

Applying a User Experience Approach to Implement BC Bid Resources:
*Lessons learned and an evaluation framework for the Government of British
Columbia's portal of corporate procurement resources*

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Executive Summary

Objective

To support important operating and governance principles such as efficiency and effectiveness, it is important to examine whether or not the BC Bid Resources website successfully connects public sector employees with the information and tools they need for effective purchasing. BC Bid Resources is the British Columbia government's portal of online resources for employees and businesses involved in buying and selling goods and services. It was developed by the Strategic Business and Procurement Transformation branch of the Ministry of Technology, Innovation and Citizens' Services and was based on the results from the *Small Business - Doing Business with Government* report to address the problem of how to provide government buyers and sellers with the resources they need for procurement processes (Ministry of Jobs, Tourism & Skills Training, 2014). The 18-month project to develop the corporate website began in January 2014 and was based on user experience research and design. The website was launched in July 2015 and intends to be the sole source of information for everything related to B.C. government purchasing (Government of British Columbia Strategic Business and Procurement Transformation branch, 2014a).

This master's research project evaluated whether or not the website met its objective by effectively connecting public sector procurement staff with reliable, up-to-date, and user-centric online resources. Additionally, this study examined what the lessons learned are from the BC Bid Resources project, what is the most effective framework to evaluate the BC Bid Resources website, and if a user experience design approach in the site's development created better outcomes. To answer this report's research questions, a mixed methods research strategy was employed. The research conducted in this study for the purpose of assessing the BC Bid Resources project and resulting website was based on the user experience research completed to develop and launch BC Bid Resources, which was led by Strategic Business and Procurement Transformation branch of the Ministry of Technology, Innovation and Citizens' Services.

The client for this report is Brooke Hayes, Executive Director of Strategic Business and Procurement Transformation branch. The deliverables for the client were:

1. Lessons learned analysis
2. Draft evaluation framework
3. Options to consider and recommendations

This research met the needs of the report's client by determining the success of the Strategic Business and Procurement Transformation branch's BC Bid Resources project and providing useful information and lessons for the business area's future projects.

Methodology and Methods

The methodology for this study was a goals-based, summative evaluation and employed the following methods to collect data:

- **Web analytics** - provided quantitative data for the proposed evaluation framework.
- **Observation testing** - provided quantitative data for the evaluation framework and enhanced earlier user experience research to develop the website structure.
- **User interviews** - provided qualitative data for the evaluation framework and built on direct user research completed at the initiation of the web project.
- **Document review** - provided qualitative data for comparison analysis within the evaluation framework.
- **Focus group** - provided lessons learned from the BC Bid Resources project.
- **Expert interviews** - determined lessons learned from the launch of two other corporate government websites.

Key Findings

The key findings from the research are as follows:

- BC Bid Resources has high usage, effectiveness of content and presentation, user satisfaction, and completion of objectives.
- BC Bid Resources is meeting the needs of its users, which validates the benefits of applying a user experience approach to the project.
- The combined lessons learned revealed that a successful web project requires thorough planning and sufficient resourcing.

Options to Consider and Recommendations

There are three options to the problem of how the Strategic Business and Procurement Transformation branch can evaluate whether the BC Bid Resources website successfully connects government employees involved in procurement with the resources they need to do it effectively:

1. Maintain the status quo
2. Rely on traditional web analytics for monitoring and evaluation
3. Implement an ongoing maintenance and evaluation system for BC Bid Resources

Based on the findings of the report and the options presented above, the recommendation is to implement an ongoing maintenance and evaluation system for BC Bid Resources. To proceed with this option, this report proposes the following actions:

1. Assign responsibility for ongoing maintenance and evaluation of BC Bid Resources
2. Complete performance measurement every year
3. Review the evaluation framework every two years and amend as necessary
4. Review and utilize lessons learned to BC Bid Resources and for future projects

If the recommendations are followed, the provincial government can likely realize several benefits similar to those documented in the literature, including better user experience design, government service delivery, stakeholder engagement, knowledge management, and change management.

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1.0 Introduction

1.1 Project Problem

Procurement within the British Columbia government is deemed to be complicated, disconnected, under constrained capacity, and has unequal focus on parts of the purchasing lifecycle. These issues were identified through 94 distinct conversations that occurred across government in 2014 about current state challenges with procurement (Government of British Columbia Strategic Business and Procurement Transformation branch, 2014a). The problem of how to effectively connect government employees and businesses involved in procurement with the resources they need was highlighted in the *Small Business - Doing Business with Government* public report, where the Logistics and Business Services division of the Ministry of Technology, Innovation and Citizens' Services was mandated to meet this political commitment (Ministry of Jobs, Tourism & Skills Training, 2014). The Strategic Business and Procurement Transformation branch within the Logistics and Business Services division led the 18-month project to develop the BC Bid Resources website with a focus on user experience research and design.

