

Spring 5-31-2004

Electronic marketplaces and their roles in the staffing industry : an explorative analysis

Vishal Khubani
New Jersey Institute of Technology

Follow this and additional works at: <https://digitalcommons.njit.edu/theses>



Part of the [Databases and Information Systems Commons](#), and the [Management Information Systems Commons](#)

Recommended Citation

Khubani, Vishal, "Electronic marketplaces and their roles in the staffing industry : an explorative analysis" (2004). *Theses*. 553.

<https://digitalcommons.njit.edu/theses/553>

This Thesis is brought to you for free and open access by the Electronic Theses and Dissertations at Digital Commons @ NJIT. It has been accepted for inclusion in Theses by an authorized administrator of Digital Commons @ NJIT. For more information, please contact digitalcommons@njit.edu.

Copyright Warning & Restrictions

The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted material.

Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction. One of these specified conditions is that the photocopy or reproduction is not to be “used for any purpose other than private study, scholarship, or research.” If a user makes a request for, or later uses, a photocopy or reproduction for purposes in excess of “fair use” that user may be liable for copyright infringement,

This institution reserves the right to refuse to accept a copying order if, in its judgment, fulfillment of the order would involve violation of copyright law.

Please Note: The author retains the copyright while the New Jersey Institute of Technology reserves the right to distribute this thesis or dissertation

Printing note: If you do not wish to print this page, then select “Pages from: first page # to: last page #” on the print dialog screen



The Van Houten library has removed some of the personal information and all signatures from the approval page and biographical sketches of theses and dissertations in order to protect the identity of NJIT graduates and faculty.

ABSTRACT

ELECTRONIC MARKETPLACES AND THEIR ROLES IN THE STAFFING INDUSTRY: AN EXPLORATIVE ANALYSIS

This thesis will explore and analyze the role of electronic marketplaces in the staffing industry from the viewpoint of hiring executives, human resources personnel, staffing organizations, and candidates. Using analyses of popular electronic job marketplaces, this paper will establish the efficiency and effectiveness of electronic marketplaces as compared to traditional staffing methods. It will also provide a detailed view of various electronic marketplaces, their financial structure and analysis of their performance. This information will also result in a return on investment estimate for the average hiring organization using electronic marketplaces.

**ELECTRONIC MARKETPLACES AND THEIR ROLES IN THE STAFFING
INDUSTRY: AN EXPLORATIVE ANALYSIS**

by

Vishal Khubani

**A Thesis
Submitted to the Faculty of
New Jersey Institute of Technology
In Partial Fulfillment of the Requirements of the Degree of
Master of Science in Information Systems**

Department of Information Systems

May 2004

Blank Page

APPROVAL PAGE

**ELECTRONIC MARKETPLACES AND THEIR ROLES IN THE STAFFING
INDUSTRY: AN EXPLORATIVE ANALYSIS**

Vishal Khubani

Dr. Bartel Van de Walle, Thesis Advisor
Assistant Professor of Information Systems, NJIT

Date

Dr. Fadi P. Deek, Co-Advisor & Committee Member
Acting Dean of College of Science & Liberal Arts and
Professor of Information Systems, NJIT

Date

Dr. Il Im, Committee Member
Assistant Professor of Information Systems, NJIT

Date

Dr. Robert Friedman, Committee Member
Acting Associate Dean of College of Computing Sciences, NJIT

Date

BIOGRAPHICAL SKETCH

Author: Vishal Khubani
Degree: Master of Science
Date: May 2004

Undergraduate and Graduate Education

- Master of Science in Information Systems
New Jersey Institute of Technology, 2004
- Bachelor of Arts in Information Systems
Rutgers University, 2002

Major: Information Systems

Presentations:

Khubani, Vishal,

“Electronic Marketplaces in the Staffing Industry: Turning to the Internet,”
National Association of Graduate-Professional Students National
Conference 2003, Washington, DC, November 2003.

*Education is what remains after one has forgotten everything
he learned in school.*

-Albert Einstein

ACKNOWLEDGMENT

I would like to thank my thesis advisor, Dr. Bartel Van de Walle, for not only assisting and guiding me through this project, but also for his constant encouragement and support that he provided as my professor. His contagious love of learning and enthusiasm sparked my interest in electronic marketplaces. Also, special thanks to Dr. Fadi Deek who served as my co-advisor during Dr. Van de Walle's absence, his reliability and reassurance were invaluable. I would also like to thank Dr. Il Im and Dr. Friedman for participating in my committee.

This thesis would not be possible without the assistance of the companies who were willing to open their doors to me as a student in order to evaluate their business processes. I wish to thank Joseph Hauser, Bob Larson, Maria Bussey and Dean Hoffman for being so open and perceptive.

Thank you to my family for their loving patience and support during this project. Also special thanks to my cousin, Nisha Aidasani, and my sister, Avisha Khubani, for their proofreading expertise without which this thesis would not have been submitted on time.

TABLE OF CONTENTS

Chapter	Page
1 LITERATURE REVIEW	1
2 STAFFING INDUSTRY	11
2.1 The Hiring Process	12
2.1.1 Prescreening.....	12
2.1.2 Screening.....	13
2.1.3 Pre-Qualification/Interviews	13
2.1.4 Qualification	13
2.1.5 Offer/Hire/Termination	14
2.2 E-Marketplaces As Decision Support Tools	18
3 STAFFING MARKETPLACES.....	25
3.1 Job Seeker's Decision Making Process.....	29
3.2 Dice	31
3.2.1 Description and Analysis.....	31
3.2.2 Benefit to Staffing	32
3.3 HotJobs	34
3.3.1 Description and Analysis.....	34
3.3.2 Benefit to Staffing	34
3.4 Sample Cost Structure and ROI Analysis.....	35
4 SEMI-STRUCTURED INTERVIEWS AND EMPIRICAL DATA	37

TABLE OF CONTENTS
(Continued)

Chapter	Page
4.1 Applicants.....	37
4.1.1 Maxwell Justice.....	37
4.1.2 Sarah Whitelaw.....	38
4.1.3 Dustin Parr.....	39
4.1.4 Andy Ray.....	40
4.2 Staffing Agencies.....	41
4.2.1 Tech Tykes, Inc.	41
4.2.2 Links Company.....	43
4.2.3 HoffmanCo.....	44
4.3 HR Department.....	45
4.4 Marketplace Response Trends.....	46
5 CASE STUDY.....	48
5.1 History and Overview	48
5.2 The Technology.....	50
5.2.1 The Web.....	53
5.2.2 Email Systems	54
5.2.3 RMS and JOBS.	58
5.3 Identified Problems and Solutions	64
5.3.1 Status of Applications Unknown.	64
5.3.2 Quantity of Applicants Greater than Quality.....	65
5.3.3 Prescreening of Incoming Applicants Inefficient.	66
6 CONCLUSION.....	68

TABLE OF CONTENTS
(Continued)

Chapter	Page
6.1 Electronic Marketplaces and The Hiring Cycle	68
6.2 Electronic Marketplaces as Decision Support Systems.....	70
6.3 Improvements Needed and Consequences	71
APPENDIX A INTERVIEW QUESTIONS FOR APPLICANT.....	74
APPENDIX B INTERVIEW QUESTIONS FOR AGENCY/HR DEPT.....	75
APPENDIX C ORGANIZATION CHARTS	76
APPENDIX D RESUME EMAIL FLOW DIAGRAMS.....	80
APPENDIX E SAMPLE RESPONSE LETTER FROM TECH TYKES.....	84
REFERENCES	85

LIST OF TABLES

Table	Page
3.1 WCA Analysis of the Staffing Marketplace.....	28
3.2 Sample Cost Structure (low volume).....	36
3.3 Sample Cost Structure (high volume).....	36
4.1 Data Table for Job Responses in the Electronic Marketplace.....	47
5.1 JOBS WCA Framework.....	60
5.2 RMS WCA Framework.....	63

LIST OF FIGURES

Figure	Page
1.1 Analyzing the E-Market.....	6
2.1 Applicant tracking systems	14
2.2 The hiring cycle.....	15
2.3 Alter's WCA framework.....	18
3.1 Job seeker's decision making process.....	30
3.2 Job marketplace traffic.....	33
4.1 Job responses in the electronic marketplace.....	47
6.1 The hiring cycle and marketplace influence.....	69
6.2 Online time vs. Real time.....	71

CHAPTER 1

LITERATURE REVIEW

One of the most well known theorists in Electronic Markets, J. Yannis Bakos, provided perhaps the most complete definition of contemporary electronic marketplace roles in the capitalist enterprise. These mutations of a marketplace bring society to a new level of economic efficiency, and as result strengthen the possibilities of “perfect commerce” (Van de Walle 2002).

Bakos adds valuable insight to e-commerce and e-business trends that information systems managers have been attempting to master (Bakos 1998). Firstly, Bakos simplifies the term “electronic marketplace” by stressing the primary functions of a market in general. Then, he explains how electronically enhancing these functions can effect a market and what the implications of such effects might be. Finally, she explains age-old market issues with respect to electronic marketplaces such as competition, differentiation and the role of market intermediaries.

By simplifying electronic marketplaces and focuses on the idea that the economic principles that apply to face-to-face marketplaces will also apply to electronic marketplaces. This concept is the basis upon which Bakos makes his conclusion that these new trends in business will encourage economic efficiency and assist in creating stable economic growth. For information technology managers, these new tools are opening new strategic opportunities and adding value for their customers.

Three ways of adding value to the buyer/seller matchmaking process, Bakos explains, is by determining product offerings, searching, and price discovery. These information-based, decision support functions can surely be automated and made more efficient in an electronic marketplace. "The behavior of buyers, sellers and intermediaries is motivated by their desire to maximize their private utility," Bakos explains. Markets provide the information that buyers and sellers need to make decisions that are in their best interest and then allow them to execute that decision by facilitating the transaction within the institutional infrastructure that binds the market. Electronic markets easily establish financial relationships and exchange funds between the buyer and seller. Moreover, the rules by which marketplaces abide by can now be strictly enforced within the electronic marketplace through permission-based systems that only allow the transaction to be completed if all the necessary requirements have been fulfilled.

An example of this trend is on the eBay Internet auction house. This giant forum, where buyers and sellers come together to exchange goods for cash, is surprisingly efficient and effective. Conducting millions of transactions each day, it also minimizes fraud through rule-based systems that utilize methods used in face-to-face markets to establish quality of the product and legitimacy of the buyer and seller. With an unprecedented feedback mechanism, eBay members can leave positive, negative or neutral comments about transactions that they have conducted. This allows future users to determine the likelihood of their transaction going bad. In addition, eBay employs a "pay first, get later" policy, which forces buyers to pay for their merchandise before accepting delivery.

Should they have problems receiving the product, eBay also has a fraud system in place that can retrieve funds from the seller's credit card, which was withheld when they first joined eBay.

Electronic marketplaces such as eBay also have a unique capability to offer customization of product offerings through increased personalization. Consumer tracking technologies enable electronic marketplaces to archive valuable information about buyers such as their demographics, product and price preferences and purchase history. This information is compared with similar customers to discover similar product offerings in which they may be interested. Amazon.com's "other customers also bought" feature allows customers to view four or five other products that similar customers have previously purchased with the product that they are about to purchase. This personalization not only increases value to the buyer but it promotes more sales for the seller.

Search and price discovery features of electronic marketplaces also increase value for buyers while at the same time allowing market intermediaries to financially benefit from the market as well. Advanced search functions allow buyers to search through many products accurately to find exactly what they want. Moreover, pricing functions allow search results to be narrowed in accordance with buyer's criteria. This, of course, increases competition in the marketplace while decreasing product differentiation. Information managers, therefore, need to realize that the more they differentiate their products from others, the higher their revenues will be. Market intermediaries take full advantage of this phenomenon of lower search costs and differentiation by

creating their own mega-marketplaces where product information from several sellers is made available to the buyer in one forum. These marketplaces, such as Dealttime.com and AskJeeves.com, further decrease product differentiation while charging sellers a listing a fee for the privilege of being displayed on their site.

Electronic marketplaces on the Internet are still unstructured and it is for this reason Bakos does not go into great detail about how various structures will have an effect on management style and strategic planning for e-commerce businesses. In fact, his thesis explains that internet-based electronic marketplaces will lead to greater effectiveness and efficiency allowing “friction-free” markets to emerge and enabling the economy to experience steady growth. What still remains unanswered, however, is what the long-term effect of such marketplaces will have. It is uncertain whether electronic marketplaces will eliminate the need for other marketplaces that are face-to-face or use other media to conduct business.

The article by Bakos is an analysis of electronic marketplace trends on the Internet and the various roles they have assumed in today’s economy. Further, it legitimately establishes that electronic marketplaces are good for the economy and promote sustainable growth. However, since economic principles still apply to electronic marketplaces, they have various effects on buyers, sellers and intermediaries such as pricing, product information, differentiation and institutional infrastructures. Given that these issues cannot be ignored, electronic marketplaces have built-in mechanisms to handle them. Still, they have a

positive effect on the seller's revenue streams, buyer's satisfaction and on the economy as whole.

Reducing costs for using such marketplaces will create a shift that will lead to the use of marketplaces hierarchies, which control the flow of resources at higher management level (Malone 1987). Market systems, of course, are a more efficient means of distribution as they naturally enforce the laws of supply and demand and nurture competition with other principles such as the invisible hand. Hierarchies are restrictive by nature; as a result, production costs are generally higher. On the other hand, since hierarchies limit choices, buying/selling cycles are much shorter since there is little price and product discovery involved. Choices are already made for buyers and sellers alike.

Developments in electronic marketplaces encourage the use of hierarchies and create what Malone, Yates and Benjamin call the "electronic communication effect" which allows more information to be communicated in the same time while decreasing the cost of communication. Even further, the "electronic integration effect" occurs when information technology is used to communicate, utilize information in a more effective way and create new information that was not possible before.

The transition from hierarchical to market systems occurs because of a decrease in both unit cost and production cost in the market system. Due to the fact that this requires complex communication, electronic marketplaces facilitate the evolution nicely and encourage market use for hierarchical use. An example of such a shift occurred in the airline industry; in the old hierarchical system, only

airlines could sell reservations since the only contact with the seller was through calling them directly. The introduction of travel agents allows consumers to work with several contact sources and attain the best rate possible. To complete the transaction, agent makes the purchase from the airline. This introduces market element that would not be possible without an electronic marketplace that was achieved through Electronic Data Interchange (EDI) (Malone 1987). Advanced internet-based markets go beyond this example, eliminating the travel agent that acts as a market intermediary.

