STRATEGIC ANALYSIS OF MDS METRO LABORATORY SERVICES

by

Joanne P. Philley

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APPROVAL

Name: Joanne Philley
Degree: Master of Business Administration
Title of Project: Strategic Analysis of MDS Metro Laboratory Services

Supervisory Committee:

Dr. Edward Bukszczar
Associate Professor
Faculty of Business Administration

Dr. Elicia Maine
Assistant Professor
Faculty of Business Administration

Date Approved: Aug 10, 2004
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Strategic Analysis of MDS Metro Laboratory Services

Author: ______________________
Joanne Philley

August 9, 2004
Date
ABSTRACT

MDS Metro is the largest provider of community laboratory services in the province of British Columbia. It has been in existence for over 40 years and currently provides service for 2.5 million patient visits per year. MDS Metro is an operating unit within the MDS Diagnostics Services Sector of MDS Inc. – an international health and life science company that provides enabling products and services for the development of drugs and the management of disease.

Recent trends in health care have led to a shift in the diagnostics laboratory service industry in Canada that has resulted in move towards a demand from payers for a low cost, high quality service. This trend has contributed to the initiation of the rationalization of laboratory services in British Columbia (BC) by the provincial government.

To address this change in the industry, MDS Inc. and MDS Diagnostics have initiated company wide changes to improve organizational efficiencies that affect all MDS businesses including MDS Metro. At the same time, the initiatives identified for the rationalization of laboratory services in BC are having a significant impact on MDS Metro.

This paper provides an overview of MDS Metro, the industry in which it operates, the issues it is currently facing and makes recommendations for resolutions of these issues. The major recommendation involves the implementation of a coordinated change management process. Other recommendations include implementation of processes to increase economies of scale and improve the attraction and retention of scarce resources.
DEDICATION

This projected is dedicated to my amazing son, Andrew Philley, my loving mother, Anne Scott and my vivacious friend, Dr. Celeste Snowber. Their unconditional love, support and understanding throughout this journey have made completion of this program a reality.
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CHAPTER 1: INTRODUCTION

1.1 MDS Metro

MDS Metro Laboratory Services is the largest provider of diagnostic outpatient laboratory services in British Columbia (BC). Services are provided by over 80 Patient Services Centres (PSC) in the Lower Mainland and on Vancouver Island, two large reference laboratories in Burnaby, BC (Burnaby Reference Laboratory - BRL) and Victoria, BC (Vancouver Island Reference Laboratory – VRL), and regional laboratory sites in Prince George, Terrace, Dawson Creek, Nelson, Kamloops, Gibsons, Nanaimo, and Courtenay. With more than 950 employees, MDS Metro provides diagnostic laboratory services for two and a half two million patient visits annually (MDS Metro Laboratory Services, 2004).

MDS Metro is partially owned by MDS Inc., a publicly held, international health and life science company that provides enabling products and services for the management of disease and the development of drugs. Headquartered in Toronto, Ontario, MDS Inc. operates in three segments – Life Science, Health and Proteomics. The life sciences sector includes MDS Nordion, MDS Sciex and MDS Pharma Services. The health sector includes MDS Diagnostics and Source Medical, and the proteomics sector has a single unit: MDS Proteomics (MDS Inc., 2003). MDS Metro is an operating unit within the Diagnostics Sector (see Figure 1.1).

1.1.1 Life Sciences

The Life Sciences Sector provides enabling products and services for drug development and disease management. Some products and services offered include medical isotopes, analytical instruments and pharmaceutical research services. To deliver these products and services, the Life Sciences sector operates three business units: MDS Nordion, MDS Sciex and MDS Pharma Services.
1.1.1.1 MDS Nordion

A world leader in radioisotope technology, MDS Nordion also serves as the leading producer of Cobalt 60 and other isotopes. Research institutions and companies use these isotopes to diagnose and treat diseases, primarily cancer. Hospitals, manufacturers, and other organizations also use isotopes when they need to sterilize medical or commercial devices and products, such as pharmaceuticals and cosmetics. Food manufacturers also use these isotopes to reduce the incidence of microorganisms.
in food. MDS Nordion is a pioneer and global leader in the manufacturing of non-destructive gamma radiography testing equipment and radioactive sources. Engineering and construction firms around the world use these products to test structural weaknesses in industrial materials such as pipelines, pressure valves and aircraft engines.

MDS Nordion comprises two business units—Nuclear Medicine and Ion Technologies. The Nuclear Medicine Unit produces and supplies more than two-thirds of the world’s reactor- and cyclotron-produced radioisotopes used in diagnostic and therapeutic applications, such as nuclear medicine. The Nuclear Medicine Unit also manufactures non-destructive testing equipment and radioactive sources. The Ion Technology Unit supplies 75 percent of the world demand for Cobalt 60 used for sterilization. This unit designs and installs commercial irradiating equipment, develops procedures and standards, conducts applied research, and manages product/market acceptance trials.

MDS Nordion has 1,000 employees throughout Canada (Ontario, BC and Quebec), Europe (Belgium) and Asia (Causeway Bay, Hong Kong; Tokyo, Japan). In fiscal 2003, this business unit generated revenues of 306 million CAD or 17 percent of total MDS Inc. revenues.

1.1.1.2 MDS Sciex

MDS Sciex is a world leader in the research, design and manufacturing of mass spectrophotometers. Scientists use spectrophotometers to measure changes in light wave lengths so that they can observe interactions, match compounds, measure concentrations, and determine physical structures. MDS Sciex is a leader in the development of new applications of mass spectrophotometry for pharmaceutical, environmental, clinical, and technological uses. It is the world’s leading manufacturer of LC/MS/MS Tandem Mass Spectrophotometers. These tools are used worldwide and within the MDS Family (Pharma, Diagnostic Proteomics) for the purposes of drug discovery, drug development, proteomics research, and testing.

MDS Sciex operates within two partnerships where MDS Sciex is primarily responsible for research and development and manufacturing while the other parties handle marketing and sales. Together both work to identify new instrument development
opportunities. The two partnerships have worked together to create specialized instrumentation for certain specialized markets as well as producing two primary instrument lines that compete in other aspects of the industry.

MDS Sciex is located in Canada and the United States. The head office is in Concord Ontario, Canada and its research and development facility is in San Francisco, California. MDS Sciex customers include pharmaceutical firms, biotechnology companies, and clinical laboratories. The unit’s primary competitors are other manufacturers of mass spectrophotometry analytical instruments. In 2003, MDS Sciex revenues were 270 million CAD or 15 percent of total MDS Inc. revenues.

1.1.1.3 MDS Pharma

MDS Pharma is the world’s fourth largest provider of clinical trials services. It provides co-ordination throughout the trial process and management expertise worldwide to biotech and pharmaceutical companies that assist drug development companies with quickly bringing new drugs and treatments to market. MDS Pharma offers a broad range of drug discovery and development services, including custom assay development, early stage clinical research in over 900 beds worldwide, bio-analysis services utilizing mass spectrophotometry produced by MDS Sciex, and offer over 700 biochemical, cellular, tissue, organ and animal assays for use in profiling drug compound’s specificity and selectivity.

MDS Pharma Services operates globally, with offices in Africa, Asia, Europe, North America and South America. Customers include biotech and pharmaceutical companies. In 2003, MDS Pharma generated 503 million CAD in revenues or 28 percent of total MDS Inc revenues.

1.1.2 Proteomics

The proteomics sector of MDS Inc. provides proteomic-based services to enable the discovery and development of drugs. Proteomics involves comparing proteomes (PROTEin complement to a genOME) under different conditions to explain biological processes. Whereas there are only 46 molecules with four building blocks in genomes (G, T, C, and A), there are 20 in proteomes, meaning it will take far more work to discover the secrets of proteins. To support the proteomics market, MDS Proteomics
offers drug discovery and development services. MDS Proteomics is the only business unit within the MDS Proteomic Sector.

1.1.2.1 MDS Proteomics

MDS Proteomics provides cutting-edge research in the area of protein analysis and the role of proteins in the disease process and its management. It is a pioneer in the field of drug discovery by proteomics. The sector's vision is to improve the productivity of the pharmaceutical industry in the discovery and development of new medicines for the treatment of disease by focusing on drug target discovery and validation for both antibody and small molecule therapeutics.

MDS Proteomics has operations in Europe and North America. Its primary focus is research, but it did not generate any revenues in 2003. In the spring of 2004, MDS Inc. reduced its ownership to 48 percent as part of a revised business plan. This reorganization was completed in July 2004. The company was renamed Protana Inc and its new focus will be the provision of biomarker identification, lead optimization and protein analysis services (LexisNexis, 2004).

1.1.3 Health

The Health Sector of MDS Inc. provides enabling products and services for the management of disease. The sector offers a wide range of laboratory information and management services and distributes medical /surgical products. The Health Sector comprises Source Medical and MDS Diagnostics Services.

1.1.3.1 Source Medical

MDS participates in the distribution of medical supplies and products through its fifty percent ownership of Source Medical, a medical supply and distribution company. Source Medical is the largest and only national provider of medical supplies to hospitals, health care facilities, laboratories, clinics, and physicians' offices in Canada. It controls approximately 55 percent of the distribution for the Canadian medical supply market in Canada and is the primary supplier of general medical supplies to MDS companies operating in Canada. Source Medical is located in Ontario, Alberta and British Columbia.
In 2003, Source generated 180 million CAD in revenues, for 10 percent of total MDS Inc. revenues.

1.1.3.2 MDS Diagnostics

MDS Diagnostics is a leading provider of laboratory services in North America and one of the largest providers in Canada. It offers a wide range of routine, speciality, esoteric, anatomical, and genetic laboratory tests used to diagnose disease, determine the best mode of treatment and to monitor the effectiveness of therapy. In addition, MDS Diagnostics also provides testing services for MDS Pharma.

MDS Laboratory Services and Source Medical make up the Diagnostic Sector. This sector provides diagnostic services in Canada and the United States. Canadian operations include clinical community outpatient laboratories in Quebec, Ontario, Alberta and British Columbia. MDS ownership in each of these laboratories varies from province to province.

Competitors of MDS Laboratory Services vary from province to province while customers are for the most part the same. Primary competitors are Canadian Medical Laboratories (CML) and DynaCare Laboratories in Ontario, and BC Biomedical Laboratories, Public Hospital Outpatient Services and Valley Medical Laboratories in BC. Primary customers are the Canadian public and their physicians, the Biotech and Pharmaceutical industries, researchers, and private firms. In 2003, revenues generated by MDS Diagnostics were 540 million CAD or 30 percent of total MDS Inc. revenues.

Laboratoires MDS Quebec Ltee, Quebec

MDS Inc has full ownership of one outpatient laboratory in Quebec, Laboratoires MDS Quebec. This laboratory serves a niche market of outpatients who are not willing to wait for access to the laboratory services provided through the public health system. As a result, these services are delivered on a private pay basis to patients and their insurance provider reimburses them. Laboratoires MDS Quebec has three primary competitors, Laboratoire Biron, Laboratoires LDS and Laboratoires CDL.

The private laboratory market in Quebec comprises approximately 8 percent of the total laboratory business in the province. Laboratoires MDS Quebec provides
approximately 13 percent of these private laboratory services (A. Altounian, personal communication, July 27, 2004).

**MDS Ontario Medical Laboratory**

MDS Inc. owns one community laboratory service in Ontario: Ontario Medical Laboratories (OML). OML is a wholly owned MDS Inc. company with one main testing facility in Toronto (100 International), six regional facilities in Thorold, London, Belleville, Ottawa, Sudbury and Thunder Bay, and approximately 60 Patient Service Centres (PSCs) Ontario-wide. Although PSCs collect the bulk of OML specimens, approximately 30 to 35 percent are collected in doctor’s offices.

The Ontario provincial government provides funding for outpatient laboratory testing in Ontario. Funding is capped and divided among the community laboratories. OML provides 33 percent of the outpatient laboratory services in Ontario.

**Toronto Medical Labs (TML)**

Toronto Medical Laboratories was established in 1995 through a public/private joint venture between MDS Diagnostics Inc. and a network of teaching hospitals known as the University Health Network (UHN) and Mount Sinai Hospital. It is one of the largest hospital-based laboratory services in Canada. Toronto Medical Labs is located in downtown Toronto and provides a full laboratory service as well as reference testing services. As a joint venture partner, MDS Inc. has 50 percent ownership and is the managing partner.

**Calgary Lab Services**

MDS Inc. shares ownership of Calgary Laboratory Services (CLS) in Calgary, Alberta. The CLS partnership was formed in 1996 when four community laboratories and five hospital laboratories merged. A for-profit organization with private and public owners, MDS Inc. (25 percent), Kasper Laboratories (25 percent), and a partnership (50 percent) of the Government of Alberta and the Calgary Region Health Authority (CRHA) jointly hold CLS. MDS Inc. is the managing partner. CLS provides 100 percent of the outpatient laboratory services in the Calgary Region. CLS is currently investigating the possibility of expanding testing service within the public hospitals.
MDS Metro

MDS Inc has majority ownership of one community laboratory in British Columbia, MDS Metro. Ownership is 75 percent MDS Inc. and 25 percent private. MDS Metro holds over 40 percent of the outpatient testing market share in BC, making it the leading provider of outpatient laboratory services in this province.

1.2 Paper Focus

MDS Metro is facing significant changes in its industry that result from recent changes to health care within the province of BC. These changes involve the rationalization of laboratory services through laboratory reform and a competitive bidding process for outpatient laboratory testing services that could threaten MDS Metro's viability and long-term sustainability.

To ensure its long-term sustainable growth, MDS Inc. and MDS Diagnostics recently embarked on a number of changes focused on re-energizing the company. These changes significantly affect all business and operating units within the organization, including MDS Metro, and may affect MDS Metro's ability to mitigate the impact of the laboratory reform initiatives in BC.

MDS Metro also faces increasing human resource and recruitment challenges, stemming from a growing skills shortage in some areas of the clinical laboratory industry. Any solutions developed to mitigate this situation must be assessed in conjunction with the possible outcomes anticipated with laboratory reform and the impending changes from organizational renewal.

This project provides an analysis of the changes and challenges facing MDS Metro and makes recommendations for the mitigation of these challenges to assist with ensuring its long-term viability and sustainable competitive advantage.

1.3 Product (Tests) and Service Offering

Laboratory test results are the products produced within the Diagnostic Laboratory Industry. The testing provided within this industry is, for the most part, undifferentiated. In most cases, all competitive laboratories perform the same type of
testing. Differentiation within this industry occurs based on the breadth of testing and level of service provided. The provincial government, through the Medical Service Commission (MCS), limits this differentiation through its regulation of this industry. Currently there are three categories of laboratories approved by the MSC: Categories I, II and III.

Category I laboratories provide a limited amount of testing. This type of testing is carried out in physicians’ offices or clinics and users do not require specialized laboratory training to perform related duties. Category II labs offer a larger test menu than Category I labs and must employ a minimum of one employee trained in the field of medical laboratory technology. Category II Laboratories are located in community based laboratories and hospitals in rural areas. Both Category II and III laboratories are required to operate under the guidance of a laboratory physician. Category III laboratories offer the widest range of testing and must employ laboratory-trained professionals. Most public and private laboratories are Category III laboratories. In fiscal 2002/02, Category I laboratories performed eight percent of the diagnostics laboratory procedures in BC, while Categories II and III, collectively known as “Beyond Category I”, performed 92 percent (Ministry of Health Services, 2002/2003).

MDS Metro is comprised of a combination of Category I, II and III laboratories with Category III being the predominate group. MDS Metro differentiates itself from other Category III laboratories through its service offering. It provides a wide range of tests and services such as specimen collection, Mobile Laboratory Services (MLS) to long-term facilities and private homes, referral services, rapid testing turnaround time, delivery services, and cardiac services. MDS Metro also provides some free services, through medical clinics, to low-income persons without medical coverage.

MDS Metro’s primary products include an extensive menu of routine and esoteric clinical tests in haematology, chemistry, microbiology, parasitology, mycology, and molecular diagnostics. MDS Metro also offers extensive cardiac services, including electrocardiogram (ECG) testing and holter monitoring. While most of the routine tests are the same as those performed in other category III labs, MDS Metro is, in some cases, one of the few providers or is the only provider of some of the more rare or specialized tests. For example, MDS Metro is the only BC provider of the reference method for anti DNA testing, the only lab currently performing certain heavy metal
testing and is one of the few BC laboratories that perform molecular diagnostic testing for routine clinical investigations.