Through the provision of comprehensive resources in one location, BC Bid Resources aims to clarify the world of procurement, connect buyers and vendors involved in government purchasing, and instill knowledge in a streamlined government (see Appendix A for the entire project vision). In addition to meeting the needs of public sector procurement staff by providing reliable, up-to-date, and user-centric online resources, BC Bid Resources also meets the needs of the government because it delivered on its public commitment to provide a solution to the problem addressed in the public *Small Business - Doing Business with Government* report.

1.2 Project Objectives and Research Questions

This research project evaluates whether BC Bid Resources met its objectives. The main research question of this report is “Did the BC Bid Resources website successfully connect government employees involved in procurement with the resources they need to do it effectively?” The secondary questions are “What are lessons learned from the project?”, “What is the most effective framework to evaluate the website and monitor service delivery?” and “Did a user

experience approach to the project result in better outcomes?” This report presents a draft evaluation framework that can be adapted for the BC Bid website as well as other government websites. The researcher used this framework to then assess BC Bid Resources. The report also provides lessons learned on the BC Bid Resources project and similar government corporate web projects.

To complete an evaluation of the website and improve the overall knowledge about the success of the BC Bid Resources project, the researcher conducted in-depth user experience testing, which ties together the user research that was completed by the branch throughout the BC Bid Resources project. Additionally, lessons learned analysis was completed to better understand the benefits and challenges in delivering user-centric corporate projects. This information is designed to assist the Strategic Business and Procurement Transformation branch to improve its project delivery and can be shared to benefit other organizations that undergo similar user-focused projects. Similarly, the evaluation framework presented in the report for the purpose of assessing the BC Bid Resources website is designed to validate the use of a user experience approach to web design and can be utilized by other public and private sector organizations to measure the success of their websites.

The concept of user experience research and design has high applicability to the public sector as it is closely aligned to the theory of evidence-based decision making. Evidence-based decision making, or results-based management, relies on performance measurement and evaluation and is part of the new public management movement for government that emerged in the 1990s (McDavid, Huse & Hawthorn, 2013, p. 5). While there is no formal approach to supporting this theory in the branch or ministry, the government does mention evidence-based decision making in many of its business areas and initiatives, including the BC Stats (Government of British Columbia BC Stats, n.d.) and the Ministry of Health (Government of British Columbia News, 2014).

1.3 Client and Rationale for Project

The client for this report is Brooke Hayes, Executive Director of Strategic Business and Procurement Transformation branch, within the B.C. Ministry of Technology, Innovation and Citizens' Services. The branch leads the Procurement Transformation Initiative to enhance

procurement processes across the provincial government and public sector, as published in the Ministry of Technology, Innovation and Citizens' Services 2014/15 Transformation Plan (Ministry of Technology, Innovation and Citizens' Services, 2014). Specific to the *Small Business - Doing Business with Government* report, the branch led the development and launch of BC Bid Resources to address the problem of how to effectively connect government employees involved in procurement with the resources they need (Ministry of Jobs, Tourism & Skills Training, 2014).

The research for this study was initiated and completed because there was a lack of knowledge about the overall performance of the project and the resulting website, specifically related to whether the original objectives were met. There were no measurement tools or procedures put in place after the launch of BC Bid Resources, apart from traditional web traffic analytics that do not provide a holistic evaluation of the site. There was also no method to verify whether the time and effort spent on user experience research and design to develop the site was worthwhile.

A goals-based, summative evaluation framework was used because the framework can assess if BC Bid Resources is successful in its objectives and if a user experience approach resulted in better outcomes. The current lack of evaluation directly affects the Logistics and Business Services division of the Ministry of Technology, Innovation and Citizens' Services, as the business area that was mandated to create an online resource of procurement information, and the Ministry of Jobs, Tourism & Skills Training as the author of the *Small Business - Doing Business with Government* report. Further, if the website is not successful in its objective, then it indirectly affects citizens and overall government operations because the best value for time and money is not being obtained.

1.4 Organization of Report

This report is organized into 10 sections. The first chapter introduces the report's objectives, research problem, client, and the rationale for the study. Following the introduction, chapter two establishes a context for the report by providing essential background information on B.C. government procurement and the development of BC Bid Resources. Chapter three provides a literature review on the concepts that contributed to the development of BC Bid Resources and

this report and presents a conceptual framework to guide the research. Chapter four explains the methodology, methods and analysis used to determine if the website has met its objectives, reveal lessons learned, and collect data for the proposed evaluation framework. Chapter five shares the findings from the research and the following chapter discusses the implications of these discoveries through discussion and analysis. Lessons learned from the BC Bid Resources project and a proposed evaluation framework for the website are presented as a key deliverable in the discussion and analysis. Chapter seven provides options and recommendations for the client to consider in relation to the lessons learned and the implementation of the evaluation framework. Chapter eight provides conclusions and limitations to the research and this report. The final two chapters list the references and appendices.

