Developing a Business Continuity Plan for the Canadian Memorial Chiropractic College

by

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Executive Summary

Introduction

The purpose of this research is to develop a robust Business Continuity Plan (BCP) for the Canadian Memorial Chiropractic College (CMCC, or "the College") by answering the primary research question of what are the critical processes, functions, services and products that must be delivered by each department at CMCC. This report describes the methods and methodology used to develop the BCP and a series of recommendations for the successful implementation at the College.

Background

The CMCC identified Business Continuity Planning as a critical goal for the College in its 2017-2021 Strategic Plan in order to support the mission of organizational effectiveness at the College. The CMCC is the recognized authority for the chiropractic profession in Canada and is known as a world leader in chiropractic education and research. To maintain this reputation and status and to continue to deliver excellent service, it is important that the College follows smart practices in all areas of its operations.

The CMCC recently established an Enterprise Risk Management (ERM) Program at the College, which is responsible for assessing and planning for all risks that the College may face. Business Continuity Planning is a type of risk management and is therefore housed within the ERM Program. The goal of BCP is to identify and plan for risks associated with uncontrollable external events that may jeopardize the College's ability to deliver essential services and products. Uncontrollable external events that would fall under Business Continuity include both natural and man-made disasters; for example, extreme weather events, fires, earthquakes, information technology failures, and terrorist attacks.

In accordance with smart practices, a Business Continuity Plan should include the following components:

- Contact information for all individuals that are critically involved in Business Continuity activities;
- List of critical processes and functions that support critical products and services, including resource requirements;
- Details of the temporary work sites;
- Recovery process for returning to regular operations when safe to do so and
- Maintenance, training and testing plans for the BCP

Methodology and Methods

Using the requirements and recommendations outlined in the ISO 22301 – Societal security – Business continuity management systems requirement, a Business Impact Analysis was

conducted for each department at CMCC that would go on to inform the development of a BCP Template. The data for the Business Impact Analysis (BIA) was gathered using a Business Impact Survey designed specifically for CMCC department heads. The purpose of the Business Impact Survey was to collect information on the following crucial aspects of BCP:

- Critical products and services that must be delivered by each department as soon as possible after a disruption to regular operations;
- Critical processes and functions performed by each department to support the delivery of its critical products and services;
- Potential areas of impact;
- Maximum acceptable timeframes for delivering critical products and services, after which not delivering those products and services within that time period would cause significant harm to the College and
- Resources required to ensure the delivery of the department's critical products and services

The survey was distributed to 15 key CMCC staff along with an opt-out consent form and 13 surveys were returned and included in the Business Impact Analysis.

The purpose of the BIA was to identify those risks that are most likely to occur and how the impact changes depending on the duration of the interruption. This analysis was done using the Threshold Analysis technique, which determined thresholds for BCP activation by department based on the department's Maximum Tolerable Period of Disruption. Additional follow-up interviews supported these findings and provided further details to complete the BIA.

After the completion of the Business Impact Analysis, a BCP Template was designed, which includes all the necessary components. to be filled out by department BCP Leads.

Main Findings

The main findings of the research were the critical processes, functions, products and services for each department at CMCC, as well as the maximum acceptable timeframes for resuming these critical operations after a disruption has occurred. These critical operations were specific to each department, therefore justifying the need for individual departmental BCPs. Additionally, using the data collected, the Threshold Analysis was completed in order to assign a threshold rating for activation of the BCP for the College during the event of a disruption. For CMCC's BCP purposes, a threshold rating of "2" was defined for BCP activation purposes.

Recommendations

The following recommendations were provided to the CMCC Executive Leadership Team to help them identify the next steps in the BCP process to be undertaken at CMCC: including:

- Establish an organization-wide BCP Policy for CMCC, which includes all BCP objectives and requirements;
- Hire or appoint a BCP Lead for CMCC that is responsible for overseeing all BCP activity at CMCC and departmental BCP Leads;
- Create a project plan and risk register for the BCP implementation;
- Integrate BCP recovery plans with existing Emergency Management Response Plans and Procedures documents and
- Develop a process for BCP-specific resource requests to management

To develop effective BCP at CMCC, it is essential that the departmental BCPs are robust and accurately reflect the critical operations of each department. A well-defined BCP Policy and clearly defined roles with respect to BCP activity will help to ensure that CMCC is well prepared to withstand the negative effects of an uncontrollable external event and to avoid significant harm to the College.

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Acronyms

The following acronyms are used throughout this paper:

BCP:	Business Continuity Planning
BIA:	Business Impact Analysis
CMCC:	Canadian Memorial Chiropractic College or “The College”
ERM:	Enterprise Risk Management
ISO:	International Organization of Standardization
HIRA:	Hazard Identification and Risk Analysis
MRT:	Minimum Response Time
MTPD:	Maximum Tolerable Period of Disruption

1.0 Introduction

The purpose of this research is to develop a robust Business Continuity Plan (BCP) for the Canadian Memorial Chiropractic College (CMCC, or "the College"). Prior to the commencement of this research, there were no Business Continuity policies in place or practices occurring at CMCC, leaving the College vulnerable should an uncontrollable event occur that would suspend regular operations.

This report describes the methods and methodology used to develop the BCP, the results of the research, and provides a series of recommendations for the successful implementation at the College.

1.1 Background and Problem Definition

The Canadian Memorial Chiropractic College (CMCC, or "the College") recently released the 2017-2021 Strategic Plan (CMCC, 2017. p. 1), which sets the organizational and management framework for the College for its next phase of growth over during the period of 2017 to 2021. In order to support CMCC's mission, ensure the realization of CMCC's vision, and maintain its core values, the Strategic Plan outlines a series of goals to be achieved over the next four years and a roadmap for accomplishing those goals (CMCC, 2017. p. 1).

Developed for the College by the Board of Governors, with consultation and input from all business areas of the College, one of the main objectives defined in the Strategic Plan was to continue to strive for excellence in institutional leadership and management. Within this area, the CMCC community developed a list of specific objectives and initiates that would support this goal. The primary objective under this theme was to optimize CMCC's organizational effectiveness (CMCC, 2017. p. 33).

From this, the CMCC Enterprise Rise Management Program was established, with the purpose of implementing a complete Enterprise Risk Management (ERM) plan to identify risks and ensure a proactive response to preventing and mitigating harm to the College. Within the ERM Program, the need arose for the development of a Business Continuity Plan, a specific type of risk management, that deals with identifying and planning for risks associated with uncontrollable external events that may jeopardize the College's ability to perform regular business functions and operations and to deliver essential services and products (Drewitt, 2013. p. 11). Uncontrollable external events that would fall under Business Continuity include both natural and person-made disasters such as extreme weather events, fires, earthquakes, information technology failures, and terrorist attacks.

1.2 Project Objectives, Research Questions and Scope

The project objective for this study was to develop a robust Business Continuity Plan for the College. The primary research question explored in this project was what are the critical processes, functions, services and products that must be delivered by each department at CMCC. The secondary research questions were:

- What is the timeframe during which those critical operations must be resumed following a disruption
- What is the threshold for the activation of the BCP at CMCC

To develop and implement the BCP for CMCC, a survey tool was developed based on the smart practices outlined in the ISO 22301 – Societal security – Business continuity management systems requirements (2012.). The survey was designed to capture the essential information needed to conduct the Business Impact Analysis, a key component of Business Continuity Planning. The survey was distributed to all CMCC department heads to ensure that each department would have a BCP that was tailored to the specific needs, functions, and products of each department.

The scope of this project was limited to following the structure outlined by the ISO 22301 to develop a robust Business Continuity Plan for CMCC to ensure that it follows international smart practices and requirements. Therefore, this report includes the following areas:

- Business Impact Analysis
- Business Continuity Plan template for BCP departmental leads
- BCP checklist
- Recommendations for BCP at CMCC, including
    - Recommendations for BCP Policy
    - BCP implementation plan
    - Strategies for ongoing monitoring and improvement of the BCP

Departmental risk registers were already completed prior to the commencement of the BCP process at CMCC, and the Emergency Management Program, responsible for developing Emergency Response Procedures for the College, was developed concurrently with the Business Continuity Planning program. Therefore, these two critical documents were outside the scope of this project but are closely related. Additionally, further steps in the Business Continuity Management process, such as development of BCP policy, change management surrounding BCM culture, performance evaluation and improvement were outside the scope of this project, however these topics were addressed in the series of recommendations provided to the College.

1.3 Key Definitions and Concepts

The following terms are used extensively in the field of Business Continuity Management and within this report. The definitions for these terms, as they are used in this report, are provided below.

Business Continuity: Ability of the organization to deliver products or services at acceptable preestablished levels following uncontrollable external event that disrupts regular operations (ISO, 2012. p. 2).

Business Continuity Management: A type of risk management, where the goal is to reduce or prevent interruption of business activities or processes in the occurrence of uncontrollable external event such as natural disasters (Drewitt, 2013. p. 11).

Business Impact Analysis: Analysis of the impact of interruptions to regular business operations and how the impact changes depending on the duration of the interruption. Impact risks are identified and ranked based on their severity over time and may be of both a financial and non-financial nature (Drewitt, 2013. p. 52).

Uncontrollable External Event: Threats that are beyond the control of the organization. For business continuity purposes, this includes serious incidents and disasters.

1.4 Organization of Report

The body of this report is made up of seven chapters. The following chapter provides context of where the BCP falls within the organization at CMCC. The Literature Review, section three, is a review of the available literature related to Business Continuity Management and Planning. The literature review examines historical information about the emergence of BCP and what the field of BCP looks like today. Specifically, BCP in the context of higher education institutions was examined. In the fourth chapter, Methods and Methodology, it describes the methods used to collect the data needed to develop the Business Continuity Plan and accompanying documents.

In chapter five, The Findings, the results of the Business Impact Survey are summarized and the data analysis required for the BCP is described. The Discussion, section six, describes the development of the Business Continuity Planning development process and introduces the accompanying BCP documents (BCP checklist, BCP template etc.). Finally, the Recommendations for next steps in the BCP process for CMCC are described in section seven.

2.0 Background: Canadian Memorial Chiropractic College

The Canadian Memorial Chiropractic College was established in 1945 and was the sole provider of chiropractic education in Canada until 1993 (CMCC, 2016. p. 3). It was founded with the goal to further the scientific understanding of chiropractic and to unify the profession across Canada. The CMCC remains a world leader in the field of chiropractic education and research, with a strong focus on scientific research and evidence-based education (CMCC, 2016. p. 3). To maintain this reputation, CMCC also puts great focus on evidence-based actions in the governance of the College, including program review following smart practices, measurement and assessment of outcomes and quantitative goal setting (CMCC, 2016. p. 5). The CMCC strives to be an academic institution that is known for creating leaders in spinal health by providing world class chiropractic education, research and patient care (CMCC, 2017. p. 2) and does so by adhering to the core values of communication, accountability, respect and excellence (CMCC, 2017. p. 2).

The CMCC offers a four-year program to students, as well as graduate studies programs and continuing education to chiropractors already working in the field. Enrolment for the undergraduate program in the 2016-17 year was 763 new students from all over the country (CMCC, 2016. p. 15). Additionally, as one of the foremost chiropractic institutions in North America, CMCC provides a vital research role, where students and faculty conduct research on a wide variety of topics, ultimately expanding the breadth of knowledge for the chiropractic field.