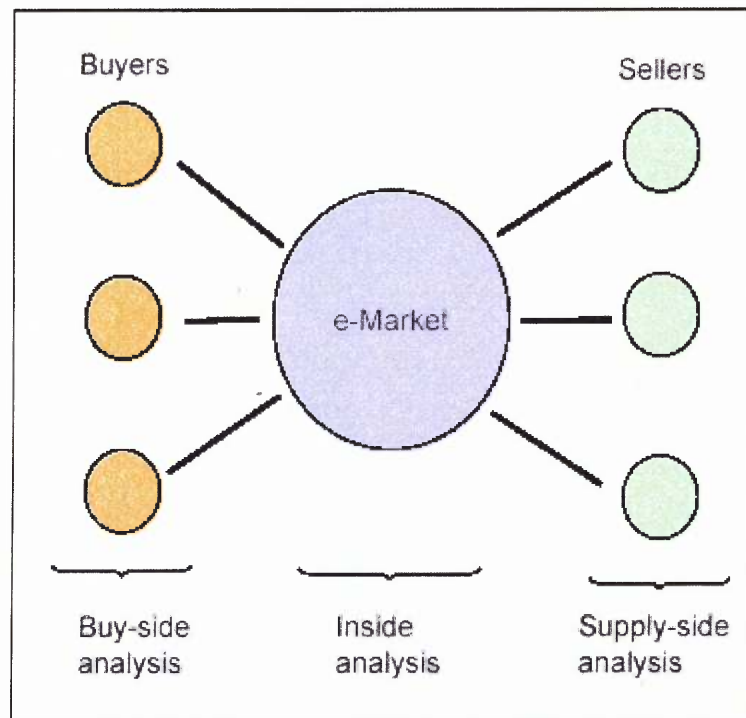


Figure 1.1 Analyzing the E-Market .
(Van de Walle 2002)

It is important that buy- and supply- sides of the market are analyzed separately. “One should learn what services are most widely used; what pricing mechanisms work; who are the most valuable participants; how efficient is the market, etc.” (Van de Walle 2002). In principle, electronic marketplaces are

“environments for ‘perfect’ commerce” (Van de Walle 2002), but this not always the case in practice.

In this way, marketplaces cannot be one-sided; they must facilitate the buyer, the seller and eventually, the exchange. Many online sites for sellers or buyers are often mistakenly labeled as electronic marketplaces but never facilitate exchanges. Even if an individual site facilitated exchanges, it still cannot be labeled as a marketplace until it facilitates many exchanges, for many buyers and sellers. “A successful exchange can aggregate more activity than an individual buyer’s or seller’s site, but a marketplace structure determines whether it is a desirable place to do business” (Feldman 2000). Stuart Feldman explains that marketplaces must be able to manage its participants, information and business process. He emphasizes that the information about business transactions is key to all the activity. “More formally, an exchange should support security, liquidity, transparency, efficiency and anonymity.”

Perhaps the greatest advantage to using electronic marketplaces is to strive for “perfect commerce”; this environment will enforce the laws of supply and demand and encourage competition and strategy through use of the invisible hand. There are “electronic commerce systems that are focused on minimizing the cost of goods and services and their associated transaction costs (often referred to as ‘electronic markets’ or ‘perfect competition’)” (Holland 2002). As technology is applied to electronic exchanges of goods and services, competition will force businesses to become more efficient. As a result, sellers reduce their costs and prices on products offered to the consumer. Electronic markets have a

proven track record in reducing transaction costs, decreasing market entry boundaries and increasing competition. This phenomenon can have various effects including “streamlining administrative and production systems and integrating business processes across organizational boundaries to achieve benefits in such areas as stock turnover, reduced staffing and improved quality of logistics operations” (Holland 2002).

In addition to economics, Holland also highlights the strategic and behavioral benefits companies can enjoy by embracing electronic marketplaces, increasing competition, and forming powerful market alliances. Such Business-to-Business (B2B) arrangements between organizations can be easily facilitated by electronic marketplaces and result in further reduction of costs of handling information and sharing production and marketing strategies to gain competitive advantage. “By cooperating with each other and building trust within a network of companies, it is possible to adapt better to changes in the external environment, ensure that quality levels are constantly improved, implement time-based strategies for design and logistics, and also share the risk inherent in investments in assets that may be of limited short-term value outside the integrated value-chain” (Holland 2002).

The evolution of marketplaces has resulted in the need for intermediaries; as a result, electronic marketplaces have revolutionized the buyer/seller matchmaking process and the need for intermediaries has undergone a metamorphosis. In face-to-face markets, realtors and travel agents are necessary to sort through the market and make the best possible match. Usually

funded by commissions, these “middle men” are no longer needed in the electronic marketplace since the marketplace itself is able to make matches through advanced data processing tools. These new ways of doing business will encourage economic efficiency and assist in creating stable economic growth. For IT managers, these new tools are opening new strategic opportunities and adding value for their customers.

As electronic marketplaces continue to act as intermediaries and take the place of “middle men” such as realtors and travel agents, a new level of trust and market differentiation is built into the market (Clark 1999). Electronic markets provide an infrastructure to the market and can enforce policies created by the intermediary. The institutional infrastructure attracts buyers and sellers alike, as these are the fair terms on which transactions will be completed. For instance, these infrastructures alleviate expected fears of buyers and sellers because payment default and fraud are prevented. A strong institutional infrastructure, provided by the intermediary, can create and impose the procedures by which all in the market will do business. While institutional infrastructure creates an environment where all buyers and sellers seem to be alike, market differentiation becomes necessary to facilitate competition.

Simply put, electronic markets match buyers and sellers; it is the success of those matches that increase the profitability of a company and enhance the decision-making process. The match, however, depends on the variable the market defines for that purpose. For instance, a real estate market would have to define such variables as price of a house, lot size, location, etc. However, in

the staffing industry, the focus shifts since we are now marketing people, not things. In a society where humans have potentially billions of attributes and therefore prospective variables for the market to define, how well do current electronic marketplaces perform in this venue? What can be done to improve their operations?

CHAPTER 2

STAFFING INDUSTRY

Perhaps the most valuable resource in corporations, human resource management, has always posed a challenge in medium-to-large sized companies. The hiring process, in particular, is where the human resource function begins; it is most crucial for obtaining the talent management teams need to lead profitable organizations. As companies shift focus to their primary business process, they quickly forget about investing in search techniques that then create a need to outsource this function to staffing agencies, also known as “headhunters.”

A \$75 Billion industry, recruiting plays a critical role in the contemporary economy that relies heavily on the inefficiency of human resource departments in corporations. The payment for finding talent can be mammoth, usually a percentage (about a quarter) of the candidate’s annual salary. As with other “middle man” industries, the Internet revolutionized recruiting in just a few years. Recruiters worshipped new communications tools that arrived every few years from the telephone to the fax machine and now to electronic mail and the Internet. The sooner hiring documents, such as résumés and contracts, can be sent to a client, the better

2.1 The Hiring Process

There are several variations to the hiring process regardless of the participation of staffing agencies. Many of the stages are cyclical or iterative and require a great deal of effort that headhunters can alleviate. For the purposes of this paper, the stages of the search and hiring process will be defined as show in Figure 2.2.

One of the most obvious elements in the search and hiring process is the fact that any candidate can be rejected at any time, but after rejection they must be fed back into the résumé bank to be considered for other openings that they for which they may be qualified. Very rarely is it necessary to remove a candidate from the résumé bank. In addition to the résumé bank, job specifications also serves as an input for the search and hiring process. The result of the process is the last stage when a candidate is finally hired.

2.1.1 Prescreening

The prescreening stage is where most candidates are removed from the search. Prescreening can be done by low-level employees or even by recruitment management systems to filter out candidates by pre-coded criteria such as citizenship status, location, experience level, education, salary, etc. Usually these attributes are clearly definable at a system-level.

2.1.2 Screening

Screening is a more intense filtering process that may be done in part by a system but usually requires the time and effort of a staffing agent to complete. This stage is used for attributes that cannot be clearly defined by a system or low-level employee and needs the intervention of someone who clearly understand the job specifications. Items such as communication skill, knowledge of the industry, relevant experience and undefined or special skills are types of attributes that are considered at this level.

2.1.3 Pre-Qualification/Interviews

The pre-qualification and interview process is usually first done by human resources to make sure the candidates are qualified to do the job based on their résumés or applications. During the interview process, the hiring manager gets better idea of how well the candidate might perform in the given position. Pre-Qualification/Interviews is an iterative process since middle and top managers may have their own definition of pre-qualification criteria and conduct this phase each time the applicant comes in (usually by briefly skimming through the résumé a few minutes before the interview).

2.1.4 Qualification

Should the candidate perform well on the interview, the company must go through the qualification process before making an offer. This is a validation process to make sure the candidate is indeed qualified to do the job; it also

consists of procedures such as degree verification, background checks, reference checks, drug testing, etc.

2.1.5 Offer / Hire / Termination

This is the last of the two iterative stages in the search and hiring cycle. The candidate is first made an offer (negotiation may occur here) and will eventually accept or reject it. Upon rejecting it, the candidate will return to the résumé bank. If accepted, the candidate will be hired and may receive a multitude of other offers and benefits if they are ever extended increases in compensation, promotions or other perquisites. Once candidates are hired, there is also the possibility of getting fired, quitting or leaving for another reason; therefore they are terminated and returned to the résumé bank.

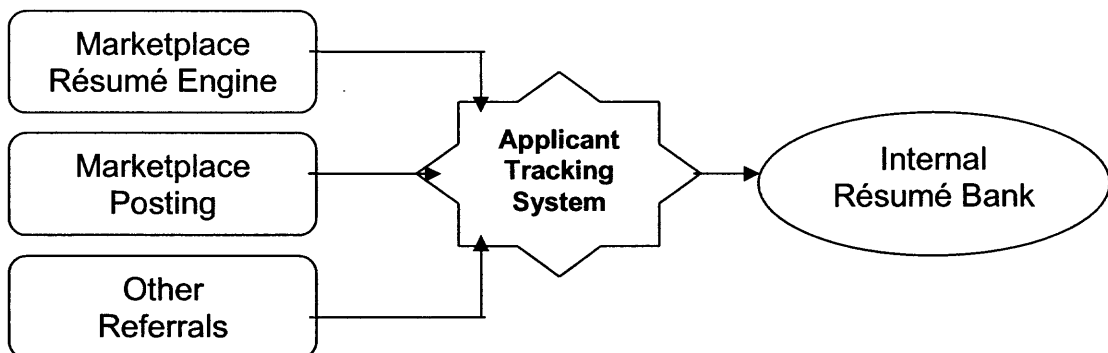


Figure 2.1 Applicant Tracking Systems.

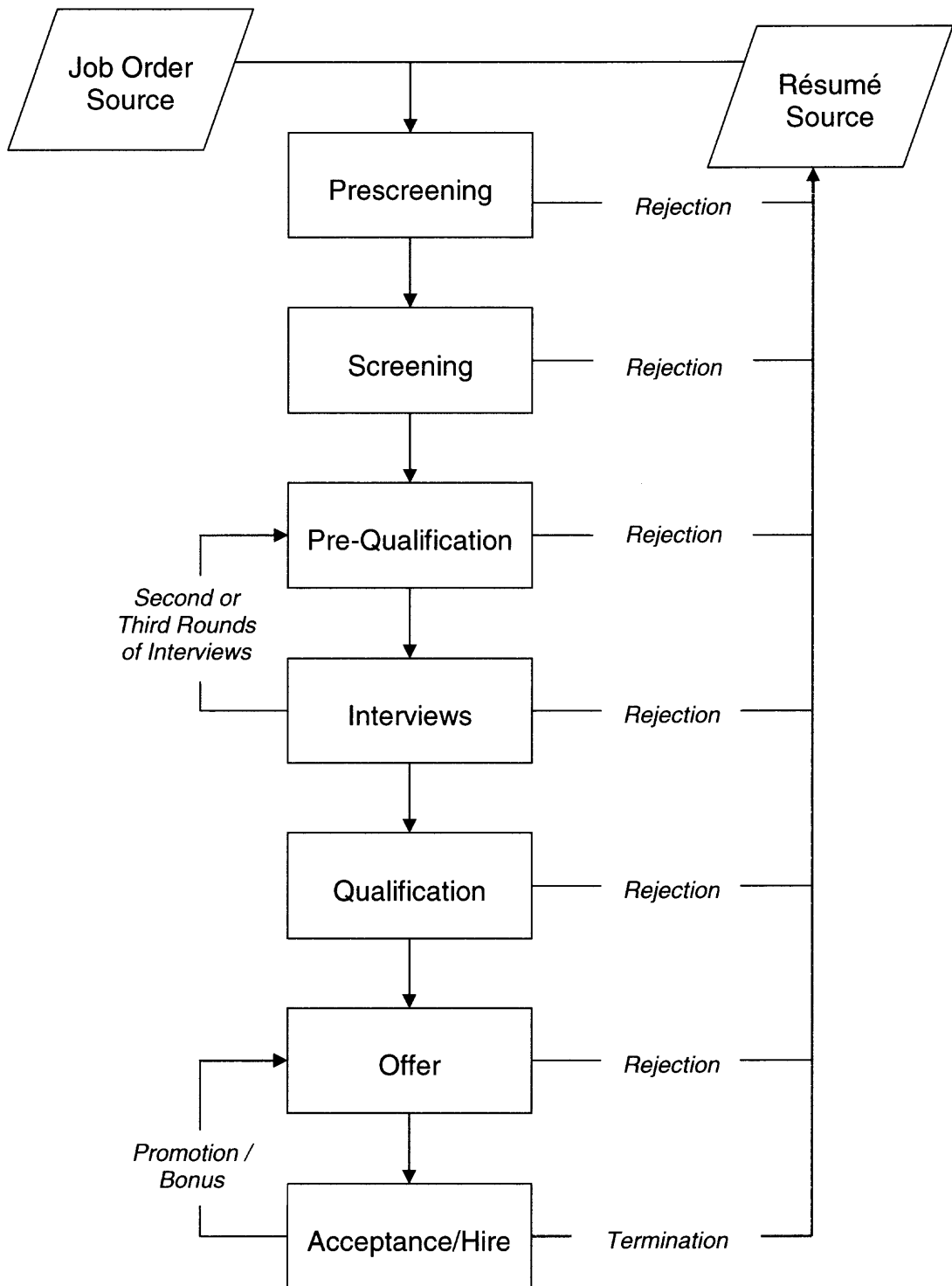


Figure 2.2 The hiring cycle.

It is clear that electronic marketplaces will perform best in the prescreening and screen phases of the cycle. Some agents may rely on electronic marketplaces to produce the résumé bank while others maintain their own internal databases, or applicant tracking systems, to manage the résumé bank. This action may be done by gathering résumés in the marketplace and inputting them into their system or just reserving their system for candidates that have proactively applied for a job advertisement and therefore shown an interest.

While much of the screening and buyer/seller matchmaking process can be completed in the marketplace itself, applicant tracking systems exist to facilitate the search/hiring cycle, taking advantage of various features of several electronic marketplaces as well as traditional recruiting resources. This enables the staffing agent to have the largest bank of qualified candidates possible and therefore allows them to present more qualified applicants to hiring management.

Applicable to both search agencies and in-house human resource recruiters, the search and hiring cycle can vary from industry to industry; in general, these stages and functions are similar. In the contemporary workforce, much of the cycle is still controlled by HR, but agencies are quickly taking over greater proportions of the cycle, enabling companies to outsource more of the HR function. For instance, a company may have to employ agencies to find and screen candidates and then conduct interviews in-house while others may have agencies follow through with interview and qualification stages and only make an offer internally.

The services HR services are being outsourced, from staffing to payroll to training. “Outsourcing has become popular because companies are finding external vendors through technology and economies of scale can provide more efficient and cost-effective HR services than in-house departments” (Caudron 2003). Caudron argues that as HR functions are outsourced their competencies in the next generation will shift to high-level leadership and strategic roles while still acting as a buffer between external vendors and internal management. Electronic marketplaces, however, have proven to put middleman industries, such as staffing, out of business and this trend may allow HR departments to reassume this role at a lesser cost than what they pay vendors.

