which people are described in the database may be incomplete, as well. In addition, attributes of people may not be independent from each other, or labels for data may be subjective, which means that they may be incorrect and contain prejudices.²⁹³

289. See SIEGEL, *supra* note 2, at 26; Toon Calders & Indrė Žliobaitė, *Why Unbiased Computational Processes Can Lead to Discriminative Decision Procedures*, in DISCRIMINATION AND PRIVACY IN THE INFORMATION SOCIETY, *supra* note 48, at 43, 45–46; Thomas H. Davenport, *A Predictive Analytics Primer*, HARV. BUS. REV. (Sept. 2, 2014), <https://hbr.org/2014/09/a-predictive-analytics-primer> [<https://perma.cc/H5D8-JL7Y>].

290. See SIEGEL, *supra* note 2, at 30–32; Calders & Žliobaitė, *supra* note 289, at 46; Davenport, *supra* note 289.

291. See Calders & Žliobaitė, *supra* note 289, at 51–53.

292. *Id.* at 549–53.

293. *Id.* at 48; Devin G. Pope & Justin R. Sydnor, *Implicit Statistical Discrimination in Predictive Models* (Wharton Risk Mgmt. & Decision Processes Ctr. Working Paper No. 2007-08-11, 2007), http://opim.wharton.upenn.edu/risk/library/WP2007-09-11_DP_JS.pdf [<https://perma.cc/U428-YH8P>].

In addition to problems within the data, the choices about what data to analyze and how to analyze it can disparately impact groups. The analyst must decide what data the model should observe to discover patterns, and that depends on what data is available for the right cost. The data available may not be specific enough to reflect accurately the ways that individuals are different from each other, or there may be relations between the attributes chosen and the sensitive attribute of identity that may not be obvious.²⁹⁴ If the attribute chosen for the model to consider is too “coarse,” for example considering only the college or university a person attended and not what they studied or how they performed, then the model may overselect for people at prestigious schools. Similarly, if a neutral-looking attribute that does predict success is closely linked with a sensitive one—for example, educational performance where unequal access to education and other social goods may negatively impact some racial groups—selecting for that attribute will also select for race much of the time.²⁹⁵ Finally, there may be little way to take into account the kind of emotional labor that is often crucial to workplace functioning (e.g. customer service, emotion management, work wives) that is often invisible.²⁹⁶ This may result in a disparate impact upon those workers (mostly women) that perform this type of invisible labor.

Finally, the way that the data is used—that is, what the analysis is asked to predict—may create problems. Much of data analytics involves predicting future behavior based on characteristics of people who behaved in desirable or undesirable ways in the past.²⁹⁷ Data about those people and their behavior is analyzed, and profiles are created. Profiles, or ways to describe people, have been used and applied in the past without data mining. Rather than gather broad data from a variety of sources and use algorithms to mine it, humans would

294. See Calders & Žliobaitė, *supra* note 289, at 47; Barocas & Selbst, *supra* note 281, at 688–92 (labeling this a problem of feature selection and proxies).

295. See Barocas & Selbst, *supra* note 281, at 691–92.

296. See generally ARLIE HOCHSCHILD, *THE MANAGED HEART: COMMERCIALIZATION OF HUMAN FEELING* (2d ed. 2012) (defining emotional labor, coining the term “work wives” to describe the women in the workplace men rely on for support, and noting the sex disparity in holders of jobs that require substantial emotional labor).

297. See Calders & Žliobaitė, *supra* note 289, at 43; Bart Schermer, *Risks of Profiling and the Limits of Data Protection Law*, in *DISCRIMINATION AND PRIVACY IN THE INFORMATION SOCIETY*, *supra* note 48, at 137.

observe characteristics for empirical statistical research and use the data gathered to create profiles. But profiling through data mining may raise new and more serious problems because of scale.²⁹⁸ Profiling contains risks, in large part because classification and division is literally discrimination.²⁹⁹ Its purpose is to allow judgments to be made based on someone's membership in a group rather than based on their own individual merits.³⁰⁰ In fact, profiling can create new stereotypes on which people are judged.³⁰¹

In addition, analysts must decide what target variable to focus on or predict for, such as a quality they view as important for a good employee. That quality may have been incorrectly labeled in the past if the past label itself incorporates discrimination, or it may have changed over time as employer expectations changed.³⁰² In fact, the value being tested for by the model, like what makes a good employee, will be subjective, itself vulnerable to discriminatory views and inconsistency.³⁰³

B. Data in the Performance Context

The issues shift somewhat when we consider employee engagement, performance assessment, or training. First, current employees seem much more likely to be evaluated based on information that the employer either gathers from them or from its past employees, although the employer may gather data from outside the workplace in addition to inside it, as in the Angela hypothetical. The quality of the data will vary widely. While data based on performance reviews might seem objective, it is actually the aggregation of subjective decisions about a person. The design of the analysis when data is used to shape or review employee performance also seems more likely to focus on replicating qualities of favored employees and more prone to subjective labeling. For example, perhaps an analysis of productivity could be objective, depending on how productivity is measured, but the relationship of productivity to employer profitability might be much more difficult to

298. Custers, *supra* note 48, at 16.

299. Barocas & Selbst, *supra* note 281, at 695.

300. Schermer, *supra* note 297, at 138.

301. *See id.*

302. *See* Calders & Žliobaitė, *supra* note 289, at 49–51.

303. *Id.* at 48; Barocas & Selbst, *supra* note 281, at 678.

measure.

Data use for this purpose also seems to risk rewarding or shaping employee behavior in ways that penalize men of color and all women. Diverse employees often feel pressure to mute some aspect of their identity to fit into their workplace culture.³⁰⁴ And data analytics is especially focused on intangibles like employee engagement and culture measurement and management.³⁰⁵ As one prominent HR consultant recently wrote:

Imagine an employee application . . . that runs on your phone, knows your location, and recommends people to network with. It provides continuous onboarding and transition assistance, evaluates time-management . . . automatically assesses work behaviors and offers feedback on improving work-life balance, delivers on-the-job skills training, and even shares exercise and healthy eating tips at the point of need. This is likely where HR technology is going, and we're getting there a lot faster than you might think.³⁰⁶

Practices that provide constant feedback used to rate or rank employees may allow bias to infect decisionmaking or to shape employee behavior to improve those ratings.³⁰⁷ Consider Professor Rebecca Lee's description of approaches to diversity in her article, *Core Diversity*.³⁰⁸ She identified the most

304. Kenji Yoshino & Christie Smith, *Fear of Being Different Stifles Talent*, HARV. BUS. REV., Mar. 2014, at 28, 28.

305. See JOSH BERSIN, HR TECHNOLOGY FOR 2016: 10 BIG DISRUPTIONS ON THE HORIZON 1 (2015) ("Many HR applications are . . . enabling [employees] to better manage people, learn and develop, and steer their own careers. . . . Today's HR applications should be fun, gamelike, and designed to help improve our productivity at work."); Josh Bersin, *The Move from Systems of Record to Systems of Engagement*, FORBES (Aug. 16, 2012, 8:52 PM), <http://www.forbes.com/sites/joshbersin/2012/08/16/the-move-from-systems-of-record-to-systems-of-engagement/#aafbcb50c48> [<http://perma.cc/KP6X-TX5J>].

306. BERSIN, *supra* note 305, at 2–3.

307. See Aaron Belzer & Nancy Leong, *The New Public Accommodations*, 105 GEO. L.J. (forthcoming 2017) (discussing how rating systems aggregate biases and shape the behavior of users); Jodi Kantor & David Streitfeld, *Inside Amazon: Wrestling Big Ideas in a Bruising Workplace*, N.Y. TIMES (Aug. 15, 2015), <http://www.nytimes.com/2015/08/16/technology/inside-amazon-wrestling-big-ideas-in-a-bruising-workplace.html> [<https://perma.cc/E4UC-975V>] (describing how the competitive model at Amazon which eliminates lower level performers regularly based on internal feedback contributes to a gender gap there).