The CMCC is governed by an Executive Leadership Team that oversees the direction, operation and maintenance of the College, with their primary objective being to ensure the CMCC core mandates are realized. The Executive is ultimately responsible for continuously achieving the College's core mandates. The roles that make up the Executive Leadership Team includes the President, four Vice Presidents, and two Deans (CMCC, 2017. p. 4). Therefore, in order to align with CMCC's mandates, the Executive is continuously seeking to improve all aspects of College operations to achieve the highest standards of quality and innovation in both the chiropractic field and within the organizational framework of the College. The College is also governed by a Board of Governors, responsible for the development, welfare and continuance of CMCC as an accredited chiropractic institution (CMCC, 2016. p. 6). This includes responsibility for all policy with respect to the direction and maintenance of professional, academic and ethical standards for CMCC. The Board consists of up to eight chiropractors who are CMCC members at large who are elected by CMCC members, up to nine chiropractors elected as provincial representatives and up to ten members of the general public who are not licensed to practice chiropractic in Canada (CMCC, 2016. p. 6).

The Vice President of Administration and Finance oversees all aspects of the administration of the College, including student registrar, human resources, finance, facilities and accreditation services (CMCC, 2016. p. 7). The Enterprise Risk Management Program and

thus the Business Continuity Plan fall within the jurisdiction of the Vice President of Administration and Finance, within the Finance department.

3.0 Literature Review

This section provides a review and analysis of scholarly literature on Business Continuity Planning, a field with the goal of preparing organizations to respond and recover from uncontrollable external events that negatively impact regular operations. The literature review explores the history of Business Continuity Management as a field, international standards for Business Continuity, the purpose and aims of Business Continuity Planning and finally Business Continuity Planning in higher education.

The University of Victoria library database was used to find the sources referenced in this review.

Keyword searches were used to find literature relevant to the field of Business Continuity. The following keywords were used to locate the references used in this paper:

Keywords: business continuity, business continuity management, business continuity planning, business continuity standards, business continuity Canada, business continuity higher education, emergency management

3.1 History of Business Continuity Management

Business Continuity is an emerging field, however it has been gaining prominance as a discipline over the last several decades. Business Continuity first emerged in the 1970s, in response to organizational need to recover from uncontrollable external events that would impact regular business operations (Herbane, 2010. p. 979). In 1994, the Business Continuity Institute based in the UK was founded and established the first set of standards, in collaboration with the Disaster Recovery Institute (Burtles, 2016. p. 4.). Shortly after publishing these initial standards, the phrase "business continuity management" was coined to describe the field. Business Continuity was particularly relevant in high-risk and highly regulated industries such as the health and finance sectors (Watters, 2014. p. xiii); however, it has only recently transitioned from a self-regulatory, voluntary practice to a regulated and standardized business practice (Herbane, 2010. p. 986). In 2008, the Canadian Standards Association released an emergency management and business continuity standard for public and private sectors, the CSA Z1600 (Canadian Standards Association, 2008.). In 2012, ISO 22301 was published by the International Organization of Standardization (ISO, 2012.). After the publication of ISO 22301, business continuity has begun to spread quickly across all sectors due to increased awareness of natural and manmade disasters that affect business operations (Watters, 2014. p. 3). Additionally, increased expectation for high standards of customer service has led to an increased demand for robust recovery plans to ensure as little disruption to the customer as possible (Watters, 2014. p. xiii).

3.2 Business Continuity Standards

After the emergence of Business Continuity as a field, the need for standardization based on smart practices grew. Initially, requirements for business continuity were published locally or within an organization (Herbane, 2010, p. 985) but have since been replaced with international standards from the International Organization for Standardization (ISO), with the most recent being the ISO 22301 - Societal security - Business continuity management systems requirements, published in 2012. This document outlines the requirements for establishing and maintaining an effective Business Continuity Management system (ISO, 2012, p. 1). It provides smart practices for all aspects of the Business Continuity Management programs for organizations, from policy development, program planning and implementation, to maintenance, performance evaluation and continuous improvement (ISO, 2012, p. 1). These standardized requirements for organizations engaging in Business Continuity Planning are critical for ensuring that the Business Continuity Management program is robust and therefore that the Business Continuity Plan will be effective if and when an uncontrollable external event occurs (ISO 22301, 2012). In addition to recommendations and requirements for the BCP itself, the ISO 22301 outlines the necessary procedures that must occur within the organization to ensure effective Business Continuity Planning. This includes:

- Training on Business Continuity principles and role-specific training with respect to the BCP activation;
- Commitment from leadership;
- Change management to ensure the cultural adoption of Business Continuity;
- Performance evaluation to assess Business Continuity Plans over time and
- Continuous improvement to ensure that the organization is always prepared for an uncontrollable external event and up to date on smart practices (Drewitt, 2013, pp. 25-28.).

3.3 Business Continuity Planning

As defined by the International Organization for Standardization, the main purpose of Business Continuity Planning (BCP) is to prepare an organization to respond effectively to emergencies, crises and disasters, known as uncontrollable external events (ISO, 2012. p. 2), in order to reduce the impact of such events on regular operations and the delivery of critical products and services (Speight, 2011. p. 529-530.). A major disaster is defined as a natural or manmade event that causes as significant disruption to regular business operations. This can include fires, extreme weather events, information technology failures, terrorist attacks etc. (Speight, 2011. p. 530.). In order to successfully manage these uncontrollable events, according to Speight, Business Continuity Planning follows a four-stage cycle (Speight, 2011, p. 535.):

- Mitigation: the reduction and management of risks by identifying and assessing risk;
- Readiness: having all the necessary measures in place in order to respond successfully, and planning and implementing these measures so that the organization is prepared should a disaster occur;
- Response: management of the emergency as it is occurring, to include policies and procedures for dealing with specific events, and
- Recovery: identifying the necessary steps in order to return to normal business operations after the emergency has ended.

Cook proposes as six-stage cycle for Business Continuity Management (Cook, 2015. p. 32.), which expands on the BCP cycle proposed by Speight. The stages are:

- Executive commitment and managerial buy-in
- Plan initiation
- Business Impact Analysis and Risk Assessment
- Designing the BCP
- Testing and training
- Maintenance

Speight's four-stage cycle is focused on the development of the BCP itself, starting with identifying risks, preparing for risks and then determining necessary response and recovery measures. Cook's six-stage cycle addresses Business Continuity Management as a whole in the context of the organization, starting with commitment by the executive to initiate BCP activity within the organization and obtaining managerial support, through the BCP development process and finishing with training and ongoing maintenance of the BCP and its related documents and policies.

Business Continuity authority Torabi and colleagues suggest that Business Continuity Planning is primarily focused on delivering critical products and services should a disruption to regular operations occur (Soufi, Torabi and Sahebjamnia, 2019. p. 779.) Therefore, the first step in the BCP life cycle is to identify critical products and services that the organization must continue to deliver despite an interruption to regular operations due to an uncontrollable external events, as well as understand the critical processes and functions that must occur in order to deliver these critical products (Watters, 2014. p. 5.). The critical products and services and the critical processes and functions that support them are the basis for the entire Business Continuity Plan. Watters then notes that developing a robust plan to ensure that these critical processes and functions occur despite a disruption to regular operations will ensure the survival of an organization (Watters, 2014. p. 6.). The other important consideration is to determine the maximum tolerable period of disruption to these critical processes and functions, meaning the maximum time permitted to resume these critical processes to avoid significant harm to the organization (Watters, 2014. p. 13.).

According to Torabi and colleagues, the main purpose of the BIA is to gather this critical information and generate a report for senior management, which will then be used to

inform the entire Business Continuity Plan for the organization (Torabi, Soufi and Sahebjamnia, 2014. p. 309.). Accurate identification and thorough analysis of the organization's critical products and services and their required critical processes and functions is an essential step for the BIA, as well as vital to the overall efficacy and validity of the BCP itself (Torabi et al., 2014. p. 310.).

After the BIA is complete and the critical products and services and their critical processes and functions have been identified and analyzed, the next step in the BCP life cycle is to develop the Business Continuity Plan itself. The BCP document houses the plans and procedures to be followed should an uncontrollable external event occur. After in the first step, the Business Continuity Plan itself must be developed in order to support and ensure the critical products and services will be delivered during such an event (Watters, 2014. p. 49.). The BCP should include several critical components, including:

- Contact information for all individuals that are critically involved in the Business Continuity and Emergency Response Plans, as well as that of any third parties that provide necessary resources;
- List of critical processes and functions that support critical products and services, including resource requirements and who is responsible for performing these activities;
- Details of the temporary work sites;
- Recovery process for returning to regular operations when safe to do so and
- Maintenance and testing plan for the BCP itself, including a record of approvals and BCP Checklist (Watters, 2014. p. 50.).

3.4 BCP in Higher Education

Business Continuity Planning in higher education institutes has, until recently, primarily focused on emergency response and technology recovery, with little attention directed towards planning for academic continuity (Regehr, Nelson and Hildyard, 2016. p. 73.). The term "academic continuity" in higher education institution planning has only recently been coined and primarily emphasizes the use of technology in order to continue to deliver course materials to students (Regehr et al., 2016. p. 74).

Given the nature of academic institutions, one of the major threats of academic continuity is pandemic disease outbreaks and the institution's ability to deliver course materials to students while keeping them safe from exposure to dangerous diseases (Saravana, 2007. p. 42.). The U.S. Centres for Disease Control provide specific smart practice recommendations for Business Continuity as it pertains to pandemics in a higher education setting in their *College and University Pandemic Influenza Planning Checklist* (CDC, 2006.) document. The CDC is particularly concerned with preventing and responding to potential pandemic situations, so specific smart practices related to business continuity with respect to pandemics is indicated.

The threat of viral disease outbreaks, prompted by the SARS outbreak in 2003 and the H1N1 outbreak in 2009, initiated the adoption of business continuity in academic settings, whereas it had previously been mostly limited to corporate organizations (Saravana, 2007. p. 42.). In 2009, the University of Toronto began developing an Academic Continuity Plan in response to the World Health Organization declaring a pandemic of the H1N1 Swine Flu virus (Regehr et al., 2016. p. 74.).

Research conducted by Hanover Research, which compared the processes and results of Business Continuity Planning at several higher education institutions in the United States, identified a series of smart practices for BCP in a post-secondary institution setting (Hanover Research, 2010. p. 1.). Some of the critical factors of success they identified include:

- Appointment of suitable BCP Lead to ensure effective implementation of BCP across the organization;
- Adoption of BCP culture among staff, emphasizing the ways in which BCP supports the institution's missions and core mandates;
- Accessible and easy to understand documentation;
- Emphasize unit-specific critical activities by developing BCPs for each department within the organization;
- Support from leadership and
- Testing, performance evaluation, continuous improvement and change management (Hanover Research, 2010. pp. 12-13.).

In addition to their actions with respect to academic continuity in response to viral disease outbreaks, the University of Toronto developed an extensive Business Continuity Management program for the University, with an expanded focus on any and all uncontrollable external events that might impact regular operations, that all major work units must complete using a provided BCP template, and a comprehensive policy on Academic Continuity (University of Toronto, 2012.).

