

**A COMPREHENSIVE STRATEGIC ANALYSIS OF A SPECIALIZED
BUSINESS-TO-BUSINESS SERVICE PROVIDER**

by

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ABSTRACT

This project is a comprehensive strategic analysis of a ship repair company, the Vancouver Drydock Company. The Vancouver Drydock Company is in a state of recovery following an economic downturn. The company immediately retrenched in response to a decline in revenue. The possible strategic directions during a period of recovery are consolidation, growth or change. This project analyzed the different strategic options within each direction to come to a series of recommendations. The recommendation of this project is that the Vancouver Drydock Company pursues a strategic direction of change. Three distinct and complementary strategic options make up the recommended change of direction for the Vancouver Drydock Company: the pursuit of long-term repair contracts, creation of value added service offerings and entry into the stevedoring industry.

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1.0 INTRODUCTION TO THE SEASPAN VANCOUVER DRYDOCK

1.1 Roadmap

This paper examines the strategies and opportunities available to the Seaspan Vancouver Drydock Company Limited (VDC) exiting a period of economic downturn. Industry analysis examines the current competitive environment for the VDC. Internal analysis examines the current capabilities of the company. Financial analysis illustrates the VDC's response to a revenue decline. The strategic options analysis comparatively ranks a number of options for the company currently recovering. The summary of recommendations provides a strategic direction for the VDC in both the immediate short-term.

1.2 Scope of This Analysis

This comprehensive strategic analysis shows how the VDC creates value. This analysis looks at all external and internal factors affecting the financial performance of the VDC from the periods of 2007 to 2011. Options for strategic change are proposed, evaluated and commented on. The aim of this comprehensive strategic analysis is to come to a series of recommendations regarding the future strategic direction of the VDC.

1.3 VDC Opportunities

This section focuses on interviews with current management to give an idea of current opportunities and direction at the VDC. This has been included early in this strategic analysis to provide some background and give a practical sense of the current wants and needs of management.

There are three identified and current areas of opportunity for VDC respectively, revenue, marketing and staff morale. These areas are performing below expectations or growth areas as stated by current management.

Revenue has been volatile (see chapter 4 financial analysis) since 2008, with a severe decline from 2007-2008 through 2010. This combination of volatility and decline is not a desirable state for VDC. Actions to address the decline and volatility of revenue are desirable to current management. These actions may change the structure of VDC. Exterior forces beyond the control of the operation caused the decline in revenue and volatility.

Traditional marketing activities do not happen at the VDC in a meaningful sense. The list of customers has been stable for period 2007-2011 with only one significant new customer found over the five-year period. The current marketing activities focus on relationship management and extracting rents from existing customers.

Staff morale has been at a low recently, due to several factors. The position of a dedicated general manager has been open for 8 months. A shared general manager with another SULC business unit holds current P&L responsibility. Several managers within VDC who operate within informal areas of influence share leadership. The VDC laid off several staff members to reduce operating costs when revenues fell in 2010. The combination of delegated leadership and recent staffing cutbacks has hurt morale.

1.4 Seaspan Vancouver Drydock History and Structure

The VDC is a business unit of Seaspan Unlimited Liability Corporation (SULC) that conducts deep-sea vessel repair. VDC is located in North Vancouver occupying the same location as Wallace Shipyards (incorporated in 1902). Wallace Shipyards eventually became Burrard-Yarrows Shipyards. Burrard-Yarrows then became Versatile Shipyards acquired by VDC in 1992. The VDC today maintains a competitive presence in the ship repair industry.

SULC owns the VDC, and the Washington Corporation owns SULC. The Washington Corporation consists of a privately held group of companies. The group of companies operates in the construction, rail, mining, ferry, tug and barge, ship construction and ship repair industries.

1.5 What is Ship Repair? Why is Ship Repair an Industry?

Ship repair is the provision of services to ensure that a vessel remains in operation and is insurable for the transportation of people and cargo. To give an idea of the size of the industry, there are currently 104,305 vessels in the world commercial fleet. Of the world commercial fleet, 46,572 are commercial carriers of a large size (UNCTAD, 2012). Combining the size of the world fleet with an average project cost of 200,000 to 1.0 M CAD, on a five-year project cycle, the annual size of the global market ranges from 1.8 to 9.3 billion CAD.

The five-year project cycle in the ship repair industry is due to regulation. A vessel is required to undergo a drydocking on a five-year cycle. International maritime regulations and insurers require this drydocking service. The insurers require that an

independent body classify a vessel. These independent bodies inspect the vessel to ensure it is at a minimum level of serviceability.

The secondary driver for vessel drydocking is underwater coatings, which are also on a five-year warranty and service period. The warranty and service period for coatings parallels the classification body's inspection requirements. As vessels coatings degrade, the vessel becomes increasing inefficient to transport goods due to fouling. Fouling is the growth of sea life on the underwater hull of a vessel. This growth causes severe turbulence and resistance during transit. Marine coatings prevent this sea life from attaching and growing on the hull of a vessel, though they degrade over time. The regular application of these coatings is required for a vessel to be operationally efficient.

The service of a vessel is challenging to deliver because vessels are of a complex design and build. The usual analogy in the industry is to compare a sea-going vessel to a city as they share similar utilities and services on different scales. A normal vessel will have guidance, propulsion, power generation, waste treatment, cooking, living, exercise, fresh water and emergency facilities on board, all of which may require servicing during a docking. The challenge is that the service provider must be able to provide expertise in all of these facilities for a short duration at a competitive price. The complexity of service delivery and design of vessels is what distinguishes the ship repair industry.

1.6 What Does the Seaspan Vancouver Drydock Have at Its Disposal?

This chapter is a summation of internal resources (assets) available to the VDC for the completion of projects. There are two types of assets examined in this section, people and equipment. The people encompass staff and the pool of trades that the VDC

has. The equipment is critical items that the VDC uses to compete in the ship repair industry.

1.6.1 Like a Gymnast, Staffing is Lean and Flexible

VDC has a structure organized for flexibility and a minimum of fixed staffing costs. The current structure is lead by a shared General Manager and Vice President with Vancouver Shipyards (another SULC business unit). Staff at VDC consists of an operations manager, project manager, commercial manager, safety manager, four trade superintendents and a group of estimating and safety/environmental staff. Trade unions consisting of six claimed trades provide all labour. VDC typically operates two production shifts per day from 0700 to 2300 and is capable of operating seven days per week. Hourly employee levels fluctuate from a low of 2-3 maintenance employees to a high of 600. The VDC will lay off a tradesman between 15 and 20 times in a given year.

The ship repair industry is a niche industry. Experience in managing ship repair projects is a non-transferable skill. The ship repair industry has a much smaller relative scale and total number of employers than other heavy industries such as construction. This has lead to an internal system of progression for staff.

The VDC controls people in a matrix environment with multiple formal and informal reporting requirements. The reporting at the VDC follows along both project and department lines. A department head is directly responsible to the general manager for their department and responsible to a project manager for specific tasks within a project.

The majority of support services come from SULC under a shared services agreement. This shared services agreement is in place to avoid lumpy inputs for specialized roles such as IT. Shared services encompass finance, payroll, accounting, IT and other similar disciplines. For clarification, any role or position not directly related to delivering vessel repair services is a shared service. All of the SULC business units contribute to shared services and draw on the resources as needed.

1.6.2 What the Seaspan Vancouver Drydock Uses to Lift and Service Vessels

The VDC operates two floating marine lifts (or drydocks). These marine lifts are the Panamax and the Carreen floating drydocks with capacities of 36,000 and 30,000 tons respectively. This heavy-lift capacity allows the VDC to perform repairs and service work on vessels. SULC owns the floating drydocks and leases them to VDC with care and custody agreements. This equipment is a critical resource that is required for VDC to offer ship repair services.

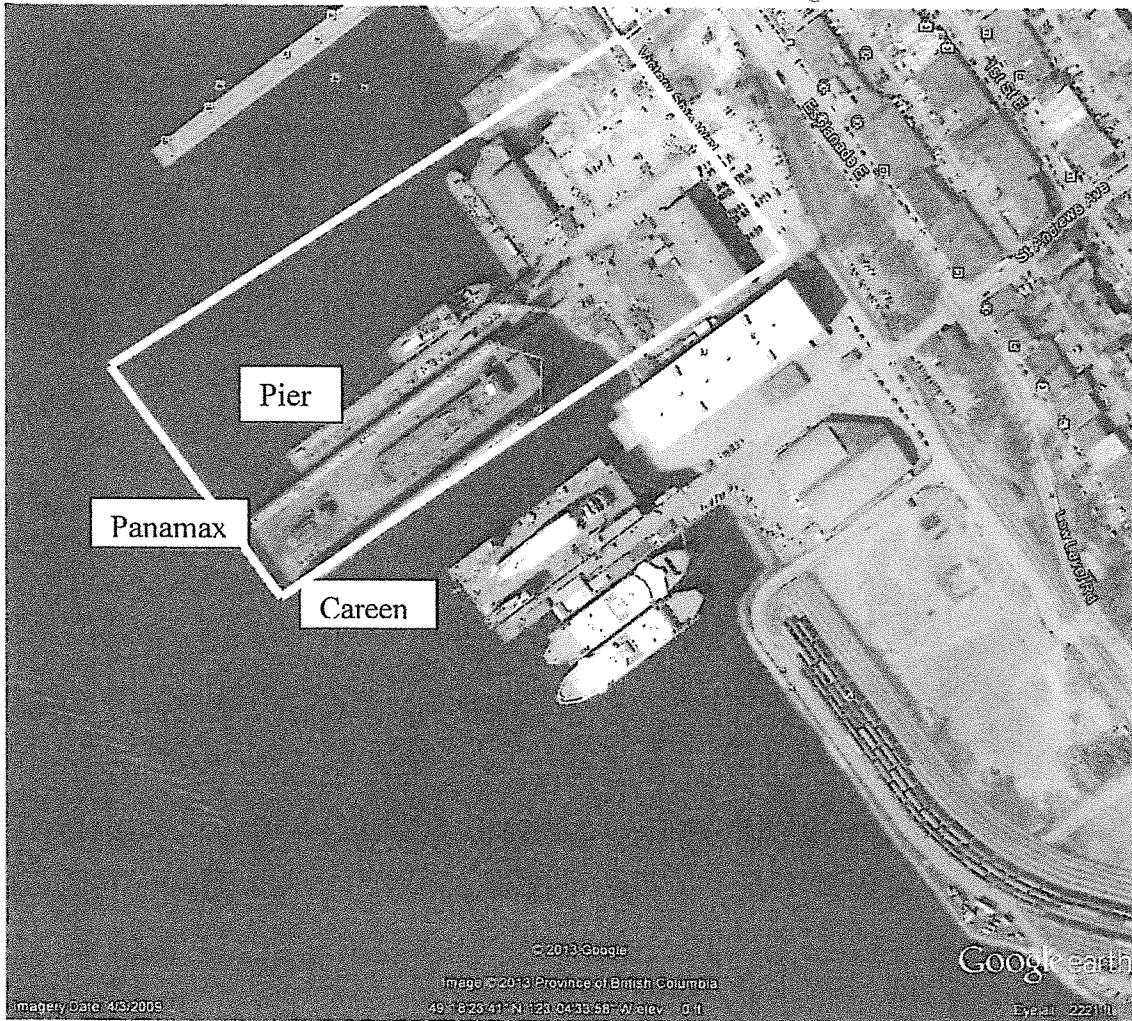
A floating drydock is a sea-going vessel similar to a barge. The critical distinction between a floating drydock and a barge is the ability for a drydock to submerge itself and then raise itself out of the water with a vessel balanced on it. Raising and lowering a vessel happens using a complex series of pumps, valves and tanks that are precisely controlled. The maintenance of this control throughout a docking is critical. A recent catastrophe happened in March 2012 at Vigor Shipyards (Shipbuilding Tribune, 2012) resulted in the total loss of a tugboat.

In order to compete in ship repair the VDC is also required to offer berthing locations for vessels. A pier at the worksite in North Vancouver and extends out into the

Burrard Inlet offers berthing. Along this pier are services such as fresh water, power and compressed air connections. The provision of this berthing and services are critical to vessels so that they are able to operate their key equipment while undergoing repairs.

In order to give an impression of scale, an overhead view of the VDC is included in Image 1.

Image 1 Seaspan Vancouver Drydock and Surrounding Area



Please note that the Careen is currently outside of the VDC property boundaries to dock a vessel for another SULC business unit.

2.0 INDUSTRY ANALYSIS

Industry analysis looks at the forces of buyers, suppliers, entrants, substitutes and government. The understanding of these forces and their interaction shows the attractiveness and profitability of the ship repair industry.