Secondary products include non-clinical tests for drug screening programs, clinical trials programs, occupational health screening, immigration screening, and genetic assessment. MDS Metro is one of the few laboratories that provide testing in all of these areas.

Services provided include specimen collection and transportation, the provision and maintenance of collection supplies in physician’s offices and clinics, results reporting to physician’s offices / clinics, medical consultation as well as physician / clinic education and support. These services are provided at no charge to the physician and ensure a highly level of quality is maintained. MDS Metro also provides pathology and quality assurance services to some hospitals in rural communities in northern BC.

MDS Metro plays a key role in the education of medical laboratory practitioners in the province. It actively participates in the clinical training programs for Certified Technical Assistants (CTAs), Medical Laboratory Technologists (MLTs) and Laboratory Physicians (Pathologists). MDS Metro assists with the on-going professional development of these groups through its annual education conferences and physician newsletters.

1.4 Customer Base

MDS Metro’s primary customer base is the physician and outpatient population of BC. The majority of these outpatients are insured through the provincial government health insurance plan, the Medical Services Plan (MSP), making the provincial government the primary payer and largest customer of outpatient laboratory services. The PSC and MLS services allow MDS Metro to reach a wide patient / customer base by providing convenient access to services to a broad range of patients.

Other MDS Metro customers include non-MSP insured outpatients; other health care institutions such as hospitals; private clinics; government agencies; biotech companies; insurance companies; clinical laboratory supply companies; clinical laboratory researchers; lawyers and employers. MDS Metro’s current customer base
comprises approximately 6600 physicians, 900,000 patients and 300 private pay clients (MDS Metro, 2004).

MDS Metro gains access to its physician customer base through the proximity of its collection site locations to physician offices/clinics and through its Customer Services Team. The location of specimen collection sites, and thus contact to physicians, is regulated by the provincial government through the Medical Services Commission (MSC), while contact with physicians through the Customer Service Team is on an as-needed basis.

The BC government’s Medical Services Commission is responsible for approving all applications/licenses for all diagnostic facilities including specimen collection sites, the re-location of existing locations and acquisitions. It grants approval on a geographic and demographic need basis. This regulation results in restrictions on the size of the customer base that MDS Metro, or any other competitor, can access.

The Customer Services Team is responsible for establishing and maintaining the relationship with the physicians and their staff. They are responsible for ensuring that the physician is aware of the services offered by MDS Metro and for providing ongoing support to the clients. To aid in this endeavour, they provide physicians with MDS Metro laboratory test requisitions along with a MDS Customer Service Manual. This manual outlines products and services offered and explains how to use them. The Customer Service Team also provides ongoing assistance to these clients to ensure the clients’ needs are met, resolutions to problems are found and educational assistance is provided if required. To strengthen relationships and maintain existing market share, the Customer Service Team recently implemented a program for visiting these clients on a regular basis.

MDS Metro primarily gains access to its outpatient customer base through physician referrals. Physicians refer their patients to MDS Metro via a laboratory-specific, government-regulated laboratory test requisition. The patient’s physician completes this requisition form when laboratory testing is required to assist with diagnosing or monitoring of the patient’s condition. The physician gives the requisition to the patient and tells them to go to the laboratory to have their specimen(s) collected. These laboratory specific requisitions list the location of all of the specimen collection
sites for that specific laboratory. The majority of patients go to the location listed on the requisition that is closest to their doctor's offices or to their home.

While the requisitions are laboratory specific, these requisitions can be taken to any clinical laboratory in the province for testing. This fact is not widely known by patients and as a result, they usually have their specimens collected at the location that is suggested by their physician. This information asymmetry provides a limited marketing tool for competing laboratories to maintain their existing customer base and market share.

The current College of Physicians and Surgeons (CPS) regulations restrict the marketing of laboratory services within the province. Private laboratories are limited to advertising through "store front" signage, telephone book listings and word-of-mouth referrals. As a result, laboratories usually gain access to private pay clients through referrals.

The role that patients play in the provision of their health care has shifted. Changes within the Health Care System, such as the reduction in services offered resulting from health care reforms, have lead to patients taking a more active role in the delivery and administration of their care. The increase in the availability of medical information through public health care newsletters, newspapers, magazines and websites, combined with an increase in the number of people with Internet access, has resulted in patients becoming more knowledgeable about health care issues and services. Many patients search the Internet for additional information about their conditions and its management and are becoming more demanding, through their physicians, for services for their care. As consumer awareness increases and information asymmetry decreases, MDS Metro's access to the current customer base may change.

1.5 Pricing and Revenue

MDS Metro derives the majority of its revenues through Medical Services Plan-insured work. The provincial government pays for MSP-funded services on a fee-for-services basis. Pricing for this fee for service is negotiated between the Medical Services Commission of the Provincial Government and the British Columbia Medical Association (BCMA). It is based on an assessment of the cost and level of complexity of the testing
being performed. This assessment is performed through a branch of the BCMA, the BCALP (British Columbia Association of Laboratory Physicians). A sub-committee within the BCALP, the Tariff Committee, recommends test pricing based on cost analyses performed by multiple laboratories. The MSC Tripartite Committee comprised of the MSP, The Ministry of Health (MOH) and the BCMA approves pricing. Additionally, MDS Metro receives a small percentage of its revenues from private pay clients/contracts and other sources for services, which are priced comparably to MSP.

1.6 Market Overview

MDS Metro operates in an oligopolistic market structure. Providers of diagnostic laboratory services in BC can be segmented into two distinct groups: the public sector and the private sector. The public sector consists of hospital and public laboratories, which provide laboratory-testing services primarily for patients in the hospital (inpatients) and some patients in the community (outpatients). The private sector includes private laboratories and physician offices/clinics, which provide services to patients in the community.

The provincial government provides funding for all laboratory services in BC. Inpatient services are funded through global hospital budgets received as grants, based on population needs and complexity of services offered, to the health authority from the provincial government. Global funds are received by the health authority at the beginning of each fiscal year, April 1 to Mar 31, and funds are allocated to the hospital laboratory internally based on a historical usage. Funds for all outpatient laboratory services are paid through the Medical Services Plan (MSP) branch of the government Medical Services Commission (MSC) on a fee-for-service basis.

The provincial government paid $457 million for all (public and private) laboratory services in fiscal 2001/02 (Lillian Bayne & Associates, 2003). A total of $202 million, or 44 percent of this expenditure, was for services provided by the health authorities (public laboratories) while $255 million, or 56 percent, was for MSP-funded services (public and private laboratories).

Payments for MSP laboratory services in fiscal 2002/03 totalled $254 million CAD (Lillian Bayne & Associates, 2003). MDS Metro received $110 million or 43 percent of this amount while BC Biomedical received $70 million, or 28 percent, of this amount.
(Medical Services Commission, 2003). Together MDS Metro and BC Biomedical hold just over two-thirds of the outpatient laboratory testing market. The other private laboratories and the public sector hold just under one-third.
CHAPTER 2: INDUSTRY ANALYSIS

2.1 Five Forces Analysis

The BC provincial government plans to implement laboratory reforms, which affect the delivery of laboratory services. These plans have already resulted in increased competition in this industry. Competition has moved from low to moderate, and could move to high if lab reforms spur new market entrants (see Figure 2.1).

2.2 Rivalry among Existing Competitors

Until recently, rivalry among existing competitors in the diagnostic outpatient business has been low. The pending lab reform initiatives have stimulated rivalry between competitors and rivalry amongst competitors is now moderate.

2.2.1 Competitive Concentration is High

The Outpatient Laboratory Industry comprises two primary groups of service providers: the public sector and the private sector. The two largest private laboratories, MDS Metro and BC Bio, currently command almost two-thirds of the market, resulting in high competitive concentration.

This high competitive concentration has reduced rivalry between the two main industry participants, MDS Metro and BC Biomedical. Historically, they focused on competing for market share in the Lower Mainland – a market now saturated. MDS Metro has established a primary focus to the Greater Vancouver regional area, while BC Biomedical has established a primary focus in the Fraser Valley regional area. As a result, competition between these two players has decreased.
Because of this reduction in competition, MDS Metro and other clinical laboratory providers have been able to collaborate in improving the delivery of laboratory services in BC. In 1997, MDS Metro recognized the need to work towards changing the existing working relationship between the private and public clinical laboratory providers. They, along with some of their competitors, saw that each sector had its role to play in the industry and that both sectors must work together in order to ensure sustainable, high

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1 Adapted from Porter, 1980.
quality, cost-effective laboratory services. MDS Metro and the Vancouver Richmond Health Region (now included in the Vancouver Costal health authority) commissioned a study by Ernest & Young to identify specific models for collaboration. In 1998, they commissioned a second report to examine existing models of public private initiatives. The next year, MDS Metro and the Capital Health Region (now included in the Vancouver Island health authority) began an investigation into potential areas for collaboration (MDS Metro Laboratory Services, 2001).

In 1998, MDS Metro and BC Biomedical launched a joint venture to improve access to laboratory-test information. This venture resulted in the development of PathNET, an intuitive, web-based electronic system for the delivery of consolidated diagnostic laboratory information. Currently, PathNET provides integrated lab test results from three of the largest community laboratories (MDS Metro, BC Biomedical and Valley Medical Labs) and one hospital laboratory (St Mary’s) to over 3200 physicians province wide and 3 hospitals in the Vancouver Coastal health authority (PathNET, 2004). PathNET provides this service at no charge to the end user. PathNET is working towards expanding its service offering to include the consolidation/integration of test results for other institutions, access to other diagnostic information (such as PharmaNet) and electronic requisitioning of test requests. It is also working towards marketing this product as a solution to the fragmentation of information in BC's laboratory industry.

In 2003, MDS Metro, BC Biomedical and Valley Medical Laboratories “banded together” to initiate a collaborative process for addressing the Government Laboratory Reform Initiative launched in 2002. This collaboration resulted in the commissioning of two reports to assess the validity and impact of the Government commissioned report “BC Laboratory Services Review”.

2.2.2 Low Population Growth

The annual population growth rate in BC has averaged 1.3 percent over the last ten years and projections for the next ten years mirror this rate (BC STATS, 2004). While the population is growing at this relatively slow rate, the expenditure on MSP-insured services has increased. Expenditures on MSP-insured laboratory services
increased at an average of nine percent per year between fiscal years 1997/98 to 2001/02 (Lillian Bayne and Associates, 2003).

An increase in demand for MSP-insured services stems from a shift in BC population demographics. Since 1996, the population over the age of 39 years has increased by 6 percent (BC STATS, 2004). In the 2000/2001 fiscal year the average MSP per capita expenditures for lab services for the population over 39 years of age was three times that of the population 39 years and younger (Grant Thornton Chartered Accountants, 2003). Although this population growth rate is slow, the shift to an older population resulting in higher utilization of MSP-insured laboratory services. As the population continues to age, the demand for MSP-funded services will rise and expenditures will increase.

2.2.3 High Fixed Costs

Participation in this market requires large capital outlays for an extensive infrastructure. These requirements include multiple collection facilities, large analytical testing facilities, high numbers of automated testing equipment, computer systems and complex, extensive, integrated delivery systems. In some cases, participants need built-in redundancy in infrastructure to ensure continuous operations. These high fixed costs have resulted in an increase in competition for market share to achieve economies of scale to offset the costs associated with these expensive assets.

2.2.4 Exit Barriers

High capital investment in infrastructure and equipment has also given rise to moderate exit costs due to the limited resale market for these highly specialized assets. Resale of these resources is restricted to a few buyers. Potential buyers include other clinical laboratories, non-clinical laboratories (veterinary labs, research labs), equipment vendors, and equipment re-sellers and, rarely, other industries, such as the movie industry. The liquidation of real-estate assets is dependent on market conditions, which may hinder the exiting process.
2.2.5 *Low Levels of Product Differentiation*

Products offered in this market are primarily homogenous. Competitors within this industry provide the same tests for the same mandated price. Competition between players' focuses primarily on differentiation through customer service and the breadth of services offered. However, efforts at differentiation have produced only modest results.

2.2.6 *Low Switching Costs*

Competition to capture customers increases when a customer can freely switch from one provider to another. In the diagnostic laboratory business, the lack of product differentiation means customers can freely switch providers with minimal impact. However, few patients know that they can freely switch, as a result, few customers switch. In addition, strong relationships have developed between these customers and their preferred service providers. Many are unwilling to switch out of loyalty to that provider.

However, this is not the case for a small, select group of customers. The private clinics that pay for services sometimes capitalize on these low switching costs. They use the threat of switching to negotiate better service contracts with providers.

2.2.7 *Government Policy Changes - Lab Reform*

The cost of providing health care within BC is continually rising. The provincial government currently spends approximately 42 percent of its provincial budget on health care (BC Health Services, 2004). This high level of expenditure, along with an aging population, has prompted the provincial government to once again focus on reducing health care costs, in order to ensure the long-term sustainability of BC's health care system. To accomplish this goal, the provincial government has embarked on a number of cost reduction programs.

The first initiative, implemented in 2001/02, was a reduction in the number of health regions in the province. This initiative aimed to improve access to care across the province, improve effectiveness and efficiencies, and to increase accountabilities across the health care system. It resulted in the consolidation of 52 health regions to five health authorities and one provincial health authority. The five health authorities are: Interior,
Fraser, Vancouver Coastal, Vancouver Island and Northern. These health authorities include the public health care institutions contained within each of their geographic areas. The provincial authority is the Provincial Services health authority, which governs public institutions that provide provincial programs and highly specialized services, such as the cancer agency. The implementation of these six authorities resulted in the restructuring of the administrative and support services within each authority and provided a savings of $100 million CAD to the BC health care system (BC Health Services, 2004).

The second initiative was the rationalization of laboratory services through a 20 percent reduction in the MSP fee for service funding program and the “outsourcing” of outpatient laboratory testing services through a competitive bidding process. The reduction in the MSP fees was to occur in two stages during the later half of fiscal 2003. The tendering of outpatient laboratory services in each of the newly formed health authorities was slated for April 2004 with full implementation by Sept 2005. The government expected this initiative to save the health care system $60 million CAD annually. The savings were to be re-directed into other areas of health care including efforts to implement a common information system for laboratory test results and thus reduce the information fragmentation that currently exists within this industry.

The details of how the laboratory reform initiatives would be rolled out were not known at the time they were announced. As a result, the uncertainty about this situation placed tremendous pressure on competitors within the industry and some competitors began jockeying for position within this new system.

A small number of laboratories within some health authorities have began aggressively pursuing additional outpatient market share as a means to supplement operating budgets provided through global hospital fund and to position themselves for the changes associated with lab reform. They have been ramping up operations to support additional outpatient testing and increase market share through a number of activities. Activities include applying for new licences and permission to transfer existing licenses to more strategically advantageous sites, attempting to gain access to physician-collected specimens by engaging the services of an external courier service and actively marketed their services to physicians.
Given the pending implementation of lab reform initiatives in BC and the perceived excess capacity within the industry, the provincial government placed a moratorium on the granting of new operating licenses. It allowed labs to transfer existing licenses from existing locations to new locations, provided there was no increase in size. This has stimulated competitive rivalry and has led some players to apply to move licenses as a strategy to lock competitors out of key markets.

Under current regulations, all laboratories operating in BC must be accredited under the provincial government-mandated Diagnostic Accreditation Program (DAP). In response to the competitive bidding process that is anticipated through lab reform, some labs have recently begun to increase their qualifications to include accreditation by the College of American Physicians (CAP). The CAP is a mandated program in the United States but is voluntary in Canada. This more extensive program involves stricter adherence to accreditation standards than the DAP. Until recently, MDS Metro was the only BC laboratory that was CAP accredited. BC Bio is currently undergoing the CAP accreditation process.

2.3 Bargaining Power of Suppliers

The bargaining power of suppliers within this industry is high. Suppliers to the diagnostic outpatient laboratory business consist primarily of labour and the Diagnostic Product Suppliers of instrumentation, reagents and consumables.