Several other post-secondary institutions across Canada have since mandated that all departments within the organization must create a departmental BCP and have developed templates or other planning tools for this purpose, including the University of British Columbia (University of British Columbia, n.d.) and the University of Victoria (University of Victoria, 2020.). Others have developed BCP policy and overarching BCP for the institution, including the University of Ottawa (University of Ottawa, 2019.) and the University of Manitoba (University of Manitoba, 2020.), or identified BCP as a strategic goal, including Seneca College (Seneca College, 2019.) and George Brown College (George Brown College, 2020.). In reviewing these and other post-secondary institutions for Business Continuity activity, most post-secondary institutions have either recently adopted some BCP policy or are in the beginning phases of BCP. This indicates that BCP in a higher education setting is newly emerging and that CMCC is on the forefront, along with many other higher education institutions across Canada. The new emergence of this

topic is also evidenced by the limited availability of literature specific to BCP in higher education institutions.

3.5 Literature Review Summary

Based on the reviewed literature on Business Continuity Planning, it is clear that BCP is still a fairly new field outside of highly regulated industries, and particularly among higher education institutions; however, there are clearly defined standards to which all Business Continuity Planning can reference, regardless of sector. Additionally, smart practices are emerging from specialty organizations as further research on Business Continuity Planning is conducted. It is important that Business Continuity Planning in higher education settings integrate the identified smart practices into the planning process, to ensure effective Business Continuity Planning that is relevant to the field. The findings from this literature review as they pertain to this project are summarized in the table below.

This is particularly relevant for CMCC as it also contains a treatment clinic where students and staff interact with patients on a regular basis.

Table 1. Literature review summary

Main Finding	Relevance
The ISO 22301 (2012) provides a standardized framework for all BCP activity, regardless of sector.	How does the ISO 22301 influence the development of the BCP template and survey? ▪ The ISO 22301 is the current international standard for Business Continuity Planning ▪ It outlines the information required for successful BCP ▪ Following these guidelines will ensure a robust BCP is developed and that the survey identifies the necessary information
Drewitt (2013) provides further explanation and theory behind the standards outlined in the ISO 22301, as well as methods of analysis for the Business Impact Analysis.	What questions must be addressed in the BIA? ▪ What are the critical products and services for each department? ▪ What are the critical processes and functions for each department? ▪ What are the MRTs and MTPDs? ▪ What resources are required?
There is limited literature available regarding BCP in higher education settings, particularly because the field is still in its infancy in this sector.	What are the smart practices for BCP in higher education? ▪ Identify BCP Lead ▪ Adopt BCP in organizational culture ▪ Emphasize unit-specific critical operations ▪ Testing and maintenance of BCP

	▪ Pandemic response is particularly relevant for CMCC, because in addition to staff offices and student classrooms, the campus also contains a treatment clinic where students and staff interact with patients on a regular basis
Several BCP cycles have been proposed, however they are similar in theory and in their application.	Which BCP life cycle should be followed at CMCC? ▪ Speight proposes a four-stage cycle, which involves identifying risks, preparing for risks and then determining necessary response and recovery measures ▪ Cook proposes a six-stage cycle, which starts with executive commitment and buy-in from managers, through the development of the BCP itself and ends with testing, training and maintenance ▪ Speight's four-stage cycle is within the scope of this project; The additional steps proposed by Cook are outside the scope of developing the BCP itself

4. Methodology and Methods

The following section outlines the methodology and methods used for this research. It describes the survey tool that was used for this project and how it was developed, as well as the reasoning and justification for the research methods used. Additionally, it briefly addresses the ethical approval acquired for this research.

4.1 Ethical Approval

This research required ethical approval by the University of Victoria Human Research Ethics Board, which was granted on June 27, 2019 (see Appendix A for approval certificate). Due to the nature of this research, ethical approval was given based on an "opt-out" consent process, where participants may opt-out of having their data used in the research itself, while still collecting the necessary information for CMCC's internal records.

4.2 Methodology

Guided by the primary research question (i.e., what are the critical processes, functions, services and products that must be delivered by each department at CMCC), and the secondary research questions (i.e., what is the timeframe during which those critical operations must be resumed following a disruption and what is the threshold for the activation of the BCP at CMCC), the first data collection approach was to conduct the Business Impact Analysis (BIA). According to Drewitt, the Business Impact Analysis (BIA) is the critical first step in the Business Continuity Planning cycle (Drewitt, 2013. p. 52) as it identifies all the information that is necessary for developing the BCP itself. The smart practices, a series of recommendations, for conducting an effective BIA are described in the ISO 22301. These include:

- Critical products and services that must be delivered by the department as soon as possible after a disruption caused by an uncontrollable external event in order to prevent significant harm to College operations;
- Critical processes and functions that must occur in order to ensure delivery of the department's critical products and services;
- Potential areas of impact for the various uncontrollable external events that could occur, including students, patients, staff, finances, CMCC's reputation, the environment and any other areas of impact that may be department-specific;
- Maximum acceptable timeframes for delivering critical products and services, after which not delivering those products and services within that time period would cause significant harm to the College in one or more of the identified areas of impact and
- Resources required to ensure the delivery of the department's critical products and services that must be available within the maximum acceptable timeframe (ISO, 2012. p. 15.).

Yet there is no standardized tool for gathering this information. Therefore, based on the smart practices recommended by the ISO 22301 and others as described in the available Business Continuity literature, it was decided that a survey tool would be the most effective for collecting this information accurately. The Business Impact Survey developed for this project is included in Appendix B.

In accordance with the smart practices identified by Hanover Research (2010. p. 12.) for Business Continuity Planning in a higher education setting, the survey needed to be presented in a way that is easy to follow, considering the research participants were mostly unfamiliar with Business Continuity Planning. As noted by Watters, traditional Business Impact Surveys can often be overly technical and difficult for non-experts to accurately respond to (Watters, 2014. p. 36). Therefore, in accordance with Watters' guidance, the Business Impact Survey was designed utilizing recommendations for a simplified questionnaire that would gather the necessary information without requiring participants to accurately estimate impacts themselves, but rather this step being conducted by the researcher during the data analysis (Watters, 2014. pp. 265-271.).

4.3 Methods

Prior to the commencement of the data collection period, some information regarding currently identified risks was already available via the newly developed CMCC Hazard Identification and Risk Analysis (HIRA) document (Appendix C); however, the majority of information for this project was gathered through the Business Impact Survey (Appendix B).

4.3.1 Selection of Research Participants

The survey was administered to key management staff who were selected because they are at the senior manager level of their respective divisions and therefore would have the most familiarity with all the critical products and services delivered by their department. All department heads were surveyed as each department required its own Business Continuity Plan, based on the unique activities that occur in each individual department. The survey participants consisted of the following CMCC staff:

- Vice President of Administration and Finance
- Vice President of Academics
- Vice President of Clinic Operations and Initiatives
- Associate Vice President of Institutional Advancement and Communications
- Director of Human Resources and Employee Engagement
- Director of Physical Facilities
- Director of Development and Clinic Advancement
- Director of Research and Innovation
- Director of Financial Services and Controller

- Director of Supply Centre
- Director of Student Success
- Director of Legal Department
- Manager of Enterprise Risk Management
- Manager of IT Infrastructure
- Manager of Pathology

Research participants were made aware of this research first by an informational email written and distributed internally by the Vice President, Administration and Finance. Once ethical approval for this research was approved (Appendix A), a formal Invitation to Participate and Consent Form (Appendix D) was distributed to participants by the Vice President, Administration and Finance, via email with the Business Impact Survey (Appendix B) attached. As approved by the University of Victoria Human Research Ethics Board, participants were provided an opt-out consent, meaning participants could return the signed consent form, indicating that they were opting out of the research portion of the survey, while still allowing their information to be collected by CMCC internally. Participants were instructed to complete the survey and return by email to the researcher. An additional reminder email was sent after one week had elapsed to those participants who had not returned the survey in that time.

A total of 15 participants were contacted to participate in the research. The Business Impact Survey (Appendix B) was distributed to the 15 key management staff outlined above. These 15 individuals comprised the total population of senior managers at CMCC. Of the 15 participants invited to complete the survey, 13 responded and none selected the opt-out consent option, so all 13 responses were used in the data analysis. Therefore, the response rate was 86.7%.

4.3.2 Data Collection

The first phase of research was to design and distribute the Business Impact Survey, which the primary source of data for the Business Impact Analysis and therefore the Business Continuity Plan as a whole. The validity of the survey was ensured by adhering to smart practices as outlined in the ISO 22301 (ISO, 2012. p. 15.).

The main goal of the Business Impact Survey was to clearly identify critical products and services, and the critical processes and functions that support them, for each department at CMCC (Watters, 2014. p. 36.). Each department at CMCC has different critical processes, functions, products and services they provide. Therefore, it was necessary to gather this data for each individual department to later be used to develop each of their departmental Business Continuity Plans. This process emphasizes the importance of department-specific data, which helps to ensure an accurate Business Impact Analysis and therefore an effective Business Continuity Plan, as well as improves buy-in and support for BCP culture at the College, which are considered smart practices for BCP in higher education settings as described by Hanover Research (2010. p. 12.).

The survey was delivered electronically as a Microsoft Word document via email in Fall 2019. Participants were asked to complete the survey and send it back by return email, if they were choosing not to opt out of the research. Participants were given two weeks to complete the survey.

One follow-up telephone interview was conducted with the Risk Manager, head of the Enterprise Risk Management program at CMCC, under which the Business Continuity Plan falls. The purpose of this interview was to develop Impact Profiles, both financial and non-financial, for each of the identified uncontrollable external events. Additionally, the necessary modifications to the standardized impact scale to suit CMCC (Drewitt, 2013. p. 64.) were defined in order to determine the Maximum Tolerable Period of Disruption (ISO, 2012. p. 5.).

4.4 Data Analysis

The data from questions 1, 2, 3 and 6 was compiled into a Business Impact Analysis spreadsheet (Drewitt, 2013, p. 57), which outlines the responses to each question by department. The responses were analyzed qualitatively using a content analysis method to identify the key ideas and themes from each respondent. As described by Watters, this analysis is necessary to determine what will be required by each department to withstand the impacts of an uncontrollable external event on their ability to deliver critical products and services (Watters, 2014. p. 41.).

The Threshold Analysis was also conducted, using the information provided by respondents in questions 4 and 5 of the survey, in order to determine the point at which the BCP must be activated to ensure adequate recovery time to avoid negative impacts on the delivery of critical products and services. Watters defines the Threshold Analysis as identifying the point at which the BCP must be activated, as a result of an interruption to regular operations (Watters, 2014. p. 43.). The threshold may vary depending on the type of disruption and which department has been affected.

After completion of the Business Impact Analysis, the information was used to develop the Business Continuity Plan template (Appendix E).

4.5 Limitations of Analysis

Due to the nature of unpredictable and uncontrollable external events that would affect regular College operations, the main threat to the internal validity of this research is in the ability of those surveyed to correctly identify potential risks and estimate potential impacts. In order for the Business Continuity Plan to be effective, risks must be accurately identified and their impacts must be accurately estimated. Since the research methodology heavily relies on the reporting of risks by the survey participants and the estimation of impact was conducted by the researcher, who is external to the organization, there is an inherent chance that not all possible risks will be considered or that their impact may be inaccurately

estimated. This could result in a lack of preparedness for specific emergencies or disasters either because they were completely unexpected or because their impact had been underestimated. However, by developing a robust Business Continuity Plan, this will provide the College with the right framework to improve their response in any situation. Additionally, a rigorous Business Impact Analysis using proven methods, namely the Threshold Analysis, and standardized impact scales modified to suit CMCC, these risks are minimized.

