

Chapter 1

Aligning Business Strategies and Analytics: Bridging Between Theory and Practice



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Abstract In this chapter, we discuss the current gap between academic training and the needs within the business community, the potential for this gap to widen, and the role joint work between academic and industry experts can play in bridging this gap. We highlight the particular case of business analytics, calling attention to the current business landscape and the need for strong training of future employees, grounded in both rigorous theoretical background and links to the practical applications. The chapter concludes by emphasizing the particular contributions of each chapter and making a case for this type of work to be among the first of many steps in creating more meaningful dialogue between higher education and business practitioners.

Keywords Alignment · Business analytics · Theory · Practice · Tools

Introduction

The gap between theory and practice is widely documented and debated in the business literature (Aram & Salipante, 2003; Argyris & Schon, 1974; Wren, Halbesleben, & Buckley, 2007). In general terms, the theory-practice gap can be defined as the discrepancy between what students acquire through the theoretical classroom lectures and what they experience in the workplace (Ajani & Moez, 2011). There are two main issues causing the theory-practice gap. First, some of the theory is too idealistic and impractical. Second, even where the theory is practical and beneficial to the organization, some practitioners do not act on it, possibly due to ignorance and the rigid system in which they work or because they choose to ignore it.

While the gap between theoretical content and practical knowledge has existed for some time, the need to facilitate the connections between the two has increased

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dramatically over the last decade. Business decisions are becoming increasingly complex and interdisciplinary, calling on knowledge across many business and functional areas. This requires better grounding in theoretical content but also increased knowledge across many domains.

Within academic institutions, the business curricula are often frontloaded with theories on the grounds that students need to learn the theories before entering the workforce. This is based on two implicit assumptions. First, these theories are applicable in the real-life context for informing good practice. Second, formal theories constitute the best grounding for the valid knowledge of practice. These theories are often taught in a didactic manner as decontextualized abstractions and generalizations, to be applied later by students in their careers. This approach has historically and traditionally been the preferred dissemination of the relevant theories under the premise that the particular business and work-related applications will evolve dramatically and (perhaps) rapidly over a student's career and thus the theories provide the proper basis for learning new techniques, technologies, and methodologies.

Unfortunately, this approach leads students and working professionals to often perceive a disjunction between the abstract form of these theories in texts and their lived form in practice. As a consequence, many students find these theories to be magniloquent and irrelevant to practice. Unless we are able to help students make sense of the link between theories and practice, students will face problems in bridging the gap between the two.

Moreover, to the extent that organizations, business executives, and hiring managers interpret this gap as implying that universities are not properly preparing students for the current workforce, the importance and relevance of higher education will be diminished. There are viable reasons why companies may view this gap as widening. The pace of business decisions and the velocity of changes to the business environment have increased rapidly over the last decade. These types of changes filter down to business' needs for job preparedness, which has increased tremendously (Ahmad & Pesch, 2017). Organizations do not have the luxury of time for new hires to "learn on the job." They require individuals who can become immersed in the business problems at hand quickly and develop relevant and timely solutions. It is therefore no surprise that organizations may perceive that students are not as equipped for this newer business environment. Such perceptions are a main catalyst for corporations significantly increasing their expenditures on workforce training.

Ultimately, we need greater synthesis of theory and practice if we are to prepare thoughtful practitioners (Raelin, 2007, p. 495). In business education, even at the undergraduate level, business schools are doing the work of preparing practitioners. To prepare someone implies providing a link, building a bridge, or making a connection. Preparing thoughtful practitioners requires moving away from the apparent dichotomy of theory and practice and moving toward the synergistic combination of the two. Thoughtful practice is informed by the complements of theory and practice. As we discuss further below, this volume in our view highlights this natural complementary and provides insights into why and how deeper connections between the academic and practitioner community will lead to more impact-

ful learning, for students, academics, and practitioners, and ultimately stronger academic and business institutions.

Gap in Business Analytics

The discipline and study of business analytics are not immune to this theory-practice gap. Many organizations have become increasingly more dependent upon business analytics to obtain a competitive advantage. According to *Forbes* magazine, the analytics market will grow to \$203 billion by the year 2020 (Press, 2017). However, despite the enormous corporate dependence on analytics, it is estimated that as few as one-third of new analytics projects produce a positive return-on-investment and that over two-thirds of all major analytics projects end in failure (Agarwal, 2017). In a recent study, the Gartner group noted that the major factors leading to analytics project failure are largely attributable to the lack of skills to deploy analytics-based tools and technology (Gartner, 2015).

