MaCuDE
Management Curriculum for the Digital Era

Management and Human Resources Management Task Force

Phase III Report of the MaCuDE project[1]

Digitizing HRM

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Phase 3 Report on Digitizing HRM

Digitalization has come to Human Resources Management. Digital capabilities have infused many, if not all, of HRM's functions in leading companies, from recruitment and selection to employee relations to training and development. University education in HRM has not kept pace. As a result, we are sending new graduates into the corporate world without the skills to contribute effectively to standard areas of HRM activity. Relying primarily on a series of tables, this report is meant to suggest steps to redress this imbalance.

Table 1 identifies the skills needed by graduates with HRM majors at the undergraduate and MBA levels and with specialized master's degrees in HRM, with the types and levels of digital skills and knowledge needed. A new bachelor's graduate likely holds an entry-level, operational analyst position that requires proficiency in software such as Excel and the company's HR information system, as well as basic statistics. One focus is on skills at administering digital learning systems and recruitment and selection software, including learning apps and platforms, employee self-service portals, and an understanding of how bots operate. An alternative, parallel focus covers online performance evaluation systems and basic analytics applied to compensation patterns. New bachelor's graduates need meta-skills related to problem-solving and communication.

At the master's level, the new graduate likely enters into a senior analyst or managerial position overseeing HR analysts in the areas of performance management and compensation or talent acquisition and learning and development. The requirements include knowledge of how to conduct in-depth analytics on HR data, create visual representations, and potentially use machine learning and artificial intelligence to improve HR service delivery. Increasingly, they may involve remote modes of management related to virtual teams, self-paced learning management modules, and the beginnings of virtual reality as a training tool. These graduates need to be able to manage teams effectively, whether in person or remotely, and to build trust among their employees and across functional lines with the operational areas they serve.

The MBA graduate, presumably older and with more work experience, begins to assume a more strategic role that considers HR issues within the context of the larger organization. The focus is on using predictive analytics to turn analytical insights into projections for the future, taking advantage of the capabilities offered by the cloud, and understanding how to apply machine learning and artificial intelligence within an HR framework. The position calls for a digital mindset rather than simply knowledge of a disparate set of digital tools. Business acumen is an important meta-skill, as is the ability to think critically and to deal effectively with problems from a business rather than HR perspective, relying on more finely honed emotional intelligence.

The remainder of the tables are intended to work back from the skills required at work to the question of how university HRM programs, majors, and courses can provide them. Tables 2 presents a topical outline for an undergraduate major in HR that highlights the digital skills that can be incorporated into each course, while Table 3 does the same for a specialized master's degree. An MBA specializing in HR will take courses primarily from the MS and present them with a more strategic emphasis. Since most business students will only encounter HR material in an introductory course, if that, Table 4 lists HR functional areas typically covered in an Intro to HRM courses along with digital applications for each. Finally, with much emphasis currently placed on using quantitative analytic skills to aid HR decision making, Table 5 outlines the parameters of an HR analytics course and Appendices 1 and 2 show examples of two syllabi for the course.

In summary, digital skills are now required to function successfully in virtually all HR positions. With the premise that university education in HRM has not kept up, this document has described the necessary skills and identified the places in HR curricula where they can be conveyed most logically and effectively.

Table 1: Role-Based Skills for HR Graduates

Domain: HR				
Education Level & Role/Function	Degree Requirement	Bachelor's	Master's	MBA
	Role	HR Specialist/ Generalist	HR Manager/Director	Human Capital Strategist
	Role Description	An entry-level position that requires tactical operation of HR functions	An middle-level role that oversees HR functional activities and the	A strategic role that manages the HR department to focus on company workforce issues to achieve organizational long- and short-term goals
Skills for Digital Era Themes	Data Analytics and Machine Learning	• HRIS • Excel • Basic statistics	• Benchmarking • Big data analysis • Data visualization tools	• Cloud-based people analytics • Predictive analytics
	Programming	• Employee self-service portals • Mobile learning apps	• Programming for HR data	• Programming for people analytics
	Algorithms & Artificial Intelligence		• Fundamentals of artificial intelligence	• Advanced understanding of artificial intelligence applications
	Emerging Digital Technologies	• Online learning platforms • Bots	• Virtual communication mediums • Virtual reality basics	• Cloud-based people analytics • Predictive analytics
	Managing Digital Organizations		• Performance management • Talent development	• Strategic decision-making • Digital mindset
Meta Skills and Domains	Domain-Specific Skills influenced by Digital Technology	• Digital learning • Talent acquisition	• Workforce analytics • Managing remote work arrangements	• Business acumen • HR planning
	Domain-Independent Meta-Skills	• Problem-solving • Effective communication	• Teamwork • Building trust	• Critical thinking • Interpersonal influence

Table 2. Digitization of Undergraduate HRM Courses

1) **Introduction to HRM**

This course provides an overview of the field of Human Resources Management, including a historical perspective on HR, strategies for designing HR activities, and the roles and responsibilities of HR professionals.