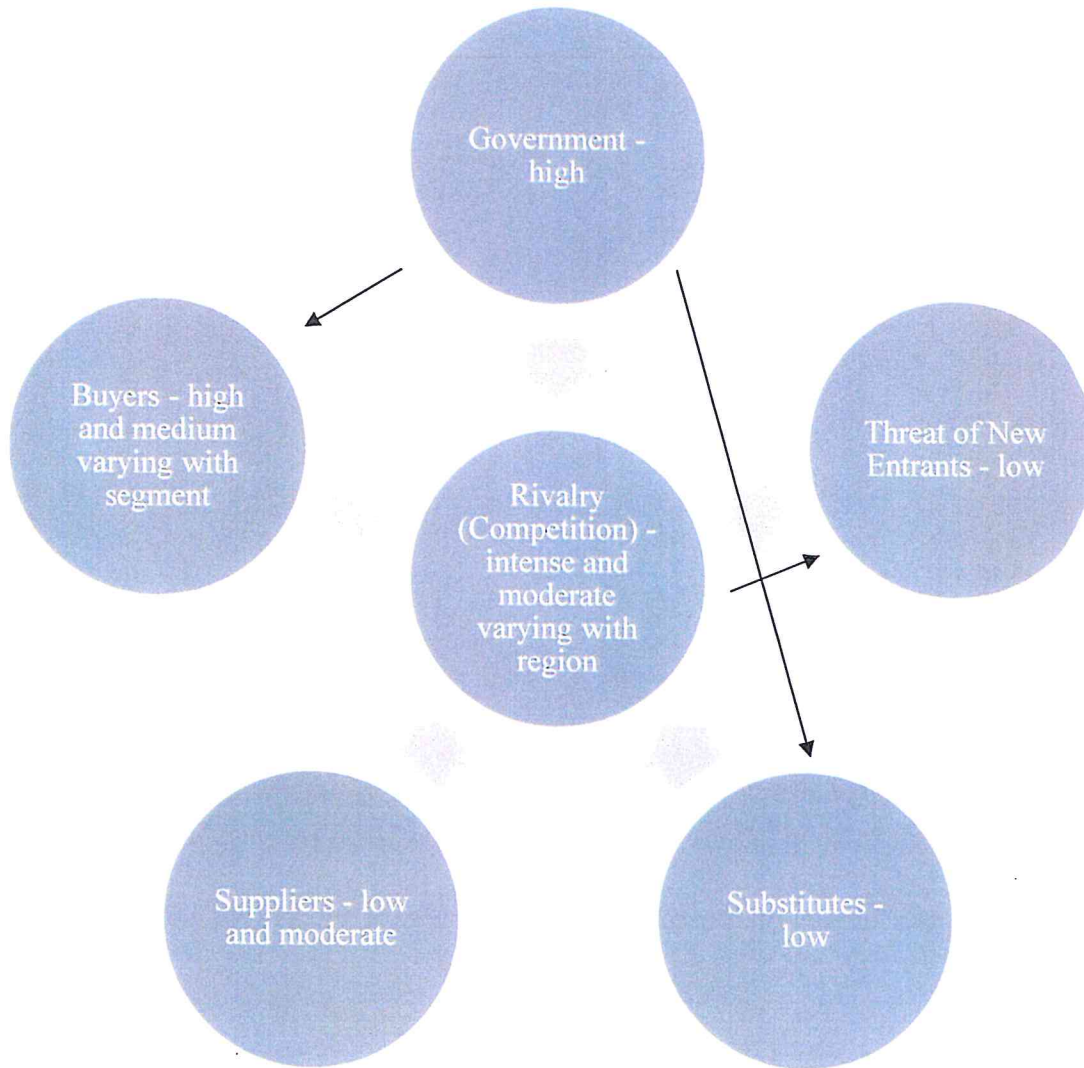
The industry analysis begins with an overview of the forces involved in the ship repair industry in figure 1. Following figure 1 is the examination of each force. After the review of each force, the next section examines change in the industry. At the end of the chapter is a summary of the current and future state of the industry.

Of note is that the ship repair industry has global and local competitors. These competitors each affect the industry in the North Western region of North America. The rivalry / competition section examines the impact the global and local rivals have on the competitive environment.

Also of note is that the buyers in the ship repair industry have a different level of power depending on their segment. The discussion and analysis of these segments occurs in the buyer section of this chapter.

Figure 1 is a representation of the five forces (Porter, 2008) and the sixth force (Vining, Shapiro and Borges, 2005). The figure shows the relative strength of the forces and links influence. The sixth force of government has been included in this analysis as the ship repair industry is regulatory protected.

Figure 1 – The Five Competitive Forces and Government in the Ship Repair Industry

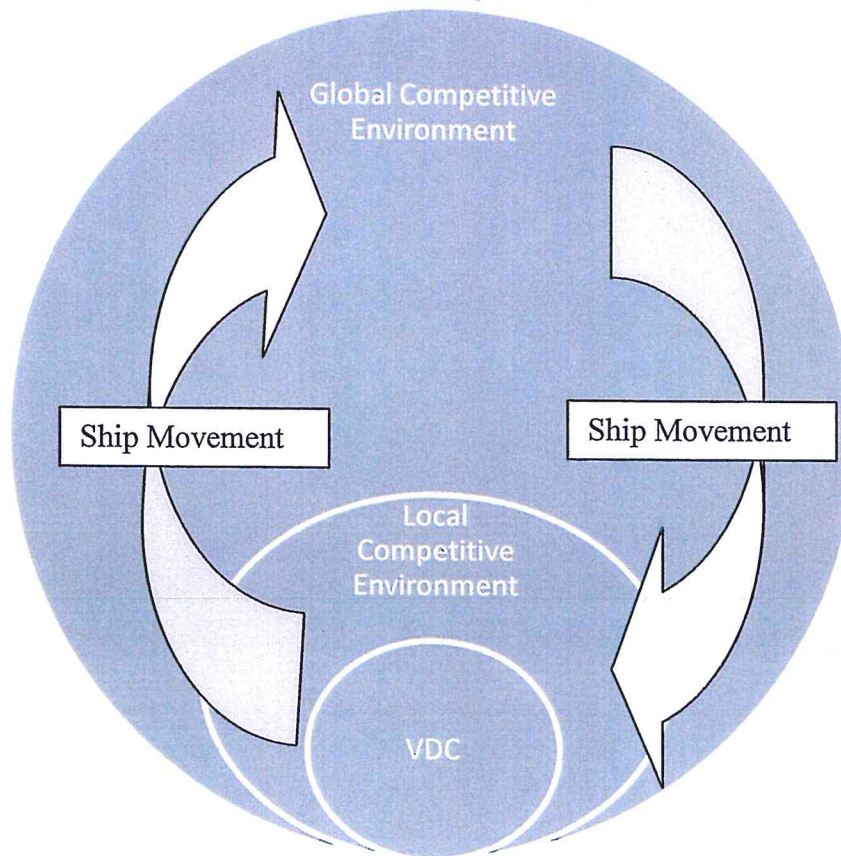


2.1 Rivalry / Competition in the Ship Repair Industry

Competition among existing firms is both intense and a moderate force. The competition within the geographically local region is moderate. The basis and intensity of competition among existing firms changes with the different regions. The competition within the global region is intense. The nature of a ship means that it is required to transit

large distances as it operates. This nature exposes the industry to both regional and global competitive forces. Figure 2 illustrates the competitive environments and the transitory nature of vessels.

Figure 2 -- The Global and Local Competitive Environments



2.1.1 Global Rivals – Price Competition

In the global market, there is intense price competition. Ship repair is a recognized strategically important industry for developing states. The states funded these ship repair facilities for national defense and economical reasons. The incumbent firms in this region are competing solely on variable costs to attract revenue because they operate as extensions of the state. The environment these firms operate in has a much lower cost

of living compared to the other regions. For comparison the average after tax income for an unattached individual in Canada is 32,100 CAD (Minister of Industry, 2012), average pretax income in China is 6,792 CAD (CHINADAILY.com.en). The ship repair industry is a service industry with the largest portion of a firms variable costs coming from labour. This cost structure means that the regional environment a ship repair yard is located in directly affects their variable costs.

2.1.2 Local Rivals – Strategic Relationships

The local competitors compete intensely for both government and commercial clients. Tied clients temper this competition in the local region. The local region for the VDC contains a single independent firm and many companies with strategic relationships with ship owners. The competitors each attempt to forge long-term relationships with ship owners to provide long-term maintenance and repair. The competition is on quality, schedule and price in order to secure and maintain these client relationships.

2.1.3 Where is the Competition?

Global ship repair facilities are concentrated in Asia. These firms are located around the major Asian ports and all have state funding (direct or indirect). These firms are of a similar size with no clear leader. The competing firms all act in their own best interests, and the interests of their governments. This form of competition makes best industry practices impossible and unenforceable. The lack of a leader and accepted industry practices increases the intensity of the competitive environment.

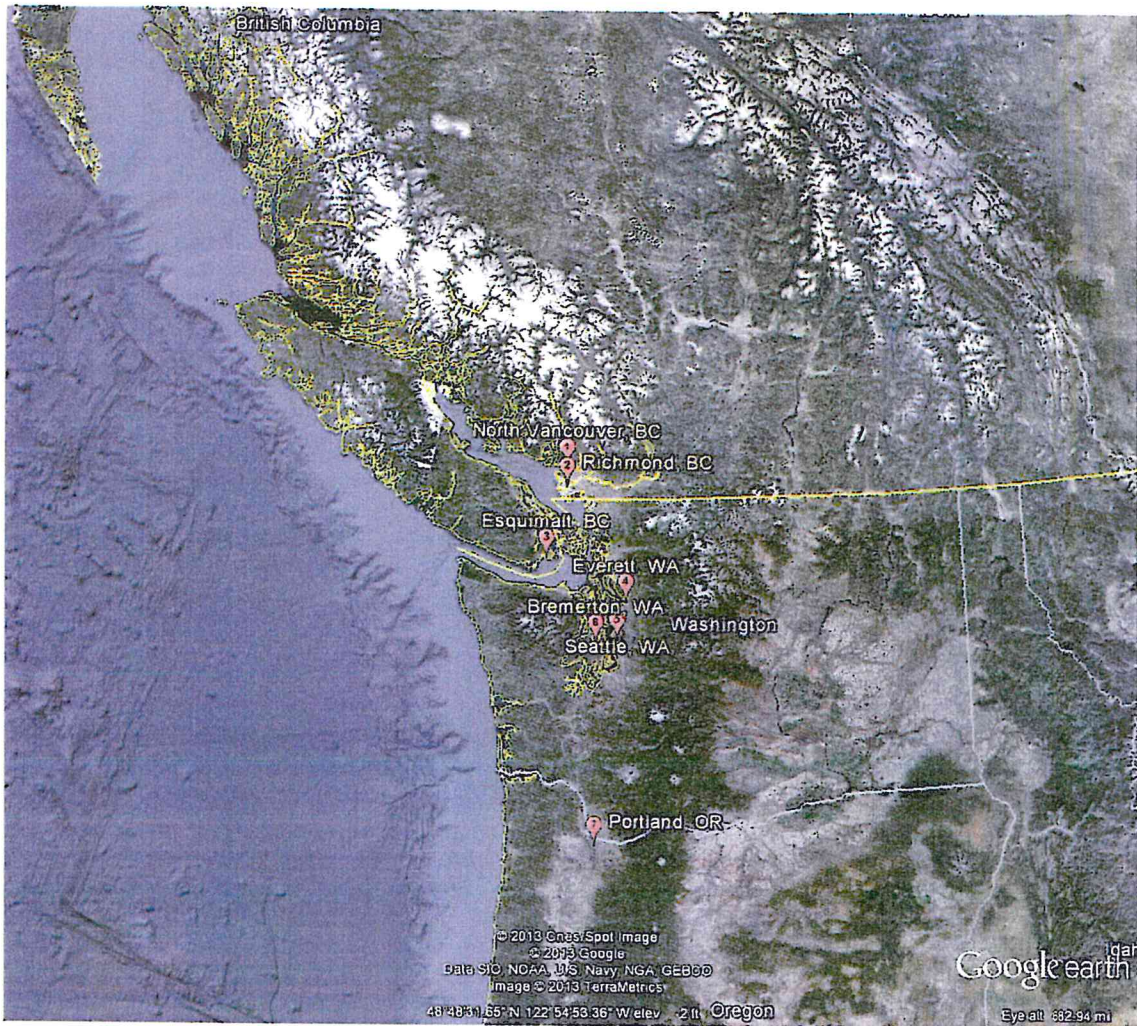
The local competitors are located on the west coast of Canada and the Northern United States. Local docks operate in close proximity to ports, harbors and ferry routes.

Among the businesses who offer services in the local region, there are a handful of meaningful competitors. The notable local competitors are Allied Shipbuilders, Deas Pacific Marine Industries, Esquimalt Graving Dock and Vigor Shipyards. Allied Shipbuilders and VDC are both located in North Vancouver, BC and Deas Pacific Marine Industries is located in Richmond, BC. Vigor Shipyards operates four locations in the Western United States, three locations in WA, Seattle, Bremerton, Everett and one in Portland OR.

The Esquimalt Graving Dock is not a direct ship repair provider instead it is a graving dock operated by Public Works and Services Canada in Esquimalt, BC. Various companies rent the Esquimalt Graving Dock on a project-by-project basis.

The following image has been included to give sense of where the local incumbent firms are located in relation to each other.

Image 2 Regional Competitors Locations



2.1.6 What Does the Competition Want?

State sponsored firms dominate the global market. The state does not have the same impetus to make a profit as a private firm does. The state is concerned with employment and national defense. Maintaining the capacity for ship repair ensures that a nation's navy are operational. Large ship repair facilities can also employ thousands of citizens. The concerns that a government has impacts the competitive market for

commercial ship repair. The impact of these firms causes intense competition for commercial ship repair, particularly on price.

The ship repair industry also has a strong learning curve (R. Reagans, L. Argote and D. Brooks, 2005) present. A learning curve is “the cost of producing a unit of each product decreased at a decreasing rate as production experience was acquired. Not only has evidence of organizational learning been found in manufacturing, it has also been found in service settings” (R. Reagans et al. 2005). This learning curve means that to maintain capability in the market a firm has to engage in ship repair projects. The state sponsored firms that want to maintain capacity aggressively compete to keep the resources available to perform ship repair.

Privately held firms dominate the regional market. Privately held firms seek to generate returns for their shareholders. Privately held firms in the ship repair industry compete to secure long-term maintenance and repair contracts. The regional companies actively compete to be seen as the premier facility. The criteria used to compare competitors are schedule and safe delivery (Shipbuilding Tribune, 2010). A single large incident can damage the reputation of an incumbent forcing them to use price cutting to attract clients. This price-cutting is evident in the regional market.

2.1.7 Communication between Competitors

The sensitive nature of ship repair to governments has made communication in the global market very controlled. The global ship repair providers do not provide clear signals to their competitors. This obscured communication happens because the competitors have no need to communicate. A state sponsored firm supporting national

defense is by its nature unable to broadcast signals to the industry. The different goals of different governments also contribute to unclear signals. The lack of clear signals among competitors leads to each firm acting in their own best interests as opposed to the industry's best interest.

Local competitors have signaling methods. Price is the clear signal that competitors send to each other. The competitive bid process allows all firms who bid a project the opportunity to review the winning bid. The winning bid includes project planning, schedule and price information. Incumbents measure their relative competitive positions by exploiting this information. There is a wide disparity in price among local competitors. The comparable price is the hourly 'charge-out' rate offered. Within the local region, Vigor offers an hourly charge-out of \$65 USD, Allied Shipyards offers \$75 CAD and the VDC offers \$95 CAD.

2.1.8 What Makes Up Service Costs?

The highest cost to a ship repair firm is labour, which is variable. Variable costs have a factor between 10 and 3 to 1 of fixed costs in the ship repair industry. A secondary factor that provides consistent variable costs among local incumbents is labour unions. All of the local competitors utilize labour from similar labour unions with competitive labour costs. These factors protect the local competitors from intense price competition.