308. 19 TEMP. POL. & CIV. RTS. L. REV. 477, 477 (2010).

commonly adopted models of diversity: surface diversity, where an organization makes an effort to recruit diverse employees, but then disregards differences among its employees and expects them to act in identical ways; and marginal diversity, where an organization recognizes cultural differences among employees, but then assigns work that limits people to stereotyped roles.³⁰⁹ If most organizations see their workplace culture as special, fixed, and unchanging, their use of a culture-shaping feedback model will likely exacerbate their tendencies towards surface or marginal diversity. They will be using feedback to assimilate new employees to the culture rather than allowing the culture to adapt and grow with the addition of employees with diverse experiences and viewpoints.

C. Anti-Discrimination Theories Drive the Appeal of Data Driven Solutions, but May Not Guard Against Its Dangers

Anti-discrimination theories and legal doctrine are important drivers of the people analytics revolution. Cabining individual discretion by relying on objective tests or credential requirements avoids overt prejudice influencing an employment decision. Anti-discrimination law thus pushes employers towards more objective measures of merit and performance to avoid liability. At the same time, though, the law requires little of these measures, and the data and algorithms used are not transparent. Thus, if they incorporate biases or have discriminatory effects, the law offers little to check those. The next two subsections explore these issues.

1. The Legal Framework Makes Data Attractive

Looking to solutions in data is understandable as a practical matter because analytics promises to be an effective, efficient, and affordable solution to the problem of getting and understanding information about people. The law steers employers in this direction, as well.

Despite the long duration of the prohibition on discrimination, persistent race and sex gaps in wages and occupational attainment continue to exist, and the labor

309. *Id.* at 489–91.

market remains fairly segregated on the basis of race and sex.³¹⁰ The gaps in the workplace help perpetuate income and wealth gaps in society, as well.³¹¹ The reasons for these remaining gaps are not clear, and not everyone believes that discrimination, at least overt, explicit prejudice, is to blame any longer.³¹² Because this formal anti-discrimination policy is not

310. Samuel R. Bagenstos, *The Structural Turn and the Limits of Antidiscrimination Law*, 94 CALIF. L. REV. 1, 2, n.5, 5–6 (2006) (explaining that inequalities among races still exist today despite increasingly egalitarian attitudes toward race); Nancy M. Carter & Christine Silva, *Women in Management: Delusions of Progress*, HARV. BUS. REV., Mar. 2010, at 19 (summarizing a study finding that among graduates of elite MBA programs, “women continue to lag men at every single career stage, right from their first professional jobs”); Maria Charles, *A World of Difference: International Trends in Women’s Economic Status*, 37 ANN. REV. SOC. 355, 360–62 (2011) (documenting persistent sex segregation in labor markets and education despite—and maybe because of—increased female access to formerly male domains); Rachel F. Moran, *Whatever Happened to Racism?*, 79 ST. JOHN’S L. REV. 899, 900 (2005) (despite declining racism and increasing interracial contact, significant gaps still exist between white and nonwhite Americans); Nan Weiner, *Effective Redress of Pay Inequities*, 28 CAN. PUB. POL’Y S101, S103 (2002).

311. See MARIKO LIN CHANG, *SHORTCHANGED: WHY WOMEN HAVE LESS WEALTH AND WHAT CAN BE DONE ABOUT IT* 20, 35–36 (2010) (documenting the wealth gap between women and men and exploring the causes); JODY FEDER & LINDA LEVINE, CONG. RESEARCH SERV., *PAY EQUITY LEGISLATION 1* (2010) (according to the U.S. Census Bureau, in 2008, full-time working women had a median annual salary of \$35,745, while men had a median salary of \$46,367); PAUL TAYLOR ET AL., PEW RESEARCH CTR., *TWENTY-TO-ONE: WEALTH GAPS RISE TO RECORD HIGHS BETWEEN WHITES, BLACKS AND HISPANICS 13–14* (2011), http://www.pewsocialtrends.org/files/2011/07/SDT-Wealth-Report_7-26-11_FINAL.pdf [<https://perma.cc/EV44-SZAG>] (noting that in 2009 the median net worth of white households was \$113,149, while the median net worth of Asian, Hispanic, and black households was \$78,066, \$6,325 and \$5,677 respectively); R. Richard Banks et al., *Discrimination and Implicit Bias in a Racially Unequal Society*, 94 CALIF. L. REV. 1169, 1171, 1184 (2006) (repeating that the average white family earns 1.5 times as much income and has several times as much wealth as the average black family); Guy-Uriel E. Charles, *Toward a New Civil Rights Framework*, 30 HARV. J.L. & GENDER 353, 353 (2007) (“African Americans, Latinos, and Native Americans lag behind Whites and sometimes Asian Americans on almost all relevant socio-economic indicators.”).

312. Some say that employers no longer discriminate and that current inequality is caused by something else. *E.g.*, Satoshi Kanazawa, *The Myth of Racial Discrimination in Pay in the United States*, 26 MANAGERIAL & DECISION ECON. 285 (2005) (analyzing general social survey data and concluding that once cognitive ability is controlled for, there is no racial earnings gap); Sarah Ketterer, Opinion, *The Wage Gap Myth that Won’t Die*, WALL ST. J., Oct. 1, 2015, at A17 (arguing that very little if any of the gender wage gap is due to discrimination, and most is caused by women’s choices about hours worked, jobs chosen, and time out of the workforce). Some say that discrimination still exists but the kind of discrimination employers engage in has changed to make the law less able to reach it. *E.g.*, Melissa Hart, *Subjective Decisionmaking and Unconscious Discrimination*, 56 ALA. L. REV. 741 (2005) (describing common view that Title

enough by itself to eradicate inequality, the laws depend to a large extent on voluntary compliance.³¹³ Moreover, businesses want to comply to avoid liability and to maximize profits: directly, by hiring the best employees, and indirectly, by signaling their compliance with social goals.

Employers have always had the motivation to predict employee value through information about a potential employee that was easy to get at little cost, and they once used protected classes as proxies for ability in particular fields until federal law prohibited that practice.³¹⁴ Employers still may feel

VII only reaches conscious discrimination and arguing that the structures courts require plaintiffs to use to prove discrimination could reach unconscious discrimination as well); Damon Rittenhouse, *Where Title VII Stops: Exploring Subtle Race Discrimination in the Workplace*, 7 DEPAUL J. SOC. JUST. 87 (2013) (arguing that race discrimination has become surreptitious and difficult for an untrained observer to detect); Susan Sturm, *Second Generation Employment Discrimination: A Structural Approach*, 101 COLUM. L. REV. 458, 469–89 (2001) (defining “second generation discrimination” as a subtle, interactive, and structural bias rather than more visible and blatant forms of bias). *But see* Michael Selmi, *Sex Discrimination in the Nineties, Seventies Style: Case Studies in the Preservation of Male Workplace Norms*, 9 EMP. RTS. & EMP. POL’Y J. 1 (2005) (highlighting the many cases in which discrimination is just as overt as in the past); Michael Selmi, *Subtle Discrimination: A Matter of Perspective Rather than Intent*, 34 COLUM. HUM. RTS. L. REV. 657 (2003) (challenging descriptions of bias as subtle and instead arguing that they are simply ordinary circumstantial cases of explicit bias).