Digital applications:

a) HRIS
b) Employee self-service portals
c) HR dashboards
d) HR metrics and analytics

2) **Compensation and Benefits**

An in-depth exploration of various compensation and benefits systems to include compensation strategy, policy formulation, internal/external equity issues, and legal requirements related to this topic. Students will become familiar with job analysis and evaluation, salary surveys and benefit analysis. In-depth review of specific benefits such as health insurance, retirement plans, work-life balance tools and employee wellness will also be addressed.

Digital applications:

a) Statistical analyses of compensation data
b) EXCEL applications
c) Pay equity analysis
d) Data visualization tools

3) **Employee Staffing**

The course will apply the principles of assessment to the staffing process covering recruitment and selection. It will address different types of tests/inventories for evaluating job applicants, assessment measures for employee selection, test fairness, test construction, and employee opinion surveying. Effective recruitment strategies, both internal and external, will be covered as well.

Digital applications:

a) Recruiting heat maps
b) Online recruitment tools
c) Algorithmic hiring systems
d) Reliability and validity analysis of selection devices

4) **Performance Management**

Performance management is the process of aligning employee activities and outputs to meet an organization's goals in an effective and efficient manner. It includes an ongoing process of communication between a manager and an employee throughout the year. The communication process includes clarifying expectations, setting objectives, identifying goals, providing feedback, and reviewing results.

Digital applications:

a) Online employee tracking tools
b) Performance metrics
c) Virtual coaching options
d) Balanced scorecard

5) **Employee Training & Development**

An in-depth exploration into the training process to include needs assessment, design, implementation, and evaluation. This course will integrate theoretical and applied principles of adult learning. Participants will utilize diverse training methodologies, case studies, role plays, and simulations to develop their own competencies as trainers.

Digital applications:

a) Mobile learning apps
b) Online learning platforms
c) Virtual communication tools
d) Training evaluation analyses

6) **Employment & Labor Law**

Legal issues which impact various human resource functions will be covered, including equal employment requirements in recruitment, selection, compensation, and performance evaluation. Organizational policies that comply with federal and state statutes will be reviewed and analyzed for union and non-union settings.

Digital applications:

a) Adverse impact analysis
b) Selection validation
c) Online legal research tools

Table 3. Digitization of MS in HRM Courses

1) **Strategic Human Resource Management**
   Employers are searching for ways in which to integrate different HR practices with each other and with other aspects of their business and develop employees as a source of competitive advantage. This course addresses the choices that are critical and central to a growing organization and the role that HRM plays in the decision-making process. As our local and global environments grow more complex, organizations are faced with a myriad of strategic choices, and many of those choices are the responsibility of the HR leader. The quality of these strategic decisions will impact the success of any business.

   Digital implications:
   a) Big data
   b) HR metrics
   c) Blockchain
   d) Data visualization

2) **Global Human Resource Management**
   Explores the trends in workforce globalization and their implications for effective human resources management. Topics include intercultural competencies, cultural adaptation, global mobility, and a comparative examination of human resource policies and practices in major global markets. Students explore the skills and knowledge required to manage talent in multinational organizations.

   Digital implications:
   a) Worldwide communication tools (e.g., Zoom, MS Teams)
   b) Integrating networks and software
   c) Research tools
   d) Blockchain

3) **Employment Law and Ethics**
   Examines the legal and ethical relationship between employer and employee. Students will explore topics such as discrimination, affirmative action, the Americans with Disabilities Act, sexual harassment, health and safety, compliance issues, and legal issues related to downsizing and terminations. HR managers work in a highly complex environment with constantly changing laws and legislation that govern employee rights and employer obligations. Moreover, the ethical implications of employment decisions related to the above-mentioned topics will be addressed. This course is intended to encourage ethical and legal behavior in all employment-related activities.

   Digital implications:
   a) Selection validation
   b) Employee tracking software
   c) Affirmative action utilization

4) **Talent Acquisition and Onboarding**
   Underscores the importance of linking recruitment goals with overall company strategy. Finding and hiring the right people is often cited as the number one concern of businesses. Topics include approaches to job design, market analysis, recruiting and selecting employees, leveraging social media, and hiring analytics to ensure better-quality hires, and effective onboarding practices.

