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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

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¹ Don Peck, *They're Watching You at Work*, THE ATLANTIC, Dec. 2013, at 72, available at <http://www.theatlantic.com/magazine/archive/2013/12/theyre-watching-you-at-work/354681/>.

² See generally LEEROM SEGAL, 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; Susan McLean et al., *Big Data and Human Resources – Letting the Computer Decide*, Human Res. Rep. (BNA), Apr. 13, 2015; 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>; 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 (Mar. 17, 2014),

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.

Although people analytics is a nascent field, its implementation could help employers make more informed HR decisions. 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.⁴ In addition, people analytics could provide insights on more quotidian issues like employee location and more productive use of break times.⁵ The data that drives these decisions may be collected in new ways: through the use of innovative computer games,⁶ monitoring employee electronic communications and activities, and new devices, such as ID badges that record worker locations and the tone of conversations.⁷ 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 interactions with the law of the workplace.⁸ This Article seeks to survey this area in five parts. Part I is an overview, reviewing the history of employment testing, defining data mining, and

<http://www.amanet.org/training/articles/People-Analytics-Will-Change-the-Way-You-Manage-Your-Business.aspx>; Mark McClusky, *This Guy's Quest to Track Every Shot in the NBA Changed Basketball Forever*, WIRED (Oct. 28, 2014), <http://www.wired.com/2014/10/faster-higher-stronger/>.

³ MICHAEL LEWIS, *MONEYBALL* (2003).

⁴ See Peck, *supra* note 1.

⁵ See Benjamin N. Waber et al., *Sociometric Badges: A New Tool for I.S. Research* (Mar. 17, 2011) (unpublished manuscript), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1789103.

⁶ See *infra*, Section II.

⁷ See Waber et al., *supra* note 5.

⁸ In general it is difficult to cite a source for a negative proposition, so the authors instead use one particular example. See, e.g., BEN WABER, *PEOPLE ANALYTICS* (2013) (discussing potential uses and applications, but not legal or ethical implications).

describing the most current trends in people analytics. Part II describes 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.

PART I. OVERVIEW OF PEOPLE ANALYTICS

People analytics is a process or method of human resources management based on the use of “big data” to capture insights about job performance. The core idea is that unstructured subjective judgment 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.⁹ 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. Along with the invisible hand, Adam Smith wrote about the division of labor amongst pin makers as a method of increasing production.¹⁰ Smith noted: “The rapidity with which some of the operations of those manufactures are performed, exceeds what the human hand could, by those who

⁹ Adam Bryant, *Quest to Build a Better Boss*, N.Y. TIMES, Mar. 12, 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.”).

¹⁰ ADAM SMITH, *THE WEALTH OF NATIONS*, book I, ch. 1, Of the Division of Labor (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).

had never seen them, be supposed capable of acquiring.”¹¹ 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.¹² Building on the division of labor, scientific management involved breaking down workplace tasks into their smallest possible unit, and then creating rigorous protocols for these task units to maximize efficiency. 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.¹³ 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.¹⁴

Personnel management based its methodology on psychological research to look at workers from an individual and social perspective.¹⁵ 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.¹⁶ One practitioner of personnel management was Henry Ford. Ford famously paid his workers well,¹⁷ but he also

¹¹ *Id.* Smith also believed the division of labor would lead to greater wealth across the classes.

¹² 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, Being a Step toward Partial Solution of the Labor Problem*, 16 TRANSACTIONS 856 (1895). Taylor was perhaps the most prominent member of the “systematic management” movement between 1880 and 1920. Sanford M. Jacoby, *A Century of Human Resources Management*, in *INDUSTRIAL RELATIONS TO HUMAN RESOURCES AND BEYOND* 147, 148 (Bruce E. Kaufman et al. eds., 2003).

¹³ BRUCE E. KAUFMAN, *THE ORIGINS & EVOLUTION OF THE FIELD OF INDUSTRIAL RELATIONS IN THE UNITED STATES* 22 (1993).

¹⁴ *Id.* at 24; see also GORDON S. WATKINS, *AN INTRODUCTION TO THE STUDY OF LABOR PROBLEMS* 476-77 (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.”).

¹⁵ KAUFMAN, *supra* note 13, at 24.

¹⁶ *Id.* Ordway Tead and Henry Metlcalfe 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, 104 (1999).

¹⁷ Ford was the first car manufacturer who paid five dollars a day—a

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 his workers. 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. The Department also monitored employees' spending and saving habits; if inspectors detected problems, they could offer employees advice and social services.¹⁸ Although his Sociological 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."¹⁹

In recognizing the importance of the difference between employee proficiencies, personnel management opened the door to testing to choose employees for particular roles. 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 20th Century.²⁰ 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.²¹ The large data set produced by the Army exams laid the scientific foundation for aptitude testing more generally.²² Numerous psychological tests were developed in the post-war era, and employers adopted many of these tests to measure employees' abilities in managerial and

significant premium over market rates. STEPHEN MEYER, III, *THE FIVE DOLLAR DAY* (1981).

¹⁸ M. Todd Henderson, *The Nanny Corporation*, 76 U. CHI. L. REV. 1517, 1541 (2009) (footnotes omitted).

¹⁹ HENRY FORD, *MY LIFE AND WORK* 130 (1922); GREG GRANDIN, *FORDLANDIA* (2009).

²⁰ 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).

²¹ 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).

²² *Id.* at 1258-59.

professional positions.²³ World War II brought the development of a new generation of tests, some of which are still used extensively in employment screening.²⁴

Meanwhile, the field of human relations was flowering in the American workplace. The American Society for Personnel Administration was founded in 1948 with only 28 original members; by 1964, it had grown to over 3,000. 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.²⁵ The experiments initially endeavored to test the effects of changes in the lighting levels in the plant and other changes in the workplace environment.²⁶ However, worker productivity ultimately rose no matter the changes that were imposed. 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.²⁷ 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 tinkering with employee behavior and outcomes.²⁸

People analytics is distinctive, however, in its new methods of approaching old problems. 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

²³ Mulvihill, *supra* note 20, at 873.

²⁴ *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.”).

²⁵ *See* Fritz J. Roethlisberger, *The Hawthorne Experiments*, in *CLASSICS OF PERSONNEL MANAGEMENT* 16, 16-17 (Thomas H. Patten, Jr. ed., 1979).

²⁶ *Id.*

²⁷ *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.”).

²⁸ Jacoby, *supra* note 12, at 158.

statistical analysis.²⁹ The idea of people analytics³⁰ 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.³¹ Beane himself had been a player of great promise amongst scouts but had never achieved success at the major league level. 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).³² By crunching numbers to find out what types of performances really created 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.³³

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.³⁴ But Moneyball could also be characterized as an example of the idea of people analytics.³⁵ People analytics focuses on both culling new sources of data on worker performance and subjecting

²⁹ People analytics is generally seen as a quantitative, as opposed to qualitative, approach to HR. See Josh Bersin, *The Geeks Arrive in HR: People Analytics Is Here*, FORBES (Feb. 1, 2015), <http://www.forbes.com/sites/joshbersin/2015/02/01/geeks-arrive-in-hr-people-analytics-is-here/> (“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.”).

³⁰ See *id.* (discussing how the term “people analytics” has had more Google searches over time than the related terms “talent analytics” and “HR analytics”).

³¹ LEWIS, *supra* note 3.

³² *Id.*

³³ *Id.*

³⁴ See Paul L. Caron & Rafael Gely, *What Law Schools Can Learn from Billy Beane and the Oakland Athletics*, 82 TEX. L. REV. 1483, 1552 (2004).

³⁵ 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.

that data to high-level statistical analysis.³⁶ 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 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. It is a multidisciplinary field combining statistics, computer programming, and operations research to create explanatory and predictive models. The analytic process generally has five steps: data collection, data preparation, data mining, interpretation, and acting upon the discovered knowledge.³⁷ Data collection can be done specifically 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 use, like medical records or property records.³⁸ Data preparation involves rearranging and ordering the data, which sometimes involves aggregating very granular information into bigger categories.³⁹

Data mining is an automated process of analysis of large databases to find new patterns and relations in that data. The databases are large in the sense of size—they may contain millions of records—but they are also large in variety of types of data, some of which might not be numerical at all.⁴⁰ Data mining usually does not begin with a hypothesis, but instead uses a variety of tools to generate hypotheses and test them against the

³⁶ People analytics is traditionally associated with sophisticated statistical and econometric analyses. *See, e.g.*, Bersin, *supra* note 29 (discussing a people analytics meeting involving “eight PhD statisticians, engineers, and computer scientists together, all working on people analytics for their companies”).

³⁷ *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).

³⁸ *See id.* at 8.

³⁹ *See id.*

⁴⁰ *Id.* at 7.

available data.⁴¹ Data mining reveals patterns or creates group profiles through algorithms that cluster data into groups with similar properties, classify data by mapping them onto predefined classes, or describing correlations through regression analysis.⁴² Bart Custers describes 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.⁴³

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 context.⁴⁴ 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.⁴⁵ Data analytics are popular because they are efficient and effective at dealing with the always increasing amount of information we collect and process in order to find or identify groups or individuals who have desirable skills, attributes, needs, or tastes, depending upon our purpose.⁴⁶

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*

⁴¹ *Id.*

⁴² *Id.* at 9.

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ *Id.* at 10.

⁴⁶ *Id.* at 13-15.

Analytics,⁴⁷ Ben Waber focuses on employee interaction across the organization as an underappreciated source of employee productivity and business success. Waber's perspective is based on organizational theory about the importance of organizations within society and the importance of interpersonal networks within the organization.⁴⁸ 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.⁴⁹ 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.⁵⁰ 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).⁵¹ 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."⁵²

Google also applies a brand of people analytics to its human resources department, which it calls "People Operations."⁵³ As one might expect, Google places a high premium on data in making labor-related decisions. The company starts with the premise that "accurate people management decisions are the most important and impactful decisions that a firm can make."⁵⁴ Google prides itself on taking discretion over these decisions out of the hands of supervisors and managers.⁵⁵

⁴⁷ WABER, *supra* note 8.