2.0 Background and Context

2.1 Prior Government Work on Issue

This chapter provides essential background information for the basis of this report as the provincial government's visions and initiatives guided the need and initiation of the BC Bid Resources project. In *Citizens @ The Centre: B.C. Government 2.0*, the B.C. Public Service commits to transforming its services by delivering an exceptional online experience, which requires user-focused research to gain evidence to guide the development of web interactions (B.C. Ministry of Labour, Citizens' Services and Open Government, 2011, p. 19). Related to this commitment is the B.C. Government Internet Strategy, published in September 2012, which focuses on redesigning the provincial government's online presence to break down organizational structures, enhance the look and usability of the website, and create a common user experience (Government of British Columbia, 2012).

In alignment with these two corporate visions to enhance online service delivery through user experience research, the Strategic Business and Procurement Transformation branch within the Ministry of Technology, Innovation and Citizens' Services led two projects that were based on user experience research and eventually contributed to the BC Bid Resources website. The first was the Shared Services BC web strategy project, completed from December 2012 to July 2013, to redesign Shared Services BC's web presence. Over 70 stakeholder interviews were conducted to launch new, user-centric content in the main B.C. government website (Government of British Columbia Strategic Business and Procurement Transformation branch, 2014b). This section of the provincial government website would eventually house the future BC Bid Resources website. The Strategic Business and Procurement Transformation branch then commenced a Lean project in November 2013 to streamline processes around the government's corporate supply arrangements. The Lean project included 49 stakeholder interviews and a survey with 128 respondents. This user experience research served to create the B.C. government's online Goods and Services Catalogue as the first content for the future BC Bid Resources website.

The Strategic Business and Procurement Transformation branch began the BC Bid Resources project, its third user-focused initiative, in January 2014. The intended project outcomes for BC Bid Resources are:

1. Increase in staff ability to use information and resources
2. Decrease in time it takes for ministry employees to find procurement resources
3. Decrease in number of disparate resources and websites
4. Increase in consistency of the vendor and ministry experience (Government of British Columbia Strategic Business and Procurement Transformation branch, 2014a)

A project team for BC Bid Resources was established from a pool of procurement subject matter experts across government. The project consisted of over a year of stakeholder and user experience research to design, develop and launch the first section of website in July 2015 with resources for public sector buyers. The entire user research accomplished for the BC Bid Resources website is far more comprehensive and significant when combined with the foundation stakeholder engagement completed for the Shared Services BC web strategy project from 2012 to 2013 and the corporate supply arrangement Lean project from 2013 to 2014. After the launch of the BC Bid Resources website with information for public sector employees (the “buyers”), the second phase of the project is to develop resources for vendors who want do business with the government (the “sellers”).

2.1.1 User experience research

Usability is a concept that focuses on ease-of-use, while the term user experience is wider concept that describes “all aspects of the user’s experience when interacting with the product, service, environment or facility” (Stewart, 2015, p. 949). This concept can include physical, cognitive, emotional, and aesthetic qualities, which extends beyond simple usability (Forlizzi & Battarbee, 2004, p. 261). There are numerous user experience research and testing tools that can be employed in any user-focused initiative. The BC Bid Resources project team selected the user experience methods that were the most valuable in relation to the project and its objectives in

order to launch the website. Prior to the initiation of this study, the user experience tasks completed from January 2014 to July 2015 to create the BC Bid Resources website included:

1. A focus group
2. Expert interviews
3. Standardized interviews
4. User persona development
5. Experience map development
6. Content inventory and audit
7. Card sorting exercises
8. Site structure tests

Through an exploratory focus group format, the project team members provided commonly asked questions on government procurement that they receive from colleagues and clients. Exploratory research is conducted in the beginning stages of investigation to develop insights and can be used to find background information and set priorities (Speers, 2015). These questions provided guidelines on the most important content to create for the BC Bid Resources website. Next, the project team completed two expert interviews with the business owner and project manager for MyHR, the B.C. government website for human resources. The interviews allowed for lessons learned from the MyHR project to be shared with the BC Bid Resources team since MyHR and BC Bid Resources are both corporate online sources of truth for government. In February to March 2014, this report's researcher and her work colleague conducted 36 standardized interviews with government buyers and 22 standardized interviews with vendors. The qualitative results were combined and summarized to reveal what the most common issues are for public sector buyers. This data supported the focus group results and provided more evidence on the need for a website with reliable, up-to-date, and user-centric procurement resources.

From the anonymous interview results and the project team members' personal experience in dealing with government buyers and sellers, the project team collaboratively developed 24 user personas of buyers and vendors to authentically identify with the users of the website and

explore the diverse user needs (see Appendix B for sample user personas). Six of these fictional characters were chosen for the development of respective experience mapping. Experience maps document what the specific user persona thought, felt, and did when moving through a product or service offering to create empathy and generate greater understanding of that persona's challenges (Churruca, March 2013). In the case of the BC Bid Resources project, the experience maps were created around the points of interaction within the phases of the government procurement process (see Appendix C for sample experience maps).