2.3.1 High Supplier Concentration

Over the past decade, there has been considerable consolidation of the Diagnostic Products Industry, which includes the instruments, equipment and consumables used for laboratory testing. This consolidation was spurred by changes in the diagnostic laboratory industry in response to health care reforms across Canada and the United States. Laboratory services in several provinces (Alberta, Saskatchewan and Ontario) were significantly reduced as new public/private delivery systems were formed and consolidation of laboratory services occurred. In the early 1990s, many laboratories were moving towards consolidation of testing into core laboratories as a means for reducing costs and improving efficiencies within the laboratory system. This resulted in a reduction in the demand for laboratory equipment and suppliers. To better provide a fully
integrated product offering that would help gain a competitive advantage and grow market share in this environment, diagnostic suppliers began to merge.

Because of these mergers, a relatively small number of firms operate in the diagnostic supply field. These vendors carry highly specialized, industry-specific products. Many vendors provide integrated product lines for all areas in the laboratories, such as highly specialized instrumentation and consumables that are very specific to that instrumentation. As a result, prices are high and substitutes are often limited.

2.3.2 Switching Costs

High capital investments, high implementation costs, and limited alternatives result in high switching costs. Some switching costs include costs for evaluating acceptability of a new system, developing new policies and procedures associated with the new system, and staff training. The reduction in service levels associated with the learning curve effects of new methodologies can also serve as a switching cost. Moreover, to change vendors might result in the need to absorb significant costs from wasted materials and few firms would want to incur this additional cost. Changes in reporting practices require re-education of the end users (physicians) in the interpretation of results generated, which also contributes to switching costs. Consequently, these high switching costs for laboratories often result in the negotiation of large, long-term contracts, with more favourable pricing, between laboratories and their instrument and systems suppliers.

2.3.3 Labour

The majority of the labour force within this industry is highly skilled. Workers include laboratory physicians, medical technologists, phlebotomists, lab assistants, lab scientists and lab managers.

2.3.3.1 Scarce Skills

This industry is currently facing a significant and growing skill shortage. These pressures stem from the temporary closures of Medical Laboratory Technology training schools, loss of talent through previous lab reform initiatives, and a workforce approaching retirement.
Skilled workers in high demand include laboratory physicians and medical technologists. Over the next thirteen years, it is anticipated that approximately half of Canadian medical technologists will retire (Canadian Society of Medical Laboratory Technologists, 2004). The enrolment in training programs for this profession is not expected to meet this growing demand (Davis, 2002). Similarly, more than half of physicians working fulltime are age 50 or older (Pollett, 2003). While enrolment in training programs for this profession should meet future demand for replacement, enrolment numbers do not consider the human resources required to meet the needs of an aging population. As a result, the need for highly skilled labour heightens the bargaining power of labour in this industry.

This skills shortage and a competitive recruiting process have resulted in an increase in the ease of movement of labour between organizations within the industry. Some organizations are finding it difficult to fill vacant positions and as a result are seeking ways to improve their attraction and retention programs in order to capture this highly skilled labour.

2.3.3.2 Unionization

The majority of the technical labour force and some of the management within this industry are unionized. They belong to one of three unions depending on their work location and their job classification. The majority of hospital staff belongs to the Health Science Association (HSA) or Hospital Employees Union (HEU). Staff in some provincial sites and some private sector sites belong the British Columbia Government Employees Union (BCGEU).

Unions negotiate employment contracts for these employees through collective agreements. The involvement of this third-party adds complexity and costs that can affect an organization's competitiveness. For example, negotiation, implementation, interpretation and maintenance of the collective agreement is time consuming and can hamper efforts to downsize.

Unionization can also affect labour movement within this industry. Union certifications are often negotiated by site. Once employees are established within the union at a site, they are disinclined to move to another site if their union benefits are not portable. This could affect organizations competitiveness one of two ways. On one hand,
it assists with the retention of staff and thus allows an organization to reap learning curve effects and be more competitive. On the other hand, the reduction of organizations efficiency can occur if complacency or mediocrity sets in. It also limits an organization’s ability to bring “new blood” into the organization where it is most needed, to divest itself of employees who are not meeting expectations and can slow down or restrict the implementation of change.

Compensation for non-union technical labour in this industry is usually set to match that of unionized labour to compete for applicants and assist with retention of scarce skills.

2.4 Bargaining Power of Customers

The bargaining power of buyers within this industry is high. There is one primary customer, the provincial Government of BC, but many secondary customers. Secondary customers include the physicians and patients of BC and the small number of private pay clients.

2.4.1 Buyers Are Concentrated

Buyers in this industry are concentrated in to one primary customer, the Government of BC. As the primary consumer of Diagnostics Outpatient Laboratory Services, the provincial government can wield tremendous bargaining power over service providers. Under this system, the provincial government controls what services are paid for and how much is paid through negotiations with the BCMA.

While the government has had tremendous buying power, it has not exerted any market power. Under the MSP Fee for Service, payment model the government paid the same price for services regardless of volume and did not benefit from the economies of scale associated with higher volumes or lower costs (Lillian Bayne & Associates, 2003).

This situation changed recently when the government made an independent decision to reduce MSP funding by 20 percent as part of its laboratory reforms. This independent decision by the government led to a court action that was initiated by the BC Medical Association (BCMA). Before the 20 percent cut was fully implemented, it was found to be an illegal action. As a result, this initiative was put on hold until
negotiations between the BCMA and the provincial government resulted in a solution to this market situation.

The outcome of this negotiation led to an agreement between both parties on June 25, 2004, which resulted in changes to the current MSP fee-for-service funding model for laboratory services. These changes included a 20 percent payment reduction for MSP billings effective July 1, 2004, a cap on MSP billings for fiscal 2003/2004 and a fee-by-fee review of the current MSP fee for service payment schedule.

Under this new system, the cap for fiscal 2004/05 is to be set at the total amount billed to MSP by the industry in fiscal 2003/04 plus a small percentage increase to compensate for population growth. The details of implementation have yet to be confirmed. In the meantime, laboratories performing outpatient testing continue to bill MSP for services rendered as per the current MSP fee for service schedule and are reimbursed for these services, less 20 percent, until the total amount paid to the industry as a whole reaches the total amount paid in F2003/04 plus 3.5% growth. To ensure no single laboratory gains a bigger piece of this capped MSP pie, the government stipulated that billing practices for participating laboratories could not change significantly during this period. The details of how this temporary capped environment is to be monitored to ensure that payments to current industry competitors remain “balanced”, and that no one competitor gains at the expense of another during this time, have not yet been announced.

The governments long term plans for a capped environment involve the monitoring of the utilization of the MSP fee-for-service program The responsibility of ensuring the ongoing volume management of this service has been given to the government-sponsored Provincial Laboratory Coordinating Office (PLCO). To achieve this, the PLCO is establishing a coordinating committee comprised of representatives from the Ministry of Health Services, health authorities, PLCO and the BCMA. To assist with this process, the BCMA is in the process of setting up a Lab Advisory Committee through the BCMA to input into Provincial Government Laboratory Coordination Office (PLCO).

In the meantime, an independent third party is planning to conduct a fee-by-fee review as part of the new MSP Fee for Service Payment Schedule. The government expects this review to result in further reductions in MSP fees. While the details on how
this review is to be conducted have not been finalized, the expectation is a further reduction in fees will be implemented by April 1, 2005. This turn of events is expected to cause short-term reduction in industry competition or rivalry, as competitors are not able to perform more work than they have historically performed until the details of the new funding model have been finalized.

2.4.2 **Physician Directed**

Regulations require that all requests for MSP-funded laboratory testing must be ordered by a qualified physician on an approved requisition. This requisition form identifies what tests are to be performed and must be presented to the laboratory before any specimens can be collected, testing can be performed, and payment for service can be made. This process gives the physician a significant amount of buyer power. As the originator of the test request, the physician decides what testing is to be done and can influence where it will be done by directing the patient to a specific laboratory by using a specific laboratory’s requisition. If physicians become disenchanted with a service provider, they can direct their patients to an alternate service provider.

The impact of this strong buyer power is variable. For physicians with small practices that do not have a high utilization of laboratory services, the impact is small or negligible. For physicians with large practices and high levels of laboratory service utilization, the impact is significant. As a result, laboratories often seek to provide customized service delivery solutions for these clients in order to keep them satisfied.

2.4.3 **Information Asymmetry**

Information asymmetry within this industry is decreasing. Information about this industry is becoming increasingly available through healthcare publications, newspapers, magazines and the Internet. Patients are becoming more sophisticated about this industry through accessing the Internet for supplementary information about their diagnoses and treatments. Armed with more knowledge, patients are becoming more demanding, sometimes requesting specific test regimes through their physicians. This places increased demands on service providers to offer these tests.

Some laboratories have developed websites to promote the services that they offer. MDS Metro is a leader in this area. Its website contains a wide range of
information about the products and services offered and educational information to assist patients with their understanding of the services provided.

As this trend continues, patients are becoming more knowledgeable about the diagnostic laboratory industry. The reduction in information asymmetry allows patients to make more informed choices about such things as which laboratory to choose for their specimen collection. As a result, an increase in the competition between existing competitors as they strive to keep their existing customer base and / or try to increase it by offering better service is anticipated. This elevated public awareness serves as a check on the government and its single buyer power through increased public expectations.

2.4.4 Low Switching Costs

As patient knowledge of the industry increases, the opportunity for patients to switch providers increases. While this results in an increase in freedom of choice for the individual health care consumer, it has little impact on the industry as a whole, due to the predominately-fragmented nature of the patient customer base.

2.5 Threat of Entry

The threat of entry into this industry is low to moderate. Large market entry barriers exist due to high start-up costs and the high level of industry regulation. Start-up costs include a large investment in capital and highly skilled labour. This high capital investment requires significant economies of scale to offset the large investment and ensure reasonable profits. This reduces the threat of entry.

The regulation of this industry by the Medical Services Commission (MSC) limits the attractiveness of this market to new entrants. The current moratorium on the granting of licenses through the MCS and the perceived under-utilization of the existing capacity provides a strong disincentive to new entrants and further reduces the attractiveness of this market for new competitors. Similarly, the recent government initiative to reduce the MSP payment schedule for laboratory services within the province of BC provides an additional deterrent to new entrants. The uncertainty surrounding the implementation of the laboratory reforms also deters new entrants.
Current government regulations within this industry prevent the shipment of routine testing out of the province. The need to be “situated in the province” in order to provide service could act as an incentive for some out-of-province providers to enter the market should the government proceed with its plans of a competitive bidding process for outpatient testing services.

The threat of entry by out-of-province service providers has increased recently, since a US based firm was successful in its bid for the laboratory collection services in the province of Saskatchewan. This provider was the lowest cost provider in this competitive bidding process and the award of this contract led the existing player, MDS Saskatchewan, to exit the market. Given this situation in Saskatchewan, a similar situation could happen in BC. If lab reform initiatives result in the de-regulation of the industry in an effort to increase the social welfare for the people of BC, the threat to entry by an outside firm could increase. Large US private laboratories with large scale and scope economies could choose to participate in the RFP process and if successful, could potentially knock existing players out of the market. With existing players exiting the market, the low cost lab could establish operations by leasing the necessary infrastructure and hiring, at a lower wage rate, some of the staff that had been let go from the exiting firms.

2.6 Threat of Substitute Products / Services

The threat of substitutes within this industry is low to moderate, because substitutions are considered limited at this time. Alternatives include new technologies such as Point of Care Testing (POCT) and substitute providers such as out of province service providers.

POCT is currently in its infancy, has a limited test menu offering, is very costly to perform, and is not MSP-insured. As a result, it is not considered a viable substitute for the majority of outpatient testing at this time.

The threat of an out-of-province provider is limited, because the industry is highly regulated. Recent changes in the delivery of health care and the impending lab reforms could result in a deregulated environment that could increase the threat of substitution by low cost out-of-province competitors.
2.7 Industry Attractiveness Assessment

The attractiveness of this industry for existing players is still quite high, given the large capital investments required and the predictable growth within the industry. The recent changes in the funding of lab service could lead some smaller players to exit the market. This would make the market more attractive to the larger players who want to increase market share. Conversely, increasing cost pressures from lab reform could make the industry less attractive for existing large players because of the struggle to adjust to lower revenues for the same level of services and perhaps new competition from outside competitors.

The uncertainty surrounding this industry, the high level of regulation, underutilized capacity, high entry costs, and increasing competition limit the attractiveness of this market for new entrants. However, if the landscape of this industry changes, for example through an RFP process, and the industry becomes deregulated, then the attractiveness of the industry for new entrants would increase.

2.8 Key Success Factors

The key success factors for operating in this industry are numerous. Participants in the market must be able to provide a high level of quality and service in a timely fashion. This requires easy access to their services and an integrated transportation system that supports both the organizations and clients needs.

Participants in this industry must have the breadth of service required to meet client expectations and the technical expertise to support this level of service. They must have the financial means with which to provide the necessary infrastructure and the support of a strong information system for the management of data and the delivery of results. In addition, they must be able to develop strong relationships with clients, suppliers and labour to be able to maintain and grow market share.

As well, they must aggressively exploit economies of scale to offset high infrastructure costs and must automate as much as possible to lower the dependence on scarce labour. At the same time, participants need to offer a rewarding work environment to attract and retain skilled labour.
CHAPTER 3: INTERNAL ANALYSIS

3.1 Generic Strategy

Faced with a changing market resulting from government initiatives and internal organizational changes, MDS Metro has adopted a cost based strategy.

To cut costs and consolidate fragmented support systems throughout the business, MDS launched its national Enterprise Service (ES) initiative, which includes moving to a common business system, Oracle, and the centralization of support services for HR, Facilities Services, Finance, Supply Chain Management, some IT services and the outsourcing of selected IT services. To date, MDS has consolidated and centralized about half of these areas – IT, Facilities Services, and Supply Chain Management. HR and Finance support services are in the process of consolidating and centralizing through the implementation of the common business system.

For the past year, the Diagnostic Operational Excellence (OE) initiative has been the top priority for the Diagnostic Sector of MDS Inc. A mammoth project, it requires the active participation all of operating units within the sector. Its mandate is to develop a common practice toward which all business units within the Diagnostic Sector will adopt. The process involves the thorough review and documentation of each aspect of the current state ("As Is") and the future state ("To Be"). MDS will use data collected to develop benchmarks, standards, and best practices that will improve operational efficiency and lay the foundation for in-house development of the new lab information system (LIS).

As a result, MDS Metro has established a broad strategy to meet these internal and external challenges. Figure 3.1 is a graphic representation of MDS Metro's generic strategy.
### 3.1.1 Product Strategy

MDS Metro's industry requires consistent performance, adherence to stringent regulations, and accommodation of regular accreditation reviews. MDS Metro's key products, test results, must meet specific standards for quality, accuracy and precision. The methodologies MDS Metro uses to generate these test results must be validated and approved for use in the marketplace before they are implemented. This spans generating a test result from the collection of the specimen through to the reporting of the result. Given the high level of control required, MDS Metro's is limited in its ability to innovate and innovation is restricted to improving services, processes and quality. As a result, MDS Metro's product strategy is primarily one of a rapid follower.

Although a rapid follower in product strategy, MDS Metro has demonstrated innovation though its first mover position in some areas and its early adoption of newly

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2 Adapted from E Bukzsar. SFU EMBA Strategy 607, Spring 2004.
approved tests. MDS Metro was the first laboratory in BC to implement equipment for the automation for sorting and delivering specimens to testing areas. It was also the first lab to offer widespread availability of a number of tests, including breath testing, molecular diagnostic testing, and allergy testing.

Industry regulations and testing protocols limit the performance of some tests. These protocols stipulate under what circumstances certain tests can be performed and billed when investigating certain disease states. For example, a lab cannot go beyond a physician's test orders, unless the initial test result falls within a certain range. In some cases, the additional testing cannot be performed unless the laboratory physician first consults with the ordering physician. The provincial government implemented these protocols as a means to control demand and costs.

Although these regulations restrict what tests MDS Metro can and cannot do on specimens received for testing, they do not restrict what tests MDS Metro must offer to clients. As a result, MDS Metro has the flexibility to coordinate its tests offerings with its financial objectives.