   Digital implications:
   a) Learning management systems
   b) Algorithmic hiring programs

c) Social media tools
d) Self-service employee portals

5) Performance Management and Leadership Development

The course will address design and implementation of effective and successful performance management systems, measuring and developing the performance of individuals and groups and aligning performance with an organization's strategic objectives. A particular focus will be on cultivating leadership roles throughout an organization. Succession planning and career development initiatives will be presented.

Digital implications:

a) Workforce analytics
b) Digital learning tools (e.g., Bots)
c) Career planning systems
d) Performance evaluation platforms

6) Industrial and Employee Relations

An in-depth examination of human resource management in the context of union-management relations. Emphasis is on understanding how and why unions form, the legal context, and changing competitive environment for labor management relations. Covers the dynamics of the collective bargaining process, including the determinants of bargaining power, preparation of labor contract demands, and negotiation tactics. Further, the impact of union activities on the relationship between the employees and their employer will be covered as well as the impact of unionization of employee productivity, job satisfaction and organizational commitment.

Digital implications:

a) Survey creation and analysis tools

7) Total Rewards

This course will focus on the tangible and intangible aspects of compensation. Using the lens of a total reward philosophy, this course will examine how an organization attracts, motivates, and retains employees. While preparing students to build a fair and responsible compensation system, this course examines the underlying elements of alignment with an organization's strategy and business model, internal and external competitiveness, and benefits. The relevant psychological and economic theories will be discussed as well.

Digital implications:

a) Statistical analyses
b) Data visualization
c) Benchmarking

8) Human Resource Analytics

This course focuses on the linkage between human resources and the organization's financial plan. The processes of analyzing, benchmarking, controlling, and measuring the effectiveness of human resource programs will be discussed. The application of research design and measurement theory to develop meaningful HRM metrics will be emphasized. The students will learn how to report findings in a practical and influential manner. They will also learn how to use statistical software to analyze their data and draw meaningful conclusions.

Digital implications:

a) People analytics
b) Artificial intelligence
c) Big data
d) Automation

Table 4. Incorporating Digital Topics into an Introduction to HR Course

HR Functional Areas	Digital Applications
Job Analysis and Design	Remote and hybrid work arrangements Monitoring employee performance remotely
HR Planning	Employee flow data (Markov analysis) Trend analysis for HR demand
Recruitment	Online recruitment tools Recruiting heat maps
Selection	Resume scanning software Adverse impact analysis Criterion-related validity analysis Algorithmic hiring
Performance Management	Performance appraisal approaches Key performance indices Monitoring employee performance remotely
Training and Development	Mobile learning apps Online learning Learning management systems
Compensation and Benefits	Benchmarking market data Creating pay ranges Self-service benefit systems
Employee Safety and Health	Absenteeism rates Accident and injury data
Employee Relations	Employee opinion surveys Diversity, equity, and inclusion metrics Turnover rates Employee self-service portals
HR Strategy	Human Resource Information Systems Virtual communication tools

Table 5. HR Analytics Syllabus Review (aka People or Workforce Analytics)

Text: Most common book listed:

"The ROI of Human Capital" (2009) by Jac Fitz-Enz (ISBN: 0814436730)

Others: "Human Resource Management: People, Data & Analytics" (2019) by Talya Bauer, Berrin Erdogan, David Caughlin, & Donald Truxillo (ISBN: 9781506363127)

"The Practical Guide to HR Analytics: Using Data to Inform, Transform, and Empower HR Decisions" (2018) by Shonna D. Waters, Valerie Streets, Lindsay McFarlane and Rachael Johnson-Murray (ISBN: 978-1586445324)

"Predictive HR Analytics: Mastering the HR Metric" (2019, 2nd Ed.) by Martin & Kirsten Edwards (ISBN: 978-0749484446)

Software: Most commonly used: Excel; Others: SPSS & R

Course Competencies:

Most common: "Know how to design surveys and collect data to generate meaningful evidence"

Others: "Apply data analytics methods to create models that inform HR decisions"

"Discuss the legal, ethical, and practical concerns regarding data analytics"

Major Assignment: Data analysis project(s)

Common Topics:

- HR strategy
- Human capital
- HRIS
- Developing research questions
- Survey design and delivery
- Data collection methods
- Data analysis (descriptive and inferential statistics)
- Data visualization
- Machine learning
- HR metrics / KPIs (e.g., turnover rates, absenteeism rates, selection ratios)
- Ethical and legal issues in HR research
- Diversity, equity, and inclusion analysis
- Return on investment (ROI) / Cost-benefit analysis
- Oral and written reporting of HR research
- Applying HR analytics to HR functions (e.g., recruiting, training, performance management)
- Selection validation