The team then developed a user-centric site structure for BC Bid Resources. Over 1,600 web pages of existing procurement content from across government were inventoried, audited, and reduced to 235 pages of proposed content for the new website. Following the information inventory and audit, two card sorting exercises were completed to design the BC Bid Resource's site structure. Through an in-person workshop, the nine members of the project team brainstormed the main topics of the site, organized them into categories, and created labels that would be the most logical for users. A second online card sorting exercise was sent to a random sampling of the division's employees to help organize and classify the main topics of the government corporate supply arrangements. Eleven employees participated and their feedback contributed to the development of the Goods and Services Catalogue within BC Bid Resources and the government's first public use of a faceted search functionality where users can drill down through search results by category.

Finally, the project team completed three online site structure exercises to test the findability of topics in the draft website. The draft site structure of the website was laid out using Optimal Workshop's online Treejack software (Optimal Workshop, 2016). In the summer of 2014, participants from across government were presented with 25 different tasks and asked to navigate the proposed site structure to where they expected to find the answer. The second site structure study was conducted from January 2015 and the third site structure study was conducted right before the site launch in July 2015. The third test's questions were a duplicate of the second test to increase validity and determine whether the enhancements to the site layout after each exercise created positive results for content findability. After each study, the site's draft layout was refined and enhanced depending on analysis of the results. Eighteen months

after the project commenced, the website was successfully launched on July 17, 2015 and included 253 pages of content, 37 videos, and numerous links to related content and ministry-specific websites.

2.2 Summary

This report's background information presents a landscape that exemplifies the government's focus on user experience research and design in projects. From the corporate Internet Strategy and Citizens @ The Centre Strategy, it is evident that the B.C. government emphasizes user experience research in the design of service offerings. In addition to the BC Bid Resources project, the Strategic Business and Procurement Transformation branch has lead two user-centric projects over the past three years: the Shared Services BC web strategy project and the corporate supply arrangement Lean project. Neither project has been evaluated on whether it was useful to conduct in-depth stakeholder research to enhance the respective services; therefore there exists a gap in knowledge of the branch's delivery of its user-centric initiatives. As the client of this report, the Strategic Business and Procurement Transformation branch has experience leading user experience projects, but no evidence as to whether it is useful to spend the majority of project time on research.

This study aims to determine if a user experience approach to the BC Bid Resources project resulted in better outcomes, opposed to the alternative where little or no research was conducted with stakeholders and end-users. The research completed for this study to evaluate the effectiveness of the BC Bid Resources website will bring together the time and effort spent on research to develop and launch the site, which began in 2012 with the Shared Services BC web strategy project as the foundation for BC Bid Resources' web presence. While the background information reveals the amount of work that was done before the start of this report, more importantly it stresses the need to conduct user experience after the launch of a website or service. A service cannot be considered to be truly user-centric if it is not monitored, evaluated and updated to meet the changing needs of its users.

3.0 Literature Review

The topics of usability, user experience, website evaluation, stakeholder engagement, government service delivery, knowledge management, change management, and Lean contributed to the development of the BC Bid Resources portal. A thematic literature review that centered on these subjects was conducted through the web, Journal Storage (JSTOR), and University of Victoria databases, and Greater Victoria Public Library. Resulting useful sources of information included academic papers, reports, websites, books and e-books.

This literature review focused on resources that can be applied to government and public sector organizational management. Information technology application changes were out of scope for the BC Bid Resources project and therefore reviews of literature that dealt strictly with information technology was not completed. Additionally, this review was limited to only the most relevant pieces for each subject as the large scope of topics resulted in expansive amounts of information.

3.1 Usability and User Experience

User experience research and design is the foundation of many projects led by the Strategic Business and Procurement Transformation branch and was essential in the development of BC Bid Resources. User experience emerged in the 1990s (Buley, 2013; Kellingley, n.d.; Knemeyer, & Svoboda, n.d.) and, as a relatively new field, there were few academic sources available in comparison to those on stakeholder engagement, knowledge management, and change management. Usability is considered to be a precursor to the wider concept of user experience (Nielsen & Norman, 2016), yet there were approximately 10 times as many journal articles results on user experience than usability in the UVic Libraries database. According to the UVic Libraries database's filtering system, the majority of literature on these two subjects was published within the past 20 years. Multiple websites provided the greatest depth of information, which is likely due to the concepts' common focus on online environments. Additionally, there were numerous instructional books found on the two subjects of usability and user experience.

Stewart (2015) stated that the term ‘user experience’ is “a consequence of the presentation, functionality, system performance, interactive behaviour, and assistive capabilities of [an] interactive system, while ‘usability’ is a much narrower concept focusing on systems being easy to use (p. 949). An article from the journal of *Behaviour & Information Technology* explained that over the last two decades, user experience has become a buzzword in the field of human-computer interaction and is associated with a wide variety of meanings, from “traditional usability to beauty, hedonic, affective or experiential aspects of technology use” (Tractinsky & Hassenzahl, 2006, p. 91). The authors pointed out that user experience is widely discussed at conferences and symposia, but only rarely in relevant academic journals. They believed that one of the reasons for the gap of user experience in academia is the lack of qualitative or quantitative empirical research, which impedes comprehension of the theory and its development (p. 91-92). Since this article was released in 2006, there has been a sharp spike in the amount of academic articles published on the topics, according to the UVic Libraries database’s filtering system graph by publication date. In 2006, there were 1827 results for articles on user experience, while in 2015 there were 636 results for articles.