⁴⁸ *Id.* at 21-55.

⁴⁹ *Id.* at 109-21.

⁵⁰ *Id.* at 14-16.

⁵¹ *Id.* at 179-81.

⁵² *Id.* at 182.

⁵³ Bryant, *supra* note 9 (noting that "'people operations' . . . is Googlespeak for human resources").

⁵⁴ John Sullivan, *How Google Is Using People Analytics to Completely Reinvent HR*, TLNT (Feb. 26, 2013), <http://www.ereMEDIA.com/tlnt/how-google-is-using-people-analytics-to-completely-reinvent-hr/>.

⁵⁵ LASZLO BOCK, *WORK RULES!* 12 (2015).

Instead, traditional HR decisions are made “either by a group of peers, a committee, or a dedicated, independent team.”⁵⁶ These decisionmakers are then given data and data-crunching algorithms to better manage their methods. Among the unusual approaches that Google has taken: paying talented workers much 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.⁵⁷

An anecdotal example of the Google approach is “Project Aristotle,” an internal initiative to study the differences in success between Google teams.⁵⁸ The project team collected data along a myriad of lines to determine what components created a top team. Ultimately, the analysis did not yield any answers: there were no consistent characteristics among teams or team members that led to success.⁵⁹ The researchers then turned to surveys about group norms to determine if those norms were influential. Ultimately, the project 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.⁶⁰ Using these insights, Google developed protocols for teams and team managers that encouraged psychological safety and emotional connections between team members.⁶¹

Thus, while the term “people analytics” can cover a variety of approaches to HR management, they as a group generally share certain characteristics: (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

⁵⁶ *Id.*

⁵⁷ *Id.*

⁵⁸ Project Aristotle is described in Charles Duhigg, *Group Study: What Google Learned From Its Quest to Build the Perfect Team*, N.Y. TIMES, Magazine, at 20, 21-26, 72, 75 (Feb. 28, 2016).

⁵⁹ *Id.* at 23 (“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.”).

⁶⁰ *Id.* at 26.

⁶¹ *Id.* at 26, 72, 75.

managers. The following sections will discuss some of the potential legal issues that such approaches may engender.

PART 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.⁶² 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. The argument in favor of such analytics is that using skill-related information to make staffing decisions should result in an increase in merit-based hiring.

In this section of the article, we first discuss the recent trend toward the "gamification of work." From there, we turn to the intersection of gamification with people analytics. One of the authors 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 of the games and draw broader implications from them. The section 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, one of the authors described a recent trend toward the gamification of work.⁶³ In general, "gamification" is transforming a mundane task through ingenuity (and often technology) in order to make the task enjoyable.⁶⁴ Turning chores and work into "fun" is not a new concept; in fact, in her book, *Reality is Broken*, Jane McGonigal notes that since

⁶² Peck, *supra* note 1.

⁶³ Miriam A. Cherry, *The Gamification of Work*, 40 HOFSTRA L. REV. 851 (2012).

⁶⁴ See KEVIN WERBACH & DAN HUNTER, FOR THE WIN (2012).

ancient times, societies have used games to motivate, inspire, and prompt productivity.⁶⁵ Today, with the help of technology, gamification can be employed in many diverse contexts. As McGonigal and other scholars have noted, gamification can be used to improve health and wellness outcomes for patients⁶⁶ and even assist in efforts toward ecological sustainability.⁶⁷

Work—traditionally set as the opposite of fun, games, or leisure—could be fundamentally transformed through gamification. By adding a gaming component, many jobs can increase worker engagement, especially if those jobs require or are comprised of tedious or repetitive tasks.⁶⁸ As described in the psychological literature, when we play a game, we draw on what Professor Mihaly Csikszentmihalyi terms “flow.”⁶⁹ Flow exists when the participant uses concentration, skills, learning, and adaptation in performing a task or activity.⁷⁰ Workers might find the “play” that a game provides to be a welcome break from drudgery.⁷¹ 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. 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,

⁶⁵ 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.

⁶⁶ 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>.

⁶⁷ See MCGONIGAL, *supra* note 65, 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. Many users implemented novel and interesting conservation solutions in their quest to complete the goals of the game.

⁶⁸ See MCGONIGAL, *supra* note 65, ch. 6.

⁶⁹ See generally MIHALY CSIKSZENTMIHALYI, *FLOW* (1990).

⁷⁰ *Id.* at 6-7.

⁷¹ MCGONIGAL, *supra* note 65, at 62.

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 show their “true colors” instead of the stilted and perhaps narrow affect that a candidate typically shows in an in-person interview.

Looking at gamification and people analytics, we have a series of questions to answer: What types of games and quizzes 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 insights to these questions by playing some of the most popular people analytics games and quizzes on the market today. This next section describes our experiences.

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

As part of the research for this paper, 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 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 Knack games: Wasabi Waiter, Mega Maze, and Balloon Brigade. 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.⁷²

⁷² 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.”

The first Knack game we played was Wasabi Waiter, where 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 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 customer’s emotions and serve the corresponding meal. As the levels progressed, however, the customer emotions became increasingly difficult to discern. The author is 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.⁷³

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,

⁷³ 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.

unlike Wasabi Waiter, had music and sound effects, but the graphics in Meta Maze were more minimal.

The final Knack game was Balloon Brigade Blitz, where 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 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 “powerful portrait of a person’s unique talents [that] predict potential for success in specific roles and organizations.”⁷⁴ 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 hectored first 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 get Knack the most publicity possible 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

⁷⁴ *Knack? About Knack*, KNACK, <https://www.knack.it/company/index.html> (last viewed July 15, 2015).

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 recommended our faculty fellow for a position as a Fountain Associate/Chocolatier at the Ghirardelli Chocolate Company.⁷⁵

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.⁷⁶

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. 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.⁷⁷ Overall,

⁷⁵ Interview with Holly Gibson 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. She also noted that perhaps she was given the recommendation to work with Ghiradelli Chocolate because they seemed to be in a business partnership arrangement with Knack. Maybe the recommendation was less about her skills and more about Ghiradelli's needs.

⁷⁶ Unless, of course, the accountant works for Enron or Bernard Madoff securities.

⁷⁷ Either that or the author needs to be interviewing with KPMG accounting right now.

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 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 Meyers Briggs test that has largely become the standard for personality tests. We examined two new online, app-driven personality tests, Good.Co and VisualDNA.

Good.Co is available on an app, and users take a series of

“Discovery Quizzes” to reveal their personality traits.⁷⁸ Dubbed “the job-hunting lovechild of e-Harmony and LinkedIn,” Good.Co claims to “tap into career psychometrics and psychological analysis to help people identify their professional style for a better fit with current and potential employers and teams.”⁷⁹ 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, the approach to getting things done, and the type of coworker a person would be.⁸⁰ At the conclusion of each quiz, the app provides a brief overview of the results called “insights.”⁸¹ 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.⁸² The Strength cards and insights make up a “fit score” which can be used to make matches with employers.⁸³

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.”⁸⁴ Despite the interesting 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.⁸⁵ The Values quizzes, “Who

⁷⁸ *About Us*, GOOD & CO, <http://good.co/corporate/about-us/> (last viewed July 15, 2015).

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ *Id.*

⁸² *Id.*

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ *Quizzes*, VISUALDNA, <http://www.visualdna.com/quizzes/> (last viewed

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.⁸⁶ According to the VisualDNA website, the program captures subconscious thoughts, impulses, emotions, and inherent likes and dislikes to create a personality profile.⁸⁷ 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—a spontaneous dreamer who makes out-of-the ordinary decisions, quick as a flash, with the author rating Openness 97%, Conscientiousness 42%, Extraversion 92%, Agreeableness 92%, and Neuroticism 16%. 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

July 15, 2015).

⁸⁶ *Id.*

⁸⁷ *Id.*

than 16%.⁸⁸

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

Currently, the information that people analytics games collect from their users is largely a “black box.”⁸⁹ 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 was 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,

⁸⁸ This was probably the part about the quiz that made the author most question the results.

⁸⁹ FRANK PASQUALE, *THE BLACK BOX SOCIETY* (2015).

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 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 the how 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, they would eventually reach a solution, however. 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 only tested 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 theimps approached, the more you could extinguish, but also the greater threat to the contraption. That said, the skills that were being 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.⁹⁰ 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 being solicited for employment purposes, or whether it was being 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 able 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 seem to have had more of a tendency 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.

PART 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 the information into a new way of seeing the workplace. The promise of people analytics is that it will find data that makes workers more efficient, more productive, happier, and more likely to be loyal to their employer.⁹¹

⁹⁰ H. Beau Baez III, *Law's Failure to Keep Pace with Empirical Science: An Examination of Personality and Emotional Intelligence Testing in the Workplace*, 41 OHIO N.U. L. REV. 1, 27 (2014).

⁹¹ See, e.g., Farhad Manjoo, *The Happiness Machine: How Google Became Such a Great Place to Work*, SLATE (Jan. 21, 2013), 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'

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 rights against “highly offensive” intrusions into their private lives.⁹² But the patchwork of state common-law regulation adds to the complexity and ambiguity. Although the federal government plays a significant role in health privacy (through the ACA and HIPAA)⁹³ and, increasingly, consumer data privacy (through the Federal Trade Commission),⁹⁴ it plays little role in privacy protections for private-sector employees.⁹⁵

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,

experience).

⁹² “Highly offensive” comes from William Prosser’s definition of privacy in the *Restatement (Second) of Torts*. 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. 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.”); *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.”).

⁹³ 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).

⁹⁴ See Daniel J. Solove & Woodrow Hartzog, *The FTC and the New Common Law of Privacy*, 114 COLUM. L. REV. 583, 585 (2014).

⁹⁵ 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); *Nat’l Aeronautics & Space Admin. v. Nelson*, 131 S. Ct. 746, 758 (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).

information processing, and information dissemination.⁹⁶ We will use Solove's rubric as a guide to privacy concerns that arise within the context of people analytics.