Thus, although businesses across the world have invested billions of dollars in analytics in the last decade, organizations have found it difficult to harness the true value of analytics for long-term benefit, even though there is evidence analytics can transform industries and business practices. Aligning business strategies and analytics remains an elusive goal.

It is not unreasonable to posit that part of the failure can be attributed to the proficiency gap between knowledge and skills taught by academics and expertise and know-how requirements necessitated by organizations. It is also possible that techniques learned at institutions of higher learning become obsolete by the time the student joins the work force. As discussed above, we argue that this rapidly chang-

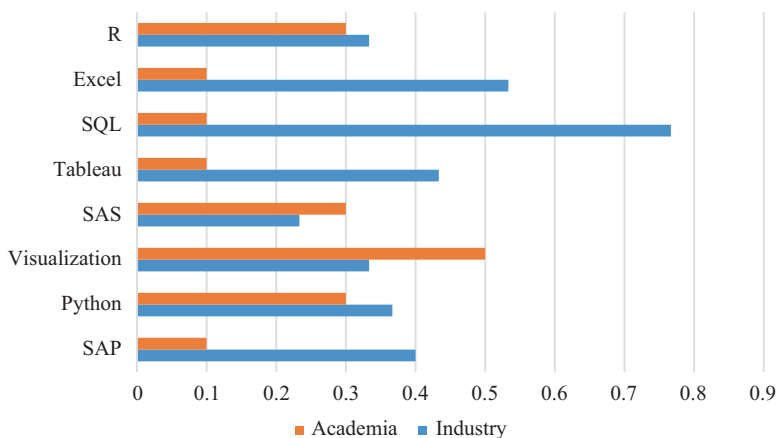


Fig. 1.1 Analytics tools: academia vs industry

ing environment necessitates the grounding to strong theory but also influences how both parties view the relative importance of current methods and techniques.

The authors examined the nature of the gap between skills taught by academics and those demanded by industry in terms of business analytics tools. The study found that there was a misalignment between academia and practice for most of the analytics tools. As can be seen in Fig. 1.1, academia places an emphasis on SAS that is unmatched by industry needs, whereas businesses have a need for professionals experienced with Excel, SQL, SAP, and Tableau that academia is not meeting.

With projections for the demand of skilled business analytics talent to triple over the next decade (Henke et al., 2016), organizations face challenges employing the required numbers of skilled professionals. This presents a two-pronged challenge. First, organizations confront the possibility of hiring business analysts with limited or no skills and second, organizations additionally face the prospect of having a shortfall of needed business analysts. This could be precarious for organizations in the current business environment where predictability, reliability, and efficiencies of analytics staff are paramount.

One potential way to reconcile academic preparation with industry need is to increase the conversations between academia and industry, so that the gap between them could be bridged more effectively. The chapters in this volume are the result of such a conversation. The BPTS 2017 conference organized sessions such that all academic sessions would be co-led by an academic and a practitioner in the field or practitioners who crossed the boundary. The chapters you see here are the culmination of that collaboration and therefore, collectively, provide a unique and novel perspective on the ways that business analytics should grow as a field to advance business practice.

The chapters are broken into three sections. In the first section, the chapters provide an insight into analytics in the finance, transportation, and biopharmaceutical industries. In the second section, the chapters discuss the importance of methodologies in analytics. In the final section, the chapters provide strategies by which alignment can be achieved between strategies and analytics. As highlighted below, the chapters also discuss pitfalls that both academicians and practitioners should be aware of that could make analytics less effective.

Part 1: Business Analytics in Practice

There are five chapters in this section. In Chap. 2, Kliman and Arinze examine how the delivery of financial advice and how cognitive computing can provide value for both the financial intermediary and the end consumer. For the intermediary, the study will assess how cognitive computing can augment and supercharge the expertise of the financial advisor, enabling the advisor to deliver improved advice. For the consumer, the study will assess how cognitive computing on its own (without a financial advisor) can deliver comprehensive and accurate advice comparable to that of a human advisor. The study will assess various aspects of cognitive

computing, including but not limited to sentiment analysis, natural language processing, predictive analytics, and prescriptive analytics.