The primary threat to external validity is that the results of the Business Impact Analysis may not be fully applicable to other organizations. The survey tool was designed specifically for CMCC, with the knowledge level of selected participants in mind. Therefore, the survey may not be suitable for an organization that has dedicated BCP practitioners, or in an organizational culture where BCP is already well ingrained. However, the survey and subsequent Business Impact Analysis were designed and conducted following smart practices described by the ISO 22301 and other authorities on Business Continuity. Therefore, the methodology and conclusions can be generalized for other organizations to some extent, with some modifications appropriate for their organizational climate and culture.

5.0 Findings: Business Impact Analysis and Survey Results

This section describes the survey responses as well as the analysis for the Business Impact Analysis.

5.1 Potential Uncontrollable External Events

The potential uncontrollable external events that may create significant disruption to CMCC and impact the College's ability to maintain regular operations were identified in the Hazard Identification and Risk Assessment (Appendix C), which was developed following interviews conducted by the Enterprise Risk Manager, prior to the commencement of the BCP project at CMCC. For the purposes of the Business Impact Analysis, those identified hazards were grouped into the following categories:

- Active shooter/terrorist attack
- Pandemic
- IT System Outage (Cybersecurity attack, IT system failure, telecommunications failure etc.)
- Facilities Outage (Power outage, water outage etc.)
- Physical Damage to College Property (Fire, flood, explosion etc.)
- Natural Disaster (Earthquake, hurricane, extreme weather etc.)

A modified HIRA was created to provide the risk rating for these hazard categories. High risks are indicated in grey and moderate risks in white. High risk hazards are uncontrollable external events that are either more likely to occur or to have a significant impact. Moderate risks may have similar likelihood, but lesser or more easily rectified impacts.

Table 2. Modified HIRA for the Business Impact Analysis

Threat	**Likelihood**	**Impact**	**Risk Rating**
Active Shooter/Terrorist Attack	3	5	15
Pandemic	3	5	15
IT System Outage	4	5	20
Facilities Outage	3	3	9
Physical Damage to College Property	3	3	9
Natural Disaster	2	3	6

5.2 Survey Results – Critical Products and Services by Department

The first part of the survey asked participants to list the most critical products and services delivered by their department. These are the products and services that are the first priority for their department to deliver following the occurrence of an uncontrollable external event in order to avoid significant harm to their department and to the College. These responses answer the primary research question, as the delivery of critical products and services is the primary threat to business continuity. The responses are summarized in the table below.

Table 3. Critical products and services by department

Department	Critical Products and Services
Administration and Finance	No response
Academics	▪ Undergraduate and Graduate programming ▪ Library services ▪ Examinations
Clinic Operations and Initiatives	▪ Patient care ▪ Year 4 clerkships
Institutional Advancement and Communications	▪ The CMCC website and all web-based services ▪ Online admissions application ▪ General communications ▪ Emergency communications
Human Resources and Employee Engagement	▪ Payroll ▪ Benefits
Physical Facilities	▪ Utilities ▪ Facility safety ▪ Security ▪ Janitorial services ▪ Functioning equipment
Development and Clinic Advancement	▪ Processing of funds received ▪ Tax receipts
Research and Innovation	▪ Force Sensing Table Technology Units ™ ▪ Publications ▪ Grant proposals
Financial Services and Controller	▪ Vendor payments ▪ Bank deposits ▪ Tuition processing and returns ▪ Financial statements
Supply Centre	▪ Procurement of supplies for the College
Student Success	▪ Admissions ▪ Registration services ▪ Transcripts ▪ Counselling for students ▪ Student records

	▪ Financial aid
Legal Department	No response
Enterprise Risk Management	▪ Emergency management services ▪ Emergency response plans ▪ Incident Management Structure ▪ Emergency notification system ▪ Emergency Operations Centre management
IT Infrastructure	▪ All IT infrastructure at CMCC campus
Pathology	▪ All operations of the pathology lab for research and education purposes

5.3 Survey Results – Critical Processes and Functions by Department

The second section of the survey asked participants to identify the critical processes and functions that must be performed by their department in order to deliver the critical products and services identified in the previous section. Should an uncontrollable external event occur that disrupts regular operations, these are the processes and functions that must be restored first following the disruption to ensure that the critical products and services can be delivered. The responses are summarized in the table below.

Table 4. Critical processes and functions by department

Department	Critical Processes and Functions
Administration and Finance	No response
Academics	▪ All classroom and lab activities ▪ Maintenance of Learning Management System (LMS) ▪ Maintenance of both physical and online library system ▪ Develop and administer exams using Examsoft software
Clinic Operations and Initiatives	▪ Maintenance of patient records ▪ Scheduling and performing patient treatments
Institutional Advancement and Communications	▪ Maintenance of CMCC website content and functionalities ▪ Maintenance of CMCC email platform ▪ Maintenance and operation of digital signage used in crisis/emergency response
Human Resources and Employee Engagement	▪ Payroll entries ▪ Payroll approvals ▪ Distribution of payments
Physical Facilities	▪ Schedule and perform maintenance on equipment ▪ Maintenance of security equipment

	▪ Hire and work with security company ▪ Monitor and replenish cleaning supplies
Development and Clinic Advancement	▪ Communication with CMCC constituents ▪ Maintenance of database
Research and Innovation	▪ Construction and delivery of FSTT units ▪ Conducting research
Financial Services and Controller	▪ Collecting and depositing payments ▪ Review and maintenance of bank accounts ▪ Correspondence with students regarding tuition
Supply Centre	▪ Monitoring of stock of various supplies ▪ Correspondence with suppliers ▪ Processing stock orders ▪ Coordinating deliveries and shipments
Student Success	▪ Maintaining and updating student records and grades ▪ Processing student loans ▪ Coordinating student counselling
Legal Department	No response
Enterprise Risk Management	▪ Activation of the emergency response plans ▪ Activation of the EOC ▪ Support the IMS with emergency response ▪ Preparing and releasing emergency notifications/communications to CMCC campus
IT Infrastructure	▪ Maintenance and updating of CMCC email system ▪ Maintenance of campus internet access
Pathology	▪ Maintenance and proper care of cadavers, including evacuation plans ▪ Management and storage of chemicals

5.4 Survey Results – Resource Requirements by Department

Participants were also asked to identify the necessary resources required in order to perform critical processes and functions that support the delivery of the department's critical products and services. The resource requirements could be facilities, technology, information and records, equipment and supplies, finances, or any other resources as indicated by the department. These resources would need to be available in the event of a disruption to regular operations. The responses are summarized in the table below.

Table 5. Resource requirements by department

Department	Resource Requirements
Administration and Finance	No response
Academics	▪ Additional faculty support

	▪ Laboratory space ▪ Access to Examsoft software and LMS ▪ Computer with internet access
Clinic Operations and Initiatives	▪ Additional staff ▪ Clinic space to treat patients, with necessary clinic supplies and apparatus ▪ Information technology, telephones ▪ Clinic schedules, patient records and billing information
Institutional Advancement and Communications	▪ IT expert to restore access to compromised IT system ▪ Temporary workspaces ▪ Computers with internet access ▪ Access to cloud-based, shared network drives
Human Resources and Employee Engagement	▪ Additional payroll entry support ▪ Temporary workspaces ▪ Access to HRMS database and servers ▪ Computers with internet access
Physical Facilities	▪ Janitorial, restoration and trades staff ▪ Temporary workspace and meeting facilities ▪ Storage facilities ▪ Computer with internet access ▪ CCTV access/capabilities ▪ Maintenance schedules ▪ Safety records
Development and Clinic Advancement	▪ Access to Raiser's Edge database software ▪ Computer with internet access ▪ Telephone system
Research and Innovation	▪ Laboratory and office spaces ▪ Freezer for lab samples ▪ Computers with internet access ▪ Access to contracts/agreements files ▪ Tools and materials for fabrication of FSTT units
Financial Services and Controller	▪ Temporary workspace ▪ Computers with internet access ▪ Credit card machines ▪ Financial documents
Supply Centre	▪ Supplies storage ▪ Computer with internet access ▪ Additional staff to process orders ▪ Temporary workspace ▪ Access to documents and contact information of suppliers ▪ Shipping materials and equipment

Student Success	▪ Additional counselling staff following a traumatic even ▪ Temporary space to meet with students ▪ Computers with internet access ▪ Access to files and student records
Legal Department	No response
Enterprise Risk Management	▪ Additional staff for emergency response ▪ Workspace for the EOC to operate ▪ Access to IT infrastructure and databases ▪ Communications technology (phone, email etc.) ▪ Student/staff/patient records and contact information ▪ Access to ERM documents and records
IT Infrastructure	▪ Additional temporary tech staff ▪ Location for data center ▪ Computer with internet access ▪ Access to CMCC servers
Pathology	▪ Cold storage for cadavers ▪ Notification system of temperature changes in cold storage ▪ Contract with local coroner's office for transport of cadavers

5.5 Survey Results – Potential Impact Areas of Each Threat

The next section of the Business Impact Survey examined the potential impact areas of an uncontrollable external event. Given that CMCC is not only comprised of its administration staff, but also an education institution with students and a treatment facility with patients, it is critical that all aspects of College activity are considered as it pertains to business continuity. The identified impact areas are summarized below.

Table 6. Summary of potential impact areas of each threat

	Impact Area					
Threat	Students	Staff	Patients	Finances	Reputation	Environment
Active shooter/ terrorist attack	Yes	Yes	Yes	Yes	Yes	Yes
Pandemic	Yes	Yes	Yes	Yes	Yes	No
IT System Outage	Yes	Yes	Yes	Yes	Yes	No
Facilities Outage	Yes	Yes	Yes	Yes	Yes	Yes

Physical Damage to College Property	Yes	Yes	Yes	Yes	Yes	Yes
Natural Disaster	Yes	Yes	Yes	Yes	No	Yes

5.6 Survey Results – Minimum Response Times and Maximum Tolerable Periods of Disruption

The next section of the Business Impact Survey addressed Minimum Response Times and Maximum Tolerable Periods of Disruption. The Minimum Response Time (MRT) is the minimum amount of time required by the department to acknowledge the uncontrollable external event and determine its next course of action. Typically, this will mean the minimum amount of time required to activate the BCP, however if the impact threshold is not met (see below), then the BCP will not be activated (Drewitt, 2013. p. 113.). The Maximum Tolerable Period of Disruption (MTPD) is the period in time at which the critical products or services of that department must be delivered to avoid exceeding the impact tolerance (Drewitt, 2013. p. 193-194.). For products or services that are supported by multiple critical processes or functions, the process or function with the shortest MTPD is the limiting process and all processes must be resumed by that time period (Watters, 2014. p. 44.).

Survey participants estimated the MRTs and MTPDs for their department, summarized in table 7 below.

Table 7. Summary of MRTs and MTPDs by department

Department	**MRT**	**MTPD**
Administration and Finance	No response	No response
Academics	2 hours	1 week
Clinic Operations and Initiatives	2 hours	1 week
Institutional Advancement and Communications	1 hour	1 week
Human Resources and Employee Engagement	2 hours	2 weeks
Physical Facilities	1 hour	1 week
Development and Clinic Advancement	4 hours	2 weeks
Research and Innovation	4 hours	2 weeks
Financial Services and Controller	2 hours	1 week
Supply Centre	2 hours	1 week
Student Success	4 hours	2 weeks
Legal Department	No Response	No Response
Enterprise Risk Management	1 hour	2 days
IT Infrastructure	1 hour	2 days
Pathology	2 hours	2 days

5.7 Survey Results – Impact Scale for CMCC

The following scale was developed in consultation with CMCC's Enterprise Risk Manager during the interview session following the completion of the Business Impact Survey. It based on a standardized impact scale (Drewitt, 2013. p. 64.) that has been modified to suit CMCC. The impact areas were those used in the Business Impact Survey (Appendix B).

