STRATEGIC ANALYSIS OF A SERVICE FIRM: WEB DEVELOPMENT & OPEN SOURCE

by

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Abstract

ImageX Media is a web design and development firm that specializes in integrating open source content management software for small to medium size businesses. In this context, human resources and research & development (R&D) play key roles in the firm's strategy. The problem is that the firm lacks a clear strategic focus that generates a defensible competitive advantage. The literature suggests that most firms must decide whether they will pursue a cost leadership strategy, a differentiation strategy or a focused strategy. The project intends to analyze these different strategic alternatives and recommend a strategy that would best align with ImageX Media's goals. Having selected a strategy the firm will be able to decide how to pursue effective human resources and R&D strategies. More specifically, the firm will be able to decide to what degree they should leverage their senior personnel with junior personnel. As well, the firm will be able to choose where to focus its R&D. The overall findings suggest that a cost leadership strategy would enable the firm to best meet its goals by highly utilizing junior personnel and focusing its R&D on process improvements.

Keywords: business strategy; cost leadership; differentiation; market focus; professional services; web design; web development; open source

For Gina, my loving wife,

whose support and encouragement has sustained and inspired me.

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Glossary

Billable work	Work a firm charges a customer an hourly rate for performing
Community-driven	An adjective used to describe products or bodies of work that are developed by a not-for-profit, loosely organized community of people
Content Management System (CMS)	Software that provides workflows to publish and manage content in a collaborative environment
Contributions	Code or documentation that is freely shared with a community-driven project
Document Management System (DMS)	A content management system that is used specifically for publishing, managing, and versioning electronic documents
Drupal	A community-driven, open source Web Content Management System
End user	The person who actually consumes the information on a website
Enterprise Content Management (ECM)	A collection of systems that are used to publish and manage all types of content across an entire large-scale enterprise
GNU General Public License	An open source license that requires any derived works to be distributed under the same license
Learning Management System (LMS)	Software that provides a collection of systems for administering online learning environments
Open Source Software (Open Source)	Software that has a license that permits users to freely view, modify, and re-distribute the source code
Programming Language	A set of instructions that are used to create computer software
Proprietary Software	Software that is licensed so that only the owner has rights to view, modify, and re-distribute the source code

System Integrator (Software Integrator)	A person or company that specializes in bringing together various sub-systems into one unified system
Software Developer (Programmer)	A person who writes the source code that makes software work
Source Code	A collection of programming language statements that define how a software program works
Telecommute	A situation where contractors or employees work from home or another location other than the company office
Web Content Management System (WCM)	A system designed specifically for managing a website
Web Design	The activity in which a designer presents content online in a visually appealing and user friendly way
Web Development	The activity in which a developer creates the software than runs a website

1: Introduction

ImageX Media (herein "the firm" or "IXM") is a small, sole proprietorship based in Surrey, British Columbia. It is a professional service firm providing business-to-business services in web design and development. The firm has been in business since 2001, but the corporate strategy changed significantly to focus on a single line of business, Web Design and Development, in 2006. After some significant events in 2009, the company is struggling to become profitable once again.

The aim of this project is to determine a business strategy that the firm should adopt based on the firm's current resources, capabilities and goals. The firm's resources and capabilities will be discussed in Chapter 2. The firm's goals in order of priority are to maximize profits, reduce risk, achieve sustainable growth, and retain control. While discussion about the firm's corporate strategy would be valuable, it is outside the scope of this project.

Chapter 2 will introduce the firm in greater detail. It will discuss how the corporate strategy has changed over the years and the current state of the firm's financial, technological and human resources. The firm's value chain will also be described in detail so that the reader can understand how each of the activities the firm engages in adds value. By the end of this chapter the reader will have a strong understanding of why the firm is in need of a new strategy.

Chapter 3 and 4 will describe the environment that the firm competes in. The first half of Chapter 3 will be spent defining the market that the firm operates within. The Content Management System market is far too large to be helpful. Instead, we will be looking at a sub-segment of this market we refer to as the Open Source Mid-Tier Web Content Management Services market. In the second half of this chapter we will use discuss the major forces that drive

profitability in the firm's industry. Chapter 4 will be dedicated to describing a particular aspect of the industry the firm competes within: Open Source Software. Open Source is a family of software licenses that require certain freedoms be given to users of the software. This way of licensing software affects how firms do business in this industry. By the end of these two chapters, the reader will have a strong understanding of how the firm is affected by its environment.

In Chapter 5 three strategic alternatives will be developed. First, we will develop a 'Factory' strategy (i.e. cost leadership). This strategy will involve high volumes and low variability, a high ratio of junior to senior personnel and a focus on process improvements. Second, we will develop a 'Frontier' strategy (i.e. differentiation). This strategy will involve low volumes and high variability, attracting the industry's best talent and a focus on cutting edge research. Third, we will develop a strategy that focuses on a particular market segment, which could be combined with either a 'Factory' or 'Frontier' strategy. This would involve addressing a market segment's specific needs, resourcing the firm with segment-related expertise, and focusing on product development.

In Chapter 6 each of the strategic alternatives are compared for fit with the firm's resources, capabilities and goals. For each strategic alternative there will be discussion about why the strategy ranks high or low for each of the different criteria. In conclusion, a 'winning' strategy will be recommended along with some closing remarks and recommendations for further study and analysis.

2: Firm Analysis

This chapter will describe the firm's history, strategy, resources, value chain and service offerings. By the end of this chapter, the reader should have a clear picture of how the firm's corporate strategy has changed over time and how the firm's seemingly strong position crumbled during 2009 and resulted in its current financial situation. The prolonged negative cash flows, has resulted in a lack of cash to invest in R&D and capability building. As we will see in the value chain analysis, the firm's lack of strategic clarity in each of the activities likely results in production inefficiencies. These production inefficiencies mean that the firm is not earning the potential revenue at the speed it needs to in order to cover its costs and earn a profit.

2.1 Company History

Over the years the firm's corporate strategy has changed significantly. The firm started out in 2001 as a video production studio. In 2004 the firm added print design and web design to its portfolio in an effort to become a one-stop shop for its customers. By 2006 it was clear that the web design and development business was the most profitable and so the other lines of business were shut down or sold.

The nature of the web design and development business changed significantly between 2004 and 2006. First, the ratio of design to development work was reversed. When the firm first started its web business the majority of the work was design. By 2006 the majority of the work was development and the number of designers on the team was reduced from four to one. Second, it was no longer possible for the firm to build websites from scratch each time. To remain competitive the firm needed to adopt a Web Content Management System (WCM) to use. The

firm selected an open source, community-driven WCM called Drupal. The firm that started out as a creative media firm was now primarily a software integrator with a creative aspect to it.

By 2008 the firm had two key competitive advantages. First, due to its origins in design and creative media, the firm had superior design capabilities when compared to the other firms that provided Drupal-based services. Second, the firm ranked very highly in the search engines for key terms like "Web Design Vancouver" or "Drupal Web Design". The firm never had to engage in cold calling or other marketing efforts. Its rank in the search engines provided a seemingly endless supply of leads. By the end of 2008 the company was operating at a profit margin close to 20%. The firm believed it was in a strong position.

However, in 2009 five things happened that weakened its position. First, as a result of the global financial crisis many clients or prospective clients either had their budgets cut or were increasingly wary about spending. Many organizations believed that website projects could easily be delayed for a year. Second, two separate technical mistakes affected the firm's visibility on Google for two months. Being that this was the firm's sole marketing vehicle the stream of leads dried up. Third, the projects the firm was bidding on were increasing in size. The sales tactics and sales management that had been used for winning smaller projects were no longer as effective. Fourth, mismanagement of a few rather large projects resulted in project failure and a loss of approximately 3% of total revenue for the year. Fifth, numerous companies were appearing to have both design and Drupal expertise, something that had previously made the firm unique. As a result, by the end of 2009 the firm had burned through the profits from the previous year and cash flow continued to be a serious concern.

The firm was forced into the realization that its seemingly strong position at the end of 2008 was not stable. So it proceeded to make significant changes in the following areas:

1. **Marketing:** The firm began to explore alternate forms of marketing through partnerships, social media, speaking at conferences, and contributions to the open

source community. The firm also made the decision that it would target educational organizations (K-12 and Post-Secondary).

2. **Strategy:** Up to this point the firm had not formally stated its vision, mission, or strategy. The firm developed a strategy that committed itself to three main areas: superior design, customer service, and technical innovation.

3. **Sales:** The firm hired a Director of Sales & Marketing and heavily invested in sales training for the firm's leadership.

2.2 Current State of Firm's Strategy

As noted above, the firm developed a written strategy for the first time. However, the firm's executed strategy has been different from its stated strategy. Its stated strategy is one of differentiation, but the strategy it actually executes on is a "middle of the road" approach.

As with most sole proprietorships, the owner is risk-adverse. As a result, the firm's primary goal is not rapid growth in size or revenue nor is it the owner's goal to sell the company in the short term. Rather, the owner is looking to develop sustainable profits over the long term (i.e. more than five years) while retaining control of the company.

The firm's five year strategic plan states the following: "By 2015, to have 70% of revenue come from long-term partnerships through pro-active customer service, user-centred design, and disciplined innovation by developing small teams and repeatable methodologies that are continuously improved" (Hilton 2010). This statement can be extrapolated as follows:

- **Long-term Partnerships:** the firm believes that the best way to achieve sustainable profits is to build a stable client base that procures your service on a regular basis (i.e. retainer agreement)

- **Pro-active Customer Service:** the firm is targeting customers who are looking for a web design and development company that will take an active role in their web strategy, acting as though they were part of their IT or Marketing team.
- **User-centred Design:** the firm has roots in design excellence and believes it can renew its competitive advantage in this area by focusing on usability and user experience.
- **Disciplined Innovation:** while somewhat vague, this represents the firm's desire to innovate new features for the content management system called Drupal
- **Small Teams:** the firm believes that its unique small team approach on each of its projects allows the company to deliver on the areas stated above.

Based on this it would seem that the firm is pursuing a differentiation strategy, with the five items above being the key competitive factors the company is trying to differentiate on. However, the stated strategy is different from the executed strategy. Very few resources have been spent on achieving the above since the strategy was written. In particular, to pursue the above strategy the firm would need to spend significant resources on achieving leadership in pro-active customer service, user-centred design, and disciplined innovation. Currently, the firm is not a leader in the industry for any of these areas. Moreover, since September 2009 the firm has been considering focusing on education but has taken only small steps forward (i.e. a few conversations with potential customers and partners).

In reality the firm is pursuing a middle of the road strategy, not spending significant resources trying to reduce costs or achieve differentiation. The key problem for the firm in this regard is that they have not committed resources to the stated strategy in order to achieve leadership in the market.

2.3 Current Financial Situation

The firm's most critical financial issue is the negative cash flow it has been experiencing since approximately mid 2009. The firm's average annual revenue for the last three years has been just less than $1 million dollars. In 2008, the company achieved a profit margin of 20%. However, during 2009 the firm operated at a loss, burning through the previous years profits, and was forced to down size. In order to keep its doors open the firm has needed to take out an $80,000 line of credit.

In the latter half of 2009 the negative cash flow was the result of poor sales performance and a failure to down size early enough. However, the sales for 2010 are well on track to reach the sales goal of $1.26 million. The problem is that the firm has not been able to produce the work as quickly as it needs to in order to earn the potential revenue brought in by the Sales manager. Another part of the problem is that the firm holds a significant portion of its assets in accounts receivable. At the start of 2010 the firm owns $157,757 in assets. Accounts receivable makes up 66% of those assets. In order to achieve a positive cash flow, the firm needs to collect on accounts receivable quicker and earn the potential revenue faster so that the earned revenue matches the sales goals.

Besides the obvious, a positive cash flow is required in order to 'keep the lights on and keep the doors open', cash is also required in order to make key investments. For example, in the firm's strategy user-centred design and disciplined innovation are two capabilities the firm has identified as factors for differentiation. Both of these capabilities require the firm to spend resources on research and development (R&D). As a benchmark, leaders in the industry spend between 10% and 20% of their total revenues on R&D. In order to differentiate on these two factors the firm would need to spend close to 20% of its revenues on R&D. But because the firm has no excess cash (from revenue or financing) it is unable to spend even 10% on R&D.

2.4 Resources: Accounts Receivable, Brand and Talent

Aside from cash and accounts receivable the firm holds very few other resources. Being that the business is primarily concerned with knowledge transfer and digital goods, it holds very little in physical assets. Its total physical assets equal $15,634, approximately 10% of the total assets, and this is comprised almost entirely of workstations and other office electronics. Most of the other physical goods (office space, servers, etc.) the firm leases. It is typical for firms within this industry to hold very small amounts of physical assets. However, larger physical assets, such as property, could be very useful for borrowing against to fund large R&D projects or new lines of business.

The firm holds a couple of intangible assets including reputation, clients and search engine positioning. The firm has established an identity around building well-designed sites on the Drupal CMS. While not necessarily a top-tier player in the industry, the firm is recognized for its work and has some high profile clients within its portfolio. The firm also holds a high rank on search engines for search terms like “web design Vancouver” and “Drupal web design”. This has been a significant source of sales leads for the company.

However, when comparing the firm’s personnel with personnel of the industry leading companies the firm’s personnel are not as high profile. Moreover, the firm is not a significant contributor to the open source community (the importance of this will be discussed in Chapter 4: below). This is often a proxy for clients or partners to evaluate the capability of the firm.

The firm holds no technological patents. Being that the firm develops solely on an open source platform, the license of this software does not allow for patenting (discussed more in Chapter 4: below). Nonetheless, there is an opportunity for the firm to build proprietary software that complements the open source project. Alternatively, the firm has the opportunity to contribute to the open source project. While contributions are not proprietary and do not

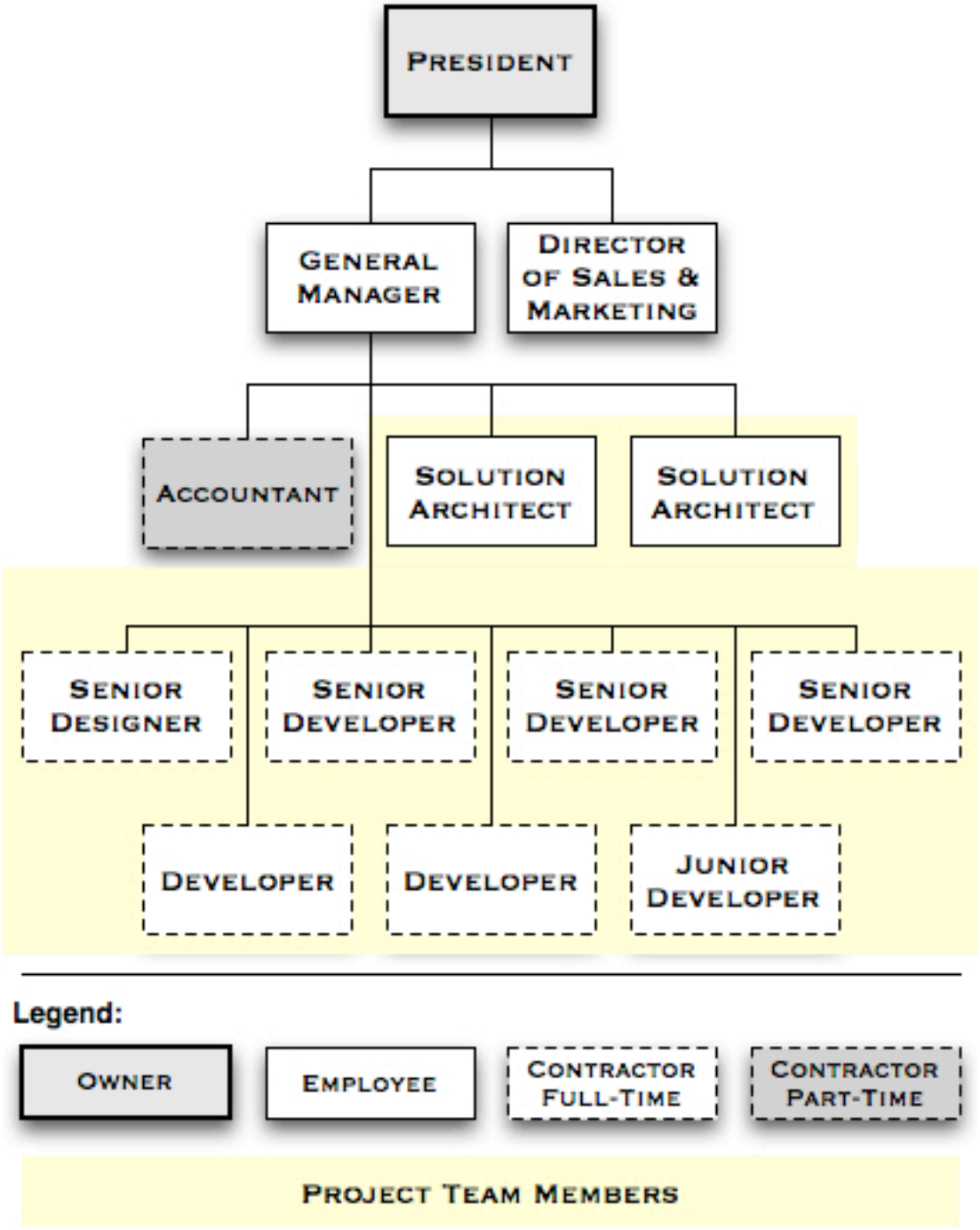
necessarily generate revenue directly, it is a source of marketing and credibility for the firm. To date the firm's contributions to the open source project have also been minimal.