The global ship repair industry has high variable costs. The global competitors also have state involvement in their operation. The competitors compete on price, even at an economic loss. This competition occurs because the state partner does not have to

show a profit with their operation. This factor in the global market causes intense price competition despite the high variable costs present.

2.1.9 Is Capacity Incremental?

For global competitors capacity expansion does not affect the supply and demand balance. The sheer size of the global region prevents any single ship repair facility from over supplying the market. State support insulates the global competitors from over-capacity led price competition.

Capacity is not incremental; it is massive (Vigor Industrial, 2013) for the regional competitors. When a ship repair facility expands, the expansion brings large amounts of capacity to the market. The standard industry measure for capacity utilization is dock-days. A dock-day corresponds directly to a day a vessel spends in dock. The creation of a new docking facility brings 365 dock-days of capacity to the market. When new dock capacity comes into the market, it disrupts the local supply and demand balance increasing price competition.

2.2 Buyers in the Ship Repair Industry

Buyers in the ship repair industry are other companies. Buyers have either a high or a medium amount of power depending on their segment. There are two clear segments of buyers, tied and 'untied'. The tied buyers have a medium amount of power. The untied buyers have a high amount of power. The different level of power a buyer segment has affects the profitability of the ship repair industry.

2.2.1 Who are the Tied Buyers?

There are two tied buyer segments, government owned vessels (GOV) in Canada and SULC owned vessels. Tied buyers are limited in their ability to choose a ship repair yard. The two tied buyer segments are different in that the GOV are restricted to Canadian ship repair providers while the SULC vessels are restricted to SULC repair yards. The difference in restrictions means that than GOV buyers are not as tied as SULC buyers are.

GOV consist of ferry, naval and scientific vessels. While each area of operation for a GOV is fundamentally different, they share a similar need for ship repair. This need is the maintenance of service levels. The shared need by GOV leads GOV managers to utilize a common decision making process. GOV management does not have the same commercial motivation as untied buyers. GOV managers need to demonstrate to the public that they are fiscally responsible, though service levels requirements are of greater importance. Public pressure forces GOV management to spend their maintenance and repair budgets in Canada.

SULC vessels consist of vessel owned and operated by SULC business units. These business units consist of tug and barge, coastal ferry and harbor tug vessels. The SULC divisions that operate these vessels view the service and repair of these vessels as cost to their operation. The cost of repair and service directly affects their operating costs. The operating costs of SULC vessels cause the profitability to rise or fall for SULC as a whole.

2.2.2 Who are the Untied Buyers?

Untied buyers are true commercial operators that offer marine transportation solutions. Untied buyers are marine transportation companies (MTC). A MTC is free to choose their ship repair provider within its operational limits. The mobility of the vessels a MTC controls increases their power as a buyer. Classification bodies and international regulation restrict their power. Classification bodies are independent companies that certify the safety and reliability of vessels within international regulation.

2.2.3 Do Large Buyers Dominate?

The tied segment holds only two recognized buyers. The Canadian Government and SULC are the only tied buyers. The GOV are more numerous and of a larger size than SULC vessels. The size of a vessel directly relates to the commercial value of a ship repair project. This means that the GOV buyers have more power than the SULC buyers do. GOV buyers use this power to impose a competitive bid process and schedule penalties on the ship repair industry.

The untied market segment consists of a mix of state and privately held vessels greater than 30,000 in number (United Nations Conference on Trade and Development, 2012). No single MTC dominates the market.

The ship repair providers operate with low fixed and high marginal costs. The low fixed costs and high variable cost structure of the ship repair industry reduces the power that large buyers have. This is because incumbents do not have to reach full utilization of their fixed assets to cover their fixed costs.

2.2.4 Is There a Difference between Repair Providers?

A ship repair yard must be a one-stop shop. The service offering expected by all buyer segments is a full service facility. This demand prevents competitors from specializing their service offering. The general service offering means that all of the competitors offer an easily comparable product; the easily comparable service offering present shifts competition towards price.

2.2.5 Do Switching Costs Exist?

The ship repair industry does not have traditional switching costs. The transitory nature of vessels makes switching costs not applicable in the untied buyer segment. Having no switching costs increases the buyer's power.

In the tied market for SULC, there is a synergistic ownership of vessels alongside a ship repair yard. This strategic relationship increases switching costs for the vessel owner / operator. In order to switch SULC must give revenue to a direct, local competitor. High switching costs reduce the buyer's power.

The switching costs for GOV buyers are not monetary. A GOV buyer faces strategic costs as switching costs. Making use of the competitive global region will cause the GOV to face public backlash. A GOV buyer will also give other states access to their vessels specifications in the global competitive region. Giving other states the specification of research and defense weakens the national governments international reputation. The two concerns of national defense and public pressure place high switching costs on GOV buyers.

The switching costs increase buyer power among the untied buyers. Switching costs decrease buyer power among the tied buyers. This means we can expect MTC vessel repair projects to be less profitable than GOV or SULC repair projects.

2.2.6 Can Buyers Integrate Backwards?

There is a recognized and real synergy present between ship repair and ship ownership. Buyers find integrating repair facilities into their operations attractive. This is attractive for all buyers, decreasing repair costs and controlling dock capacity. The ship repair industry represents a step towards backwards integration for buyers. The maintenance and repair of vessels occupies an upstream position in buyers supply chains.

For untied buyers the annualized cost of servicing a vessel at a ship repair yard is significant. The standard industry budget for ship maintenance and repair is ~13% of the revenue generated by a vessel. The maintenance and repair cost as a percent of revenue rise as a vessel ages. When the maintenance and repair cost for a vessel approaches 20% of the revenue generated it becomes financially sound to replace the vessel. An untied buyer who integrates a repair facility into their supply chain can defer the replacement cost for vessels. This deferral occurs because an integrated group can impose margin restrictions on controlled service and repair facilities. Deferring the replacement of a vessel reduces the capital expense for an incumbent in the shipping industry providing a cost advantage versus non-integrated competitors.

Untied buyers also can restrict the availability of repair facilities for other MTC. This strategic control of capacity can increase the untied buyers direct competitors costs. The marine transportation industry operates with two clear lines of business, long-term

capacity based contracts and short-term projects. The nature of a long-term contract is one where the MTC enters into a multi-year (5-20) contract term to provide a client with transportation capacity for their products. These contracts include the guarantee of capacity with the threat of financial penalty or contract termination in favour of the client. The short-term projects can range from specialized projects such as bridge construction to salvage projects. A MTC generates the bulk of their revenue from long-term contracts, though short-term projects carry higher marginal returns. MTC that have captured repair capacity can increase costs for their competitors.

For tied buyers, GOV specifically, the advantage to integration is purely strategic. For a government, the strategic control of ship repair capacity strengthens both the military and civil infrastructure.

The advantages and synergies available to all buyers increases the power buyers have. The threat of buyers integrating into the ship repair industry is credible. This threat allows buyers to lower profits for competitors and generate favorable repair contract concessions.

2.2.7 Does 'The Spend' Matter?

The ship repair industry represents an expense in another industry. This expense for untied (and private) buyers equates to ~ 13% of the annual revenue generated by a vessel. For GOV buyers who do not generate revenue, the same percentage can applied to operational costs. These significant amounts affect the profitability and/or service costs of all buyers. The relative magnitude to revenue and operational costs of ship repair makes all buyers prices sensitive.

Coupling the significance of the service costs to the nature of the untied buyers industry makes them price sensitive. Untied buyers sell their service on long-term contracts, with fixed pricing. The increase of a vessels maintenance and repair costs can render a long-term contract unprofitable. The additional risk of long-term financial loss increases the price sensitivity of untied buyers relative to tied buyers.

2.2.8 Are the Buyers Profitable?

The untied buyers are in the marine transportation industry. Untied buyers serve geographically restricted producers who have no practical substitute for their product. The lack of substitutes and requirement of transportation by producers makes the marine transportation industry profitable. The profitability of the marine transportation industry makes it less price sensitive.

The tied buyers, specifically the GOV buyers are not profitable. The GOV buyers are not required to show a profit. The maintenance of service levels motivates GOV buyers. The lack of profit as a goal reduces the price sensitivity of GOV buyers.

2.2.9 Does Quality Matter?

All buyers are concerned with quality. The regulatory structure placed on vessels mandates that they be safe and reliable. The safety and reliability of a vessel directly relates to the quality of service it receives. All buyers are also subject to scrutiny regarding the operation of their vessels. Any incident that results in the loss of life or cargo at sea is incredibly damaging to a buyers reputation. This makes all buyers less price sensitive.

GOV buyers have additional needs of quality. The GOV buyer does not have the option to remove defense or ferry vessels from service without facing severe public outcry. Any incidents involving GOV used for defense or public transportation will damage the government's reputation. These needs and public scrutiny further reduce the price sensitivity of GOV buyers.

2.3 Government Influence in the Ship Repair Industry

The government as a policy maker in the ship repair industry has high power and influence. The role the government has in the ship repair industry is complex. The ship repair industry has regulatory protection. The government subsidizes the ship repair industry in various forms. Government policy influences all of the other forces in the ship repair industry. High power of the government reduces profitability for the ship repair industry while sustaining the industry.

2.3.1 Why is the Government Involved?

The national government has a strategic interest in ship repair. This interest is primarily for national defense. The government must have the capability to maintain military vessels. Without this capability, the government and the nation are at risk. Self-preservation and national stability forces the government to be involved in the ship repair industry. Allowing private firms to provide ship repair services meets this strategic interest in an efficient manner. The untied buyer lets the government offset the direct cost of maintaining their fleet.

The government has a secondary interest of public well being. The economy of a nation requires the transportation of goods and people by vessels. The movement of

goods and people by sea has risks. The government controls these risks by regulations. The regulation governing the operation of vessels sets out safety and reliability standards. The government enforces these regulations through inspection and classification of vessels.

The government has a final interest of economic growth. The ship repair industry operates in an international market. A government with a globally competitive ship repair industry will attract untied buyers from other nations. International untied buyers represent real economic growth to a nation. The ship repair industry can also employ large numbers of people with a nation. The potential for a large amount of employment and economic growth explains the involvement of government in the ship repair industry.

2.3.2 How Does the Government Change Competition?

The government directly and indirectly subsidizes the ship repair industry. The direct subsidies come in the form of long-term maintenance and repair contracts for GOV. The indirect subsidizes take the form of capacity. The government builds of new dock capacity. The competitors in the ship repair industry then either directly collaborate with or lease the capacity to repair vessels from the government.

The ship repair competitors bid for the maintenance and repair contracts. The competitive bid process controls the profitability of the long-term contracts. This confirms the government's strategic interest of long-term capacity. The learning curve present in the ship repair industry makes low-margin long-term projects the most efficient method of subsidizing capacity.

The government also controls a large fleet of vessels (ferries) to transport people. These vessels operate as an extension of the civil infrastructure. The variety and amount of these vessels allows the government to directly subsidize the ship repair industry with refit and upgrade projects.

The direct and indirect subsidies limit natural selection in the competitive market. The government supports unhealthy firms forcing capacity to remain in the market. The excess capacity causes intense competition among firms for the more lucrative untied buyers. The excess capacity also reduces the profitability for the entire industry.

2.3.3 What the Regulations Do

The government regulates the buyers. The buyers are forced to maintain minimum standards of safety and reliability. The regulations force buyers to service and repair their vessels. These regulations protect the ship repair industry. The regulations force a vessel out of the water every five-years for repair and service. These regulations serve to limit the power of buyers and improve the profitability of the ship repair industry.

The classification bodies enforce the regulations governing vessels. The repair and service period of a vessel involves negotiation between the buyer and the classification body. These negotiations directly affect the profitability of the ship repair yard. The classification bodies are being increasingly held liable by insurers. The liability comes from vessel incidents involving loss of life or cargo due to un-enforced standards. The exposure to this liability drives the classification body's positional negotiations. The classification bodies are also reasonably uniform in their interpretation and application of

regulation. These factors severely reduce the buyer's positional negotiation power improving profitability for the ship repair yard.

The regulations protect the ship repair industry and make it more profitable. These regulations curtail the powers buyers' power. The maintenance of these regulations is of strategic importance to the ship repair industry.

2.3.4 Government Assets and Their Effects

The government holds strategic capacity in the ship repair industry. Vessels and docks make up this capacity. The vessels the government controls make up a significant amount of the tied buyers. The docks the government control force capacity to remain in the market regardless of macro-economical trends. The government policies that dictate the strategic use of these assets strongly affect the ship repair industry.

The award of vessel repair projects by the government gives the government control over which geographic region has ship repair yards. The maintenance of government vessels directs industry growth and location. The government also controls the entry of new competitors by restricting the award of repair projects. The government has a policy of maintaining ship repair capacity in strategic locations around the nation. The locations are in areas where military vessels and ferries operate.

The control of dock capacity by the government affects both industry profitability and new entrants. The government policy dictates that enough capacity remain in the market to service all active GOV. Allowing excess underutilized capacity to remain in the

market depresses profits for all competitors. Excess capacity in the market also deters new entrants.

The government also restricts the sale and lease of dock capacity. This restriction provides a barrier to exit in the ship repair industry. The government has a strategic interest in controlling dock capacity. This control maintains dock capacity so national vessels can be kept in service. The restrictions on the sale and removal of docks from national regions limits exit to local trade sales. The restriction on exit reduces the power of new entrants.

2.3.5 Government Policy and Suppliers

The suppliers for the ship repair industry are labour unions, resources manufacturers, dock owners, and landowners. The labour unions represent the majority of variable cost for a competitor. The resource manufactures provide raw material inputs for ship repair. The dock owners provide capacity required to compete in the ship repair industry. The landowners supply physical locations to locate repair facilities.

The government controls dock capacity and land. The government cannot efficiently utilize these assets solely for their own fleets. This lack of efficiency causes the government to allow private firms to use these assets. The government also maintains a policy of economic stimulus by allowing the use of these assets by private firms. The external control of the assets required to compete reduces the profitability of the ship repair industry.

The government controls labour unions through regulation. The labour unions influence relative costs in the global region. The labour unions do not influence relative costs in the local region. The government can change the variable costs in a local region by increasing or decreasing the bargaining power of labour unions. This influences only the competitiveness in the global region as in the local region all competitors share similar labour unions.