Appendix 1. Syllabus for a Course in People Analytics

MGMT 793X /OIDD 793X

Professor Matthew Bidwell
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This course examines the use of data to improve how people are managed within organizations. People really are most organizations' most important asset, providing the critical link in converting strategy and capital into value. Yet throughout most of our history, most organizations have relied on long-standing traditions, hear-say, political expedience, prejudice and gut instinct to make decisions about how those people should be managed. Recent years have seen a growing movement to bring more science to how we manage people. In some cases, that means ensuring that whatever practices and approaches we adopt are backed up by solid evidence as to their effectiveness. Often, organizations will seek to go further, analyzing their own data to identify problems and learn what is working and what is not in their own context. This course applies the insights of the people analytics movement to help students become better managers and more critical analysts within their organizations.

The course aims to develop students in three specific ways. First, it will provide students with an up-to-the-minute grounding in current evidence about managing people, providing a knowledge base that can ensure that their future management is guided by best practices. Second, we will develop the skills and understanding necessary to be thoughtful, critical consumers of evidence on people management, allowing them to make the most of the analysis available to them as they make people decisions. Third, we will provide guidance and practice in conducting people analytics, preparing students to gather data of their own, and making them more skilled analysts.

We will pursue these goals through a mixture of lecture, case discussion, and hands on exploration of a variety of data sets.

Course Content

The course will cover a wide variety of topics related to effectively people, including:

- Selecting the right people for the job
- Measuring and managing performance
- Increasing engagement and reducing attrition
- Understanding and managing informal communication networks and culture
- Using analytics to improve diversity and access to opportunity within the workforce

In tackling each of these topics, we will discuss existing evidence on best practices. We will also examine how analytical techniques can be applied to understanding these questions within organizations. Specifically, for each are of application we will discuss:

- What kinds of data and measures can provide insight into people questions

- What analytical techniques are most appropriate for deriving valid insights
- Legal, ethical and practical concerns around the use of analytics

Although this is not primarily a statistics or coding class, we will cover appropriate statistical techniques for analyzing various kinds of people data. We will also discuss how to use R to implement these techniques.

Prerequisites

Students should have taken MGMT 610 and either MGMT 61 1 or MGMT 612 prior to taking this class (undergraduates who have taken MGMT 101 and MGMT 104 will also be admitted). It is also necessary to have a solid grasp of the concept of statistical significance.

We will also use the statistical package R to work through example analyses in class. I chose R because it is an open-source package (ie free to download and use) and the most commonly used package for statistical analysis in business. Students are not required to be proficient in R in order to take this class, nor will they be required to learn R. Nonetheless, I strongly encourage students to invest in learning a little about this package, both to get the most out of this class, and to set them up to perform analysis in their later career.

Course Outline

Session 1: Introduction to People Analytics

What is People Analytics? How can careful analysis improve the way that we manage people? What are organizations doing to make the best use of such analysis? And what will you need to know about that analytics in your job? In this session, we will introduce some ofthe core themes of the class, describing the uses of people analytics as well as some of the concerns.

Readings

- "Susan Cassidy" — HBS case
- Garvin (2013) "How Google Sold its Engineers on Management", Harvard Business Review . Questions e What surprises you about the findings of Google's Project Oxygen? Do you think that they could have reached the same conclusions in other ways?
  - Which candidate should Susan Cassidy choose and why? Is there more information that you would like to know if you were her?

Session 2: Hiring and Analytics, Part 1

Perhaps the single most common use of analytics in managing people is to optimize hiring, making sure that you are hiring the right employees for the right roles. In this first session on the topic, we will discuss the reasons why analytics is imponant in hiring and describe in detail the best practices for managing an evidence-based hiring process.

Readings:
Bock, Lazlo (2015) "Work Rules " Chapter 4.

Aaron Chalfin, Oren Danieli, Andrew Hillis, Zubin Jelveh, Michael Luca, Jens Ludwig and Sendhil Mullainathan (2016) "Productivity and Selection of Human Capital with Machine Learning." Ajnerican Economic Review: Papers and Proceedings 106(5): 124-127

Questions:

- How does the Google hiring process differ from the way that you were last hired?
    - What do you see as the strengths and weaknesses of how they hire people?

Session 3: Hiring and Analytics, Part 2

In this session, we get into the mechanics of using data to predict who to hire. We will discuss how to analyze the data to understand who performs best in the job. We will also discuss various possible problems that might be encountered in predicting who will perform best, and strategies for dealing with them. By the end of this session, you should feel more confident performing multi-variate analyses. You should also know what questions you need to ask of any data-based selection process in order to ensure that it is valid, legal and ethical.