In looking at the balance sheet alone we would determine that the firm's resources are few. Once we add in the intangible assets (i.e. good reputation, a handful of ongoing customers, and good positioning on the search engines) the firm's resources look somewhat better. It is clear, and will become clearer below, that the firm's most important resource is its personnel.

2.5 Organizational Structure

Figure 1 shows how the company is staffed. There are a number of interesting things to point out about the organization:

Figure 1 ImageX Media's Organizational Chart



Source: Author

First, the General Manager and Director of Sales and Marketing both report to the president and everyone else reports to the General Manager. The President sets everyone's level

of compensation. Project teams are typically made up of one solution architect, one designer, and one or two developers. In relation to the project work, the designers and developers report to the solution architect. There is a very short distance between the top and the bottom of the company.

Second, there are more contractors than employees. Not illustrated in the above chart is the fact that employees do 45% of the work and contractors do 55% of the work. Including the owner, the firm only has five employees. Moreover, many of the employees and contractors telecommute. Three people work from the office full-time. Six people work partly from the office and partly telecommute. The four remaining people work as full-time telecommuters and live in other parts of Canada, the United States, and Europe.

Third, the firm is comprised mostly of senior level staff. The average annual salary for a full-time employee or contractor is $88,000 or an hourly rate of $42. Senior staff members do approximately 70% of the billable project work. The idea of senior and junior personnel will be discussed more in Section 3.6 Competitor Analysis. The way the firm organizes its human resources must match its strategy. This concept will be discussed in Chapter 5.

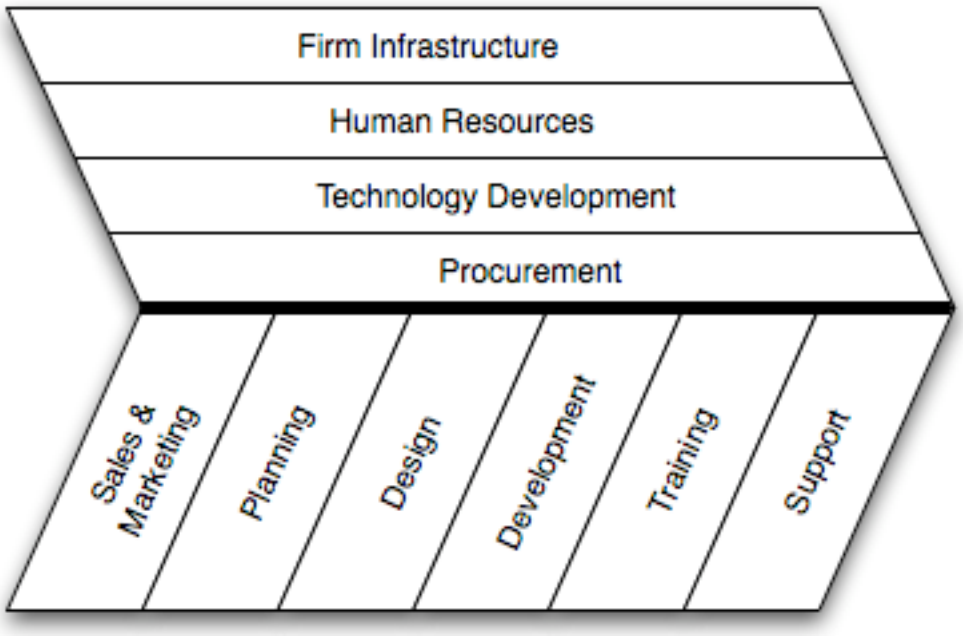
2.6 The Firm's Primary and Supporting Activities

Each of the firm's activities can be categorized as either primary or supporting. In Figure 2 the primary activities are shown vertically along the bottom and the supporting activities are shown horizontally across the top. The primary activities of the firm are sales and marketing, planning, design, development, training and support. The firm's supporting activities include firm infrastructure, human resources, technology development, and procurement.[1] When compared to other industries, a service firm is unique because the initial input actually comes from the customer in the sales and planning activities. The inputs are converted and additional value is

[1] This is model is derived from Michael Porter's Value Chain. Michael E. Porter, "What is strategy?," *Harvard Business Review*, November-December 1996: 61-78..

added through the design and development activities. The clients are enabled to utilize the outputs through training and support.

Figure 2 ImageX Media's Value Chain



Source: Author

The goal of sales and marketing is to generate revenue and attract what the firm considers "good clients". Potential clients have problems that need solving, which come in the form of a project. Value is created for the firm when it is contracted to do a project that is either profitable or presents a strategic opportunity. A project may not have a satisfactory profit margin but it may involve building a new capability or doing work in a new target market. It is important for marketing and sales department to attract the right mix of profitable and strategic projects. The strategy during the sales activity is differentiation. During this activity some level of consulting will occur. Sometimes the customer will pay for a discovery phase in which the firm works with the customer to define the scope, budget, and timeline of the project. The marketing strategy is not as clear, because fewer actions have been taken in this activity.

During the planning phase the firm identifies the customers' needs and maps them to project requirements. By aligning the expectations of the firm and the client, the client will receive a product that meets their objectives and therefore creates business value. This also means that the firm will be paid for a higher proportion of the work they do for the client. Where planning is lacking, the firm usually ends up having to do non-billable work to fix mistakes. The strategy for this activity is not clear. The firm has tried to standardize and reduce the costs of planning, but at the same time takes on customers who require very unique and customized planning.

During the design activity the firm designs solutions for the customer using wireframes (i.e. blueprints for the website) and graphical representations. The customer provides the firm with certain inputs – business objectives, written content, graphic preferences, etc. – and the firm processes and further defines these inputs. The goal at this stage is twofold. The firm must process the inputs in such a way that the end result is (a) easy to use for the customer and the end-user and (b) representative of the firm's brand. When the firm executes on this well, this can mean (a) lower costs and/or (b) higher revenues for their customer. For IXM this provides more visuals to add to their portfolio, which helps sales and marketing activities. The strategy here is differentiation. The more the firm can set its designs apart from other companies, the more it will build a positive reputation. However, the firm's capabilities in this area have not been developed at the same rate as its competitors and so it is losing its competitive advantage.

During the development activities all of the outputs from the planning and design activities are used to develop working software. Software developers write code, which produces certain behaviours or functionality, according to the design specifications. In other industries this might be compared to the "building" or "manufacturing" activity. The value created for the client is that the end result is a fully functional website. At this point in time, the firm lacks a strong strategy in this area. It tries to both differentiate and reduce costs, while doing neither very well.

Training is required before the customer can fully utilize the value created for them in the previous activities. The firm trains the client how to use the customized content management system. For the client, the value of this activity is that it enables them to make use of the products full potential. The firm lacks a strong strategy in this phase as well. It certainly does not try to differentiate its training, and it has also done little to reduce training costs. Sometimes training is even non-existent in projects.

After the project is complete and the client has been trained, some clients will enter into service agreements. This is an ongoing state where the firm provides the client with a specified amount of security updates, bug fixes, training, support, and/or new features. For the client, this saves them cost because the firm can do these things in much less time than it would take the client. For the firm, the value created here is a source of ongoing revenue. The firm tries to differentiate their service agreements as "pro-active". Because little has been done to reduce costs in this activity, the service agreements need to be at least 20 hours in order to be profitable. However, this can be a hard sell for many of the firm's clients.

2.7 Customers and Services

Some of the firm's more notable clients include Adobe, Warner Brothers Records, Arizona State University, and Lifetime Digital. Table 2-1 shows a breakdown of where the firm's revenue comes from. Each cell shows the percentage of revenue the given customer segment and type of service make up. The majority of the firm's revenues come from projects. A project is an engagement with a client with a particular objective in mind. The firm's typical project size ranges from $25,000 to $100,000 and has a length of three to nine months. The rest of the revenues come from Service Agreements and Maintenance. Service Agreements were introduced in 2009 and are similar to a retainer agreement and require at least 20 hours per month. Maintenance includes pay-as-you-go work and is usually requested in small quantities; maintenance work is being slowly phased out..

A large portion of the firm's customers are K-12 or Post-Secondary institutions. The company is carefully pursuing a niche strategy, but is very wary of doing so. The decision to focus on this niche was made in September 2009, but only small steps have been taken since then.

Table 2-1 ImageX Media's Service-Customer Matrix

	Customers				
Services	Education	Publishers	Non-Profits	Other	Total
Projects	37.9%	13.0%	15.6%	12.2%	78.7%
Service Agreements	1.5%	5.9%	0.4%	7.6%	15.4%
Maintenance	0.0%	0.0%	2.0%	3.9%	5.9%
Total	39.4%	18.9%	18.0%	23.7%	100%

Source: Author

2.8 Summary

The firm has a rich history in creative media, which has helped to differentiate the firm in the past. However, this advantage has declined over the last two years and investments have not been made to regain these capabilities or build new ones. In 2009, the firm was faced with some rather significant challenges. New leads began to decrease significantly due to the financial crisis and the temporary loss of its placement in search results. This was compounded with several mistakes made in the management of the sales pipeline and project management. In 2010, despite meeting sales goals, the negative cash flow continues because the firm is not able to produce as much as it needs to generate each period. This is because the strategy that the firm has stated, and the actual strategy it is executing on are different. More importantly, it is not clear what the firm's

strategy is. Without this direction, it is impossible for the firm to become more efficient and meet its production goals.

3: Industry Analysis

Now that we have been introduced to the firm, it is important to understand the market and industry that the firm competes within. First, we will define the specific market that the firm competes within: the open source Web Content Management System (WCM) services market. Second, we will discuss the major forces that drive profitability in the firm's industry.

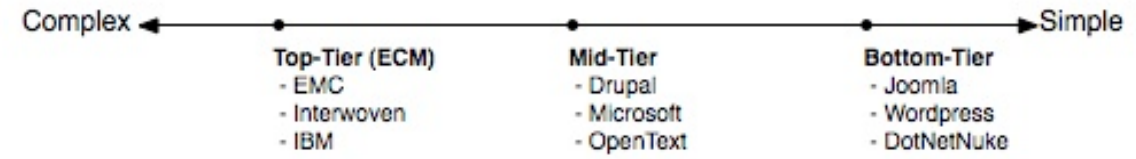
3.1 Defining the Open Source WCM Services Market

The firm competes within the Content Management System (CMS) market. This global market is defined as any product or service that exists to help organizations collaboratively manage information. The CMS market is too broad to be helpful in our analysis, but we will refer to it in order to estimate market size and define the market that ImageX Media competes within: the open source WCM services market.

The general CMS market can be divided into sub-segments based on function, including: Enterprise Content Management (ECM), Web Content Management (WCM), Document Management Systems (DMS), Learning Management Systems (LMS) and others. However, many offerings in the market combine one or more of these functional segments. Another distinction we can make is the level of complexity of the solution that the software offers. Typically the larger the customer organization the more complexity it requires. Figure 3 breaks down the market into three tiers and shows examples of each of the tiers. The top-tier is comprised mostly of ECMs that are used by large organizations. The software in this tier provides a very broad solution for managing all types of content. The product strategy in this tier is to provide a single system for managing content across an entire enterprise. The bottom-tier is comprised of single purpose tools for building blogs or small websites that are used by

individuals or small companies. The product strategy in this tier is to provide quick and easy ways to publish content online. The mid-tier is comprised of software that is single focused but more complex in its feature set. As well, the features can be extended to provide more than one function. For example, a WCM might be extended to include functionality that a DMS or LMS would typically have. The users of this software are small to medium businesses. Some large organizations use mid-tier and bottom-tier offerings for very specific purposes.

Figure 3 CMS Market Tiers



Source: Author with data from Dunwoodie (2004), Rockley (2006), Guseva (2009), WinterGreen Research, Inc. (2009), Akbas (2009), and Walling (2009)

In addition to function and tier we can further segment the market by the type of offering(s) the firm provides and the license that corresponds to that offering. There are typically three types of offerings a firm might have: a product, a service, or the resale of a product. In this case the product would be software or some other sort of digital good. Services might include support, training, administration, systems integration, or a combination. Resale is when a company acquires a product or service and resells it for a profit. Resale might include rebranding a product/service or selling a product under a different license. Often a business will provide an offering that is a combination of two or three of these. For example, many firms who sell a product also sell services (i.e. support or training) for the product. Additionally, system integrators or value added resellers might typically combine resale of a product with their own product or service. Regardless of which of the three categories the offering falls under, the way in which the firm delivers the offering is affected by the software license. There are many different types of licenses, but they typically fall into one of two categories: proprietary or open source.

Unlike proprietary software, the open source license provides people with the freedom to download, modify, and use the software for no cost.