A. Information Collection

Information relating to employee productivity can be captured through a variety of mechanisms and used to judge employee performance. People analytics methods seek to capture masses of quantitative data in order to reveal hidden patterns that are correlated with employee success or failure. Sometimes that data will relate solely to the employee's job performance—namely what the employee has specifically done while acting within the scope of employment. However, it may also relate to aspects of the employee as an individual, such as the employee's overall aptitude in various skills and settings, her health, her psychological disposition, or even what she had for breakfast.⁹⁷ 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.⁹⁸ Thus, data can come from literally anywhere: emails, texts messages, video and audio recordings, social media posts, and cell phone usage.⁹⁹ We throw off incredible amounts of data just by carrying out our daily activities.

Information collection concerns generally fall into two

⁹⁶ 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. Because this category has less relevance in the people-analytics context, we only focus on the first three "information"-related categories.

⁹⁷ See, e.g., BOCK, *supra* note 55, at 270 (discussing available snacks at Google); Manjoo, *supra* note 91 ("[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.").

⁹⁸ 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.").

⁹⁹ *Id.* at 174 n.6.

categories: surveillance and interrogation.¹⁰⁰ Both categories are discussed further below.

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.¹⁰¹

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. 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.¹⁰² It is the notion that the employer can specifically direct the employee on what to do that separates employees from independent contractors.¹⁰³ 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.*,¹⁰⁴ employees worked in a large, open communications center and were monitored through

¹⁰⁰ SOLOVE, *supra* note 96, at 106.

¹⁰¹ *Id.* at 107-08.

¹⁰² RESTATEMENT (SECOND) OF AGENCY § 220(1) (AM. LAW INST. 1957) (“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.”).

¹⁰³ 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’”).

¹⁰⁴ 110 F.3d 174 (1st Cir. 1997).

cameras which continually surveyed the work space.¹⁰⁵ Dismissing the employees' privacy claim,¹⁰⁶ the court noted that the workers "toil instead in a vast, undivided space—a work area so patulous as to render a broadcast expectation of privacy unreasonable."¹⁰⁷ The employees argued that "when surveillance is electronic and, therefore, unremitting—the camera, unlike the human eye, never blinks—the die is cast."¹⁰⁸ 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."¹⁰⁹

Despite the general permissibility of employer surveillance, there are limits. First, the employer cannot surveil the employees in personal locations away from work. Thus, it is an invasion of privacy¹¹⁰ to trespass onto an employee's property,¹¹¹ to use a telephoto lens to peer into an employee's house,¹¹² or to obtain access to an employee's apartment under false pretenses.¹¹³

¹⁰⁵ *Id.* The cameras were visual only; there was no audio monitoring.

¹⁰⁶ The employer was a quasi-public corporation, and the employees brought a claim under the Fourth Amendment alleging an unreasonable search. *Id.* at 178.

¹⁰⁷ *Id.* at 180.

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*

¹¹⁰ 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 (THIRD) 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.").

¹¹¹ See *Ass'n Servs., Inc. v. Smith*, 549 S.E.2d 454, 461 (Ga. App. 2001).

¹¹² *Saldana v. Kelsey-Hayes Co.*, 443 N.W.2d 382 (Mich. 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. Spec. App. 1986) (holding that the use of a listening device within personal areas is generally actionable).

¹¹³ *Burns v. Masterbrand Cabinets, Inc.*, 874 N.E.2d 72 (Ill. App. 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.

However, employers are free to observe their employees' activities from a public vantage point, such as watching an employee mow his lawn from the sidewalk across the street.¹¹⁴ Within the workplace, employees have much more limited privacy expectations. A bathroom, for example, is generally considered private,¹¹⁵ and there may also be expectations of privacy in desks, private offices, and lockers.¹¹⁶ But in general, an employer can create and shape employees' privacy expectations and therefore the privacy protections afforded to them.¹¹⁷

Surveillance can also be legally problematic if undisclosed. There are certain types of secret monitoring which are prohibited

App. 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 reasonable juror”).

¹¹⁴ See, e.g., *ICU 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 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).

¹¹⁵ See, e.g., *Johnson v. Allen*, 613 S.E.2d 657, 661 (Ga. App. 2005) (hidden camera in bathroom). See also *Acuff v. IBP, Inc.*, 77 F. Supp. 2d 914 (C.D. Ill. 1999) (videotaping of medical examination in nurse’s room).

¹¹⁶ *O’Connor v. Ortega*, 480 U.S. 709 (1987) (finding a potential expectation of privacy as to desk drawers); *Hernandez v. Hillsides, 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).

¹¹⁷ 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 (Ct. App. 2002).

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.¹¹⁸ Even if monitoring a public space, the employer can still trammel upon employee expectations of privacy if employees do not know that they are being watched.¹¹⁹ However, courts may still require that the employee have some underlying expectation of privacy in the location or information in order for the surveillance to count as a tortious intrusion.¹²⁰ Courts have been more amenable when secrecy is employed for significant and legitimate business reasons, such as to catch a thief.¹²¹ But such reasons are not a

¹¹⁸ See 18 U.S.C. § 2511 (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 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 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.").

¹¹⁹ *Vega-Rodriguez v. Puerto Rico 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.").

¹²⁰ 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. The court held the surveillance to be permissible. 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.* (citation omitted).

¹²¹ 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 (Ct. App. 1997) (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

panacea. In *Johnson v. K-Mart Corp.*,¹²² the employer sent undercover investigators, posing as employees, into its warehouse workforce in response to concerns about employee thefts and drug use. However, the investigators reported back a much broader array of information, including details about employees' family matters, romantic interests, and future-employment plans.¹²³ This massive data collection effort violated the employees' privacy interests.

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, for example, the employer provided its employees with credit cards for their personal use.¹²⁴ When one employee went out 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. The court held that such monitoring was properly considered tortious.¹²⁵

In order 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 insufficient.¹²⁶ People analytics should ideally operate in the realm of transparency and trust, even if it does not

medical exams not justified by concerns about theft).

¹²² 723 N.E.2d 1192 (Ill. App. 2000).

¹²³ *Id.* at 1194-95.

¹²⁴ *Pulla v. Amoco Oil Co.*, 882 F. Supp. 836 (S.D. Iowa 1994), *aff'd in relevant part and rev'd in part*, 72 F.3d 648 (8th Cir. 1995).

¹²⁵ *Id.* at 867.

¹²⁶ RESTATEMENT (THIRD) 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").

completely show its hand as to the purposes to which all the collected data are put.¹²⁷

2. Interrogation

If surveillance describes the process of collecting data through observation, interrogation refers to the process of requesting that individuals provide data.¹²⁸ 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 employer questioning.¹²⁹

In evaluating the propriety of employee interrogation, courts have looked primarily to the type of information being collected.¹³⁰ When it comes to employment decisions, the law tends to look more favorably on the collection of data that is job-related, skill-related, and qualification-related.¹³¹ Personality testing has long been a staple of employers, and for the most part, when mainstream tests are used, this has not been legally problematic. The Minnesota Multiphasic Personality Inventory (MMPI), the Meyers-Briggs Type Indicator, the Rorschach Test, and the Thematic Apperception Test are among the most well-known and popular testing schema. The MMPI has been given to countless job applicants and serves as the foundation for many of

¹²⁷ See Neil M. Richards & Woodrow Hartzog, *Taking Trust Seriously in Privacy Law*, 19 STAN. TECH. L. REV. ____ (forthcoming 2016).

¹²⁸ SOLOVE, *supra* note 96, at 113-14 (“Interrogation is the pressuring of individuals to divulge information.”).

¹²⁹ See RESTATEMENT (THIRD) OF EMPLOYMENT LAW §§ 7.01 & 7.06 (AM. LAW INST. 2015).

¹³⁰ 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.”).

¹³¹ 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).

the tests that employers use to assess applicants.¹³² These popular personality tests incorporate the use of the “Big Five Method” along with the concept of “emotional intelligence” to identify an applicant’s personality traits.¹³³ The Big Five Model includes five basic dimensions that capture most of the variation in human personality.¹³⁴ The traits include neuroticism/emotional stability, extraversion, openness to experience, agreeableness, and conscientiousness. It is generally accepted that these traits can forecast job performance.¹³⁵

In addition, some people analytics tools tout their ability to measure so-called emotional intelligence. Note that emotional intelligence is not a personality trait, but a type of intelligence.¹³⁶ Emotional intelligence is the ability to perceive emotions in one’s self and others and the ability to express one’s own emotions. It is an awareness of how one’s emotions shape one’s thinking, decisions, and coping mechanisms and the ability to regulate emotions to dampen negative emotions and make effective use of positive emotions.¹³⁷ Employees with high emotional intelligence are more likely to stay calm under pressure, know how to resolve conflict effectively, are empathetic to team members and react accordingly, lead by example, and tend to make more thoughtful business decisions.¹³⁸ 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 it nonetheless, and it also seems to be job-related.

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.*,¹³⁹ applicants for security guard positions at Target challenged the

¹³² Elizabeth D. De Armond, *To Cloak the Within: Protecting Employees from Personality Testing*, 61 DEPAUL L. REV. 1129, 1130 (2012).

¹³³ *Id.*

¹³⁴ Tomas Chamorro-Premuzic & Christopher Steinmetz, *The Perfect Hire*, SCI. AM. MIND, July/Aug. 2013, at 42, 43.

¹³⁵ *Id.*

¹³⁶ Baez, *supra*, note 90, at 18.

¹³⁷ *Id.*

¹³⁸ *Id.*

¹³⁹ *Soroka v. Dayton Hudson Corp.*, 7 Cal. App. 77, 89 (1991).

appropriateness of some of the questions on the store's psychological screening tool and alleged a violation of their privacy rights. Target required all applicants for security guard positions to take its psychological test called "Psychscreen," a test used to screen out applicants who were emotionally unstable. The "Psychscreen" test included questions about an applicant's religious attitudes and sexual orientation.¹⁴⁰ 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.¹⁴¹ 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.

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.¹⁴² 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 job duties and the sensitive information being sought.¹⁴³ 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.¹⁴⁴ Before the California Supreme Court had the opportunity to review the ruling, the parties reached a settlement. 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

¹⁴⁰ 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.

¹⁴¹ *Id.* at 80.

¹⁴² *Id.* at 89.