Assignment I Due Before Class!
You will be provided with two datasets. The first dataset describes the characteristic and performance of a set of former and current employees. The second dataset provides characteristics of a set of applicants. Your assignment is to analyze the data and answer the following questions (your submission should be I 2 pages, single spaced):

I . Which three applicants would you recommend that the company hire?
2. What formula, algorithm or heuristic did you use to pick these three applicants, and how did you arrive at this approach?
3. What concerns or caveats do you have about your recommendations?

Session 4: Performance Assessment

Performance assessment is at the healt of any people management process. Not only does the assessment inform how we rewards people and assign people to jobs; it is also a vital input into any analysis that we might want to do to understand why people perform well and others perform poorly. At the same time, accurate performance assessment is surprisingly difficult in many roles. In this session, we will discuss various approaches to measuring performance to identify the best way to assess performance in a given role.

Readings:
e "Dovernet" HBS Case study
Optional:
e Cappelli & Conyon (2018) "What Do Performance Appraisals Do?" Industrial and Labor Relations Review

Questions

- What do you think of the performance management system at Dovernet? What are its strengths and weaknesses? What recommendations would you have for improving it?
- What should Kristina Chung do about Trent Raynor and Gwen Davidson?

Session 5: Guest Speaker Panel

In this session we will bring in a couple of speakers who use people analytics in their day to day work. We will talk to them about the kinds of work that are most valuable in delivering insights to change what people do, what they have learned from their experiences, and the biggest challenges that they have faced.

Session 6: Happiness and Engagement

How we manage people shapes how they feel about us, their job, our organization, their lives. Managing them effectively is therefore both important for organizational performance and for their own well-being. But what is

likely to improve our employees' emotional well-being? And how do we assess how they are feeling? These are questions that organizations invest substantial time and effort in addressing.

In this session, we will discuss the state of existing knowledge on what drives happiness and engagement in the workplace. We will then cover different techniques for tracking employee engagement. We will focus in particular on developing effective surveys to understand how employees are feeling.

Readings:

- Sigal Barsade and Donald Gibson (2007) "Why Does Affect Matter in Organizations?" Academy of Management Perspectives

Questions:

- Why should employers worry about how their employees feel?
- What can employers do to shape their employees' affect?
- How can an employer know what their employees are feeling?

Session 7: Attrition, Part I

Attrition is the reverse of hiring; just as organizations need to make sure that they are hiring the right people, so they also need to ensure that the right people stay with the organization. Managing attrition is therefore another major focus area of people analytics.

In this first session we will explore the implications of attrition for organizations, as well as discussing evidence on what drives people to leave companies

Readings:
Store 24 Case (HBS Case study)

Assignment 2: Due in Class Today!
Prepare a 2 page memo for Bob Gordon, answering his questions. In particular:

1. Is there a relationship between manager and crew tenure and store profitability?
2. Can you estimate how much more profitable stores are when they have one month longer crew tenure and one month longer manager tenure, on average?
3. How important is site tenure relative to site location in explaining store profitability?
4. Can you find any evidence that the value of increasing tenure is more important in stores that start off with very low levels of tenure? In other words, is there any evidence of a non-linear effect of tenure on financial performance?
5. The CEO wants to decide whether to prioritize raising manager tenure or crew tenure. What would you recommend?

Be clear about what you have concluded about the impact of turnover on performance and how you have derived your conclusion.

The data necessary to answer this question can be found on Canvas. Sample R progralns are also posted there.

Session 8: Attrition Part 2

In this session we will discuss how companies use analytics to better understand the drivers of turnover, and some of the ways that such analysis can help to improve how people are managed. We will also explore the use of "survival" models for better analyzing such time-dependent processes.

We will do an in-class exercise. Please bring your laptop!

Readings:
David Allen, Philip Bryant and James Vardaman (2010) "Retaining Talent: Replacing Misconceptions with Evidence-Based Strategies" Academy ofManagement Perspectives

Optional:
Paul Allison (2014) Event History and Sunival Analysis. Sage. Available online from the library at http://proxy.library.upenn.edu:2155/10.4135/9781452270029

Questions:
You are tasked by your CEO with figuring out how to reduce turnover in the organization.

- What kind of analysis might you conduct to figure out what to do?
- What data would you collect?
    - How would you analyze it? What particular challenges might turnover data create?