3.1.2 Research and Development (R&D)

Although MDS Metro's primary focus is on medical practices, it is involved in a limited amount of development activities that support or enhance its primary function. Activities include the evaluation of new tests to expand existing product menu offerings, development of new assays for new markets, assistance for the research and development activities of other MDS business units, and performing clinical trials support to other health care organizations.

To increase its product offering, MDS Metro must carry out a complex evaluation process for new tests. This means assessing market need, researching available methodologies, selecting the appropriate methodology, evaluating the selected methodology for acceptability and performance, and implementing the new methodology. To develop new tests for new markets, MDS Metro builds new methodologies based on external research data. One new test that MDS Metro has developed and implemented for the rapid diagnosis of disease within the clinical laboratory is a "home brew" DNA test for the detection of Methicillin Resistant Staphylococcus Aureus (MSRA) by Polymerase Chain Reaction (PCR).
MDS Metro assists other MDS business units and other health care organizations with the development of new tests, instruments and instrument reagent applications. Its research and development activities include collecting and testing clinical trials studies specimens and the beta site testing for instrument or instrument reagent methodologies. The frequency of participation in these types of activities varies. Participation in collection of specimens for clinical trials is the most frequent activity.

MDS Metro played an integral part in the development of two MDS products: the MDS software program called APX Haematology and the Autolab Glopper. The APX Haematology program was an innovation initially identified at MDS Metro’s Burnaby Reference Lab (BRL). This product was subsequently developed to improve and streamline the testing processes of the haematology department and has since become the standard of practice for all MDS sites in Canada and the US. The Glopper was designed as an auxiliary component for the MDS Autolab Specimen Sorter used in the high volume testing area. It was developed to help mitigate health risks (repetitive strain injuries) associated with processing specimens on this equipment. MDS Metro staff identified the need for this equipment and provided the initial design specifications for this product. The Glopper has since been integrated into Autolab Sorter as standard equipment.

MDS Metro spends only 0.2 percent of its budget on development expenses. This low expenditure is consistent with a rapid follower strategy. The development of new tests for existing and new markets is considered a potential growth area for MDS Metro. If the company pursues this, research and development expenditures may increase over the next year.

3.1.3 Structure

To ensure long-term sustainability, MDS Inc. has altered its complex, hierarchical structure in the past few years. This continual change has been difficult to keep up with and has created a sense of uncertainty within the organization.

Until recently, these changes did not directly affect MDS Metro. However, this past year, MDS Diagnostics has been working towards developing a new structure that supports its corporate objectives of consolidation and standardization. This new structure affects MDS Metro directly. The result of this re-structuring was a move from a
functionally based hierarchical structure to a matrix structure that combines both function and product. This new structure was rolled out to the individual business and operating units in the Diagnostic Sector at the end of June 2004.

The immediate impact of this change to the structure at MDS Metro is at the senior management level. In the "old" structure at MDS Metro, each member of the senior management team reported to the Chief Operating Officer (COO), who reported to MDS Inc. and the MDS Metro Board of Directors. In this new structure, each member of the senior management team reports to two managers – a functional manager at the local or regional level and a product/service manager at the national or geographic level. Figure 3.2 represents the newly proposed structure.

This change has resulted in more centralized control. It has increased the direct involvement of MDS Diagnostics in the day-to-day operations of MDS Metro and has made the organizational structure more complex. One of the reasons given by Diagnostic Sector Senior management for this change was to sustain the momentum of the Operational Excellence initiative. Given the number of challenges that MDS faces, the change allows MDS to focus on multiple outcomes.

The matrix is the structure of choice for companies facing a scarcity of resources across product lines, when the organization needs to balance the functional side of the business with the product side of the business, or when the environmental domain of the organization is complex and uncertain. Under this structure, a dual hierarchy balances power between the functional and product sides of the organization. This is important because it assists with meeting dual demands from the environment, allows flexible sharing of human resources across products, facilitates complex decision making and frequent changes in unstable environments and affords functional and product skill development (Daft, 1995).

Given the challenges that MDS is facing, at the corporate and local levels, a matrix structure should help it navigate changes within the industry and the organization. A matrix structure allows MDS Diagnostics to be more involved in the processes at MDS Metro and to assist with mitigating the uncertain impact of lab reforms on MDS Metro. This flexible model allows MDS Metro to tap into resources outside its region that have had experience with the challenges of lab reform in particular in negotiations with governments in other provinces. For example, Calgary Lab Services and Ontario
Medical Labs have both been through large-scale lab reforms. With a matrix in place, both the corporate and regional levels of MDS are potentially better positioned to meet their challenges while balancing obligations.

**Figure 3.2: Schematic for MDS Metro's New Organizational Structure, 2004**

To assist with meeting the implementation of this new structure, the senior management staff at MDS Metro is currently involved, at a national level, in redefining
their roles and assessing the impact that this new structure will have on the rest of the organization. As a group, they will determine what additional corporate and regional structural changes that will be required to meet the goals of standardization and operational excellence.

3.1.4 Decision Making

MDS Metro's new organizational structure is expected to have a significant impact on the firm's decision-making processes. The full impact of this change will not be known until the implementation of this new structure is complete. In the meantime, MDS Metro continues to operate under the existing decision-making processes.

Under this system, changes that affected the budget or contractual obligations, required large capital expenditures, or involved financial reporting were required to be vetted through the Diagnostic Business Management Team (BMT) and reported to the MDS Metro Board of Directors. The need to seek approval from or involve head office for these decisions has occasionally reduced how responsive some business units could be in meeting regional needs.

The process of handling day-to-day decisions varies depending on the scope of the decision-making required. Decisions that affect the organization as a whole or require more than a modest capital outlay are made at the executive management team level. Decisions that affect multiple areas within the organization, but not the entire organization, and have a modest capital requirement are made through consultation and collaboration of the appropriate supervisors, managers and directors. Decisions that only affect an individual area and have a minor capital outlay are made at the area supervisor or Manager level.

Given the highly controlled nature of the work performed by MDS Metro, frontline staff is allowed only limited decision-making. In most cases, staff decisions must follow a specific set of rules or criteria. Staff can sometimes deviate from these rules, based on the information at hand and professional judgement. These decisions are usually made through consultative process with other more experienced frontline staff or the laboratory physician and medical scientific group.
While most repetitive day-to-day decisions have set rules and procedures, some are made on an individual basis. This practice has resulted in some inconsistencies in decision-making that has been sometimes questioned by employees. In most cases, the information staff needs to make day-to-day decisions varies, depending on the magnitude and the urgency of the decision. In most cases, staff refer to supporting data and draw from experiences. Major decisions, such as large capital acquisitions, require a very high level of rigor, which often delays the decision making process.

This process for making day-to-day decisions appears to work well in most situations. Challenges can sometimes occur when a quick decision is necessary, when a large capital outlay is required or when it is difficult to determine who should be involved. This process of decision-making fosters an environment of growth and development for supervisors, managers and directors and provides an environment that ensures a certain level of quality and consistency is maintained.

3.1.5 Manufacturing

"Manufacturing" efforts at MDS Metro have focused primarily on achieving economies of scale to support its cost-based strategy. They have achieved this through consolidation, standardization, dedication, specialization, automation and computerization of their processes to increase productivity and business intelligence.

3.1.5.1 Patient Specimen Collection Sites

MDS standardized its specimen collection to ensure high quality, consistency and efficiencies that facilitate maximum throughput. At the same time, this model facilitates rapid learning curves. Standardization ranges from standard operating procedures (SOPs) for the collection of specimens to the physical layout of each Patient Service Centre (PSC). Standard operating procedures are in place for all practises in all PSCs to ensure the same processes are followed from one PSC to the next. The physical layout of the PSCs, including the placement of materials next to the area in which they are used, has been standardised whenever possible, facilitating maximum efficiency and throughput.

MDS has implemented several innovations to automate processes in the PSCs and ensure the rapid movement of patients and their samples through the collection
process. Electronic patient numbering systems are used to identify patients for service on a first come, first served basis. Patient Care Card scanners automatically populate the lab computer system with patient demographic information. Once stored in the LIS system, this data facilitates faster data entry for subsequent visits. The system generates a unique bar code for each patient; this bar code appears on LIS-generated labels. This bar code identifies samples for that patient and assists with the timely movement of the specimens through the testing process. Patients that use the service on a regular basis for the same tests have their orders pre-entered in to the lab computer system as standing orders, saving MDS data entry time during repeat visits. The company uses voice-messaging systems to prevent disruptions to workflow and to inform clients of the PSC's location, hours of operation and special booking requirements. Supply ordering has recently been automated through the in-house computer system. This eliminates the need to manually complete order forms and facilitates a faster turnaround time, since orders can often be filled the same day.

Specialized collections have been consolidated at a few dedicated PSCs in order to ensure quality and skill levels are maintained. Data entry of some physician-collected specimens has been consolidated to the two referral laboratories to allow PSC staff to focus on specimen collections and to improve the quality of data entry into the system. Consolidation of some groups of testing in the laboratory, to one testing platform, has reduced the number of tubes that need to be collected from some patients. This consolidation has reduced the post-collection pre-analytical processing and increased PSC productivity by allowing phlebotomists to focus their time on collecting patient specimens.

3.1.5.2 Analytical Testing

The analytical testing areas have achieved scale economies in a number of different ways. They have incorporated automation wherever feasible, so that they can maximize throughput and productivity and to provide a consistently high quality while maintaining a rapid turnaround time. One application is the use of an automated line and specimen sorters to transport and sort specimens for the specific testing areas. MDS was the first lab in Canada to incorporate this type of technology into a lab setting. This first mover advantage allowed MDS to achieve economies of scales beyond those of its competitors.
MDS Metro utilizes large, high volume analyzers for processing high volume tests. Analyzers are chosen based on a rigorous cost-benefit analysis, which assesses their impact on increasing productivity through such factors as throughput, ease of operation, "walk away" capabilities, and the cost effectiveness of their consumables. Similarly, artificial intelligence (AI) has been incorporated into the lab information system to facilitate auto release, reflexive testing and results reporting. This move reduces the time required to assess test results for acceptability and additional work.

The analytical areas have also capitalized on economies of scale through the consolidation of work. Highly specialized infrequently performed tests have been centralized to one location, helping to maintain a high level of expertise and minimize costs. High volume test have been centralized within each lab, using high throughput analyzers to ensure a rapid turnaround time and customer satisfaction. Lower volume, more manual tests have been grouped to achieve workflow efficiencies. In addition, the staff are organized into dedicated teams, based on functionalities and disciplines, to maximize learning curve effects and develop expertise. This supports an increase in productivity.

Workflow designs were implemented to reduce the number of steps taken to perform a task and thus reduce costs. Workflow re-design has also facilitated the transfer of some functions from higher paid labour to lower paid labour. For example, non-interpretative steps in the testing process have been re-allocated to laboratory technical assistants (LTAs) instead of medical laboratory technologists (MLTs) in order to achieve cost benefits.

3.1.5.3 Supply Chain Management

Economies of scale have been achieved in Supply Chain Management (SCM) through the negotiation of national contracts. These large, long term national contracts allow MDS Metro to obtain some of the best pricing in the industry.

MDS has achieved supply chain management efficiencies through the operation of a just-in-time inventory system. This system has allowed MDS Metro to gain cost savings by reducing the amount of inventory carried.
3.1.6 Labour

In British Columbia, diagnostic outpatient laboratories are considered medical practices. In order to operate as a medical practice, they must employ at least one qualified laboratory physician. MDS Metro employs a number of qualified laboratory physicians, as well as many other qualified laboratory professionals, including laboratory scientists, medical technologist, certified technical assistants, laboratory technical assistants, and laboratory managers. It also employs other highly skilled workers, such as accountants, human resource specialists and computer programmers.

Work performed at MDS Metro is highly technical and requires a high level of skill to perform. While the work function performed is highly skilled, the volume of work processed is extremely high and processes of mass production are used at the large reference sites to support the company's cost-based strategy.

Given that MDS Metro needs highly skilled staff to perform work on a mass production scale, the firm offers benefits that provide job satisfaction for employees working under these conditions. MDS Metro offers access to education and funding for special projects that enhance professional development. The firm also attempts to set limits on the amount of shift work required of employees.

3.1.7 Marketing

MDS Metro's marketing strategy is limited by current industry regulations. MDS Metro has sought alternatives for raising its community profile. For example, MDS Metro uses its logo on all company vehicles and courier uniforms. This approach has resulted in "brand" awareness within the public. MDS also publishes a physicians' newsletter to educate physicians about laboratory medicine and technological advances. MDS Metro is involved in charitable functions, including hosting a charitable golf tournament for a local hospice and free educational conferences on laboratory medicine. A number of the MDS Metro management and medical scientific group members build relationships with potential customers, partners, and employees through networking with professional, business, and political associations.
3.1.8 Risk Profile

MDS Metro’s overall risk profile is low. As a very cautious organization, it can sometimes be slow to make decisions and to implement changes. This cautiousness can be seen in the company’s rigorous business case process, which utilizes a hurdle rate that is high, given the current low interest rate environment.

While MDS Metro is willing to venture into new areas of business, this willingness is primarily limited to expanding in areas covered through MSP. MDS Metro’s level of risk is linked to that of its parent company which is focusing on areas of core competency (Prahalad & Hamel, 1990).

Although, as a medical practice, MDS Metro is restricted in its ability to take risks in its product offerings, MDS Metro encourages a risk-tolerant culture that allows its staff to take risks for professional development and growth.

3.1.9 Capital Structure

MDS Inc. is a conservative company. Its long-term debt to equity ratio in 2003 was 38 percent, which is lower than the industry standard of 44 percent for medical laboratories, and is indicative of an under-utilization of its financial advantage (Blazenko, 2003). Given MDS Inc.’s market performance over the last few years, this debt to equity ratio is understandable.

MDS Inc.’s current ratio in 2003 was 1.86. This indicates a moderate level of liquidity and supports a conservative focus. This conservative strategy is critical to MDS Inc.’s growth as it provides the flexibility to move more quickly on growth opportunities when they arise.

Like its parent company, MDS Metro is a conservative company. It does not carry any debt, which is inconsistent with a cost-based strategy. However, this conservative strategy has given MDS Metro the flexibility to move quickly on opportunities as they have arisen. For example, this flexibility permitted the quick acquisition of Victoria Medical Laboratories (VML) in the spring of 2004.
3.1.10 Assessment of Strategic Fit

MDS Metro possesses good overall organizational strategic fit. Its processes allow it to achieve its cost-based focus while at the same time offering services, which meet or exceed the rigorous standards set forth by the medical community. This allows MDS Metro to balance its role as a medical practice with its role as a fiscally responsible public company.

MDS Metro’s cost-based strategy poses two anomalies. The first is its highly conservative capital structure. The second is its newly implemented management structure. While the conservative strategy is not aligned with a low-cost strategy, it does fit MDS Metro’s overall cost-based strategy by allowing it to act opportunistically when acquisitions emerge. The new structure is aligned with MDS Metro’s cost-based strategy through its move towards centralization and the need to increase the scope of operations. It is uncertain if this structure can achieve its cost-based goals as matrix structures are often more expensive to maintain.

While overall strategic fit is good, there are areas where MDS Metro’s cost-based strategy could be enhanced. The opportunities for improvement are discussed in chapter five.

3.2 Value Chain

3.2.1 Primary Activities

3.2.1.1 Inbound Logistics

MDS Metro’s primary activity is diagnostic testing. The primary inputs for this activity include the collection and some pre-analytical processing of patient samples, the provision of materials for the collection of these samples, and the transportation of these samples from the collection sites to the testing facility.

Specimen Collection and Pre-Analytical Processing

The majority of MDS Metro’s specimens are collected through their Patient Service Centres (PCSs) and Mobile Lab Services (MLSs). MDS Metro Regional Lab
Services, client physician offices and client clinics collect the remaining specimens. A small number of specimens are collected by other health care facilities.

MDS Metro’s PSC and MLS teams are staffed by certified technical assistants (CTAs) who have specialized training in the collection of blood samples (phlebotomy). Many staff have received additional training in the performance of electrocardiograms (ECGs) and holter monitoring techniques.

Staffing at the PSCs varies, depending on the size of the patient population served. Staffing of the MLS depends on the number of clients served. Clients include extended care homes, clinics, and individual patient homes.