Some say that the theoretical model of discrimination embodied in the law and by judges does not match the psychology of decisionmaking. *See, e.g.*, Erik James Girvan & Grace Deason, *Social Science in Law: A Psychological Case for Abandoning the Discriminatory Motive Under Title VII*, 60 CLEV. ST. L. REV. 1057 (2013) (relying on social-psychological research to propose a new framework for disparate treatment). Others say that the courts have interpreted the statutes too narrowly. *See, e.g.*, Brian S. Clarke, *A Better Route Through the Swamp: Causal Coherence in Disparate Treatment Doctrine*, 65 RUTGERS L. REV. 723 (2013) (arguing that Title VII’s causation standard ignores modern cause-in-fact theory); Lynda L. Arakawa & Michele Park Sonen, Note, *Caught in the Backdraft: The Implications of Ricci v. DeStefano on Voluntary Compliance and Title VII*, 32 U. HAW. L. REV. 463 (2010) (criticizing the standard adopted in *Ricci v. DeStefano* as inconsistent with Title VII’s goal that employers be encouraged to voluntarily comply); Allison Cimpl-Wiemer, Comment, *Ledbetter v. Goodyear: Letting the Air Out of the Continuing Violations Doctrine?*, 92 MARQ. L. REV. 355 (2008) (criticizing the Court’s narrowing of the continuing violations doctrine in Title VII). And some say that judges are hostile to employees. *E.g.*, Nancy Gertner, *Loser’s Rules*, 122 YALE L.J. ONLINE 109 (2012) (arguing that judges may be hostile to employees in addition to having other incentives to rule in favor of employers), <http://www.yalelawjournal.org/forum/losers-rules> [http://perma.cc/RN2V-5MYM].

313. *See* Marcia L. McCormick, *The Truth is Out There*, 30 BERKELEY J. EMP. & LAB. L. 193 (2009).

314. *E.g.* *Hazen Paper Co. v. Biggins*, 507 U.S. 604 (1993) (explaining that the

that compliance requires walking a very fine line. They may be wary of considering identity as part of their diversity goals, knowing that a benign reason for considering protected class might still violate the law.³¹⁵ Thus, once explicit consideration of race and sex was prohibited, employers shifted to other proxies for abilities, but those proxies were not always good predictors, nor could they necessarily satisfy the law.³¹⁶ The use of credentials or ability tests was an attractive alternative to looser proxies for ability, and that is where disparate impact doctrines further drive employer attraction to data analytics. The use of credentials and standardized ability tests tended to have disparate effects on historically underrepresented groups.³¹⁷ As a result, the Supreme Court, Congress, and the EEOC together have tailored the disparate impact doctrine to balance the negative effects of using credentials or tests against employers' business interests.³¹⁸ An employer can use a credential or test that disparately affects a protected group if the credential or test predicts success in the position for which it is used.³¹⁹ For professionally developed tests, the test must

goal of the ADEA was to prohibit discrimination not based on animus, but on stereotypes of older people as less productive); *City of L.A. Dep't of Water & Power v. Manhart*, 435 U.S. 702 (1978) (holding that sex cannot be used as a proxy for longevity for purposes of pension benefits); *Griggs v. Duke Power Co.*, 401 U.S. 424 (1971) (describing employer's historical practice of segregating black employees into lowest paying jobs and replacement of that system with a high school diploma requirement and the use of intelligence tests for higher paying positions).

315. See, e.g., *Ricci v. DeStefano*, 557 U.S. 557 (2009) (deciding that ensuring black and Hispanic applicants for promotion were not disadvantaged was disparate treatment of white applicants); *Int'l Union, UAW v. Johnson Controls, Inc.*, 499 U.S. 187 (1991) (holding that fetal protection policy that excluded fertile women from some jobs was disparate treatment). *But see Johnson v. Transp. Agency*, 480 U.S. 616 (1987) (upholding affirmative action for women that used sex as a tiebreaker between equally qualified candidates where women were historically underrepresented in the field, and the affirmative action plan was temporary); *United Steelworkers v. Weber*, 443 U.S. 193 (1979) (holding that race-based affirmative action was not discrimination under Title VII as long as the plan did not unfairly trammel the rights of white employees or applicants).

316. *Dothard v. Rawlinson*, 433 U.S. 321, 329–32 (1977) (rejecting height and weight requirements used as proxies for strength that screened out a much larger proportion of women than men because strength was better assessed directly through strength testing).

317. See generally *Ricci*, 557 U.S. at 586; *Dothard*, 433 U.S. at 329–31; *Griggs*, 401 U.S. at 430.

318. See 42 U.S.C. §§ 2000e(h), (k) (2012); 29 C.F.R. § 1607.1 (2017); *Albamarle Paper Co. v. Moody*, 422 U.S. 405 (1976); *Griggs*, 401 U.S. at 424.

319. *Griggs*, 401 U.S. at 431–32, 436 (“Nothing in the Act precludes the use of testing or measuring procedures; obviously they are useful. What Congress has

be valid for its use; it must accurately measure or predict what it is supposed to measure or predict.³²⁰ In addition, an employer must first do an analysis of the job in question to decide what skills or attributes a successful employee in that position needs.³²¹ But if that has been done, evidence that the test was carefully designed may satisfy the need to demonstrate its validity.³²²

The data analytics process may frequently meet this test by virtue of its use of mathematical analysis. Because the whole point of the analytic process is to find interesting correlations between a desired characteristic and personal attributes that can help predict which individuals will have that desired characteristic, the analytic process could be viewed as meeting the courts' validity tests—at least insofar as linking the test with the characteristic. The characteristic could still be attacked as not sufficiently job-related if it does not predict successful performance of the job. Still, because of the ability to highlight correlations, an employer who uses people analytics for employment decisions may be protected from litigation.

forbidden is giving these devices and mechanisms controlling force unless they are demonstrably a reasonable measure of job performance.”)

320. *Id.* The EEOC guidelines provide that the American Psychological Association's generally accepted professional standards govern a validity analysis, at least for standardized tests, and that criterion-related, construct, or content validity studies will suffice. 29 C.F.R. §§ 1607.5(B), (C). The EEOC defines these concepts this way:

Evidence of the validity of a test or other selection procedure by a criterion-related validity study should consist of empirical data demonstrating that the selection procedure is predictive of or significantly correlated with important elements of job performance

Evidence of the validity of a test or other selection procedure by a content validity study should consist of data showing that the content of the selection procedure is representative of important aspects of performance on the job for which the candidates are to be evaluated

Evidence of the validity of a test or other selection procedure through a construct validity study should consist of data showing that the procedure measures the degree to which candidates have identifiable characteristics which have been determined to be important in successful performance in the job for which the candidates are to be evaluated

Id. § 1607.5(B).

321. *Albemarle Paper Co.*, 422 U.S. at 429–36; *Griggs*, 401 U.S. at 431.

322. *See Ricci v. DeStefano*, 557 U.S. 557, 588–89 (2009) (holding that because the tests at issue were carefully created, they were valid enough that the employer lacked a strong basis in evidence to believe it might lose a disparate impact case).