Common themes to the definition of website usability and its metrics were found during the review. Across various searches, the most commonly accepted usability metrics were efficiency, effectiveness and satisfaction (Mifsud, 2015; Seeley, 2010; and Seffah, Donyaee, Kline & Padda, 2006). Senecal and Wang (2007) made a similar statement to describe website usability as ease-of-navigation, speed and interactivity. Other authors expanded on the underlying factors of usability measurements. Quesenbery (2003) provided a “5E” model with the defining qualities of effective, efficient, engaging, error tolerant and easy-to-learn (p. 2). Nielsen (2001) explained that the most basic measures of usability are success rate, the time a task requires, the error rate, and users' subjective satisfaction (para. 5). Sauro and Kindlund (2005) presented a single usability metric to encompass four common usability metrics used in summative usability tests: task completion rates, task time, satisfaction and error counts (p. 2). Six years later, he listed the 10 essential usability metrics as completion rate, usability problems, task time, task level satisfaction, test level satisfaction, errors, expectation, page view and conversion, and the single usability metric (paras. 3 - 13). Dingli and Cassar (2014) stated that “in the not-so-distant past, a significant number of companies failed at transporting their business to the online environment

simply because they disregarded the usability of their websites” (p. 1). They referenced Nielsen and his classification of usability as a quality attribute with five quality components: learnability, efficiency, memorability, errors, satisfaction (p. 2). Nielsen and Don Norman, who is called the originator of the term user experience (Cummings, 2010; Gube, 2010; Merholz, 2007), are considered classic authors in the area of user experience. They founded the Nielsen Norman Group as a leader for evidence-based user experience research, training and consulting, and have produced numerous useful reports and articles related to the topic of user experience (Nielsen Norman Group, 2016).

Other searches revealed the development of user experience in the public sector. Mallon (2015) commented how academic libraries hire librarians specifically for user experience and there are new conferences and journals dedicated to the creation of a successful experience for library users (p. 23). This information applies to this report as BC Bid Resources is essentially a library of resources that must rely on similar categorization, inventories and tagging of content for optimal user experience. At the federal government level, usability.gov is managed by the U.S. Department of Health and Human Services as a resource of user experience smart practices and guidelines for practitioners and students in the government and private sectors (U.S. Department of Health and Human Services, 2016). At the provincial government level, a B.C. government document was found in the UVic Libraries database and analyzed for its relevance to this study. The Office of the Chief Information Officer, Ministry of Management Services, produced a guide in 2004 for user experience and internet standards for the B.C. government. The document is 25 pages and provided standards for topics such as approval process and governance, screen layout and communication standards (British Columbia Government Chief Information Office, 2003). However, these user experience and internet standards are no longer in use that the researcher knows of as it has not been mentioned at any cross-government internet group or community of practice. It was most likely superseded by *Citizens @ the Centre* strategy (B.C. Ministry of Labour, Citizens’ Services and Open Government, 2011), as cited in the Background chapter of this report.

3.2 Website Evaluation

For the purpose of this report and its deliverables, the subject of website evaluation was reviewed through online literature. Non-academic sources and the significantly larger area of program evaluation were left out of scope to decrease the breadth of the review. A UVic Libraries database search for website evaluation displayed even less results for journal articles than that of usability and user experience. The database presented 945 journal articles on “website evaluation” and only 557 journal articles on “web evaluation”. While there were numerous papers available on user experience and usability, which is considered to be originally related to web, there were only 11 journal articles found in the UVic Libraries database for "website evaluation" + "user experience". However, there were 384 articles found for "website evaluation" + "usability", which contradicts a prior search that showed a 1:10 ratio for journal articles on usability versus user experience. Four particular articles stood out for their combination of the concepts of usability evaluation for government websites and websites in general.

Dingli & Cassar (2014) highlighted the lack of formal evaluation frameworks for website usability and stated that despite the numerous website usability guidelines that have been developed over the years, there is currently no established guideline as a standard framework (p. 2). He listed several obstacles that prevent organizations from successfully applying empirical testing and evaluation strategies: many developers solely focus on system functionality, it can be difficult to find usability experts, user experience methods are expensive in terms of time and resources, the results may suffer from subjectivity, and companies do not truly know the meaning of usability and are unaware of potential evaluation methods (pp. 2-3). These points are mirrored in a study by Boonchutima (2012), which is considered to be the most relevant work for this report in its related objective to create an evaluation framework for a government website. In conference proceedings from American Society of Business and Behavioral Sciences, Boonchutima shared results from qualitative research methodology and literature analysis that showed performance evaluation for government websites heavily rely on statistical data, opposed to empirical qualitative data. The interviewees in his study claimed that the key hindrances are a lack of evaluation skills and resources, while he also believed government organizations lack the motivation to improve their service, unlike private organizations (p. 73). He stated that

“acquiring empirical data [for website evaluation] usually costs budget, resources, time, and evaluation skills that some government organizations are unable to afford” (p. 73).