The government reduces the profitability of resource suppliers through taxation. The government taxes and controls the exploitation of national resources for the good of the nation. The government controls prices and costs for suppliers providing raw materials for production in the ship repair industry. This control reduces the power of suppliers and increases profits for the ship repair industry.

2.3.6 Government Policy and Substitutes

The government regulates the operation of vessels. Public safety drives this regulatory control. This regulatory control requires the regular inspection and repair of vessels. Every five years an operational vessel must be serviced and repaired. This service and repair requires the removal of the vessel from the water. This regulation protects the ship repair industry from substitutes. No substitutes exist for the ship repair industry under the scope of this regulation.

2.4 Suppliers in the Ship Repair Industry

Suppliers in the ship repair industry have low power with the exception of the dock and land suppliers. The low power of suppliers increases the profitability for the ship repair industry. Each of the supplier segments have their power curtailed by

government policy. The government is the dock and land supplier who holds a moderate amount of power. The government does not generate a profit. This means that the moderate amount of power it has as a supplier does not affect industry profitability.

2.4.1 What is Supplied?

There are three main segments of suppliers. The raw material suppliers provide resources such as steel for use in the ship repair industry. The labour supplier provides the workforce for the ship repair industry. The land and dock suppliers provide assets required for operation to the ship repair industry.

2.4.2 Are the Suppliers More Concentrated than the Ship Repair Industry?

The materials supplied are commodities. The market for commodities is a global one. Many global and local firms exploit, manufacture and sell commodities. The presence of many firms competing in a global market means that the raw material suppliers are less concentrated than the ship repair industry. The fragmentation of raw material suppliers reduces their power.

The labour suppliers are as concentrated as the ship repair industry. Each ship repair yard has a local requirement for labour. This requirement causes the creation of local labour unions. Each labour union has close ties to the ship repair provider. The similar level of concentration means that there is no advantage of power for this supplier segment.

The land and dock suppliers are much more concentrated than the ship repair industry. Governments control the land and docks. This level of concentration increases power for the supplier.

2.4.3 Do Suppliers Depend on the Ship Repair Industry?

The raw material suppliers do not depend on the ship repair industry. The revenue a commodity producer realizes from supplying the ship repair industry is relatively small. The ability of a raw material supplier to extract profit without consequence to their survival increases their power.

The labour suppliers depend on the ship repair industry. The labour supplier only has a single client, the ship repair industry. The labour suppliers have a stake in ensuring the ship repair industry survives. This stake prevents the labour suppliers from extracting maximum profit from supplying the ship repair industry. This relationship reduces the power that the labour supplier has.

The land and drydock suppliers are dependent on the ship repair industry. The drydock suppliers are more dependent because the uses for a drydocking facility are limited. Public policy causes dock and land suppliers to rely on the ship repair industry. The government must maintain service levels of their vessels. These service levels require regular service and repair. In order to meet the service levels dictated in public policy, the government must rely on the ship repair industry.

2.4.4 How Switching Costs Affect Suppliers

The ship repair industry faces no switching costs for raw material suppliers. Commodity suppliers require infrastructure changes to deliver their products such as rail or pipe. The infrastructure does not represent switching costs, as the delivery of commodities is standard across all suppliers. The raw material suppliers also face no switching costs moving from competitor to competitor. The lack of switching costs reduces the power of suppliers.

The ship repair industry faces high switching costs for labour suppliers. The ship repair industry has an established learning curve. This learning curve means that there will be productivity costs incurred when switching labour providers. The government also has policies that restrict the ability of the ship repair industry to change labour suppliers. There is no balance of switching costs in this relationship. The labour suppliers face no direct switching costs specific to changing their buyer. The high switching costs the ship repair industry faces for labour suppliers increase the power of labour suppliers.

The ship repair industry faces high switching costs for dock and land suppliers. The physical location of a ship repair yard has a high cost of changing. The competitive nature of the ship repair industry requires that competing firms be located close to active ports. The farther away from an active port a ship repair provider is located, the higher the cost the buyer will incur moving to the repair provider. A buyer facing higher costs of transit will expect price concessions from the ship repair provider. The dock and land suppliers face no switching costs directly related to whom they sell. The high switching costs increase the power for dock and land suppliers.

2.4.5 Do Suppliers Differentiate?

Raw material suppliers do not differentiate. There is no difference between commodity suppliers to the ship repair industry. The lack of difference between competing suppliers reduces the power for any individual supplier.

Labour suppliers do not differentiate. The labour unions supply industry defined tradesmen. The definition of trades by the industry prevents the labour suppliers from differentiating their offering. The lack of differentiation reduces the power of labour suppliers.

The dock and land suppliers are not in a competitive environment. There is only one supplier of land and dock facilities for the ship repair industry. The lack of competition among suppliers means differentiation does not matter for these suppliers. This lack of differentiation has no impact on the power of the supplier of dock and land facilities.

2.4.6 Are there Substitutes for Suppliers?

The raw material suppliers have not substitutes. Ship repair is an industry driven by government policy. Government regulation specifies which raw materials are acceptable for ship repair. Government policy has historically lagged behind the discovery of new materials by manufacturers. Government regulations prevent the introduction of substitute materials for ship repair. These regulations prevent substitutes from being a credible threat to raw material suppliers increasing their power.

The labour suppliers do have substitutes. The ship repair industry defines trade specific duties and competencies. The duties and competencies are not complex. The

counter to this lack of complexity is the labour intensive service offering required of ship repair providers. There is no practical substitute for labour in the ship repair industry. This lack of substitutes increase labour supplier power.

The dock and land suppliers have no substitutes. The location to operate in is critical to a ship repair provider. The availability of dock capacity is a requirement to compete in the ship repair industry. This supplier has no substitutes, which increases its power.

2.4.7 Can Suppliers Forward Integrate?

Incredible profits in an industry create the threat of forward integration by a supplier. Incredible profits do not exist in the ship repair industry. The suppliers are also not in the business of service delivery. The ship repair industry centers on service delivery. The departure from the core business line of suppliers further reduces the threat of forward integration. The lack of threat of forward integration reduces the suppliers' power.

2.5 Threat of New Entrants in the Ship Repair Industry

The threat of new entrants has low power in the ship repair industry. The threat of new entrants is not a credible one. The threat of new entrants can reduce profitability for incumbents as they increase their costs by taking actions to prevent entry. The lack of power that the threat of new entrants has increases the profitability of the ship repair industry.

2.5.1 Why is a Threat of New Entrants Likely?

There are a number of factors indicating that there is a high threat of new entrants. The ship repair industry has no scale economies, network effects or high switching costs. The ship repair industry is also growing and has regulatory protection.

There are no significant scale economies in the ship repair industry. The high variable (marginal) cost to fixed cost financial structure of the industry drives this. This means that as an incumbent takes on more projects, their costs rise proportionally to the work performed. The lack of scale economies increases the threat of new entrants.

The ship repair industry has no network effects. The untied buyers in the ship repair industry realize no benefit from using the same service provider. The lack of network effects increases the threat of new entrants.

Untied buyers have no switching costs. The nature of a vessel makes switching costs not applicable to untied customers. The tied buyers are unable to switch outside of their local regions. The inability to switch means that switching costs do not apply. The lack of switching costs increases the threat of new entrants.

The ship repair industry is growing. The ship repair industry is a complimentary industry to the ship building industry. The ship building industry has increased by greater than 8% per year in operational tonnage (UNCTAD/RMT, 2007) in recent years. This means that the ship repair industry will grow in a similar fashion. The steady growth of both the ship repair industry and compliments increases the threat of new entrants.

The ship repair industry has a protected customer base. Government policies direct vessel repairs and maintenance. The guarantee of customers increases the threat of new entrants in the ship repair industry.

2.5.2 What Restricts the Threat of New Entrants?

The ship repair industry has a number of barriers to entry. These barriers are physical locations, capital investment, unequal access to capacity and buyers. The ship repair industry also has government restriction on foreign involvement. These barriers outweigh the reasons for the threat of new entrants.

The incumbents in the ship repair industry have advantages independent of size. The incumbents have secured capacity. There is a physical limit to the locations suitable for ship repair activities in a local region. The active competitors have secured these locations with long-term leases or ownership. The capture of suitable locations for ship repair activities reduces the threat of new entrants.

The ship repair industry requires specific capital investment in capacity. The amount of capital required to introduce new capacity into the ship repair market is significant. The recent local expansion of capacity cost 40.000.000 USD (Vigor Industrial, 2013). The large amount of capital investment in capacity reduces the threat of new entrants.

There is unequal access to dock capacity and buyers. Existing firms operate in partnership with dock and vessel owners. Within the tied market, the GOV management also leases dock capacity to their repair service providers. The ship repair providers enter

into multi-year maintenance contracts for GOV. The provision of dock capacity to conduct this maintenance prevents new entrants from obtaining leases on government controlled dock capacity. There is a synergy present for buyers to repair their own vessels. This restricts the available buyers for a new entrant. The unequal access to capacity and buyers reduce the threat of new entrants.

The government restricts foreign control of strategic assets. Ship repair services and dock capacity are strategically important assets to a nation. Government policy prevents foreign ownership of strategically important assets. This policy reduces the threat of new entrants.

2.5.3 How do you get Out of the Ship Repair Business?

Exit is not a feasible option for the firms in the global region. The government usually holds total or a portion of the ownership of critical assets to offer ship repair. The sale of assets is rare in the global competitive market. The support of distressed companies happens through state projects in place of going out of business. These exit barriers keep firms in the market. The unhealthy firms and excess capacity reduces profitability for all global competitors.

Exit in the local region is an option. Over the past few years, the local ship repair industry has undergone a merger and acquisition period (MarineLink.com, 2010). A global oversupply has distressed local ship repair facilities causing them to exit. The normal method of exit is a trade sale to an established incumbent. The option of exit led the incumbent competitors strategic purchase of assets to control capacity. This factor has improved the profitability for local firms.

2.6 Substitutes in the Ship Repair Industry

Substitutes have low power in the ship repair industry. Government policy protects the ship repair industry from substitutes. This protection severely limits the power of substitutes. The low power of substitutes improves profitability for the ship repair industry.

2.6.1 Are There any Substitutes for Ship Repair?

The ship repair industry has no substitutes. The buyers must purchase ship repair services from the industry. Government policy forces buyers to purchase ship repair services on a regular basis. The deferment of ship repair is not possible for an operational vessel because of this government protection. There simply are no other options for vessel owners (buyers). This protection completely removes substitutes as a force in the ship repair industry.

2.7 Is Change Coming?

The ship repair industry as a whole is not changing. The ship repair industry has strong government protection. This protection insulates the industry from outside change. The ship repair industry is a strategically important industry to the government. The ongoing protection of the ship repair industry by regulation improves the profitability of the industry. The government also subsidizes the ship repair industry. This subsidy keeps capacity in the industry. This protection from the government also damages the industry as it keeps unhealthy firms in the industry. The excess capacity in the market prevents consolidation and drives down profitability for all competitors.

The dynamic area of the ship repair industry centers on the untied buyers. For a competitor in the industry the only area of growth is with the untied buyers. The recent global economic downturn caused untied buyers to reduce their operational fleets. This reduction happened because international trade was depressed. This caused a delayed depression in the ship repair industry. The competitors in the ship repair industry relied on their tied buyers to survive and reduced their operational costs. The period of recovery following this depression will increase the competitive intensity for untied buyers. The incumbent firms in the ship repair industry will each face a decision of consolidation serving tied buyers only versus growth in the price sensitive untied buyer market.

2.8 This All Means That...

The ship repair industry is a profitable industry. Government protection and subsidies buoy the ship repair industry. The lack of substitutes and new entrants enhance the profitability of the industry. Government regulations curtail the power of suppliers. The buyers have some power, more so for untied buyers. The competition is intense for both GOV and untied owned vessels. All firms offer a similar service that causes global competition on price.

The ship repair industry is not a growth industry. Growth can only occur in market segments sensitive to cost. The support of unhealthy firms by the government keeps excess capacity in the market. These factors mean that while the ship repair industry is a great industry to be in, it is very unattractive to enter.

3.0 HOW THE VDC CREATES VALUE IN OPERATION

This chapter looks at the VDC as an isolated firm within the ship repair industry. This chapter is an internal analysis of the VDC. The internal analysis is an examination of how the VDC creates value. The creation of value for the VDC focuses on ‘problem’ or a project initiation trigger (PIT) solving.

The ship repair industry is a business-to-business service industry. The projects in the ship repair industry are short-term and multi-disciplinary. The value shop model (C.B. Stabell and O.D. Fjeldstad, 1998) provides a basis for analysis in this industry. “The value shop models firms where value is created by mobilizing resources and activities to resolve a particular customer problem” (Stabell and Fjeldstad, 1998).

The lean organization of the VDC along with the volatility of its workforce is a close fit to the value shop model. The VDC uses a project driven scalable approach (PDSA) to deliver ship repair services. The customer demand of the ship repair industry to provide a generalized solution validates the use of this model. The VDC meets varied short-term needs of clients in a non-linear fashion. In order for the VDC to be cost effective, it scales resources in response to size and complexity of a project.

In the PDSA, the VDC brings resources to bear on a PIT. The activities that the VDC conducts on different projects does not vary, rather the intensity brought to bear does. The variable size of vessels requiring paint provides an example of this intensity. The number of days available to paint a small vessel or large vessel does not vary, rather the number of painters actively painting the vessel does. The structure of the VDC varies unit level inputs in response to projects (or needed outputs).

3.1 What is a PDSA?

A PDSA focuses on the use of intensive technology. Varying levels of intensity brought to bear on a project characterizes a PDSA. The structure of the VDC has the flexibility to scale productive capacity. The creation of value has a linear relationship to the effectiveness of the changes in intensity in a PDSA.

In a PDSA, five distinct activities happen. The acquisition and identification of a PIT begins the cycle. The creation of a solution to the ‘problem’ happens next. Following the solution is the decision to proceed. The execution of the solution follows. The cycle completes with evaluating the solution. Figure 3 illustrates these activities. The following sections will expand on the activities and what the VDC does for each.

Figure 3 PDSA Cycle



3.2 How Does the VDC Find ‘Problems’?

The VDC must find a PIT to begin the cycle. This step in the cycle is the first customer contact the VDC has. The customer contacts the VDC and provides a specification. The specification is a vessel specific project document. The specification

contains the overview of the known portions of a ship repair project and information on specific tasks.