The chapter by Schild and Riley follows and discusses how technology is accelerating the growth of the financial advising industry at the same time that the wealth accumulated by older generations migrates slowly to younger generations. They argue that the preferred trust relationship will remain between human client and human advisor but will be heavily machine augmented with analytics and big data, delivered via the cloud.

In Chap. 4, Powell and Chandran use the case study of a leading fleet management company (ARI) and explore the application of advanced analytics to various facets of the industry and the company's experience in aligning analytics with its business strategy. Finally they outline the steps needed to implement a telematics and analytics strategy in organizations and the importance of bridging the gap between theory and practice.

Chapter 5 provides the context for analytics in practice within the biopharmaceutical industry. Holder, Lee, Devpura, and Chandran provide an insightful view of how the implementation of a supply chain blueprint model and value stream mapping has enabled tremendous cost savings at AstraZeneca. The importance of fostering a two-way dialogue between members of the business community and educators and introducing new programs like the Future Leaders program and Supply Chain Boards in bridging the gap between theory and practice through meaningful partnerships is also discussed.

Part 2: Methodological Issues in Business Analytics

In Chap. 6, Shah, Gochtovtt, and Balini offer real-world examples of how project management professionals tackle big data challenges in a rapidly evolving, data-rich environment. Simultaneously, project management establishes a bridge between business and academia as they both recognize the joint necessity to develop highly trained project managers to utilize the powerful and cutting edge analytical tools available to create value. This is followed by Larsen who explores the application of agile methodologies and principles to business analytics project delivery.

Phillips-Wren and McKniff discuss the operational benefits that can be gained by implementing real-time, big data analytics in a healthcare setting and the concomitant influence of organizational culture on adoption of the technology. They demonstrate these benefits by investigating patient-physician interactions in a large medical practice at WellSpan Health and compare the observed workflow with a modified one made possible with a big data, real-time analytics platform.

Chapter 9 by Poorani and Sullivan provide a case study on human capital analytics and investigate if such analytics add new outlooks beyond the usual metrics used by lodging enterprises. In addition, the case study provides measures that help management identify and address inefficiencies, as well as the productivity of its work force, with the goal of improving resource allocation.

Part 3: Aligning Strategies and Business Analytics

In Chap. 10, Mendoza reviews the opportunities and potential shortfall influencing the impact of business intelligence and analytics services for a company's internal use. He describes three strategies for providing these services internally and explores issues of importance in the shaping of current demand and of future offerings by Web-based providers. He concludes the section by discussing opportunities for the development of academic curricula and research that would offer better training to students, improve recruiting outcomes for organizations, and better address topics of current and strategic importance to the firm.

Duke and Ashraf in Chap. 11 draw attention to how new media marketing and analytics has fostered new insights about the customer journey, such as the creation of the loyalty loop and the need for alignment in marketing strategy. The implications for analytics education are also examined in the chapter with recommendations for curricula shifts and training as they relate to higher demand for and a shortage of qualified graduates.

In the final chapter, Kasat and Chandran discuss how data and analytics are playing a revolutionary role in strategy development in the chemical industry. This paper provides an overview of the challenges confronting the chemical industry and the opportunities to transform the industry by aligning data analytics and strategy. Using the case study of DuPont, they provide an example of how applying data and analytics to its precision agricultural technology increased yields and improved productivity.

Conclusion

It is important for academics and practitioners to recognize that for organizations to use data and analytics, it should be able to clearly articulate its purpose and then translate it into action throughout the organization. Similarly academia should be informed by practice about the analytics required by industry to be able to develop a relevant and rigorous curriculum. This volume uniquely highlights the perspective that academic institutions and practitioners should more actively collaborate to seek more integrated solutions. The collaboration seen in these chapters fosters this dialogue with a strong belief that these interactions between practicing managers and researching academics are important in increasing both the relevance of pedagogy and research and are vital for enhanced learning and bi-directional problem solving. We believe this volume emulates the types of collaborations and conversations that we hope to see develop and increase in the future.

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