¹⁴³ *Id.* at 85.

¹⁴⁴ *Id.*

were administered the test.¹⁴⁵

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 prohibits certain inquiries into employee disabilities or other health conditions, either prior to or contemporaneous with an offer of employment.¹⁴⁶ 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.¹⁴⁷ 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.¹⁴⁸ Rent-A-Center argued that it had used the MMPI only to measure personality traits using vocational scoring. In contrast, if the test were used to diagnose a mental defect or illness, a clinical protocol would be used.¹⁴⁹ The court noted, however, that the test was designed, at least in part, to reveal mental illnesses. Thus the test ultimately had the effect of hurting the employment prospects of those with disabilities. Ultimately the court reasoned that the MMPI was best categorized as a medical examination prohibited pre-offer by the ADA.¹⁵⁰

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 information.¹⁵¹ Various polygraph test restrictions, including the

¹⁴⁵ Peter F. Merenda, *The Settlement of the "Target" Case and its Aftermath*, 75 PSYCHOL. REP. 1485, 1486 (1994).

¹⁴⁶ See 42 U.S.C. § 12112(d) (2012).

¹⁴⁷ *Karraker v. Rent-A-Center, Inc.*, 411 F.3d 831, 832 (7th Cir. 2005).

¹⁴⁸ *Id.* at 835.

¹⁴⁹ *Id.* at 835-36. Some have wondered what impact there might have been on employment testing if the California Supreme Court had heard the appeal.

¹⁵⁰ *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).

¹⁵¹ 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").

federal Employee Polygraph Protection Act, prohibit or limit the use of polygraph tests in collecting employee biometric data in response to substantive questions.¹⁵² In addition, a number of state statutes specifically prohibit lines of questioning, such as HIV status¹⁵³ or prior arrests or misdemeanor convictions.¹⁵⁴ Concerns about employers pressuring employees to provide access to personal social-media accounts, such as Facebook, have sparked a set of new state legislation.¹⁵⁵

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*,¹⁵⁶ 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.¹⁵⁷ The Court held the questions to be reasonable, noting that they "aid the Government in ensuring the security of its facilities and in employing a competent, reliable workforce."¹⁵⁸

In pursuing a line of employee questioning that may

¹⁵² See, e.g., the Employee Polygraph Protection Act of 1988, 29 U.S.C. §§ 2001-09 (2012); D.C. CODE § 32-902; CAL. LAB. CODE § 432.2; IDAHO CODE §§ 44-903-44-904; N.J. STAT. ANN. § 2C:40A-1.

¹⁵³ WIS. STAT. § 103.15(2).

¹⁵⁴ MASS. GEN. LAWS ch. 151B, § 4(9), (9A).

¹⁵⁵ Eighteen states have legislation prohibiting employers from requiring employee disclosure of social-media passwords. ARK. CODE ANN. § 11-2-124; CAL. LABOR CODE § 980; COLO. REV. STAT. § 8-2-127; 820 ILL. COMP. STAT. § 55/10; LA. REV. STAT. 51:1953; MD. CODE, LAB. & EMP. § 3-712; MICH. COMP. LAWS § 37.273; NEV. REV. STAT. § 613.135; N.H. REV. STAT. § 275:74; N.J. STAT. ANN. § 34:6B-5; N.M. STAT. ANN. § 50-4-34; 40 OKLA. STAT. § 173.2; OR. REV. STAT. § 659A.330; R.I. GEN. LAWS § 28-56-3; TENN. CODE ANN. § 50-1-1003; UTAH CODE ANN. § 34-48-201; WASH. REV. CODE § 49.44.200; WIS. STAT. § 995.55. 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), available at <http://www.ncsl.org/research/telecommunications-and-information-technology/employer-access-to-social-media-passwords-2013.aspx>.

¹⁵⁶ 562 U.S. 134 (2011).

¹⁵⁷ *Id.* at 141-42.

¹⁵⁸ *Id.* at 150.

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.¹⁵⁹ If a people analytics regime is designed 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.¹⁶⁰ The data is collected for a purpose, and that purpose can infringe upon privacy interests. 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.¹⁶¹ 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 much more about them than one might expect. This phenomenon

¹⁵⁹ RESTATEMENT (THIRD) 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 . . .”).

¹⁶⁰ SOLOVE, *supra* note 96, 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.”).

¹⁶¹ *Id.* at 118.

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.¹⁶² 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. The profiles would then be used to identify consumers with particular needs, such as whether a consumer was expecting a baby, and then Target would aim to meet those needs.¹⁶³

Like retailers, employers can aggregate in the same way—including tracking pregnancies.¹⁶⁴ 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.¹⁶⁵ 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 with data that is associated with such characteristics is dangerous as well. But in terms of the law, courts have generally not found aggregation of non-private information to be problematic.¹⁶⁶

Another potential privacy concern with people analytics processes is the use of data that was gathered for one purpose for a secondary purpose. Sometimes called “mission creep” or “data creep,” secondary use is problematic because it deprives the data provider of a sense of control over the use of the data.¹⁶⁷

¹⁶² *Id.* at 118-19.

¹⁶³ Charles Duhigg, *How Your Shopping Habits Reveal Even the Most Personal Information*, N.Y. TIMES, Feb. 19, 2012, Magazine, at 1.

¹⁶⁴ Valentina Zarya, *Employers Are Quietly Using Big Data to Track Employee Pregnancies*, FORBES (Feb. 17, 2016, 5:36 PM EST), <http://fortune.com/2016/02/17/castlight-pregnancy-data/>.

¹⁶⁵ SOLOVE, *supra* note 96, 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.”).

¹⁶⁶ 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.

¹⁶⁷ SOLOVE, *supra* note 96, at 131.

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,¹⁶⁸ private employers are not similarly restricted.¹⁶⁹

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 perhaps thus not surprising that many privacy-related statutes and policy statements include data accuracy as one of the principles of data privacy.¹⁷⁰ 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

¹⁶⁸ 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).

¹⁶⁹ 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).

¹⁷⁰ EUROPEAN UNION PRIVACY DIRECTIVE Art. 6:1 (1995) (“[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”); EUROPEAN UNION DATA PROTECTION REGULATION Art. 5 (1995) (“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, 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, at vii (2012), *available at* <https://www.ftc.gov/sites/default/files/documents/reports/federal-trade-commission-report-protecting-consumer-privacy-era-rapid-change-recommendations/120326privacyreport.pdf> [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.”).

employees drug tests, courts and legislatures have looked to the accuracy of the test as one factor in considering its permissibility.¹⁷¹ 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.¹⁷²

Accuracy issues are a potential trouble spot for people analytics. The method is to take big data sets and crunch 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—will not 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.¹⁷³ If the employer is collecting data to determine what items to stock in the employee break room, the stakes will be low.¹⁷⁴ On the other hand, if collected data is used to determine

¹⁷¹ See, e.g., COLO. REV. STAT. § 8-73-108(5)(e)(IX.5) (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”).

¹⁷² IOWA CODE § 730.5. 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).

¹⁷³ FTC CONSUMER PRIVACY REPORT, *supra* note 170, at 30 (“The Commission agrees that the best approach to improving the accuracy of the consumer data companies collect and maintain 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.”).

¹⁷⁴ WHITE HOUSE, CONSUMER DATA PRIVACY IN A NETWORKED WORLD 19 (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

promotion or retention decisions, the stakes are significantly higher. If the data is being used to make important decisions, employees should have access to that data to insure its accuracy.¹⁷⁵ 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 provided improperly to a third party.¹⁷⁶ Party A consensually provides the information to Party B, but with the expectation that Party B will not reveal it to others; but then Party B reveals the information to Party C against Party A'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. Privacy interests in information are not forfeit simply because one party provided its information to another.

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.¹⁷⁷ However, employers are not covered entities unless they provide self-administered health insurance coverage, and in such instances there is generally a firewall between the health plan and the rest of the employer's

facilities may be reasonable in a given context.”).

¹⁷⁵ *Cf. id.* (“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.”).

¹⁷⁶ SOLOVE, *supra* note 96, at 136 (describing information dissemination concerns as situations that involve “revealing personal data or the threat of spreading information”).

¹⁷⁷ *See, e.g.*, 45 C.F.R. § 164.508 (2015) (requiring covered entities to obtain authorization before disclosure of medical information (with certain exceptions)).

organization.¹⁷⁸ The role of enforcing federal data privacy protections has been assumed by the Federal Trade Commission, but the FTC's traditional bailiwick has been policing the use of consumer data.¹⁷⁹ Connecticut has a specific statute prohibiting disclosures from employee personnel files,¹⁸⁰ and general state privacy statutes have been interpreted in some instances to protect against employer disclosure.¹⁸¹ 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.¹⁸² 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.”¹⁸³ Although the tort requires that the information be made public,¹⁸⁴

¹⁷⁸ 45 C.F.R. § 160.103 (2015) (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 information and not use it for employment-related actions).

¹⁷⁹ Solove & Hartzog, *supra* note 94, 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.”).

¹⁸⁰ CONN. GEN. STAT. § 31-128f.

¹⁸¹ In *Bratt v. Int’l Bus. 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 statute (MASS. GEN. LAWS, ch. 214, § 1B (“A person shall have a right against unreasonable, substantial or serious interference with his privacy.”)).

¹⁸² 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).

¹⁸³ RESTATEMENT (SECOND) OF TORTS § 652D (AM. LAW INST. 1977); *see also* RESTATEMENT (THIRD) 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.”).

¹⁸⁴ RESTATEMENT (SECOND) OF TORTS § 652D cmt. a (“‘Publicity,’ on the other hand, means that the matter is made public, by communicating it to the

a line of cases has found public disclosure when there is a “special relationship” between the victim and the receivers of the private information.¹⁸⁵ Employees have been held to have a special relationship with their fellow employees, even when their numbers are relatively small.¹⁸⁶

The duty of confidentiality covers similar territory. The confidentiality cause of action prohibits the breach of an obligation to keep information secret. The obligation generally arises from implicit or explicit promises, fiduciary relationships, specific statutory or regulatory requirements, or ethical rules or codes.¹⁸⁷ The breach of confidentiality tort has been recognized in most states,¹⁸⁸ but it has not been applied to employers.¹⁸⁹ Courts have also found employers potentially liable under intrusion upon seclusion and intentional infliction of emotional distress claims for revealing private employee information.¹⁹⁰

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

public at large, or to so many persons that the matter must be regarded as substantially certain to become one of public knowledge.”).