**Figure 3.3: MDS Metro Diagnostic Laboratory Services Value Chain**

<table>
<thead>
<tr>
<th>Firm Infrastructure</th>
<th>Executive Management, Management, Finance, Accounting, Account Payable, Billing, Legal, Facility Services, Quality Management, Government Affairs, Privacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology Development</td>
<td>Software Programming, Phone Lines, Local Area Network (LAN), Wide Area Network (WAN / Internet), Telephones, Peripherals, Data Warehousing, Technological</td>
</tr>
<tr>
<td>Procurement</td>
<td>Supply Chain Management, Just In Time Inventory, Fax Machines, Service Contracts, Disposal</td>
</tr>
<tr>
<td>Source Medical - Warehousing and Distribution</td>
<td></td>
</tr>
<tr>
<td>Primary Activities</td>
<td>Specimen Collection, Pre-Analytical Cardiac Services</td>
</tr>
<tr>
<td></td>
<td>Inbound Logistics</td>
</tr>
</tbody>
</table>

3 Adapted from Porter, 1985.
Hours of operation vary from PSC to PSC and range from 6:30 am to 6 pm, Monday to Friday and from 7 am to 3 pm on Saturdays. Hours of operation for the MLS are 7 am to 3 pm, Monday to Friday. Permanent work schedules were developed with input from the staff and provide staff with a regular set rotation.

The functions performed at the PSCs include data entry of patient demographic information into the MDS Laboratory Information System (LIS), the collection of blood and other laboratory samples, and the pre-analytical processing of some specimens before shipment to the analytical testing site for testing. The pre-analytical processing performed depends on the type of specimen collected and the tests ordered. It may include refrigeration of the specimen, centrifugation and splitting of the specimen by removal of a portion of the sample into additional tubes (aliquots tubes) and freezing of the specimen. This pre-analytical processing step is required for some time sensitive tests and is essential for ensuring specimen integrity is maintained during transportation to the testing facility. After processing specimens are sorted into, designated racks for pick up by the MDS courier. This pre-sorting step helps facilitate a rapid testing turnaround time at the main testing laboratory.

Additional functions performed at some PSCs include ECGs and holter monitoring testing. The results for these tests/services are forwarded to a cardiologist for interpretation and follow up.

Each MDS PSC is connected electronically, to the central testing site. All patients presenting at a PSC are registered in the MDS lab information system. This connectivity provides positive specimen tracking and reduces testing turnaround times with a unique patient identifier. Entry of the patient information into the LIS generates a unique set of bar-coded labels for that patient's set of samples. These bar coded labels are attached to all specimens collected and prepared for that patient. The unique bar code number on the bar code label enables the tracking of the specimen as it moves through the system, provides positive identification of the sample, identifies the testing required, and links test results to the patient's report. These benefits facilitate a fast testing turnaround time.

MLS Services are coordinated through the MLS booking department, which acts as a dispatcher for the MLS service. Specimens collected through the MLS service are processed by the MLS staff members at designated PSCs and transported to the analytical testing site by the MDS Courier. The services provided by the MLS team are
provided at no charge to the physician and patient and are considered an important value-added service.

**Transportation and Supplies**

MDS Metro has an extensive transportation system that ensures timely services to PSCs, physician offices, patient clinics and other testing institutions throughout the Lower Mainland and Vancouver Island. It comprises a complex network of routes that extend throughout the Lower Mainland and more than half of Vancouver Island. These networks interconnect with commercial transportation systems to ensure the timely delivery of specimens between MDS Metro sites.

Primary functions performed include the transportation of specimens from collection sites to testing sites and delivery of patient reports to physicians’ offices and clinics. Other functions include the delivery of supplies to physicians’ offices and clinics and the management of the mailroom and reporting printing area.

MDS Metro has transportation departments located at each of its referral sites, Burnaby Reference Laboratory (BRL) and Victoria Reference Laboratory (VRL). Each department includes a team of one supervisor and a team of dedicated courier staff who provide multi-route service via a dedicated fleet of vans. Qualifications for working in this area include a valid BC driver's licence (class five) and a safe driving record.

The supervisor of each transportation team is responsible for the ongoing development and coordination of their site's courier service schedule. In addition, the team supervisor is involved in the coordination of deliveries via external transportation services. This internal coordination allows MDS Metro to adjust transportation schedules quickly when required. This flexibility is of particular value in crises and during inclement weather conditions.

3.2.1.2 Operations

The primary function performed by the operations group at MDS Metro is diagnostic testing. This is performed in the Analytical Testing area and on a significantly smaller scale in the Cardiac Services areas. Other functions include activities that support the testing function such as equipment maintenance and quality control to
ensure optimal performance, as well as the training of new staff and clinical placement students, as and when required.

**Analytical Laboratory Operations – Reference Sites**

The primary purpose of the analytical laboratory is to perform the diagnostic testing ordered by physicians within the medical community. Analytical testing is considered MDS Metro's primary core competency (Prahalad & Hamel, 1990) and is the major source of revenue generation for the company.

The analytical laboratories at MDS Metro are staffed by over 180 full time equivalent (FTEs) of specially trained, skilled employees who work under eight team supervisors, one manager, one director, and three medical discipline heads, and the Medical Scientific group.

The work performed in the analytical laboratory is divided into teams, based on areas of expertise and clinical discipline. It includes the pre-analytical testing areas of Analytical Support (AS) and Microbiology Support (MS) and the analytical testing areas of High Volume Chemistry (HVC), Chemistry (CHEM), Haematology (HEM), Microbiology (MICRO), and Molecular Diagnostics (MD).

Hours of operation for the analytical areas range from 6:30 am to 11:00 pm, Monday to Fridays, and from 7 am to 6 pm on Saturdays and Sundays. Staffing levels during these times are dependent on the specific discipline, specimen delivery times, and report print times. Staffing levels on weekends are significantly lower than weekdays and the number of day and evening shifts worked vary from discipline to discipline.

Work schedules for each team were developed with input from the team, vary from team to team, and provide team members with a set rotation. In most teams, shift work is shared equally among team members. However, the amount of shift work varies from team to team. For example, the microbiology team works primarily day shift, but the micro set up team works primarily evening shift.

Pre-analytical

One team supervisor oversees the pre-analytical teams of analytical support and microbiology support. This shared supervisor structure was recently implemented to offset the negative impact resulting from changes brought about by the implementation
of laboratory reform initiatives in September 2003. Implementation increased efficiency for these two areas, improving communications and coordination of workflow between the two.

The pre-analytical teams are staffed by laboratory technical assistants (LTAs). These workers have very job-specific skills that have been gained primarily through on-the-job training. A few of the staff working in these areas are foreign trained technologists (FTTs), who are not certified to practice as medical laboratory technologists in BC. Several other employees possess Bachelor of Science degrees.

Analytical Support

The functions performed by the AS team include specimen receiving, accessioning, labelling, aliquoting, transportation and storage. AS staff are also responsible for processing specimen that are referred out to other laboratories for testing and act as a resource for the PSCs and analytical testing areas for troubleshooting specimen-related problems. These functions are critical for ensuring the smooth processing of specimens through the testing area.

The majority of specimens received in the AS area are entered into the lab information system (LIS) at a PSC or regional laboratory before being delivered to the laboratory. Upon arrival, specimen are unpacked and processed as required. Blood specimens that have already been entered into the LIS and that do not require any additional handling are placed on the MDS Autolab Autoline for delivery to the appropriate testing. Blood specimens that have not been entered into the LIS, such as physician or clinic collected specimens, are held back until their demographic information is entered (accessioned) into the LIS by the AS staff. Non-blood specimens, such as urinalysis, are accessioned if required and transported to the appropriate testing area by the AS staff. The analytical team processes specimens requiring additional pre-analytical processing, such as aliquoting, before being delivered to the appropriate testing area.

Microbiology specimens received in the AS area are unpacked by the MS team. Specimens that have already been entered into the LIS are transported to the microbiology support area and are processed for testing. Specimens that have not been entered are held back until the demographics are entered by the AS staff. Once entered, specimens are transported to the MS area.
Microbiology Support

The microbiology support team supports the microbiology team. Its primary function is to prepare microbiology specimens for interpretative analysis by the microbiology technologist by “inoculating” or “swabbing” the specimens to the appropriate testing media. Other responsibilities include follow up of problem specimens, assisting the technologists with non-interpretive work, phoning preliminary testing results, and inventory management of the primary culture media. Utilization of LTAs to perform these functions increases efficiency within the laboratory by freeing the medical laboratory technologist (MLTs) to focus on the interpretative work and provide a faster turnaround time for clients.

A high level of productivity has been achieved in the microbiology support area with automation. Automation has been implemented to replace the labour-intensive, highly repetitive manual process of spreading the specimen inoculums over the entire testing media. The introduction of automation in microbiology support area has increased productivity and the quality of the work performed, while reducing costs and the risk of developing reparative strain injuries.

Analytical

The analytical testing area is divided into the high volume testing areas and the discipline specific testing areas of chemistry, haematology, microbiology and molecular diagnostic teams. In most cases, one team supervisor supervises each area.

All of the analytical testing areas except molecular diagnostics are staffed with a combination of MLTs and LTAs. The molecular diagnostics area is staffed by university graduates with genetics degrees (BScs and MScs) and MLTs with additional training in genetics.

The primary functions performed in the analytical testing areas can be grouped into four major tasks. The first is the pre-testing preparation performed (or pre-analytical processing step) to ensure the specimen integrity is acceptable for testing and to perform any pre-testing processing that may be required before testing can be done. The second is the testing or analysis of the specimen. The third includes the reviewing of the results obtained for acceptability and the assessment of the need for repeat or
follow up testing. The fourth and final task performed is approving or accepting the test results so they can be reported.

Other functions performed in these areas include the maintenance of the equipment used and quality control checks to ensure optimal performance. These areas are also involved in the clinical training programs for medical laboratory technologists (MLTs) and lab physicians as required.

The majority of work performed in the analytical testing areas is automated and incorporates the use of technology wherever possible to maximize productivity, ensure consistency in quality, and provide a faster turnaround time. The amount of automation and technology used varies from area to area based on the nature and the volume of the work that is performed. Areas with high volumes and lower complexity of work, such as the high volume testing area, are fully automated and utilize artificial intelligence wherever possible. Areas that have a high level of complexity and low volumes, such as molecular diagnostics, utilize manual testing techniques with some automation. Testing in the other areas of chemistry, haematology and microbiology ranges from high volume/low complexity to low volume/high complexity. Consequently, the amount of automation ranges from highly automated to manual.

The ability to integrate technology within the laboratory environment to improve productivity is another core competency for MDS Metro. Automation is implemented wherever it provides a cost benefit to the organization.

The process for selecting the technology used in the analytical areas has undergone a change the last few years. Historically, processes varied depending on the capital investment required. Large, capital investments were coordinated and selected through the purchasing department at corporate headquarters with some input from specific disciplines across the diagnostic sector. This process led, on occasion, to the acquisition of some technology that did not match the individual business unit's requirements. Smaller scale capital investments were made at the business unit level and occasionally involved coordination with the other business units.

Changes to this process have been made slowly over the last few years. The purchase of large-scale capital investments is now being coordinated through discipline specific task forces that are comprised of representatives from the operations and
medical scientific groups, each of the business units, and a representative from the National Supply Chain Management Team. A detailed process for selection and implementation of new technology has been drafted and is currently under consideration for routine use. This review is being conducted through the operational excellence initiative. The process is expected to become the standard of practice for the organization.

The analytical testing areas operate in a highly computerized environment. All areas report their results into the LIS. The majority of results are reported directly into the LIS through instrument interfaces or through software modules that are interfaced to the LIS. The remainder are manually entered into the LIS. The two software modules used are the Autolab APX Hem module, used for review and entry of haematology results, and the Autolab MEWS module, used for recording of microbiology results.

Artificial intelligence (AI) is utilized primarily in the high volume chemistry and haematology areas of the laboratory. The use of AI allows test results to be pre-screened by the LIS for acceptability using a set of in house rules and criteria. If results fall within these criteria, they are sent to the LIS for reporting to the ordering physician. Results that fail to meet these screening criteria are reviewed and interpreted by MLTs for acceptability or the need for follow up testing. This function increases efficiency, as fewer tests need to be reviewed by an MLT before reporting.

The analytical testing area provides same day service for most tests. Test results are available the day the specimens are collected. A small portion of testing is batched and tested at designated times when batching is demonstrated to be more efficient. Analytical testing schedules are coordinated with transportation and report printing schedules to ensure maximum staffing during peak delivery times and ensure testing turnaround times are met. This ability to provide same day results is considered a competitive advantage.

Work performed in the analytical areas is highly specific and technical. Task performed are assigned on a skill basis. Laboratory technical assistants (LTAs) are employed to perform non-interpretative work wherever possible to reduce operating costs and increase efficiencies. All interpretive work is performed by medical laboratory technologists (MLTs), as per accreditation guidelines. Work performed by LTAs includes loading and unloading specimens on the high volume analyzers and stocking of
supplies. Work performed by the MLTs includes reviewing test result and troubleshooting equipment problems.

Workflows within the analytical areas were established to ensure maximum efficiency. They are continually being monitored, assessed and adjusted to meet operating needs and to optimize service provided in order to achieve a high level of productivity.

Cardiac Services

Cardiac services is comprised of one team supervisor and three cardiac technologists who provide service six days a week, from 7 am to 8 pm, Monday to Friday, and from 7:30am to 3:30 pm on Saturdays. Their primary roles include interpretation of holter monitoring test results collected in the PSCs and consultative and support services for PSCs performing ECGs and holter monitoring. Their role has recently expanded to include assisting with the evaluation and implementation of a new program for monitoring of blood pressure to diagnose hypertension.

The services provided by the cardiac service department allow MDS Metro to provide a wider range of products and services to its clients. While this brings value to the organization through revenue generation and the expansion of services offered, it is considered a secondary competency. The work done in the Cardiac service department accounts for approximately two percent of MDS Metro’s revenues.

3.2.1.3 Outbound Logistics

Outbound logistics at MDS Metro include the reporting of results to clients, the referral of specimens to other testing institutions and the storage and subsequent disposal of specimens.

Result Reporting

Results reporting can occur in one of two ways. One way is through the auto-release function in the lab information system (LIS). In this situation, results are sent from the testing analyzer to the LIS where they are assessed using artificial intelligence against a specific set of rules. If these results pass the rules associated with that specific test, the result are “released” or made available in the LIS for reporting to the physician. The other way that results are reported is after a technologist reviews them in the LIS.
and then accepts them for releasing and reporting in the LIS. A laboratory physician reviews all significantly abnormal results.

A number of interpretive comments are attached to the test results that are generated through testing in order to assist the physician with the interpretation of these results. For example, a haemoglobin test result that is below the normal range has an interpretative comment added to it that tells the physician that the result is low. In some cases, these comments are automatically added, using artificial intelligence, to the test results when the result is released and reported in the LIS. These types of comments are based on criteria/rules specific to the test being reported and are built into the LIS. In other cases, a technologist or lab physician enters the interpretive comments while reviewing the test results.

Currently regulation stipulates that all clinical tests results must be reported to each patient's physician. Patient results generated by MDS Metro are reported to the physician in one of two ways, printed-paper reports or electronic reports.

The print times for printed reports have been established to ensure turnaround times for testing are met and optimized. The reports are printed, collated, and delivered by the transportation department to physicians' offices twice a day. This process is very labour intensive and reports can be incomplete if test results are not in the system before the designated print times.

Electronic reports are available to the physician through PathNET. PathNET is an electronic reporting system developed by MDS Metro and BC Biomedical. It provides physicians and clinics with online, real time access to test results, 24 hours a day, seven days a week. Physicians wishing to receive test results via PathNET can register with PathNET at no charge. Once registered, physicians can access test results as soon as they are available in the database - 24 hours a day, seven days a week.

In addition to paper and electronic reports, Metro provides results via fax and telephone at physician's request and for critical or life-threatening results. The service is provided by the client information centre (CIC). Physician requiring a faxed or phoned report note this on the patient test requisition. The request is entered into the LIS at the same time as the patient demographics information is entered. When test results are available, a phone report notification is generated in the CIC department. This service
provides a faster turnaround time for results and eliminates the need to interrupt the testing workflow in the analytical testing area to phone results.