Session 9: What Works? Program Evaluation

Getting the most out of your people can involve substantial investments of time and money. But which of those investments are paying off? Without being able to assess the effectiveness of management practices, there is a risk that you spend too much on things that provide little return — or too little on things that really work.

In this session, we will explore the challenges of accurately assessing the benefits of any given practice. We will begin by reviewing what we know about the kinds of management practices that tend to create value. We will then go on to discuss different approaches to measuring the effects of practices, with the goal of understanding how best to understand what benefits workers and the organization.

Readings:
Martin Edwards and Kirsten Edwards (2016) Predictive HR Analytics: Mastering the HR Metric. Chapter 9: Case study 6. Monitoring the Impact of Interventions, pages 3 19-325

Questions:

- What do you see as the main challenges in finding out what works within organizations?
- If you were to design an experiment to test whether an intervention works, what should you bear in mind?

Session 10: Analyzing Social Networks Part 1

Work is fundamentally a collaborative exercise, as we combine efforts with our colleagues to build the business. Getting those collaborations right is therefore critical to organizational effectiveness. Social Network Analysis allows organizations to measure that collaboration as a prelude to identifying and addressing opportunities for improvement.

In this session we will study how network analysis is being used within organizations, covering the kinds of data that can be used to track collaboration within the organization and the kinds of problems that network analyses can be used to solve.

Readings:
"Troubled Spain" — Universidad de los Andes case

Michael Arena, Rob Cross, Jonathan Sims and Mary Uhl-Bien (2017) "How to Catalyze Innovation in Your Organization. Sloan Management Review

Optional:
Rob Cross, Stephen Borgatti, Andrew Parker (2002). "Making Invisible Work Visible." C'alifornia Management Review

Questions:

- What actions should James Reid take to improve the functioning of Troubled Spain?
- What can we learn from the network study? How would it inform your opinions about what James should do?

Session 11: Analyzing Social Networks, Part 2

In this session we will explore the details of network analytics to give a deeper insight into how to use and interpret network data.

Assignment 3. Due in Class Today!
We will provide you with data on communication patterns within Netcorp, a small, three department company. We will also provide you with an R program that can be used to analyze the data (you may also complete the exercise using Excel if you prefer).

Based on the data, please answer the following questions that have been posed to you by the CEO:

l. I worry that my three departments are not talking to one another. Is that true? How would you evaluate the quality of interaction across the departments?
2. Our sales department seems to be very slow at making decisions and that has led us to lose a certain amount of business. Why do you think that is?
3. We have been considering using retention bonuses to make sure that we hold on to key people within the organization. Can you use your analysis to recommend anybody for them?

As ever, please explain your answers. Assignments should be between 1 and 3 pages long.

Session 12: Measuring Culture

Managers love to say that "Culture eats strategy for breakfast." But they also love to say that "What gets measured gets managed." So how do you measure culture?

Although most discussions of culture are highly impressionistic, advances in theory and machine learning are producing many different ways to measure culture, and thereby influence it. In this session, we will go into depth on what culture means, how it can be measured, and what we can do once we noeasure it. A particular focus will be on understanding the latest approaches to analyzing language, and how they can be used within organizations.

Readings:
"When Cultures Intersect: The Merger of Bear Stearns and JP Morgan" — Wharton Case Study
Boris Groysberg, Jeremiah Lee, Jesse Price and J. Yo-Jud Cheng (2018) "The Leader's Guide to Corporate Culture" Harvard Business Review

Questions:

l. Do you think that differences between the culture of Bear Stearns and JP Morgan affected the success of the merger?

2. Suppose that you were asked to assess these differences. How would you measure them?

3. What value do you think that measuring culture would create? What would it allow you to do?

Session 13: Diversity Analytics

Managing diversity has become one of the most important human capital topics in recent years, and is an important area of boardroom focus. Achieving diversity is important for driving business goals through increased innovation and understanding ofa broad array of customers; it is important to managing the organization's reputation; and it deals with basic ethical issues for managers and organizations.

Effectively managing diversity requires effective analytics, both to effectively measure where the organization stands on diversity and equity, and to identify and assess the most effective interventions to improve diversity.

In this session, we will discuss different approaches to measuring diversity and what we can learn from them. We will also explore how data is used to identify why organizations lack diversity, and discuss the practices that seem to improve diversity.

Readings:
"Eliminating the Gender Pay Gap: Gap Inc Leads the Way." Berkeley Haas Case
Price Waterhouse Coopers (2018) "On Air Review"

Questions:

- Of the various measures that Gap could use to assess pay equity, which do you think that they should rely on?
- What factors do you think have been most important in allowing Gap to achieve pay equity? What could other organizations learn from them?
- How would you assess PwC's analysis of pay levels at the BBC. Do you think that their conclusions are valid?