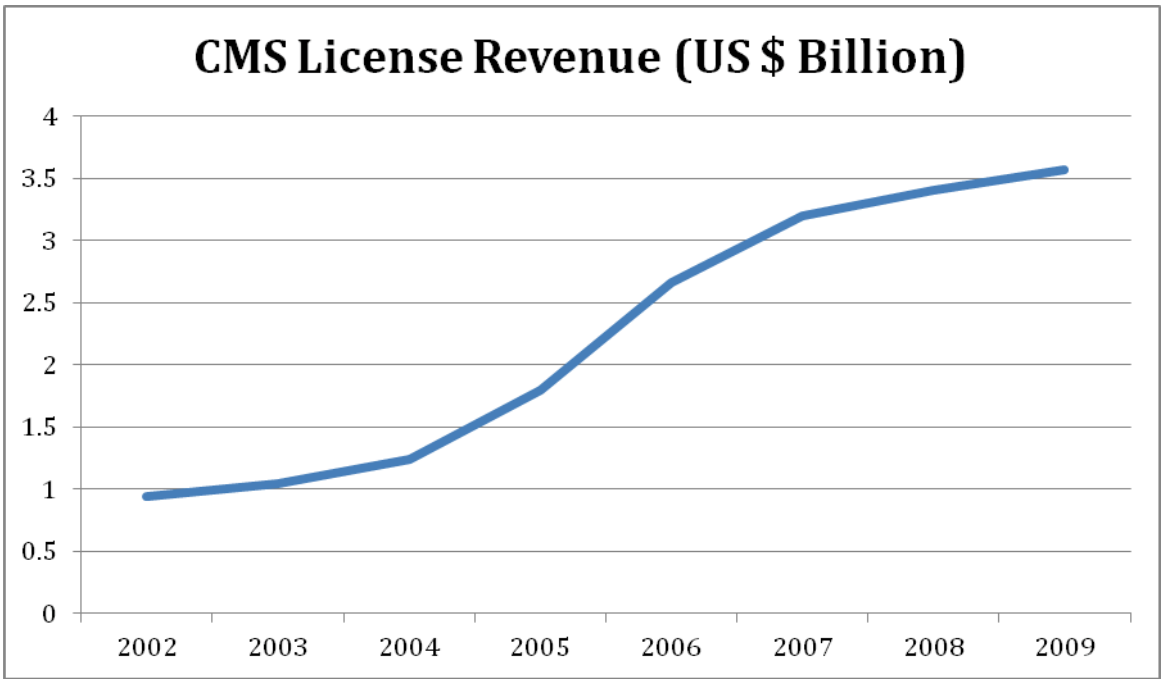
Using the four segmenting criteria mentioned above, we could better define the specific market that ImageX Media operates in:

- **Function:** Web Content Management System (WCM)
- **Tier:** Mid-Tier (see "Drupal" in Figure 2-1)
- **Offering:** Service, specifically System Integration
- **License:** Open Source

3.1.1 Estimating Market Size

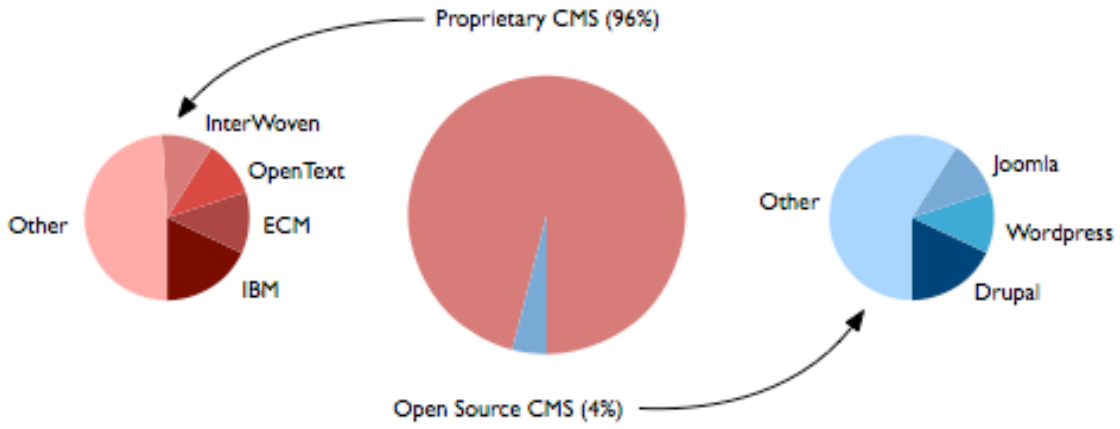
To approximate the Open Source WCM Services market we will take both a top-down approach starting with the CMS software market and a bottom-up approach starting with the firms competing in the market. Figure 4 shows the approximate market size over the last seven years for CMS software. In 2009, it was estimated at US $3.57 Billion. At the same time the WCM market was estimated at approximately 25% of this, US $0.89 Billion. The market for related services is estimated to be double this, US $1.79 Billion. We know that open source software accounts for about 4% of the software revenue (see Figure 5 for an approximation of market share). Yet, because open source is free this percentage severely underestimates the share of services related to open source. We can reasonably assume that the market size is between US $200 Million and US $900 Million.

Figure 4 CMS Software Market Size



Source: Author with data from Dunwoodie (2004), Rockley (2006), Guseva (2009), WinterGreen Research, Inc. (2009), Akbas (2009), Walling (2009)

Figure 5 CMS Market Share: Open Source vs. Proprietary



Source: Author with data from Guseva (2009). Pie charts above are not drawn to scale and are only meant as a conceptual view of how the market share is divided.

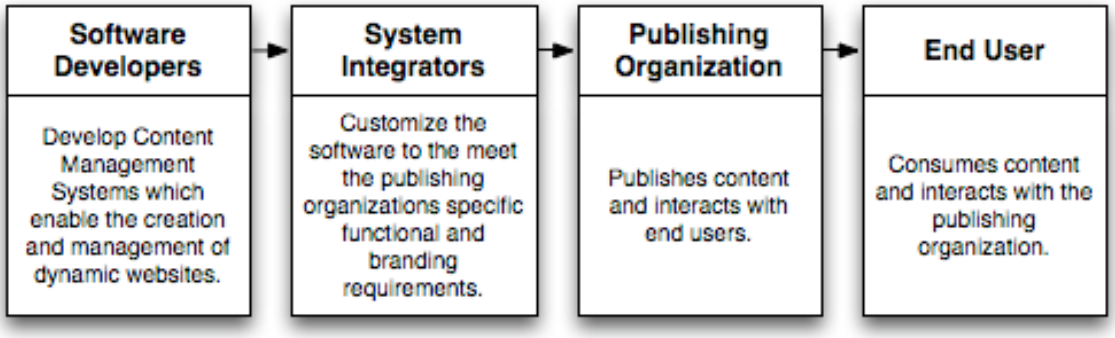
If we take a bottom-up approach we can approximate that there are 75 firms with an average of 13 staff who specialize in Drupal websites. Assuming each firm requires $150,000 of

revenue per employee, the estimated market size is at least US $146 Million.[2] This probably understates things, but shows us that our lower limit of US $200 Million is probably reasonable estimate of the Open Source WCM Services market. We can conclude that it is likely that the market size is between US $200 Million and US $900 Million.

3.2 Situating ImageX Media in the Industry Supply Chain

The basic supply chain in the industry is illustrated in Figure 6. Software developers start out by creating WCM software, which allows organizations to create websites and manage them online. The software falls into two categories: proprietary and open source. If the software is proprietary this means it is owned and licensed by a firm. If the software is open source this means that it is freely distributed either by a firm or a community of developers.

Figure 6 WCM Industry Supply Chain



Source: Author

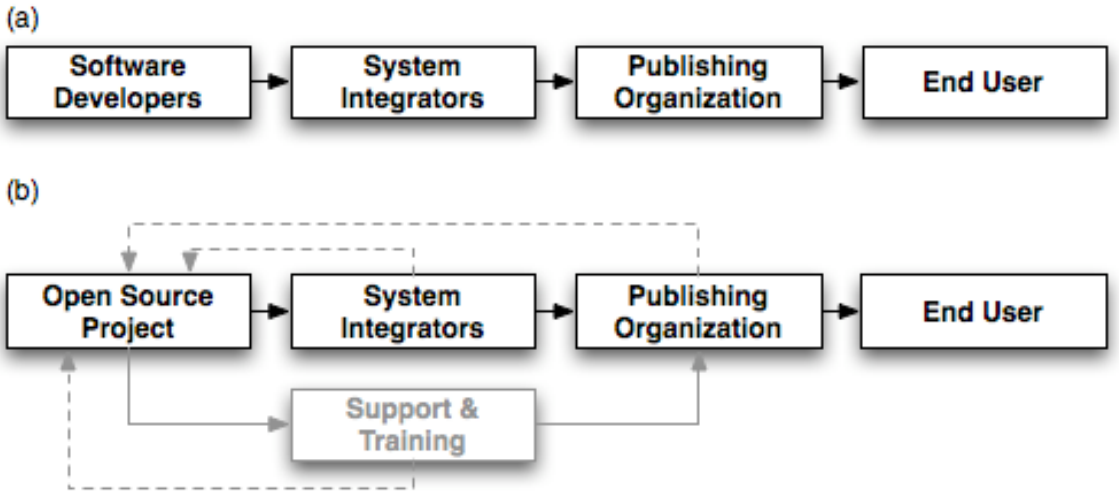
A system integrator customizes this software to meet the needs of the publishing organization. This might include configuring existing functionality, creating new functionality, and/or changing the way it looks. The firm may also assist in training, migration, and support. Sometimes the system integrator is internal to the publishing organization. In other words, sometimes the publishing organization has IT staff that can implement the WCM software.

[2] These assumptions are made by looking at the partner list on Acquia's website and the list of Drupal Service firms on Drupal.org

The publishing organization is then responsible for publishing content on the website and interacting with the users. The term "publishing organization" is used broadly. Organizations might use the website for various purposes: e-commerce, online publishing, brochure sites, intranets, social networks, etc. Finally, the end user is the consumer of information. They read, download, purchase, interact, or somehow consume the information that the publishing organization creates.

While this supply chain generally applies to both open source and proprietary WCMs, there are some key differences that are important to note. Figure 7 illustrates these differences. Figure 7 (a) illustrates the proprietary supply chain. "Software Developers" in this case specifically refers to a for-profit software development company. This company also typically provides support, training, and sometimes system integration.

Figure 7 WCM Industry Supply Chain: Proprietary vs. Open Source



Source: Author

Figure 7 (b) depicts the open source supply chain. There are two main differences. First, the supply chain starts with the "Open Source Project" (either driven by a community or a company). The dashed lines pointing back to "Open Source Project" show the contributions made

to the project by System Integrators, Publishing Organizations, and Support & Training Firms. Contributions usually come in the form of code, documentation, community support, or finances. Taking Drupal for example, no single company owns the software. Rather the software development is driven by thousands of people from within firms that provide system integration, support and training. Even some publishing organizations may provide contributions to the project. Second, "Support & Training" becomes a distinct element of the supply chain. In the proprietary supply chain (a) the firm that does the software development typically provides training and support. In the open source supply chain (b) no firm owns the software, so any firm can provide support & training. Sometimes system integrators provide this function. There are some firms who build their entire business model around support and training for open source software.

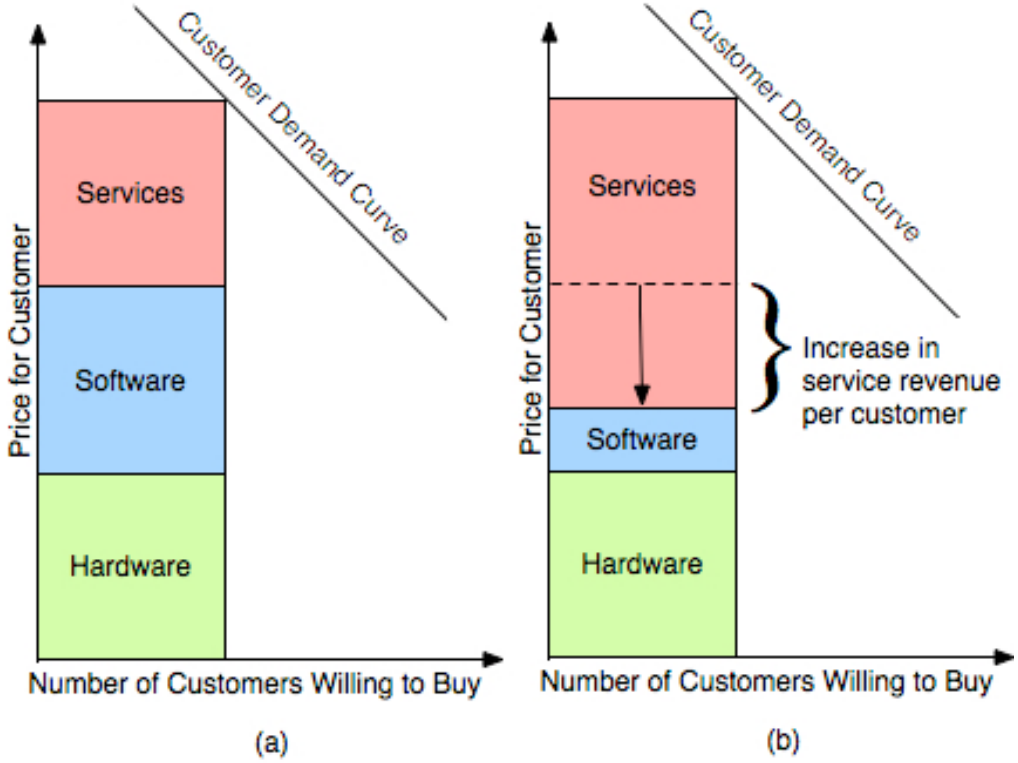
3.2.1 Relationship between System Integrators, Software Vendors and Open Source Communities

ImageX Media is a System Integrator. System Integrators must choose which software they will specialize in. A firm might choose a system for various reasons. Some of the main criteria in choosing a system include:

- **Fit with Strategy and Capabilities:** Does the software provide the degree of simplicity or complexity required for their target customers? Is it flexible? Easy to use? Is it built in a programming language the team understands?
- **Customer Demand:** Often customers will search out firms based on the WCM(s) they have expertise with. Is this a WCM that our target customers actually want? Will they still want it in five years?
- **Software Cost:** Does the customer have to pay a licensing fee for the software? How much?

The last point is an area where open source software particularly excels. For the publishing organization, the cost of the whole product includes the hardware to host the website, the software to run the website, and the cost of paying someone to implement it. Figure 8 (a) shows a rough breakdown of costs (not to scale). Figure 8 (b) shows the effect of open source software. As the cost of the software decreases the service revenue per customer increases. The direct cost of the software for the customer is zero. For the service firm there are still some costs (bug fixes, security updates, contributions back to the project), which are in one way or another passed on to the client. Nonetheless, they are significantly lower than the licensing fees associated with proprietary software.

Figure 8 WCM Whole Product Price: Proprietary vs. Open Source



Source: Riehle (2007)

3.3 The Major Forces that Drive Profitability in the Open Source WCM Services Industry

3.3.1 Size of Contracts and Business Criticality

Key buyers in this industry are organizations that need to publish content for some purpose. These include businesses, institutions, and government agencies. There is a large, heterogeneous population of buyers. Buyer power typically ranges depending on the size of the buyer, the length of the contract, and the importance of the firm's services to their business. The larger the buyer and the shorter the contract the more power the buyer has. Contracts in this industry are typically one year or less in length.

The services offered are often important to the operation of the buyer, which in turn reduces the buyer power considerably (Datamonitor 2010). Typically, buyers are out-sourcing a

component of their business that is essential but not part of their competitive advantage. For example, most buyers require that they have a website that works well, but it is not necessarily the thing that makes them competitive. The exception of course is online businesses, which is why we usually see these organizations building and managing their website "in-house".

For buyers, because they are out-sourcing this work they lose the knowledge internally. At the same time the firm offering the services learns more about the buyer's specific business. The longer these two processes continue, the higher the switching costs and the lower the buyer power. **Buyer power is moderate.**

3.3.2 Hardware, Software and Talent

Key suppliers in this industry are providers of hardware and software as well as technically skilled employees. The suppliers of hardware and software "are often large companies offering differentiated products, resulting in significant supplier power" (Datamonitor 2010). To become more efficient firms will try to have a tighter integration of hardware and software. Yet, as they do this, the costs of switching increase and so does the supplier power. The most important software supplier is the one that supplies the WCM software. In the case of the firm, this is an open source community and not a company. This makes for some interesting dynamics, which are described in the next chapter. For now it is sufficient to mention that open source communities are meritocracies. The more you contribute to the community, the more bargaining power and marketing exposure you receive.