¹⁸⁵ 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 number of people.”).

¹⁸⁶ *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).

¹⁸⁷ RESTATEMENT (THIRD) OF EMPLOYMENT LAW § 7.05, Reporters’ Notes to cmt. a at 345.

¹⁸⁸ The “clear modern consensus of the case law” is to recognize the breach of confidentiality tort. DAVID A. ELDER, *PRIVACY TORTS* § 5:2 (2002).

¹⁸⁹ 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. Neil M. Richards & Daniel J. Solove, *Privacy’s Other Path: Recovering the Law of Confidentiality*, 96 GEO. L.J. 123 (2007) (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).

¹⁹⁰ *French v. U.S. ex rel. Dept. of Hum. Health & Hum. Serv.*, 55 F. Supp. 2d 379, 382-83 (W.D.N.C. 1999).

more likely to reach the “highly offensive” threshold.¹⁹¹ 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 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.¹⁹² 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.¹⁹³

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 only cover intentional behavior. However, poor security measures may open up an employer to liability. In *Karraker v. Rent-A-Center*,

¹⁹¹ 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).

¹⁹² *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”).

¹⁹³ *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. Int’l Bus. Machines*, 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”).

Inc.,¹⁹⁴ employee personality and aptitude test results were kept in a filing cabinet in personnel files, and anyone wishing to view the records needed permission to do so from someone in the payroll department.¹⁹⁵ The filing cabinet was locked at night, and the records were eventually moved into a locked room.¹⁹⁶ 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 the personnel file, that possibility is not sufficient to support a claim.”¹⁹⁷ However, in *Fraternal Order of Police, Lodge No. 5 v. City of Philadelphia*,¹⁹⁸ the court found that failure to secure employee questionnaires with personal financial information violated the city employees’ federal right to privacy. The court enjoined the use of the questionnaire until the City “establishes written, explicit, and binding rules that contain adequate safeguards against unnecessary disclosure of the confidential information elicited in response to the . . . questionnaire.”¹⁹⁹ 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.²⁰⁰ As a result of the hack, employees became vulnerable to embarrassment, identity theft, and other fraud.²⁰¹ In a class of employees and former employees, plaintiffs alleged that Sony’s inadequate security measures allowed the hack to take place. After the court declined to dismiss several of the plaintiffs’ claims,²⁰² the case was ultimately settled.²⁰³ The size of the hack, Sony’s profile, and the

¹⁹⁴ 411 F.3d 831 (7th Cir. 2005).

¹⁹⁵ *Id.* at 838.

¹⁹⁶ *Id.*

¹⁹⁷ *Id.* (citing *Beverly v. Reinert*, 606 N.E.2d 621, 626 (Ill. App. 1993)).

¹⁹⁸ 812 F.2d 105 (3d Cir. 1987).

¹⁹⁹ *Id.* at 118.

²⁰⁰ *Corona v. Sony Pictures Entm’t, Inc.*, No. 14-CV-09600 RGK EX, 2015 WL 3916744, at *1 (C.D. Cal. June 15, 2015).

²⁰¹ *Id.*

²⁰² Claims for negligence 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.

²⁰³ Assoc. Press, *Sony Pictures Settles with Former Workers in Data Breach Lawsuit*, WALL ST. J. (Sept. 2, 2015, 8:49 PM ET), <http://www.wsj.com/articles/sony-pictures-settles-with-former-workers-in-data->

embarrassing nature of some of the released information served to generate significant publicity and perhaps the settlement as well. But even though other employee claims related to unintentional disclosures have not been successful,²⁰⁴ it seems uncontroversial to assert that employers owe some level of data care to their employees in the handling of personal information.²⁰⁵

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 as well. 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 is not improperly treated.

PART IV. PEOPLE ANALYTICS AND DISCRIMINATION

Although the legal doctrines are not identical, employee

breach-lawsuit-1441241363.

²⁰⁴ 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. March 9, 2010) (dismissing complaint for lack of standing due to the absence of any injury in fact to employees after data breach.).

²⁰⁵ 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) (2015).

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 healthcare and employers to administer benefits efficiently.²⁰⁶ Angela has had good 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.”²⁰⁷ Castlight has revealed that 20% 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.²⁰⁸ But will she realize that?

This hypothetical may seem far-fetched, but it is based on a real example. 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

²⁰⁶ *Health Benefits Platform*, CASTLIGHT HEALTH, <http://www.castlighthealth.com/solutions/> (last viewed Mar. 4, 2016).

²⁰⁷ Rachel Emma Silverman, *Bosses Harness Big Data to Predict which Workers Might Get Sick*, WALL ST. J. (Feb. 17, 2016, 7:58 PM ET), <http://www.wsj.com/articles/bosses-harness-big-data-to-predict-which-workers-might-get-sick-1455664940?mod=e2tw>.

²⁰⁸ See Zarya, *supra* note 164.

that does not rely on explicit or implicit biases nor on skills or qualities that might be a product of discriminatory educational or social systems is immensely attractive. 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 review or shaping employee behavior. In both situations, the attractiveness of the solution combined with the difficulty of detecting the problems within pose an especially thorny problem.

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.²⁰⁹ 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.²¹⁰ 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. 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. Other federal statutes prevent discrimination on the basis of older age,²¹¹ disability,²¹² military service,²¹³ and genetic information,²¹⁴ and use similar language to prohibit discrimination. 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 appearance.²¹⁵ They too use

²⁰⁹ 42 U.S.C. § 2000e-2(a)(1) (2012).

²¹⁰ *Id.* § 2000e-2(a)(2).

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

²¹² 42 U.S.C. §§ 12101-17 (2012).

²¹³ 38 U.S.C. §§ 4301-35 (2012).

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

²¹⁵ *E.g.*, D.C. CODE § 2-1401.11(a) (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

similar language to describe prohibited discrimination.

The goal of anti-discrimination law is to eradicate discrimination and provide for truly equal opportunity. 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 we think focusing on diversity is 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. Business has realized that there is value in diversity, either value in increased profitability that a diverse workforce can provide,²¹⁶ or, more controversially, value in appearing to be a diverse workplace.²¹⁷ 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 disadvantaged groups.²¹⁸ 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

expression, family responsibilities, genetic information, disability, matriculation, or political affiliation of any individual"); 775 ILL. COMP. STAT. 5/1-102(A) (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 (prohibiting discrimination on the basis of "religion, race, color, national origin, age, sex, height, weight, familial status, or marital status").

²¹⁶ Sylvia Ann Hewlett et al., *How Diversity Can Drive Innovation*, HARV. BUS. REV., Dec. 2013, at 30.

²¹⁷ See Nancy Leong, *Racial Capitalism*, 126 HARV. L. REV. 2151 (2013).

²¹⁸ See generally MAHZARIN R. BANAJI & ANTHONY GREENWALD, *BLIND SPOT* (2013); CLAUDE M. STEELE, *WHISTLING VIVALDI* (2010).

promise because it seems likely to be more accurate than judgments made by humans.²¹⁹ 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.”²²⁰ 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.²²¹ Finally, use of a technological intermediary to gather information about those attributes could hide sensitive attributes that may trigger bias from the ultimate decisionmaker.²²²

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 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.²²³

²¹⁹ See Wu Youyou et al., *Computer-Based Personality Judgments Are More Accurate than Those Made by Humans*, 112 PROCEEDINGS OF THE NAT’L ACAD. OF SCI. 1036 (2015).

²²⁰ *Wal-Mart Stores, Inc. v. Dukes*, 564 U.S. 338 (2011) (citing *Watson v. Ft. Worth Bank & Trust*, 487 U.S. 977, 990-91 (1988)).

²²¹ Lauren Weber & Elizabeth Dvoskin, *Are Workplace Personality Tests Fair?, Growing Use of Tests Sparks Scrutiny Amid Questions of Effectiveness and Workplace Discrimination*, WALL ST. J. (Sept. 29, 2014, 10:30 PM ET), <http://www.wsj.com/articles/are-workplace-personality-tests-fair-1412044257> (quoting Fred Morgeson, Management Professor and Organizational Psychologist, Michigan State University).

²²² Bart Custers et al., *The Way Forward*, in DISCRIMINATION AND PRIVACY IN THE INFORMATION SOCIETY, *supra* note 37, at 342, 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.”).

²²³ 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->

This potential is being marketed to employers by a range of companies, from general business consulting firms²²⁴ to technology companies,²²⁵ to specialized firms.²²⁶ One of the companies best known for gathering and marketing data has been front and center in the 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.²²⁷ And the use of data analytics to improve diversity is a frequent focus in that coverage.²²⁸

However, one need not look far to see that people analytics

time-online.html (describing ways that games allow for experimentation and collaboration by employees).

²²⁴ *E.g.*, *Bersin by Deloitte*, BERSIN, <http://home.bersin.com/> (last viewed Aug. 15, 2015) (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 viewed Aug. 15, 2015) (home page for traditional accounting and consulting firm Price Waterhouse Cooper's people analytics services).

²²⁵ *E.g.*, *Modern HR in the Cloud*, ORACLE, <https://www.oracle.com/applications/human-capital-management/solutions/index.html> (last viewed August 15, 2015) (database company providing specialized human resources solutions).

²²⁶ *E.g.*, *Talent Analytics*, TALENT ANALYTICS, <http://www.talentanalytics.com/> (last viewed August 15, 2015) (specialty firm providing data services for hiring and performance); *Transforming Talent*, SKILLSOFT, <http://www.skillssoft.com/> (last viewed August 15, 2015) (specialized firm); *Sociometric Solutions*, SOCIOMETRIC SOLUTIONS, <http://www.sociometricsolutions.com/> (last viewed August 14, 2015) (specialized firm).

