

**Information Technology Human Capital as Competitive Advantage**

**Eric D. Brown**

**Aligning Technology, Strategy, People & Projects**

**<http://ericbrown.com>**

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### **About the Author**

Eric D. Brown is a consultant, doctoral student and author in Dallas TX. Eric's consulting practice focuses on assisting organizations with aligning information technology and business strategy and developing, deploying and managing information technology systems. In addition, I help organizations bring business and technology together to ensure that every technology implementation is performed in such a way as to maximize business value.

Eric is also the founder of the Dallas / Fort Worth Entrepreneur Network, a networking group focused on entrepreneurs in the Dallas / Fort Worth area and the Dallas Technology Network, a networking group focused on technology executives in the Dallas / Fort Worth area. Eric has also sat on the CompTIA's Workforce Advisory Board and has served on the Board of Directors for various volunteer organizations.

Eric is currently working on a Doctor of Science in Information Systems degree from Dakota State University and has previously earned his MBA from the University of Texas at Dallas with specializations in Strategy and Project Management, an MS in Electrical Engineering from Oklahoma State University and a BS in Physics from Southwestern Oklahoma State University.

Read more about Eric at <http://ericbrown.com>

Review: Information Technology Human Capital as Competitive Advantage

*Purpose of this paper*

This paper provides a brief review of the literature within the space of information technology and business alignment, and more specifically, the areas of creating competitive advantage by managing human capital to create a sustainable advantage in the marketplace.

*Introduction*

In today's ever-changing world, organizations must learn to evolve, adapt and continuously rethink their strategic objectives and operational abilities. As part of this strategic planning process, organizations have historically looked at two aspects; strategy (how they will go to market, what they will sell, etc) and execution (how to implement the strategy, how to do business, etc). The seminal research on strategy and competitive advantage (Andrews, 1986; Porter, 1998a, 1998b) historically overlooked two of the most important aspects of any strategy; *technology and people*.

In the 1990's, researchers and practitioners began looking at merging technology into the strategic planning process and how the alignment of business strategy with information technology can help to create a competitive advantage (Henderson & Venkatraman, 1993). These researchers had brought technology into the strategic planning process, and in some respects they considered the human resources of the organization, but they still overlooked the people as being a valuable piece of capital that could be used to create competitive advantage.

This oversight is most visible within the information technology (IT) groups. Even though many organizations and researches stressed the need for IT and business alignment, they still seemed to overlook the human capital aspect while aligning IT and business strategy.

These oversights have led to the current environment of overworked, disengaged and misaligned IT personnel and IT groups. The ‘turnover culture’ that has arisen within the IT industry provides some evidence of the unhappiness and/or discontent that most IT personnel have (Moore & Burke, 2002).

Recent research has provide a path to the solution of the problem of creating sustainable alignment between IT and business strategy. These solutions involve not only aligning IT and strategy but also implementing human capital management practices to ensure that people are considered as much of a resource for creating competitive advantage as any other asset within the organization (Hu & Huang, 2006; Robert, Agarwal, & Ferratt, 2000).

This paper provides a review of existing literature related to the strategic alignment of business and information technology and human capital management practices. The first section, titled ‘Alignment of IT with Business Strategy,’ provides a review of existing business and IT alignment research. The second section, titled ‘Human Capital Management, IT & Business Alignment,’ provides an overview of existing research into human capital management practices within the IT space.

The third section, titled ‘Human Capital as Competitive Advantage’ outlines the use human capital as a means to gain competitive advantage in the marketplace. Lastly, the fourth and final section titled ‘Future Research and Conclusions,’ outlines areas that may provide avenues of further research and concludes the paper.

#### *Alignment of IT with Business Strategy*

The alignment of IT with business strategy has been an area of interest for many researchers and organizations (Henderson & Venkatraman, 1993; Hu & Huang, 2006; Kobetich, 1987; Robert et al., 2000; Sambamurthy, Bharadwaj, & Grover, 2003). This research has led to

many different models and methods for IT-Business alignment. One of the most widely referenced models was put forth by Henderson and Venkatraman (1993). This widely referenced model for strategic alignment between business and IT as having two main integration points; strategic integration and operational integration (Henderson & Venkatraman, 1993).

This seminal work in IT-business alignment provides insight into how organizations can align IT with business needs but it overlooks human capital issues and how those issues can affect sustainable alignment and competitive advantage. In this model and others like it, IT personnel are considered as a 'resource' to be used to implement a strategy or technology and not as human capital that can actually provide a strategic advantage themselves.