The most important supplier in this industry is the employee or contractor who supplies technical knowledge and experience. "[Firms in this industry] rely on the continued service of qualified employees, and high rates of staff turnover can be detrimental to the business"(Datamonitor 2010). Retaining key personnel and effectively transferring knowledge is critical. As such, these employees have strong supplier power. **Supplier power is strong.**

3.3.3 Brand Recognition, Customer Loyalty and Technical Expertise

Entry into this market can be done either through diversification of an existing company or on a small scale as a new firm. The barriers to entry are (1) brand recognition and loyalty and (2) knowledge and technical expertise. These barriers to entry can be easily overcome with patience. A firm can easily acquire knowledge and technical expertise through training and/or hiring. The more difficult barrier is brand recognition and loyalty. Nonetheless, with patience a new firm can enter at the low end of the market or by focusing on a niche market and over time build their portfolio of clients. As the portfolio becomes larger and more impressive their potential market share becomes greater. **Threat of new entrants is strong.**

3.3.4 'In-housing' vs. 'Out-sourcing'

The key substitute is to train or hire in-house staff, “in times of economic slump, some companies may rely on existing staff rather than market players” (Datamonitor 2010). In addition, to a perceived cost savings buyers may choose to go in-house because they fear losing the business process knowledge associated with the work. However, by outsourcing IT services the buyer (1) is able to better focus on the core mission of their business and (2) is more flexible in a changing market because they have not invested in particular assets. Overall, where the service is not a competitive capability a business case can typically be made for out-sourcing. (Datamonitor 2010)

A future threat is that the software will no longer require the expertise of systems integrators or even specialized in-house personnel in order for the software to be used in their organizations. In other words, publishing content online will become as easy as using Microsoft Office. Certainly, this is already happening and is likely to continue happening in the bottom-tier (personal and very small businesses) of the market. Nonetheless, in the mid- and top-tier segments of the market there is still a high degree of customization and complexity required so this is not as likely to happen. **Threat of substitutes is weak**

3.3.5 Industry Fragmentation and 'Co-opetition'

The market is very fragmented. No single firm has more than a 1% share of the market. On average, the profit margins for the top three firms are approximately 7%. Over the next five years the industry is expected to grow by 12.7%. As top companies continue to grow (often through acquisition) the competition at the top becomes fiercer. However, rivalry between other players is often diminished as firms focus on specific technologies and industries. This has sometimes been characterized as ‘co-opetition’ (Datamonitor 2010).

3.3.6 Overall Industry Attractiveness

Overall the industry is moderately attractive. While the supplier power and threat of new entrants are both strong the threat of substitutes is weak and the industry is expected to continue growing. Moreover, the firm rivalry is not high because there is clear evidence that competitiveness is not determined by price alone. For example, a survey was done which showed the range in hourly rates between firms in similar subset of the industry ranged from $100 to $300 per hour (Kindred 2010). There is a broad range of strategies that firms can adopt to be competitive.

3.4 Industry Trends

Content publishing on the web is highly impacted by political factors. Currently, there is a strong move towards open source and open data in governments around the world. As a result, work is generated for web development and consulting companies. At this point in time the political factor has a positive effect on the industry.

During the financial crisis in 2009, the industry was hit hard along with many other industries. Spending in this industry is highly dependent on the budgets of the marketing and IT departments of organizations, both of which saw budget cuts during the recession. This is especially true for government and education organizations that are significant buyers of open

source implementation services. For the most part, websites are something that companies feel they can postpone for several months.

Social media has become the latest buzz in the advertising and marketing community. This has been a positive trend for the industry as it generates work for firms as marketers look to develop new socially enabled websites. Another social factor that impacts the industry is the move towards using mobile devices as a primary means of communication on the World Wide Web. This requires that websites be optimized for mobile devices in addition to the traditional browser.

The most significant technological trends that are currently impacting the industry are: the move towards mobile computing, the open data movement, and semantically linked data. Each of these trends affects the way that content managements systems are designed, implemented and used.

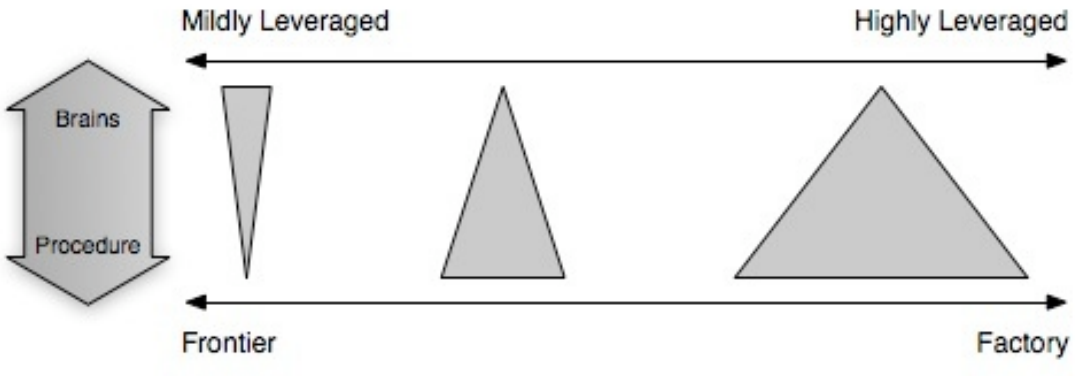
3.5 Frontier vs. Factory: Differences in Human Resource Models

Now that we understand (1) the market the firm competes in, (2) the firms place in the supply chain, and (3) the competitive forces that are at play within the industry, we can begin to look more closely at some of the ways that competitors differ from one another. One of the primary differences is the degree to which they leverage their expertise.

As in any professional service, the work done by the firm ranges in complexity. Some of the work is very complex and requires a high degree of intelligence, critical thinking, and expertise (i.e. this sort of work requires “Brains”). Some of the work is simple and can be made procedural for a person or automated using technology (i.e. “Procedure”). Of course all work will fall somewhere on the spectrum of “Brains” and “Procedure”. “Brains” work requires a senior person with lots of experience and education and as such requires higher pay. “Procedure” work can be done by a junior person with less experience and education and as such requires lower pay.

As a matter of efficiency a firm would not want to pay a senior person to do “Procedure” work, and as a matter of quality a firm would not want to ask a junior person to do “Brains” work. In this case the degree to which junior people are effectively used to do “Procedure” work so that senior people are free to do “Brains” work is called leverage (Maister 1993).

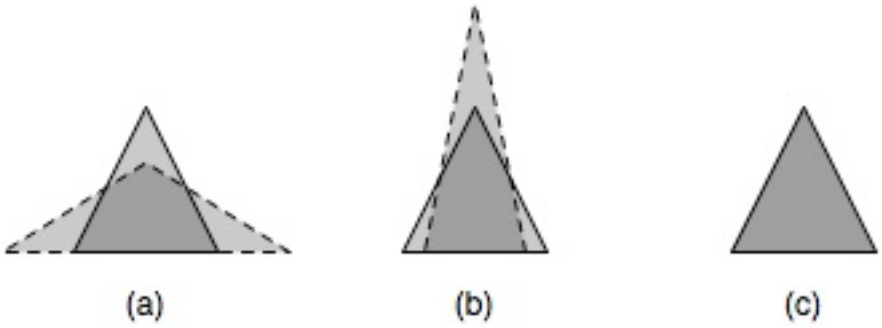
Figure 9 Degree of Leverage: Frontier Work vs. Factory Work



Source: Author adapted from Maister (1993)

Figure 9 illustrates this point. The three triangles represent different mixes of work (or degrees of leverage). The triangle on the left represents a firm that does mostly “Brains” work and therefore has mostly senior people. A firm that is structured like this is great at solving problems that have never been solved before – “Frontier” work. Firms like this in the industry might charge an hourly rate of $250 and up. The triangle on the right represents a firm that has mostly junior staff. A firm that is structured like this is best described as “Factory”. Most of the work has been made procedural and can be done by juniors. Of course, there are still some senior people to make new types of work procedural. Firms like this typically charge hourly rates closer to $100.

Figure 10 Actual Leverage vs. Actual Work



Source: Author adapted from Maister (1993)

There is not necessarily a right or wrong degree of leverage as long as it is matched with your business strategy and marketing efforts. Figure 10 illustrates this. In diagrams (a), (b), and (c) we see the same degree of leverage (represented by the solid line). What changes in the diagrams is the type of work the firm is doing (represented by the dashed line). In diagram (a) we see a company that is "under leveraged". The work being done by the firm does not fit the way the firm has been resourced. The firm ends up having senior people doing procedural type work. The result is the firm is not maximizing profits. Diagram (b) also illustrates a firm where the work does not fit the resourcing model, but in this case the firm is "over leveraged". Junior people are forced to work on problems that are more complex than they can solve. The result is a problem with quality. Diagram (c) shows a firm that has matched its marketing and resourcing model; as such, the firm will deliver on the level of quality required while maximizing profits.

The degree a firm is leveraged is related to its competitive strategy. It seems intuitive that a company who wants to compete on price will take a "Factory" resourcing model and a company who has a differentiation strategy will take a "Frontier" resourcing model. We can apply this point by looking at where some of the different leading firms fall on the spectrum.

- **Lullabot** offers mostly consulting and training and does some website development. Most of the work they do involves providing solutions to complex problems and training

their customers to solve the problem themselves. The website development work they do is selected carefully to be either a noteworthy website or a very complex problem. Most of their staff is very well known in the industry because they are speakers at industry events, authors of relevant books or videos, and key contributors to the open source community. Lullabot resides on the "Frontier" side of the spectrum.

- **Phase2** offers website development. They have 34 staff members (almost twice as many as Lullabot). Approximately half of the staff members could be considered junior. The firm has also produced a number of open source products based on Drupal. These products are a way for the firm to make the work they do more procedural by using technology. Phase2 resides on the "Factory" side of the spectrum
- **Acquia** offers a mix of products and services. They provide hosted solutions, technical support, website development, and remote administration. All of which can be made very procedural using technology or junior staff. At the same time they also provide training and consulting on complex issues, which requires "Brains". In this case, the company has different lines of businesses within the same industry. For each different business they may fall on opposite sides of the spectrum.

Of the firms listed above, the firm that is most similar offering to ImageX Media is Phase2. In contrast, ImageX Media has approximately half the team members and is not leveraged to the same degree. In Figure 1 which illustrates the organizational structure of the company we see that only 23% of the company is junior. This may indicate some inefficiency in the firm's resourcing model.

3.6 Summary

We started out by defining the market that the firm competes in. The high level market of Content Management Systems is far too broad to be of any use to us. So we further defined the market using four segmentation criteria: function, tier, offering, and license. First, the primary

function of the software in the firm's market is to develop websites based on web content management systems (WCM). While it can fulfill other purposes like document management or learning management, it is not the primary function of the software. Second, the firm operates within the mid-tier of the market. That is, the buyers are small to medium size businesses or are enterprises that require a system for a specific purpose or business (i.e. not enterprise wide). Third, the firm offers system integration services. It does not sell a product or provide technical support, but rather helps companies to integrate and customize the software for business. Fourth, the type of license that the software has can also distinguish the market. The software used within this market is open source software. Open Source Software drastically changes the way the industry works. The topic of Open Source Software is discussed more in Chapter 4.

We then looked at the industry's attractiveness. While supplier power and the threat of new entrants are strong, buyer power is moderate, the threat of substitutes is weak, and overall firm rivalry is weak. The industry is very fragmented and there are many different factors a firm could successfully compete on. Because of this the industry was deemed moderately attractive. In other words, with a change in strategy, there is certainly an opportunity for the firm to be successful.

In analyzing the key differences between competitors we looked at the way firms choose to leverage their senior staff with junior staff. Since so much of a firm's value is in its human resources, this becomes one of the key competitive factors for a firm in this industry. In Chapter 5, we will discuss how this relates to the firm's strategy.

4: Open Source Software

In chapter three, the firm's external environment was discussed. That discussion continues in this chapter as we focus on one particular attribute of the firm's external environment: Open Source. Open Source is a philosophy, software licence, and product development methodology that differs significantly from proprietary software. As a result, companies need to think differently about how they will maximize profits. This chapter will review some of the reasons a company would build a business around selling open source software and the different business models that could be adopted.

4.1 Open Source: Philosophy, License and Methodology

Open source is a philosophy, a software license, and a software development methodology. The intellectual property of software is the set of written actions that are interpreted by the computer (i.e. 'source code'). Open source means freedom to view the source code, modify the source code, and redistribute the source code without discrimination against persons, groups, technology, or fields of endeavour (Open Source Initiative n.d.). There is not one specific open source license the same way that there is not one proprietary license. There are several popular licenses (Apache License, BSD License, GNU General Public License, MIT License, and the Mozilla Public License) but they all conform to the same general philosophy of freedom.

Open source software projects have two general sources. First, an open source project may be company-driven. That is, a company licenses the software they develop as open source, allowing people the freedom to use, modify, and redistribute the software. The company may encourage people to share their modifications and improvements of the software and if the

company likes the modifications, may apply them to the original software. Goldman and Gabriel illustrate this point:

> By engaging an outside community, a company can learn which innovations to make and how to make them. All that is required is to play by some rules, give up the commodity part of the product, and skilfully retain the high-value part. In exchange, the community will, in general, act as a co-author of the company's product and innovate in unexpected ways. (Goldman and Gabriel 2005)

Second, an open source project may be community-driven. That is, a community of developers collaborate to create software that they license as open source. In the same way outsiders are able to use, modify, and redistribute the software. They may also encourage outsiders to join the community and help collaborate on further developing the software.

In the case of ImageX Media, the open source software that the company provides services for is a content management system called Drupal. Drupal is a community-driven project released under the GNU General Public License (GPL). First, let us look more closely at the license. What is distinctive about the GPL is that it ensures that the freedoms initially granted are preserved despite the work being modified or added to the original. In other words, any derivative or addition to the Drupal content management system must be released under a license that grants as much or more freedom than the original license. This means that a person or company cannot modify or create an extension to Drupal that is released under a proprietary license and they must freely provide the source code to others. Because of this there is no significant market for selling software released under GPL (this is not necessarily the case for other open source licenses). There is a ‘loophole’; If the software is never distributed then source code does not have to be either. The Internet allows companies to provide hosted versions of the software and charge a subscription fee (i.e. software as a service). So it is possible to resell GPL licensed software if you sell it as a hosted application.

Second, how does the Drupal community work? In general, an open source community can be understood as a philosophical and economic community. Open source communities are

meritocracies and gift economies (Goldman and Gabriel 2005). In a meritocracy authority is derived from the demonstration of talent and ability. In the case of open source software this means that the more one can demonstrate their talent and ability by contributing code to the project the more authority they will have. Authority in this case means the ability to influence the direction of the project. An open source community can be best understood as a series of concentric circles. The closer one is to the centre, the more authority they have. First, at the centre are the core committers of which there are the fewest. These are the only people that can make changes to the core of the software. Their job is to approve and commit the work done by others. By doing this, they have a great deal of control over the direction of the project. Second, one step away from the centre are the core contributors. These are people that write the code that eventually becomes part of the software's core functionality. Third, module maintainers are people who commit and contribute to add-ons to the core software. Fourth, general contributors provide feedback, testing, documentation, or portions of code for either the core software or add-on modules. Fifth, users use the software to publish content and may provide feedback or help to generate buzz about the software. Sixth, 'free riders' use and benefit from the software in some way but provide no contributions back to the project.

In the Drupal community 'free riders' are typically people or firms who provide web development services based on Drupal, but provide nothing back to the community. This sort of behaviour is not looked on favourably. The degree to which a firm invests in an open source project is determined by the degree to which it can be a beneficiary of the project. Free riders reduce the benefit because they take benefit for themselves without contributing to the project. Ideally, projects discourage free riding to the point where it is no longer an economic concern for contributing firms (Lerner and Tirole 2002).