Boonchutima asserted that governments need to stop extensively relying quantitative data to evaluate their websites and go beyond using websites for mainly one-way communication. He expressed that effective website design should include three essential elements: content, usability, and appearance (Boonchutima 2010, as cited in Boonchutima, 2012, p. 65). Additionally, a good website should be continually updated as clutter and out-of-date web design are usually weaknesses of government organizations, which was backed by previous research findings by the author (Boonchutima 2010, as cited in Boonchutima, 2012, p. 71). He proposed unique indicators, such as website awards, search engine ranking, website ranking compared to competitors, interest from other related organizations’ websites (p. 73). This document superseded a study conducted a few years prior by Mungmee (2009), who stated that those indicators have never been included before in assessments of government websites. Boonchutima believed that they were not previously utilized because government generally does not compete with other organizations and website evaluation may not be deemed as important (2012, p. 73). Additionally, Boonchitama highlighted one possible indicator that measures “a decrease in the number of phone calls enquiring information, because users are able to acquire the information themselves when the website is considered adequately credible” (2012, p. 73). This statement tied into two points made by Muntarhornn (2004) and Fisher, Bentley, Turner, and Craig (2005). Fisher et al. (2005) reported that the usability quality of a website can influence the amount of content a user actually reads, their intention to revisit the website, and their trust and loyalty towards an organization (as cited in Dingli and Cassar, 2014). This link between an organization’s web presence and confidence in the organization itself is reflected by Muntarhornn (2004), who illustrated that the credibility of the website owner is a primary factor to determine whether a user will use the service (as cited in Boonchitama, 2012, p. 73). Boonchutima concluded with a presentation of an evaluation framework that focuses heavily on public relations, but also reiterated familiar dimensions for website evaluation, such as website effectiveness, target audience behaviour, and target audience perception (2012, pp. 67-68).

Finally, a literature review by Chiou, Lin, and Perng (2010) analyzed 83 articles on website evaluation and classified them into information systems, marketing, or combined-approaches. Their findings showed that most early studies adopted the information systems-approach, but after the burst of the dot-com bubble, more organizations shifted to a combined-approach (p. 284). Their review revealed that most organizations conduct user-based surveys for website assessments, but that very few address the strategic issues of website evaluation (p. 282). The authors proposed a strategic framework as an internal evaluation to ensure consistency between web strategy and actual website presence (p. 287). They believed that a strategic website evaluation should be conducted first and then a second external evaluation, through a method like a user-based survey, can validate user acceptance of the website (p. 282).

3.3 Stakeholder Engagement

Closely related to the concepts of user experience research is stakeholder engagement. User experience research is considered as engaging the end-users of a service or product, while stakeholder engagement is considered as involving those affected by decisions. However, a database search for “stakeholder engagement” led to many results related to health, environment or corporate social responsibility.

Greenwood (2007) examined the assumption behind stakeholder engagement and the viewpoint that more engagement an organization undergoes, the more responsible the organization is. She argued that the “more is better” viewpoint is not necessarily more valuable and that stakeholder engagement must be seen as separate from, but related to, corporate responsibility (p. 315). One empirical analysis study by Ayuso, Ángel Rodríguez, García-Castro, and Ángel Ariño (2011) found that knowledge sourced from engagement with internal and external stakeholders contributes to an organization’s sustainable innovation, but that this knowledge has to be managed internally in order to be converted into new ideas for innovation. Aakhus and Bzdak (2015) looked at stakeholder engagement as an ongoing matter of communication design and mentioned how organizations are challenged to invent forms of engagement with stakeholders to enhance communication. Hodin (2013) mirrored the thoughts of Aakhus and Bzdak that the concept of public input should continue throughout the process of project design. While this

article is in relation to stakeholder engagement for healthcare, it can be related to the theories behind user experience research, which should be completed throughout all phases of the product or service development, from design to testing to post-launch testing.

3.4 Government Service Delivery

An academic search for literature on government service delivery and public sector delivery of online services resulted in various articles on the topic. Despite how this topic typically connotes services to citizens, it was included in the literature review because it can be applied to the services that BC Bid Resources provides to public sector buyers as clients. One particular highlight was a short article by Carnegie (2001) in the “Technology and Government” journal on CivicInfoBC, an electronic service delivery portal aimed at local governments in British Columbia. The author spoke to the benefits of a single point of access for local government information and transactions, which included a consolidated user interface, elimination of different mechanisms employed by local governments, and uncomplicated onboarding of these organizations (p. 22). This local government service is comparable to BC Bid Resources as a single point of access for public sector procurement information, where the site features similar benefits as CivicInfoBC, but for ministries and public sector employee users.