IT-Business alignment has been a high priority for many organizations for many years as and is still one of the highest priority issues today. Survey results published by Luftman et al. (2006) show that IT managers and leaders have IT-Business alignment as their highest priority (Luftman, Kempaiah, & Nash, 2006). This isn't a surprise since IT has become an essential enabler for most businesses in the digital age we live in.

In order to effectively utilize IT as a business enabler, organizations must move away from a pure technological view of IT and the personnel within IT and move toward a more 'rounded' view. The shift needs to be made away from the historical approach to hiring and managing IT personnel (e.g., technical skills are the priority) and embrace a new type of IT employee who has the ability to merge technical knowledge and skills and business acumen (Enns, Ferratt, & Prasad, 2006).

*Human Capital Management, IT & Business Alignment*

Sustainable alignment between IT and business strategy is difficult to maintain without seriously considering an organizations' people and how those people are managed (Hu & Huang, 2006). Organizations need to move away from thinking about IT personnel (and all other employees) as 'resources' and begin thinking of these people as human capital. Many organizations are beginning to view their IT organization (including the personnel) as capital that can be utilized to create competitive advantage and these organizations are now making changes in order to better manage this very important workforce (Schafer, 2004).

In addition to the different types of IT personnel needed, the approach to managing these people should be reviewed. Recent research has shown that homogenous human resource practices across an organization might negatively affect IT groups and personnel (Agarwal & Ferratt, 2001, 2002; Ferratt, Agarwal, Brown, & Moore, 2005). This research proposes that organizations create an IT specific Human Resources (HR) strategy for IT personnel to ensure that the right IT personnel are attracted, retained and given growth opportunities throughout their career (Agarwal & Ferratt, 2001). These IT HR strategies should be developed to ensure that the proper attention is placed on the specific needs of IT personnel as well as the specific needs for recruiting IT personnel (Brown, 2003).

Organizations have slowly started to realize that the effective use of human capital requires effective recruiting and retention policies for IT personnel (Martin, 2006; Thatcher, Stepina, & Boyle, 2002). In fact, a recent survey shows that the second highest priority for organizations and IT managers behind IT-business alignment is how to attract, retain and grow IT personnel (Luftman & Kempaiah, 2007).

In order to compete, organizations must position themselves well in the recruiting marketplace in order to attract and retain the right personnel (Agarwal & Ferratt, 2001; Luftman & Kempaiah, 2007). To do this, HR departments should consider creating recruitment and retention strategies specifically for IT personnel. Developing and implementing these strategies won't guarantee success in hiring and keeping the best and brightest candidates, but should help the organization to compete more effectively in the IT recruiting marketplace (Amaram, 2005)

IT managers and leaders are realizing they not only need to attract quality IT employees but they must maintain an environment that allows those employees to grow and prosper (Thatcher et al., 2002). Turnover rates in the IT industry are some of the highest in the nation (Joseph, Kok-Yee, Koh, & Soon, 2007). IT turnover rates were consistently within the range of 15 to 33 percent from the 1970's into the 1990's (Hayes, 1998) and recent research performed within Fortune 500 companies has shown that rates remain in the 25 to 35 percent range and average job tenure for IT professionals has decreased from 18 months to 13 months (Moore & Burke, 2002).

High turnover rates within IT groups has been shown to cost an organization anywhere from one to seven times the annual salary of the replaced employee (Kochanski, 2001). A considerable amount of research into the 'turnover culture' within information technology groups has produced some excellent results and theories (Moore & Burke, 2002) but there is still more work to be done in this area.

If organizations are going to truly align IT with business strategy, the human capital management practices must be aligned as well. In order to sustain this alignment, issues such as high turnover rates, employee disengagement and management of IT professionals needs to be further researched and addressed within organizations.

*Human Capital as Competitive Advantage*

As mentioned, most organizations don't place a high enough focus on human capital management as a component of competitive advantage. In order for an organization to be successful in any market, they must create value for their clients. This value can be created using a new strategy, new technology or some other 'gimmick' but in order to sustain this value (and the competitive advantage it brings), organizations must develop and maintain an engaged, knowledgeable and creative workforce (Afiouni, 2007).

To create a workforce that provides sustainable competitive advantage and value creation, an organization must create an environment that allows their human capital to grow, much like money sitting in an interest bearing account does. This growth, expressed within people as increased knowledge, increased motivation, increased engagement, etc can be used to create competitive advantage that would be very difficult for competitors to imitate (Afiouni, 2007; Agarwal & Ferratt, 2001; Luftman & Kempaiah, 2007).