2. Applying the Doctrines to Solve the Problems

Because legal doctrines help create the demand for people analytics, those doctrines may be inadequate to address the potential problems with data mining. Solon Barocas and Andrew Selbst have explored these weaknesses in their forthcoming article, *Big Data's Disparate Impact*, which argues that data can discriminate and that the current legal doctrines will have difficulty addressing those kinds of discrimination.³²³ Barocas and Selbst argue that the process and scale of big data analytics makes masking easier and may create disparate impacts that are difficult to detect and remedy.³²⁴

The difficulty with disparate treatment doctrine is that motive is a state of mind and not always externally verifiable.³²⁵ So an employer can avoid the prohibition by picking a pretext as a way to weed out people based on a protected characteristic. In other words, if an employer can target older employees by relying on pension vesting, the employer has engaged in prohibited disparate treatment, but has masked that motive.³²⁶

Masking is not new; the idea that decisionmakers could hide their discrimination behind pretexts has been a part of the legal analysis since the first disparate treatment cases.³²⁷ The danger posed by big data is new, however, because of the scale and fluidity of data inflow and analysis. The amount of data available and used, the fact that the data are constantly changing and growing, the opaqueness of the processes, and the complexity of the analysis will make that masking much more difficult to detect.³²⁸ Barocas and Selbst argue that the analytics process itself may reveal new and previously unknown correlations between sensitive and neutral attributes, helping employers figure out what neutral attributes to target as a way to target sensitive attributes, thus enabling masking

323. Barocas & Selbst, *supra* note 281.

324. *Id.* at 674.

325. *Troupe v. May Dep't Stores Co.*, 20 F.3d 734 (7th Cir. 1994) (an admission of discriminatory motive "is indeed direct evidence as distinct from circumstantial; and since intent to discriminate is a mental state and mind reading not an accepted tool of judicial inquiry, it may be the only truly direct evidence of intent that will ever be available").

326. *See Hazen Paper Co. v. Biggins*, 507 U.S. 604 (1993).

327. *See McDonnell Douglas Corp. v. Green*, 411 U.S. 792 (1973).

328. *Calders & Žliobaitė*, *supra* note 289.

more easily.³²⁹ Finally, to the extent that machine learning may be a part of that process, a necessary implication of Barocas and Selbst's discussion is that disparate treatment may be impossible to prove because machines are not sentient—they cannot have motives.³³⁰ Decisions can be attributed to algorithms developed over time by the analytics process itself rather than by human design.³³¹ This kind of discrimination sounds more like disparate impact.³³²

Scale and process are especially important here. Data mining enables testing large numbers of hypotheses that cannot easily be duplicated by individuals. Data mining also allows for investigation of every possible relation and not just causal relationships. Thus, the relations found using data mining may or may not be causal, but analysts may lack information about that cause.³³³ Profiles based on statistical relationships that are not causal can create problems like masking. And data mining allows trivial information to be linked often unintentionally to sensitive information. People who provide only trivial information, like their zip codes, may not be aware of the fact that they may also be providing sensitive information. Finally, once a piece of information has been disclosed, it is almost impossible to withdraw. Information is difficult to contain, so errors can be difficult to fix, and sensitive information can be difficult to avoid.³³⁴

The problems that disparate impact doctrines have addressing the kinds of discrimination likely to be found in data analytics are even more serious. As Barocas and Selbst argue, the test for business necessity, the defense to a disparate impact claim, preserves a significant amount of employer discretion.³³⁵ As long as the target variable (the sought-after trait) is job-related, Barocas and Selbst argue, the analysis will likely satisfy the business necessity test.³³⁶

Up to this point, the problems described were generally

329. Barocas & Selbst, *supra* note 281, at 721–22.

330. *See id.* at 697–98.

331. *See id.* at 677–78; *see also* *Machine Learning: What It Is and Why It Matters*, SAS, http://www.sas.com/en_us/insights/analytics/machine-learning.html (last visited Nov. 28, 2016) [<http://perma.cc/3YK4-68PE>].

332. Barocas & Selbst, *supra* note 281, at 712–13.

333. Calders & Žliobaitė, *supra* note 289.

334. Custers, *supra* note 48.

335. Barocas & Selbst, *supra* note 281, at 702–03.

336. *Id.* at 706–07.

considering data collected by companies based on their work force, customer base, or public records, but data is coming from ever more dispersed sources, rating ever more subjective things that make its use especially problematic. Ratings are increasingly sought about a wide range of interpersonal interactions, and the ratings are then used for evaluating those individuals' work performance.³³⁷ Those ratings are very vulnerable to bias, both explicit and implicit, and are completely diffused and disarticulated from the people making decisions based on them.³³⁸

Consider Uber. Uber's platform operates, in part, on a rating system where customers rate drivers on a five-point scale.³³⁹ Uber makes decisions about drivers based on these ratings: drivers will be deactivated—unable to drive for Uber—when their ratings fall below 4.6.³⁴⁰ If customer ratings are as vulnerable to bias as research suggests, it is likely that minority drivers will be more likely than white drivers to be deactivated, but the deactivation itself looks like an automatic event, divorced from a person with bias.³⁴¹ Similar trends in the effects of customer biases have been shown for other customer-driven processes like Airbnb,³⁴² Ebay,³⁴³ and even

337. Danielle Keats Citron & Frank Pasquale, *The Scored Society: Due Process for Automated Predictions*, 89 WASH. L. REV. 1 (2014); see also Josh Dzieza, *The Rating Game: How Uber and Its Peers Turned Us into Horrible Bosses*, VERGE (Oct. 28, 2015, 11:00 AM), <http://www.theverge.com/2015/10/28/9625968/rating-system-on-demand-economy-uber-olive-garden> [<http://perma.cc/5SR2-ET2F>].

338. See Citron & Pasquale, *supra* note 337, at 4; Sam Levin, *Racial Profiling via Nextdoor.com*, EAST BAY EXPRESS (Oct. 7, 2015), <http://www.eastbayexpress.com/oakland/racial-profiling-via-nextdoorcom/Content?oid=4526919> [<http://perma.cc/PNU7-YY6Z>]. The problems of customer-based discrimination are well documented. See, e.g., Michael Lynn et al., *Consumer Racial Discrimination in Tipping: A Replication and Extension*, 38 J. APPLIED SOC. PSYCHOL. 1045 (2008).

339. Dzieza, *supra* note 337.

340. *Id.*

341. See Yanbo Ge et al., *Racial and Gender Discrimination in Transportation Network Companies* (NBER Working Paper No. w22776, 2016), <https://ssrn.com/abstract=2861708> [<https://perma.cc/UQ44-QYNA>] (conducting a controlled experiment involving ride sharing and finding a 35% increase in wait times and twice the cancellation for riders with African American sounding names than for riders with white sounding names); Alex Rosenblat et al., *Discriminating Tastes: Customer Ratings as Vehicles for Bias*, DATA & SOC'Y 1 (Oct. 2016), https://datasociety.net/pubs/ia/Discriminating_Tastes_Customer_Ratings_as_Vehicles_for_Bias.pdf [<https://perma.cc/P7XM-5JMP>] (analyzing customer ratings on the Uber platform to explore how bias may creep into driver evaluations).

342. Benjamin Edelman et al., *Racial Discrimination in the Sharing Economy: Evidence from a Field Experiment* (Am. Econ. J. Working Paper, 2015),

tipping in the traditional economy.³⁴⁴ The effects of these aggravated judgments are just as discriminatory as a single decisionmaker using race to make a decision. But because the actors are so diffuse and at least one step removed from the impact of their rating, traditional discrimination doctrine has a hard time providing a remedy.

D. Special Considerations in Collecting Data

As noted above, gathering some kinds of information is problematic because it may reveal sensitive information about an individual. Accordingly, some antidiscrimination statutes prohibit gathering information, at least in certain contexts. The Americans with Disabilities Act prohibits pre-offer medical testing of any kind,³⁴⁵ and psychological tests, even those labeled personality tests, can cross the line into medical tests.³⁴⁶ Even when employers can give medical tests, when an offer has been extended, it has to give them to all employees, and the tests must be job-related and consistent with a business necessity.³⁴⁷ Medical tests, including personality tests that might reveal a disability, are prohibited except for these narrow uses precisely because they might reveal that people have disabilities that will not interfere with their ability to do the work required, but that might allow employers to make assumptions about the person's abilities.³⁴⁸

To understand the ADA's application to personality tests, consider not only the challenge to the Minnesota Multi-Phasic

<http://www.benedelman.org/publications/airbnb-guest-discrimination-2016-01-06.pdf> [<https://perma.cc/4H7S-WSS4>].