Session 14: The Law and Ethics of People Analytics

The use of people analytics has profound implications for applicants, einployees and organizations. Many of the issues that we worry about within the context of the employment relationship, such as discrimination, coercion and privacy, are exacerbated by the capacity to monitor employees non-stop and implement consistent decisions across a workforce. As a consequence, legal and ethical issues come up repeatedly in the practice of people analytics. As a people analytics practitioner, it is important to understand the boundaries around what you legally can and ethically should do. As an employee and a citizen, you need to be aware of how your data is being used and what you can do about it. We will discuss those issues in this session.

Readings:
Cathy O'Neil (2017) "Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy", Chapter 7

Questions:

- Do you think algorithms can be more damaging than human judgment in Inanaging people? e What features of algorithms and measures make them particularly dangerous in the workplace?

- What guidelines would you implement around how algorithms should and should not be used in managing people?

Session 15: Project Presentations

In this session, four teams will present their project findings. We will debrief the project and the overall course.

Appendix 2. Syllabus for a Course in HR and People Analytics

USC Marshall School of Business

DSO 599 HR and People Analytics
Semester Year (Fall 2021 – 2nd Half)
3 hours per week (1.5 unit class)

Instructor: *Jeff Higgins*
Office: *TBD location*
Class: *Wednesday, 6:30 PM – 9:30 PM*
Phone: *(714) 612-9897*
Email: *Jeff.higgins@marshall.usc.edu*
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COURSE DESCRIPTION

This course provides students with an introduction to and practical applications in HR analytics also known as human capital analytics or people analytics. The course will educate on emerging practices and techniques used to acquire data, analyze, predict and finally solve questions and challenges confronting organizations of all sizes and sectors today. Students will learn about human capital measurement and metrics, predictive analytic tools and methods, human capital reporting standards, frequently used metrics, core analytic study methods to acquire, analyze, predict and create a data driven solution/business case with advanced visualization and storytelling. Students will use data to solve common business problems faced by real organizations, performing root cause analysis, creating and using simple and advanced predictive analytic models as well as learn to use basic financial modeling and costing techniques essential to quantify/capture return on investment (ROI). Students will use various software tools to enable data analysis, modeling and statistical as well as financial analysis in diagnosing and solving business problems.

The course will feature and use the case study method to facilitate learning and practical application in both lecture and exercise format. Case studies will include a wide variety of real-world industries and companies including Google, Starbucks, Jet Blue Airways, Public Storage, Union Bank, UPS, Target stores, Southern California Edison, Taco Bell and others.

This course serves to help students not only use advanced analytic techniques and technologies but to create a winning business cases and story using data that links to business financial impact and ROI.

COURSE OBJECTIVES

Upon successful completion of this course, students will be able to:

1. Develop problem solving skills using quantitative methods to analyze, segment and perform root cause analysis to answer complex business questions about human capital using HR, operational and financial data via case studies, group exercises and survey quizzes.
2. Understand emerging data and metric standards in HR and human capital as well their application, integration and impact upon financial and business outcomes with real-world HR and talent issues and available data in organizations today. (tested)

3. Learn when and how to segment, test, and apply simple and advanced metrics to transform data into intelligence for insight and prediction via case studies, group exercises and survey quizzes.
4. Work with visualization tools and data to build basic data models that deliver insight, solve questions and tell stories (case studies, group discussion, team project)
5. Work with both simple and advanced software tools to analyze, test and model HR and workforce data to quantify and improve business results using multiple variables
6. Use statistics together with financial modeling to show business impact and quantify ROI via case studies and group exercises
7. Build a business case with data that tells a compelling story that top management will approve

COURSE MATERIALS

The course materials will utilize the following:
Optional Textbook:
1. The ROI of Human Capital Chapters 1-8, by Jac Fitz-Enz 2009

Required Readings (free to download):
2. Article; Building a Business Case: A How-To Guide, Higgins, 2018
3. Letter: State Street Global Advisors – Proxy Letter to Investors, Jan 2019
4. Sample ESG Company Annual Reports : 'Allianz', 'Deutsche Bank', 'UPS', 'JNJ'
5. White paper report: Valuing human capital, Deutsche Bank Investment Research, Feb, 2019
6. Global Standards Document: ISO #30414 Human Capital Reporting Guidelines for human capital reporting for internal and external stakeholders, 2018
7. Linking Human Capital to Business Performance, 2012