Out of the many theories of organizational behavior, one aligns itself well with the human capital view of people within an organization. This theory, called the Resource Based View (RBV), suggests that the method in which resources are applied within a firm can create a competitive advantage (Barney, 1991; Mata, Fuerst, & Barney, 1995; Peteraf, 1993; Wernerfert, 1984). The resource based view of firms is based on two main assumptions: *resource diversity and resource immobility* (Barney, 1991; Mata et al., 1995). According to Mata et al. (1995), these assumptions are defined as:

- **Resource diversity** (also called resource heterogeneity) pertains to whether a firm owns a resource or capability that is also owned by numerous other competing firms, then that resource cannot provide a competitive advantage.

- As an example of resource diversity, consider the following: a firm is trying to decide whether to implement a new IT product. This new product might provide a competitive advantage to the firm if no other competitors have the same functionality. If competing firms have similar functionality, then this new IT product doesn't pass the 'resource diversity' test and therefore doesn't provide a competitive advantage.
- **Resource immobility** refers to a resource that is difficult to obtain by competitors because the cost of developing, acquiring or using that resource is too high.
  - As an example of resource immobility, consider the following: a firm is trying to decide whether they should buy an 'off-the-shelf' inventory control system or have one built specifically for their needs. If they buy an off-the-shelf system, they will have no competitive advantage over others in the market because their competition can implement the same system. If they pay for a customized solution that provides specific functionality that only they implement, then they will have a competitive advantage, assuming the same functionality isn't available in other products.

These two assumptions can be used to determine whether an organization is able to create a sustainable competitive advantage by providing a framework for determining whether a process or technology provides a real advantage over the marketplace.

The resource based view of the firm suggests that an organization's human capital management practices can contribute significantly to sustaining competitive advantage by creating specific knowledge, skills and culture within the firm that are difficult to imitate (Afiouni, 2007; Mata et al., 1995). In other words, by creating resource diversity (increasing

knowledge and skills) and/or resource immobility (a culture that people want to work in), sustainable competitive advantage can be created and maintained.

In order to create human capital resource diversity and immobility, an organization must have adequate human capital management practices, organizational processes, knowledge management practices and systems, educational opportunity (both formal and informal) and social interaction (i.e., community building) practices in place (Afiouni, 2007; Barney, 1991; Mata et al., 1995; Schafer, 2004).

#### *Further Research and Conclusion*

Further research into this area can follow Ferratt et al.'s (2005) study of the effects of human resource management on information technology (IT) employee turnover (Ferratt et al., 2005) and Joseph et al.'s (2007) suggestion that adopting a human capital management approach to managing IS employees may increase employee engagement and reduce turnover and job dissatisfaction (Joseph et al., 2007).

Another area of further research that could be considered is Huang and Hu's (2007) approach of combining human capital management along with a business-IT alignment model by using a balanced scorecard system to implement and measure alignment. This balanced scorecard approach seems reasonable but very little quantitative data exists to measure the success or failure of this approach (Huang & Hu, 2007). Further research into the use of balanced scorecards to align IT, business and human capital management practices could be accomplished by collecting quantitative data in multiple organizations to provide more insight into the success and/or failure of this approach.

Yet another avenue for further research is within the area of validation of alignment of IT system requirements with business strategy (Bleistein, Cox, & Verner, 2005). Bleisten et al.'s

research provides a framework for measuring and ensuring that all IT system requirements are in alignment with business goals. This research is interesting but as yet unproven.

Lastly, research into furthering the application of the resource based view of firms and the creation of resource diversity and resource immobility within organizations seems to be a fairly wide open area. In many organizations today, outsourcing work has become the norm as has hiring contractors instead of full-time employees. Many research questions arise from this. A few examples are:

- How can an organization create resource diversity and/or resource immobility when they are drawing from the same talent pool of outsourcers and independent contractors as their competitors? This is an idea that is very interesting and something worth pursuing.
- How can an organization segregate IT projects so that non-strategic projects (is there such a thing?) are managed with non-strategic assets and resources while strategic IT projects are managed with strategic assets and resources.

There is still considerable research to be done to better understand how to create sustainable advantage using technology and people. The areas of information systems, strategic human resource management and organizational behavior can provide models to help create sustainable advantage and value for organizations.

In order to truly create sustainable competitive advantage, an organization must have the right strategy, technology and people in place. In today's world, it isn't enough to have only one or two of these; an organization must obtain and maintain the mix of the right strategy, the right technology and the right people.

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