Electronic marketplaces are transforming much of the search and hiring cycle into low-level administrative tasks that can easily be systemized. Eventually, electronic marketplaces will make hiring cheaper and easier for companies since much of the prescreening, screening, pre-qualification and even the interview process may be done online. Nonetheless, until the transformation can be completed, staffing agencies will continue to be paid high commission fees since their fees are less than what the company would pay to maintain HR departments that could do a comparable job of sourcing talent. As the business process becomes more automated and routine, staffing agencies must either demonstrate their value in the industry or be dissolved.

2.2 E-Marketplaces As Decision Support Tools

With respect to the staffing industry and many others, electronic marketplaces also serve an unseen purpose: as decision support tools. Since electronic marketplaces play such a crucial role in price and product discovery, they also become decision support tools assisting buyers and sellers on making educated decisions before committing to a transaction. Matchmaking itself is a decision process that takes into account such variables as cost, price, location and other factors that effect products such as their quality. This can work to the advantage of both buyers and sellers.

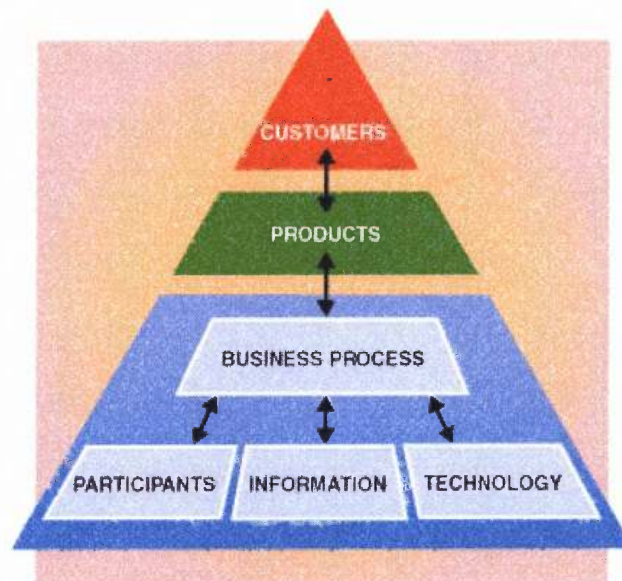


Figure 2.3 Alter's WCA framework.

For instance, taking into account inventories, fixed and variable costs, and ideal profit margins, electronic marketplaces can assist sellers in determining the maximum and minimum prices of their goods and services. This is further evidence that electronic market systems are information systems, which are at

type of work system (Alter 2002). Using Alter's Work Centered Analysis (WCA) framework, we can see how the electronic marketplace, from the point of view of the seller, is an interorganizational decision support system.

Both buyers (employers) and sellers (job seekers) are considered "customers" in the WCA framework even though the buyers are the only ones included in the revenue structure for the marketplace. Sellers will entice buyers to use the marketplace since their availability is directly related to the number of sellers that will take advantage of the marketplace's services. While buyers are an intricate part of the revenue structure since they pay "per posting" fees for every opening they enter the marketplace, sellers need to be attracted so that buyers find value in the service. This can be done with other low cost products and services that are provided free of charge to sellers including résumé writing tools, interview tips, and salary analysis information. Feedback systems can also improve the quality of information on the marketplace so that buyers and sellers can post comments about each other when the job is completed. Future buyers and sellers can then check these ratings before doing business with a potential match.

The success of the marketplace depends on its ability to effectively match buyers and sellers. This depends on three factors:

1. A steady flow and large variety of buyers and sellers
2. Accurate descriptions of available jobs
3. Accurate descriptions of available candidates

A steady flow of buyers and sellers will increase the likelihood of successful matches. By definition, the more each party has to choose from, the more valuable the marketplace will become. Information management tools for buyers and sellers such as the feedback systems, résumé writing tools, interview tips and salary analysis will attract more participants into the marketplace and greatly reduce the risk of failure in this area. In addition, the natural flow of both buyers and sellers depend on each other. For instance, more sellers available in the marketplace will entice more buyers to post their openings. Similarly, more buyers in the marketplace will entice more sellers to respond and post their availability as well. Consequently, the market will always be in a never-ending battle to reach this equilibrium. Accurate descriptions of available jobs will yield in best possible seller matches. In the same way, accurate descriptions of available candidates will yield in their best possible match with openings. Both of these pieces of information, job descriptions and résumés, need to be categorized and searchable through the marketplaces. Factors such as requirements, skills, location, salary and availability should be described as accurately as possible for both openings and the candidates. Additionally, all of these must be sorted into categories and sub-categories so that they can be defined as clearly as possible thereby reducing the risk of failure to provide successful matches.

Moreover, during the matchmaking process, legal and ethical issues become relevant. Not only is the marketplace responsible for its actions, but it may also be held accountable for the actions of its buyers and sellers. Every

precaution must be taken so that job seekers and employers alike can do business effectively and safely within the marketplace. The marketplace must ensure and promote equal opportunity employment among all transactions. Under no circumstances should discrimination of any kind be tolerated. Other employment laws are also crucial to emphasize including the minimum wage, restrictions on under age workers, and illegal activities such as those related to drugs, alcohol, violence, and sex.

Minimum wage raises an ethical issue for laissez-faire marketplaces. It is questionable if the price for a service should be determined by the natural laws of supply and demand or whether a price floor should be instate that guarantees workers a minimum wage. While it has been proven that the laissez-faire marketplaces are the most effective, the market must adhere to the rules and regulations of the government under which it operates. Therefore, staffing marketplaces should restrict pay rates with respect to the minimum wage established by both the federal and state governments.

While it is unlikely that the marketplace will be responsible for the behavior of others, provisions must be taken to prevent any damages that may occur because of buyer/seller hostility. Disgruntled job seekers, for instance, may lash out at citizens that hire them for temporary assignments; this danger is especially sensitive with respect to the elderly. Physical, mental, and sexual abuse between buyers and sellers should also be a top concern of the marketplace and should be addressed within its policies and procedures.

One of the most effective ways to control the behavior of buyers and sellers is to create a feedback system similar to that of eBay. Ideally, feedback will be left upon completion of the assignments to explain how efficient the employee was and the fairness of the employer. These comments are then publicized and it is expected that buyers and sellers check each other's feedback before doing business with each other. Similar to an electronic reference system, feedback will accumulate on each user and their reputations will become clear to all of the participants.

The WCA framework reveals a strong relationship between customers and products and also their products and their business process. Therefore, there is no direct correlation between the information and technology components, where the electronic marketplace exists, and the products themselves. Only through the business process does the marketplace have any influence over the products. The intimate relationship between the supply side business processes and e-marketplaces is where decision-making lives in the framework. Therefore, it is the interaction between the e-marketplace and business process that allows decision tools to have an effect on the way the seller does business. "Many exchanges will fail due to bad timing or inappropriate choices in business details or technical implementations. But the winners will play a huge role in the worldwide economy as they focus on decision-making and improve market efficiencies" (Feldman 2000).

Buyers can also utilize electronic marketplaces as decision-making tools. A simple sort function, for instance, which can order product information by price

can be a powerful decision-making tool. Even beyond that, buyers have other critical tools to help them make purchases online including intelligent shopping agents that can comparison shop for them at selected sites and return the best purchase opportunity. These, however, are often a form of market intermediaries that later charge the seller a fee after the transaction is completed.

E-tailers, themselves, provide buyers with decision support tools as well. Retail giant Amazon.com, for instance, offers various types of information that assists buyers in making decisions including customer reviews. These reviews, however, are only posted after screened by amazon.com so there is a definite question of biased censorship in this case. Other markets, including Half.com, a subsidiary of eBay, have been known to actually quote their competitor's prices for each product, which usually boasts how low their prices are while at the same time assisting the customer in making a purchasing decision. Similarly, the same principles apply to staffing marketplaces. Webs that offer salary information, local costs of living, or compare job ads side-by-side offer decision tools to job seekers. The equivalent sources of information can provide employers with decision tools as to what types of salaries they need to offer to remain competitive. Advanced features of staffing marketplaces, including virtual interviewing and pre-interview questionnaires, are also decision tools employers can use to narrow down the pool of candidates that applied to just a few that they would like to see in person.

In the long term, employers can utilize more advanced Decision Support Systems (DSS) from data gathered by the electronic marketplace. This system

would allow them to better hiring practices through techniques that are statistically more effective on the target audience . Potential questions that can be answered could be such things as: Which advertising techniques do potential employees respond to? Is there a relationship between online and offline candidates and their performance? Their value? This facilitation of decision-making initially comes from just using the marketplace, not by purchasing expensive DSS software. The very act of performing a function online rather than offline yields immediate benefits in tracking and reporting data that can be used to make decisions.

CHAPTER 3

STAFFING MARKETPLACES

The “résumé source” in the hiring process can have several definitions. Before the computer revolution, it was defined as the pile of résumés an agent had on his desk or a filing cabinet full of candidates sorted by any number of characteristics including salary or job type. Today, staffing agents have a choice of various types of applicant tracking systems, online résumé subscription services or even an email box full of responses to classified advertisements.

Classified advertisement responses in electronic marketplaces are by far the best and most accurate method for candidate discovery since the candidates themselves finish most of the prescreening process, assuming they only apply to positions they for which they are most likely qualified. These responses can then be reviewed by an agent or entered into an applicant tracking system for further tracking, screening or qualification. Résumé subscriptions, on the other hand, require greater effort since an in-depth prescreening must take place. These résumé banks contain numerous résumés, more than an agent would every receive via email, of candidates that may or may not be interested in the open position so therefore the focus becomes shifted from quality to quantity.

Some recruiting firms use both résumé subscriptions and candidate responses by entering the entire pool of candidates into an applicant tracking

system that filters through all of them. This practice not only allows recruiters to retain a large pool of candidates, even after their subscription expires, but also to have recruiters screen all the applicants on their terms instead of being restricted to the screening agents that are offered by the marketplaces themselves.

Two popular marketplaces are Dice and HotJobs. Dice is a marketplace that specializes in technology positions while HotJobs is a more general site that caters to all industries and career types. Both sites offer candidate responses and résumé subscriptions to recruiters and human resource departments for a fee and therefore have similar WCA frameworks.

These lead generation marketplaces have a structure that is ideal for effectively matching job seekers with employers while maximizing the revenue for the electronic marketplace. By charging user fees to employers on a per job basis and supplementing this revenue with advertisements, the probability of a steady flow of review increases. Advertisements, however, should always be a secondary form of revenue as too many can cause employers and job seekers to become uninterested in utilizing the market's services, which would result in a loss of funds in the long run. Similarly, limited advertising will stimulate more transactions and therefore more postings and fees. Flat fees, paid by the employer, should be charged for each posting. Commission fees on a per placement basis would likely tempt employers to find a match inside the marketplace, but then complete the transaction outside that forum. To prevent this behavior, sufficient security risks would have to be considered, such as hiding names and contact information of both parties involved. Therefore, simple

flat fees charged per posting, not per placement would be best to avoid this scenario. This will allow buyers to post jobs by paying one fee with no long-term contracts; prices must be kept low so that more openings are posted and buyers have many opportunities from which to choose.

Table 3.1 WCA Analysis of Staffing Marketplace

CUSTOMERS		
<ul style="list-style-type: none"> • Employers seeking to hire • Headhunters seeking candidates for clients • Candidate who seeks jobs (indirect customer) 		
PRODUCTS & SERVICES		
<ul style="list-style-type: none"> • Opportunity for the employer to get the most accurate match possible through posting services with maximum efficiency. Efficiency is provided by features such as sorting, searching, data analysis, prompt communication, etc. 		
BUSINESS PROCESSES		
<ul style="list-style-type: none"> • Recruiter/Employer posts an opening • The opening is indexed and categorized for efficient search • Candidates read the ad and may apply for the opening • The application and résumé are forwarded to the recruiter • Candidate is also permitted to post a résumé to a database • The résumé is indexed and categorized for efficient search • The recruiter is able to review résumés that match the search criteria and contact the candidate with job details. 		
PARTICIPANTS	INFORMATION	TECHNOLOGY
<ul style="list-style-type: none"> • Employers • Recruiters • Candidates • Marketplace (as an intermediary) 	<ul style="list-style-type: none"> • Job description • Job requirements (skill, salary, location, education, etc.) • Incoming résumés • Résumé database 	<ul style="list-style-type: none"> • Internet • Subscribed websites • Email server • Job Database • Résumé Database

3.1 Job Seeker's Decision Making Process

- Evaluate Personal Needs and Qualifications
 - Decide which types of assignments are acceptable
 - Decide which location ranges area acceptable
 - Decide which salary ranges are acceptable
 - Evaluate acceptable availability times
- Consider Open Jobs in Marketplace
 - Search for acceptable job types
 - Narrow search to acceptable location range
 - Narrow search to acceptable salary range
 - Match availability dates with personal availability for each job
- Respond to Open Jobs
 - Email letter of interest, qualifications, availability and résumé (if applicable) to employer
 - Confirm interview date if applicable
 - Confirm assignment date with interested employer(s)

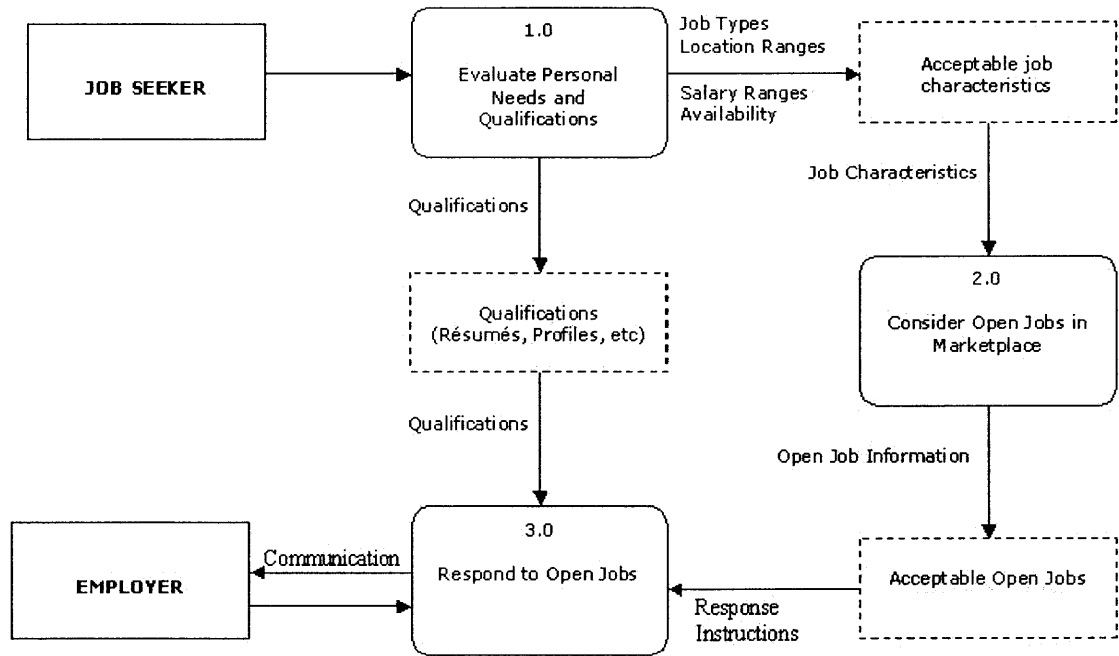


Figure 3.1 Job seeker's decision-making process.

External Entities

Job Seeker: Also known as the “seller” in the marketplace; the diagram shows the job seeker’s decision-making process when trying to find an assignment.