**Specimen Referral**

MDS Metro refers or forwards specimens collected for testing that is not performed at MDS Metro to other laboratories for testing. Most of these referrals are for tests that are performed exclusively at provincial laboratories such as the BC Cancer Agency (BCCA) and the BC Centres for Disease Control (BCCDC) or that can only be tested at specific sites due to licensing. Referred out specimens are organized by the AS staff and transported to the referral laboratory by the transportation department. This service is provided free of charge to these laboratories. This service allows MDS Metro to strengthen relationships with clients through the provision of a value-added service. It also helps MDS Metro increase its market share by capturing testing ordered in conjunction with these referred out tests. It provides the opportunity to assess the feasibility of expanding its test menu offering to include these referred out tests.

**Specimen Storage and Disposal**

Upon completion of testing, specimens are stored and disposed in accordance with accreditation guidelines. The majority of specimens are stored using a computerized storage system that tracks the location of each specimen stored and provides easy access to the specimen, if additional testing or follow up is required. Some specimens are stored within the testing areas due to a lack of centralized storage space. Specimens are discarded of at the end of their designated storage times and are disposed of through a biohazard waste disposal company.

**3.2.1.4 Marketing and Sales**

The client service and contract services departments perform the majority of the marketing and sales activities for MDS Metro. These two departments report directly to the Director of Business Development. The client service department is responsible for maintaining relationships with existing clients and establishing relationship with new clients. In addition, it provides education and customer support to these clients as and when required. It also maintains the standing orders system.
The contract services department is responsible for assessing the ability to participate and for coordinating participation in non-MSP insured contract based services, clinical drug trials and beta site testing for new laboratory methods. It acts as a liaison between the client and the analytical testing areas and is the point of contact for speciality testing services, such as paternity testing in molecular diagnostics.

The medical scientific group also plays a key role in marketing and sales. It provides input regarding new trends in laboratory medicine and feedback on client and physician needs. To support this, the group builds strategic relationships and attends medical conferences.

### 3.2.1.5 Service

MDS Metro provides several value-added services. Services provided include the no charge delivery of supplies to physician offices and clinics, a client information centre, a website for customer education, medical consultation services, and clinical training sites for phlebotomies, technologist and laboratory physicians.

#### Physician Supplies

MDS Metro supplies specimen collection supplies, including test requisitions, to physicians' offices and clinics at no charge. Orders for supplies are filled and transported to them by the transportation department on daily basis. This value added service assists with maintaining the quality of the products produced by ensuring the correct collection supplies are used. It also provides MDS Metro with an opportunity to strengthen its relationships with its customers.

#### Client Information Centre

The Client Information Centre (CIC) is the primary contact for general information, such as hours of operations and locations of collections sites. It is often the first contact for customer inquiries and complaints. In addition, they are responsible for communicating test result information to the client as well as providing collection instructions for a limited number of tests. Services are provided six days a week, from 7 am to 10 pm weekdays and from 9 am to 5:30 pm on Saturdays for the Lower Mainland and Vancouver Island operations. The services provided minimize disruptions to the workflow in the analytical areas by assuming responsibility for communicating the
majority of the results that need to be conveyed by phone or fax. This assists with ensuring a faster turnaround time for testing and results reporting.

The CIC department falls under the direction of the Director of Business Development. It comprises one team supervisor and approximately twenty employees. The work performed in this area is job specific and requires on-the-job training. Qualifications required in this area include previous medical work experience.

**Education / Website**

The MDS Metro website provides information to patients and physicians about the tests and services offered at MDS Metro. It includes information on specimen collection and results interpretation. It also describes a wide range of medical conditions and offers physicians’ newsletters and company information, such as career opportunities. The website was developed by the IT department and is maintained by the public relations department. It is a valuable source of information for Metro’s patients and physicians and is currently under-utilized.

**Training**

The Training Department at MDS consists of one FTE. It reports to the Operation Support Manager and is responsible for the coordination and implementation of the technical training programs for CTAs, including the CTA orientation program, and the coordination of clinical practicum placements for the British Columbia Institute of technology (BCIT) Medical Laboratory Technology (MLT) training program. The department is also involved in the coordination of some distance education programs and some on-site education sessions. The services the department provides ensure standardization in training, access to new employees through participation in the BCIT training program, and assists with keeping staff current in topics related to their field.

**Medical Scientific**

The Medical Scientific group is comprised of twelve laboratory physicians. It provides consultation services to physicians, assisting with the interpretation of test results and the determination of appropriate follow up or treatment for the patient. The medical scientific group plays a critical role in ensuring medical standards are met by providing medical direction for the entire laboratory operations and ensuring high quality standards and clinical needs are met.
3.2.2 Support Activities

3.2.2.1 Firm Infrastructure

MDS Metro’s infrastructure includes the executive management team, known as the BC management team (BCMT), financial services, facility services, quality management, privacy, government relations, legal counsel and executive administration.

**BCMT**

The BCMT is headed by the chief operating officer (COO) and includes the Vice Presidents (VPs) or Directors of Finance, Medical Affairs, Human Resources, Communications, Information Technology (IT) and Operations. The BCMT is responsible for managing the BC operating unit, providing strategic direction for BC operations, and ensuring alignment with MDS Inc.’s strategic direction.

**Finance**

Financial services comprises the Director of Finance, the Manager of Finance, and a small staff that includes the financial analysis, accounting, accounts receivable, and payable group. It is responsible for all of the financial activities of the BC business unit, including the capital and operating budgets, quarterly and annual forecasting, assessment of all capital acquisitions, investment management and all financial reporting activities. It is also assists the client services department with responses to any requests for proposals (RFPs).

The Finance Department is actively involved in the Operational Excellence (OE) initiative through its participation on OE teams and support to operations in the assessment of the impacts of the OE recommendations on the business. The finance department is also part of the Enterprise Services initiative and is currently involved in the initial stages of the implementation of the Oracle common business system (CBS).

**Facilities Services**

Facility services department has recently become part of enterprise services. It is responsible for overseeing the management of all buildings and leaseholds within MDS Metro. This includes the two large reference laboratories, the BC Regional Labs, the Patient Service Centres (PSCs), and an offsite storage facility. As a member of the
Enterprise Services Team, it is involved in facility issues at other MDS sites on an as when required basis.

The functions performed include participation in the negotiation of leasehold agreements, liaising with external contractors, and coordination of building maintenance services, such as janitorial services, repairs, leasehold improvements and onsite security. In addition, facilities services is responsible for providing reception services at BRL, processing and tracking work orders for external contractors and offsite storage companies, maintaining the Type I water supply, servicing the fax and photocopying machines, and performing minor maintenance as required. Requests for service from the facility department are made through an in-house electronic work order system that was developed by the facilities services department to facilitate the prioritization of work orders and assist with providing a rapid response time for repairs and leasehold improvements.

Quality Resources

The Quality Management Team is overseen by the Medical Scientific Director of Clinical Chemistry and comprises the Support Operations Manager, six medical technologists who are considered technical specialists in their field, and one clerical support staff member. The role of this team is to provide consultation services and support for the standardization of quality practices across all MDS Metro operations and disciplines, the coordination of compliance with accreditation standards and regulations, and to assist with the development of new methodologies and test offerings.

Privacy

MDs Metro has one Privacy Officer who is responsible for ensuring compliance with all federal and provincial privacy regulations. The Operations Support Manager performs this function on a part time basis.

Government Affairs

Government affairs within MDS Metro are managed at the executive level. Its primary role is monitoring government activities and initiating lobbying efforts when required. As such, it is actively involved in addressing the government's current laboratory reform initiative. Other functions performed include distribution of relevant government information to the BCMT and management team as required, maintenance
of employee Member of the Legislative Assembly (MLA) contact program, including education of company employee MLA contacts and information packages, as well as coordination of participation in political functions. These activities assist with building government relations, raising MDS Metro’s profile within the community, keeping abreast of current issues that affect the company, and providing development opportunities for employees.

**Legal**

The manager of labour relations provides part-time legal support within MDS Metro. Support provided includes guidance and advice regarding labour management issues, negotiations and contracts. The MDS Inc. legal counsel provides additional legal support as and when required.

**Executive Administrative Assistants**

The Executive Administrative assistance team consists of four assistants who provide administrative support to the BCMT, operations management, medical scientific, HR and finance teams. This team was brought together because of the internal changes made in 2003 in response to the lab reform initiatives. This team has assumed additional functions, including the organization of the educational seminars, the maintenance of the in-house communication bulletins, and the coordination of the company charity functions. This group also coordinates the use of MDS Metro properties for location shots by the movie and television industries. Funds raised through this are given to the charities that MDS Metro supports.

**3.2.2.2 Human Resource Management**

The support services provided by the human resource department at MDS Metro include compensation and benefits, labour relations, recruitment, occupational health and safety, and education and training.

The compensation and benefits section includes a manager, payroll clerk, benefits assistant, and sick leave management assistant. Functions performed include the manual processing of payroll and the administration of the benefits and sick leave management programs.
Labour relations section consists of a part-time labour relations manager and one full-time labour relations officer / HR advisor. Services provided by this team include negotiation of collective agreements, interpretation of collective agreement, grievance resolution, and the development of all job descriptions and HR policies. In addition, the labour relations team provides timely advice and support to the management team on labour relations issues.

MDS Metro has both union (BCGEU) and non-union staff. Currently, the lower mainland and Vancouver Island operations of MDS Metro have unionized staff. Ratification of the first collective agreement occurred in 2000 in part, due to employee dissatisfaction over wage disparities that had grown over the years between some job classifications at MDS Metro and their counterparts in the unionized public sector. Staff covered by this agreement included the transportation couriers, the PSC phlebotomists (CTAs), the analytical testing staff (MLTs and LTAs), analytical equipment specialists and the client information centre staff (CIC). Negotiations for the second collective agreement were completed in April 2004 and included the addition of the cardiac technologists.

Recruitment within MDS Metro is managed through an HR assistant. Services provided by this member of the HR team include coordination of internal and external job postings, reference checks as required, and interview participation. The role of this position is to provide consistency in the recruitment process.

The delivery of occupational health and safety services has changed during the past year. These changes resulted in the reduction of staffing within this area and the decentralization of some functions to the management team. Occupation health services are provided by the Occupational Health Nurse and include the administration of the annual vaccination, needle stick injury, return to work, and WBC compliance programs. Responsibility for safety activities within the organization has been shared among the occupation health nurse, the Vice President of HR and the Director of Analytical Services – Operations. While this redistribution of responsibilities appears to be functioning well, further restructuring is anticipated with the implementation of enterprise services.

Education and training provided by the HR department are limited to corporate and regional initiatives. Corporate initiatives focus on professional development and
corporate changes and are coordinated out of head office. Regional initiatives focus regional needs such as employee orientation and are coordinated out of the MDS Metro's Burnaby site.

The HR department is included in the national enterprise services initiative and is currently in the process of implementing the changes associated with moving to the enterprise services model. Changes implemented to date include a new online "self serve" national benefits program in March 2004.

3.2.2.3 Technology Development

Until recently, the information technology department at MDS Metro was comprised two primary functions – the Help Desk Support and the Development/Programming. Following the rollout of the National Enterprise Services initiative, the help desk activities were outsourced to IBM and the development activities were transferred to the Enterprise Services division.

Roll out of the IBM initiative across the MDS business units began in March 2004 and was completed in May 2004. IBM is now responsible for coordinating technical support to all desktop users as well as maintenance and replacement of all desktop hardware across the MDS organization. While the full impact of the benefits for MDS Metro has yet to be realized, the initial impact has been somewhat disruptive to the operations.

MDS Metro's dedicated help desk support staff allowed it to achieve a considerable amount of agility and flexibility in its business. This assisted with attaining new acquisitions, implementing new systems, and troubleshooting problems. Much of this agility was gained through the ability to quickly access all stakeholders involved in a situation. For example, operations staff was able to quickly access the dedicated IT staff to solve LIS issues as they arose. This easy access to the IT department and the IT department's intimate knowledge of the LIS system allowed problems to be identified and resolved quickly, minimizing disruptions to workflow. In some cases, discussions between IT and staff resulted in innovative and creative solutions for difficult problems. Since this service has been outsourced to IBM, the response time to this type of problem has increased significantly. This reductions is due to the time is required to log the call, to explain the details of the problem, and to wait for the IBM to assign the problem to a
programmer for resolution. In some cases, operations and support staff have had to educate the IBM staff on MDS Metro's business. This has resulted in disruptions to the workflow at MDS Metro and has led to some degree of employee dissatisfaction with IBM.

The development and programming department at MDS Metro has also recently undergone changes resulting from implementation of the National Enterprise Services initiatives. This change resulted in the transfer of one IT Supervisor, four developers, and one support employee to the Enterprise Services division. Under this new structure, the Enterprise Services team is responsible for the development and maintenance of all software applications used in the MDS family of businesses.

The remaining MDS Metro IT employees, one part time director, one IT Operations Manager, and one Business Analyst/Supervisor have been reassigned to the MDS Diagnostics IT group. The role of this group now is the operational coordination of large IT projects for the Diagnostic sector.

The development and programming department at MDS Metro has historically worked very closely with the operations group to ensure the timely development and ongoing maintenance of the in-house software programs. The impact of the recent changes to this support structure on this level of service to MDS Metro is unknown at this time as the roles and responsibilities of the new enterprise services IT group are still under development. In the meantime, this group is expected to continue to operate on a "business as usual" basis and work with the Operation Support IT Liaison and Operations Support File Maintenance Experts to facilitate the coordination and implementation of IntRlab projects and maintenance.

MDS Metro utilizes a combination of an in house developed LIS (IntRlab) with in-house developed support software (APX and MEWS). The IntRlab system was developed more than 10 years ago, has become antiquated, and is cumbersome to use. It is not an intuitive system and is in urgent need of replacement to maintain MDS Diagnostics and MDS Metro's competitive advantage.
3.2.2.4 Procurement

The Supply Chain Management Department (SCM) includes one manager and three materials specialists. They assist with the sourcing, acquisition, distribution and inventory management of supplies. Supply chain management is part of the Enterprise Services group. Functions relating to national initiatives are now included in their role.

The SCM team is responsible for maintaining the just-in-time (JIT) inventory system and for filling supply requests from the PSCs. While the SCM team monitors much of the supply inventory at MDS Metro, a significant amount is monitored within the analytical teams. Because of the OE initiative, this situation is slated to change. All supplies will be monitored by the SCM in the near future.

SCM recently moved to an internal on-line ordering system for supplies that tracks the placement of orders with SCM. The system was implemented as a tool to improve quality and reduce the turnaround time for placing and processing orders. The bulk of these supplies are purchased through national contracts that allow MDS Metro to achieve significant price advantages, compared to competitors. General lab supplies are purchased from its partner company, Source Medical. Source provides MDS Metro with local warehousing and distribution of these products.

3.2.3 Organizational Culture

MDS Metro is a diverse, team-based organization that functions with a high level of collaboration and teamwork both within and across teams. Much of the work performed requires cooperation and coordination with others in order to get the job done. As members of the health care community, MDS Metro employees demonstrate a high degree of caring and concern for the patients and physicians that they serve as well as for each other. This caring has resulted in a sense of community within the organization.

Employees of MDS Metro take pride in their work and strive for a high level of quality in all that they do. This high commitment to quality makes the implementation of change challenging if quality is impacted even in the short term. However, employees of MDS Metro understand the need to make changes in order to meet business goals.

The constant rate of technological change within the industry that MDS operates necessitates an ability to continually learn new things and to change. Consequently, a
culture of adaptability and lifelong learning exists within MDS Metro. Employees are encouraged to participate in continuing education activities and have access to support for these endeavours.

MDS Metro's culture revolves around the corporate core values of mutual trust, genuine concern, and respect for people, integrity, and commitment to excellence. Several MDS Metro activities support these core values and assist with incorporating them in everyday life. Celebrations of both personal and professional achievements are commonplace at MDS Metro. Individual and team achievements and contributions are highlighted in company newsletters and through individual letters of thanks and commendation. A large company-wide celebration to honour employee length of service and to recognize employee contributions to the organization was implemented a few years ago. This special celebration provided employees with the opportunity to nominate their fellow employees for recognition of efforts that went beyond their daily roles. Educational opportunities for professional and personal growth have been made available to all employees and employees have prospects for advancement within the company.