343. Ian Ayres et al., *Race Effects on Ebay*, 46 RAND J. ECON. 891 (2015).

344. Ian Ayres et al., *To Insure Prejudice: Racial Disparities in Taxicab Tipping*, 114 YALE L.J. 1613 (2005).

345. 42 U.S.C. § 12112(d) (2012).

346. Alan M. Goldstein & Shoshanah D. Epstein, *Personality Testing in Employment: Useful Business Tool or Civil Rights Violation?*, 24 LAB. LAW. 243, 243 (2008) (noting that "some personality and psychological tests may be considered 'medical examinations' under the Americans with Disabilities Act").

347. 42 U.S.C. §§ 12112(d)(3), (4). The results also must be kept in separate files and treated as confidential like any other medical information. *Id.* § 12112(d)(3)(B).

348. *See id.* § 12112(d)(2)(A) (prohibiting pre-employment medical examinations or inquiries about whether a person has a disability or about the nature or severity of a disability); *id.* § 12112(d)(2)(B) (allowing an employer to ask an applicant about the ability to perform job-related functions).

Personality Inventory in *Karraker v. Rent-A-Center, Inc.*,³⁴⁹ discussed above, but also the EEOC's actions in *EEOC v. Kronos*.³⁵⁰ In *Kronos*, Vicky Sandy had filed a charge of disability discrimination against Kroger Food Stores alleging she was not hired because of her audiological impairment.³⁵¹ During the application process, Kroger administered a Personality Assessment Test, which claimed to measure the human traits that underlie strong service orientation and interpersonal skills including controlling impatience, showing respect, listening attentively, working well on a team, and being sensitive to others' feelings.³⁵²

The test materials suggested follow-up questions to ask candidates, including: "describe the hardest time you've had understanding what someone was talking about."³⁵³ The materials also suggested Kroger observe Sandy for how well she was able to speak during the interview and to listen for correct language, clear enunciation, and appropriate "volume, tone, expression, and eye" contact.³⁵⁴ During Sandy's interview, the store manager determined that he had difficulty understanding her verbal responses to questions and found her responses to be "garbled and at times inaudible and unintelligible."³⁵⁵ Kroger admitted that it relied, at least in part, on the test results in its hiring decision,³⁵⁶ which may have constituted disparate treatment under the ADA. And the EEOC sent an administrative subpoena to Kronos, the creator of the test, seeking information on job analyses and other documents related to validation, suggesting that the EEOC saw this as a medical test under the ADA.³⁵⁷ The case seems to have been dropped, we assume as a result of a conciliation agreement.³⁵⁸

The ADA is not the only statute limiting data that can be gathered. The methods of gathering data and use of non-traditional data sources like data about familial relationships

349. 411 F.3d 831, 833 (7th Cir. 2005).

350. No. 09mc0079, 2011 WL 1085677, at *1, *2 (W.D. Pa. Mar. 21, 2011).

351. *Id.* at *2.

352. *Id.*

353. *EEOC v. Kronos Inc.*, 620 F.3d 284, 292 (3d Cir. 2010).

354. *Id.* at 293.

355. *Kronos*, 2011 WL 1085677, at *3.

356. *Kronos*, 620 F.3d, at 293.

357. *Kronos*, 2011 WL 1085677, at *3.

358. The docket available on Westlaw shows the last action as a joint status report filed in December of 2015. Docket, *Kronos*, 2011 WL 1085677.

or ancestry may reveal genetic information about a person. The Genetic Information Non-Disclosure Act (GINA) defines genetic information as “information about —(i) [an] individual’s genetic tests, (ii) the genetic tests of the family members of [an] individual, and (iii) the manifestation of a disease or disorder in family members of [an] individual.”³⁵⁹ The Act further restricts employers from requesting, requiring, or purchasing this kind of information.³⁶⁰ There is an exception for information on family medical history when an employer purchases “documents that are commercially and publicly available,”³⁶¹ which might be read to extend to information gathered by search engines, social media, or specialty sites like Ancestry.com. However, the examples in the statute do not seem to fit the description of these sources: “newspapers, magazines, periodicals, and books, but not including medical databases or court records.”³⁶² Moreover, the EEOC’s regulations are more specific, stating that purchasing this kind of data would violate GINA.³⁶³

Between the limitations on medical examinations in the ADA and the prohibitions in GINA on gathering or purchasing genetic information, employers’ ability to gather data is limited. Not covered by these statutes, though, is employer gathering of aggregated health data for current employees.³⁶⁴ This gap would allow the kind of information described in the pregnancy hypothetical to be gathered, and once it is known, limitations on its use might be hard to enforce.

Overall, people analytics could make masking intentional discrimination easier, and the apparent rigor of data analysis may make the use of data appear job-related and a business necessity. The appeal of people analytics—that it will find novel relationships between attributes or skills and future performance in a way that could promote greater equality—is what heightens the risk that employers will use analytics without the care required. The apparent objectivity and

359. 42 U.S.C. § 2000ff(4)(A) (2012).

360. *Id.* § 2000ff-1(b).

361. *Id.* § 2000ff-1(b)(4).

362. *Id.*

363. 29 C.F.R. § 1635.8(b)(4) (2016).

364. As explained above, HIPAA prohibits healthcare providers from knowingly releasing individually identifiable health information and prohibits employers from knowingly receiving that individually identifiable health information. *See* 42 U.S.C. §§ 1171(3), (4), (6), (2012); *see also id.* § 1177.

presumed accuracy of the solution itself masks its weaknesses. If not monitored closely, diffusion of sources of data may encourage biased input, and automatic result generation may yield biased output.

All is not lost, however. Legal and design standards can evolve so that rather than entrenching discriminatory systems, people analytics can act as a positive force toward greater equality.³⁶⁵ Legal standards could recognize duties for employers to ensure the quality of data used, the reliability of any predictive analytical models, and a tight relationship between qualities tested and job performance.³⁶⁶ New laws could limit access to some kinds of data the way that the ADA and GINA currently do.³⁶⁷ The design of analytics also can use appropriate techniques to ensure that data is accurate and representative and that sensitive attributes are not relied on.³⁶⁸ With these considerations in mind, we turn to examine the ethics and values that are important in the further development of people analytics.

V. ETHICS AND VALUES IN PEOPLE ANALYTICS

While the previous sections have described people analytics and the surrounding privacy and discrimination

365. FED. TRADE COMM'N, BIG DATA 25–32 (2016), <https://www.ftc.gov/system/files/documents/reports/big-data-tool-inclusion-or-exclusion-understanding-issues/160106big-data-rpt.pdf> [<https://perma.cc/3JEN-RC6B>] (recommending that in order to maximize benefits and minimize harms, users of big data analytics should ensure their data set is representative, their model accounts for biases, their predictions are accurate, and their reliance on big data analytics raises no other ethical or fairness concerns).

366. A concrete proposal is outside of the scope of this introductory paper. For some suggestions, see Giusella Finocchiaro & Annarita Ricci, *Quality of Information, the Right to Oblivion, and Digital Reputation*, in DISCRIMINATION AND PRIVACY IN THE INFORMATION SOCIETY, *supra* note 48, at 289 (proposing a right to a digital reputation that encompasses greater detail to ensure a more accurate picture of an individual's identity); van der Sloot, *supra* note 281, at 278–86 (explaining how the EU's Data Protection Directive may set principles for quality, processing, and use of data); Zarsky, *supra* note 279.