Employer: Also known as the “buyer” in the marketplace; the diagram shows the employer’s role in the job seeker’s decision-making process.

Processes

1.0 Evaluate Personal Needs and Qualifications: This process takes into account the personal needs and qualifications of the job seeker and defines them in specific formats. For instance, the needs would be defined in categories such as location, pay rate, job type, and schedules while the qualifications may be in the form of a list of abilities, skills, a résumé, personal statement, etc.

- 2.0 Consider Open Jobs in Marketplace: This process considers open job characteristics in the marketplaces and matches them with already determined characteristics from the previous process.
- 3.0 Respond to Open Jobs: This process responds to each of the acceptable openings that were matched in the previous process. It then also takes the qualifications that were defined in the first process and sends them to the employer.

Data Stores

Acceptable Job Characteristics: This data store contains the acceptable characteristics that were defined by process 1.0. It also outputs this information to process 2.0.

Qualifications: This data store contains qualifications such as a résumé, skill set, personal statement, etcetera that was defined in process 1.0. This information is then also outputted to process 3.0.

Acceptable Open Jobs: This data store contains information on matched jobs that was defined in process 2.0. It also then outputs this information to 3.0.

3.2 Dice

3.2.1 Description and Analysis

Dice qualifies as a specialty marketplace, which uses recruiters and staffing companies as its direct customer. It charges this direct customer fees for using the marketplace, but allows it's indirect customer, job seekers, to use the service

free of charge. By doing so, Dice increases the potential to have a large base of job seekers, which will therefore make the service more appealing to its direct customer. In 1999, Dice made its services available to employers directly, but the majority of their customer base still tends to be staffing agencies (Dice 2003).

As a specialty job marketplace, Dice could be at a disadvantage by only catering to technology professionals. However, as one of the most active users of online marketplaces, technology professionals have instead made Dice one of the most popular and widely used job boards on the Internet (Weddles 2002). Specialization in technology is what led to their success, which proved that enough revenue could be generated from this industry alone.

As Dice grows in popularity with employers, the same tool that made recruiter's jobs easier could put them out of business. It is in the nature of e-marketplaces to replace market intermediaries such as recruiters and many of the new features they have implemented clearly services direct hires. A résumé database of over 300,000, for instance, benefits small companies who do not have the time or money to maintain a large database of their own. In addition, partnering with HRCare.com provides employers with detailed information that caters to them and assists their HR departments.

3.2.2 Benefit to Staffing

Primarily, Dice benefits technology job seekers in that they can go to single place to get a plethora of available jobs. The market, therefore, has a delicate and cyclical balance since a decrease in available jobs will result in a decrease in job seekers, which then will result in a decrease of employers willing to advertise

available jobs. As available jobs and employers increase, however, job seekers in the marketplace increase as illustrated in Figure 3.1.

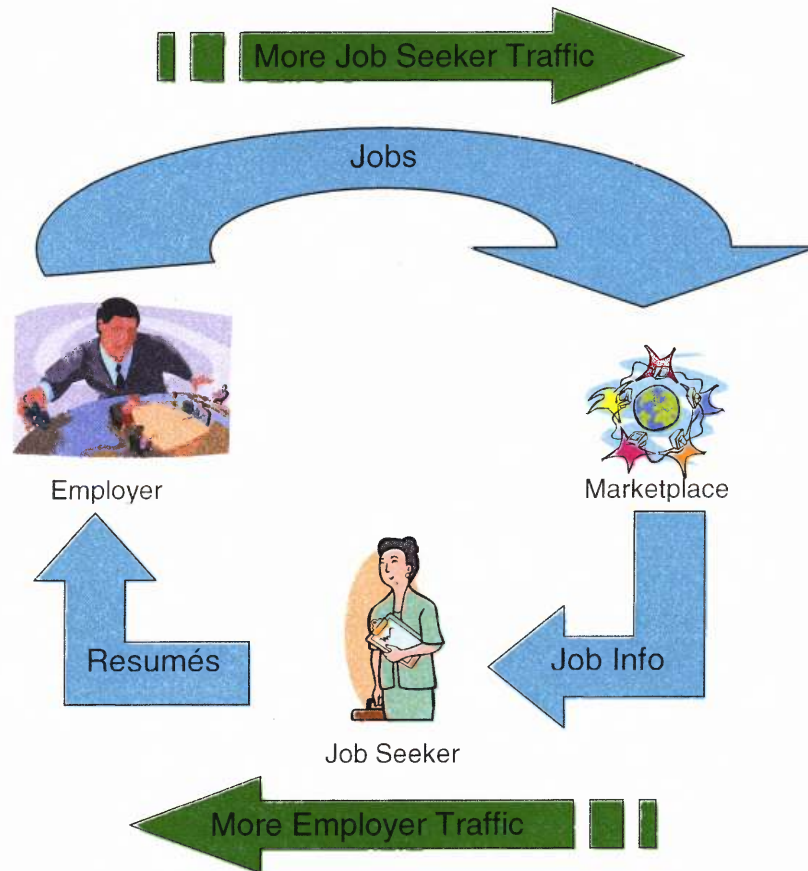


Figure 3.2 Job marketplace traffic.

Employers also benefit since they can manage the large quantity of responses they get and sort them by most qualified for the job. They can then proceed to contact those individuals accordingly. The Dice marketplace, therefore, does not charge based on successful transactions, but only on a monthly or per listing fee to the employer. From there, the two parties can contact each other to complete the transaction on their own. There is little or no facilitation of the transaction processes.

3.3 HotJobs

3.3.1 Description & Analysis

HotJobs uses a largely similar framework to that of Dice but with one basic difference: they cater to all industries and not just information technology. This opens a Pandora's Box for the company who then is forced to change their marketplace so that it would benefit not only those job seekers and employers who are in information technology, but every other discipline as well.

Unlike Dice, HotJobs uses two levels of categories to index its jobs to accommodate the wide variety of industries that exist. Variety of choices is both their strength and their weakness. Because of its specialized nature, Dice is able to provide more value to the information technology industry than HotJobs. They lose competitive advantage with other niche marketplaces that exist for medicine, pharmaceuticals, etc. Their key demographic is the generalized employer who is looking for that "one stop shop" or those categories that do not have niche marketplaces to cater to them.

3.3.2 Benefit to Staffing

Recently acquired by Yahoo, HotJobs' primary benefit to staffing is its wide use by all job seekers at different walks of life. Their primary competitor being Monster.com, another generalized marketplace, they are one of few marketplaces that have become a household name.

HotJobs does provide tools to employers that allow them to browse a list of applicants that have applied to their job dynamically and also presents

résumés to employers in a standard format so they can be easily compared. Job seekers, however, complain about these services that do not allow them to upload their résumé as-is, but rather submit it in plain text that HotJobs can then reformat and display it to the employer in a standard format.

3.4 Sample Cost Structure and ROI Analysis

Since all organizations, human resource departments and staffing agencies vary, it is difficult to provide a cost structure and ROI analysis. The following numbers were taken from a small information technology recruiting industry with a staff of ten (including four billing agents).

The company typically has a 10% success rate in placing employees, which is typical in competitive markets. Their fee for placements is 20% of the annual salary, which is also a typical number. To be successful, they have enlisted the assistance of both Dice and HotJobs marketplace but use Dice more heavily since their focus is on information technology. Since both Dice and HotJobs employ a “parking space” strategy of pricing, which allows them to change or edit job orders they have posted without limits, this allows the firm maximum flexibility to posting a virtually limitless number of jobs.

Table 3.2 Sample Cost Structure (low volume)

Marketplace Expenses Per Month	
20 Job Pack on Dice	\$895
10 Job Pack on HotJobs	\$670
	\$1,565
Marketplace Income Per Month	
10% Success Rate on 30 Jobs = 3 placements per month	
\$50,000 * 20% * 3	\$30,000
- 50% in commissions	(\$15,000)
Gross Profit	\$15,000

This type of scenario implies that just 10% of the profit goes to pay electronic marketplaces. Of course, staffing agencies have other costs before calculating net profit, but it can clearly be seen that marketplace fees are minimal compared with what the company retains as net revenue.

The percentage only gets smaller as the company grows and makes more placements per month as the company takes advantage of price breaks for higher volume:

Table 3.3 Sample Cost Structure (high volume)

Marketplace Expenses Per Month	
40 Job Pack on Dice	\$1,495
20 Job Pack on HotJobs	\$1,210
	\$2,705
Marketplace Income Per Month	
10% Success Rate on 60 Jobs = 6 placements per month	
\$50,000 * 20% * 6	\$60,000
- 50% in commissions	(\$30,000)
Gross Profit	\$30,000

Now, the company only spends 9% of their profit on electronic marketplaces.

CHAPTER 4

SEMI-STRUCTURED INTERVIEWS AND EMPIRICAL DATA

It should be noted that all company and individual names have been changed to protect the identities of the participants. Below are summaries of the interviews that were done with each applicant, agency and HR department; the exact questions that were asked to derive this information are available in Appendices A and B.

4.1 Applicants

This questionnaire focused on the IT industry for purposes of easy comparisons, however, the principles derived from them can be applied to any industry. All of the applicants who participated were senior-level professionals

4.1.1 Maxwell Justice

Justice is the Chief Information Officer (CIO) for a major publishing company in New York City with over \$500 Million in operating profit each year. He prides himself on starting his career in computer sciences, earning a degree in management and slowly earning his place in the private sector as a CIO. "Management is the driving force behind the technology; it cannot exist without a proactive person pushing it forward," he comments.

Justice has found the online staffing experience necessary but not ideal. He obtained his current position online, but cautions that even though the

electronic format made it easy to apply, it still takes a great deal of face-to-face effort to land the job.

Although he has used sites like Monster and HotJobs, he found his successful match through ExecuNet, an electronic marketplace that focuses on receiving revenue solely from advertisements and specializes in executive jobs paying \$100,000 salaries or more.

Justice's résumé was never available online for download. "I just did not feel comfortable with that," he claimed and therefore just concentrated on emailing his résumé to organizations that posted jobs he was interested in pursuing. "I am not sure how many responses I actually got from interested companies, positive or negative, but I would probably estimate that 90% of the time I got no feedback at all.

"Even though there were a lot of jobs available, I was very selective about which ones I would send my résumé to. I did not fall into the trap of applying to everything under the sun. I chose a few jobs that caught my interest and focused my attention on those only." Justice also advises that emailing résumés to companies is easier and more effective than traditional fax or mailing methods.

4.1.2 Sarah Whitelaw

Whitelaw is currently unemployed but has an impressive résumé as a security expert. She has worked in the private sector and for government agencies in the area of information security. Among the many titles that she has held includes Chief Security Officer (CSO) for an agency that is under the Department of Homeland Security.

While Whitelaw is not having much success in the electronic marketplace currently, she is a true believer in face-to-face methods of finding positions. “An alarming number of positions you find online are not real,” she complains. She states that she has more success in finding jobs the old fashioned way through networking or even looking in the newspaper.

Whitelaw’s résumé is currently online for the public to view, but she also states that she would not have done this if she was currently employed and seeking a better opportunity for fear that her current employer would discover she was actively looking. When asked how many positions she has applied for in the electronic marketplace she grinned and responded, “hundreds.” “It is so easy for us to apply to jobs online that it is very tempting to apply for many and see comes back.”

Her strongest complaint against electronic marketplaces is that employers do not take the time to respond to the résumés that they have received. She pushes for online job status to have a “check status” feature similar to the one that websites like Amazon currently use to check “order status.” If a résumé is no longer being considered, she says, applicants should be kept informed of that fact.

4.1.3 Dustin Parr

Parr is currently employed as Manager of Information Technology for a major New Jersey-based manufacturing company. He started his career in finance ten years ago and attributes his change in career to the Internet. “I would not have been able to make such a smooth transition if it weren’t for those job sites.” At

the age of twenty-eight, Parr decided that accounting was not a fulfilling field and thought a career in web development might be a better fit.

“I found tons of listings on the Internet for what I wanted ... I taught myself HTML, took a couple of online courses and was on my way.” Parr claims he obtained his first Web Development position after applying to only one job online, which led to interviews and eventually an offer. He remains at the current company after two internal promotions. When asked if he would call it luck he responds, “I don’t think luck had anything to do with it. If you know what you are looking for, that’s half the battle and makes that dream job that much easier to find.”

When he first started seeking a new position, Parr says that he was “overwhelmed” with the amount of jobs he saw listed but used the search mechanisms, combined with common sense, to find the jobs that matched his requirements. The job description, he says, was extremely detailed which is what attracted him to his current company, “they knew what they wanted and I knew what I wanted.”

4.1.4 Andy Ray

Ray is currently employed as Chief Technology Officer (CTO) for an eCommerce retail site. He started his career in sales over twenty years ago and made a transition into technology sales and now serves as CTO of a major retail portal that sells products advertised on television infomercials online.

When searching for jobs online, Ray says he could not find many CTO positions available and knew that there would be stiff supply-side competition in

the market. He drafted custom résumés to each of the jobs he found and eventually acquired an interview and an offer and was hired by the company for which he is currently employed. “It took a lot more time to make individual résumés for each company, but I think it was worth it.” Each résumé, he says, highlighted skill sets for which each company was looking.

“Having a detailed job description in front of you rather than a tiny classified in the paper makes the company’s need much more revealing and people need to take advantage of that,” he comments. He says that jobs advertised in the online marketplaces display more value than smaller newspaper ads since they are able to communicate much more and the employers are more likely to find the person they need.

4.2 Staffing Agencies

4.2.1 Tech Tykes, Inc.

Founded in 1983, Tech Tykes is a small (less than 15 employees) organization that specializes solely in Information Technology recruiting in the New Jersey / New York metropolitan area (see Appendix C for organization chart). In 1994, they hired technical staff to branch out onto the Internet and take advantage of the e-cruiting age. As a result of their data mining, they have gathered in excess of one hundred thousand résumés in their key demographic and consistently use this résumé bank as a primary tool for sourcing candidates.

In addition to their résumé bank, which is maintained by their applicant tracking system, Tech Tykes also utilizes Internet posting responses as another

tool for sourcing candidates. Candidates that are found online, but cannot be used, are simply fed into the applicant tracking system to continually grow the database. In addition, all recruiters are instructed to verify all of the information as they contact candidates so that data accuracy remains a priority.

The applicant tracking system is the center of Tech Tykes operations and allows them not only to maintain their database, but also to track information about the status of candidates, clients and open jobs. Serving as a corporate intranet, the applicant tracking system also facilitates internal business communication between employees through status reports and notes in each record. As a result of these efforts, over 90% of all placements occur as a result of online communication.

Tech Tykes is prepared such that when an open job order comes in, that it is immediately posted on their electronic marketplaces and begin to run searches against their existing databases through the applicant tracking system. The delay in marketplace response is compensated for by efforts prescreening existing candidates from the applicant tracking system.

When new candidates come in, they are indexed in the applicant tracking system by which electronic marketplace they came from, which job they applied for, date and hundreds of other attributes that originate from their résumé. Then, the staffing agent who posted the job reviews the candidate's résumé, contacts them if necessary and then reformats and sends the résumé to the client if necessary. All applicants, regardless of their phase, are sent a form email confirming receipt of their submission and thanking them for their interest.

4.2.2 Links Company

Since 1980, Links Company has specialized in the recruiting of Information Technology personnel and recently added a new Human Resources division to their company (see Appendix C for organization chart). Also a small business (less than 20 employees), Links Company utilizes many of the same techniques Tech Tykes does by using an applicant tracking system.