While a strong collegial atmosphere exists among much of the staff at MDS Metro, interactions between staff and senior management are infrequent. A number of efforts have been made to improve the connections between these groups. The company has conducted employee forums and surveys aimed at improving communication and building trust as well as organizing activities to raise awareness of the different areas within the organization. One such activity was the Laboratory Open House held in 2003 at BRL that was aimed at increasing the support areas awareness of the services provided by the analytical laboratory.

The programs aimed at mitigating the impact of lab reform and activities resulting from the implementation of corporate initiatives aimed at driving performance and meeting customer expectations may impact the culture at MDS Metro. These changes have reduced employee education and employee celebrations. They have heightened the need to implement multiple changes simultaneously, without additional resources. This has lead to a sense of uncertainty, work overload, and under-valuation that, if left unchecked, could have a negative impact on the overall culture and the success of the implementation of solutions to the issues MDS Metro faces.
3.2.4 **Assessment of Value Chain**

MDS Metro is an organization that prides itself on its ability to provide quality products and services in a cost efficient manner to its customers. It achieves this through a fully integrated value chain. Each step in the chain supports the next and enables the organization to gain a significant competitive advantage through its full service offering.

MDS Metro operates a wide network of patient service centres, coupled with a sophisticated transportation system that ensures the timely delivery of specimens to the analytical testing laboratory. Its highly automated, full-service laboratory rapidly provides high quality test results for timely reporting to physicians for the treatment of their patients. Its highly skilled medical staff assists the physician with the interpretation of these test results.

The support areas within MDS Metro assist primary operations by ensuring the necessary resources are available. The company expects changes within the support areas stemming from implementation of the corporate enterprise services initiative. It plans to reap benefits from standardization and the implementation of best practices, following the operational excellence program. These changes enable MDS Metro to further expand its operations, increase its value-added proposition, and enhance its competitive advantage.
CHAPTER 4: KEY ISSUES AFFECTING MDS METRO

The issues MDS Metro faces can be divided into two groups. There are external pressures from the industry that are driven by government and internal pressures resulting from organizational change. External pressures are industry impacts from laboratory reform initiatives and the increasing degree of scarce skills. Internal changes include corporate initiatives and expectations driving management and business changes.

4.1 MDS Corporate Initiatives

The MDS corporate initiatives of operational excellence and enterprise services significantly affect the way MDS Metro does business. The move to standardization and best practices for operations within the Diagnostics Sector, along with the consolidation of support services across the entire firm, could affect MDS Metro's ability to navigate the implementation of lab reform.

4.1.1 Managing Competing Priorities

The biggest issue MDS Metro faces is the far-reaching impact and rate of change within its world. The company has not yet developed a strategy for handling the competing priorities associated with these changes or the coordination between projects and their implementation. Were the company to develop such a strategy, it could minimize the impact to MDS Metro. To date, much of the strategy at MDS Metro has focused on finding alternative solutions to external changes and on participating in internal change processes.

The implementation and management of these many changes requires significant people resources. MDS Metro needs to develop a strategy to provide resources for three primary activities. First, the company needs to ensure it has sufficient resources to run the day-to-day operations, since some of the resources that now manage the day-to-day business will be busy with change management. Second, MDS Metro must secure skills and resources to help assess and develop options for responding to external pressures, including contingency planning. Third, MDS Metro
needs to provide resources to manage, implement, and navigate these new internal processes.

### 4.1.2 Diagnostic Structure / Organizational Changes

Of the corporate initiatives MDS Metro faces, the most pressing is the recently announced organizational structure change for the Diagnostics Sector. This new structure aims to balance the importance of understanding and responding to regional markets with the need to create consistency across platforms and processes. While the creation of this new matrix model should deliver access to additional resources and expertise once implemented, the change is a challenging one. Implementation of this new structure draws on some of the same scarce resources already involved with other issues in the company. In changing to a matrix structure, MDS Metro faces greater travel and absences from the local management.

Implementation of this new structure affects the decision-making process at MDS Metro. With the matrix model, there is a requirement to involve more people in the decision-making process, as both functional and regional impacts must be considered. This could increase the time for decisions, affecting MDS Metro's ability to react quickly in certain situations. This decision-making process may be further delayed if competing needs cannot be addressed and resolved.

### 4.1.3 Operational Excellence

In implementing the new matrix structure and gathering data this past year, MDS Metro has drawn heavily from people resources at all levels of the organization, from frontline staff to senior management. These demands will continue to be high, as the firm moves to the remaining phases, which include the justifications for the changes in practice and the implementation of best practices. Again, many of the required people are already working on other projects, such as lab reform. MDS must grapple with balancing these competing needs and justifying solutions recommended by the Operational Excellence process.

The implementation of the Operational Excellence initiative raises another issue for MDS Metro. The company must consider its ability to meet regional best practices; which may differ from MDS Operational Excellence best practices. For example, if a
business unit is mandated to follow MDS Operational Excellence standards for best practices, it could lose its competitive advantage at the regional level if these practices do not meet or surpass the practises of regional competitors. In order to deviate from organizational best practices for meeting regional expectations, MDS Metro must clearly articulate and justify the reasons for this deviation.

4.1.4 Enterprise Services

Like the Operational Excellence initiative, the implementation of the Enterprise Services initiative poses challenges for MDS Metro. Its implementation provides MDS Metro and all other MDS business units with the simplification of support processes and the reduction of unnecessary bureaucracy, while at the same time provide access to a broader range of skilled resources and decrease costs. Under this new system, support resources from one site will be available to assist another site when required. Although these additional resources and simplified process will help MDS Metro better position itself for dealing with some of the more long-term local issues that it is facing, such as the competitive bidding process anticipated through laboratory reform, the implementation of the different Enterprise Services processes present short-term challenges and concerns for MDS Metro.

One of the challenges is finding additional resources to assist with the transitioning process. Additional resources are required to develop new common processes, train affected employees, and replace those who are involved in the common business systems planning process, so ongoing operations at MDS Metro are not compromised. Given that only a handful of support staff resources are involved in this transition and that support resources from other MDS businesses will also be involved in the transitioning processes at their own locations, the source of these additional resources is uncertain.

Some management at MDS Metro have expressed concern regarding the ongoing availability of support staff that is now part of the enterprise services program. It is unclear how priorities for their time are to be set. It is possible that support staff required to work on local projects, are not available because they are already working on national projects. For example, MDS Metro finance staff may be unavailable to work on solutions for lab reform because they involved in the implementation of the common
business systems and/or working on operational excellence projects, managed centrally through corporate or sector leadership.

While implementation of enterprise services should reduce costs in the long term, the program may increase "hidden" costs in the short term. These short-term costs may include staff training, loss of productivity from service interruptions and reduced learning curve efficiencies from adopting new processes and procedures. MDS Metro must also find ways to cover day-to-day workloads when regular staff are in training.

This initiative could also compromise MDS Metro's competitiveness. Instead of developing business practices that meet MDS Metro's specific needs, some of the Enterprise Service systems may result in a generic, "one size fits all" system to meet all MDS users' needs. This standardization of business practices could erode some of MDS Metro's flexibility and competitive advantage.

4.2 Corporate Expectations

One of MDS Metro's biggest challenges is meeting the target and performance expectations set by MDS Inc. The current targets and expectations for the company, as a whole, include moving operating margins up one point to 16 percent, achieving 10 to 15 percent five year compound growth in earnings per share, bumping the return on equity up one point to 12 percent, generating 60 percent of revenues from international markets. Revenue growth targets for 2004 have not been set, as the company is focusing on improving operating margins\(^4\).

Given that the diagnostics laboratory business in BC is a mature industry and now operating in a capped environment, MDS Metro faces unprecedented challenges in achieving these targets. MSP fee reductions significantly lower revenues for MDS Metro. While many of the corporate initiatives assist with achieving these goals in the long term, MDS Metro must make short-term changes to achieve these goals.

\(^4\) Financial analysis for firm not included for confidentiality reasons.
4.3  Internal Resources

4.3.1  Employee Satisfaction and Burnout

The volume and rate of change has affected MDS Metro staff. Some of the employees are beginning to complain of being over worked, under appreciated, under valued, and unfairly compensated. Some employees are showing the signs of burnout and apathy. Although sick time has not increased during this period of change, it needs to be monitored closely. In the past, major changes at MDS Metro have resulted in an increase in sick time, as staff cope with stress from change management.

As each new initiative has rolled out, employee frustrations have increased. These frustrations stem from the lack of information about new processes and workflow disruptions caused by confusion about the change. As the number of changes increases, employees' are demonstrating a reduced ability to adapt to the changes by an increase in the number of their complaints and comments about being over worked and stressed. The group that raises the biggest concern for management is the technical expert group, known as Technical Resources, and the Team Supervisors. These employees have responsibility for implementing the many changes within their specific areas and they have found the challenge of balancing their day-to-day responsibilities with these additional tasks extremely difficult. The pressure of this responsibility increases as the Operational Excellence recommendations are approved and rolled out.

4.3.1.1  Aging Workforce and Knowledge Transfer

MDS Metro's workforce is aging. Its demographics are similar to that of the population in BC. Approximately 60 percent of its employees are 40 years or older. As a result, MDS Metro is faced with replacing over half of its workforce in the coming years. Currently, approximately 16 percent of MDS Metro employees are over the age of 55. Consequently, 16 percent of MDS Metro's workforce is retiring over the next 10 years. Of these, almost two-thirds are medical technologist, laboratory physician and certified technical assistants (MDS Metro Laboratory Services, 2003). The replacement of these scarce skills poses a problem for MDS Metro given the current industry shortage and the current disparity in wages for some of these scare skills between MDS Metro and the public laboratories. As demand for these scarce skills increases, MDS Metro must
compete with other organizations within the industry, with similar attrition rates, for these scarce skills. To mitigate this issue, MDS Metro should investigate enhancing recruitment strategies to facilitate becoming the employer of choice for these scarce skills.

As staff begin to retire, MDS Metro stands to lose the expertise and knowledge of these employees. This could reduce current learning curve efficiency gains, as less experienced employees fill positions vacated by these retiring employees. MDS Metro's greatest potential concern is the loss of laboratory technical experts and laboratory physicians who have a high level of knowledge and expertise in their areas of speciality. These employees have key skills that are required to management the technical and quality aspects of the day-to-day business.

Given workforce attrition, MDS Metro must develop strategies for replacing almost one-sixth of its workforce and must implement processes to facilitate the transfer of knowledge from these experienced employees to their successors. If MDS Metro does not take steps to manage this knowledge transfer it stands to lose some of its current efficiency and competitive advantage.

4.3.1.2 Ergonomic Issues

Much of the work performed at MDS Metro is high volume and repetitive. This has led to an increase in the number of work related injuries such as repetitive strain injuries. As the workforce ages, their ability to handle this type of work and workload diminishes and the risk of workplace injuries increases. To mitigate this risk, MDS Metro needs to continue to find solutions that minimize the impact of this work on their employees.

4.3.2 Physical Space Limitations

MDS Metro is currently facing space limitations at their Burnaby site. Since moving into this new building in 1995, MDS Metro has expanded and re-aligned its operations multiple times and has now outgrown its allotted space capacity. This lack of space is limiting Metro's ability to make workflow changes to improve efficiency in some areas. Implementation of these changes requires renovations and an increase to the allotted space. With the Lower Mainland's real estate market at a peak, commercial
space commands a premium. Given MDS Metro’s mandate to improve operating margins on a limited budget, finding funds for renovations is a challenge.

4.4 Laboratory Reform

The impending implementation of laboratory reforms, the uncertainty surrounding this process and its ever-changing requirements has posed a tremendous challenge for MDS Metro. Over the past few years, the company has devoted a significant amount of work to addressing and preparing for this situation. With the recent changes to the implementation process for the MSP fee reductions, a temporary period of stability exists. The company must now turn to addressing changes to the MSP fee for service funding model and the government’s continued desire to pursue a competitive bidding process for the delivery of outpatient laboratory services.

4.4.1 MSP Funding Changes

The recent changes to the MSP fee for service funding model pose two challenges for MDS Metro. The company faces a 20 percent MSP fee cut, effective July 1, 2004, and the implementation of a capped funding environment that will be monitored on an ongoing basis through the Provincial Laboratory Coordinating Office (PLCO). In April 2005, MDS Metro will confront further adjustments to the MSP Fee for Service schedule, following an independent review of the government’s current fee schedule.

4.4.1.1 20 Percent Fee Reduction

The 20 percent reduction in MSP fees, effective July 1, 2004, has significantly affected MDS Metro’s gross revenues, and to a lesser extent, net profits. The reason for this is the action that MDS Metro took in the fall of 2003 in response to the government’s initial roll out of the MSP fee reduction plan. At that time, MDS Metro took steps to mitigate the loss by implementing changes that equated to a portion of the estimated impact of the loss. The steps taken included reducing management and support staff, the cutting discretionary spending, and restricting capital spending.

Before the government’s initial plan was fully implemented, it was found to be illegal through court actions initiated by the BCMA. As a result, the government paid MSP fees that had not previously been paid to MDS Metro and other outpatient testing
laboratories. From that point on, MSP funding continued as before, until June 2004, when the government and BCMA reached an agreement on implementing changes to the MSP fee for service payment schedule. Because MDS Metro had already implemented changes to mitigate this 20 percent reduction in MSP fees, the firm does not need to take any immediate action. Efforts at increasing operational effectiveness to offset any further cuts and other lab reform issues can continue on pace.

4.4.1.2 Capped Funding Environment

The short-term capping of the MSP fee-for-service payments raises a number of concerns for MDS Metro. The cap that has been set for remainder of fiscal 2004/05 will have a significant negative impact on MDS Metro's operating income. Moreover, the company is uncertain about how monitoring of the cap will be conducted to ensure that existing players within the industry maintain their current market share. The cap also restricts MDS Metro's product offering. Under the terms agreed to for this cap, none of the laboratory providers can make any significant changes in the range and quantity of types of tests provided, when compared to the 2003/2004 fiscal years. The terms of the agreement are a framework for process and some specifics have not been clearly delineated. As a result, it is uncertain to MDS Metro what the impacts of this agreement will have on its business. For example, terminology such as significant has not been defined and requires clarification before MDS Metro can investigate any increase to its product offering and to better position itself for success in any future competitive bidding process. As a result, MDS Metro needs to find alternate ways to grow, so it can achieve the performance targets set by corporate head office.

The government's long-term plans for a capped environment involve monitoring utilization of the MSP fee for service program. The government is giving responsibility for ensuring the ongoing volume management of the MSP fee for service to the government-sponsored Provincial Laboratory Coordinating Office (PLCO). To achieve this, the PLCO must establish a coordinating committee with representatives from the Ministry of Health Services, Health Authorities, PLCO, and the BCMA. To assist with this process, the BCMA is establishing a lab advisory committee to provide input.

It is uncertain to MDS Metro what the impact of this process will have on its business. The impact depends on the mandate of this committee and to some extent the membership. The proposed membership for the PLCO review committee appears to be
heavily weighted to the public sector and to lack representation from the private sector. Left unchecked, this committee could swing volumes and payments in favour of government.

4.4.1.3 MSP Fee Review

An independent third party has been established to conduct a fee-by-fee review as part of the new the MSP Fee for Service Payment Schedule. This review could result in further reductions in MSP fees or re-distribution of funds across the fee structure that may result in a shift of some funds out of community base services into hospital restricted outpatient-testing services. While the details on how this review is to be conducted have not been finalized, the agreement specifics that implementation must be completed by April 2005. This initiative is likely have a negative impact on the revenues MDS Metro receives. MDS Metro must continue to look for ways to reduce costs and increase non-MSP revenues, so that it can achieve further scale economies and continue to meet its business goals.

While the fee-by-fee review is expected to change current fees, this review could introduce fees for services that are not currently covered. For example, collection services to patient homes could be covered under this new fee schedule. If this happens, this could have a positive impact on MDS Metro revenues, possibly leading to an increase in market share.

4.4.2 Competitive Bidding / RFP Process

While the immediate focus for lab reform revolves around changes to the MSP fee-for-service structure, the government has repeatedly stated its interest in pursuing a competitive model for delivering lab services in the long-term (Breen, 2004). Government investigations into this possibility are ongoing.