Required Tools and Online Resources;
8. **Microsoft Power BI** will be used for visualization, prediction and modeling as well as DAX formulas and machine learning. Microsoft PowerBI is free to download. Free updates provided by Microsoft. Students may also use **Tableau** if preferred.
9. **Microsoft Excel** will be used on a limited basis for analysis, modeling and visualization
10. **SQL, Microsoft Access, Excel or similar data tools** will be used for data manipulation, integration and testing to connect to analysis and visualization tools i.e. Power BI and Excel
11. ***SOLVE*™** human capital analytics software for select exercises and company case study data. Free for educational use.
12. **Blackboard** – selected readings and case studies
13. **Gaughan & Tiberti Library** – selected readings

Supplementary Materials;
14. Beyond HR, the New Science of Human Capital, Boudreau-Ramstad, 2007
15. The Signal and Noise by Nate Silver, 2013
16. Outliers by Malcom Gladwell, 2008
17. MoneyBall: The Art of Winning an Unfair Game, Michael Lewis, 2003
18. Show Me the Numbers, Designing Tables and Graphs, Stephen Few, 2004

COURSE OUTLINE AND ASSIGNMENTS

	Topics/ Daily Activities	**Readings and Homework**	**Deliverables with Due Dates**
Week 1	- HR and human capital analytics defined, levels of analytics, - HR standards to measure and report workforce data - Basics for building a business case	*#1(chapter 1-2)* #3, #4, #5, #6, #9, #11, #18, Scofield Financial Turnover case study(2005), Starbucks Coffee store level survey and analysis case study, - other assigned readings	class participation, review, case study interpretation, team case study analysis – in class -Project Team formation
Week 2	- Tools for analysis, what the world uses - The talent management life cycle - Metrics, Key Performance Indicators (KPIs) and Scorecards - Intro to Forecasting	*#1(skim chapter 3, read 4)* #4, #8, #10, #11, HP Scorecard case study exercise, Southeast Asia Property Performance Scorecard case study, - PowerBI video's -other assigned readings	-*Homework, Excel worksheet simple analytic forecasting* -*HP Scorecard team whiteboard exercise* -Tool, SOLVE Metrics online handbook -Download PowerBI desktop version -Project Teams finalized
Week 3	- Using questions to create & show value with analytics - Building a business case, practical application, present a compelling story - Opportunity sizing, sensitivity analysis, variance analysis - Using advanced analytic tools to solve business issues	*#1(skim chapter, 5 read 6)* #2, #10, #11, Service Corp. International ROI of sales training case study 2010, Public Storage turnover case study (2018), -PowerBI video's -other assigned readings	-Project team projects selected -*Business case homework team presentations* -*Metrics Quiz* -Play with PowerBI sample dataset -Tool SOLVE™ workforce intelligence system
Week 4	-Transforming data into business intelligence – segmentation, cohort analysis, outliers -Designing and populating dashboards, best practices	*#1(chapter 7-8)* #3, #4, #6, #7, #8, #10, #11, #15, #16, National Cancer Institute case study (2016), UPS case study (2013), -PowerBI videos -other assigned readings	-*Quiz* -*PowerBI homework, simple metrics analysis* -PowerBI presentation practice

	-Presentation best practices -HR standards, A deeper dive		
Week 5	-Interpreting analytic results, statistics vs financial modeling -When to use statistics, when to use financial modeling -Quantifying workforce productivity -Linking business strategy to key questions, metrics/KPIs	*#1(chapter 6 Human Capital Value Index)* #5, #6, #7, #9, #10, #11, #13, BioTech workforce productivity case (2014) JetBlue employee NPS engagement (2012) case -PowerBI videos -other assigned readings	*-PowerBI homework, simple, vs. advanced analysis, examples of statistics vs financial modeling* -Intro to workforce productivity and What-If Modeling
Week 6	-Visualization, presentation, storytelling with data -Powerful visuals, impactful metrics, business intelligence (root cause, drivers, predictive, prescriptive) -Team project review, practice presentations	#2, #7, #8, #9, #10, #11, #14, #15, #18, Virgin Pulse study, ROI of wellbeing, (2019) Snohomish County workforce planning case study(2017), ABMed China forecasting labor cost case	Team project initial review. *-Visualization tools homework (PowerBI recommended)* *-In class work, advanced modeling, prediction and optimization*
Week 7	-Advanced modeling analysis and testing to optimize results -Team Analysis Project presentations	#6, #7, #8, #9, #10, #11, workforce productivity and case studies, Union Bank location talent optimization and expansion case	*-Homework, advanced modeling, prediction and optimization* **-Team Project Presentation due**
Week 8		**Final Exam**	Final Exam, TBD