Links Company, however, has invested in the next generation of applicant tracking systems that allow them to conduct more specific searches, which allows them to prescreen more accurately. In addition, the applicant tracking system they use has automated entry, which eliminates the need for fulltime data entry clerks and increases data accuracy. However, the president of the company, James Stark, is also gung-ho on using traditional recruiting methods through networking to find quality candidates beyond marketplaces. In fact, his company has championed a technique that brings the ease of email to telephone recruiting by having a computer dial the phone numbers of qualified applicants (after the prescreening process) to tell them about the open job order and how to apply.

When an open job order becomes available, Links Company has several methods they call "pushing," which they use to advertise the job. Web pushes utilize electronic marketplace services, email pushes use the applicant tracking system to send out emails after the prescreening process, and phone pushes use the applicant tracking system to dial applicant phone numbers after the prescreening process to play a pre-recorded message pitching them the job.

When new candidates come in through any of these methods, they are sent for automatic entry into the applicant tracking system, sent an email form letter confirming the receipt of the résumé and then forwarded on to the recruiter who originally sent out the push. Moreover, since the Links Company applicant tracking system is based on the hiring cycle, it can also send out emails to applicants automatically once they are no longer being considered or as they are moving along through the stages of the cycle.

4.2.3 HoffmanCo

HoffmanCo, founded in 1992, is still an up-and-coming recruiting company. They have a relatively strong focus in mortgage and finance industries and just started an Information Technology department, which is still only a two-person team (see Appendix C for organization chart). The company as a whole is also small with less than fifteen in-house employees but many more working offsite or on a consulting basis.

For their first ten years they have managed to survive without applicant tracking systems and very little online recruiting efforts. Only within the past year did they purchase their system, which is still in developing stages, but have increased their electronic marketplace presence several fold. They attribute their success to traditional recruiting methods focusing very few of their resources to electronic means and boasting on their website that “less than 20% of exceptional people ever hired answered employment advertisements.”

The company is still in the old habit of saving résumés into folders rather than using their applicant tracking system, which is still weak and has little or no

value. They track candidates through the phases of the recruiting cycle by hand and offer absolutely no responses to candidates who have sent them résumés. Only if the candidates are qualified do they receive a call or an email responding to their application. The company's management regards the usage of electronic marketplaces as a cheap and fast way of getting a quality database of candidates. They regularly go through online résumé banks to solicit candidates that have not replied to their positions. Employees can habitually be caught surfing on these websites rather than using their internal database as a resource.

4.3 HR Department

Dear Life Insurance Company (DLIC) is a 100+-year-old company and one of the largest insurers in the country with their assets totaling nearly \$80 Billion. The company has a 10-person Human Resources team and almost all HR functions are outsourced including a large portion of staffing. In fact, this is a client whom recruiting companies would love to have but they only allow a limited number of companies on their approved vendors list.

The company's human resources director admits that his department has been shrinking the past ten years as more HR functions are outsourced. He adds that the cost savings in hiring and training internal personnel is what allows them to pay external vendors for these services and that this practice is more feasible than doing everything internally.

Cheap services through electronic marketplaces, however, have encouraged HR departments such as the one at DLIC to complete at least some

of the hiring process on their own. A candidate that can be found online is much more cost effective than finding one through a search service. And, DLIC can conduct its own searches concurrently with other services since all payments are on a contingency basis.

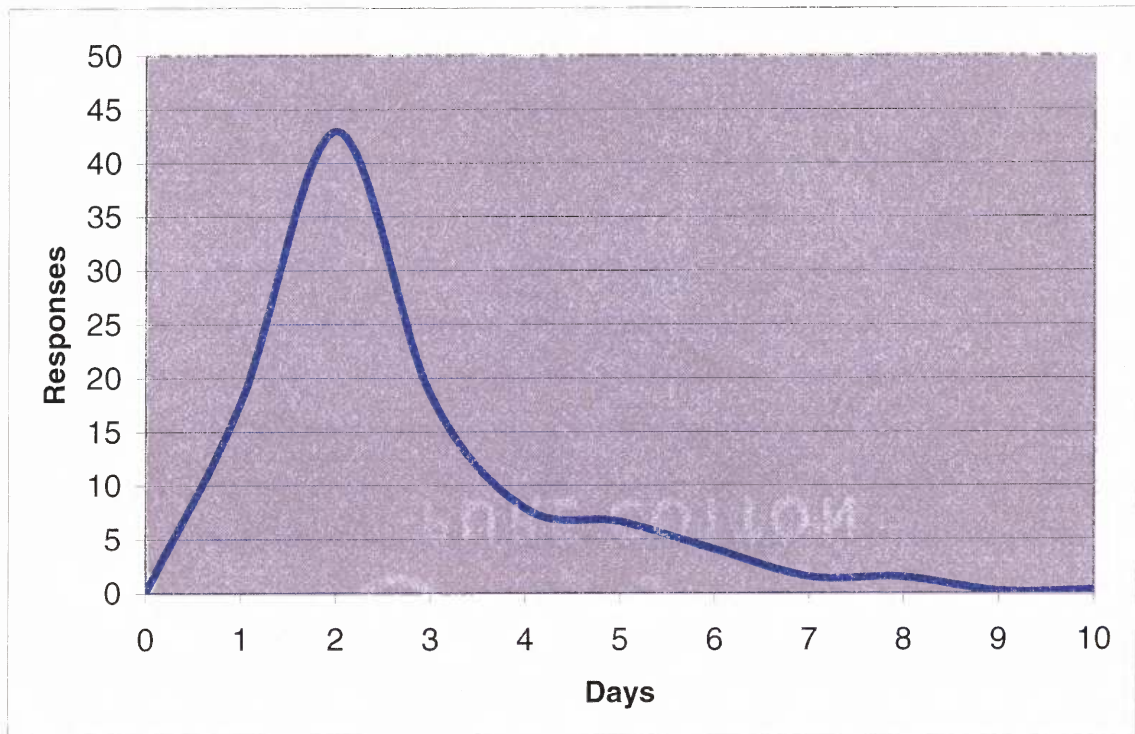
The company has not invested in an applicant tracking system but does maintain a database, written in SAP, to keep track of candidates that have applied to online. Furthermore, they have a strict corporate policy not to pay staffing agencies a commission on candidates that they have already found on their own. This practice forces them to keep accurate records on the candidates that they already have.

4.4 Marketplace Response Trends

Data from all three staffing agencies and one HR department was taken on 16 jobs per the data table below. These jobs were all information technology jobs posted in the company's most popular electronic marketplace. Data was taken from a combination of DICE, Monster and HotJobs based on the company's choice. All sixteen jobs were tracked for a total of ten days to determine how many responses were received. This does not imply the number of usable candidates that came in, only the gross number of applicants.

Table 4.1 Data table for Job Responses in the Electronic Marketplace

Jobs	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
TT1	0	23	42	18	11	6	7	2	1	0	0
TT2	0	17	40	19	1	8	4	1	1	0	0
TT3	0	18	42	18	2	1	3	2	2	0	1
TT4	0	15	37	16	5	6	2	1	1	0	0
LC1	0	16	36	12	6	3	4	1	1	0	0
LC2	0	15	32	20	8	7	4	1	2	1	0
LC3	0	17	32	13	9	6	5	1	1	0	0
LC4	0	19	44	16	3	3	3	1	2	0	1
HC1	0	19	39	17	8	4	3	2	2	0	0
HC2	0	15	32	13	8	8	4	1	1	1	0
HC3	0	11	42	11	5	4	4	1	2	0	0
HC4	0	19	33	16	8	5	2	1	1	0	1
DL1	0	29	56	27	10	5	3	2	1	0	0
DL2	0	29	62	25	17	6	1	2	2	1	0
DL3	0	22	63	24	15	5	6	1	1	0	0
DL4	0	22	59	22	11	7	6	2	1	0	1
TOTAL	0	305	692	287	128	84	60	23	23	3	4
MEAN	0	19	43	18	8	5	4	1	1	0	0
STD DEV	0	72	162	68	30	20	14	6	5	1	1

**Figure 4.1** Job responses in the electronic marketplace.

CHAPTER 5

CASE STUDY

5.1 History and Overview

Links Company, Tech Tykes Incorporated and HoffmanCo are all information technology-staffing firms that specialize in placing IT professionals in the New Jersey/New York metropolitan area. Most of the practices they employ originate from management principles combined with technical information they have come to understand.

The Internet revolutionized the entire industry in just a few years. James Stark, CEO of Links Company, recalls “We used to have bicycle messengers [waiting in the lobby] to deliver our résumés to companies. You had to be in close proximity to your clients to get résumés to them with any kind of speed.” Tech Tykes Inc. used to overnight résumés to clients as well; it was a necessary step in getting their candidates seen as soon as possible. Waiting two or three days for the postal service was simply unacceptable. Once most companies adopted fax machines in the mid-to-late 80’s, recruiters drastically cut their costs and became more efficient. “The fax machine allowed more flexibility – probably an even bigger impact than email,” continues Stark. Email indeed has had a great impact. The CEO of Tech Tykes, Anthony Rider, says that the Internet and email “brought other innovations” with it.

The Internet is critical in “middleman” industries such as recruiting, real estate, and travel. In fact, history has shown that many of these types of industries have significantly shrunk after the Internet made their services increasingly cheaper and more accessible than ever before. As more consumers turned to the Internet to find what they needed, they relied less heavily on “middleman” companies such as realtors, travel agents, and recruiters. New technologies are changing these industries so rapidly that the companies within them have to add increased value to their services or risk going out of business.

After the tragic events of September 11th, 2001 a sharp reduction in staff in both firms was witnessed first-hand. “I have never seen a market turn so hard and so fast,” Stark comments. However, he continues, “I saw it coming in January.” It is in fact true that the recruiting industry saw a steady decline well before September 11th and that the event may have just been the “final nail in the coffin” that sparked so many layoffs and so many firms to go under. “With the shrinking of recruiters, just by hanging in there, you increase market share. If forty to sixty percent of firms are gone, and then the market bounces back 5%, you increase market share 12-15%.”

The recruiting industry can only recover if it can add more value to its service. If companies can get the candidates they need cheaper and faster via the Internet, there is no demand for recruiters. For instance, recruiters must now search even harder and screen for the “best of the best” so that the candidates they submit for a job are more qualified than a candidate that a company can potentially find on its own. Recruiters must now present quality candidates so

that their fees are justified – they can no longer simply fax or email their clients with an abundance of résumés at a time; hiring managers can get that same result on the Internet. Now, hiring managers demand their recruiters understand the opening, prescreen and screen candidates, conduct both telephone and in-person interviews, and then only send two or three top candidates for review.

“I don’t think I agree with you. If I did that, I’d be interviewing all day,” responds Rider after Dan Hobbes, a Senior Recruiter suggested the tactic of in-person interviewing for senior-level candidates. Hobbes insisted that value is added with respect to both clients and candidates when personal one-to-one relationships are built. Moreover, he felt that by interviewing candidates and taking time out of his busy day was a form of relationship building and that relationship will one day come back to him in the form of a new client when those same candidates are hired as Directors or CIO’s and are in need of staffing solutions themselves. Rider, however, is determined that this takes much more time than it is worth. He prefers to conduct an extensive telephone screening rather than in-person meetings.

5.2 The Technology

The role of technology cannot possibly be evaluated unless it is defined. Without an agreement as to what the goals are for technology, there cannot be any discussion of its success or failure. None of the three companies we reviewed has a detailed organizational mission statement that defines the basic premise

and goals of the company much less the role technology plays in it. Links Company, for instance, offered only the following as their mission statement:

Teamwork + the Best Staffing Options = Profit and Fun

Moreover, because there is no solid technical leadership that is ultimately responsible for IT, it becomes possible for everyone at the same company to have their own unique interpretation of its role.

An organizational mission statement is fundamental according to Stephen Covey (1989), President of Covey Leadership Centers, a training facility for business executives. Covey argues that mission statements are necessary so that there is a meeting of the minds and the entire organization knows where they are, where they want to be, and how they plan to get there. "Mission statements are vital to successful organizations ... and to be effective, that statement has to come from within the bowels of the organization ... everyone should participate in a meaningful way – not just the top strategy planners but everyone ... the involvement process is as important as the written product and is key to its use" (139).

These mission statements, of course, are the foundation to prioritizing and strategic planning for IT departments. When asked what the top three priorities for technology management should be, employees at Tech Tykes Inc. responded very differently. Rose Harper, IT Recruiting Manager, responded "Well, within financial constraints, we want to be at the forefront [of technology] to make our job easier and get better results. [The first priority should be] to keep our existing technology working. Secondly, to be aware of new technology and then to assist

in the learning and training process.” Dan Hobbes, Senior Recruiter, however, has a different opinion. Hobbes argues that the foremost priority should be to “maximize the efficiency of the recruiters and obtain the greatest competitive advantage possible ... and this should be done with a sense of urgency and speed; to do it before the competition does.” Carla Dawson, Office Manager, took an extreme point of a view and commented, “the only priority is to keep everything up and a running – that’s it – period.”

Links Company, however, may have a better hold over technology’s role in the business process. All of the employees agreed that keeping current technology operational was the number one priority of technology management. Starks had some insight to share about technology and its relationship with the business process. He commented, “The business process has to drive technology – not the other way around. Technology sometimes has to be the leader and sometimes the lagger. Achieving this balance is the key to success; it’s a real juggling act.”

According to the Executive Director – IT at HoffmanCo, Hank Truman, the mission statement of that organization is to find the best match possible for the given job openings. No relevance to technology is associated with this mission yet, but they feel they may need to integrate technology more intricately in the future.

5.2.1 The Web

“The web has an enormous impact [on the recruiting industry]. Initially the web was wonderful. Although its effects are very positive, it might eventually hurt us as the middleman; that same automation is now making our clients better organized,” Starks suggests. As an electronic marketplace, the web is constantly matching buyers and sellers – including companies and employees. Therefore, it is only natural for middleman businesses such as staffing firms to lose market share as the web becomes more efficient. This, in turn, eliminates any added value middlemen bring to the table and increasingly makes their services cheaper.

The web marketplace has served to the benefit of the recruiter thus far. Clients are still strong and willing to pay for their services, however, recruiters’ jobs are much easier. When the web becomes a tool that is effectively used by the client, value will undoubtedly diminish and corporations will have to do more to get the quality employees they need. They will no longer be able to dictate to recruiters what they want, but they will have to do their own work on the web. Web services such as Monster, Dice and HotJobs are not automated tools by themselves. However, the cost to operate them will be a much lower price to pay than hiring a recruiter.

5.2.2 Email Systems

The exponential growth of email eventually required all three companies to develop systems for handling incoming emails for job applications and résumé submittals. The sheer volume of email required it be hosted in-house. This allowed for the easier management of email on a day-to-day basis including easy rerouting of messages for more efficient handling.

Tech Tykes and Links Company both use Exchange Servers to manage their email while HoffmanCo utilizes more simplified external POP servers. The goal in the business process, however, is essentially the same. Because of advertising on the web and the ease of email, they get the majority of their résumés by email. In fact, since it is not possible for the databases to index faxed résumés, all candidates who send their résumé this way are asked to resend via email.

Before an emailed résumé is even looked at, Tech Tykes' email server automatically sends out a response letter (see Appendix D for email flow and Appendix E for response letter). Next, the résumé is immediately sent to a live person for review who establishes the candidates' eligibility for the position and then enters the candidate into the database and forwards it to the Recruiter or Research Analyst that has the opening. If the candidate is not eligible, but is still within the scope of the jobs that Tech Tykes usually works on, s/he is entered into the database for future openings.