From the perspective of a firm that provides Drupal-related services it is ideal to employ the most active contributors and, if at all possible, a committer. Committers and the most active

contributors can get "software fixed faster and better, can better align company strategy with the open source project and vice versa" (Riehle 2007). The higher the status of the employee the higher their power and as such they typically earn much higher compensation. To offset this though, firms can typically charge higher rates if they employ these types of people because of what it signals to the market (Riehle 2007). In the Drupal community there are two core committers. The two leading companies in the industry each employee one of them.

4.2 Using Open Source to Generate Profits

The downsides of creating or contributing to open source software seem obvious. Creating or contributing to an open source project means freely giving away your hard work. This certainly seems counter to the conventional wisdom behind creating barriers to entry. By contributing work to an open source project, the company is forgoing the monetary compensation that it could otherwise derive from that work. However, a firm may be restricted by the license and cannot derive monetary compensation for its contributions, as is the case with ImageX Media and Drupal. For example, any resources IXM uses to contribute to the Drupal project are resources it is not using to do billable work. Therefore, there are opportunity costs associated with contributing to an open source project.

Nonetheless, there are three main benefits to creating or contributing to open source software. First, and perhaps most obvious, it provides an opportunity to capture and derive profits from external innovation that results in tremendous cost savings. Second, the reduced cost of the software means that service providers get a bigger share of the revenue of the whole product. Third, it provides a signal to the market that the firm has a degree of expertise and commitment. A business case can be made for creating or contributing to open source software if the firm believes that these benefits outweigh the opportunity costs.

4.2.1 Capture External Innovation

Innovation is an essential activity for businesses to remain competitive. Henry Chesbrough in *Open Innovation* argues that the field of innovation is being levelled. He points to the fact that R&D spending in small companies (under 1000 employees) has increased to 25% of all innovation. Employment and patent statistics seem to point to the same fact. He goes on to say that firms would "do well to make extensive use of external technologies" (Chesbrough, Vanhaverbeke and West 2006). Open source technology is certainly an external source of innovation.

To what extent is open source software truly a source of innovation? In other words, can a business model truly be applied to open source software? Chesbrough asserts:

> There is no inherent value in a technology per se. The value is determined instead by the business model used to bring it to market. The same technology taken to market through two different business models will yield different amounts of value. An inferior technology with a better business model will often trump a better technology commercialized through an inferior business model. (Chesbrough, Vanhaverbeke and West 2006)

To further this thought, open source technology is essentially a technology without a business model. That is, until firms create a business model around it. Open source technology can be adopted by a firm and incorporated into new and existing business models of that firm.

When Goldman and Gabriel coined the phrase "innovation happens elsewhere" they mean to say that firms ought to recognize that innovation, or at least the majority of innovation, happens outside of that firm. It happens in other firms; it happens in college dorm rooms; it happens in open source communities. They argue that firms must capture not only the innovation that happens within their walls, but also more importantly the innovation that happens outside (Goldman and Gabriel 2005).

Firms have the opportunity to do this through open source projects. How so? "Innovation is not merely inventing and improving, but knowing what to invent and improve" (Goldman and

Gabriel 2005). By being involved in, or even running, an open source project the firm can harvest information. Because of the transparency of open source communities, firms can observe what problems people are having, what solutions they are coming up with, and what technological trends are emerging (Goldman and Gabriel 2005).

On the front lines, programmers in the employ of the firm will be working and learning alongside other programmers from different companies. The knowledge transfer and learning associated with this is unavoidable (Dewan, Freimer and Mehra 2008). This in turn may improve the organizations ability to achieve its mission.

By capturing innovation from outside the firm, the firm also significantly reduces the product development risk. That is, they reduce the cost of product development, but they also reduce the market risk (i.e. the risk of not understanding the target market) because market feedback is organically included in open source projects.

4.2.2 Bigger Share of Whole Product Revenue for Service Providers

For some firms who sell complementary services, open source software is of strategic importance. “Every dollar a system integrator [or service provider] saves on license costs paid to a software firm is a dollar gained that the customer might spend on services” (Riehle 2007). If the customer demand and willingness-to-pay is constant, then the more the service provider must pay for software, the smaller their piece of the pie. “If it were up to the system integrators, all software would be free (unless they had a major stake in a particular component). Then, all software license revenue would become services revenue” (Riehle 2007). The easiest way for a service provider to maximize its profits is to reduce the cost of software to as close to zero as possible.

With proprietary software products the price is not related to the cost (except that cost is a lower limit for price). Rather, the price is set to maximize profits. In this situation the firm tries to

put up barriers to entry so that new firms cannot enter and drive the price closer to the cost. However:

> In a community open source situation, no such market-entry barriers exist. Given the right license, anyone can set up a company and start selling software. What the company will sell, of course, isn't the software itself, but its provision, maintenance, and support…
>
> If the mark-up is too high, new companies will enter the market; if it's too low, companies will leave the market. Moreover, the more mature the product, the lower the overall price...
>
> The total cost and the resulting average cost per copy sold is mostly the same as for the closed source solution. The main difference, of course, is that the different contributing companies now share this cost. (Riehle 2007)

So in reality, open source software is not completely free or zero dollars for the service provider. The costs are distributed differently. Early customers will tend to take on large costs for new products or new features and the cost of development is shared across multiple firms. These costs are not equally divided among companies. Yet, the more contributions a firm makes to the project the higher prices they can charge. This is discussed more below.

4.2.3 Signal Expertise to Market

Open source software provides an opportunity to showcase the firm's capabilities in an extremely transparent ways. Customers could actually examine the code written by the firm's employees, read the feedback of the community on their work, and freely test their work. The quantity and quality of the firm's contributions to the project are a signal to customers of their expertise, and as such can be a very strong marketing tool. In other words, the larger the firm's share of contributions the higher the customer's willingness to pay. The firm can set higher rates than someone else who contributes less (Dewan, Freimer and Mehra 2008).

There are certainly other reasons why a firm may include open source technologies in their business models. The firm may ensure that the technology they created becomes the *de facto*

standard by giving it away for free. Pooling resources may allow the firm to do something that was otherwise totally impossible. Or, the open source product may itself create more demand for the products and services of the firm. In any regard, we can see that there are actually numerous reasons why a firm might use open source technologies (Chesbrough, Vanhaverbeke and West 2006).

4.3 Business Models that Utilize Open Source

A business model is the explanation of how an organization goes about creating and capturing value while innovation is the process by which the firm creates and captures value. Open source software is not a business model, but it is a source of innovation. In other words, a business model that incorporates open source software creates and adds values by (1) using the open software and (2) using the open source community. Most business models fall into one of three categories: service, product, or resale. The following sections describe how each of these general categories gets applied to open source software.

4.3.1 Services: Support, Training and System Integration

While some of the software users may only ever download the free software, larger organizations will often require professional support for the software. As such, firms can build their business around providing support contracts. This provides the firm with a dependable revenue stream. The larger the firm and the more critical the software the larger the contract will be. In addition to support, a firm may provide training, system integration, or a combination. Services are probably the most popular business model to combine with open source software. This is because the open source project itself is ineffective at supplying these services (Lerner and Tirole 2002).

4.3.2 Products: Software as a Service and Complimentary Products

The license that the open source project falls under determines the extent to which you can have a "product" business model. "Some licenses (e.g., BSD and its close cousin the Apache license) are relatively permissive, while others (e.g., GPL) force the user to distribute any changes or improvements if they distribute the software at all" (Lerner and Tirole 2002). For example, the General Public License (GPL) allows you to sell the code if you choose, but as soon as you distribute it to at least one other entity you must release the source code publicly. In the past the GPL meant that only the original developer could use the code without having to distribute it freely. However, with the advent of the cloud computing and 'Software as a Service' it is possible to sell software subscriptions for open source products because the source code never leaves your possession (Goldman and Gabriel 2005).

It is also possible that the product you sell is not the open source software at all. It may be complementary proprietary product to the open source software. This model means developing and selling proprietary software that is compliment to the free open source product (Lerner and Tirole 2002).

4.3.3 Resale: Split Licensing

Depending on the license of the open source software it is possible to sell the same software under a different proprietary license. In general, "resale" might be as simple as downloading the open source software and burning it to a CD-ROM and then selling it. It is not likely that this particular method will be successful. A more successful approach to resale would be what is called "Split Licensing" (Chang, Mills and Newhouse 2007). The MySQL database is a great example of this. They provide one version of the project freely under an open source license. At the same time they provide a proprietary commercial license for an enterprise version.

4.4 Summary

Above we described open source in three ways. First, we said that it is a philosophy. That is, the way economic exchanges work is through the idea of freely giving contributions (i.e. gifts) and the way authority is derived is through merit (i.e. what you do). By contributing to the open source project, IXM has the opportunity to signal its expertise to potential customers, competitors, and partners. Second, we said that open source is a software license. Unlike proprietary licenses, open source licenses grant a high degree of freedom to the end user (i.e. freedom from fees, freedom to modify the code, freedom to redistribute). As a service provider this increases IXM's share of the whole product revenue. Third, open source is a software development paradigm. That is, it is a different way of thinking about software development. It is software development done by many, rather than a few. For IXM, this provides the company with a way of capturing innovation that happens outside of the firm. Thus, advancing the firm's technological capabilities significantly faster than if it only relied on internal innovations. As well, we looked at three primary ways that a firm might monetize open source software: services, products, and resale. Currently, IXM only provides services. Yet, there is opportunity for IXM to expand or change its business model to include revenues streams from both products and services.

5: Alternative Business Strategies in an Open Source WCM Services Industry

For ImageX Media the primary goals are to (1) maximize profits, (2) generate sustainable growth, (3) maintain control, and (4) reduce risk for the owner. In a professional service firm, to maximize profits a firm must attract and retain what it considers to be "good" clients and "good" talent. This principal holds true regardless of the strategy the firm pursues. What changes is the definition of what is a "good" client or "good" talent. Without a clear strategy these can be very difficult to define. In a service firm it is especially critical that the human resource strategy and the marketing strategy are matched to each other to ensure profit maximization. To achieve this, the firm could take a number of strategic alternatives: (1) a cost leadership strategy in a broad market, (2) a differentiation strategy in a broad market, or (3) a focused market strategy (either cost leadership or differentiation depending on the needs of the market). This chapter explores what each of these different strategies would look like when applied to ImageX Media. Specifically, we will look at how the strategy impacts customers, human resources, technology development, the value chain, and finances. Chapter 6 analyzes each of these strategic alternatives and makes recommendations based on the goals.

5.1 Cost Leadership Strategy

For any professional service firm the majority of costs are employee wages and contractor fees. ImageX Media is no different; employee wages and contractor fees make up 80% of the firm's expenses. The other 20% of the expenses include rent, equipment, software, utilities, legal fees, etc. There is little room for decreasing these other expenses. Thus, to be a cost leader

in the industry the firm would need to make the most efficient use of its human resources. This requires the firm to do four main things:

1. Attract clients who have work that the firm can do efficiently
2. Continually make work more procedural and standardized so that it can be done by more junior staff
3. Continually automate work using technology
4. Consider outsourcing activities where its value proposition is low

5.1.1 High Volume and Low Variability

The type of work that a customer brings to the firm is the primary determinant of how effective the firm will be at pursuing a cost leadership strategy. A firm pursuing this type of strategy would need to increase the volume of work while decreasing the variability of the work. The sales and marketing activity in this strategy thus has four key components:

1. Attract customers who have problems that the firm is efficient at solving. The firm should make a large portion of the work required to solve the clients' problems either technically automated or standardized so that a junior person can easily perform the work.
2. Attract customers who desire the benefits of the firm's standardized approach and are willing to accept less customization and gain more efficiency.
3. Attract large volumes of work in order to attain scale of economy, which is necessary to improve the firm's efficiency.
4. Attract a smaller portion of 'strategic' customers. These are customers who have problems that the firm has not solved before, but provide an opportunity for the firm to build a capability that it believes can increase its scope and/or efficiency

in the future. This might include work that provides ImageX Media with an opportunity to (a) build a new technological capability or (b) increase experience in a new market.

5.1.2 Highly Utilize Junior Personnel

A professional service firm pursuing a cost leadership strategy needs to optimize its resource allocation for high volumes of work with low variety. The firm's growth and ability to increase market share comes primarily through growing its human resources in size and depth. Compared with the average competitor, a cost leader will have a larger number of personnel and a larger proportion of junior personnel in order to utilize economies of scale. Furthermore, the firm will need to ensure that it deals with the problem of under-delegation. A typical problem in professional service firms is that senior staff members do a large amount of work that could be done by someone more junior. In this situation, the organization is effectively paying more for labour than it should be. This is one of the most important issues that a cost leader would need to address.

In an open source environment there is also the question of whether the firm should try to employ people who have status in the open source community and to what degree. In a differentiation strategy it would be possible and perhaps necessary to employ a larger proportion of high status individuals. However, in a cost leadership strategy only a few key senior people need to have high involvement in the open source community such that their leadership role has an influence over the development of product standards.

A cost leadership strategy also affects the way in which the human resources are organized. An example structure is shown in Appendix A. In order to achieve operational efficiency, the firm needs to implement four changes in its organizational structure. First, leaders (i.e. Directors) need to be in place to direct the efforts of making work more procedural and

automated. Second, the firm's senior personnel need to be highly leveraged using junior personnel. That is the ratio of junior to senior staff needs to be relatively high. Third, the size of the sales team would need to be increased to ensure that the firm can attract larger volumes of work. Fourth, senior personnel and high performing junior personnel would need to be actively retained. A strategy for this might include decreasing the percentage of contractors or introducing other incentives that reduce turnover.

5.1.3 Focus on Process Improvements

The R&D function of a professional service firm with cost leadership strategy would primarily be concerned with innovations that can automate and/or standardize the workflows so that the junior personnel can be easily trained to carry them out. R&D for the firm can be separated into two categories: product innovation and process innovation. Product innovation includes any R&D that goes toward improving the product (i.e. the content management system). Process innovation includes any R&D that improves the delivery of the firm's services.

While product innovation provides some differentiation advantages in an open source environment, process innovation is absolutely critical for reducing the cost of service delivery. Process innovation may come in the form of technology, business processes, best practices, standards, or methodologies. These are innovations that require discipline and experience and cannot be easily copied by other firms, and moreover, they do not need to be shared with the open source community.

5.1.4 Decrease the Cost of Firm Activities

IXM needs to carefully weigh vertical integration of each activity against the option of partnering or outsourcing. The firm's goal in this strategy is to increase the margin between value created during an activity and the cost of the activity. If this margin is small the firm may consider:

1. Terminating the activity and providing the customer with no alternative
2. Allying with a partner to do the activity jointly
3. Outsourcing the activity to a firm that can do it more efficiently

Let us take a look at each of the primary activities in the value chain. First, the planning activity is the activity with the highest level of client interaction. This activity includes mostly meetings and written documentation. To do this more effectively the firm ought to have a standard process that all clients go through. Senior personnel should mostly be utilized for meetings with clients, high-level strategy, and supervision of junior personnel. Most written documentation can start from templates and can be completed by junior staff. Junior staff can be responsible for research, meeting preparation, and documentation.

Second, the design activity can be made more procedural without reducing the quality that the firm is known for. Designs ought to be based on some standard principles that are agreed upon between the design and development department. These principles would specify design standards in order to decrease the cost of development.

Third, the development activity provides the opportunity for the most technical automation and use of junior personnel. At the start of each project work can be divided into two categories: senior and junior work. Junior personnel would work on solving problems that already have documented procedures. Senior personnel would focus on work that had not been automated or made procedural. If possible, the senior personnel would try to turn the work they do into work that could be done by a junior person the next time.

Fourth, the training activity is one of the activities that the firm has put the least amount of effort into. The firm has the capability to excel at training and so with some effort much of this activity could be automated through the creation of video and written documentation. Moreover, the more the design and development tasks are standardized, the easier it will be to have

consistent training materials. This would significantly increase the value for the client with very little incremental cost per project. Alternatively, the company may consider partnering or outsourcing this task to another firm that can provide it more efficiently.