Table 8. The CMCC Impact Scale

Impact Area	Impact	Level
Students	Classes cancelled and/or student services unavailable for up to one day;	Low
Patients	Clinic closed for up to one day	
Staff	College operations shut down for up to one day	
Finances	Little to no financial loss	
Reputation	The CMCC reputation remains unharmed	
Environment	Any minor impacts on the environment do not require remediation	
Students	Classes cancelled and/or student services unavailable for more than one day up to three days	Medium
Patients	Clinic closed for more than one day up to three days	
Staff	College operations shut down for more than one day up to three days	
Finances	Minimal financial losses that are easily recovered	
Reputation	Minimal harm to CMCC's reputation among CMCC community members (students/patients/staff)	
Environment	No significant environmental damage; minor impacts easily remediated	
Students	Classes cancelled and/or student services unavailable for up to one business week	High
Patients	Clinic closed for up to one business week	
Staff	College operations shut down for up to one week	
Finances	Moderate recoverable financial losses	
Reputation	Moderate harm to CMCC's reputation among CMCC community members	
Environment	Moderate environmental impacts requiring significant remediation	
Students	Classes cancelled and/or student services unavailable for up to two business weeks; Potential for physical harm to students	Very High

Patients	Clinic closed for up to two business weeks; Potential for physical harm to patients	
Staff	College operations shut down for up to two weeks; Potential for physical harm to staff	
Finances	Moderate financial losses that may not be recoverable	
Reputation	Significant harm to CMCC's reputation among CMCC community members; media attention may cause some harm CMCC's reputation among the public	
Environment	Significant environmental damage requiring extensive remediation	

Students	Classes cancelled/student services unavailable for more than two business weeks or indefinitely; Students in immediate risk of physical harm	Severe
Patients	Clinic closed for more than two business weeks or indefinitely; Patients in immediate risk of physical harm	
Staff	College operations shut down for more than two business weeks or indefinitely; Staff in immediate risk of physical harm	
Finances	Severe financial losses that may not be recoverable	
Reputation	Significant harm to CMCC's reputation among CMCC community members; significant media coverage may cause significant harm to CMCC's reputation among the public	
Environment	Severe environmental damage that may be irreparable	

5.8 Survey Results – Threshold Analysis

In the event of an uncontrollable external event, the BCP Lead for each department, in collaboration with the ERM Manager, must assess the potential for interruption to regular operations to determine whether or not the BCP must be activated. The threshold at which the BCP must be activated is 2 (Drewitt, 2013. p. 66.). Thresholds for each department are determined by the MTPD for the department and the Impact Scale from table 7. The number 2 is arbitrary but is used to indicate that the department's MPTD threshold has been reached (Drewitt, 2013. p. 66.). The increase in number beyond 2 indicates an increase in severity if operations are not resumed within that time period and that the delivery of critical products and services may be negatively impacted.

Table 9. Threshold analysis by department

Department	MTPD	<1 D	<3 D	<1 W	<2 W	>2 W
Administration and Finance	No response	--	--	--	--	--
Academics	1 week	1	1	2	3	4
Clinic Operations and Initiatives	1 week	1	1	2	3	4
Institutional Advancement and Communications	1 week	1	1	2	3	4
Human Resources and Employee Engagement	2 weeks	1	1	1	2	3
Physical Facilities	1 week	1	1	2	3	4
Development and Clinic Advancement	2 weeks	1	1	1	2	3
Research and Innovation	2 weeks	1	1	1	2	3
Financial Services and Controller	1 week	1	1	2	3	4
Supply Centre	1 week	1	1	2	3	4
Student Success	2 weeks	1	1	1	2	3
Legal Department	No Response	--	--	--	--	--
Enterprise Risk Management	2 days	1	2	3	4	5
IT Infrastructure	2 days	1	2	3	4	5
Pathology	2 days	1	2	3	4	5

5.9 Survey Results – Summary of Findings

As expected, critical products and services and therefore the supporting critical processes and functions and the resources required to complete them, were different for each department. Additionally, there was some variation in Minimum Response Times (MRT) and Maximum Tolerable Periods of Disruption (MTPD) between the departments, with more central departments such as communications and facilities requiring faster responses than departments where their work is not as time sensitive but still must be delivered during a disruption. With these MRTs and MTPDs defined, the threshold for BCP activation by department was established. All the survey responses and subsequent analysis were essential for the development of robust BCPs for each department at CMCC.

6.0 Discussion and Analysis- Business Continuity Plan

The following section discusses the implications of the survey responses summarized in section 5 and how that information was used to develop the Business Continuity Plan template and accompanying documents for CMCC (Appendices E and F). It also addresses areas of further research to be undertaken at CMCC.

6.1 Answering the Research Questions

6.1.1 What are the critical processes, functions, services and products that must be delivered by each department at CMCC?

As summarized in table 3 in section 5.2, the critical products and services were different for each department. The critical products and services are the foundation for Business Continuity Planning, given that these are the critical deliverables that must be completed despite the occurrence of an uncontrollable external event that has disrupted regular operations. Additionally, the critical processes and functions (table 4, section 5.3) and the resources required to complete these processes and functions (table 5, section 5.4) must be sufficiently accounted for in the event of a disruption to regular operations, as these critical processes, functions and resource requirements are necessary to support the completion of the identified critical products and services.

6.1.2 What is the timeframe during which those critical operations must be resumed following a disruption?

The Minimum Response Times (MRT) and Maximum Tolerable Periods of Disruption (MTPD) are summarized in table 7 in section 5.6. The MRTs define the minimum amount of time required for each department to respond to an uncontrollable external event and initiate the appropriate response. The MTPDs define the maximum time for which a critical operation can be interrupted before it will negatively impact the College. In other words, the critical operations must resume before the MTPD is reached. The MRTs and MTPDs are different for each department. More centralized departments, such as communications and facilities have shorter MRTs and MTPDs, whereas departments whose functions are not as time sensitive have longer MRTs and MTPDs, but their critical products and services still must be delivered following an interruption to regular operations.

6.1.3 What is the threshold for the activation of the BCP at CMCC?

Using the MRTs and the MTPDs, the threshold analysis was completed as described in section 5.8. A value of "2" is used to signify the point at which the BCP must be activated for each individual department. Due to the varying MRTs and MTPDs for each department, the threshold is reached at different times for each department, as outlined in table 9.

6.2 Moving Forward – Developing a Business Continuity Planning Template

6.2.1 Critical Products and Services

For the purposes of Business Continuity Planning at CMCC, the best approach according to the client was to develop a BCP template that contained the critical components, which would subsequently be filled in by the BCP Lead for each department. As was made clear by the data collected in the Business Impact Analysis, each department has very different critical products and services, as well as different tolerances to disruption, depending on how critical their products and services are to the overall operation of the College. Additionally, a comprehensive template that includes all the necessary components, has clear directions and is simple to complete and maintain ensured that the BCP process was in accordance with smart practices for BCP in higher education settings and would achieve greater buy-in from CMCC staff (Hanover Research, 2010. pp. 12-13.). Therefore, it was necessary that each department develop and maintain its own Business Continuity Plan.

The Business Continuity Plan (Appendix E) itself is largely based on the responses from the Business Impact Survey. The critical products and services must be identified, along with the critical processes and functions and the resources required that support their completion. With those critical pieces already identified during the BIA process, the remaining steps to complete this aspect of the BCP was for each department BCP Lead to identify how they would make provisions to ensure that these criteria can be met during a disruption. For example, making arrangements for alternate work sites, making contracts with suppliers to provide emergency supplies for work completion at the alternate site etc.

6.2.2 Recovery Process

The next section of the BCP template is an action plan for the Recovery Process, which covers the time period from when the disruption occurs and the BCP is activated, through alternate site operations and finishing with the transition back to regular operations, as outlined by ISO 22301 (2010. p. 17). In the template, generic plans for BCP Activation, Alternate Operations and Transition to Regular Operations processes are included (Drewitt, 2013. pp. 128-129.), which must be modified and expanded depending on department-specific requirements and activities.

6.2.3 BCP Activation

The BCP Template also includes its own Threshold Analysis that is specific to each department. The Threshold Analysis in table 9 above is a high-level Threshold Analysis for department-wide operations. Within each BCP, the departmental BCP Leads must break down all critical processes and functions within the department and assign MTPDs and thresholds as described previously. This is a requirement of the ISO 22301 (2010. p. 17.) because it ensures that all critical processes and functions are initiated within the predefined acceptable timeframes to ensure delivery of critical products and services. Multiple processes and functions may support the same critical products and services and may have

different MTPDs. Therefore, it is necessary to analyze each process to ensure that all critical processes and functions are initiated at the correct times. Known as the "First Past the Post" approach (Watters, 2014. p. 44.), this ensures that the rate limiting step (i.e. that process or function with the shortest MTPD) is clearly identified so that all related processes and functions commence at that time to prevent backlog and the inability to deliver critical products and services.

6.2.4 Other Components of the BCP Template

Other critical components of the BCP include:

- BCP Maintenance
- BCP Testing Procedures
- BCP Training
- Prevention and Mitigation
- Performance Evaluation and Improvement

These components must first be addressed in CMCC's forthcoming Business Continuity Planning Policy. Sections for these components have been included in the BCP template but cannot be completed by BCP Leads until the Business Continuity Planning Policy is in place. These components are critical to a robust BCP (ISO, 2010. pp. 18-19.) but require the establishment of an overarching BCP Policy for CMCC and are addressed in Recommendations below.

6.2.5 BCP Checklist

A BCP Checklist (Appendix F) was also developed to accompany the BCP Template. The BCP Checklist is a management tool for the requirements of continuous maintenance and improvement of the departmental BCPs (Drewitt, 2013. p. 153.). It identifies the recommendations of the ISO 22301 to ensure robust BCPs and simplifies the BCP evaluation process.

6.3 Limitations of Analysis and Areas for Further Research

One of the main limitations of these findings is that they only reflect the current state of operations in each department at CMCC. Therefore, it is necessary to continually review the critical products and services of each department, and their supporting processes, functions and resources and update the departmental BCPs as needed. This is part of the maintenance cycle of the BCP process as described in section 6.2.4.

7.0 Recommendations

Although the BCP template and accompanying documents are a major component of effective Business Continuity Planning at CMCC, several areas still require attention in order to develop and maintain a robust Business Continuity Management system at the College. In the following section, a series of recommendations for next steps at CMCC are described. Key Recommendations 1 and 2 are those that should be addressed as a first priority at CMCC. The additional recommendations are also important for successful BCP at CMCC, however Key Recommendations 1 and 2 are the first priorities.

7.1 Key Recommendation 1: Develop an Organization-Wide Business Continuity Policy

The primary recommendation for CMCC was to develop an organization-wide Business Continuity Policy, based on the ISO 22301 recommendations, that governs all BCP activity at the College. The BCP Policy would be an overarching document that describes everything that is expected in relation to BCP (Watters, 2014. p. 6.). BCP Policy is often missing from organizations; however, it is imperative that an official policy be defined that objectively describes all BCP activity that must happen in the organization Drewitt, 2013. p. 19.).