²²⁷ *E.g.*, BOCK, *supra* note 55; 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 9, 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/>; John Sullivan, *How Google Is Using People Analytics to Completely Reinvent HR*, TLNT: TALENT MGMT. & HR (Feb. 26, 2013, 8:09 AM), <http://www.tlnt.com2013/02/26/how-google-is-using-people-analytics-to-completely-reinvent-hr/>.

²²⁸ Farhad Manjoo, *Exposing Hidden Bias at Google*, N.Y. TIMES, Sept. 25, 2014, at B1; Sullivan, *supra* note 227 (“Unlike most firms, analytics are used at Google to solve diversity problems.”).

has not solved the problem of discrimination or created significantly more diverse workplaces. Google itself keeps making the news for its lack of diversity.²²⁹ It should not be surprising that trying to predict qualities of good future workers based on the qualities of current workers and the work culture that already exists 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 grander 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 their sense of what made him or herself a good worker.²³⁰ 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.²³¹ And analytics fail to consider ways that historical data about employee behavior might be skewed by the employer's own policies which may have shaped the behavior that resulted in that data.²³²

Management academics and HR consultants have been

²²⁹ *E.g.*, Manjoo, *supra* note 228; 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> (showing that only about 30% of Google's employees are women, 2% are black, 3% are Hispanic, and 4% 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% of Google's tech employees were women, 1% were black, 2% were Hispanic, and 3% were of two or more races. *We're Working Toward a Web that Includes Everyone*, GOOGLE DIVERSITY, <http://www.google.com/diversity/> (last viewed Mar. 4, 2016) (scroll down to the chart at the bottom and select "Tech").

²³⁰ See Quentin Hardy, *Using Algorithms to Determine Character*, N.Y. TIMES (July 26, 2015, 5:30 A.M.), <http://bits.blogs.nytimes.com/2015/07/26/using-algorithms-to-determine-character/>.

²³¹ Tal Zarsky, *Transparency in Data Mining: From Theory to Practice*, in DISCRIMINATION AND PRIVACY IN THE INFORMATION SOCIETY, *supra* note 37, at 301, 305.

²³² 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).

enthusiastic about people analytics for good reason. But the 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 has been used to describe how data can be used to hide an explicit discriminatory motive.²³³ 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.²³⁴ Given the history of redlining and continuing residential segregation, some zip codes are more likely to belong 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 motive by basing the decision on zip code, distance to work, or something similar that

²³³ “Masking” simply means to hide or conceal, and is the term used in many disciplines to describe the process of hiding. 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 (2014) (“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), *available at* <http://www.oracle.com/us/products/database/data-masking-best-practices-161213.pdf> (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. ____ (forthcoming 2016) (using the term to describe hiding a discriminatory motive); Custers, *supra* note 37, 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 37, at 274, 275 (using “masking” in this sense).

²³⁴ *See id.* at 7.

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 Andrea 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. 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 that is done.

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. Households headed by people of color are substantially less likely to have internet access at home than are households headed by white people.²³⁵ The older and less wealthy a person, the less likely that person is to have internet access at home.²³⁶ Smartphone ownership is relatively even across racial lines, but significant differences persist based on age and affluence.²³⁷ 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,²³⁸ older and poorer households are less likely to have a gaming console or portable gaming device.²³⁹ Lack of access to the Internet translates to a

²³⁵ U.S. COUNCIL OF ECON. ADVISERS, EXEC. OFFICE OF THE PRESIDENT, MAPPING THE DIGITAL DIVIDE 2 (2015), *available at* https://www.whitehouse.gov/sites/default/files/wh_digital_divide_issue_brief.pdf.

²³⁶ *Id.* at 2-5.

²³⁷ MONICA ANDERSON, PEW RES. CTR., TECHNOLOGY DEVICE OWNERSHIP: 2015, at 7 (2015), *available at* http://www.pewinternet.org/files/2015/10/PI_2015-10-29_device-ownership_FINAL.pdf.

²³⁸ *See id.* at 13-14; Casserly, *supra* note 223.

²³⁹ ANDERSON, *supra* note 237, at 13-14.

lack of data about these groups, which might skew the data 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 use mathematical models that predict an outcome from characteristics of an object based on historical data.²⁴⁰ 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.²⁴¹ 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.²⁴²

Problems that may occur in the data are sampling bias or incomplete data.²⁴³ 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 they may be incorrect and contain prejudices.²⁴⁴

²⁴⁰ See ERIC SIEGEL, PREDICTIVE ANALYTICS 26 (2013); Toon Calders & Indrė Žliobaitė, *Why Unbiased Computational Processes Can Lead to Discriminative Decision Procedures*, in DISCRIMINATION AND PRIVACY IN THE INFORMATION SOCIETY, *supra* note 37, at 43, 45-46; Tom Davenport, *A Predictive Analytics Primer*, HARV. BUS. REV. (Sept. 2, 2014), <https://hbr.org/2014/09/a-predictive-analytics-primer>.

²⁴¹ See SIEGEL, *supra* note 240, at 30-32; Calders & Žliobaitė, *supra* note 240, at 46; Davenport, *supra* note 240.

²⁴² See Calders & Žliobaitė, *supra* note 240, at 51-53.

²⁴³ *Id.* at 50-53.

²⁴⁴ *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, Sept. 2007), *available at*

In addition to problems within the data, the choices about what and how to analyze can disparately impact groups. The analyst must decide what data the model should observe to look for patterns, and that depends on what data is available for the right cost. The data that is 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.²⁴⁵ 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.²⁴⁶ Finally, there may be little way to take into account the kind of emotional labor that is often crucial to workplace functioning (customer service, emotion management, work wives) that is often invisible.²⁴⁷ 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.²⁴⁸ 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. For example humans would observe characteristics for

http://opim.wharton.upenn.edu/risk/library/WP2007-09-11_DP_JS.pdf.

²⁴⁵ See Calders & Žliobaitė, *supra* note 240, at 47; Barocas & Selbst, *supra* note 233, at [18-22] (labeling this a problem of feature selection and proxies).

²⁴⁶ See Barocas & Selbst, *supra* note 233, at [21-22].

²⁴⁷ See generally ARLIE HOCHSCHILD, *THE MANAGED HEART* (2012) (updated ed. 2012) (defining emotional labor and noting the sex disparity in holders of jobs that require substantial emotional labor).

²⁴⁸ See Calders & Žliobaitė, *supra* note 240, at 43; Bart Schermer, *Risks of Profiling and the Limits of Data Protection Law*, in *DISCRIMINATION AND PRIVACY IN THE INFORMATION SOCIETY*, *supra* note 37, at 137.

empirical statistical research. But profiling through data mining may raise new and more serious problems because of scale.²⁴⁹ Profiling contains risks, in large part because classification and division is literally discrimination.²⁵⁰ 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.²⁵¹ In fact, profiling can create new stereotypes on which people are judged.²⁵²

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 be incorrectly labeled in the past if the past label itself incorporates discrimination, or it may have changed over time as employer expectations changed.²⁵³ 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 could be inconsistent.²⁵⁴

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 own past employees, although the employer may gather data from outside the workplace in addition to inside it, as in the Andrea hypothetical. The quality of the data will vary widely, and some, like data based on performance reviews, might seem objective, but actually be 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 labelling. For example, perhaps an analysis of productivity could be objective, depending on how productivity is measured, but the relationship of productivity to employer

²⁴⁹ Custers, *supra* note 37.

²⁵⁰ Boracas & Selbst, *supra* note 233, at [6].

²⁵¹ Schermer, *supra* note 248, at 137.

²⁵² *See id.*

²⁵³ *See* Calders & Žliobaitė, *supra* note 240, at 49-51.

²⁵⁴ *Id.* at 48; Barocas & Selbst, *supra* note 233, at [11-12].

profitability might be much more difficult to measure.

Data use for this purpose also seems to risk rewarding or shaping employee behavior in ways that penalize men of color and women of all colors. Diverse employees often feel pressure to mute some aspect of their identity to fit into their workplace culture.²⁵⁵ And data analytics is especially focused on intangibles like employee engagement and culture measurement and management.²⁵⁶ 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.²⁵⁷

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.²⁵⁸ Consider Professor Rebecca Lee's description of approaches to diversity in

²⁵⁵ Kenji Yoshino & Christie Smith, *Fear of Being Different Stifles Talent*, HARV. BUS. REV., Mar. 2014, at 28, 28.

²⁵⁶ See JOSH BERSIN, HR TECHNOLOGY FOR 2016: 10 BIG DISRUPTIONS ON THE HORIZON 1 (2016) ("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/#aafbcdb50c48>.

²⁵⁷ BERSIN, *supra* note 256, at 1-2.

²⁵⁸ See Nancy Leong & Aaron Belzer, *The New Public Accommodations*, 105 GEORGETOWN L.J. ___ (forthcoming 2017) (discussing how rating systems aggregate biases and shape the behavior of users); Jodi Kantor & David Streitfield, *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> (describing how the competitive model at Amazon which eliminates lower level performers regularly based on internal feedback contributes to a gender gap there).

her article, *Core Diversity*.²⁵⁹ She identified the most 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. Given these approaches, most organizations' search for a model for employees to emulate could exacerbate the tendency towards surface or marginal diversity.

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

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 market remains fairly segregated on the basis of race and sex.²⁶⁰ The gaps in the workplace help perpetuate income and wealth gaps in society, as well.²⁶¹ The reasons for these remaining gaps are not

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

²⁶⁰ 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 (2011); 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).

²⁶¹ See MARIKO LIN CHANG, *SHORTCHANGED: WHY WOMEN HAVE LESS WEALTH AND WHAT CAN BE DONE ABOUT IT* 20, 35-36 (2010) (documenting the

clear, and not everyone believes that discrimination, at least overt, explicit prejudice, is to blame any longer.²⁶² Because this

wealth gap between women and men and exploring the causes); JODY FEDER & LINDA LEVINE, CONG. RESEARCH SERV., PAY EQUITY LEGISLATION 1 (2010), *available at*

http://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1768&context=key_workplace (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), *available at* http://www.pewsocialtrends.org/files/2011/07/SDTWealth-Report_7-26-11_FINAL.pdf (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.”).