Fifth, the support activity is the activity that provides the worst value proposition currently. Clients feel under-served and the firm feels over-burdened in this arena. The key problem is that there are a great number of customers that each require a small amount of work. Currently, the firm does not have the resources (i.e. technical systems and human resources) in place to do this activity efficiently for small volume clients. The firm needs to decide the minimum support work volume they are willing to do (if any) and build capabilities to support this. For any support engagements that do not meet the firm's requirements it should partner with an ally to provide this service. This might be a larger firm with economies of scale, like Acquia, or a smaller firm or freelancer with a low hourly rate.

An important part of the value chain is to reward employees and contractors to act synergistically in the manner that is outlined above. Currently, sales commissions are a straight percentage based on sales. Sales people should be rewarded more highly for bringing in work that would be considered a good or strategic client. This could be done through introducing profit sharing on a project. Other team members should also be rewarded for profitable projects as well as for innovations that automate or standardize the overall work flows.

5.1.5 High Overhead, Increased Capacity and Large Market Share

Appendix C illustrates the staffing plan and basic finances for a firm executing a low-cost strategy. This plan provides a rough estimate of what a firm with consistently good execution might expect. The numbers are not meant to be forecasts; rather, they help us to compare the financial outcomes of this strategy with those of the differentiation strategy. The "Ratio of Role Per Project" lists what percentage of work is required of each role on an average project. The

"Target Utilization of Role" indicates the percentage of billable time each role aims for (i.e. the amount of work that can be billed to a customer). Using these two figures we can calculate the number of personnel we need in each role, given a certain number of project managers. Using each role's price per hour (the amount billed to a client) and cost per hour (the amount the firm pays them) we can calculate the potential (or maximum) revenue and expenses. These figures are used to generate some basic Income Statements. There are a number of observations that can be made:

1. The firm's overhead is significantly higher in this alternative. This is true because more people are employed in the organization and more sales personnel are required to ensure high volumes. As the size of the organization increases the overhead per person decreases.
2. Growth in revenue primarily comes through adding capacity and attracting new jobs through sales and marketing. This sort of growth can be challenging. For instance, if the firm were to add one junior project manager (represented as half a project manager) to the organization, the firm would also need to hire one designer, one senior developer, and two junior developers. Of course, sales would need to adjust their efforts accordingly (possibly hiring more sales personnel).
3. Profitability in this model is primarily determined by the firm's ability to leverage the senior staff with junior staff. In other words, the more the firm can employ the use of junior staff to complete the work, the more profitable the firm will be.
4. The firm's market share would increase, but the price that it charges would remain the same or possibly even decrease. Being a leader with this strategy means having the largest market share.

5. One of the key financial risks is ineffective use of capacity. If the firm runs out of capacity then it is losing out on potential market share. However, if the firm has extra capacity it is not operating as efficiently as possible. Thus it is critical that the firm be able to forecast demand and be able to adjust its capacity beforehand.
6. Also note that between the first and second year the firm will be decreasing the number of senior staff and increasing the number of junior staff. This is why we see a significant increase in total salaries for junior staff between year 1 and year 2.

5.2 Differentiation Strategy

When it comes to professional service firms, customers pay for the application of the firm's knowledge to solve their specific problem. In essence, the customer is paying for the firm's expertise and experience. Some customers are willing to pay higher than average prices to firms that have higher than average expertise and experience. Thus the key for pursuing a differentiation strategy is to either (a) develop expertise in one area that is superior or (b) develop expertise in a unique combination of activities that when combined provides a superior value proposition to a segment of customers. This requires the firm to do four main things:

1. Attract clients who have work that requires a high level of expertise in a specific activity
2. Foster a company persona and offer high salaries to attract and retain expert personnel
3. Continually innovate industry leading technology that signals the firm's expertise
4. Consider outsourcing or using partners for activities that the customer considers low value

There are two examples from the firm's industry. Acquia differentiates itself by providing expert 24/7 support. It chooses not to focus on other activities like design or development, but instead has focused the organization around providing enterprise support for Drupal that is better than any other firm. Lullabot differentiates itself by providing superior training in the industry. They organize and host the largest training events in the industry, publish books, and produced a DVD series. No other firm has developed this capability to the same extent.

5.2.1 Low Volume and High Variability

The firm would want to attract customers that have problems requiring a high level of expertise. These problems are often 'frontier' problems that have never been solved before. Because of this, the work the firm would be doing would likely be highly variable and low in volume. The sales and marketing activity in this strategy has four key components:

1. Attract customers that have problems the firm has superior expertise at solving. The firm may never have solved the problem before, but the firm's experience and expertise gives them a unique position to solve the difficult problem better than any other firm.
2. Attract customers who understand the benefits of the firm's expertise and experience and are willing to pay a higher price for it.
3. Attract a broad array of work in order to illustrate the firm's ability to problem-solve in various scenarios.
4. Attract 'big name' customers who have well known brands. The brands will in turn improve the firm's brand.

If IXM were to pursue this strategy it would need to decide on which activities to differentiate. Since there are already firms differentiating on superior training and support the

firm would need to have some very compelling reasons to focus on those activities. It does not. As well, it would take a significant amount of restructuring to develop industry leading development capabilities. This leaves the planning and design activities, for which the firm does have superior resources that could be further developed. Moreover, the firm might consider adding online strategy to the mix. The firm could certainly develop a marketable value proposition around a mix of those three activities: planning, design, and online strategy. Essentially, the firm would be a consultancy. The firm might then consider outsourcing or partnering with another firm to do the other activities (development, training, and support) at a lower cost.

With this model in mind, the role of sales and marketing becomes the job of not just the sales manager, but also all senior consultants. Since the firm is selling the expertise of its senior consultants it is important that each of the senior consultants actively market themselves and build their personal brand. It is important that the firm's expertise be easily recognizable. Senior consultants should have articles published and be frequent speakers at conferences.

5.2.2 Employ the Industry's Best Talent

A firm pursuing a differentiation strategy essentially succeeds by employing the most expert people in specific areas. Junior personnel are still utilized, but to a much smaller extent than is possible in a cost leadership strategy. This will certainly result in higher costs for the firm, but these higher costs can be passed on to the customers. The firm growth in revenue comes from adding more senior consultants with different areas of expertise and from building a better brand and increasing the price accordingly. This sort of organization will be smaller than the average competitor. One of the key challenges for the firm is retaining the senior consultants, often times this must be done by offering a share of the firm's equity (since the firm's value is essentially the consultant).

In an open source environment, the firm would want to employ experts who are highly involved and have a high degree of status in the open source community. Having a few key contributors and a project committer on your team would signal to the market a very high level of expertise. These people will have higher salaries, but these costs can be passed on to the customer.

In a consultancy like this, the organization's structure would be a lot flatter (as shown in Appendix B). In order to achieve a high level expertise a number of things need to happen. First, there should be very few people who are not part of project work. The Accountant can likely be part time and is only required for basic bookkeeping. The Director of Sales & Marketing is essential to ensure that there is a steady stream of work. The President would be responsible for supervising and coaching each of the senior consultants and other leadership. Second, the size of the development team could be reduced to include only expert developers. All junior development work could be outsourced. Design work could also be easily outsourced. Third, a handful of junior consultants would be necessary in order to reduce some costs and increase capacity.

5.2.3 Focus on Cutting Edge Research

R&D in a firm with this strategy would primarily be concerned with innovation that was industry leading and cutting edge. It would largely be a result of the problem solving efforts on client work. Much of the work done for clients in this model could be considered R&D. The primary purpose of R&D in this model would be to improve the firm's credibility as an expert. As such, this would likely be product technology that would contribute to the open source community or process technology that it had produced for their customer.

It is very possible that some of this R&D could lead to new product development and new lines of business. However, further development of the product (beyond the initial R&D)

would be done more efficiently in a different sort of organization. There is no reason why the firm could not also create a new business unit with a different structure. The firm could use its brand to promote the new product and vice versa.

In addition to R&D efforts that will improve the firm's brand, the firm should also focus on R&D that will build new sorts of expertise. As an example, if the firm believes that mobile devices are the next big thing in the industry, it will want to do R&D that helps them leverage that technology in new and unique ways. It is critical that the firm maintain its level of expertise.

5.2.4 Increase the Value and Uniqueness of the Firm's Activities

The firm needs to carefully weigh vertical integration of each activity with the option of partnering or outsourcing. The firm's goal in this strategy is to focus on services that will increase the firm's uniqueness and will be considered high value. Any activities that are low value decrease the overall value proposition of the firm. For activities that are low in perceived value, the firm may consider:

1. No longer doing the activity and providing the customer with no alternative
2. Allying with a partner to do the activity
3. Outsourcing the activity to a firm that can do it more efficiently

Examples of services the firm may want to outsource or use partners for would be development, training, and support.

The firm would still need to create procedures around the consulting, planning, and design activities. However, the firm would need to allow for a high degree of variability. These procedures would be well defined but also very flexible. In many cases the firm would need to build procedures around generic problem solving. For example, there might be procedures for how to conduct research with a customer's users or how to write an analysis. There would not be procedures or templates for the software implementation, this would be custom designed each

time. These activities would also require a lot more face-to-face meetings than the firm currently allows for.

5.2.5 Low Overhead, Increased Hourly Rate and a Smaller Firm Size

Appendix D illustrates the staffing plan and basic finances for a firm executing a differentiation strategy effectively. This plan is a rough estimate of what a firm with consistently good execution might expect. The numbers are not meant to be forecasts. Rather, they help us to compare the financial outcomes of this strategy when compared with the other strategies. The "Ratio of Role Per Project" lists what percentage of work for an average project is required of each role. The "Target Utilization of Role" indicates the percentage of billable time each role aims for (i.e. the amount of work that can be billed to a customer). Using these two figures we can calculate the number of personnel we need in each role, given a certain number of project managers. Using each role's price per hour (the amount billed to a client) and cost per hour (the amount the firm pays them) we can calculate the potential (or maximum) revenue and expenses. These figures are used to generate some basic income statements. There are a number of observations that can be made these financial statements:

1. The firm's overhead is significantly smaller in this alternative. There are few people in the organization who are not involved in project work. The overhead of the firm is almost directly proportional to the number of senior consultants.
2. Growth is primarily a result of increasing the rate that clients are willing to pay and not necessarily increasing the number of senior consultants. Senior consultants typically expect a share of the profits or an ownership stake in the company. Adding a new senior consultant increases the revenues and profits but also increase the number of people it is shared between. In fact, if a senior consultant is added and the price is not increased, the profitability of the

company will decline. As such, growing the number of senior consultants is not usually a primary goal.

3. The profitability of this model is primarily determined by the firm's ability to charge a higher rate for its services. A secondary determinant is the firm's ability to leverage junior staff (though this happens to a smaller degree than in a low-cost strategy).

4. The firm's market share over time would not change significantly. Being a leader with this strategy means being able to charge the highest price.

5.3 Focused Strategy

The firm could, and is currently considering, focusing on a particular market segment. The firm has experience with three main types of markets: education, media/publishing, and not-for-profits. The firm could use the experience to focus in on one or two of these areas. The strategy would be to provide a broad array of services to a focused market segment. The idea is that it is easier to dominate (own more than half the market share) in a specific market segment. The ideal market would be one that is currently under served or over priced that the firm has the capabilities and resources to dominate. The firm has spent a significant amount of time considering the education market segment. The firm feels this would be the best market for them to focus on because of the experience they have in the segment and the fact that it is dominated by high price proprietary systems. This strategy would require the firm to do four main things:

1. Attract clients within the target market segment

2. Develop processes and technology that is specific to the target market segment

3. Develop a deep understanding of the target market segment

4. Consider adding activities to the firm, in order to provide a full range product to the target market

5.3.1 Address a Segments Specific Needs

By focusing on one market segment it is possible for the firm to build capabilities that enable either cost leadership or differentiation or possibly even both at the same time. Because the firm is focusing on a specific sub-set of customers, it will be able to develop standard procedures more quickly, thus reducing costs. At the same time, specialization in a market segment differentiates them; in this situation they will be able to charge higher prices. A firm pursuing this type of strategy needs to focus all of its marketing efforts on the target market segment.

5.3.2 Resource the Firm with Segment Expertise

The firm's human resource strategy will be determined primarily by whether they lean more towards a cost leadership strategy or a differentiation strategy. However, in either case it is beneficial for the firm to hire personnel who have market knowledge and to continually develop the existing staff's market knowledge.

5.3.3 Focus on Product Development

R&D in a firm with this strategy would primarily be concerned with innovation that improves the solution they provide for the target market. This might include improvements to existing products or processes for delivering the service. It may also include new services or products that meet the new demand within the target market.

There is an emerging trend in the open source content management systems environment. Some of the leading companies in the industry are creating specialized distributions of open source projects that are meant to solve the problems of a specific market. Typically, an open

source project solves a generic, broad market problem, and service integrators customize it to solve specific problems. Some service integrators have created distributions that are pre-customized for a specific segment. This means it takes less time for them to customize the software for their clients. It also signals to the market that they are committed to the segment and that the firm has expertise. An example is OpenPublish, which was created by Phase2 for the online media and publishing segment. The firm's creation of this distribution has made them the clear leader in this segment. If the firm decides to focus on education, they may want to also consider developing a specialized distribution of Drupal for educational institutions.

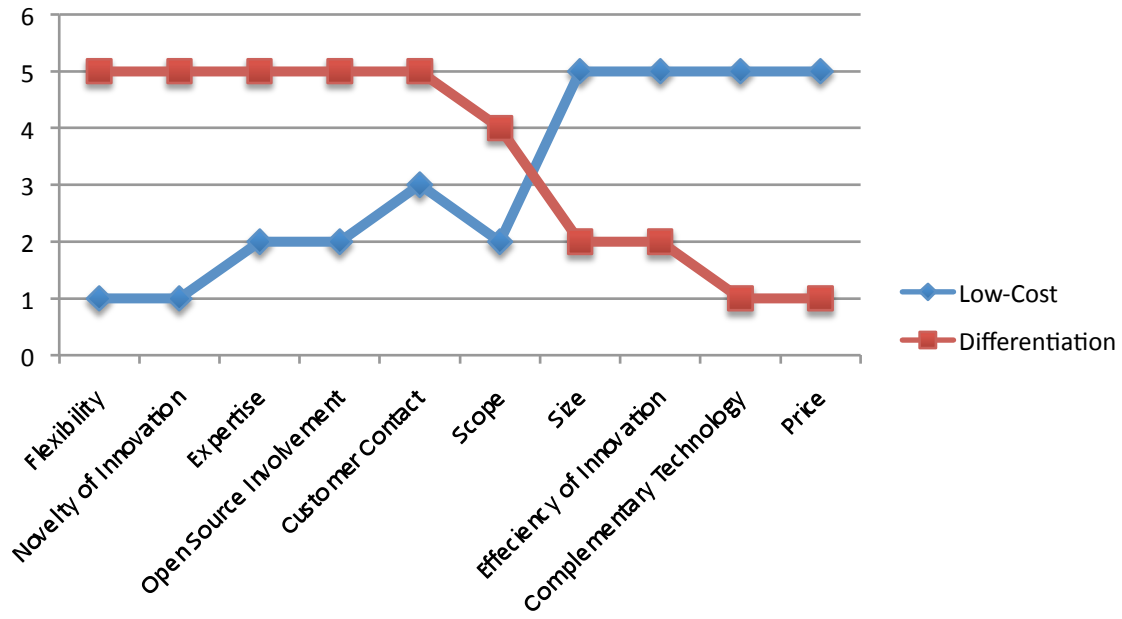
5.3.4 Optimize Activities for Market Segment

The firm needs to review the value chain to ensure that it is being optimized for the specific market segment and to ask for each activity – how can it add more value for this specific market segment. The firm may also want to consider additional lines of service for the segment, like search engine optimization or social media marketing.