Gauld, Gray and McComb (2009) examined the responsiveness of government online services in Australia and New Zealand through qualitative and quantitative methodology. The researchers recorded the time taken for users to find contact email addresses, the elapsed time to receive a response, and the quality of the response. They presented the tools that were used to test responsiveness and the results from Australia and New Zealand government agencies (p. 71). Other results focused more on citizen engagement in government service delivery. Muhammad, Masron and Majid (2015) emphasized how public participation is essential for efficiency in local government service delivery. A similar study is from Thoreson and Svara (2010), who stated that citizens can help clarify which local services are most important and presented case studies that demonstrated the range of user input that can be obtained for broad or specific service reviews (pp. 6-7).

3.5 Knowledge Management

Knowledge management was included in the review of relevant literature because the creation of BC Bid Resources is intended to enhance procurement knowledge across the B.C. government as an open site of accessible procurement resources. This topic resulted in the most articles and instructional books, most likely due to the advent of the information/knowledge age.

Pfeffer and Sutton (2000) drew attention to a study of 1,000 employees in business, government, and non-profit organizations that reported how up to 70 per cent of workplace learning is informal and most workplace learning goes on unbudgeted, unplanned, and uncaptured by the organization (p. 19), which supported the need for sufficient and effective knowledge management. Davis (2002) examined the reasons why companies introduce knowledge management systems: to increase workplace efficiency, save time, reduce costs, and retain, exchange, and reuse knowledge. His theory directly relates to the objectives behind the development of BC Bid Resources for the B.C. government. Davis further stated that the four pillars of success for knowledge management are content management, process, culture and technology. To expand on Davis' final pillar of success, Wulf, Ackerman and Pipek (2003) shared skepticism about the role of technology in facilitating the sharing of expertise. They believed that it is difficult for systems to capture the knowledge of experts in a contextual form and these systems generally capture information or data rather than knowledge or expertise. They agreed that information and information systems are extremely useful, but do not replicate expertise or the learning that takes place through interpersonal contact (p. 21).

In alignment with the Pfeffer and Sutton article, Wulf, Ackerman and Pipek (2003) highlighted how knowledge sharing within an organization is difficult and not always successful (p. 22) and that organizations should acknowledge the needs of workers to exchange their expertise for a knowledge management initiative be maintained and ingrained into daily practice (p. 52).

Ruggles (1998) added to this rationale for the requirement of an effective, supportive culture in his statement that "knowledge management systems seem to work best when the people who generate the knowledge are also those who store it, explain it to others, and coach them as they try to implement the knowledge" (as cited in Pfeffer and Sutton, 2000, p. 21). Further to the

conditions of successful knowledge management, Garvin (1998) attested that a learning organization is skilled at creating, acquiring, and transferring knowledge quickly and effectively throughout the organization, then modifying its behaviour to reflect new knowledge and insights (pp. 51-53). Mechanisms for this process include written, oral and visual reports, site visits and tours, personnel rotation programs, education and training programs, and standardization programs (p. 66).

Gamble and Blackwell (2001) identified two primary methods for organizing and transferring content: the storehouse model that uses a database and the pointer model that directs users to a source of knowledge (pp. 192-193). The interaction between the models is essential as the highest levels of performance success is found when a user who has retrieved information from the storehouse knows what step to take next or who to ask for advice (pp. 192-193). The authors advised to invest in content maintenance, which requires subject matter experts to create the content and librarians to extract, organize and manage the content (p. 193). Additionally, they acknowledged that “nearly $\frac{3}{4}$ of high impact projects were supported by explicit change management efforts, such as user training, usage promotion and programmes to recognize and reward the use of the application... A knowledge management programme depends for its success on people and it is therefore vital to ensure that new roles and responsibilities are made apparent” (p. 193). Furthermore, the authors stated that the problem of designing measurements and evaluation of knowledge management programs still exist, but it is possible to assess whether an organization's store of knowledge is cultivated and used effectively if agreed measures are developed and applied consistently (pp. 203-204).

3.6 Change Management

Change management was considered for the literature review because the BC Bid Resources site created a new way for public sector buyers to access procurement information and increase their knowledge of the practice. Previously, employees asked expert colleagues, referenced a variety of resources, and took in-person courses from the Public Sector Agency. The launch of BC Bid Resources initiated a need for change management as government employees should now to visit BC Bid Resources first as the corporate source of truth.

Herold and Fedor (2008) stated that changes in organizations failed outright for one or more of the following seven reasons:

1. What was changed failed to address the problem
2. The change addressed the wrong or even nonexistent problem
3. The person leading the change was not up to the job
4. There was poor adaptation on the part of those expected to change their behaviour
5. Events or factors inside the organization derailed the change
6. Events or factors outside the organization derailed the change
7. The process used to implement the change was flawed (p. 18)

The possibility that insufficient behavioural changes led to failed change management was mirrored earlier in the review of Garvin's article on knowledge management, where he stated that a learning organization should modify its behaviour to reflect new knowledge and insights (pp. 51-53).