Given that it could take time for the government to implement these changes, a competitive lab services environment does not pose an immediate threat to MDS Metro. The provincial election is less than one year away and voters may elect a new government that overturns plans for the competitive bidding process eliminated. However, if the present government is re-elected, the government may pursue competitive bidding immediately, assured by the mandate of the electorate. Since the
public’s political allegiance could change dramatically in a year, MDS Metro must be prepared.

To prepare, MDS Metro must review the concerns it identified when the competitive bidding process was imminent. The firm must consider who is eligible to participate in the bidding process, the breadth and magnitude of the bidding process, and the fairness of the process. MDS Metro must weigh concerns about the public sector’s ability to accurately cost their operations and the potential for the RFP process to be rolled out on a region-by-region basis that has the potential for lost economies of scale through the loss of current market share to a competitor.

To address these points, MDS Metro faces must develop a flexible costing system to accurately analyze the RFP scenarios. MDS Metro needs to develop strategies and contingencies to assist the costing process based on anticipated potential or considered alternate approaches to the RFP process. MDS Metro needs to draw from scarce resources to develop this costing system. To ensure MDS Metro is successful in competitive bids, the costing system needs to estimate MSP fee reductions and the minimum cost reductions required to ensure margins are maintained, while positioning MDS Metro as the lowest cost provider. Given the magnitude of this project and the scarcity of human resources within MDS Metro, the company may struggle to overcome these challenges.

4.5 Scarce Skills

MDS Metro is currently facing recruitment challenges for certain skills. In particular, the company has had difficulty recruiting technologists, especially microbiology technologists, and laboratory physicians. Industry-wide, laboratory firms have found that the current labour supply does not meet the current demand. Moreover, within the next 10 years, about 16 percent of MDS Metro employees are retiring and MDS stands to lose 36 percent of its technologists and 33 percent of its laboratory physicians. Given the current industry skills shortage, MDS Metro confronts a significant challenge, and must compete with other laboratories facing similar rates of attrition for scarce technologist and laboratory physicians.
To mitigate this issue, MDS Metro needs to look for ways to attract and retain employees. Given the scarcity of these skills, MDS Metro must look for ways to reduce the numbers of employees it needs to attract and retain in this competitive market.
CHAPTER 5: RECOMMENDATIONS

MDS Metro faces a number of issues stemming from considerable internal and external pressures. Solutions to the external pressures of lab reform and a skills scarcity are reliant on the impacts of internal pressures from organizational renewal and corporate expectations. By introducing strategies for managing change and competing priorities, increasing scale efficiencies, and recruiting and retaining employees, MDS Metro is better able to address these issues. In doing so, MDS Metro can achieve its strategic goals of cutting business costs and providing cost-efficient, high-quality diagnostic care to its communities. Moreover, MDS Metro preserves its long-term competitive advantage and sustainability.

5.1 Managing Change and Competing Priorities

MDS Metro is faced with a number of competing challenges that require the skills of many of the same people. Challenges include preparing solutions for the lab reform initiatives, implementing changes to business practices and investigating ways to enhance recruitment strategies.

Until recently, it was difficult for MDS Metro to determine a clear plan for dealing with these competing priorities and to develop a coordinated allocation of resources because of the uncertain future of both the structure and funding components of the lab reform initiative. With the recent agreement between the BCMA and the provincial government regarding this initiative, MDS Metro now has a clear operating parameter for the short-term that provides a window of opportunity to further develop mid-term and long-term strategies and contingencies.

The first and most pressing issue that MDS Metro needs to address as part of its change management strategy is the rollout of the new organizational structure. It is imperative that MDS Metro establishes an understanding of the new structure and a clear grasp of the roles and responsibilities of each of the participants within and across the new matrix structure prior to establishing strategies for other issues.
In developing key processes, MDS Metro must consider how decisions and future strategies are to be made and by whom. The firm must determine how conflicting priorities or needs should be resolved and identify the people responsible for final decision making power in this new matrix structure. Before MDS Metro can move forward with planning strategies for dealing with its other competing changes and priorities, it needs to bring clarity to the workings of this new organizational structure. For best results, this process needs to be completed as quickly as possible.

Once MDS Metro has articulated the roles and responsibilities for this new structure and rolled out the finalized matrix structure, the firm should assess each of the remaining issues. MDS Metro must weigh the urgency, deliverables required, skills and resources needed and the potential for coordination with other issues. At the same time, it must carry out an inventory of the skills and resources available at MDS Metro. By comparing this inventory with the issue assessment, the company can complete a gap analysis to determine additional skills and resources that may be required.

MDS Metro's deliverables include business case preparations for the operational excellence initiatives, the best practice review and rollout of the common business systems, the re-costing of testing services to assist with the reassessment of MSP fees and the RFP scenario analysis for lab reform. Whenever possible, MDS Metro should leverage in-house expertise to take advantage of the local understanding of the unique regional issues. To navigate the complexity of the business environment, those working to prepare these deliverables need a thorough understanding of the current system for the delivery of lab services in BC as well as a clear grasp of the local politics and desired outcomes. This understanding ensures that scenario analysis results for competitive solutions addresses the provincial expectations, meet local needs and increase the chances of MDS Metro's success in the bidding process. With this background knowledge, less time is required to perform the analysis, as additional time to educate outside resources on local issues is not required. To ensure success, MDS Metro should also involve experienced MDS team members from other MDS sites to act as internal consultants.

In addition to these deliverables, MDS Metro needs to assess the additional physical space requirements needed to support the future operations. The assessment
should take into consideration any potential outcomes from a competitive bidding process. Development of a co-ordinated, phased approach is recommended.

To support the detailed analysis required for strategic planning, senior management must provide assistance for the acquisition of additional people when required, to replace local individuals working on solutions. They must ensure the continued smooth operation of its day-to-day business, while offsetting resource costs associated with the detailed analysis and strategy development. By temporarily promoting internal resources to replace those assigned to these projects, the firm can better meet these challenges. In doing so, MDS provides professional development and increase job satisfaction for these individuals while contributing to long-term, overall productivity of the organization. These solutions improve employees' understanding of the business operations and foster commitment to the organization.

To ensure the development of a strong plan and its successful implementation, MDS Metro should establish a steering committee to oversee this process. To achieve maximum effectiveness the firm should limit committee membership to a few key individuals, charging each person with management of the strategies for a specific issue. Limiting the size of this committee reduces the impact on scarce resources and assists with a quicker decision-making process.

A key factor in the development of a successful strategy is access to detailed information on the issues and plans discussed by the PLCO and other lab reform related committees. To ensure access to this information, senior management at MDS Metro must ensure it has representation on and all committees established. This gives MDS Metro a strong voice in the reform processes being developed while ensuring in-house solutions are aligned with the courses of action developed.

5.2 Achieving Economies of Scale

MDS needs to focus on a strategy that allows it to lower its cost of doing business while at the same time maintain a high level of quality in order to meet corporate and external market expectations. Success in achieving this type of strategy depends on realizing significant scale and learning effects (Bukszar, 2004). Although MDS Metro has already made significant gains through scale efficiencies and learning
curve effects, it can further increase these gains through increasing automation, reducing costs, and bolstering revenues.

5.2.1 Increase Use of Automation

MDS Metro needs to capitalize on its core competency for incorporating automation within its operation by looking for additional ways to automate its processes and procedures. Through a critical review of all manual processes, the firm can identify areas of opportunity and weigh the ease of their automation. Many of these areas were assessed as part of the operational excellence “to be” process. Those areas not previously assessed must be considered now. They include, but are not limited to, the specialized testing areas within the laboratory, administrative processes, and transportation systems for automated route design and tracking.

Through automation, MDS Metro can reduce resource demands and address ergonomic issues. MDS Metro must continue the work it has started in implementing automated solutions to mitigate the loss of staff from workplace injuries.

Given its aging workforce, industry-wide skills shortages, and recruitment challenges, the firm must carefully assess all automation solutions for their impact on staffing levels. Wherever possible, MDS Metro should coordinate timing for implementation with the loss of staff through attrition. When this is not possible, the firm should consider re-allocating staff to other areas of need. If this is not possible, the possibility of re-allocating work to protect scarce skills must be considered.

5.2.2 Reducing Costs

MDS Metro has already completed significant work to reduce costs. By continuing these efforts and introducing new strategies, the firm can further reduce costs.

5.2.2.1 Work Allocations

Wherever possible, MDS Metro should continue to reallocate work performed by scarce skilled resources to more abundant less skilled resources. Increased automation
and artificial intelligence within the laboratory assists with this re-allocation as it leads to more simplified processes that can be managed by a lower skill level.

5.2.2.2 Consolidation

MDS Metro should continue its efforts to increase scale economies and thus reduce costs through the consolidation of testing services. A considerable amount of consolidation between the regional sites and the referral sites occurred this past year. Continued efforts should focus on consideration for further consolidation of testing and operational services between these sites. However, all further consolidations must be carefully assessed to ensure that they do not jeopardize MDS Metro’s continued presence in a region and thus compromise its success in a competitive bidding process. They must also be assessed in conjunction with any merger or acquisition strategies that are under consideration.

Further consolidation must also be assessed for its affect on scarce skills. Whenever possible, scarce skills lost through consolidation should be considered for relocation to an area of need.

The Client Information Centre is another area of potential consolidation. Centralization of this service to head office in Toronto has been identified as a possibility as part of the operational excellence process and would assist MDS Metro in meeting its financial targets. To ensure the success of this consolidation, it is imperative that careful consideration is given to the process for the consolidation and that detailed implementation plans are developed before implementation.

5.2.2.3 PathNET

The company can more aggressively reduce costs by pursuing rapid market penetration of PathNET at no cost to the end user. By rapidly increasing the installation base of PathNET in physicians’ offices and clinics, MDS Metro and its partner, BC Biomedical, gains first-mover advantages and raise brand awareness. To do so, MDS Metro and BC Bio must make a one-time investment of capital for the hardware to support the PathNET system in some physicians’ offices and clinics. To ensure acceptance, brand loyalty and entrenchment of the system, the firms must deliver training and ongoing support to physicians.
Rapid installation of PathNET to MDS Metro would deliver significant, immediate benefits. It would cut operating costs by eliminating resource-intense reporting services and would eliminate the need for plans to consolidate reporting services. It would facilitate a more streamlined efficient workflow through the elimination of the need to meet report print times thus increasing productivity and efficiency within the analytical testing areas. At the same time, entrenchment of PathNET would create market entry barriers because of high switching costs and customer brand loyalty.

5.2.2.4 Outsourcing

MDS Metro must consider the possibility of outsourcing value chain functions that are not considered core competencies. One such area that could easily be outsourced is the provision of supplies to physicians’ offices and clinics. This function could be outsourced to Source Medical and would result in a reduction in transaction costs for MDS Metro.

Other potential areas for outsourcing include the areas incorporated in the Enterprise Services Initiative. Effort to outsource these functions would need to be aligned with corporate head office objectives and must be carefully assessed to ensure cost efficiencies are achieved.

5.2.3 Increasing Revenues

The recent implementation of a capitated environment for the payment of laboratory services in BC limits MDS Metro’s ability to grow its revenues. Under this new system, MDS Metro’s growth opportunities are restricted primarily to expansion through mergers and acquisitions or increases in non-MSP insured business.

5.2.3.1 Mergers and Acquisitions

The implementation of the government’s 20 percent MSP fee reduction will have a significant impact on some of the smaller private laboratories currently operating within BC. Given MDS Metro’s conservative capital structure strategy, the firm is in a position to grow market share through investing in, merging with or acquiring some of these operations. This would better position MDS Metro for any future RFP for laboratory services by increasing its presence in other health regions. To achieve this advantage,
MDS Metro needs to evaluate the areas of greatest opportunity and to expand existing relationships with these laboratories and initiate discussions. The company needs to clarify with the Ministry of Health what impact the recent agreement between the BMCA and the Ministry of Health has on current regulations for acquisitions.

5.2.3.2 New Business

To achieve growth from new business MDS Metro should look at opportunities to expand its non-MSP business. MDS Metro may need to move outside the comfort of its core competencies in order to achieve this. One way MDS Metro could achieve this is to leverage its courier transportation services by marketing their services to other organizations, including Source Medical. MDS Metro could also expand into niche markets, such as wellness and lifestyle clinics, naturopathic and veterinary medicine and Internet marking of testing services to private pay clients. To move into these areas, MDS Metro may need to develop a subsidiary firm that can operate outside the auspices of the current regulatory environment.

As part of expanding its private pay business, MDS Metro needs to develop more rigorous processes to enhance the current approach for assessment of the cost benefits of any new business ventures. Accurate costing and assessment of the resources required is essential to ensure any expansion of MDS Metro's product or service offerings are sustainable.

Because the Ministry of Health capped MSP fees in 2004, MDS Metro needs to ensure that the allowable growth rate of 3.5 percent is achieved to prevent loss of market share. Growth in this area must be managed closely to ensure targets are achieved.

5.3 Recruitment and Retention Strategies

To make the changes recommended above, MDS Metro must implement best practices to help offset employee attrition and recruitment challenges. However, given the number of employees that are retiring from the workforce over the next ten years in certain job categories and the long-term industry shortages predicted for these scarce skills, MDS Metro must improve its retention and recruitment practices.
5.3.1 Training Program Participation

One of the easiest ways that MDS Metro can improve its recruitment practices is through continued participation in the clinical training programs for these scarce skills. MDS Metro should consider recruiting more students from these programs. However, given the ongoing changes to its operations and the heavy workloads of front-line staff, introducing additional trainees requires the redesign of current training programs. Through the incorporation of selected group learning sessions and self-directed training modules MDS Metro could manage an increase in the number of trainees without increasing trainers. The development and implementation of these enhancements to the training program would reduce the need for labour intensive one-on-one training in these areas.

5.3.2 Work Schedules

To gain a competitive advantage in recruiting skilled employees, MDS Metro has purposely chosen not to incorporate graveyard shifts into its operations. This appeals to new graduates and employees who looking for employment that provides a balanced lifestyle. To maximize this advantage, MDS Metro should investigate ways and means for further reducing the amount of shift work within its operations, so that it can edge out competitors in recruiting employees with scarce skills. Through increased automation, rapid introduction of PathNET and increased batch testing, the firm can divert its workload to more regular hours.

5.3.3 Employee Recruitment/Retention Incentive Programs

MDS Metro should consider introducing an employee recruitment and retention incentive program for new hires with scarce skills. A bonus system for employees who recommend individuals for hire could assist with ensuring those hired are more likely to be successful and to remain with the company. A signing bonus linked to a minimum length of service could provide additional incentive for a new employee to stay with the organization and prevent them from using MDS Metro as an experience springboard. To ensure that MDS Metro offers more appeal than just income, the firm should help new hires identify potential career paths and foster mentorship opportunities, making MDS Metro an employer of choice.
MDS Metro should also consider re-opening discussions with the union regarding compensation for scarce skills. Given the increasing industry shortage and competition for these scarce skills it is imperative that MDS Metro addresses the issue of wage disparity in order to secure a stronger competitive advantage.

5.3.4 Employment Opportunities

To bolster recruitment, MDS Metro should market employment opportunities through a recruitment video that could be shown at training schools and on the MDS Metro website. MDS Metro could draw on its contacts in the movie industry to assist with the development of a professional video that highlights the benefits and opportunities available to employees of MDS Metro and MDS Inc. To date, few laboratory companies have taken steps to market opportunities to students and potential employees. By promoting the benefits of working for a large, diverse multi-national company, MDS Metro should be better able to attract skilled workers.

5.4 Conclusion

MDS Metro is faced with multiple challenges from both internal and external forces. Internal corporate initiatives aimed at lowering the cost of doing business while maintaining quality to meet industry expectations include the implementation of standardization, best practices and consolidation of services. The external pressures from local government and industry shortages of certain skills have resulted in the need for MDS Metro to modify its business practices in order to ensure its long term sustainability and viability.

The solutions to these challenges require multiple strategies that are interlinked. The same solutions are required for successfully addressing internal and external issues. Solutions include strategies for the coordination and management change and competing priorities, strategies for increasing scale economies, strategies for cost reductions and strategies for resource recruitment and retention. The implementation of these strategies will assist MDS Metro in maintaining its competitive advantage and position it for achievement of long-term sustainability.
REFERENCES