6: Recommendations

The chosen strategy should be the one that is the best fit based on the firm's resources and capabilities. In each strategy the factors the firm chooses to compete on will be very different (see Figure 11). Cost leadership can provide high profit margins for the firm if it is able to increase volume, decrease variability, and do the work more efficiently than any competitors. A differentiation strategy can provide high profit margins for the firm if it is able to create unique capability that is not imitable and can earn a high price from customers. A focus strategy can be profitable if the company can find a market segment that is the right size (not too big, not too small) and meet an unmet need or provide a solution at lower cost than competitors.

Figure 11 Comparisons of Competitive Factors: Cost Leadership vs. Differentiation



Source: Author

This chapter will explain the risks and rewards of each strategy, which will be compared against the firm's current resources and capabilities. Then, it will address the challenges of acquiring new resources and new capabilities that are required for effective execution of the strategy. Next, it will discuss the alignment between each strategy and the four organizational goals, namely, maximize profits, reduce risk, achieve sustainable revenue growth, and maintain firm control. To conclude the study, a 'winning' strategy will be chosen and recommendations will be made on the steps the firm can take to adopt this strategy.

6.1 Cost Leadership

6.1.1 Process Innovation that is Difficult to Copy

The rewards of cost leadership are numerous. First, it provides a barrier to entry for new entrants. The firm's competitive advantage lies in the process innovation that it has achieved. The technology that comes out of this innovation might be easily copied, but the processes that enable the effective use of junior staff cannot be.

Second, the threat of substitutes is also lowered. The choice for customers between out-sourcing and doing it in house becomes easier to answer. The customer can achieve a significantly higher degree of efficiency by out-sourcing (assuming the cost leadership position is somewhat reflected in the price). As well, the firm is in a much better position compared to its competitors to defend against low-cost automated web publishing services (or could even integrate them into their services).

Third, supplier power is likely to decrease. The more the firm is able to utilize junior personnel the less it will depend on senior consultants. Senior consultants have higher prices and higher bargaining power. At the same time, the more the firm innovates new technology that improves their delivery of service the better they able to turn supplier assets into internal assets. In other words, the knowledge of the senior consultant becomes embedded in the company.

Fourth, buyer power would not *necessarily* be reduced. The impact here likely would not be significant because there is no threat of a monopoly in this industry.

Fifth, competitors are likely to hesitate competing on price with the cost leader. The cost leader can sustain the lowest prices and still be profitable. Meanwhile, the industry is very fragmented and there are many different ways for firms to differentiate or focus on market segments. As such, competitors will be unlikely to copy their strategy.

6.1.2 Industry Changes may Undermine Process Innovation

Of course a cost leadership strategy is not without its risks. The firm may fail to achieve true cost leadership. Technological innovations may eliminate their cost advantage. A focus on process efficiency may cause the firm to ignore changes in customer preferences. The firm may become known for low quality work. However, for each of these risks the firm has the opportunity to mitigate the risk.

First, technological innovations are the unexpected risk. Often times they sneak up on an incumbent firm. The firm does not react until it is too late. A technological innovation by a competitor or a substitute could eliminate the cost advantage. It might be possible that software is created that eliminates or reduces the need for a web design and development firm. This happened about five years ago with the introduction of content management systems. Firms that adapted and embedded this software in their processes were successful, while those that did not do so were not. As this brief illustration shows, a critical aspect to mitigating this risk is to continually monitor and evaluate related innovations and adapt the firm's value chain accordingly. The firm might also choose to mitigate the risk by dedicating resources to R&D for technology that might cannibalize their own services. This might seem like a bad idea at first, but it is better than the alternative: one of your competitors or substitutes makes your services irrelevant.

Second, with the firm focusing so much of its efforts on achieving cost leadership through process innovation, it is very possible that the firm will miss changes in customer preferences. The firm may choose to expend resources continuing to decrease costs in a certain activity, but miss a new, higher value activity that customers are wanting. To mitigate this risk it is important that the firm is constantly and intentionally listening to what their customers and potential customers are saying. Moreover, the firm should be monitoring for new potential markets and other market trends.

Third, it is possible that the firm's reputation may become one of "low quality" and customer loyalty may decrease. The more junior staff members that are used on a given project the higher the chances there will be quality issues. The very fact that the firm can offer lower prices may also influence the customer to believe that it is lower quality. Of course part of the process innovation is making work procedural to prevent quality issues in junior level work. However, it is also critical that the sales and marketing activities of the firm 'educate' clients on why their standardized processes allow for higher quality. One of the benefits of using senior personnel on a project is that they build customer loyalty. Senior staff should still be utilized in this way. If juniors are used for client communication, there should be checks in balances in place to ensure a high level of quality customer service.

Fourth, there is always the risk that the firm will fail to achieve true cost leadership or maintain its cost leadership. It is possible that the firm may achieve cost leadership for a time, but if that cost leadership can easily be imitated it will not last long. As mentioned earlier, product innovation does provide some benefit, but is easily imitated. It is critical that the firm focus on process innovation, which is not as easily copied. Because much of the firm's resources and capabilities are embedded in its staff it must ensure that key personnel are retained. But more importantly it must work to ensure that the knowledge of senior staff becomes embedded in

process technology and documentation that the firm owns. It is also critical that the firm be constantly improving its cost leadership position.

6.1.3 A Cost Leadership Strategy's Fit with ImageX Media's Capabilities and Resources

In pursuing this strategy IXM would need to do a lot of hiring, primarily for junior staff. The majority of the existing staff could fulfil senior positions. The firm already has the capabilities in place for focusing on process innovation. The firm's biggest challenge would be changing the mindset of the existing personnel and building a corporate culture that values process innovation.

The firm's chance of maximizing profits under this strategy is high, as high as a differentiation strategy but not as high as a focused strategy (this is described more in section 6.3.3). The firm's chances of reducing risk are likely also the highest under this strategy. In a down economy, typically customers look for firms with the lowest price. The firm's ability to achieve sustainable growth is very high when compared to a differentiation or focused strategy. By this strategy's very nature it would require a larger organization with a larger number of junior personnel. As well, a cost leader is typically the firm that also has the largest market share. Maintaining firm control under this strategy may prove to be somewhat difficult. In order to achieve economies of scale and own the largest share of the market the company may need significant investments in R&D and marketing. The focus of R&D would be to improve process technology and the focus of marketing would be to attract a higher volume of customers who are a good 'fit'.

6.2 Differentiation

6.2.1 Uniqueness is that Difficult to Replicate

The rewards of differentiation are also numerous. First, a true differentiation position means that the firm has some unique attributes that are not easy for new entrants to copy. For

example, it is very difficult for new entrants to attract the best senior personnel in the industry. Moreover, the configuration or combination of these unique resources can also be very difficult for a new entrant to copy.

Second, the threat of substitutes (i.e. in-house developers) is also lowered. Customers are loyal to the firm because of the uniqueness of service they provide. It is just as unlikely that a substitute would be able to emulate the problem solving capabilities of its senior consultants as it would be for new entrants. Moreover, the professional service offering is not only unique but also very customized to fit the needs of the customer perfectly.

Third, buyer power is reduced because the uniqueness of the firms offering makes it hard to find any similar service that the buyer could easily switch too. Moreover, the firm customizes its services and becomes deeply integrated with the customer. This makes the cost of switching even higher.

Fourth, competitors are likely to hesitate competing on price because the firm's customers are less price sensitive and the brand loyalty would be very costly to overcome. It is more likely that firms will try to compete on different competitive factors instead. This means the firm can continue to focus on differentiation without having to worry about slashing prices.

6.2.2 Changes in Customer Preferences may Undermine Uniqueness

A differentiation strategy also has many risks. The firm may fail to achieve and maintain true differentiation. Change in customer preferences means they no longer value the uniqueness of the firm. During a down economy customers may become more price sensitive.

Supplier power is not likely to decrease. In this case the primary suppliers are the senior consultants. However, the firm can significantly decrease the supplier power by giving them ownership in the firm. In essence the suppliers are vertically integrated. This is typical in a

professional consulting firm since so much of the firm's assets are embedded in the minds of the senior consultants.

The firm for a period of time may achieve a differentiation strategy by providing some unique service. However, if firms can copy this strategy or perhaps counterfeit the service, the competitive advantage will be lost. It is critical that the firm always be looking for ways to maintain its uniqueness. In this context, this often means trying to attract the best senior consultants in the industry. In this model growing the number of senior consultants may not provide additional profits to the owner, but it may provide competitive insulation.

It is also possible that customer preferences over time change such that they no longer value the firm's services. Customers may feel they no longer require high priced consultants to make decisions about their web strategy. To mitigate this risk the firm needs to actively listen to the market while also engaging in R&D that could open up new service areas. For instance it may be that firms feel they no longer need consultants for their standard web publishing needs. However, it is likely they still need consulting for social media or mobile strategies areas, which are the customer, may need consulting for.

It is also very possible that price sensitivity of the customer will increase. During times of economic depression this is especially likely. As such brand loyalty is extremely important. For a consultancy such as this, it's important that customers feel that the service provided is critical to their businesses success despite the economic situation. The customer ought to feel that the cost of switching or vertically integrating is higher than the cost of the firm's services. A high level of integration with the customer achieves this (acting almost as an extension of their business).

6.2.3 A Differentiation Strategy's Fit with ImageX Media's Capabilities and Resources

In terms of resources and capabilities this is the most challenging strategy for the company to pursue. The total number of people to employ would be decreased; in fact, several

layoffs may occur. And, the challenge is to attract, hire and retain among the best human resources in the industry. This may be difficult to achieve because of the firm's current position and reputation. Finally, a large amount of investment is required to train the current personnel who are retained.

The firm's opportunity of maximizing profits under this strategy is high, as high as a cost leadership strategy but not as high as a focused strategy (See 6.3.3). However, this strategy is the most risky because in a down economy, typically customers look for firms with the lowest price. Enough loyalty has to be built up with customers that they would not consider switching or reducing the level of service. The firm's ability to achieve sustainable growth is high, but not as high as cost leadership or differentiation strategy. A differentiation position usually attracts a smaller group of customers who are willing to pay higher prices. As such, the number of personnel the firm employs would not change significantly over time. Maintaining firm control under this strategy may prove to be very difficult. Senior consultants are likely to demand a share of the firm's equity to remain in the company. In this strategy, much of the firm's value is derived from the high profile senior personnel. This would result in some loss of ownership and perhaps over time loss of control.

6.3 Focused

6.3.1 Market Domination that is Difficult to Overcome

Pursuing a focused strategy allows the firm to target markets, which may be initially ignored by other competitors. This allows the firm to attain a leadership position in the segment more easily. For firms with few resources this is great because it allows them to focus all their resources on better serving one type of customer. Doing this also allows the firm to lower its R&D costs, without decreasing the effectiveness of R&D. Since these customers have in the past been under-served they are either (1) willing to pay a high price for the service or (2) willing to

live without certain features and benefits that the broad market requires. In essence a focus strategy is usually combined with either a cost leadership or differentiation strategy (whichever suits the market best).

In the firm's case, the most likely target segment is education (Post Secondary and K-12). Most of these organizations are using proprietary systems. The software license for one year for these proprietary systems is comparative to the cost of developing a similar, but much more customized solution, on the open source Drupal WCM. The customers are likely to pay a higher price for a specific WCM that meets their need than the average customer. As such, within this context, the firm's prices would still appear low. The firm would also be able to reduce its costs because it is able to build efficiencies through focusing on a narrower scope of features and services.

6.3.2 Moving from Early Adopters to the Market Segment Mainstream

As you would expect, there are also a number of risks involved in pursuing a focused strategy. The firm may fail to achieve dominance in the market segment. Competitors may be able focus on an even smaller sub-segment. An industry wide competitor sees the value in the segment and decides to mobilize its large amount of resources to compete in it. Customer preferences may change to be more like the broad market.

Of critical importance in this strategy is that the firm become dominant (at least 40% of the market share) in order to achieve leadership. The firm's first few customers in the market segment may have seemed easy to attract, giving a false sense of hope that this is the right market to target. Unless the firm can move beyond early adopters into the mainstream of the market segment, it may not be able to sustain its competitive advantage. The firm can mitigate this risk by having a solid marketing plan that identifies the different marketing tactics required at different phases of adoption.

It is possible that competitors focus on an even smaller sub-segment of the market. This would erode the firm's competitive advantage because their offering is not as specific as their competitors. To mitigate this risk it is important that the firm choose a market segment that is not too small (they run out of customers) but not too large (they can own at least 40% of the market share).

If the market segment appears attractive to a large broad-market competitor, that firm might decide to mobilize all of its resources to win market share in this segment. Again, this is why it is critical that the firm be able to dominate the market early. The firm must be able to serve the segment at a lower price than the broad-market competitor or it must have brand loyalty that will be very hard for the broad-market competitor to overcome.

It is also possible that the customers in the narrow market segment may change their preferences to be more like the broad-market. As such, it is critical for the firm to be looking for close narrow markets that they could also move into (i.e. not putting all their eggs in one basket). As an example, the firm may choose to focus on only K-12 educational institutions. The resources and capabilities they build in doing this may make it easy for them to server a similar narrow market (i.e. Universities and Colleges).

6.3.3 A Market Focus Strategy's Fit with ImageX Media's Capabilities and Resources

In terms of resources and capabilities the firm already has some experience in the market segment with early adopters. However, it has little in the way of specific technological innovation or personnel with deep market understanding. The key challenge for the firm from this perspective would be to mobilize their R&D efforts to be single focused on the education market. Also, the firm would likely need to look at hiring, training, and research to increase their understanding of the market and their target customer.

The firm's chance of maximizing profits under this strategy is likely the highest. By focusing on a specific target market the firm could focus on cost leadership, but also charge higher prices because of their market expertise. Alternatively, if the company were to pursue a focused-differentiation strategy, it would also be much easier for the firm to reduce its costs at the same time. However, the firm's chances of reducing risk are less likely under this strategy because 'all of their eggs are in one basket'. The firm's ability to achieve sustainable growth is average. Market share dominance is necessary, but the market size is smaller. Once the firm was able to dominate this market segment, it could look at near market segments as next targets as a strategy for growth. The owner has a good chance of maintaining firm control under this strategy

6.4 Conclusion

The results of this analysis are shown in Table 6-1. On the left hand side the attributes and goals of fit are listed. The second column lists the weighting of importance of each attribute/goal. The weights are provided based on the author's experience with IXM and discussion with the company founder. Columns 3, 4, and 5 list each of the strategies discussed above and their relative score for the attribute/goal. Each strategic alternative is rated on a scale of 1-3 (1=Poor, 2=Average, 3=Good). Along the bottom row we see total score, which is a weighted average out of a maximum of 3.

Table 6-1 Weighted Ranking of Strategic Alternatives

Attributes/Goals	Weight	Cost Leadership	Differentiation	Focus
Capabilities	20%	2	1	1.5
Resources	20%	2	1	3
Maximize Profits	25%	2.5	2.5	3
Reduce Risks	15%	3	2	2.5
Sustainable Growth	15%	3	1.5	2
Maintain Control	5%	2	1	2
Total	**100%**	**2.425**	**1.6**	**2.425**

Source: Author

What Table 6-1 indicates is that a strategy of Focus or Cost Leadership would be best suited for the firm. It is clear that given the resources and capabilities of the firm and the desire of the owner to maintain control, a differentiation strategy is the worst fit of the three strategies. Regardless of whether the company decides to pursue a cost leadership strategy or a market focus strategy the company will need to make some significant investments. The timeline for making these changes and investments will take at the very least one year.