The benefits of a well-defined BCP Policy include:

- Ensures consistency across the organization by standardizing all BCP activity;
- Increases collaboration and buy-in by communicating requirements, responsibilities and goals;
- Defines requirements for BCP activity in an objective and measurable manner;
- Guarantees ongoing maintenance and improvement of BCPs, leaving the organization better prepared and
- Emphasizes the importance of BCP to students, patients, staff and other third parties (Drewitt, 2013. pp. 20-22.).

It is recommended that the Executive Leadership Team and the Enterprise Risk Management program manager collaborate to develop the CMCC Business Continuity Planning Policy as soon as possible. It is necessary that the policy be finalized prior to the completion of the departmental BCPs. Some of the BCP requirements cannot be completed without a defined policy in place. The policy should contain both the policy document and a set of standards for creating and maintaining departmental BCPs (Watters, 2014. p. 24.). The CMCC BCP Policy should include:

- Clearly defined goals and objectives for BCP activity at CMCC the departmental BCPs must align with;
- Established framework for developing departmental BCPs and implementing BCP at CMCC;

- Requirements for regular testing of the departmental BCPs to ensure consistency with business continuity goals and preparedness in the case of an uncontrollable external event;
- Requirements for training of department staff so that all are familiar with their department's BCP to ensure a smooth transition to alternate operations and back to regular operations;
- Requirements for performance evaluation, including:
    - Monitoring, measurement, analysis and evaluation of the departmental BCPs
    - Reporting requirements
    - Required frequency of evaluation
    - Key Performance Indicators
    - Assessment of performance reports and measures for taking corrective actions;
- Requirements for management review of departmental BCPs to ensure plans are in accordance with the CMCC BCP Policy and with the current ISO 22301 standards, as well as review of the BCP Policy itself and
- Requirements for continuous improvement (ISO, 2010. p. 11.).

7.2 Key Recommendation 2: Define Roles and Responsibilities for Each Position at CMCC

It is also recommended that roles and responsibilities are clearly defined at CMCC and that any necessary hiring occur (Watters, 2014. p. 6.). Firstly, a College-wide BCP Lead should be appointed, who is responsible for all BCP activity at CMCC, including management of the BCP Policy document and for overseeing the development and maintenance of departmental BCPs, as recommended by BCP smart practices for higher education institutions (Hanover Research, 2010. p. 12.). The CMCC BCP Lead would also be responsible for designing and overseeing BCP training at the College. Subsequently, BCP Leads for each department should be assigned. Departmental BCP Leads are those individuals that are responsible for developing and maintaining the BCP for their department and for activating the BCP should an uncontrollable external event occur.

7.3 Additional Proposed Recommendations

Other recommendations for BCP-related activities that should occur at CMCC and be incorporated with the BCP Policy include:

- Recommendation 3: Establish a project management plan for the implementation of the BCP program;
- Recommendation 4: Create a risk register for the BCP implementation process;
- Recommendation 5: Integrate BCPs with existing Emergency Management Response Plans and Procedures;

- Recommendation 6: Identify and rectify any gaps or weaknesses in the Emergency Management Response Plans and Procedures so that they align with BCP Policy and
- Recommendation 7: Develop a process for making BCP-related financial and non-financial resource requests to management for decision making and approval.
- Recommendation 8: Develop messaging and other materials for BCP education and to support cultural change at the College

7.4 Proposed Implementation Strategy

Before the departmental BCPs can be finalized, the BCP Policy for CMCC must be established. Once the policy is developed, following the recommendations as described in section 7.1, the departmental BCP Leads, in collaboration with the CMCC BCP Lead, will be ready to complete the departmental BCPs and being implementing the necessary procedures as outlined in the BCP itself.

In addition to the BCPs, CMCC will also require strategies for initiating cultural change at the College, towards a culture of risk awareness, preparedness and proactivity. This will consist of messaging related to BCP and its importance within the organization, as well as education and training for all levels of CMCC staff.

Below is a suggested timeline for BCP activity at CMCC to ensure a successful implementation at the College.

7.4.1 Proposed Timeline for BCP Activity at CMCC

January 2020 – Commence development of BCP Policy
- Executive Leadership Team and ERM Program Manager
- Develop BCP Policy as recommended above, following smart practices from ISO 22301

January 2020 – Hire or appoint CMCC BCP Lead
- BCP Lead should review BCP Policy before finalizing

February 2020 – Develop BCP messaging for CMCC staff to raise awareness and begin development of BCP Culture at CMCC
- Inform CMCC staff about upcoming BCP activity and their roles and responsibilities
- Introduce training requirements

February 2020 – Develop project management plan for BCP implementation process

March 2020 – Finalize BCP Policy

March 2020 – Assign departmental BCP Leads and begin developing the departmental BCPs using the BCP Template, incorporating requirements from the CMCC BCP Policy and the ISO 22301

- The CMCC BCP Lead to identify individuals in each department that would be suitable for the departmental BCP Lead position
- The CMCC BCP Lead to work with departmental BCP Leads to develop and finalize departmental BCPs

March 2020 – Create Risk Register for BCP implementation

- ERM Program Manager and BCP Lead

May 2020 – Finalize departmental BCPs

May 2020 – Develop training plans for CMCC staff by department

- The CMCC BCP Lead and departmental BCP Leads
- Organize training sessions including information sessions about BCP and department-specific training sessions that test the BCP activation, alternate site operations and transition to regular operations processes

June 2020 – Performance review of training and testing activities

- BCP Lead to report to Executive Leadership Team

8.0 Conclusion

Based on the feedback received from the Business Impact Survey, it is clear that each department at CMCC has its own critical products and services, supported by unique processes and functions that support the operation and success of CMCC. It is therefore imperative that each department be responsible for its own, individual Business Continuity Plan that is designed to meet the specific needs of the department and ensure that no critical processes and functions are missed. In addition, this will assist with buy-in and the adoption of BCP culture at CMCC and aligns with previously identified smart practices for BCP in higher education institutions.

By creating and maintaining robust departmental BCPs using the BCP Template, and developing a detailed and effective BCP Policy, CMCC will be well prepared to withstand the negative impacts of uncontrollable external events and successfully avoid significant harm to the College by ensuring that its critical products and services are delivered in a safe and effective way should a disruption occur.

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Appendix A: Certificate of Ethics Approval

University of Victoria

Office of Research Services I Human Research Ethics Board
Michael Williams Building Rm B202 PO Box 1700 STN CSC Victoria BC V8W 2Y2 Canada
T 250-472-4545 I F 250-721-8960 I uvic.ca/research I ethics@uvic.ca

Certificate of Approval

PRINCIPAL INVESTIGATOR	**Rebecca Warburton** (Supervisor)	**ETHICS PROTOCOL NUMBER** Expedited review - delegated	**18-1013**
PRINCIPAL APPLICANT	**Marissa Armstrong** **Master's student**	ORIGINAL APPROVAL DATE	27-Jun-2019
UVIC DEPARTMENT	**Public Administration**	APPROVED ON	27-Jun-2019
		APPROVAL EXPIRY DATE	26-Jun-2020

PROJECT TITLE **Developing a Business Continuity Management Plan for the Canadian Memorial Chiropractic College**

RESEARCH TEAM MEMBERS **None**

DECLARED PROJECT FUNDING **None**

DOCUMENTS INCLUDED IN THIS APPROVAL
Invitation to Participate and Consent Form for Survey and Interview Research.docx - 26-Jun-2019
ArmstrongHREB_Business Impact Survey_260619.docx - 26-Jun-2019
ArmstrongHREB_Invitation to Participate and Consent Form for Survey and Interview Research.docx - 26-Jun-2019

CONDITIONS OF APPROVAL

This Certificate of Approval is valid for the above term provided there is no change in the protocol.

Modifications
To make any changes to the approved research procedures in your study, please submit a "Request for Modification" form. You must receive ethics approval before proceeding with your modified protocol.

Renewals
Your ethics approval must be current for the period during which you are recruiting participants or collecting data. To renew your protocol, please submit a "Request for Renewal" form before the expiry date on your certificate. You will be sent an emailed reminder prompting you to renew your protocol about six weeks before your expiry date.

Project Closures
When you have completed all data collection activities and will have no further contact with participants, please notify the Human Research Ethics Board by submitting a "Notice of Project Completion" form.

Certification

This certifies that the UVic Human Research Ethics Board has examined this research protocol and concluded that, in all respects, the proposed research meets the appropiate standards of ethcis as outlines by the University of Victoria Research Regulations Involving Human Participants.

Rachael Scarth

Dr. Rachael Scarth
Associate VP Research Operations

Certificate Issued On: 27-Jun-2019

Appendix B: Business Impact Survey

Name:
Date:
Position and Division Name:
Email address at CMCC:

Please answer the following questions regarding business continuity in your division and return it to me by [date] at marissa.c.armstrong@gmail.com .

If you have any questions or require more time, please feel free to contact me at any time.

Definitions

- Business Continuity: Planning and preparation required for an organization so that it can continue to operate in the event of an uncontrollable external event and resume regular operations as soon as possible.
- Uncontrollable External Event: Threats that are beyond the control of the organization. For business continuity purposes, this includes serious incidents and disasters.
- Business Impact Analysis: Analysis of the impact of disruption to critical business activity due to an uncontrollable external event
- Critical Products and/or Services: The critical deliverables of your department that must continue to be provided in the event of business disruption
- Critical Business Processes and/or Functions: Key processes and functions within the department that must continue in order to be able to produce critical deliverables

The following threats have been identified from a review of CMCC's Emergency Management Program and from risks raised through the Divisional Risk Registers. This Survey will provide data for the Business Impact Analysis, to determine how critical business activity may be impacted by the following threats:

- Active shooter/terrorist attack
- Pandemic
- IT system outage (cybersecurity attack, IT system failure, telecommunications failure, etc.)
- Facilities outage (power, water, etc.) or physical damage to college property (fire, flood, explosion, etc.)
- Natural disasters (earthquake, hurricane, extreme weather, etc.)

Question 1. What are the critical products and/or services that must continue to be delivered by your Division in the event of disruption from an uncontrollable external event?

Question 2. What are the critical business processes and/or functions that must continue within your Division in the event of disruption from an uncontrollable external event?

Question 3. Which business areas may be affected in the event of disruption from an uncontrollable external event, as outlined below:

Threat: Active Shooter, Terrorist Attack

Potential Impact Area	Yes	No
Students (classes, services, delivery of student support services, etc.)		
Patients (clinic services, harm to patients etc.)		
Staff (productivity, harm to staff etc.)		
Finances		
CMCC's Reputation		
Environment (damage to natural environment, damage to college property, etc.)		
Other:		
Comments:		

Threat: Pandemic

Potential Impact Area	Yes	No
Students (classes, services, harm to students etc.)		
Patients (clinic services, harm to patients etc.)		
Staff (productivity, harm to staff etc.)		
Finances		
CMCC's Reputation		
Environment (damage to natural environment, damage to college property, etc.)		
Other:		
Comments:		

Threat: IT System Outage (Cybersecurity attack, IT system failure, telecommunications failure, etc.)

Potential Impact Area	Yes	No
Students (classes, services, harm to students etc.)		
Patients (clinic services, harm to patients etc.)		
Staff (productivity, harm to staff etc.)		
Finances		
CMCC's Reputation		
Environment (damage to natural environment, damage to college property, etc.)		
Other:		
Comments:		

Threat: Facilities Outage (Power outage, water outage, etc.)