The VDC does not actively market ship repair services. The clients are overwhelmingly repeat customers; only one new significant customer has brought a vessel to the VDC in the past three years. The clients come to the VDC with their problems based on reputation and relationship. The VDC has positioned itself to offer expertise in the general service of ship repair. The expertise offered comes in the form of project managers and superintendents with decades of industry experience.

There is information asymmetry present in this step. The owner of a vessel is subject to an out of water survey as a condition of classification. The vessel must be out of the water before this survey can happen. This means that the VDC has the opportunity to observe the condition of a vessel before the owner. The VDC also has a large pool of staff experienced in identifying PITs within projects. The faster the VDC is able to identify a PIT, the lower the cost of identifying it. The lower the cost of indentifying a PIT, the greater the margin the VDC can make on providing a solution.

The VDC specializes in identifying PITs early in a project. The owners of a vessel are very sensitive to repair and service schedules. The early identification of a PIT aids in the return to service of a vessel. The VDC uses a standard system of observation to identify PITs as soon as a vessel is physically present at the VDC.

The VDC creates value in PIT identification by being to use information asymmetry and experience to identify PITs early. The early identification of PITs gets

vessels back in service quickly and reduces the VDC's costs. These factors are how the VDC is able to create value in identifying PITs.

3.3 Problem (PIT) Solving at the VDC

A definition of a problem (PIT) is the difference between a current state and a desired state (Simon, 1977). A vessel owner bringing their ship to a repair yard has this type of 'problem'. The vessel owner brings their ship to the VDC in a non-operational state. The vessel owner wants their vessel to be in an operational state. The VDC solves this 'problem' for their client (vessel owner) by bringing their vessel to an operational state.

PIT solving makes up the core activity in the VDC. A ship repair project is a series of small PIT that prevent a vessel from being operational. The solutions to a series of PITs within a ship repair project are dissimilar. The different solutions do not mean the PITs are unique to the VDC, just that the PITs are unique to the specific project. The VDC sees a number of different related PITs over the course of a repair project and each one has a different solution.

An example of a unique PIT within a project is the removal of a rudder from a vessel for repair. The VDC has a set solution to the PIT of rudder removal and repair because it is a common repair performed to a vessel. The removal and repair of a rudder has an established procedure. The size and configuration of rudders on vessels vary greatly along with the type of repair needed. The VDC will use different types and amounts of resources (people and equipment) to remove and repair a rudder. The removal

and repair of a rudder will only occur once during the repair of a vessel, and may not occur on all vessels the VDC services.

The VDC creates value by maintaining a set of solutions. The solutions are to typical PITs associated with the repair and service of a vessel. The ability to provide a customized solution from a generic plan gives the VDC an advantage. This advantage is one of speed. The availability of stock solutions means the VDC is quick to solve PITs. This quickness reduces costs incurred in solving a PIT and reduces the time a vessel spends in dock.

3.4 Who Makes the Decisions?

Clients and project managers make decisions about solutions at the VDC. The project manager decides if the resources are available to solve a PIT. The project manager also decides how long a solution will take to implement and how much to bill the client. The client receives a solution to a PIT, along with a price and a schedule. The client then must make a decision on proceeding with a solution.

The decision making process for the project manager is straightforward and based on resources available. The decision making process for the client varies. Several factors govern a client's decision-making process. The factors are different for each segment of client.

The untied clients are sensitive to price and schedule, with schedule being more important. The less impact to the operational schedule of a vessel, the less price matters. A vessel out of service means revenue loss for an untied client. An untied client is

attracted to solutions requiring premium labours rates (overtime) and work outside of normal hours despite price increases.

The GOV clients are sensitive to schedule and quality, with quality being more important. The GOV clients are concerned with reliability and service levels of their vessels. A vessel sustaining an operational failure means that the GOV managers failed in meeting their strategic mandate. A GOV client is attracted to proven, tested and monitored solutions.

The internal, SULC, clients are sensitive only to schedule. SULC has price control for all internal clients, removing price as a factor. The SULC vessels have the same operational demands as untied clients. A SULC client is attracted to solutions that reduce a vessels service time and increase its operational period, exclusive of price.

The VDC understands the decision making process of clients. Understanding the factors that clients use to make a decision gives the VDC power over the decision. The VDC positions solution to capture the most value by creating trade-offs where customers are sensitive. A high priced quick solution gives the VDC a higher marginal return and frees up dock capacity for other projects. A high quality regimented solution lets the VDC charge a premium for a reliable solution with longer execution.

3.5 Complexity in Execution Leads to Simple Value

The VDC executes ship repair solutions with a cross functional team. The team consists of a project managers and department heads (superintendents). The project manager leads the execution of the solution. The department heads function as subject

matter experts for various services. The project manager is responsible for the coordination of activities. The completion of a ship repair projects requires the execution of fundamentally different solutions in conjunction.

An example of interrelated fundamentally different solutions is painting a vessel and performing steel repairs. The method of painting a vessel requires the removal of old paint by sand blasting and the application of new paint. The application of the different coats of paint is sensitive to weather and time. The amount of time a vessel can sit after sandblasting is critical because rust will begin to form soon after sandblasting. The application of new paint requires the removal of any rust (rust bloom is the industry term). The paints are highly toxic and flammable. Steel repair have to happen after sandblasting and have to be finished before painting can start. A failure in either task will affect the total cost to perform both tasks. The size and schedule of the overall repair project determines the intensity in executing each task.

The scope of ship repair project is sensitive to survey. A classification body representative conducts a survey. The survey usually increases the scope of repairs required for a vessel. The increase of scope complicates the delivery of ship repair services. Discovered repairs require a new PDSA cycle. The scope changes affect the entire ship repair project. Existing solutions change to accommodate the new tasks when the scope for a repair project increases.

The VDC creates value by maintaining the expertise on hand to simultaneously execute and begin a new cycle for repairs. The use of a cross-functional team of experts

with a leader to coordinate activity lets the VDC create simple value from the delivery of a complex service.

3.6 Does the PDSA Work?

The final step in the PDSA cycle is to check to make sure the solution delivered fixed the PIT. A solution must solve the client's PIT by delivering an operational vessel. The VDC uses external quality assurance resources to confirm task completion. The external quality assurance consultant verifies that the quality of work executed holds to a minimum standard of quality. Classification bodies follow the quality standards to accept that the repairs performed are reliable. The challenge in this model to be mindful of both small tasks and the overall solution delivered.

The VDC also uses the control/monitoring step to learn. The VDC has a learning curve (Reagans, Argote and Brooks, 2005) present where the unit cost to deliver ship repair services diminishes as the number of cycles increases. This means that the VDC as an institution learns by performing ship repair. Capturing learning makes it meaningful and useful to the VDC. The VDC captures learning in two forms, standard operating procedures and vessel histories. The VDC has a collection of standard operating procedures developed for specific tasks. The standard operating procedures are dynamic documents providing systematic instructions for the best method of completing a certain repair. The discovery of a better method of completing a repair will change a standard operating procedure.

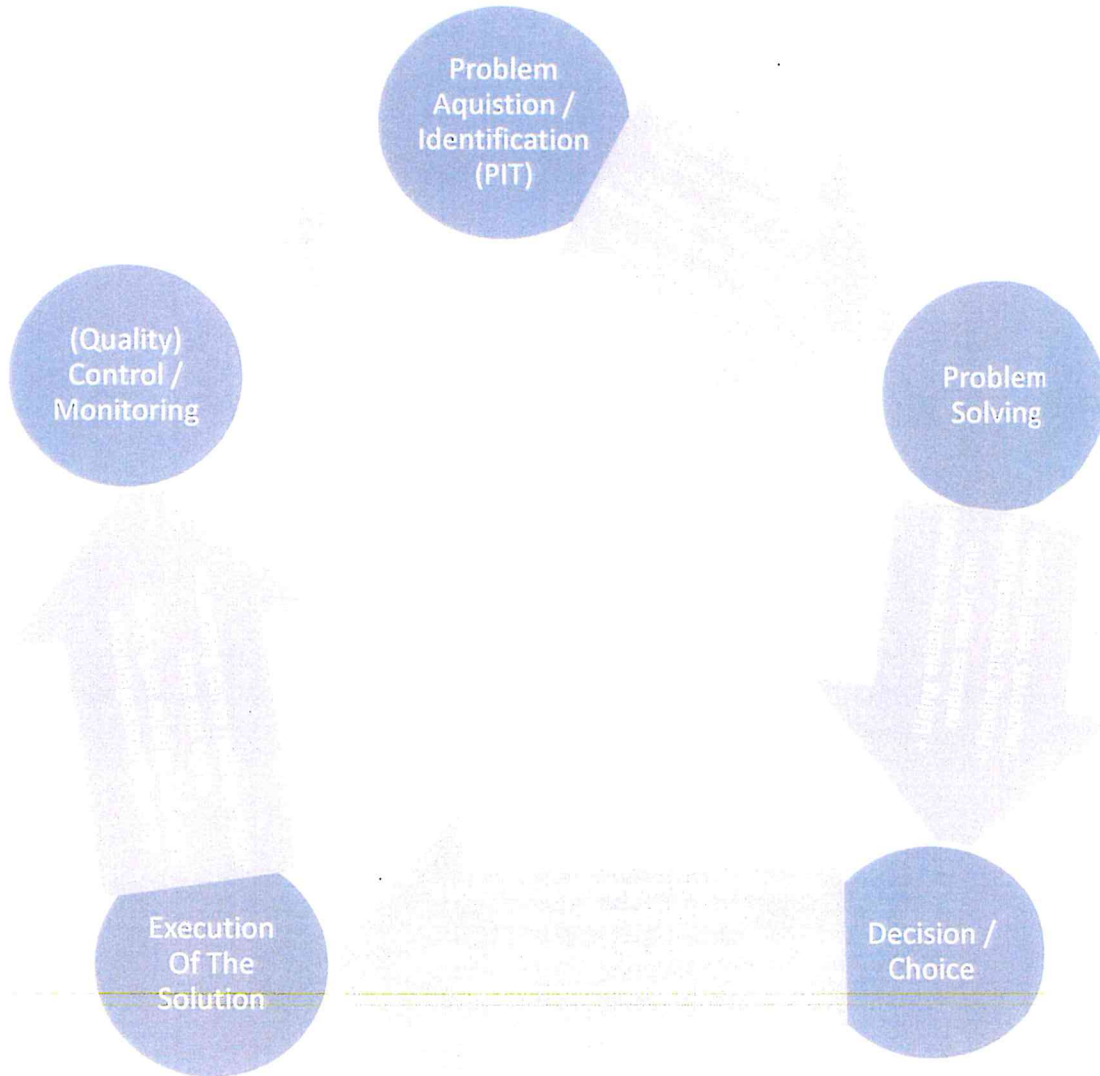
The VDC keeps a record of each docked vessel. This record is a project file. The project file contains specific information to a vessel. The specific information helps the

VDC perform a repair that is unique to a vessel. Every vessel that the VDC performs repairs on is different. This difference can be as simple as a unique arrangement of equipment, or as complex as a completely repurposed vessel. The more change a vessel has undergone during its service life, the greater the advantage of having a project file.

The VDC takes advantage of learning to create value. The more times the VDC has serviced particular vessel, the less the cost is to service the vessel. With a lower the repair cost, the VDC can either extract a premium for a project or offer a lower price.

3.7 What This All Means...

Figure 4 The PDSA in Review



This figure shows the steps in the PDSA. Figure 4 also shows the effects on value specific activities have in the cycle. The VDC creates value through speed. The quicker

the completion of a project, the more value the VDC can create for a client. The approach the VDC uses has several dangers that can increase cost or delay a project

The VDC uses the PDSA cycle to compete in the ship repair industry. The combination of speed through the cycle and ability to scale intensity for a project means the VDC can deliver small and large-scale repairs on short schedules. The maintenance of a cross-functional team of subject matter experts allows the VDC to manage the complexity in delivering solutions. Learning from vessels and repairs preformed lets the VDC keep the variable costs of repairs to a minimum.

The challenge in the PDSA cycle is fully utilizing resources. The VDC must keep a team of experts on hand to effectively deliver the generalized service of ship repair. The increased fixed costs of these resources means the VDC must either charge a premium for its service offering or distribute the costs over lots of projects. As long as the VDC is busy, the costs of this structure are an advantage. When the VDC slows down the costs of this structure can cause the VDC to operate at a loss or price itself out of the market.

4.0 FINANCIAL ANALYSIS

This section focuses on the year-to-year financial performance of the VDC. The analysis centers on the financials for the VDC for the period of 2007-2011. Comments on the performance of the VDC over the period highlight areas of opportunity. The goal of this financial analysis is to provide a counterpoint to the internal analysis.

Of note is that the VDC does not maintain a balance sheet as it is an operational business unit of a larger corporation. SULC makes all decisions regarding the sale, purchase, depreciation and write down of assets. The ‘overhead’ and ‘G&A’ items in the income statements include the impact of these decisions. The overhead and G&A items also capture all decisions regarding liabilities, including debt expense and accountants receivable. As a privately held corporation, SULC will not release equity data. The original version of this paper has all original figures, all other copies have censored figures, please make any enquires directly to the author.

Also of note in the financial analysis is that the overhead line captures both variable and fixed cost items. Adjustments to the overhead item showed year to year fixed and variable costs. Adjustments to the year-end income statements categorized all cost items to fixed or variable.

Of final note is that the terms ‘internal’ and ‘external’ differentiate revenue. Internal revenue is from SULC member companies or tied buyers. External revenue is from some tied buyers (GOV) and all of the untied buyers.

4.1 Ship Repair Project Overview

The standard private (internal or external) ship repair project has a length of 2 weeks. A typical ship repair project represents revenues from 200.000 to 1.0 M. The value of a project will vary depending on the nature of the vessel and the severity of the repairs required. A typical year for VDC will include about 30 standard projects. There are usually 1-2 longer-term projects such as refits or severe repairs with abnormal revenues.

The typical GOV repair project has a length of 6 weeks. A GOV project represents revenues from 1.5M to 3.0M. The value of the project varies with the specification of work and the extent of refit required. GOV typically see much longer service life than MTC vessels. This means GOV need longer docking periods and refits that are more extensive. The longer docking period and larger scope of a GOV repair project increases the price. GOV projects also include post service trials (sea trials are the industry term) which extend the project time. GOV have extensive quality control processes that affect the productivity rate of the VDC in completing repairs. The drivers for these projects are regulatory requirements and legislative service level requirements.