If the firm chooses to pursue a cost leadership strategy they will need to make investments in R&D, hiring, and marketing. The firm's R&D investments will need to be at least

15-20% of the firm's revenue (based on industry benchmark) and will need to be focused on process improvements and making work more procedural. As well, the organization will need to do a lot of hiring, particularly for junior roles. As such, the firm's capacity will be significantly increased and the sales productivity will need be increased to the same extent. This will require significant investments in marketing – at least three times what the firm is currently spending.

If the firm chooses to pursue a market focus strategy they will need to make investments in R&D, acquiring domain knowledge, and marketing. In this case the R&D investments would go into the development of a specialized version of Drupal for the Education market segment. This would be a more significant change for the company, as this would be their first attempt at product development. The firm would also need to invest in developing domain knowledge (i.e. knowledge about the education industry). Finally, the companies marketing would need to change significantly. Currently, all marketing efforts are generic and there would be significant costs for adapting this.

While both options are viable, it appears from the above discussion that the costs of market focus will likely be greater (i.e. first time developing a product, significantly changing marketing message not just increasing volume). As such, it is the recommendation of this project that the company pursues a cost leadership strategy vigorously, but keep the focus on education in mind for future opportunities.

As next steps, the firm should develop the following:

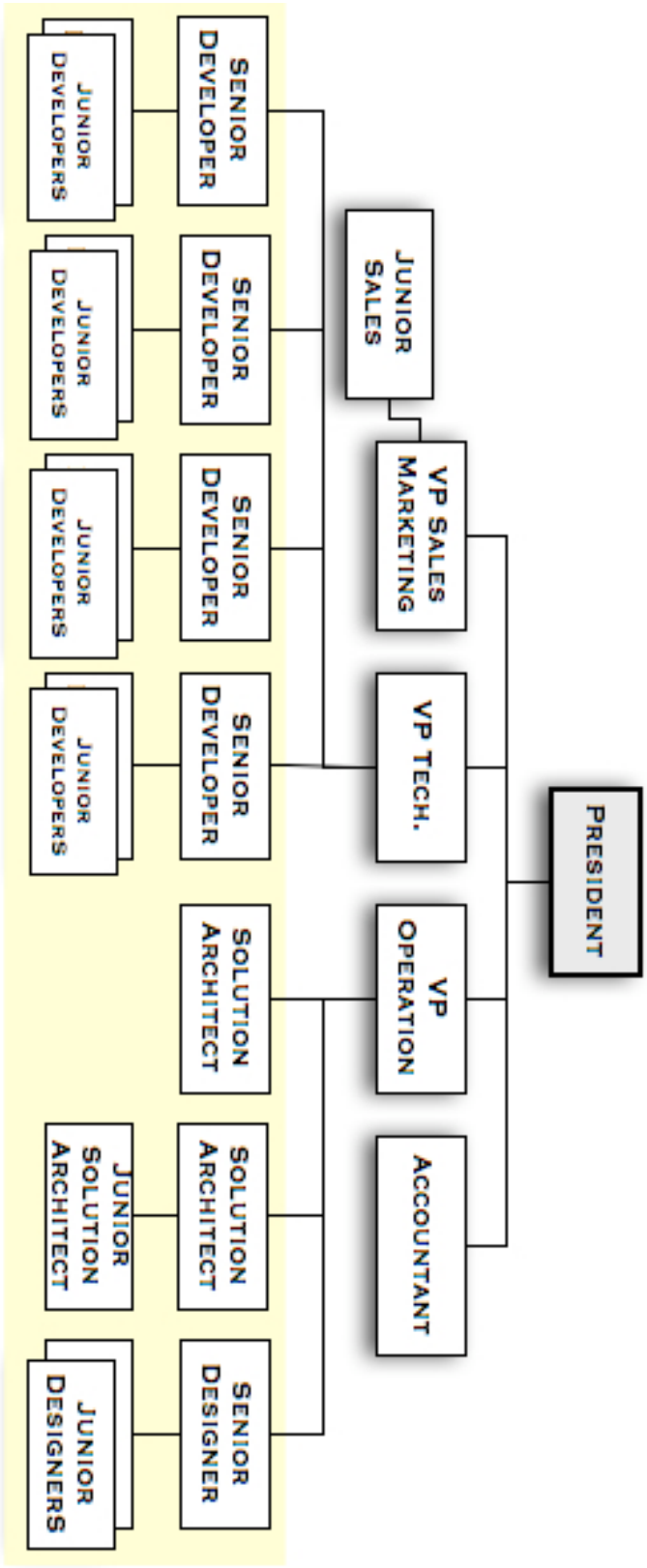
- Human Resources Strategy: Considering that the firm will need to highly leverage senior personnel, what systems and structure need to be in place in order to have a highly effective hiring and training process? Currently the training process assumes that new personnel have a high degree of knowledge and familiarity with the subject matter. Training systems will need to be developed so that new employees can be trained very

quickly. As well, existing senior personnel will need to be trained on how to manage and train junior personnel.

- Marketing Plan: The volume of the work will need to increase significantly in order to match the capacity that is created by bringing on junior personnel. What marketing investments need to be made in order to increase this capacity? How does the sales process need to be redefined? The firm will need to increase investments in its partnerships with firms like Acquia (professional Drupal support) and make investments in conferences, trade shows, and trade journals. The sales process will need to be changed such that the work required per project is less and the sales team may need to be expanded.
- Capacity Management Systems: With a significant increase in volume the firm will need to invest in or purchase better systems for managing capacity. How can the firm predict under and over capacity issues? How can the firm effectively manage its bottlenecks? The firm may need to adopt a new system for managing for work that significantly reduces waste. This might include adopting an agile project management approach and/or adopting a Lean operation methodology.
- Research & Development Strategy: To decrease its costs the firm will need to invest significantly in improving processes. This strategy may even be developed in the form of a new product development plan. That is, the technology for reducing costs could largely be embedded within an "internal product", that is a customized version of Drupal. As such, the firm will need to develop its new product development capabilities.

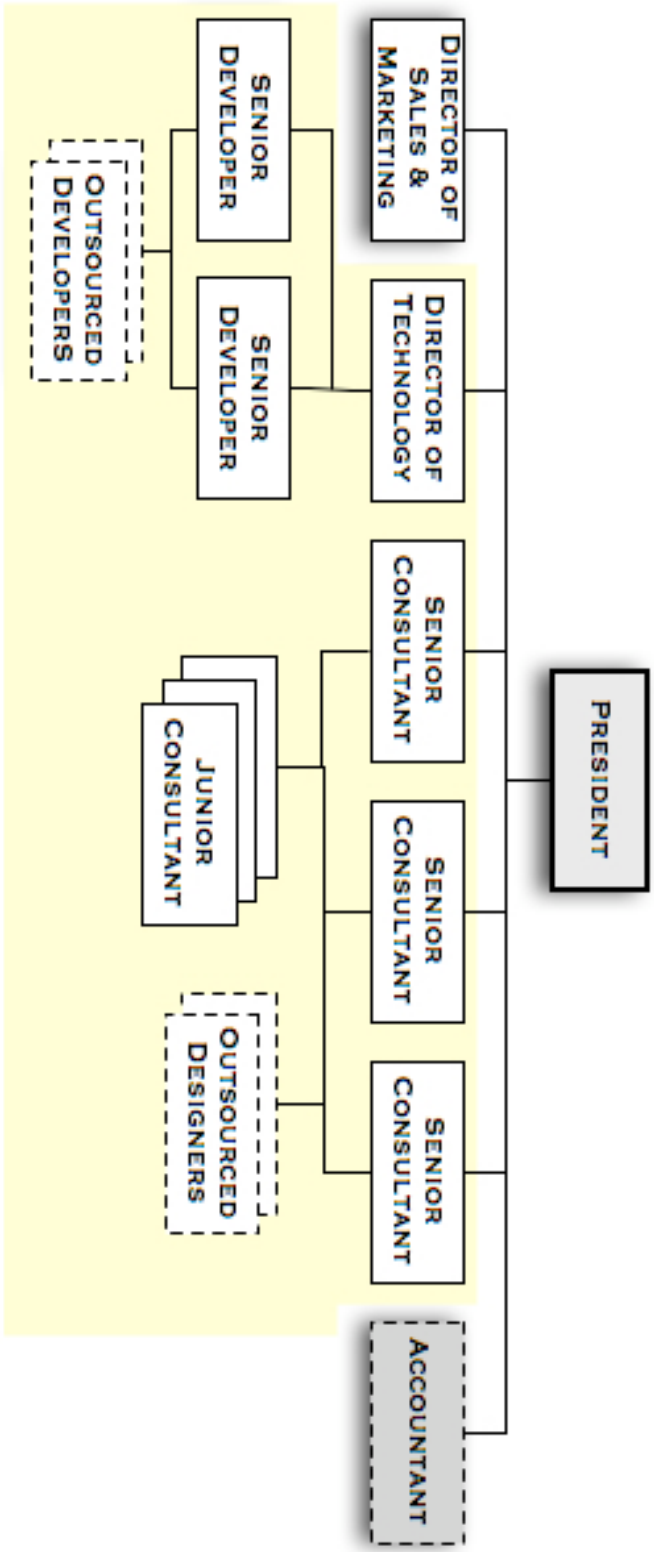
Appendices

Appendix A: Organizational Chart for a Cost Leadership Strategy



Source: Author

Appendix B: Organizational Chart for a Differentiation Strategy



Source: Author

Appendix C: Example Finances for a Cost Leadership Strategy

	Year 1	Year 2	Year 3	Year 4	Year 5
Ratio of Role Per Project					
Project Manager	25%	20%	20%	20%	20%
Designer	11%	13%	13%	13%	13%
Senior Developer	51%	25%	25%	25%	25%
Junior Developer	13%	42%	42%	42%	42%
Total	**100%**	**100%**	**100%**	**100%**	**100%**
Target Utilization of Role					
Project Manager	30%	40%	40%	40%	40%
Designer	60%	90%	90%	90%	90%
Senior Developer	75%	70%	70%	70%	70%
Junior Developer	50%	90%	90%	90%	90%
Number of Personnel per Role					
Project Manager	1.0	1.5	2.0	2.5	3.0
Designer	0.9	2.2	2.9	3.7	4.4
Senior Developer	5.1	3.3	4.4	5.5	6.6
Junior Developer	0.9	7.1	9.5	11.8	14.2
Total	**7.9**	**14.1**	**18.8**	**23.4**	**28.2**
Price Per Hour					
Project Manager	$135	$135	$135	$135	$135
Designer	$135	$135	$135	$135	$135
Senior Developer	$135	$135	$135	$135	$135
Junior Developer	$135	$135	$135	$135	$135
Cost Per Hour					
Project Manager	$37	$40	$43	$46	$50
Designer	$40	$40	$40	$40	$40
Senior Developer	$44	$45	$46	$46	$47
Junior Developer	$20	$25	$25	$25	$25
Potential Revenue					
Project Manager	$84,240	$168,480	$224,640	$280,800	$336,960
Designer	$148,262	$554,405	$739,206	$924,008	$1,108,809
Senior Developer	$1,074,060	$644,963	$859,950	$1,074,938	$1,289,925
Junior Developer	$121,680	$1,791,153	$2,388,204	$2,985,255	$3,582,306
Total	**$1,428,242**	**$3,159,000**	**$4,212,000**	**$5,265,000**	**$6,318,000**
Expenses					
Project Manager	$76,960	$124,800	$178,880	$239,200	$312,000
Designer	$73,216	$249,600	$249,600	$332,800	$416,000
Senior Developer	$466,752	$374,400	$478,400	$574,080	$684,320

Junior Developer	$36,053	$416,000	$520,000	$624,000	$780,000
Total	**$652,981**	**$1,164,800**	**$1,426,880**	**$1,770,080**	**$2,192,320**
Income Statement					
Revenue	$1,228,288	$2,716,740	$3,622,320	$4,527,900	$5,433,480
Wage Expenses	$652,981	$1,164,800	$1,426,880	$1,770,080	$2,192,320
Overhead	$552,730	$1,276,868	$1,811,160	$2,263,950	$2,662,405
Profit	**$22,577**	**$275,072**	**$384,280**	**$493,870**	**$578,755**
Profit Margin	**1.84%**	**10.13%**	**10.61%**	**10.91%**	**10.65%**
DCF @ Rate of 5%	**$21,502**	**$249,499**	**$331,956**	**$406,308**	**$453,470**
		Discounted Cash Flow			**$1,462,734**

Source: Author

Appendix D: Example Finances for a Differentiation Strategy

	Year 1	Year 2	Year 3	Year 4	Year 5
Ratio of Role Per Project					
Senior Consultant	43%	43%	43%	43%	43%
Director of Tech	14%	14%	14%	14%	14%
Senior Developer	19%	19%	19%	19%	19%
Junior Consultant	24%	24%	24%	24%	24%
Total	**100%**	**100%**	**100%**	**100%**	**100%**
Target Utilization					
Senior Consultant	50%	50%	50%	50%	50%
Director of Tech	30%	30%	30%	30%	30%
Senior Developer	80%	80%	80%	80%	80%
Junior Consultant	90%	90%	90%	90%	90%
Number of Personnel					
Senior Consultant	2.0	3.0	3.0	4.0	4.0
Director of Tech	0.4	0.6	0.6	0.8	0.8
Senior Developer	1.4	2.1	2.1	2.8	2.8
Junior Consultant	2.0	3.0	3.0	4.0	4.0
Total	**5.8**	**8.7**	**8.7**	**11.6**	**11.6**
Price Per Hour					
Senior Consultant	$150	$160	$170	$180	$180
Director of Tech	$150	$160	$170	$180	$180
Senior Developer	$150	$160	$170	$180	$180
Junior Consultant	$150	$160	$170	$180	$180
Cost Per Hour					
Senior Consultant	$60	$60	$60	$60	$60
Director of Tech	$48	$55	$57	$59	$60
Senior Developer	$45	$47	$49	$50	$50
Junior Consultant	$30	$30	$30	$30	$30
Potential Revenue					
Senior Consultant	$312,000	$499,200	$530,400	$748,800	$748,800
Director of Tech	$36,569	$58,511	$62,168	$87,766	$87,766
Senior Developer	$352,923	$564,676	$599,969	$847,015	$847,015
Junior Consultant	$564,212	$902,739	$959,161	$1,354,109	$1,354,109
Total	**$1,265,704**	**$2,025,127**	**$2,151,697**	**$3,037,690**	**$3,037,690**
Potential Expenses					
Senior Consultant	$249,600	$374,400	$374,400	$499,200	$499,200
Director of Tech	$99,840	$114,400	$118,560	$122,720	$124,800
Senior Developer	$132,346	$207,342	$216,165	$294,102	$294,102

Junior Consultant	$125,380	$188,071	$188,071	$250,761	$250,761
Total	**$607,167**	**$884,213**	**$897,196**	**$1,166,783**	**$1,168,863**
Income Statement					
Revenue	$1,088,506	$1,741,609	$1,850,460	$2,612,413	$2,612,413
Wage Expenses	$607,167	$884,213	$897,196	$1,166,783	$1,168,863
Overhead	$285,368	$415,580	$421,682	$548,388	$549,366
Senior Consultant Bonus	$105,930	$282,010	$339,307	$629,644	$627,498
Profit	**$90,041**	**$159,806**	**$192,274**	**$267,599**	**$266,687**
Profit Margin	**8.27%**	**9.18%**	**10.39%**	**10.24%**	**10.21%**
DCF @ Rate of 5%	**$85,753**	**$144,949**	**$166,094**	**$220,154**	**$208,956**
		Discounted Cash Flow			**$825,905**

Source: Author

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