Potential Impact Area	Yes	No
Students (classes, services, harm to students etc.)		
Patients (clinic services, harm to patients etc.)		
Staff (productivity, harm to staff etc.)		
Finances		
CMCC's Reputation		
Environment (damage to natural environment, damage to college property, etc.)		
Other:		
Comments:		

Threat: Physical Damage to College Property (Fire, flood, explosion etc.)

Potential Impact Area	Yes	No
Students (classes, services, harm to students etc.)		
Patients (clinic services, harm to patients etc.)		
Staff (productivity, harm to staff etc.)		
Finances		
CMCC's Reputation		
Environment (damage to natural environment, damage to college property, etc.)		
Other:		
Comments:		

Threat: Natural Disaster (Earthquake, hurricane, extreme weather etc.)

Potential Impact Area	Yes	No
Students (classes, services, harm to students etc.)		
Patients (clinic services, harm to patients etc.)		
Staff (productivity, harm to staff etc.)		
Finances		
CMCC's Reputation		
Environment (damage to natural environment, damage to college property, etc.)		
Other:		
Comments:		

Question 4. Estimate the amount of time required to return to regular operations after an uncontrollable external event has occurred.

Threat	Time
Active Shooter/Terrorist Attack	
Pandemic	
IT System Outage	
Facilities Outage	
Physical Damage to Property	
Natural Disaster	
Comments:	

Question 5. Indicate the amount of time after which there will be a negative impact to the College (e.g. IT system outage – more than one day for Clinic records to be offline, etc.) after an uncontrollable external event has occurred that has prevented regular operations,

Threat	Time
Active Shooter/Terrorist Attack	
Pandemic	
IT System Outage	
Facilities Outage	
Physical Damage to Property	
Natural Disaster	
Comments:	

Question 6. Describe any resource requirements needed for your Division to resume regular operations after an uncontrollable external event has occurred in each of the categories listed below.

People	
Facilities	
Technology	
Information and Records	
Equipment and Supplies	
Financial	
Other	

Question 7. Please list any other comments or concerns your Division may have about Business Continuity.

Thank you for completing this survey.

Appendix C: The CMCC Hazard Identification Risk Assessment

Threat	Likelihood	Impact	Risk Rating
Adverse Event	4	5	20
Cybersecurity Attack*	4	5	20
Data Breach/Leak of Sensitive Information*	4	5	20
Suicide/Mental Health**	4	5	20
Active Attacker/Shooter**	3	5	15
Bomb Threat/Suspicious Package**	3	5	15
Pandemic**	3	5	15
Sexual Violence & Harassment**	5	3	15
Fire/Carbon Monoxide Leak***	3	4	12
Power Failure***	3	4	12
Workplace Violence & Harassment**	5	2	10
Chemical/Hazardous Spill***	3	3	9
Flood***	3	3	9
Strike**	3	3	9
IT System Outage*	4	2	8
Severe Winter Weather/Storm***	3	2	6
Wildfire***			
Medical Incident**	5	1	5
Earthquake***	2	2	4
External Force/Traffic Incident	2	2	4
Telecommunications Failure*	4	1	4
Tornado***	2	2	4
Protest Group Disruption**	1	3	3
Heat Wave/Drought***	1	2	2
Hurricane***	1	1	1
Landslide***	1	1	1

Hostage**			
Terrorist Threat**			
Tsunami***	N/A		
Volcano***	N/A		

* Information Technology Threats ** Human Related Threats *** Natural Disaster/Environmental Threats

Scoring

Likelihood
Score 1 if the emergency may occur in exceptional circumstances, rare, improbable
Score 2 if the emergency could occur if circumstances change, unlikely
Score 3 if the emergency might occur under current circumstances, possible
Score 4 if the emergency will probably occur in regular circumstances, likely
Score 5 if the emergency is expected to occur unless circumstances change, almost certain

Impact
Score 1 if the emergency is expected to be insignificant, where there are a very limited number of events, limited losses, limited damages, negligible, minor disruptions
Score 2 if the emergency is expected to be minor, where there are few events, minor injuries or damages, normal range of difficulties, minor setbacks, some unfavorable attention, minor cost overruns
Score 3 if the emergency is expected to be moderate, where there are events, injuries or moderate damages delays, moderate disruptions, some loss of services, moderate cost overruns, some loss of trust, negative attention, negative audit or outcome ratings
Score 4 if the emergency is expected to be major, where there are a major number of events, loss of major assets, serious injuries or major damages, program or project redesign, major disruption of essential services, major cost overruns, major loss of trust, public outcry for change, strong criticism in audit
Score 5 if the emergency is expected to be catastrophic, significant or extreme, where there are a significant number of events, public is affected, significant or extreme funding decrease, significant damages, death or significant disability, program/project irrevocably finished (objectives not met), essential services disruption for extended periods, total loss of services or data, extreme cost overruns, public call for change, internal vote of non-confidence, very negative public ratings

Appendix D: Invitation to Participate and Consent Form for Survey and Interview Research

The following email was sent to CMCC managers by the Vice President, Finance and Administration with the survey attached.

[Date]

Dear CMCC Managers,

As you know, our 2017-2021 Strategic Plan outlined the need for a Business Continuity Plan, to ensure organizational effectiveness in the face of potential uncontrollable external events that may jeopardize the College's ability to function and deliver essential services.

We have been fortunate to recruit a master's student from the University of Victoria (UVic) to prepare this plan. She has designed the attached survey, which serves a dual purpose:

1. To provide CMCC with raw information on the potential impact of uncontrollable external events, and
2. To inform the CMCC Business Continuity Plan which the student will submit as her master's project, required for her degree.

The master's project is an academic research project, and as such requires informed consent and voluntary participation. For this study, we are using an opt-out consent form; your survey information will be included in the academic research, and used to inform the CMCC Business Continuity Plan, unless you inform myself and the researcher that you do not authorize the sharing of your survey responses with the student.

Participants (those who do not opt out) may be asked to do a short follow-up telephone interview with the student. Interview results will also be used to inform the CMCC Business Continuity Plan.

This research has been approved by the UVic Human Research Ethics Board. This letter was developed using the requirements of the Human Research Ethics Board and describes your rights as a voluntary research participant.

In order to assist CMCC in our planning, whether or not you opt out of the research study, I require you to complete the attached survey, on paid work time, preferably within one week, and to return the completed survey to me. Each CMCC division will eventually be responsible for the maintenance of its business continuity plan, so it is essential that you provide this information to CMCC.

More information on the study, and the student, is provided below. The opt-out consent form is at the bottom of this message. You may opt out by 1) replying to this message, and copying the student (marissa.c.armstrong@gmail.com), stating "I wish to opt out of the research project." or 2) signing the opt-out statement below, and emailing the signed form to myself and the student. Please ensure that this message is included in your reply, if you choose method 1.

Student Information
Marissa Armstrong is a student at the University of Victoria in the Master of Public Administration (MPA) program. She graduated from the University of Toronto with an Honours Bachelor of Science and has also completed the Sustainability Management and Enterprise Process Excellence certificate at Ryerson University. As part of her Master's program, she completed two co-op terms with the British Columbia Ministry of Forests, Lands and Natural Resource Operations in the Corporate Initiatives Division. Once she graduates, she hopes to work in the field of risk management, business continuity, emergency management, project management, and sustainability management.

Study Purpose and Objectives
The purpose of this research is to develop a Business Continuity Plan for CMCC. CMCC management has expressed the need for a Business Continuity Plan, to ensure organizational effectiveness in the face of potential uncontrollable external events that may jeopardize the College's ability to function and deliver essential services. External events that would fall under Business Continuity Management include both natural and man-made disasters, for example extreme weather, fires, earthquakes, IT failures, and terrorist attacks.

The scope of this project is limited to developing a robust Business Continuity Plan for CMCC, following the structure outlined by the ISO 22301 – Business Continuity Management Systems. This will include a business impact analysis, business continuity strategy and procedures, an implementation plan, as well as a series of recommendations for ongoing monitoring and improvement of the Business Continuity Plan to ensure it remains current as the needs of the College change over time.

Importance of this Research
Research of this type is important because it will ensure the preparedness of CMCC and its departments should an uncontrollable external event occur, so that all critical business functions and processes can be delivered.

Participant Selection
You are being asked to participate in this study because you are the head of your department and will ultimately be responsible for the maintenance and execution of the business continuity plan for your respective department.

What is involved
If you consent to voluntarily participate in this research, your participation will include completing and returning a survey concerning the critical products, services, processes, and

functions that occur within your department, and identifying the resource requirements to perform or provide those items to CMCC, as well as estimating the potential impacts of not providing those critical business operations. The survey will take approximately 15-30 minutes to complete and can be filled in during work hours. After the surveys have been returned and the data compiled, a brief follow-up telephone interview (max. 30 minutes) may be required to obtain further details on certain critical business operations for your department or the impact of not performing those operations.

Inconvenience
Participation in this study may cause some inconvenience to you since the data collection process will take place during work hours. However, the survey is designed to be brief and easy to answer, and the content is relevant to your current and future work at CMCC, so the inconvenience should be minimal.

Risks
There are no known or anticipated risks to you by participating in this research.

Benefits
The potential benefits of your participation in this research include ensuring your department has a robust business continuity plan so that in the event of an interruption to regular business operations, your department will be able to deliver on critical products and services.

Voluntary Participation
Your participation in this research must be completely voluntary. If you do decide to participate, you may withdraw at any time without any consequences or any explanation. If you do withdraw from the study your data will only be used with your written permission. If you do not consent for your data to be used should you withdraw your participation, your data will not be used in the analysis and will be destroyed.

Anonymity
In terms of protecting your anonymity, due to the nature of the research (department-specific data will be collected, and data will be reported with respect to each individual department), identities at the time of this research will be easily discernible because job positions are known. Individual participants will not be named explicitly, but there will be awareness of what information pertains to which department.

Confidentiality
In terms of protecting your confidentiality and the confidentiality of the data, due to the nature of this research (department-specific data), responses will not be confidential. However, the data collected will only be work-related information that pertains to each participant's role at the College. No personal information will be collected, and individuals will not be explicitly named in the data analysis or reporting phases, though the data will be reported for each department.

Dissemination of Results
It is anticipated that the results of this study will be shared with others in the following ways: capstone project defense, project paper, on the University of Victoria website and directly to CMCC and participants involved in the research.

Disposal of Data
All survey and interview data from this study will be securely disposed of after the completion of the project, including successful oral defense of the academic paper and approval for graduation, anticipated by August 31, 2019.

Contacts
You may contact me if you have further questions by email at marissa.c.armstrong@gmail.com.

My research is part of the requirements for a degree in the Master of Public Administration program and is being conducted under the supervision of Dr. Rebecca Warburton, a professor in that department. You may contact my supervisor at rnwarbur@uvic.ca.

In addition, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca).

Opt Out of the Research
Your signature below indicates that 1) you understand the above conditions of participation in this study, 2) that you have had the opportunity to have any questions answered by the researchers, and 3) that you REFUSE to participate in this research project.

You are still required to return the completed survey to CMCC's VP Finance and Administration, preferably within one week of receipt, but your responses will not be used to inform the CMCC Business Continuity Plan, and you will not be asked to do a short follow-up telephone interview with the student.

_____	_____	_____
Name of Participant	*Signature*	*Date*

You may return this form to opt out of the research by email; please sign and scan this form.