367. See Custers et al., *supra* note 270, at 343–44.

368. See Sara Hajian & Josep Domingo-Ferrer, *Direct and Indirect Discrimination Prevention Methods*, in DISCRIMINATION AND PRIVACY IN THE INFORMATION SOCIETY, *supra* note 48, at 241; Faisal Kamiran et al., *Techniques for Discrimination-Free Predictive Models*, in DISCRIMINATION AND PRIVACY IN THE INFORMATION SOCIETY, *supra* note 48, at 223; Sicco Verwer & Toon Calders, *Introducing Positive Discrimination in Predictive Models*, in DISCRIMINATION AND PRIVACY IN THE INFORMATION SOCIETY, *supra* note 48, at 255.

issues, we have mostly avoided normative or evaluative statements. After all, people analytics is a nascent field that contains great potential. At the same time, we have concerns about people analytics being used in ways that could result in legal liability or negative externalities. To that end, in this Part we wish to tie together various themes present throughout this Article, with larger thoughts about the adoption and development of people analytics.

Ultimately, we believe there are important values and ethics that should be incorporated as the field of people analytics grows. These are not all legal concerns per se, because the field is too nascent, and, as we have seen, the law as it is currently formulated is not a perfect fit for addressing the concerns raised by people analytics. While we have a variety of tools and useful doctrines for analyzing the problem, more immediately valuable are the embedded values we believe these tools rely on for achieving privacy, anti-discrimination, and autonomy norms. After discussing the value of employee voice, we detail our other thoughts about the values that should be incorporated into people analytics. These values include transparency, disclosure, and autonomy.

A. *Employee Voice and People Analytics: Case Study and Research Results*

In adopting a system of people analytics within a particular workplace, it is critical for employees to understand the ongoing processes, rather than feeling like a set of test subjects. Employees need to have a voice when it comes to implementing these practices. Employee voice is a critical aspect of workplace law, norms, and business policy. The National Labor Relations Act (NLRA) provides a specific method for employees to exercise collective voice over their terms and conditions of employment.³⁶⁹ One of the critical justifications for unionization has been the opportunity for workers to participate in the life of the business.³⁷⁰ Companies

369. 29 U.S.C. § 158(a)(5) (2012) (imposing on the employer a duty to “to bargain collectively with the representatives of his employees”).

370. See Kenneth G. Dau-Schmidt & Arthur R. Traynor, *Regulating Unions and Collective Bargaining*, in *LABOR AND EMPLOYMENT LAW AND ECONOMICS* 96, 109 (Kenneth G. Dau-Schmidt et al. eds., 2009) (arguing that collective bargaining helps employees to feel more useful and engaged and has been linked to productivity gains, including lower turnover, search, and retraining costs).

today use a variety of tools to provide their employees with input into the workplace. Toyota, applying one of its many employee-centered management practices, famously allows any worker to stop the assembly line when she notices an issue.³⁷¹ At Google, employee voice is one of the cornerstones of Google culture.³⁷² Greater voice is perhaps the most important change that employees desire in their current jobs.³⁷³

Voice is important for both instrumental and non-instrumental reasons. On an instrumental level, employee input can lead to better decisionmaking. When it comes to employee-related issues, giving employees a say can provide the employer with much better information about what employees value and how to best satisfy their concerns at the least cost.³⁷⁴ And employees can also provide valuable input on core business issues.³⁷⁵ With people analytics, workers could help craft the metrics by which performance is measured.³⁷⁶

At the same time, employees value voice for its own sake. The research on employee voice dovetails with other research

371. William H. Simon, *Toyota Jurisprudence: Legal Theory and Rolling Rules Regimes*, in *LAW AND THE NEW GOVERNANCE IN THE EU AND THE US* 37, 45 (Grainne de Burca & Joanne Scott eds., 2006).

372. BOCK, *supra* note 66, at 46 (“Voice is the third cornerstone of Google’s culture. Voice means giving employees a real say in how the company is run.”).

373. RICHARD B. FREEMAN & JOEL ROGERS, *WHAT WORKERS WANT* 4 (1999) (“American workers want more of a say/influence/representation/participation/voice (call it what you will) at the workplace than they now have.”).

374. *Id.* at 113 (finding that eighty-two percent of employees who participated in employee-involvement programs believed that giving employees a greater say in these programs would make them work better); Samuel Estreicher, “*Easy In, Easy Out*”: *A Future for U.S. Workplace Representation*, 98 MINN. L. REV. 1615, 1620 (2014) (“Collective bargaining provides a means for workers to collectively express their preference for [a particular workplace policy] and for parties to determine whether the collective benefits outweigh the collective costs of its provision . . .”).

375. See Matthew T. Bodie, *Workers, Information, and Corporate Combinations: The Case for Nonbinding Employee Referenda in Transformative Transactions*, 85 WASH. U. L. REV. 871, 902–05 (2007) (discussing the importance of employee input to critical business decisions such as mergers and acquisitions); Kenneth G. Dau-Schmidt, *Promoting Employee Voice in the American Economy: A Call for Comprehensive Reform*, 94 MARQ. L. REV. 765, 800–01 (2011) (discussing the informational advantages and long-term interests of employees within the firm).

376. In *Moneyball*, even though baseball had a plethora of statistics dating back to the beginning of the game, an over emphasis on the wrong factors meant that the metrics were of limited use. In order to develop a robust predictive analytics system, the statistics themselves had to be analyzed and reconsidered. See LEWIS, *supra* note 3, at 66–68.

on procedural justice, which notes that individuals value participation and input independently of any impact on distributive concerns.³⁷⁷ A just process communicates to those involved that they have importance and worth to the decisionmakers. Looking at what employees found most important in assessing the fairness of their workplaces, one study found that concerns relating to status recognition and neutrality were significantly more important than employees' ability to exercise control over their workplace or the likelihood of favorable outcomes.³⁷⁸ As a result, there can be a feedback loop when it comes to employee voice: the non-instrumental satisfaction that employees derive from voice can lead to greater instrumental gains from such participation.³⁷⁹

At the intersection of people analytics and employee voice, we can also examine the perceived legitimacy by workers of particular metrics. One of the concerns associated with the use of personality testing in the employment selection process is that in the past, applicant reaction to these tests has been poor. Studies comparing the relative acceptability of various selection procedures have generally shown personality testing to be among the *least* well received.³⁸⁰ Applicant perceptions of fairness matter because they affect self-esteem and the motivation to continue pursuing employment.³⁸¹ Personality tests have the potential to be perceived as invasive of an applicant's privacy since the purpose of the testing is to provide the employer with information about an applicant that is not otherwise apparent.³⁸² On the other hand, when personality tests are perceived by job applicants to be job-related and not highly invasive into an applicant's personal beliefs, the

377. TOM R. TYLER & STEVEN L. BLADER, COOPERATION IN GROUPS 90–91 (2000) (arguing that expression of one's view is important without reference to the impact on the outcome).

378. *Id.* at 92–96, tbls. 8-1, 8-2, 8-3.

379. Stephen F. Befort, *A New Voice for the Workplace: A Proposal For An American Works Councils Act*, 69 MO. L. REV. 607, 611–12 (2004) (finding that workers who have a say in workplace decisions are “more likely to buy into the firm's processes and objectives,” yielding higher “job satisfaction, loyalty, and job tenure” and “reduc[ing] the costs associated with the hiring and training of new employees and provid[ing] an incentive for investment in enterprise-specific skills”).

380. Joseph G. Rosse et al., *A Field Study of Job Applicants' Reactions to Personality and Cognitive Ability Testing*, 79 J. APPLIED PSYCHOL. 987, 988 (1994).