²⁶² 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); Sarah Ketterer, *The Wage Gap Myth that Won't Die*, WALL ST. J. (Sept. 30, 2015, 7:06 PM ET), <http://www.wsj.com/articles/the-wage-gap-myth-that-wont-die-1443654408>. 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); Damon Rittenhouse, *Where Title VII Stops: Exploring Subtle Race Discrimination in the Workplace*, 7 DEPAUL J. FOR SOC. JUST. 87 (2013); Susan Sturm, *Second Generation Employment Discrimination: A Structural Approach*, 101 COLUM. L. REV. 458, 469-89 (2001). *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); Michael Selmi, *Subtle Discrimination: A Matter of Perspective Rather than Intent*, 34 COLUM. HUM. RTS. L. REV. 657 (2003).

Some say that the theoretical model of discrimination embodied in the law and by judges does not match the psychology of decisionmaking. Erik J. 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). Others say that the courts have interpreted the statutes too narrowly. Brian S. Clarke, *A Better Route Through the Swamp: Causal Coherence in Disparate Treatment Doctrine*, 65 RUTGERS L. REV. 723 (2013); Lynda L. Arakawa & Michele Park Sonen, Note, *Caught in the Backdraft: The*

formal system is not enough by itself to eradicate inequality, the laws depend to a large extent on voluntary compliance.²⁶³ 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 used to use protected classes as proxies for ability in particular fields until federal law prohibited that.²⁶⁴ Employers still may feel 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 sometimes violate the law.²⁶⁵ Thus, once explicit consideration of race and sex was prohibited, employers shifted to other proxies

Implications of Ricci v. DeStefano on Voluntary Compliance and Title VII, 32 U. HAW. L. REV. 463 (2010); Allison Cimpl-Wiemer, Comment, *Ledbetter v. Goodyear: Letting the Air Out of the Continuing Violations Doctrine?*, 92 MARQ. L. REV. 355 (2008). And some say that judges are hostile to employees. *E.g.*, Nancy Gertner, *Loser's Rules*, 122 YALE L.J. ONLINE 109 (2012), <http://www.yalelawjournal.org/forum/losers-rules>.

²⁶³ See Marcia L. McCormick, *The Truth is Out There*, 30 BERKELEY J. EMP. & LAB. L. 193 (2009).

²⁶⁴ *E.g.* *Hazen Paper Co. v. Biggins*, 507 U.S. 604 (1993) (explaining that the goal of the ADEA was to prohibit discrimination not based on animus, but on stereotypes of older people as less productive); *Los Angeles 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); see *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).

²⁶⁵ See, *e.g.*, *Ricci v. DeStefano*, 557 U.S. 557 (2009) (decision to ensure black and Hispanic applicants for promotion were not disadvantaged was disparate treatment of white applicants); *United Auto. Workers v. Johnson Controls*, 499 U.S. 187 (1991) (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 of Am. v. Weber*, 443 U.S. 193 (1979) (holding that race-based affirmative action was not discrimination under Title VII as long as the plan didn't unfairly trammel the rights of white employees or applicants).

for abilities, but those proxies were not always good predictors, nor could they necessarily satisfy the law.²⁶⁶ The use of credentials or ability tests was an attractive alternative to looser proxies for ability, and that is where disparate impact doctrines further shape employer attraction to data analytics. The use of credentials and standardized ability tests tended to have disparate effects on historically underrepresented groups. 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.²⁶⁷ An employer can use a credential or test that disparately affects a protected group if the credential or test predicts success in the position it is used for.²⁶⁸ For professionally developed tests, the test must be valid for its use; it must accurately measure or predict what it's supposed to measure or predict.²⁶⁹ In addition, an employer must first do an analysis of

²⁶⁶ *Dothard v. Rawlinson*, 433 U.S. 321, 329-32 (1977) (rejecting height and weight requirements that screened out a much larger proportion of women than men because such requirements were better assessed directly through strength testing.)

²⁶⁷ See 42 U.S.C. §§ 2000e-2(h), (k) (2012); 29 C.F.R. pt. 1607 (2015); *Albemarle Paper Co. v. Moody*, 422 U.S. 405 (1976); *Griggs*, 401 U.S. at 424.

²⁶⁸ *Griggs*, 401 U.S. at 431, 436.

²⁶⁹ *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 tests 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. . . .

the job in question to decide what skills or attributes a person needs.²⁷⁰ But if that has been done, evidence that the test was carefully designed may satisfy the need to demonstrate its validity.²⁷¹

The data analytics process may frequently meet this test by virtue of its use of mathematical analysis. Because the whole point of the process is to find interesting correlations between a desired characteristic and attributes of an individual that can help predict which individuals will have the desired characteristic, the analytic process could be viewed as meeting the courts' validity tests—at least insofar as linking the test with the characteristic is concerned. 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 protecting its processes from litigation.

2. *Applying the Doctrines to Solve the Problems*

That legal doctrines help create the demand for people analytics shows the inadequacy of those doctrines 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.²⁷² 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 difficult to remedy.

The difficulty with disparate treatment doctrine is that motive is a state of mind, not always externally verifiable.²⁷³ So

Id. § 1607.5(B).

²⁷⁰ *Albemarle Paper Co.*, 422 U.S. at 429-36; *Griggs*, 401 U.S. at 431.

²⁷¹ 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).

²⁷² Barocas & Selbst, *supra* note 233.

²⁷³ *Troupe v. May Dep't Stores, Inc.*, 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

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.²⁷⁴

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.²⁷⁵ 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.²⁷⁶ Barocas and Selbst argue that the analytics process itself may reveal new and previously unknown correlations between sensitive attributes and neutral attributes, helping employers figure out what neutral attributes to target as a way to target sensitive attributes, enabling masking more easily.²⁷⁷ Finally, to the extent that machine learning may be a part of that process, disparate treatment may be impossible to prove. Decisions can be attributed to algorithms developed over time by the analytics process itself rather than by human design. This kind of discrimination sounds more like disparate impact discrimination.²⁷⁸

Scale and process here are especially important. 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 not be causal or may be causal but analysts may lack information about that cause.²⁷⁹ Profiles based on statistical relationships that are not causal can create problems like masking. And data mining allows trivial information to be linked often

reading not an accepted tool of judicial inquiry, it may be the only truly direct evidence of intent that will ever be available”).

²⁷⁴ See *Hazen Paper Co. v. Biggins*, 507 U.S. 604 (1993).

²⁷⁵ See *McDonnell Douglas v. Green*, 411 U.S. 792 (1973).

²⁷⁶ Calders & Žliobaitė, *supra* note 240.

²⁷⁷ Barocas & Selbst, *supra* note 233, at [23], [43-45].

²⁷⁸ *Id.* at [29-30].

²⁷⁹ Calders & Žliobaitė, *supra* note 240.

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.²⁸⁰

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.²⁸¹ 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.²⁸²

Up to this point, the problems described were generally 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 results used for evaluating those individuals.²⁸³ 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.²⁸⁴

Consider Uber. Uber's platform operates in part on a rating

²⁸⁰ Custers, *supra* note 37.

²⁸¹ Barocas & Selbst, *supra* note 233, at [37-38].

²⁸² *Id.* at [37-43].

²⁸³ 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*, VOX (Oct. 28, 2015, 11:00 AM), <http://www.theverge.com/2015/10/28/9625968/rating-system-on-demand-economy-uber-olive-garden>.

²⁸⁴ See Citron & Pasquale, *supra* note 283, at 5; *Racial Profiling via Nextdoor.com*, EAST BAY EXPRESS (Oct. 7, 2015), <http://www.eastbayexpress.com/oakland/racial-profiling-via-nextdoorcom/Content?oid=4526919>. 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).

system where customers rate drivers on a 5-point scale.²⁸⁵ Uber makes decisions about drivers based on these ratings: drivers will be deactivated—unable to drive for Uber—when their ratings fall below 4.6.²⁸⁶ 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. Similar trends in the effects of customer biases have been shown for other customer-driven processes like Airbnb,²⁸⁷ Ebay,²⁸⁸ and even tipping in the plain old traditional economy.²⁸⁹

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,²⁹⁰ and psychological tests, even those labeled personality tests, can cross the line into medical tests. 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.²⁹¹ 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 which might allow employers to make assumptions about the person's abilities.

To understand the ADA's application to personality tests,

²⁸⁵ Dzieza, *supra* note 283.

²⁸⁶ *Id.*

²⁸⁷ Benjamin Edelman et al., *Racial Discrimination in the Sharing Economy: Evidence from a Field Experiment* (unpublished Harvard Business School working paper 2015), <http://www.benedelman.org/publications/airbnb-guest-discrimination-2016-01-06.pdf>.

²⁸⁸ Ian Ayres et al., *Race Effects on Ebay*, 46 RAND J. OF ECON. 891 (2015).

²⁸⁹ Ian Ayres et al., *To Insure Prejudice: Racial Disparities in Taxicab Tipping*, 114 YALE L.J. 1613 (2005).

²⁹⁰ 42 U.S.C. § 12112(d) (2012).

²⁹¹ *Id.* §§ 12112(d)(3), (4). The results also must be kept in separate files and treated as confidential like any other medical information.

consider not only the challenge to the Minnesota Multi-Phasic Personality Inventory in *Karraker v. Rent-A-Center, Inc.*,²⁹² discussed above, but also the EEOC's actions in *Equal Employment Opportunity Commission v. Kronos*.²⁹³ Vicky Sandy had filed a charge of disability discrimination against Kroger Food Stores alleging she was not hired because of her hearing/speech impairment. 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.²⁹⁴

The test materials suggested follow-up questions to ask candidates including: "describe the hardest time you've had understanding what someone was talking about."²⁹⁵ 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/eye contact.²⁹⁶ 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."²⁹⁷ Kroger admitted that it relied at least in part on the test results in its hiring decision,²⁹⁸ 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.²⁹⁹ The case seems to have been dropped, we assume as a result of a conciliation agreement.

The ADA is not the only statute limiting data that can be gathered. The methods of gathering data and use of non-

²⁹² 411 F.3d 831, 832 (7th Cir. 2005).