4.2 Revenue / Cost Analysis of the VDC

The following section will focus on the actual financial performance for the VDC. The periods covered will be 2007-2011. A series of graphics will follow accompanied by interpretation to aid the understanding of the graphics. The intention of this analysis is to identify and comment on trends with the VDC's performance.

4.2.1 Revenue and Returns

The following figures and discussion focus on the returns that the VDC generates through operation.

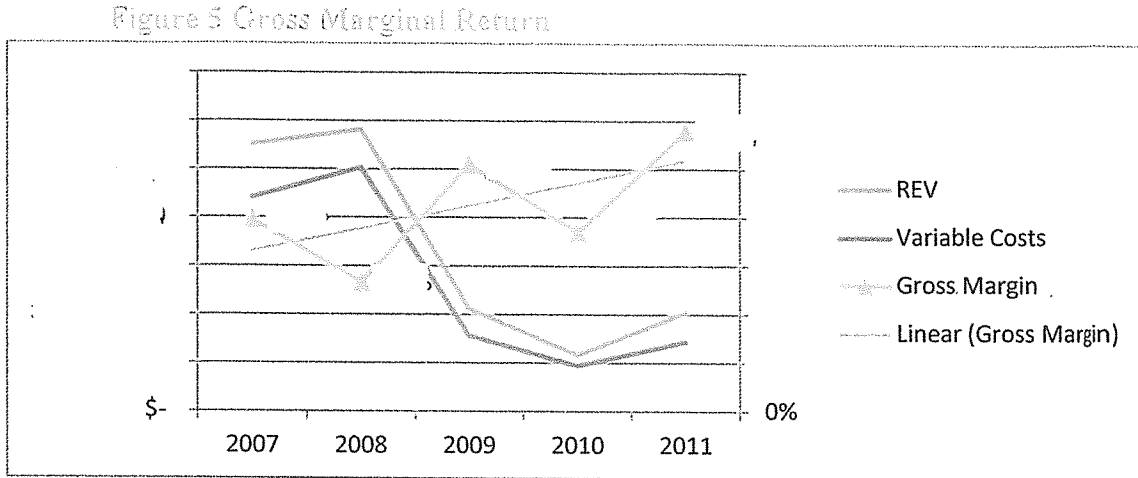


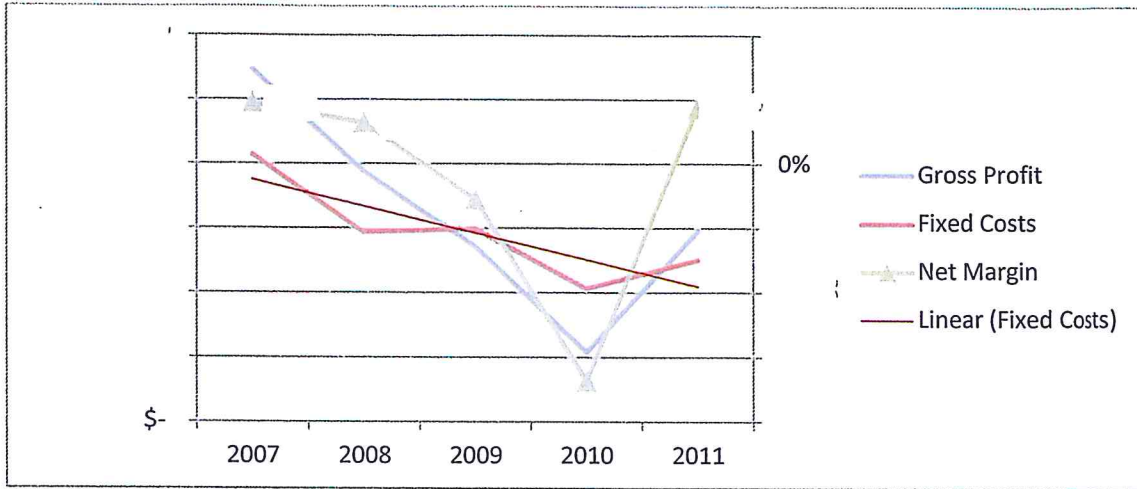
Figure 5 shows the year-to-year revenue, variable costs and gross margin generated by VDC. The first impression is that the gross margin is steadily increasing, despite a significant reduction in the volume of revenue.

The cause of the reduction in revenue is the 2008 economic downturn that affected North America due to the subprime credit crisis (Center on Budget and Policy Priorities, 2013). The other indication that we can draw from this analysis is that the ship repair industry is cyclical and subject to macro-economical forces. The low observed in 2010 is the minimum revenue from tied buyers.

The trend of an increasing marginal return on a lower actual volume of work has two causes. The reduction in overall revenue caused VDC management to focus on marginal returns that lead to efficiency and variable cost control policies. The other cause

is that VDC was able to extract greater absolute income from their tied customers who are not price sensitive.

Figure 6 Long Run Costs and Net Return



This figure shows the impact of fixed costs on the financial performance of the VDC. The observation is a period of declining net returns with a decline in fixed costs. We can also see the beginning of a recovery occurring after a trend of deteriorating performance.

There is also an indication of lack of response to declining profits evidenced in 2008 to 2009 where fixed costs stayed static as performance declined. During 2007 to 2008, the VDC deferred repairs and maintenance to the next year. This deferral was because of high work volumes during 2007 to 2008.

Examining both graphics 5 and 6 we can see that net profits have fallen significantly over this period. The increase of gross margin coupled with this fall tells us where the area of focus for VDC is. For the VDC to improve performance and increase returns initial reaction is to examine the fixed cost structure in place.

Being aware that the ship repair industry is cyclical provides another option. The VDC can also improve performance by increasing revenue. The increasing gross margin on less revenue means that if the VDC can increase revenue, the VDC will show higher net returns than in 2007. This option holds if the cost of increasing revenue does not increase variable costs.

Figure 7 Break-even Threshold

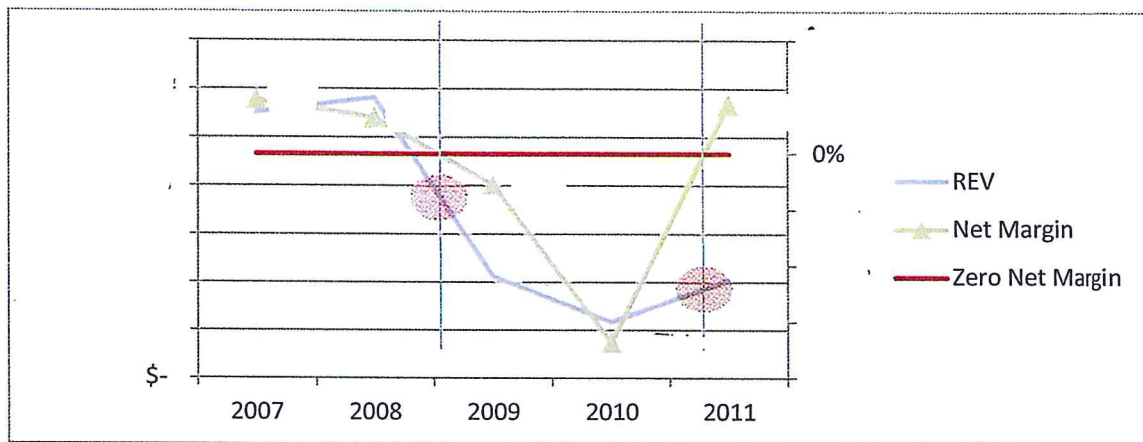


Figure 7 shows the relationship between fixed costs and net margin. This figure has a zero net margin line included. The zero net margin line highlights where net return is zero. Where the zero net margin line and net margin intersect, the revenue is at a level that generates a 0% return (indicated by the red circles). The amount of revenue required to show a positive net return dropped over the periods. This happened because the VDC reduced fixed costs over the periods.

The interesting observation from this analysis is that the tied clients alone do not generate enough revenue for the VDC to break even. This means that the VDC must

attract untied buyers in order to generate a positive net return. The VDC also has the option of lowering fixed costs to a level supported by tied customers only.

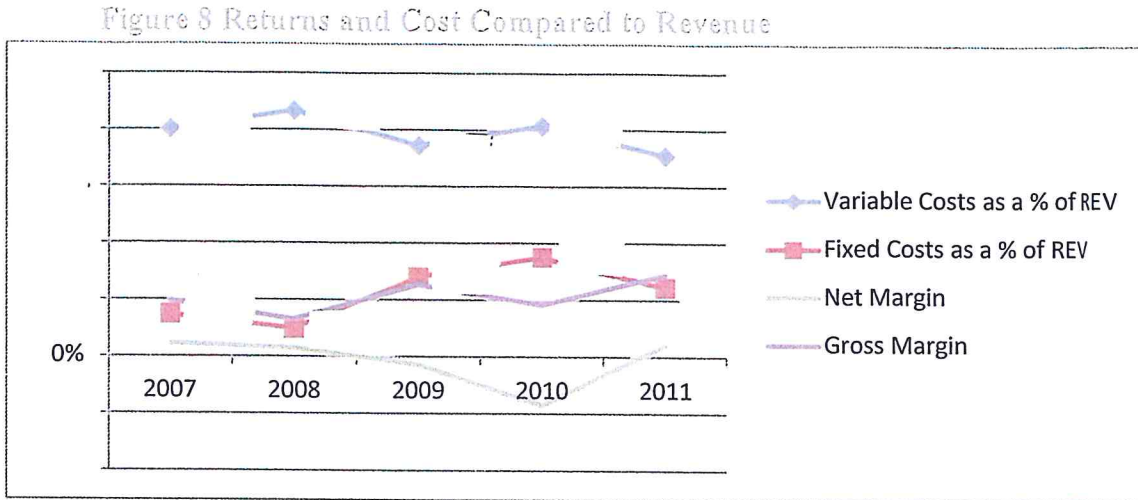


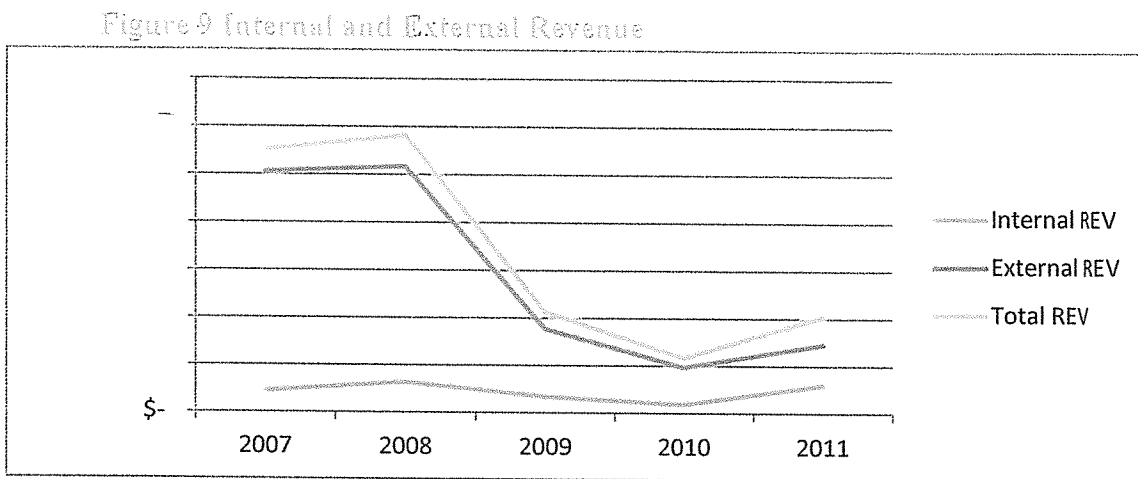
Figure 8 shows us the impact that the changes in both variable and fixed costs have on the financial performance of the VDC.

As net returns reached a low in 2010, the marginal return was near a high. The VDC is able to reduce marginal costs as a percentage of revenue. The period of recovery in 2011 has a higher fixed cost to revenue than the high volume period in 2007. This shows that the period of recovery was due to a reduction in variable costs relative to revenue.

We know from figure 7 that despite efforts to reduce actual fixed costs over the periods, efficiency caused the recovery. This efficiency will allow the VDC to realize better net marginal returns on higher volumes. The decline in variable costs relative to revenue is evidence of a strategic response to macro-economical forces. This response was a retrenchment to core competencies.

4.2.2 Internal and External Revenues

The next area of analysis will be the types and volume of revenue that the VDC generates comparing external and internal customers. Internal customers are other SULC companies and external customers are all others. Trends within this data give a representation of how the types of revenue generated affect the financial performance of the VDC.



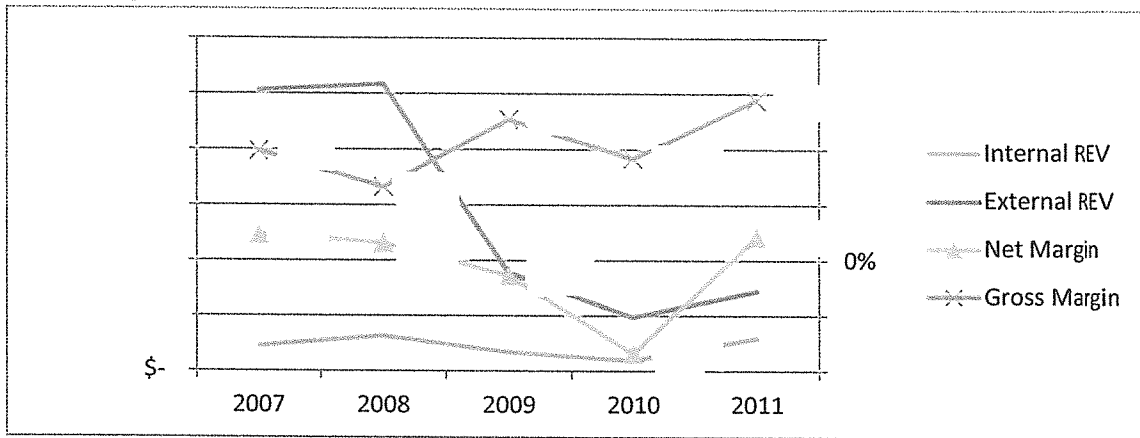
In figure 9, it shows that internal revenue has been comparatively stable over the periods, while external has fluctuated significantly over the same periods.