However, ineligible candidates are not notified of the fact that they are ineligible and will not be entered into the database. This is definitely a flaw in the

system; hundreds of candidates are left hanging and never know where their résumé went. In addition, all eligible candidates are not always contacted as the job may be filled or become unavailable while the process is still in effect. Those candidates, too, never know where their résumé is in the system. Moreover, eligible candidates who are simply entered into the database are unaware that they are part of the database and may be solicited for another position in the future. Although legal, it is surely a grossly irresponsible manner in which to treat candidates. Holding candidates' résumés in this way can be damaging to the business in the long term. If the only response a candidate gets from a staffing company is simply a thank you for sending your résumé without any further details for disclosure about when and how it will be considered, that candidate may become frustrated or disgruntled and choose not do business with that company again.

The major complaint among Tech Tykes' employees is that too many unqualified candidates apply for positions and therefore just slip through the cracks without being appropriately notified. "They never read the postings ... everybody and their mother applies to my ads," comments Jan Segal, Research Analyst at Tech Tykes. Before the Internet, candidates were always encouraged to apply for jobs even if they felt they were not qualified. However, with an abundance of Internet advertisements as well as candidates, many of them simply email hundreds of employers at once without any consideration. The manpower required to even read all the applications is overwhelming.

However, problems created by technology can usually be resolved by technology. A simple automated email that goes to eligible or ineligible candidates respectively, for instance, can eliminate much of the confusion. In addition, many job boards including Monster.com have made "online interviews" available; a questionnaire that all applicants are required to fill out. A built in rating system to the "Yes/No" questions then sends them an automated email telling them how qualified they are. Candidates, however, have not responded well to these tactics as it forces them to spend five or six minutes applying to each job instead of being able to send hundreds of applications at a time like they used to do.

Candidates in the database that then come up as qualified for future positions are also emailed with job descriptions and instructions to apply. This also raises other privacy questions, as these prospects never opted in to a mailing list. However, removal instructions are included for those candidates who no longer wish to receive correspondence from the Tech Tykes.

Links Company routes email very differently. Instead of all email going to one mailbox, each recruiter who advertises jobs on the web has a second email address (Appendix D for email flow). Their primary address is used for correspondence-related email with clients and candidates with whom they have already spoken. Their secondary address is advertised on the web and is filled with responses to ads and all of the other unsolicited email that comes with having an email address advertised on the Internet. These emails are then sorted by a reviewer into similar categories that Tech Tykes uses. In addition,

candidates are contacted before they are put into the database so that all of their information is verified. In this way, each applicant is always contacted at least once and knows where their résumé is in the process. A system such as this, however, can cause confusion once a candidate wishes to correspond with their recruiter. Each one has to be told that they should no longer be emailing the secondary address, but the primary address. Non-résumé emails that then go to the secondary address then run the risk of being delayed, ignored, or lost in the shuffle.

HoffmanCo does not notify candidates unless they receive a call of interest (Appendix D for email flow). Whether a candidate is qualified, unqualified or will be considered for future openings does not have any significance – they are all treated the same until a recruiter wishes to speak with them. Email auto responses are not even used to at least confirm the receipt of a candidate's application. "When I post the position, I will actually post in the description that 'only qualified candidates will be contacted' so I am setting it up right up front that they will not be contacted if they are not qualified," comments Truman.

Email is definitely a great tool but is obviously being abused by recruiters across the country. According to Fawkes, more than two-thirds of all incoming emails at Tech Tykes are unsolicited messages from other recruiters who wish to do split placements. According to Lorie Faith Craner and Brian La Macchia (1998), authors of *Spam!*, messages such as these come at a great cost to ISPs and email services that need systems and bandwidth to route large amounts of

emails. They conclude, “while the cost of sending bulk mail is low, the cost of receiving it may not be. The cost of receiving a single piece of bulk mail is minimal, but the cost of receiving many pieces can be considerable . . . individuals may waste minutes or hours transferring unwanted messages from their ISPs to their computers and sorting through those messages once transferred. Furthermore, unwanted messages place a burden on ISPs, requiring them to spend time and money implementing filters, responding to subscriber complaints, and increasing their email system capacity more frequently than would otherwise be necessary” (p. 76-77).

5.2.3 RMS and JOBS

Tech Tykes also has two additional information systems: the Résumé Management System (RMS) and Job Order Broadcasting System (JOBS). RMS is an “off the shelf” applicant tracking system while JOBS is a intranet-based internet broadcasting utility that was developed in-house by Robert Fawkes. These two systems are candidate sources from which recruiters and research analysts make their placements. RMS is an archive and tracking system that is made up of candidates the company already has data on. JOBS is the means by which job orders are actively advertised on the internet. Replies from these solicitations are then prescreened, sorted, and entered into RMS.

Therefore, JOBS’ output is RMS’ input. JOBS does not hold data nor is it a prescreening tool as RMS is. Because JOBS is intranet-based and written with a combination of HTML, JavaScript, and Perl, it is very easily incorporated with

the job websites to which Tech Tykes has subscribed. This enables reports and other job information to be easily generated for the recruiters on demand. Furthermore, the same search functions that enable job seekers to search for positions on the company's website are also modified and used on the company intranet so that other recruiters have the benefit of seeing what other openings are available. This also assists receptionists and research analysts in routing phone calls to appropriate recruiters as well as letting candidates know about other jobs for which they might be qualified.

Highly dependent on how subscribed sites post their jobs, the Perl code needs to be modified when external sites make even the slightest change to their structure. This is a major flaw in the system and requires the attention and manual labor of Robert Fawkes. Moreover, when a code structure is broken by an external site it may take JOBS weeks or months to recover in which case the intranet reports need to be generated by hand in which case mistakes and inaccuracies are always noticed by the recruiters.

Table 5.1 JOBS WCA Framework

CUSTOMERS		
<ul style="list-style-type: none"> • Candidates searching for jobs on the web • Technical Recruiter who is looking to fill a position 		
PRODUCTS & SERVICES		
<ul style="list-style-type: none"> • Classified job advertisements that are placed on a group of subscribed sites which will yield maximum exposure and response 		
BUSINESS PROCESSES		
<ul style="list-style-type: none"> • Recruiter obtains an open position from the client. • Recruiter analyzes the job order, defines the ideal candidate, and writes a job description based on all requirements (skills, location, salary, education, etc). • Résumés are received via the email system, an auto reply is sent to the candidate, and all résumés are forwarded to a reviewer for normalization and entry into RMS. • Qualified candidates are forwarded to the recruiter for consideration. • JOBS actively posts the job to additional websites and reposts the job on existing websites until the position is filled or is directed to stop by the recruiter. 		
PARTICIPANTS	INFORMATION	TECHNOLOGY
<ul style="list-style-type: none"> • Client with open job • Technical recruiter working on the open job • Candidates that apply for the open job • Reviewer that prescreens the candidates 	<ul style="list-style-type: none"> • Job description • Job requirements (skill, salary, location, education, etc.) • Incoming résumés 	<ul style="list-style-type: none"> • Internet • Subscribed websites • Email server • Résumé Management System

The resume system, RMS, has a very different role in the business process. While JOBS is job order-based, RMS is more applicant-based. Recruiters look to this tracking and databasing system to complete the first round of prescreening. Indexing functions in the database automatically code for skill set, experience, education, and location. This entry process has to be supervised by a data entry clerk to make sure that all keywords are properly categorized and interpreted. Accurate entry gives the recruiters an opportunity to narrow existing candidates to a qualified list and even further restrict this list by applying salary and location filters. A completed list then gives them the opportunity to screen by hand, call qualified candidates, and send mass emails of the job description to all of these candidates.

The value of all the information in RMS is the most valuable resource at Tech Tykes. However, its advanced prescreening functions are in no way a magic formula for recruiters. Even after RMS outputs its data, a tremendous amount of work must be done. The candidates must be screened again, usually by telephone, their availability has to be accessed, and the level of their qualification for the job must be made clear.

According to Edward Newman (2002), Human Resource Information Systems (HRIS) such as RMS sometimes contribute to the “myth of automated recruiting.” “While the applicant tracking tools and recruiting systems today will automate certain tasks, it is a mistake to believe that the entire process of recruiting can be automated. HR organizations that are faced with tighter budgets and having to do more with less fall into a trap,” he says. Newman calls this trap

the “productivity paradox” and claims that many HR organizations implement an HRIS with the assumption that it will automatically boost their productivity. He suggests that an HRIS can certainly create the right environment for productivity but “that only factor that has the power to increase productivity is the human being in the middle of the equation.”

Table 5.2 RMS WCA Framework

CUSTOMERS		
<ul style="list-style-type: none"> • Technical recruiter who is searching for résumés. • Candidates sending their résumé 		
PRODUCTS & SERVICES		
<ul style="list-style-type: none"> • A database, which tracks skills, education, location, salary, contact information, and other special skills and certifications for candidates who have sent their résumés to Tech Tykes. 		
BUSINESS PROCESSES		
<ul style="list-style-type: none"> • Obtain a digital copy of the résumé (usually via JOBS). • Index and extract pertinent information (skill, education, location, salary, etc.). • Match extracted information against open jobs. • Forward matched candidates to corresponding recruiter. • Preserve all application information, whether matched or not, for future openings. 		
PARTICIPANTS	INFORMATION	TECHNOLOGY
<ul style="list-style-type: none"> • Applicant • Recruiter • Data entry clerk 	<ul style="list-style-type: none"> • List of applicants that match opening • All applicant data including résumé, skills, salary, education, location, special skills, certifications, etc. 	<ul style="list-style-type: none"> • Input from JOBS • Database Management System (DBMS) • Automatic coding and indexing system

5.3 Identified Problems and Solutions

5.3.1 Status of Application Unknown

Perhaps the most common complaint among applicants is that they respond to an advertisement in the electronic marketplace and that is when the marketplace disengages its involvement in the hiring cycle. Recruiters, indeed, agree that they rarely respond to applicants unless they are qualified which leaves the unqualified applicants without any notification that they are no longer being considered.

This problem is clearly information-based and can be resolved using either the electronic marketplace (external) or the applicant tracking system (internal). It is in the electronic marketplace's best interest to provide this type of service to increase the number of applicants that use their services therefore increasing the amount of employers who place fee-based advertisements. However, such an "application status" function would force the employer to in some way notify the electronic marketplace of the status so that the marketplace can communicate that to the individual.

The reality is that this information already exists with the recruiters who use applicant tracking systems to track their candidates. It is more feasible for individual recruiters to take on the project on their own personal websites to increase the satisfaction of their pool of candidates. However, many of these companies do not realize the indirect benefits of satisfied candidates since the direct revenue from clients has greater value.

Relying on staffing agencies to provide this service would be a mistake. They would refuse to take on the massive project and those who would be open to it would not have the resources to do it properly. The best solution is to call for a linking of electronic marketplaces and applicant tracking systems so the marketplace can provide the service to its visitors. The marketplace has the resources and expertise to make this happen but does not have access to the data that is required in doing it.

Indeed, any kind of “shared access” of data between applicant tracking systems and electronic marketplaces will be considered a threat to staffing agencies and a violation of corporate privacy. There must be a mutual benefit. Today, staffing agencies spend thousands of dollars each month manually transferring applicant data from the marketplace into the applicant tracking system. If the marketplace can conform its data to a format major applicant-tracking systems accept, recruiters might be willing to allow the marketplace to share applicant status data with its customers.

5.3.2 Quantity of Applicants Greater than Quality

Recruiters have been boasting for years that they receive many candidates through the electronic marketplace but they do not receive good candidates. This divide between quantity and quality can be resolved by keeping unqualified candidates in the résumé bank while bringing only qualified candidates to the attention of the recruiter – virtually eliminating the prescreening phase.

Marketplaces such as HotJobs have already instituted a “questionnaire” method, which asks closed-ended questions to applicants that are interested in

an opening. Therefore, they are no longer required to submit only a résumé but are also required to answer 2-3 multiple choice questions such as “Do you live in New Jersey?” or “Do you have any SAP experience?” Therefore, the recruiters would be able to define the questions and the answers for which they would want to review candidates. This would eliminate clutter and only enable recruiters to read the résumés of those applicants who are qualified while the rest are put into a résumé bank.

Part of the problem that created the quantity vs. quality divide is the fact that many marketplaces allow applicants to “bulk respond” to openings or send their résumés in for hundreds of jobs at a time whether they have read the descriptions or not. This method would force them spend more time and effort on each opening rather than just shooting off a résumé to a recruiter. Such a move would spark much resistance since applicants would be reluctant to losing the capability of freely responding to openings without bothersome questionnaires. Recruiters might resist the change as well as it would have a negative effect on the quantity of résumés they receive on a daily basis. However, the overall quality of responses would improve and only serious applicants who have read the description and have accurately answered the questions would be considered.

5.3.3 Prescreening of Incoming Applications Inefficient

The above questionnaire solution would virtually eliminate the prescreening phase but recruiters also need to accurately code and enter candidates into the applicant tracking system. Many systems have become experts in extracting key

information from résumés such as name, contact info, education and most recent title and employer. Usually, this is enough to start an applicant record without the interference of a data entry clerk. Although, in many cases interference is required because the system cannot determine from which website the applicant came from or for job to which they are applying. This information is crucial for staffing agencies, which base their salaries on commission, so that they know which site and recruiter to whom they give credit. It can also be invaluable in doing cost/benefit analysis in determining which electronic marketplaces generated the most qualified candidates.

A simple solution to this problem would be to let the email server do all the work. In many cases, staffing agencies have failed to realize the benefit of having more than one email address where responses are sent. Usually, they are sent directly to the reviewer or to a mail résumé box where it is sorted by job and website. An alternative would be to create a disposable email address for each job on each site. For instance, if job number 902 was advertised on HotJobs, all the responses could go to 902.HotJobs@TechTykes.com. This would allow the applicant tracking system to determine where the candidate is coming from and which job they are applying to – even if they fail to mention it in the body of their email. Furthermore, should the applicant ever email the job advertisement to a friend, when they responded to the email address the agency would still know where the ad originated and be able to give credit to the website and know which job to which they were applying.

CHAPTER 6

CONCLUSION

6.1 Electronic Marketplaces and The Hiring Cycle

The electronic marketplace is a forum in which natural market forces can triumph while allowing institutional infrastructure to have a role and further enhancing the price/product discovery phases in addition to transaction facilitation. These forces, however, are only natural in damaging middleman industries that make a living from matching buyers and sellers. Of these, staffing is no exception.

As information systems, electronic marketplaces have the capability of matching buyers and sellers, which is largely an information-based task. These marketplaces have demonstrated their effects on the real estate and travel industries and have already begun to diminish the amount of staffing agencies that are able to serve the nation. To maintain their strength, these agencies must now demonstrate new value, beyond what the marketplace is capable of, in order to survive.

These new services should not be information-based but must demonstrate value in areas that the marketplaces cannot master. For instance, currently recruiters only focus on that part of the hiring cycle that has been consumed by the marketplace but fail to participate in other hiring aspects such as interviewing, qualifying and negotiating. Figure 6.1 illustrates, with the green square, those parts of the hiring cycle that staffing agencies focus on and also

those parts that electronic marketplaces have already assumed or have the intention and capability of assuming, in the near future.