²⁹³ No. 09mc0079, 2011 WL 1085677, at *1, *2 (W.D. Pa. Mar. 21, 2011).

²⁹⁴ *Id.*

²⁹⁵ *Equal Emp't Opportunity Comm'n v. Kronos Inc.*, No. 09-3219, 2010 WL 10838063, at *1, *2 (3d Cir. Sept. 7, 2010).

²⁹⁶ *Id.*

²⁹⁷ *Equal Emp't Opportunity Comm'n*, 2011 WL 1085677, at *3.

²⁹⁸ *Equal Emp't Opportunity Comm'n*, 2010 WL 10838063, at *2.

²⁹⁹ *Equal Emp't Opportunity Comm'n*, 2011 WL 1085677, at *3.

traditional data sources like data about familial relationships or ancestry may reveal genetic information about a person. The Genetic Information Non-Disclosure Act 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.”³⁰⁰ The Act further restricts employers from requesting, requiring, or purchasing this kind of information.³⁰¹ There is an exception for information on family medical history when an employer purchases “documents that are commercially and publicly available,”³⁰² 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 don’t seem to fit the description of these sources: “newspapers, magazines, periodicals, and books, but not including medical databases or court records.”³⁰³ Moreover, the EEOC’s regulations are more specific that purchasing this kind of data would violate GINA.³⁰⁴

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.³⁰⁵ This gap would allow the kind of information described in the Andrea 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

³⁰⁰ 42 U.S.C. § 2000ff(4)(A) (2012).

³⁰¹ *Id.* § 2000ff-1(b).

³⁰² *Id.* § 2000ff-1(b)(4).

³⁰³ *Id.*

³⁰⁴ 29 C.F.R. § 1635.8(b)(4) (2015).

³⁰⁵ 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), 1177 (2012).

the risk that employers will use analytics without the care required. The apparent objectivity and 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 more securely, people analytics can present a positive force toward greater equality.³⁰⁶ 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 for and job performance.³⁰⁷ New laws could limit access to some kinds of data the way that the ADA and GINA currently do.³⁰⁸ 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.³⁰⁹ With these considerations in mind, we turn to examine the ethics and values that are important in the further development of people analytics.

³⁰⁶ FED. TRADE COMM'N, *BIG DATA 25-32* (2016) (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), *available at* <https://www.ftc.gov/system/files/documents/reports/big-data-tool-inclusion-or-exclusion-understanding-issues/160106big-data-rpt.pdf>.

³⁰⁷ 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 37, 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 233, at 278-86 (explaining how the EU's Data Protection Directive may set principles for quality, processing, and use of data); Zarsky, *supra* note 231.

³⁰⁸ See Custers et al., *supra* note 222, at 343-44.

³⁰⁹ See Sara Hajian & Josep Domingo-Ferrer, *Direct and Indirect Discrimination Prevention Methods*, in *DISCRIMINATION AND PRIVACY IN THE INFORMATION SOCIETY*, *supra* note 37, at 241; Faisal Kamiran et al., *Techniques for Discrimination-Free Predictive Models*, in *DISCRIMINATION AND PRIVACY IN THE INFORMATION SOCIETY*, *supra* note 37, at 223; Sicco Verwer & Toon Calders, *Introducing Positive Discrimination in Predictive Models*, in *DISCRIMINATION AND PRIVACY IN THE INFORMATION SOCIETY*, *supra* note 37, at 255.

PART V. ETHICS AND VALUES IN PEOPLE ANALYTICS

While the previous sections have described people analytics and the surrounding privacy and discrimination 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 section we wish to tie together various themes present throughout the paper 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 include the values of transparency, disclosure, and autonomy.

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

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.³¹⁰ One of the critical justifications for unionization has been the opportunity for workers to participate in the life of the business.³¹¹ Companies today use a variety of tools to provide

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

³¹¹ See Kenneth G. Dau-Schmidt & Arthur R. Traynor, *Regulating Unions and Collective Bargaining*, in LABOR AND EMPLOYMENT LAW AND ECONOMICS

their employees with input into the workplace. Toyota, as one of many employee-centered management practices, famously allows any worker to stop the assembly line when she notices an issue.³¹² At Google, employee voice is one of the cornerstones of Google culture.³¹³ Greater voice is perhaps the most important change that employees desire in their current jobs.³¹⁴

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.³¹⁵ And employees can also provide valuable input on core business issues.³¹⁶ With people analytics, workers could help craft the metrics by which assessment is measured.³¹⁷

96, 109 (Kenneth G. Dau-Schmidt et al. eds., 2009) (collective bargaining helps employees to feel more useful and engaged and has been linked to productivity gains, including lower turnover, search, and retraining costs).

³¹² 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).

³¹³ BOCK, *supra* note 55, at 46 (“Voice is the third cornerstone of Google’s culture. Voice means giving employees a real say in how the company is run.”)

³¹⁴ 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.”)

³¹⁵ *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 . . .”).

³¹⁶ 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).

³¹⁷ In *Moneyball*, even though baseball had a plethora of statistics dating

At the same time, employees value voice for its own sake. The research on employee voice dovetails with other research on procedural justice, which notes that individuals value participation and input independently of any impact on distributive concerns.³¹⁸ 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.³¹⁹ As a result, there can be a feedback loop when it comes to employee voice: the noninstrumental satisfaction that employees derive from voice can lead to greater instrumental gains from such participation.³²⁰

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.³²¹ Applicant perceptions of fairness matter because they affect self-esteem and the motivation to continue

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.

³¹⁸ 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).

³¹⁹ *Id.* at 92-96 & tbls. 8-1, 8-2 & 8-3.

³²⁰ 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").

³²¹ 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).

pursuing employment.³²² 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.³²³ 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 reactions are mostly positive.³²⁴

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.³²⁵ The candidates noted that over 36% 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. 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. These questions seemed more invasive and less relevant to job performance.³²⁶

Among already existing employees, one of the authors performed original research to determine employee perception of data analytics in the workplace.³²⁷ The preliminary findings indicate that employees perceive people analytics differently depending on the motive that management has for adopting the new procedures. Interestingly, employee perceptions also are related to the ways in which employees become informed about data collection in the workplace. This research has important implications, suggesting that employee voice should be a

³²² Chamorro-Premuzic & Steinmetz, *supra* note 134, at 43.

³²³ Rosse et al., *supra* note 321, at 987.

³²⁴ *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. 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. Nonetheless, with the correct non-invasive test design, overall reactions were positive.

³²⁵ Wayne J. Camara, *Using Personality Tests in Preemployment Screening: Issues Raised in Soroka v. Dayton Hudson*, 6 PSYCH. PUB. POL. 1164, 1171 (2000).

³²⁶ *Id.*

³²⁷ Jintong Tang, *Hoping to Look Far with Human Resource Analytics but Missing the Obvious?* (unpublished manuscript) (on file with authors).

consideration in adopting people analytics.

The starting point for the author's study was the hypothesis that employee attributions of organizational 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.³²⁸ 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.³²⁹ In particular, if employees found out about HR analytics practices through their co-workers (rather than from HR newsletters or supervisors), the author assumed that it would negatively affect their organizational commitment.³³⁰

In order 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,³³¹ the author captured whether employees first found

³²⁸ *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).

³²⁹ David 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).

³³⁰ Tang, *supra* note 327; 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).

³³¹ Rebecca R. Kehoe & Patrick M. Wright, *The Impact of High-*

out about HR analytics efforts in their organization through coworkers or through other means.³³²

Overall, the preliminary results suggest several conclusions, 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.³³³

Further, when employees are concerned with how the organization handles their private information and consider the organizational information privacy practices to be less legitimate,³³⁴ such concerns also translate into lower commitment to the organization. Likewise, employees viewed HR analytics more negatively if they found 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.³³⁵

Despite the exploratory nature of these data these 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 has shown, managers who implement people

Performance Human Resource Practices on Employees' Attitudes and Behaviors, 39 J. MGMT. 366 (2013).

³³² Tang, *supra* note 327.

³³³ *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.

³³⁴ 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).

³³⁵ WABER, *supra* note 8.

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 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.³³⁶ 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 were only guessing. 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

³³⁶ 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 (1913).

they were, in fact, having skills tested for a job.

For both gamification³³⁷ and crowdsourcing,³³⁸ one of the authors 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 user.³³⁹ 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 analytic 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,”

³³⁷ Cherry, *supra* note 63, at [].

³³⁸ Miriam A. Cherry & Winifred Poster, *Corporate Social Responsibility and the Ethics of Crowdwork*, in HANDBOOK OF RESEARCH ON DIGITAL TRANSFORMATIONS (F. Xavier Olleros et al. eds., forthcoming 2016).

³³⁹ Cherry, *supra* note 63, at [].

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 that the data will be used to shape our preferences.³⁴⁰ While their article references the benign example of Netflix structuring preferences around recommended television shows or movies,³⁴¹ the issue is more serious when examined through the lens of employment.

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 their use of sensitive information.

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.³⁴² 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?”³⁴³ Within this context, courts and commentators have sharply disagreed over the policy ramifications of protecting that autonomy.³⁴⁴

³⁴⁰ Neil M. Richards & Jonathan King, *Three Paradoxes of Big Data*, 66 STAN. L. REV. ONLINE 41 (2013)

³⁴¹ *Id.* at 44.

³⁴² JOSEPH RAZ, *THE MORALITY OF FREEDOM* 369 (1986) (“The idea 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”).

³⁴³ 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.

³⁴⁴ *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

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.”³⁴⁵

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.³⁴⁶ 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.³⁴⁷

CONCLUSION

state”) *with* Lofaso, *supra* note 343, at 38-48 (arguing that collective rights and actions are necessary to provide workers with autonomy within the workplace).

³⁴⁵ 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.*

³⁴⁶ Duhigg, *supra* note 58, 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).

³⁴⁷ 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. & POL'Y 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.”).

Some commentators have labeled people analytics as a strategic necessity, and we anticipate seeing continued growth in the field of predictive analytics applied to work.³⁴⁸ 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, 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 in the forefront of the regulatory discussion.

³⁴⁸ 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).