Chapter 84

Trends in IT Human Resources and its Determinants

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ABSTRACT

This chapter discusses the driving forces behind the trends in Information Technology (IT) that are likely to influence the number of available IT jobs in the future. One advantage of focusing on industry trends as opposed to the current job market is that long term trends are more likely to be useful for strategic planning. Institutions of higher education (IHE) want to provide their graduates with the knowledge and skills needed by employers, but given the rapid change within the IT industry, chasing short term trends as part of a multi-year degree is a fool's errand.

The purpose of this chapter is to examine the various, sometimes contradictory, factors influencing the demand for IT professionals and to build a simple framework that can be used to predict demand. The ability to predict the demand for IT professionals with a reasonable degree of accuracy is important for IHE's and businesses to correctly identify where their scarce resources should be allocated to develop a curriculum for the 21st century workforce.

INTRODUCTION

When one of the authors was in a doctoral program, the PhD students from the business school would occasionally gather in a local drinking establishment and engage in an attempt at scholarly banter over various fun topics. One of the topics that emerged on several occasions was which business discipline is the most important for a successful business.

The accounting students might point out that without accounting you would not be able to effectively keep track of your money. Management students might counter that without operations you would not be able to effectively make products. Marketing would try to sell us on the idea that without marketing a firm could not effectively sell products and thus there would be no need for any of the other disciplines. All the other disciplines would pitch in with why their area was the most important area of study and so the conversation would go. There was one exception to the arguments. It emerged during those conversations that nearly every discipline admitted that an understanding of Information Technology was essential for a complete understanding of their discipline. Correspondingly, an understanding of other disciplines was essential for most Information Technology students and practitioners.

The emergence of IT as a discipline has been recent and has evolved rapidly. Topics such as Business Intelligence, Data Mining, and Software Development were once mainly topics that Information Technology researchers discussed and only a few large businesses experimented with using a small fraction of their budgets. Now IT has become essential for most businesses and is becoming more integrated into the way businesses function each year. IT areas such as software development have also become much more of a process driven endeavor and have moved away from the days of an individual or small team working in isolation to produce spaghetti code that resulted in software that seemed to be produced by magic to the end user. Modern business software tends to be very complex and to span multiple business functions. Because it is beyond the capability and an individual to be able to build software in isolation project teams are formed. These teams have functions that can largely be broken down into three areas, management, technology expertise, and domain expertise in area such as accounting, marketing, or consumer psychology to give a few examples. Each of the team members contributes

toward the design and implementation of application that would be beyond the ability of even the most capable person to produce in isolation.

Officers and managers of a firm no longer have the luxury of an army of data analyst at their disposal to find data, analyze it and then present the findings to the executives. Because of the IT revolution management has had to embrace the use of technology and learn how to use the firm's IT tools to utilize the data resources for more efficient and effective operations across all areas. The digital revolution has caused IT to go from being something a firm might use to being a core part of most organizations.

IT cannot exist in isolation because it is integrated throughout the firm. In fact, IT has become so pervasive that most jobs now require interacting with IT. To have competent IT performance, firms need an adequate supply of IT professionals and many of these professionals will need to be provided by institutions of higher education. The challenge for institutions of higher education is how to balance the need for rigorously teaching students the underlying theory of a field, needed skills, and how to engage in the type of continuous life-long learning that will be needed to keep them up to date after completion of their degree. These goals should be accomplished within a curriculum that provides students with relevant knowledge and skills that are in demand by employers. One of the reasons it is difficult to develop such a curriculum is that the technology field is in a period of tremendous change.

According to futurist George Gilder (2002) the amount of technical knowledge is doubling every two years and it is expected that the pace of growth will continue to increase. Because of this rate of rapid change, institutions of higher education that offer degrees in the Information Technology fields will have difficult choices to make regarding how their curriculum should be structured. Schools will have to be willing to adapt quickly to the needs of their key stakeholders to remain viable (Fleming, 2008). Some scholars

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