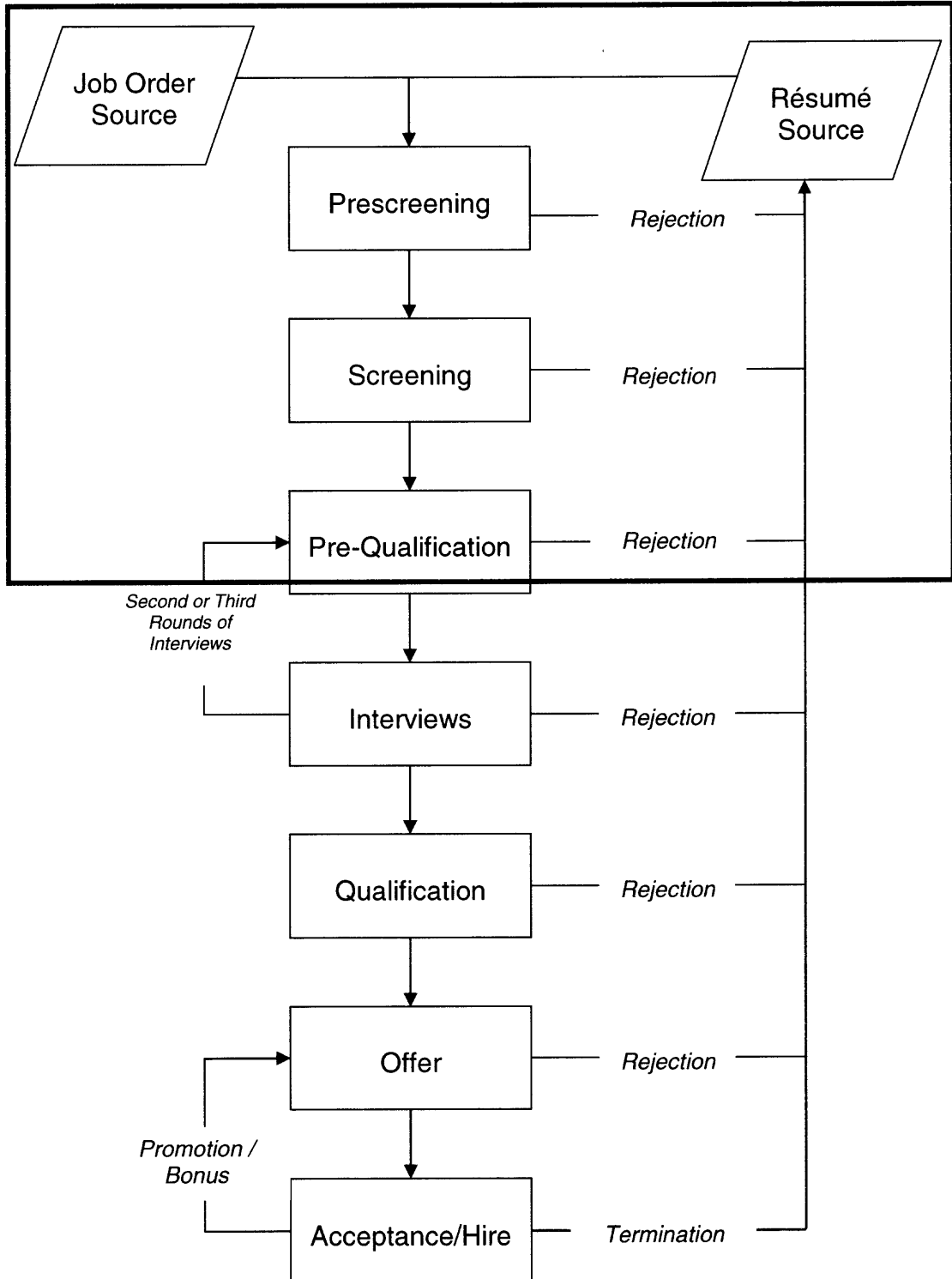


Figure 6.1 The hiring cycle and marketplace influence.

Recruiters, nonetheless, have taken advantage of the tools the marketplaces have afforded them and have cut costs, made their jobs easier and have become more effective. The same tools that have afforded them this new level of success will also be the tools that will contribute to their demise.

6.2 Electronic Marketplaces as Decision Support Systems

One fact about electronic marketplaces that often goes unmentioned is the fact that they, to some degree, are decision support systems. Staffing marketplaces, for instance, provide applicant data on salaries, cost of living, etcetera, which help them make crucial career decisions. Electronic marketplaces also give applicants other types of assistance such as résumé development tools and examples of previous works similar to ones in their industry. Moreover, the marketplace allows applicants to be in an environment where they have access to their competitors' activities – information that can be invaluable in any job hunt.

Furthermore, an asset to employers, salary information assists them in making educated budgeting decisions on the type of staff they can afford. In addition, knowing the availability of candidates before creating an opening can be a powerful tactic in filling positions and bringing the most qualified talent to the most needed areas of a company.

Marketplaces that also offer preliminary screening questions to applicants clearly also serve as decision making tools that allow recruiters make quick judgments about candidates and quickly eliminate those who are not qualified. Data from those candidates who are eliminated can still be valuable in terms of

similar applicants who will be seeking employment with competing companies. A search of online résumé banks can also yield résumés of applicants who are working with competitors, allowing companies to “rob the cradle” and gain valuable insight behind their competitors’ doors.

6.3 Improvements Needed and Consequences

Analysis of response data indicates that the majority of job responses from electronic marketplaces come in within the first two days. Before those two days, recruiters are busy searching their existing résumé sources for qualified applicants. Therefore, résumés that exist in the résumé bank are evidently screened first and therefore get first access to the open job and will be the first to interview.

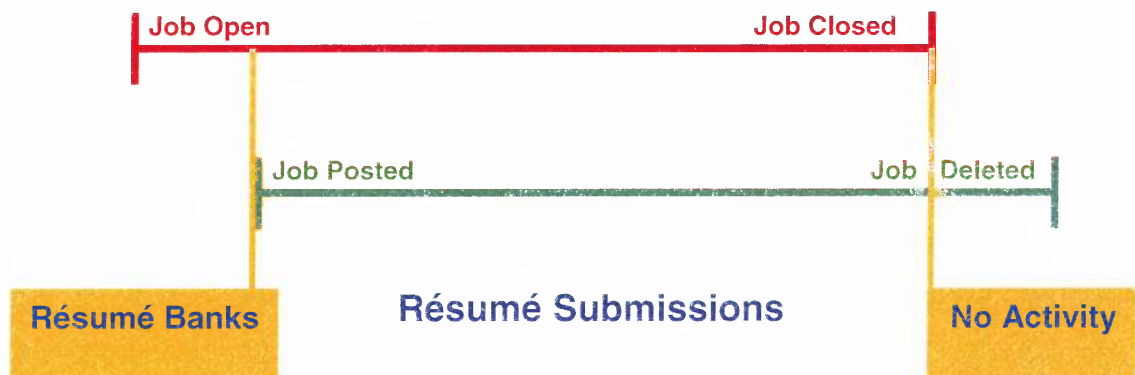


Figure 6.2: Online time vs. Real Time.

Still, on the first day, there are very few applications and during the candidate review and those applicants have very little competition and therefore the best chance to proceed to the interview process. By the third day, most applications have already been received and those candidates have the stiffest competition, but they are still being considered. However, candidates that apply beyond the fourth day are at a disadvantage because so many applications have already been considered and the first (and maybe even second) round of interviews have already been arranged. Adding to the interview schedule at this point would be very difficult.

The times for when jobs are posted and removed do not correspond exactly with the time they are open and closed. This results in false information being posted in the marketplace for an open job that in reality is not open. In addition, recruiters lose precious moments not posting the job immediately after it is received. Some of these processes take a day or two such as writing the job advertisement and having it correctly indexed and posted in the marketplace. These processes need to be streamlined so that recruiters can take advantage of the marketplace as soon as the job opens and so that they can remove it from the marketplace as soon as it is closed.

Still, applicants continue to complain about not being kept informed about the status of their applications. This negligence on the part of recruiters and the marketplaces they use is a widespread problem that simply must be remedied. The combination of challenges including informational, technological and financial, contribute to it not being addressed. However, if electronic

marketplaces can gain access to the information they need, an “Application Status” button would be extremely valuable to candidates and the increase in their participation would result in hefty indirect profits that would justify the initial cost.

Marketplaces regularly publish résumés in their format with the assumption that agents can prescreen more effectively when presented with résumés that have similar data and fields. Applicants often become frustrated with this as it hinders their ability to format their résumés any way they wish. Electronic marketplaces must improve their tactics in this area and completely eliminate the prescreening phase of the hiring cycle by instituting recruiter-based questionnaires for each job advertisement. This would eliminate “bulk responses” as well as allow the recruiter to only consider the résumés that answer preliminary interview questions correctly, virtually eliminating the entire prescreening phase of the hiring cycle.

The marketplace has certainly enabled staffing agencies to become more efficient and effective but they must act quickly so as not to cannibalize their own business processes. Moreover, electronic marketplaces have the capability to improve themselves and immediately eliminate, at the very least, prescreening and screening phases of the hiring cycle with the potential of eliminating pre-qualifications as well. They must make better use of the data they have accumulated and obtain more data that would make each of these stages much easier for employers and less painful for applicants.

APPENDIX A

INTERVIEW QUESTIONS FOR APPLICANT

This appendix contains interview questions that were asked of each job applicant that was interviewed. These questions were semi-structured and often led to lengthy discussions of each topic.

1. Tell me about your job hunt.
 - a. Field? Level of experience? Type of job that is being searched?
 - b. Experiences in the “F2F” market?
 - c. Experiences in the online market? Sites used?
 - d. Success? Failure?
2. How did you create a résumé? Is it online for public view?
3. How many jobs have you applied for? How many responses, either negative or positive?
 - a. If >10, ask how do you keep track of which ones you have applied to so you don't re-apply?
4. What do you do when you get a response (favorable or unfavorable)?
When you don't?
5. Did you go cut & paste your résumé into an online application or email as an attachment? Which do you prefer?
6. Responding is easier vs. traditional methods?
7. Are there more jobs available for you online?
 - a. Quantity vs. Quality

APPENDIX B

INTERVIEW QUESTIONS FOR AGENCIES OR HR DEPARTMENTS

This appendix contains the interview questions that were asked of agency or HR department that was interviewed. These questions were semi-structured and often led to lengthy discussions of each topic.

1. What types of online sites do you use for finding applicants?
2. How are the responses processed?
 - a. Prescreening
 - b. Screening
 - c. Prequalification
 - d. Interview
 - e. Qualification
 - f. Offer
 - g. Hire
 - h. Decline
 - i. Pending
 - j. Acceptance
3. Are they sent as attachments or on online applications? Which do you prefer?
4. How does the Applicant Tracking System work?
5. Responses better online vs. traditional methods?
 - a. Quantity vs. Quality
6. What percentages of your placements originate from online communication

APPENDIX C
ORGANIZATION CHARTS

This appendix contains organization charts from the three agencies that were included in this thesis.

Figure C.1 Tech Tykes organization chart.

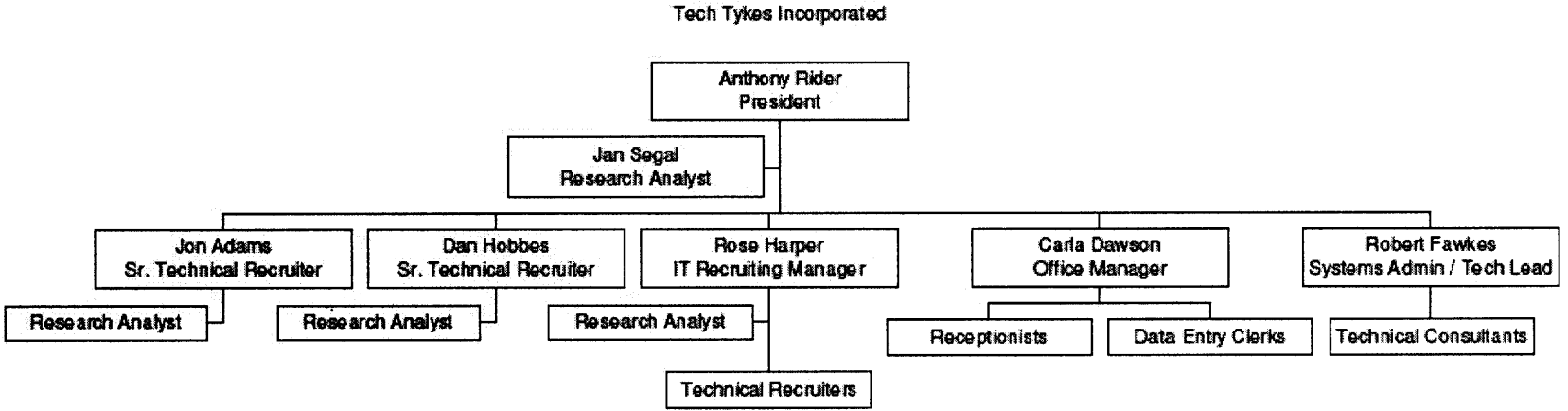


Figure C.2 Links Company organization chart.

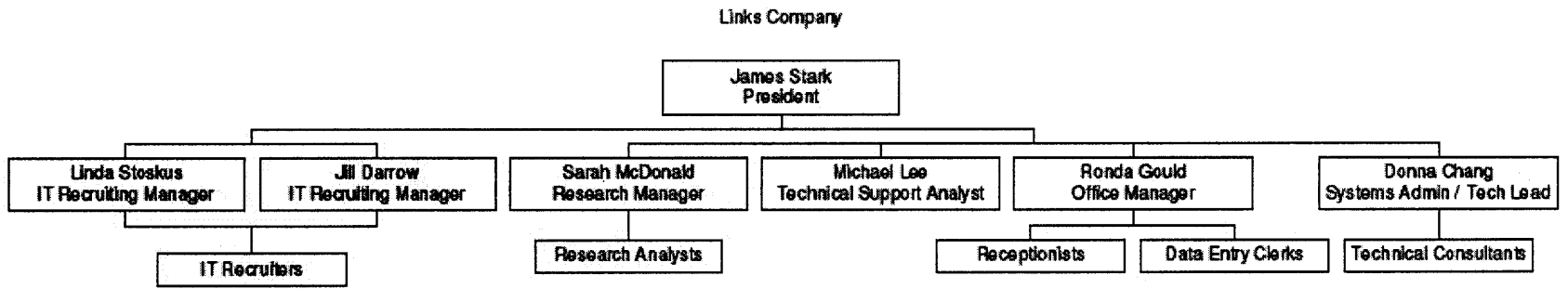
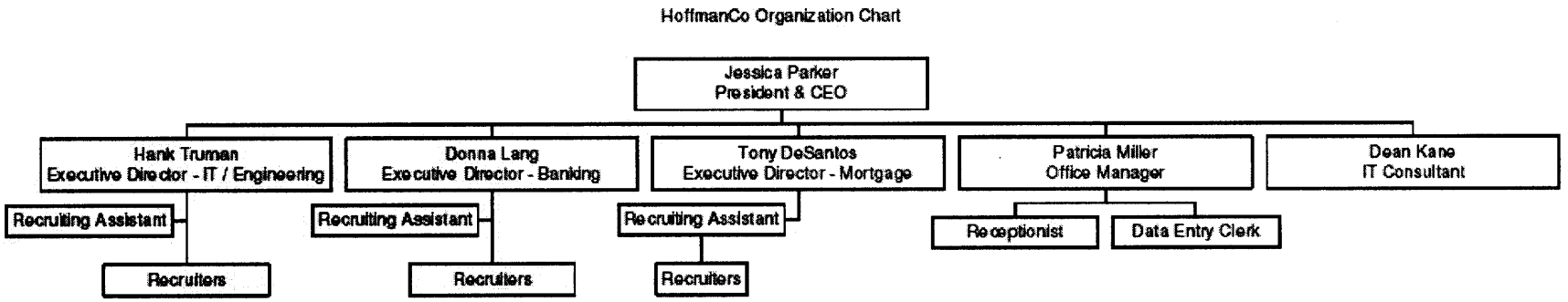


Figure C.3 HoffmanCo organization chart.