Appendix E: Business Continuity Template

Canadian Memorial Chiropractic College
Business Continuity Planning Template

Department	[Insert Department]
Date Created	[dd.mm.yyyy]
Last Modified	[dd.mm.yyyy]

Document Change Management

Date	Version	Modified By	Approved By

Introduction

As indicated in CMCC's 2017-2021 Strategic Plan, Business Continuity Planning has been identified as an essential activity that will support the College's objective to strive for excellences in institutional leadership and management. The main objective of Business Continuity Planning is to ensure your department is prepared to reduce or eliminate the negative impact of an unexpected external even on regular business operations that would otherwise disrupt or severely hinder your department's ability to deliver on critical products and services. Additionally, your Business Continuity Plan should be in accordance with CMCC's Business Continuity Policy.

Using the ISO 22301 – Societal Security - Business Continuity Management Systems Requirements as a guide, the following template has been developed to assist your department in developing, implementing and maintaining a robust Business Continuity Plan (BCP).

Definitions

Business Continuity	Capability of the organization to continue delivery of products or services as acceptable predefined levels following disruptive incident (ISO 22301).
Business Continuity Plan	Documented procedures that guide organizations to respond, recover, resume and restore to a pre-defined level of operation following disruption. This typically covers resources, services and activities required to ensure the continuity of critical business functions (ISO 22301).
Business Impact Analysis	Process of analyzing activities and the effect that a business disruption might have upon them (ISO 22301).
Critical Business Processes/Functions	Key processes and functions within the department that must continue in order to provide and support critical products and/or services.
Critical Products/Services	The critical deliverables for each department that must continue to be provided in the event of business disruption.
Uncontrollable External Events	Unanticipated and uncontrollable events that may impact CMCC's ability to maintain regular operations.
Maximum Tolerable Period of Disruption	The maximum time permitted to resume these critical processes to avoid significant harm to the organization.

Scope

This documented is intended to assist with the development phase of each department's Business Continuity Plan. It will house the critical information needed in the case that an unexpected external event has negatively impacted CMCC's ability to conduct regular business operations. The Business Continuity Plan is not intended to be utilized in the event of serious, ongoing disasters where safety concerns do not permit the initiation of business continuity activities (for example, war, nuclear bomb, mega-earthquake etc.).

Additionally, the Business Continuity Plan does not cover temporary interruptions to regular business operations of a duration less than the critical timeframes indicated within the plan.

Changes and Maintenance

Maintenance of the [Department] Business Continuity Plan is the responsibility of [xxx] and changes must be reviewed and approved by [xxx].

Periodical review of the Business Continuity Plan by [xxx] is necessary to ensure effectiveness, accuracy and agreement with CMCC's Business Continuity Strategy.

Testing Procedures and Responsibilities

[Department] is responsible for verifying the effectiveness of their Business Continuity Plan. This should include periodical testing of the procedures outlined in this document.

Training Procedures

[Department] is responsible for ensuring that all individuals who will participate in activities defined in the Business Continuity Plan are sufficiently trained in their roles and responsibilities and are familiar with the contents of the plan.

Business Continuity Requirements

The following section outlines the key components of the Business Continuity Plan for your department. Fill in each section with department-specific information that is relevant to the business continuity process i.e. Your responses on the Business Impact Survey.

Hazard Identification and Risk Assessment

From CMCC's Hazard Identification and Risk Assessment document, the identified hazards and risks were grouped into the following categories that may impact regular business operations. Each category was assigned a risk rating based on its likelihood and potential impact on regular operations should it occur. High risks (indicated in grey) are events that are more likely to occur and/or high a significant impact. Moderate risks (indicated in white) may have similar likelihood, but more moderate impact on regular operations.

These categories reflect those unexpected external events that have been identified as the most likely and/or most impactful events that may affect CMCC in the future. The Business Continuity Plan will be activated after the initial event has ended and it is safe to resume work duties, but regular business operations are not yet possible. At the time of one of these events, CMCC's Emergency Response Procedures should be followed.

Threat	Likelihood	Impact	Risk Rating
Active Shooter/Terrorist Attack	3	5	15
Pandemic	3	5	15
IT System Outage	4	5	20
Facilities Outage (power, water etc.)	3	3	9
Physical Damage to College Property (fire, flood etc.)	3	3	9
Natural Disaster	3	3	9

Business Continuity Team

Identify who will be in charge of Business Continuity Planning for the department and who the team members are. These individuals are responsible for coordinating the planning process and maintaining this document.

Role	Name	Current Position	Contact
Business Continuity Lead			
Assistant Lead			
Business Continuity Team Members	1. 2. 3.		

Alternate Work Site

This location will be used to set up temporary operations should CMCC facilities be inaccessible due to an unexpected external event:

[Insert Address]

Critical Business Products and Services

List which products and services are provided to CMCC by your department. Rank these products and services from 1-5 by how critical it is that that product or service be delivered in the event that regular business operations have been disrupted. Add rows as needed. Those rated 3 are to be addressed first, followed by those rated 2.

Rating Scale:

1	This product or service can wait until regular operations have resumed at CMCC
2	This product or service needs to be delivered during an interruption to regular business operations, but it is not as time sensitive or critical
3	This product or service is critical and must be delivered on a regular schedule comparable to that of regular business operations

	Department Product or Service	Rating
1		
2		
3		
4		
5		

Critical Processes and Functions

In the table below, briefly describe the critical processes and functions that are required to be performed by your department in order to deliver on the most critical products and services during otherwise normal operations. If multiple processes and/or functions are required for one product or service, put each process/function in its own row.

Critical Product/Service	Critical Processes and Functions

Resource Requirements

Indicate any department-specific resource requirements, in addition to the basic Alternate Site Resources listed in Appendix A, needed to support the completion of the critical processes and functions described above. In the event of regular business being disrupted, these resources should be those that are essential to resuming operations to ensure delivery on the critical products and services for your department.

People	
Facilities	
Technology	

Information and Records	
Equipment and Supplies	
Financial	
Other	

Recovery Process

This section will describe the steps needed to restore critical business processes and functions in order for the department to deliver on critical products and services during a disruption to regular operations. The recovery phases are:

1	Disruption Occurs	Regular business operations are interrupted due to an unexpected external event. At this time, CMCC's Emergency Response Procedures are to be followed.
2	BCP Activation	Following the disruption event, once it is safe to do so, the Business Continuity Plan is activated.
3	Alternate Operations	Once the plan has been activated, alternate operations will commence in accordance with the BCP. The most critical processes and functions (i.e. those that directly support the delivery of the most critical products and services for the department) will be initiated first.
4	Transition to Regular Operations	Once the disruption has ended and CMCC facilities are restored to typical functionality, this phase involves any steps necessary to transition from the alternate operations to regular operations.

Business Continuity Plan Activation

In the event that the BCP must be activated, the Business Continuity Lead is responsible for its activation. If the Business Continuity Lead is unavailable, the Assistant Lead may activate the plan. In order to activate the BCP, these steps must be followed:

1	Business Continuity Lead works with CMCC Emergency Management Team to declare that a disruption of significant length has occurred as a result of an uncontrollable external event.
2	Business Continuity Lead communicates with Senior Management to confirm that a significant disruption as occurred and that the BCP should be activated. The BCP activation is confirmed by consulting the Threshold of BCP Activation

3	Business Continuity Team reviews the BCP and instructs department staff to relocate to the Alternate Work Site.

Threshold of BCP Activation

Prioritize each critical process or function in order of Maximum Tolerable Period of Disruption in accordance with the departmental threshold for BCP activation. When the time threshold of disruption is met for a particular process or function, it indicates the point at which the BCP must be. Indicate the threshold with a "2". Under threshold is "1", and each subsequent timeframe past the threshold is indicated with increasing numbers. If multiple processes and functions support the same critical product or service, the process or function with the shorted MTPD is the limiting step and all related processes and functions must resume by that time.

Departmental MTPD: e.g. 1 day, 3 days, 1 week, 2 weeks etc.
Threshold: 2

Critical Process or Function	MTPD	<1 D	<3 D	<1 W	<2 W	>2 W

Alternate Operations

Once the BCP has been activated and staff have relocated to the Alternate Work Site, Alternate Operations can commence. The steps for this phase are:

1	Communicate to key stakeholders that the department has initiated alternate operations due to a disruption due to an uncontrollable external event.
2	The Business Continuity Team implements temporary procedures in accordance with the BCP to ensure that the most critical processes and functions that support the department's critical products and services are resumed.
3	The Business Continuity Lead provides regular status reports to Senior Management and conveys messaging from Senior Management to department staff.

Transition to Regular Operations

Once the primary CMCC location is accessible and it is possible for regular business operations to resume, the following steps must be taken to transition back to regular operations:

1	The Business Continuity Lead communicates with the Emergency Management Team and CMCC Senior Management to determine that regular operations can resume at the primary CMCC facility.
2	The Business Continuity Team communicates with department staff that Alternate Operations will cease. Coordinate the transfer of documents and records from the Alternate Site to the Primary Site.
3	The Business Continuity Lead terminates Alternate Operations and compiles a report indicating work that was completed and the efficacy of the BCP, which will be given to Senior Management and used for future improvement of the BCP.

Prevention and Mitigation

This section outlines the actions the department will take, prior to the occurrence of a disruptive event, in order to limit the impact of disruption due to an unexpected external event.

Actions	Intended Outcomes

Performance Evaluation and Improvement

This section establishes guidelines for performance evaluation of the BCP, in accordance with CMCC's Business Continuity Policy, in order to ensure continuous improvement and enhanced ability to deliver on critical products and services after an unexpected external event has occurred.

[CMCC needs to set key performance indicators within the Business Continuity Policy of what should be evaluated for BCP. For example: output of critical work during disruption etc. This section should detail how the department intends to monitor, measure and report

on the KPI's set by CMCC. This should also include testing of the BCP procedures, doing a trial run and determining how efficiently the department can get set up at the Alternate Site and get to work. Management review is another requirement in the ISO. CMCC needs to decide how senior management will review and evaluate department BCPs. The CMCC needs the Business Continuity Policy before this section can be completed.]

(BCP Template) Appendices

Appendix i: Alternate Site Resource Requirements

	Description	Amount Required	Comments
1	Desks		
2	Chairs		
3	Tables		
4	Computers		
5	Photocopiers		
6	Power outlets		
7	Telephones		

Appendix ii: Department Staff

Name	Position	Phone Number	Email	Emergency Contact

* Indicates Business Continuity Team Member
** Indicates Business Continuity Lead

Appendix F: BCP Checklist

All departmental BCPs should satisfy the below requirements as defined by the ISO 22301 – Societal security – Business continuity management systems – Requirements. Additionally, all departmental BCPs should be in alignment with the CMCC Business Continuity Policy.

Requirements	**Yes**	**No**
Purpose and scope	☐	☐
Objectives	☐	☐
Activation criteria	☐	☐
Implementation procedures	☐	☐
Testing procedures	☐	☐
Training procedures	☐	☐
Roles and responsibilities (business continuity team)	☐	☐
Alternate work site identified	☐	☐
Defined and prioritized critical business products and services	☐	☐
Defined critical processes and functions that support the critical products and services	☐	☐
Resource requirements	☐	☐
Predetermined timelines after which a disruption has occurred that indicates necessary activation of the BCP	☐	☐
BCP activation procedures	☐	☐
Alternate operations procedures	☐	☐
Transition to regular operations procedures	☐	☐
Strategies for prevention and mitigation	☐	☐
Defined metrics for performance evaluation	☐	☐
Continuous improvement strategy	☐	☐
Approval from the CMCC Business Continuity Lead	☐	☐