This reinforces the underlying macro cause for the decline in revenue. Private MTC volumes declined as they had a smaller market for their vessels (Center on Budget and Policy Priorities, 2013). This striking decline in revenue shows the VDC's vulnerability to upstream effects. The most significant impression to pull out of this analysis is areas for growth. The other notion to grasp is that the bottom of the three lines in 2010 represents the tied buyers that come to VDC regardless of general economic

trends. The low in 2010 is the tied buyers segment of the market insulated from macro events.

The only area for significant for growth with the VDC current offering is external clients, and the clients that are untied. This is the only identified customer segment where growth can occur. This segment represents the areas where strategic options for growth with the current offering of ship repair services exist.

Figure10 Internal and External Revenue with Returns



This figure shows the impact on returns that the different revenue types have. Internal revenue is comparatively stable, and external varies significantly. This analysis focuses on the effect that the variability of the external revenue stream has on marginal and net returns.

On marginal returns as the percentage of revenue that tied buyers represents increases, the marginal (gross) return increases. This shows that the VDC makes a conscious effort to leverage forces when they are in favour of the shipyard. This is also because the tied buyers are not sensitive to price.

On net returns, the VDC sees a significant drop that follows the drop in external revenue streams. The external buyers moving to lower priced providers drove this result. The reduction in an operational fleet has the potential to generate a long-term economic loss for external (untied) buyers. This means that a credible response to a short-term economic event is an increase of price sensitivity, not an operational fleet reduction for an untied buyer.

Combining figure 8 and 9 shows that the growth opportunities for VDC are with the untied buyers who are sensitive to price. If the VDC chooses to increase its revenues, it must engage more of these buyers. The VDC will have to shift their customer's expectation and decision-making processes through strategic marketing or offer a lower price product to the market.

4.3 Summary of Analysis

The VDC is currently coming out of a period of depressed sales. The response we can see was one of immediate retrenchment back to core competencies (Prahalad and Hamel, 1990). This occurred in 2009-2010 with a focus on tied customers and a reduction in variable costs. The initial response allowed the VDC to get through this period of downturn and continue operations.

The areas for growth exist in the cost sensitive portion of the customer pool. In order to increase revenues the VDC will have to compete on cost or bring other value to the market.

A break-even threshold of revenue with the current cost structure exists. This threshold changes as both variable and costs change. Meeting this threshold lets the VDC turn a profit. The VDC can either lower this threshold or increase revenues.

There is a tied buyer pool representing a known portion of revenue that is unaffected by market movements. With this knowledge, the VDC has options for increasing revenue above the break-even threshold by increasing price. The VDC can also create a cost structure that allows for profitable operation servicing only tied buyers.

4.3.1 Is the VDC in Good Shape?

The VDC responded to a severe decline in sales and survived. The VDC is in a position to recover to stronger performance if all external factors remain constant. The challenge for the VDC is recovering untied buyers, or increasing the number of tied buyers.

The existence of tied customers allowed the VDC to survive. This survival also caused the VDC to become a more efficient ship repair yard. The VDC has a lower cost structure coming out of the downturn than it had going in. This does not mean that the VDC will be able to compete with global ship repair providers on price. The VDC will instead be able to realize higher net returns on less revenue.

The VDC in 2011 is generating less than half the revenue it did in 2007. This is not good for actual income generated. The VDC is making less money for its shareholders. This analysis focused on the operations of the VDC over a period of economic downturn, not the financial structure and attractiveness of the VDC as a

company. The VDC generated an average net return of -1% (an actual total return of 1.7%) over the 2007-2011 periods. Over the same periods, the average annual interest rate for a 10 year Government of Canada Bond was 3.8%. This net return is not attractive for shareholders.

As an operation, the VDC appears to have responded to an external event that caused sales to fall and is in very good shape moving forward. The VDC may not be a viable operation in the future if it is unable to generate returns for shareholders. Despite the operational level responses, the VDC has not generated a net return beyond a risk free rate in five-years of operation.

5.0 VDC STRATEGIC ASSESSMENT

This strategic assessment provides an overview of the current strategy used by the VDC. This assessment analyses areas of strategic importance for the VDC. The review of the industry analysis highlights areas of strategic importance in the competitive environment. The review of the internal assessment focuses on the current strategy of the VDC and areas of concern. The internal assessment review also looks at the current financial state of the VDC. This chapter ends with a summation of all strategically relevant topics for the VDC.

5.1 Ship Repair Industry Assessment

The ship repair industry is good to incumbents. The ship repair industry has barriers to both entry and exit. There is almost no movement in and out of the ship repair industry. The competitive environment is different depending on the region. Price competition is present in the global region. In the local region, competition is around schedule, capacity and price.

There are two competitive regions, local and global. The local region is the least sensitive segment. The global region is more sensitive. The local customer cares about reliability and schedule. The global customer cares about price. The local region has tied and untied customers. Tied customers have no (or few) alternatives ship repair providers. Untied customers have more options and power.

National governments find the ship repair industry strategically important. Governments subsidize the ship repair industry. There are direct and indirect subsidies. Direct subsidies include joint ownership of an asset or financing. Indirect subsidies

include the non-competitive award of GOV repair projects. The government also protects the ship repair industry with legislation. Regulations require that every operational vessel undergo a survey and repair every five-years.

Suppliers and substitutes are not a strategic factor in the ship repair industry.

5.2 Internal Assessment

Ship repair projects are on a five-year cycle. Regulations protect this cycle. A vessel owner can afford to pay up to 20% of the revenue generated by the operational vessel for repair. A removal from service happens when repair costs rise above this revenue threshold for a vessel. A normal vessel repair project has a value of 200.000 to 2.000.000 CAD.

The VDC is a business-to-business service provider. A service provider like the VDC does not use a typical supply or value chain. The VDC instead delivers services with a PDSA (value shop) model. A 'value shop' is an organization that uses intensive technology (Stabell and Fjeldstad, 1998). Intensive technology is the ability to vary activity levels and resources to address a particular PIT (problem).

The VDC uses a PDSA to create value. The primary characteristic of this approach is varying levels of intensity. The VDC has the ability to quickly cycle from PIT to the execution of solutions. The speed of movement through the PDSA creates value. The maintenance of stock solutions to PITs improves this speed.

The VDC is vulnerable to external hold up. The external decision-making and acceptance of solutions slows the PDSA cycle. The reliance on stock solutions reduces

innovative drive. The focus of the PDSA is efficient execution and it is vulnerable to atypical PITs.

The VDC is reliant on a small core of experienced management. Management changes will impair the PDSA cycle and reduce value. Management has significant bargaining power within the VDC.

The VDC does not actively market ship repair services. All clients are referral or repeat. The VDC does not actively compete in the global ship repair market. The competitive advantage of the VDC is a mix of the PDSA, capacity and geographic location.

5.2.1 Financial Assessment

The VDC has improved its cost structure over the past five-years. Relative returns are higher due to increased efficiencies and lower fixed costs. As revenue grows, the VDC will see an increase in actual return. This increase in return requires that the cost of growing revenue be less than the increased marginal return. The VDC does not have control over its balance sheet, as it is a part of a larger organization.

The VDC generated an actual return less than the Canadian risk free rate for the periods analyzed. These returns came during a period of economic downturn. The VDC retrenched during this downturn. The operational focus was on cost controls and efficiencies.

The tied customer base the VDC has will not generate enough revenue to create a positive return. The VDC must attract external untied clients to generate a profit. These

clients are price sensitive and vulnerable to macro-economical trends. The VDC must either compete on price for these clients or change their decision making process.

5.3 And These Assessments Mean?

The VDC is coming out of a downturn in good shape. The VDC must begin to grow its revenue to realize the full benefits of retrenchment. With the current product offering, the revenue growth must occur by increasing the amount of external untied clients. These clients are price sensitive. The VDC cannot globally compete on price and maintain its profit with the current structure. The VDC must attract new external clients without lowering price or change the operation.

The ship repair industry is a protected industry. Ship repair capacity is strategically important to a national government. This means the VDC can generate better than average returns, because competition is restricted. The VDC must decide to focus on consolidating the local capacity or to reduce costs to a level that allows profits with tied customers only. The strategic importance also causes the government to keep excess capacity in the market. Excess capacity increases competition on price.

The VDC can also improve its competitive position by increasing the amount of tied clients it has. There are two ways to increase tied clients. Long-term service level contracts with large fleet owners or changing the regulations to create more tied clients. Long-term service level contracts carry a risk of penalty and obligations that increase risk. Changing regulations will require a multi-year effort and is not likely to succeed.

The VDC is subject to market movements, the VDC is currently a cyclical business. The VDC is at risk of losing revenue because of factors out its control. The revenue decline during the recent economic downturn showed this vulnerability. The VDC can reduce this vulnerability in two ways. The VDC can increase it tied clients. The VDC can also offer a different service insulated from market movements. If the VDC does not increase the number of tied clients or offer other products, it will maintain a vulnerability to market downturn.

6.0 STRATEGIC OPTIONS FOR THE VDC

Strategic options are a series of choices that shape an organization. A strategic option as a component makes up the strategic direction of an organization. The strategic directions are mutually exclusive. Each strategic option has a base in a distinct direction. The strategic options within different directions can be complementary or exclusive. A strategic option does not equate to organizational change. This chapter explores what options the VDC currently has. The ranking and comparison of the strategic options ends this chapter.

The scope of the strategic options does not include portfolio analysis. The strategic options focus on the operational level of the VDC. This limitation on scope is at the request of SULC as the VDC is an operational business unit of a larger corporation.

6.1 Why Options Matter to the VDC

The cause for the VDC to explore strategic options is the impact the market downturn had on performance. An external event caused the VDC to change. This event was a market downturn. The market downturn caused the VDC to retrench and cut costs to survive. The retrenchment was an immediate strategic response. Retrenchment is a consolidation of operations. The consolidation serviced reduced customer demand at minimal costs. Retrenchment also is focusing only on what is most profitable and easily achievable in a time of uncertainty.

The economic downturn has begun to pass and the VDC is now in a period of recovery. This recovery is not limited to the VDC (Huffington Post, 2012). The VDC's customers are also in a state of recovery. Being in an industry that is in state of recovery,

the VDC has three strategic directions open. Firstly, the VDC can continue operations at a reduced capacity. Secondly, the VDC can grow the operation back to previous levels. Finally, the VDC can change the operation. Each direction contains different options. The choice of options shapes the future direction of the VDC.

6.2 Strategic Directions Available for the VDC

The options available to the VDC will fit into the different strategic directions. Each strategic direction has different risks and benefits. The analysis of the different strategic directions provides full understanding of these risks and benefits.

6.2.1 Focus on the Things the VDC is best At

This is the lowest risk series of options. This direction focuses on what the VDC does best. This direction only plays to strengths of the VDC and is attractive and safe. This strategic choice focuses on servicing only the tied buyers. The greatest benefit is one of resilience. The VDC insulates itself from future market downturns. The VDC will also be able to generate profit at a stable level. These returns will be of a higher marginal return than any other series of options. These returns will also be the lowest actual amount of returns generated. The VDC will also leverage its value as a strategically important national asset. This advantage will let the VDC take advantage of government protection and subsidies.

Reducing capacity will have some severe detriments. The VDC will price itself out of the competitive market to operate at this level. Price sensitive customers will migrate to lower cost providers. In the end, rivals will begin to offer competing services

and additional capacity (Porter, 2008) will enter the market. The focus on a limited group of clients limits growth.

6.2.2 Grow the VDC

The series of strategic options leading to a resumption of activities is typically most favorable to management. The idea of weathering the storm and getting back to business as usual is very comforting. The VDC as an organization has learned efficiencies and cost controls. Growing to previous levels, the VDC will utilize this learning. The VDC will create higher returns once revenue grows back to historic levels.

Growth is responsive, which will allow the VDC to take advantage of the general economic recovery. The returns generated will be of a higher actual value, though of a smaller margin than reducing capacity. The area of growth for the VDC is with untied buyers. Untied buyers are price sensitive. Strategic options to engage more untied buyers will require a sacrifice of marginal returns or an increase of marketing expenses. During growth, resources and capacity will lag behind market demand. This lag will cause inefficiency and will further reduce marginal returns.

The single largest detriment to these options is a lack of response to competitors and industry change. The assumption is that the competitive environment is that same as it was before the downturn. This growth to a previous size will also cause the VDC to maintain the same vulnerabilities. The VDC lost revenue during the economic downturn because of these vulnerabilities. The loss of revenue will still occur in any future economic downturns.

6.2.3 Change the VDC

The series of strategic options leading to a change in the core operation are most disruptive to management. The idea of entering new markets, changing the product offering or altering the core business indicates failure. These strategic options are a signal that the previous operation was not sustainable. These strategic options will push the VDC out of its comfort zone and into uncharted territory.

Moving towards a new type of operation contains the highest risk. The benefit of a change in the core operation has the highest potential actual and marginal returns. A change in the core operation will adversely affect short-term financial performance.

These strategic options include the potential for disruptive change in the ship repair industry and upsetting the competitive environment of other industries. These options may protect the VDC against future economic downturns.

The detriments associated with a change in the core operation are significant. Short-run financial performance during the transition period will suffer. There will also be significant disruption in staff and management performance. The long-term effects of these strategic options have no guarantee. Other strategic directions have more gradual and palatable effects to performance.

6.3 Strategic Options for the VDC

The following sections outline individual strategic options. The grouping of the strategic options provides in text comparisons. The overview of each strategic option

provides initial steps and likely outcomes. The overview of each strategic option also includes brief risk / benefit analysis.

6.3.1 Focus on What the VDC Does Best

This option uses the lessons learned from the recent decline in sales. The VDC has a pool of tied customers. The tied customers engage the VDC regardless of macro-economical events. Using this option leads the VDC on a path of consolidation. The VDC will not grow. The VDC instead will also stop all activities not required to service tied customers. The VDC should realize higher marginal returns on less revenue with this option. The VDC may not generate enough actual returns to satisfy shareholder expectation.

6.3.1.1 Service Only the Tied Buyers

This option entails focusing only on the tied buyers. The tied customers represent approximately 12M in revenue. This focus ignores all other potential revenue streams. The goal of this option is to service tied customers in the most efficient manner possible. The VDC does not compete for untied customers. This option minimizes marketing and sales expenses. Variable and fixed costs become the minimal possible level required to service tied customers.

This is a harvest only option where the VDC seeks the greatest possible marginal return from the tied buyers. This option removes the risk of volatility in the income statement at the expense of growth options. This strategic option puts the VDC in a much better position to weather the next economic downturn. The VDC will not realize any benefit from an economic upturn.