APPENDIX D

RESUME EMAIL FLOW DIAGRAMS

This appendix contains diagrams that outline email flow of resumes at each of the three staffing agencies.

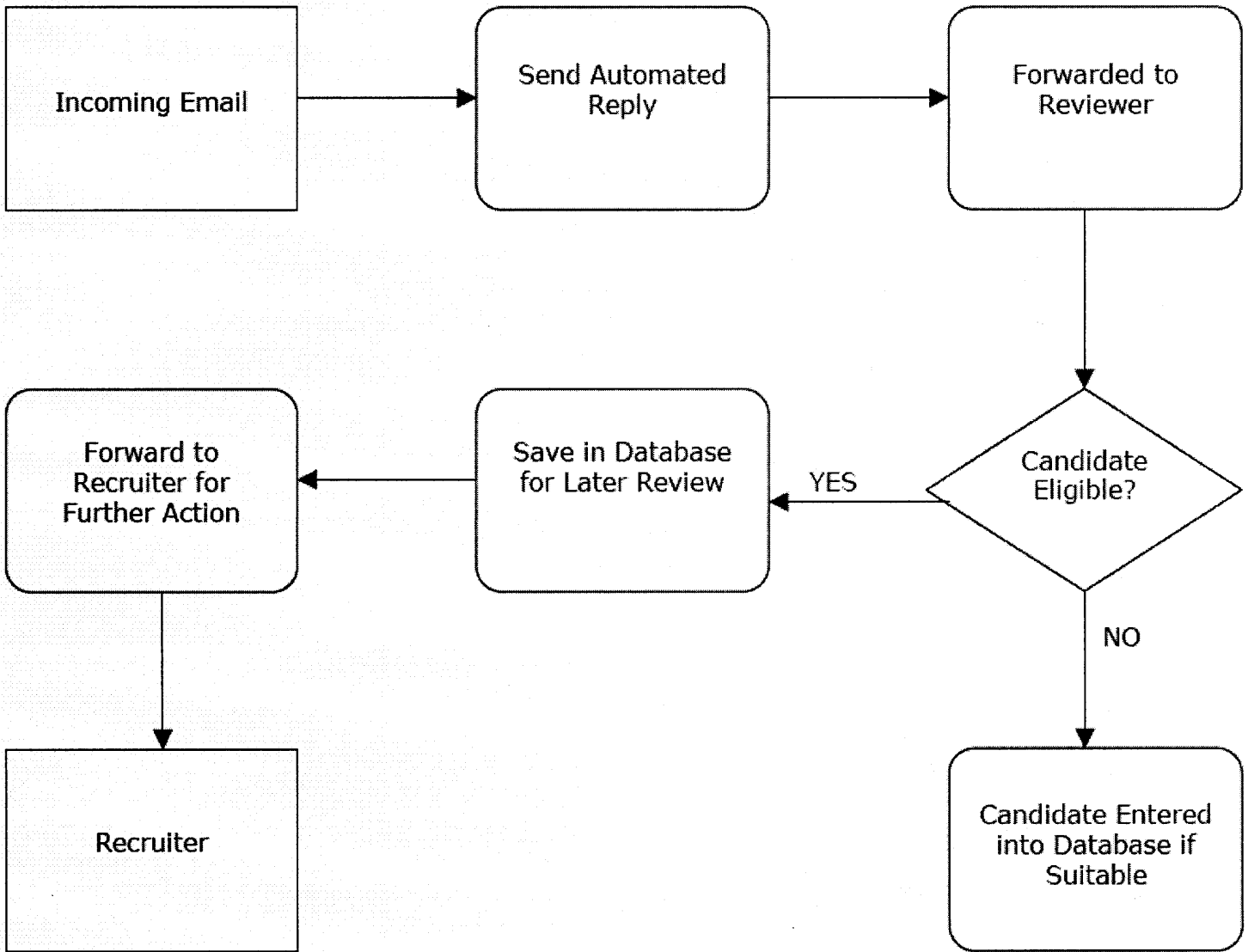
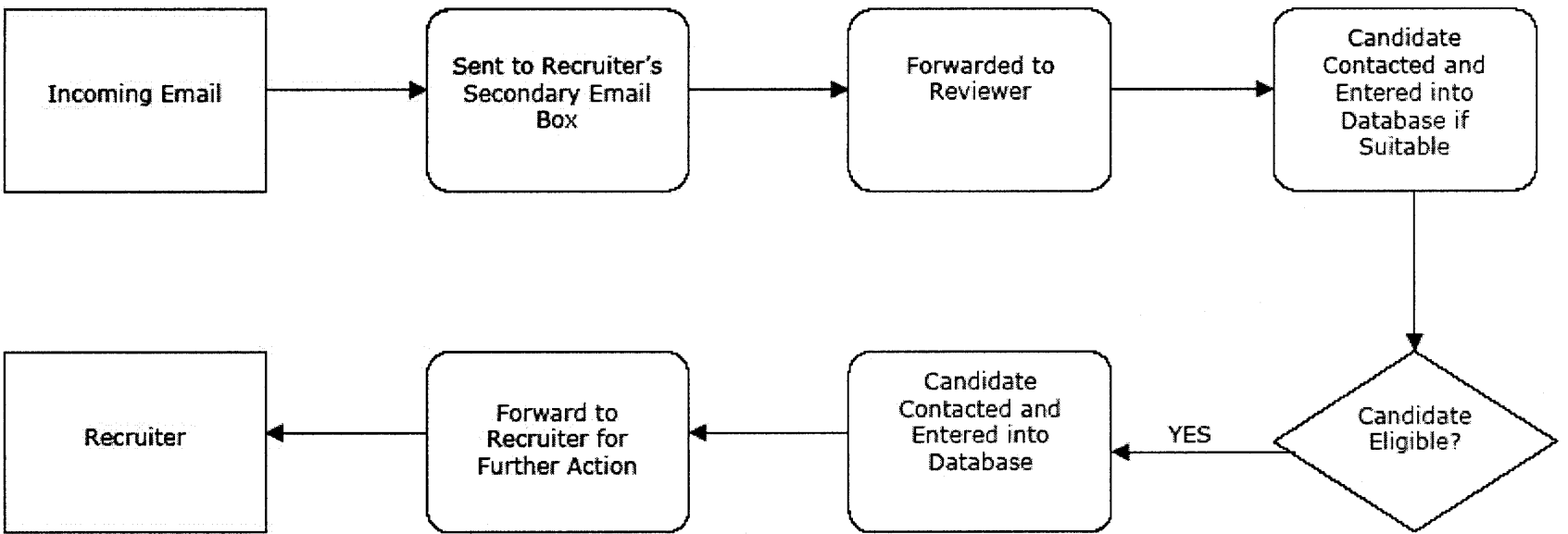


Figure D.1 Tech Tykes email flow.

Figure D.2 Links Company email flow.



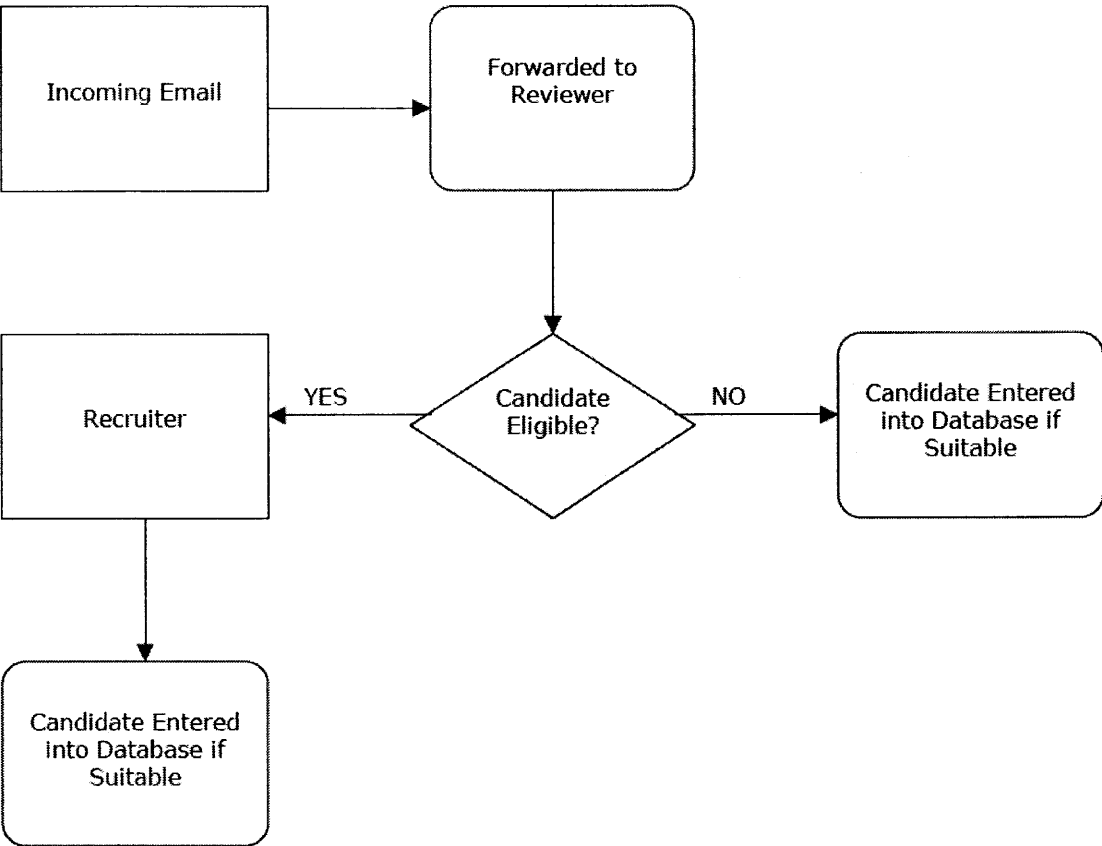


Figure D.3 HoffmanCo email flow.

APPENDIX E

SAMPLE RESPONSE LETTER FROM TECH TYKES

Thank you for submitting your résumé to Tech Tykes Inc. Your interest in our organization is appreciated. If you would like to learn more about the opportunities offered at Tech Tykes, explore our web site at TechTykes.com.

Your résumé is currently being reviewed. If your qualifications correspond to an existing position, one of our recruiters will give you a call. If not, we will retain your résumé in our active files and contact you if a future opening matches your experience/skill set.

Tech Tykes Inc. is dedicated to providing professional service. One aspect of that is maintaining confidentiality. Since we respect your privacy and the importance of your career search, we will not present your credentials to a client without your permission.

Thank you again for taking the time to contact us. We wish you every success in your career search

REFERENCES

- Alter, Steven. *Information Systems: The Foundation of E-Business*. New Jersey: Pearson Education. 2002.
- Bakos, Yannis. "The Emerging Role of Electronic Marketplaces on the Internet." *Communications of the ACM*. August 1998. 41(8). 35-42.
- Bakos, Yannis. "A Strategic Analysis of Electronic Marketplaces." *MIS Quarterly*. September 1991. 295-310.
- Bhargava, H. & Feng, J. "Paid placement strategies for internet search engines." *International WWW Conference. Proceedings of the 11th International Conference on the WWW, Auctions and E-Commerce*. 2002. 117-123.
- Caudron, Shari. "HR is Dead, Long Live HR." *Workforce*. January 2003. 26-30.
- Couger, D., Ambroso, D. "Elevating the IS position to CIO." *Proceedings of the Twenty-Second Annual Hawaii International Conference*. January 1989.
- Crainor, Lorie Faith and LaMacchia, Brian A. "Spam!" *Communications of the ACM*, 41(8). 1998. 74-83.
- Clark, T.H, Lee, H.G. "Electronic intermediaries: trust building and market differentiation." *Proceedings of the 32nd Annual Hawaii International Conference*. 1999.
- Covey, Stephen. *The Seven Habits of Highly Effective People*. New York: Simon and Schuster. 1989.
- Guinan, P.J. "A theoretical framework for measuring the impact of information technology in the human resources function: untapped potential or unfulfilled promises?" *Proceedings of the Twenty-Second Annual Hawaii International Conference*. January 1989.
- Dumas, M., Aldred L. "A probabilistic approach to automated bidding in alternative auctions." *International WWW Conference. Proceedings of the 11th International Conference on the WWW, Auctions and E-Commerce*. 2002. 99-108.
- Feldman, Stuart. "Electronic marketplaces." *IEEE Internet Computing*. July-August 2002. 93-95.
- Fontoura, M. "Law-governed peer-to-peer auctions." *International WWW Conference. Proceedings of the 11th International Conference on the WWW, Auctions and E-Commerce*. 2002. 109-116.

- Gale, S.F. "Internet Recruiter: Better, Cheaper, Faster." *Workforce*. December 2001. 74-77.
- Holland, Christopher. "Competition and strategy in electronic marketplaces." *Proceedings of the 35th Annual Hawaii International Conference*. Issues 7-10. January 2002. 3094-310.
- Lee, H. "Do electronic marketplaces lower the price of goods?." *Communications of the ACM*. January 1998. 41(1). 73-80.
- Malone, T, Yates, J., Benjamin, R. "Electronic Markets and Electronic Hierarchies." *Communications of the ACM*. June 1987. 30(6) 484-497.
- Mooney, J. "Pre-Employment Testing on the Internet: Put Candidates a Click Away and Hire at Modem Speed." *Public Personnel Management*, 31(1). Spring 2002. 41-52.
- "NAPSWEB Frequently Asked Questions" National Association of Personnel Services. April 2002. <<http://www.napsweb.org/faq.htm>>
- Newman, Edward. "The Myth of Automated Recruiting." *News for Recruiters*, 2002. <<http://www.newsforrecruiters.com>>
- Singh, R. "Human resource management: the key to competitive advantage." *Engineering Management Journal*. June 2002. 116-120.
- Van de Walle, Bartel, "Information systems for intelligent e-business", *Proceedings of EuroFuse2002 Workshop on Information Systems* (Eds. B. De Baets, J. Fodor and G. Pasi), Italy, September 2002, 211 – 216.
- "Weddles User's Choice Awards." 2002.
<http://www.weddles.com/awards/weddles_t_winn.htm>
- Yamamoto, J. & Sycara, K. "A stable and efficient buyer coalition formation scheme for e-marketplaces." *International Conference on Autonomous Agents*. *Proceedings of the 5th international conference on autonomous agents*. 2001. 576-583.
- Yarom, I, Rosenschein, J., Goldman, C. "The impact of infocenters on e-marketplaces." *International Conference on Autonomous Agents*. *Proceedings of the first international joint conference on Autonomous agents and multi-agent systems: part 3*. 2002. 1290-1291.
- Zarem, J. "Job fairs: online advertising that pays." *Folio*. September 2001. 37-40.