381. Chamorro-Premuzic & Steinmetz, *supra* note 162, at 43.

382. Rosse et al., *supra* note 380, at 987.

reactions are mostly positive.³⁸³

Another study compared the reactions of applicants who took the MMPI and two other similar personality tests with the reactions of applicants taking an integrity test.³⁸⁴ The candidates noted that over 36 percent of the items on the MMPI and other personality tests were judged to be highly invasive whereas no items from overt integrity tests were judged as highly invasive.³⁸⁵ Similarly, test takers have less concern with ability tests that are seen as more valid and objective. In the study, test takers objected most frequently to items on the personality tests that addressed sexual orientation, religious beliefs, and self-reported symptoms associated with psychiatric disorders.³⁸⁶ These questions seemed more invasive and less relevant to job performance.³⁸⁷

As part of our larger people analytics project, one of us (Tang) conducted original empirical research into the role of employee voice in the adoption of people analytics. Among already existing employees, Tang performed original research to determine employee perception of data analytics in the workplace.³⁸⁸ The preliminary findings indicate that employees' commitment to the organization depends on their attributions of the intentions of their organization's adoption of people analytics practices.³⁸⁹ Interestingly, employee perceptions also are related to the ways that employees become informed about data collection in the workplace.³⁹⁰ This research has important implications, suggesting that employee voice should be a consideration in adopting people analytics.

The starting point for the author's study was the hypothesis that employee attributions of organizational

383. *Id.* at 990. One study investigated how actual job applicants responded to a personality test that they believed was being used to make hiring decisions. *Id.* Job applicants who were required to complete a personality inventory reported more concerns about the selection process than did applicants who did a job interview. *Id.* Nonetheless, with the correct non-invasive test design, overall reactions were positive. *Id.*

384. Wayne J. Camara, *Using Personality Tests in Preemployment Screening: Issues Raised in Soroka v. Dayton Hudson*, 6 PSYCHOL. PUB. POL'Y & L. 1164, 1171 (2000).

385. *Id.*

386. *Id.*

387. *Id.*

388. Jintong Tang, *Hoping to Look Far with Human Resource Analytics but Missing the Obvious?* (unpublished manuscript 2015) (on file with authors).

389. *Id.*

390. *Id.*

motives behind the use of people analytics matter to organizational commitment. In particular, the author wanted to test the idea that when people analytics practices are adopted with an eye toward cost reduction, their use will be negatively related to organizational commitment.³⁹¹ As a corollary to this, the author posited that when employees believe that people analytics practices reflect a quality- and employee-enhancement strategy, their use will be positively associated with organizational commitment. Finally, the author integrated a line of research around the ways in which organizations communicate their adoption of HR analytics to employees.³⁹² In particular, if employees found out about HR analytics practices through their coworkers (rather than from HR newsletters or supervisors), the author assumed that it would negatively affect their organizational commitment.³⁹³

To measure how organizations communicate HR analytics practices to their employees, the author asked respondents to indicate how they first found out about their organization's use of HR analytics. Building on prior work that maintains that employees' perceptions of HR practices are likely to be influenced by the experiences and perceptions of their coworkers,³⁹⁴ the author captured whether employees first found out about HR analytics efforts in their organization through coworkers or through other means.³⁹⁵

Overall, survey data collected from employees of a mid-sized financial institution supported the following hypotheses,

391. *Id.*; see also Nicolas Bacon, *Worker Responses to Team Working: Exploring Employee Attributions of Managerial Motives*, 16 INT'L J. HUM. RESOURCE MGMT. 238 (2005); Karim Mignonac & Nathalie Richebé, *No Strings Attached?: How Attribution of Disinterested Support Affects Employee Retention*, 23 HUM. RESOURCE MGMT. J. 72 (2013); Lisa H. Nishii et al., *Employee Attributions of the "Why" of HR Practices: Their Effects on Employee Attitudes and Behaviors, and Customer Satisfaction*, 61 PERSONNEL PSYCHOL. 503 (2008).

392. David E. Guest & Anna Bos-Nehles, *HRM and Performance: The Role of Effective Implementation*, in HRM AND PERFORMANCE 79 (David E. Guest et al. eds., 2013); Chris Woodrow & David E. Guest, *When Good HR Gets Bad Results: Exploring the Challenge of HR Implementation in the Case of Workplace Bullying*, 24 HUM. RESOURCE MGMT. J. 38 (2014).

393. Tang, *supra* note 388; see also John P. Meyer et al., *Commitment to Organizations and Occupations: Extension and Test of a Three-Component Conceptualization*, 78 J. APPLIED PSYCHOL. 538 (1993).

394. Rebecca R. Kehoe & Patrick M. Wright, *The Impact of High-Performance Human Resource Practices on Employees' Attitudes and Behaviors*, 39 J. MGMT. 366 (2013).

395. Tang, *supra* note 388.

subject to more elaborate studies and replication. When employees hold negative attributions of organizational use of people analytics—that is, they consider people analytics as merely a tactic to further reduce costs or a ploy to extract more work—such attributions relate negatively to workers’ affective commitment to the organization. When employees hold more positive attributions of people analytics—that is, when they consider people analytics as a means to improve quality for customers or to enhance employee well-being—such attributions relate positively to their affective commitment.³⁹⁶

Further, when employees are concerned with how the organization handles their private information and consider the organizational information privacy practices to be less legitimate,³⁹⁷ such concerns also translate into lower commitment to the organization. Likewise, employees viewed HR analytics more negatively if they found out about their adoption from coworkers rather than from direct channels, such as supervisors or HR. If one has knowledge of a metrics system and consents to it, there are fewer issues with privacy. In his studies with sociometric badges, Waber was careful to seek the buy-in of workers, obtaining their consent to the analytics and promising to anonymize and obscure the data.³⁹⁸

Despite the exploratory nature of these data, the results do point to the importance of employee voice in adopting people analytics. Workplaces that wish to experiment with people analytics would be wise to include employees in the process and design, providing opportunities for input. As the author’s preliminary data have shown, managers who implement people analytics with cost-saving motivations may end up unwittingly undermining employee morale. Workers want to be treated as people, not ranked as fungible data sets or assessed as cost centers. If workers have a voice in designing the system of metrics, they are more likely to see the assessment measures as legitimate and as part of appropriate improvement and quality control. As such, any organization that is contemplating implementing people analytics should consider obtaining the

396. *Id.* However, given the relatively weaker effect of the positive attributions we could suspect that when negative attributions are present, they may overshadow the positive attributions.

397. This is discussed further in Bradley J. Alge, et al., *Information Privacy in Organizations: Empowering Creative and Extrarole Performance*, 91 J. APPLIED PSYCHOL. 221 (2006).

398. WABER, *supra* note 10.

input of their employees, for both instrumental and process-based reasons.

B. Transparency and Disclosure

In our research into new people analytics games, quizzes, and personality tests, we also uncovered concerns that lead us to call for heightened transparency and disclosure.³⁹⁹ Many of these concerns stem from seeking consent and permission so that workers' and applicants' privacy is respected. Further, we hypothesize that transparency will lead to less potential for discriminatory bias to creep into the metrics.

One concern we note about the new people analytics games is that the job candidates who play them have no idea what information is being collected or analyzed. The people analytics games we examined were something of a "black box"—we did not know what skills were being tested. Perhaps the skills were problem solving, spatial relationships, or appetite for risk, but there were so many aspects of what was happening in these games that we could only guess. While in some ways the personality quizzes we examined were more straightforward because candidates could look at the questions directly, few people are aware that these quizzes are designed to look for patterns of responses and correlations between the questions. The "pattern" of answers that provides the information is far from clear or obvious to the applicant. Given the "gamified" nature of the Knack games we tested, it is also possible that someone might not even know that they are taking a test. Someone could just think that they are playing a fun game rather than knowing that they were, in fact, having skills tested for a job.