6.3.2 Growth in the Ship Repair Industry

These options entail actively competing for more untied customers. This is the price sensitive portion of the market. To compete for these customers the VDC will have to lower its price or differentiate its service offering.

There are two strategic options linked to growth. The first option is the relocation to a lower cost environment. The second option is to differentiate the ship repair service.

6.3.2.1 Relocate the VDC

The nature of the key competitive assets of the VDC makes them mobile. Moving to a lower cost environment increases the VDC ability to compete on price. The west coast of North America has some of the highest costs of living in the world. This high cost of living drives high labour rates, which are variable costs. Moving the VDC to an area in the world with a lower cost of living lowers the VDCs cost of labour. A lower cost of labour lowers the variable costs of the VDC. Lowering the variable costs allows the VDC to offer a lower priced service to untied buyers.

The challenge with this strategic option is that the VDC will begin actively competing with existing low price providers in the same regional market. The introduction of new capacity in low price environments has the potential of setting off a race to the bottom. This can lead to depressing margins across all providers operating in an industry.

The government influence in the ship repair industry increases the risk of this option. All nations limit foreign control of strategically important assets. The VDC will

have to engage in an equity partnership or joint venture with a local firm to operate in other nations.

6.3.2.2 Creating a Differentiated (Premium) Service Offering

Creating a differentiated service offering is an attractive strategic option. The VDC will be able to charge a premium for differentiated services. A differentiated ship repair offering can remove the VDC from the competitive environment. The VDC must understand what services can demand a premium from a customer.

The success of creating and selling a differentiated product depends on the customer demands. The VDC will not be able to change their customer's demands for ship repair providers. The VDC instead must meet its customer demands with a different product. This strategic option may allow the VDC to attract untied customers without competing on price.

The untied customers view ship repair as a cost to operate. The VDC will have to meet the customers' demands with a different service offering. The VDC may be able to achieve this by guaranteeing repairs for longer periods than competitors guarantee. The VDC may also offer monetary guarantees on service schedule or operational periods of vessels. The VDC can also offer customers business continuity guarantees using SULC vessels.

The feasibility of successfully being able to differentiate in the existing ship repair market is low. The signals received from customers and the government conflict with a

differentiated offering. The regulators and customers both demand general, easily comparable ship repair services from the industry.

6.3.3 Change; Enter Different Industries

The entrance into different industries is a very viable option for the VDC. The change of scope for the VDC has the potential to upset the competitive environment in a new industry. Two industries appear to be a fit for the current capacity and resources available to the VDC. These two industries are heavy marine construction and stevedoring.

6.3.3.1 Enter the Heavy Marine Construction Industry

Heavy marine construction is a project-focused industry. Heavy marine construction encompasses activities like offshore oil platform assembly and bridge construction. The assets involved in this activity are the floating drydocks. A floating drydock is also a mobile work platform. Heavy marine construction projects require mobile work platforms. The amount of investment required to develop the capability to compete in this industry would vary with the type of project. The investment is project driven and matches well with the current PDSA. The VDC is able to vary the intensity of work in response to a project. This strategic option will require the VDC to vary the intensity of investment in response to a project.

6.3.3.2 Enter the Stevedoring Industry

Stevedoring is an industry built around loading and off loading vessels. The VDC is in a position to offer this service to container vessels. The current location of the VDC within the Burrard Inlet and the ownership of a high capacity and reach crane create this

option. There is synergy present with another SULC member company that specializes in intermodal container transportation. This other company offers container movement by barge between the Lower Mainland and Vancouver Island. The SULC group will aid the ability of the VDC to compete in this industry. The stevedoring industry is highly regulated which is a barrier to entry. The capital investment to enter this industry will be low as the VDC currently has the assets to compete in the stevedoring industry.

6.3.4 Change; Sell a Different Service

As a final set of options, the VDC can change the type of service (product) that it sells. Currently the VDC bids on single projects while customers operate a fleet of vessels. The first option available to the VDC is to focus on long-term contracts. VDC has the capability to manage long-term repair and maintenance contracts. The second change in service that the VDC may consider is the movement of the drydocks to the customers. The nature of the floating docks means that they are transportable. Customers typically maintain a location to store their vessels. Changing the service offering to deliver ship repair services to the customer's location has the potential to change the ship repair market.

6.3.4.1 Focus on Long-Term Contracts

Long-term maintenance and repair contracts would significantly increase the tied revenue that VDC generates. The challenge is that vessel owners currently enjoy a competitive market for ship repair service. To convince a ship owner to enter into a long-term service agreement the VDC must offer a benefit. This benefit will have to be some form of price reduction and/or guarantee of service. Customers will want price

concessions to remove themselves from the competitive environment. This will result in the VDC generating a reduced margin. A commitment of capacity to a client will limit the VDCs ability to bid new projects.

6.3.4.2 Go to Where the Customers Are

The movement of the dock to the customer's area of convenience has the potential to engage customers in a block booking type of contract. This is a completely new offering in the ship repair industry. The VDC must present its customers with a benefit to convert them to this new model of ship repair. This benefit will have to be one of price, schedule or flexibility. Giving a customer the ability to service all of their vessels at a location and time of their preference has value. This will reduce the customer's operational downtime and increase the revenue that they can generate with their vessels. Customers will also be able to bring all of their vessels out of service in the order that best suits their clients. This benefit will aid them in addressing their downstream client's needs. The government will oppose the offering of a mobile vessel repair service. The ship repair industry is strategically important to the national government. The government will not want ship repair to be a mobile service operating in other regions.

6.4 Comparison and Evaluation of Options

The strategic options analysis uses a matrix to compare options. The matrix approach allows different options to be compared using similar criteria. The definition and weighting of each criterion give an indication of which strategic option and direction are best. The following sections are definitions of each criterion used to compare the

strategic options. The strategic options comparison and ranking sections follow the definitions.

6.4.1 Revenue Growth (Short-Term)

The definition of short-term for revenue growth is less than 18 months. Short-term revenue growth is a desired outcome for the VDC. The VDC is coming out of a period of depressed sales. Management has responded by keep a close eye on short-term returns. Activities linked to increasing revenues are highly desirable. Short-term revenue growth has a high weighting. The ranking of each strategic option uses the likelihood of increasing revenues in the short-term. The actual impact on overall revenue each strategic option is also included.

6.4.2 Revenue Growth (Long-Term)

The definition of long-term in regards to revenue growth is greater than 18 months. Long-term growth is a desired result for the VDC. Long-term revenue growth has a moderate rating. The moderate rating reflects the urgency the VDC has on short-term performance. The impact of strategic options to grow long-term revenue may cause short-term performance to drop. The assessment of each strategic option uses the likely impact on long-term growth.

6.4.3 Marginal Return (Short-Term)

Short-term marginal return is very important for the VDC. The definition of short-term is less than 18 months. This is an area of concern for the VDC as actual marginal returns have decreased with depressed sales. This criterion has a heavy rating because the

VDC is in a period of recovery and focused on the short-term. Strategic options' scoring happens according to the impact they have on price increases and cost reductions.

6.4.4 Marginal Return (Long-Term)

Long-term marginal return is important to the VDC. The definition of long-term marginal is greater than 18 months. Long-term marginal returns have decreases over the period of downturn. The increase of long-term returns is desirable for the VDC. Long-term returns affect the viability of the VDC as an ongoing concern. This moderate weighting for this criterion is because the VDC focus is on short-term results. Options that include changing the fixed cost structure, service offering or increasing the price have high scores.

6.4.5 Capital Expense – the Cost of Investment

This item has been included to assess the amount of capital required for a strategic option. The strategic option scoring is relative. This relative ranking allows the comparison of different strategic options. Capital expense is important to both SULC and the VDC. The cost of capital to engage new customers or deliver a new service will affect the financial performance of the VDC. This item has a low weighting as other criterion reflect capital expense. The management of SULC and VDC has requested this criterion as a method of comparing strategic options on a pure investment basis. Having a relatively low capital expense associated with an option will make it more desirable as it reduces risk.

6.4.6 Management Preference – People Matter

This item has been included to show management's response to strategic options. Interviews with key staff members and executives (Jonathan Whitworth, CEO SULC; Tony Matergio, VP&GM VDC/VSY) formed the basis for this criterion. This criterion also captures operational disruption and morale at the VDC. This criterion has a low weighting. The low weighting is because the VDC is coming out of a period of poor financial performance. The viability of the VDC has a higher weighting than management preference. This criterion gives the decision maker an impression of support or resistance to strategic options. This criterion will also aid in directing specific tactics for a strategic option. A high ranking on preference will lead to an easier execution.

6.4.7 Capability – What Does the VDC Already Have?

This is an indication of how close the strategic option is to the existing capabilities of the VDC. This criterion provides an indication of feasibility. This criterion takes into account current areas of expertise and assets available to the VDC. The criterion has a moderate ranking. The moderate ranking reflects the ease of transition and execution a strategic option has. The ranking of each strategic option uses the expected utilization of existing capabilities and the need for new ones.

Figure 11 Criteria, Ranking and Weighting

Criteria	1	2	3	4	Weighting Factor
Revenue Growth (short term)	Revenue decline	Slight to no decline	Slight to no increase	Revenue increase	0.5
Revenue Growth (long term)	Revenue decline	Slight to no decline	Slight to no increase	Revenue increase	0.4
Marginal Return (short term)	Margin decline	Slight to no decline	Slight to no increase	Margin increase	0.45
Marginal Return (long term)	Margin decline	Slight to no decline	Slight to no increase	Margin increase	0.35
Capital Expense	Most required			Least required	0.25
Management Preference	Directly opposed			Direct support	0.25
Capability	Cannot utilize any current capability	Can support with large changes	Can support with small changes	Fully able to support in present state	0.3

Figure 11 shows the distinct criteria and the thresholds required for each ranking.

The weighting allows for the comparison of different criteria based on the current needs of the VDC. The design of the ranking and weighting gives a highest possible score of 10 for any particular strategic option and a low of 2.5.

Figure 12. Comparative Option Analysis

Option	Revenue Growth (short term)	Revenue Growth (long term)	Marginal Return (short term)	Marginal Return (long term)	Capital Expense	Management Preference	Capability	
Service only the tied buyers	2	1	4	3	4	2	4	
Relocate the VDC	4	3	4	2	2	1	1	
Offering a different service	2	2	3	3	3	4	4	
Enter heavy marine construction	1	4	1	4	1	2	2	
Enter stevedoring	4	2	4	4	3	3	3	
Focus on long-term contracts	2	3	2	4	4	4	3	
Go to the customer	3	3	2	2	2	2	2	
Weighting Factor	0.5	0.4	0.45	0.35	0.25	0.25	0.3	TOTAL
Service only the tied buyers	1	0.4	1.8	1.05	1	0.5	1.2	6.95
Relocate the VDC	2	1.2	1.8	0.7	0.5	0.25	0.3	6.75
Offering a different service	1	0.8	1.35	1.05	0.75	1	1.2	7.15
Enter heavy marine construction	0.5	1.6	0.45	1.4	0.25	0.5	0.6	5.3
Enter stevedoring	2	0.8	1.8	1.4	0.75	0.75	0.9	8.4
Focus on long-term contracts	1	1.2	0.9	1.4	1	1	0.9	7.4
Go to the customer	1.5	1.2	0.9	0.7	0.5	0.5	0.6	5.9

Figure 12 illustrates both the strategic options and the criteria defined to assess them. The three highest scoring identified strategic options have highlights. The three highest scoring options all fall into the strategic directions of growth and change in the core operation. The strategic options linked to staying to core competencies did not score highly.

7.0 SUMMARY AND RECOMMENDATIONS FOR THE VDC

This chapter distills the strategic analysis of the VDC to three distinct strategic options. . The identification of the recommendations used the industry and the VDC internal analysis. The comparative ranking of the strategic options yielded clear results. Each strategic option links to the same strategic direction, change.

The strategic direction of continuing at a reduced capacity is not feasible for the VDC. The financial analysis shows that the tied customers do not generate enough revenue for the VDC to survive. The VDC must either grow or change. The growth to a previous footprint will leave the VDC susceptible to the same risks it had before the economic downturn. The best strategic direction for the VDC is to change.

The following three strategic options all link to changing the VDC. Each of the options includes different types of risks and benefits. The recommendation of this paper is that the management of the VDC further explore the thee following strategic options and choose the one of best-fit to follow in the immediate short-term.

7.1 Differentiation – Change the Service Offering

To change the service offering the VDC has some work to do. The service offered must be different from what is available in the competitive environment and still meet customer’s needs. The understanding of these needs is the next step for the VDC. The VDC can then begin to formulate new value propositions to bring to the market. The VDC will increase revenue and margin if customers embrace the new value propositions and service offerings.

7.2 Long Term Maintenance Contracts – Increasing Tied Customers

The long-term maintenance contracts are of significant interest to the VDC. The challenge is to provide a benefit to the customer greater than the current benefit they realize from a competitive industry. The new benefits will increase risk or decrease price. The VDC must balance the increased cost to attract long-term customers with the increase in risk.

The benefit to the VDC is one of stability and increasing the tied customer base. As the VDC engages more and more customers into long-term service level agreements, the competitive market will begin to shrink. The intensity of competition will increase within the local region for untied customers. This intensity will force local competitors to exit or adopt the long-term service agreement model. This strategic option has the potential to allow the VDC to squeeze competitors out of the local region. When consolidation occurs, the VDC will be able to extract higher margins than in a fully competitive market.

7.3 Stevedoring – Entering a New Industry

The highest risk option is the entry into the stevedoring industry. This option carries the highest amount of ambiguity and risk. The greatest benefit is one of developing a new stream of income distinct from the ship repair industry. This new stream of revenue will insulate the VDC from downturns in the ship repair industry. The next step to pursue this strategic option is to fully explore feasibility and reduce ambiguity.

The stevedoring industry has lots of regulation. The amount of regulation in the stevedoring industry presents a credible barrier to entry. This barrier is due to government involvement in the stevedoring industry. The VDC must engage the regulators prior to entry to create a path of entry. The potential to utilize the partnership with an existing intermodal container ferry service creates a synergy within this business case.

For the sake of scale, the price to unload a fully loaded Panamax class container vessel in the local region is 1.1M to 1.9M, exclusive of taxes and additional fees (Port Metro Vancouver, 2011).

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