For both gamification⁴⁰⁰ and crowdsourcing,⁴⁰¹ Cherry has called for more disclosure and transparency to correct information asymmetries. In those contexts, the author suggested that the most ethical course is notification to the

399. Many calls for transparency trace back to the famous statement of Justice Louis Brandeis, who noted, "Sunlight is said to be the best of disinfectants." Louis Brandeis, *What Publicity Can Do*, HARPER'S WEEKLY, Dec. 20, 1913, at 10.

400. Cherry, *supra* note 78, at 857.

401. Miriam A. Cherry & Winifred Poster, *Crowdwork, Corporate Social Responsibility and Fair Labor Practices*, in RESEARCH HANDBOOK ON DIGITAL TRANSFORMATIONS 291 (F. Xavier Olleros et al. eds., 2016).

user.⁴⁰² That way the user at least knows how their gaming is profiting others, and the user may process that information and decide if he wishes to continue.

The same type of enhanced disclosure, we would argue, should apply to games and personality quizzes that are being used by HR to make employment decisions such as hiring, promotion, and firing. The process and the content of what is being measured by such games should be transparent to management and workers. Candidates should be informed that one of these quizzes or tests will be part of the application process. Having to take a test or quiz should not be something that would be sprung upon an applicant for the first time during an interview. It would also be beneficial for companies to announce the type of analytics that would be used. This would give the candidate the opportunity to familiarize themselves with the software or the tests, and decide if they even want to proceed with the application process at that point.

Further, some applicants might have concerns that the data collected through either games or personality testing might be shared, disclosed, or disseminated. In the case of personality testing, one can imagine a scenario where an undesirable trait was revealed. If that negative information is associated with a particular candidate and may be shared among employers, the candidate may not have a way to redress that. Transparency would result in a clear statement of the uses of the data.

C. *The Values of Autonomy and Identity*

Identity and autonomy are also important values that need to be taken into account in people analytics design. By “identity,” we mean to encompass not only who the individual is, but who that individual might become. Neil Richards and Jonathan King note that the more big data predicts our behavior, the more likely the data will be used to shape our preferences.⁴⁰³ While their article references the benign example of Netflix structuring preferences around recommended television shows or movies,⁴⁰⁴ the issue is more serious when examined through the lens of employment.

402. Cherry, *supra* note 78, at 857.

403. Richards & King, *supra* note 47, at 41.

404. *Id.* at 44.

Especially as platforms accumulate an increasing number of job candidate results, platforms could turn into hiring gatekeepers. Candidates might justifiably worry not only that they could be unfairly pigeonholed into a certain set of jobs or skills, but that those ratings may follow them around for years, and across employers. Certainly that was the concern of the candidates at Target, who requested that the Psychscreen test results be permanently deleted, given its use of sensitive information.⁴⁰⁵

Autonomy has long been recognized as an important value within the workplace. The notion of autonomy is generally described as the ability to control one's own decisions and actions, particularly ones that are critical to self-identity.⁴⁰⁶ Autonomy includes control over both career and personal realms. Workplace autonomy has been described as "answer[ing] the question: what does it mean to be part author of one's working life?"⁴⁰⁷ Within this context, courts and commentators have sharply disagreed over the policy ramifications of protecting that autonomy.⁴⁰⁸ Autonomy can also mean that one's personal life is kept separate from one's working life—that the employee enjoys the freedom to choose personal beliefs, memberships, and activities without employer interference. As one court framed it: "It may be granted that there are areas of an employee's life in which his employer has no legitimate interest."⁴⁰⁹

405. *Soroka v. Dayton Hudson Corp.*, 1 Cal. Rptr. 2d 77, 80 (Cal. Ct. App. 1991), *superseded by* 822 P.2d 1327 (Cal. 1992).

406. JOSEPH RAZ, *THE MORALITY OF FREEDOM* 369 (1986) ("The ideal of personal autonomy is the vision of people controlling, to some degree, their own destiny, fashioning it through successive decisions throughout their lives."); *Whalen v. Roe*, 429 U.S. 589, 599–600 (1977) (describing the "interest in independence in making certain kinds of important decisions").

407. Anne Marie Lofaso, *Toward a Foundational Theory of Workers' Rights: The Autonomous Dignified Worker*, 76 UMKC L. REV. 1, 39 (2007). She goes on to define worker autonomy as "employees who (1) know what issues affect their working lives and know how to resolve those issues according to their own interests; (2) have access to information relevant to making informed decisions; and (3) are free to effectively decide how to resolve those issues." *Id.* at 41.

408. *Compare Lochner v. New York*, 198 U.S. 45, 57 (1905) (prohibiting employees from working overtime was akin to treating them as "wards of the state"), *with Lofaso, supra* note 407, at 38–48 (arguing that collective rights and actions are necessary to provide workers with autonomy within the workplace).

409. *Geary v. U.S. Steel Corp.*, 319 A.2d 174, 184 (Pa. 1974). The court went on to say: "An intrusion into one of these areas by virtue of the employer's power of discharge might plausibly give rise to a cause of action, particularly when some recognized facet of public policy is threatened." *Id.*

People analytics may threaten both of these senses of autonomy. Within the workplace, handing over critical decisions to data analytics may deprive employees, particularly managers, of a sense of empowerment within the company. People analytics is merely a tool to be used by savvy managers and companies in developing workplace policies and protocols; it is not a divine oracle to be consulted on any problem. And in the context of personal autonomy, people analytics may pry into personal activities and characteristics that would otherwise be off limits for employers.⁴¹⁰ These explorations may be well-meaning, but they may cross the line into the worker's zone of autonomy. Employer wellness plans are one example of employers potentially crossing into forbidden territory by monitoring their employees' personal habits and activities and providing incentives for changes in off-duty conduct.⁴¹¹

CONCLUSION

Some commentators have labeled people analytics as a strategic necessity, and we anticipate continued growth in the field of predictive analytics applied to work.⁴¹² Setting aside the potential business benefits of analytics and data mining, in this Article we have noted our concerns with the legal and ethical issues that are beginning to arise as data analytics becomes more widespread. Like many other applications of existing law to new technology, there is an uneven fit—

410. Duhigg, *supra* note 71, at 23 (noting that Google's "Project Aristotle" inquired into workers' socializing outside the office, their hobbies, their educational backgrounds, and their level of introversion/extroversion, among other characteristics and activities).

411. Providing for employee autonomy within the creation and implementation of a wellness plan is one way of addressing such concerns. See Daniel Charles Rubenstein, *The Emergence of Mandatory Wellness Programs in the United States: Welcoming, or Worrisome?*, 12 J. HEALTH CARE L. & POLY 99, 118 (2009) ("Regardless of the methodology ultimately adopted in the administration of an employee wellness program, the employer should make all reasonable efforts to engage employees in conceptualizing, discussing, planning, and executing wellness initiatives.").

412. Davenport et al., *Competing*, *supra* note 2. *But cf.* C. Marlene Fiol & Edward J. O'Connor, *Waking Up! Mindfulness in the Face of Bandwagons*, 28 ACAD. MGMT. REV. 54 (2003); Thomas Rasmussen & Dave Ulrich, *Learning from Practice: How HR Analytics Avoids Being a Management Fad*, 44 ORG. DYNAMICS 236 (2015) (noting concerns about jumping on techniques only because they are trendy).

especially when laws surrounding data privacy and employment are relatively loose in the United States. Likewise, the advent of data analytics poses difficult questions for employment discrimination law.

Ultimately, we believe there are important values and ethics that should be incorporated as the field of people analytics continues to grow. As existing laws are extended and new laws are passed, the values of employee voice, disclosure, transparency, identity, and autonomy should be at the forefront of the regulatory discussion.