In "Mastering change management: a practical guide for turning obstacles into opportunities", Chang (1994) proposed a six-step change model, where the final step is to evaluate the change (p. 14). The issues to consider in this step include what criteria to base the evaluation of the change, who will provide evaluation input, who will review the results, how the results will be used to influence future changes, who will monitor the desired outcome, how the ideas and needs will be incorporated, and how the need for continuous improvement will best be communicated and encouraged (p. 76). His suggestion is mirrored by McDavid, Huse and Hawthorn (2013), who advised taking the interests of key stakeholders into account when planning what to evaluate, who to report the results to, how to collect the information, and how to interpret the evaluation (p. 28).

3.7 Lean

A review of literature on Lean was included in this chapter because the BC Bid Resources project streamlined formal and informal procedures for public sector buyers through the creation of a central repository of information, templates and tools. Additionally, as mentioned in this report's Background chapter, a Lean project was conducted in November 2013 that clarified processes around the government's corporate supply arrangements and served to create the B.C. government's Goods and Services Catalogue as the first content for the BC Bid Resources website. Since Lean's rise to popularity over the past 20 years, it has been applied across many disciplines, which demonstrates its wide use and versatility. There were numerous academic papers available on Lean in industries such as manufacturing, healthcare, engineering, technology systems and construction. This literature review focused on Lean resources that can be applied to online user experience and organizational management. Lean is synonymous with continuous improvement, yet continuous improvement was left out of scope for the scan due to the large amount of literature.

Many of the published sources for Lean in user experience design are in the form of recent books, such as those from Sonnenberg and Sehested (2010) and Klein (2013), who combined the theories of Lean, innovation and user experience design. The most applicable source on Lean was a book from Gothelf and Seiden (2013), titled "Lean UX: Applying Lean Principles to Improve User Experience". The book demonstrated how Lean principles can be applied in design work to solve problems as a team, create prototypes, gather feedback early and frequently, validate ideas with real users, and learn from other team roles. The term "Lean UX" used in this field referred to the general use of Lean theories as inspiration, rather than a process to be methodologically followed.

Finally, three articles are useful for this study since Lean in the B.C. government is a corporate initiative to create a culture where ministry employees drive Lean or continuous improvement thinking (Lean BC, 2013). Lebow (2007) and Zarbo (2012) separately spoke to the importance of Lean thinking in corporate leadership and organizational culture. Puvanasvar, Megat, Tang, Muhamad and Hamouda (2008) reviewed problem solving capabilities in Lean process

management and highlighted the human factor required to ensure success with Lean projects (pp. 506-507). Other articles provided evidence that Lean thinking can successfully be applied across various disciplines and industries. Nightingale and Srinivasan (2011) focused their book on how organizations can go further than Lean projects within individual departments to a holistic approach that allows all departments of a company to work together as whole. Adan, Salvador, Sanchez and Rayes (2011) presented a full research study on Lean improvements to reduce processing time in the purchasing department of a case study company and concluded that the purchasing department has great room for Lean improvements (p. 195).

3.8 Literature Review Summary and Limitations

The literature review allowed the researcher to find smart practices for lessons learned for the BC Bid Resources project and gather knowledge for the development of an evaluation framework for BC Bid Resources. This review addressed the topics of usability, user experience, website evaluation, stakeholder engagement, government service delivery, knowledge management, change management, and Lean. The traditional areas of focus included stakeholder engagement, knowledge management and change management, which can contribute to the lessons learned from the BC Bid Resources project. The more contemporary areas of focus were usability, user experience, and website evaluation, which contributed to the development of an evaluation framework for BC Bid Resources. There were significantly more resources available for these types of traditional subjects, especially in the form of academic articles and published books. A review of the contemporary topics of usability and user experience led to many online sources, which is most likely due to the concepts' frequent application to web design and development.

The literature scan primarily revealed smart practices for each topic and demonstrated where this study can fit in and contribute to academia. There is a significant lack of academic sources in the area of user experience in web evaluation, and a lack of academic sources in user-centric web evaluation for government even more so. This report's research therefore fills a gap by providing a government website evaluation process that focuses on user experience and combines the main concepts of usability, user experience, and government service delivery. However, this gap may

not account for existing government website evaluation frameworks that remain unpublished or unpromoted.

The main limitations of this literature review were the inclusion of non-academic sources and a narrow scope that reduced the expansive results for information. Very few disagreements were found between authors due to this reduced scope and a common theme of subjective smart practices that lack empirical research. One contradiction in the literature is highlighted, where Mungmee (2009) stated that his presented indicators have never been used before to evaluate government websites, but since then Boonchutima (2012) included these indicators in his proposed evaluation framework of a government website. The 2012 study by Boonchutima has the most applicability and similarity to this report's objective, yet its sole methodology of qualitative interviews and resulting evaluation framework that centres on public relations leaves a space for this study's unique characteristics. This report will contribute to the academia of empirical research by providing an original evaluation framework, recommendations, and lessons learned on how to evaluate a government web project based in user-centric design.

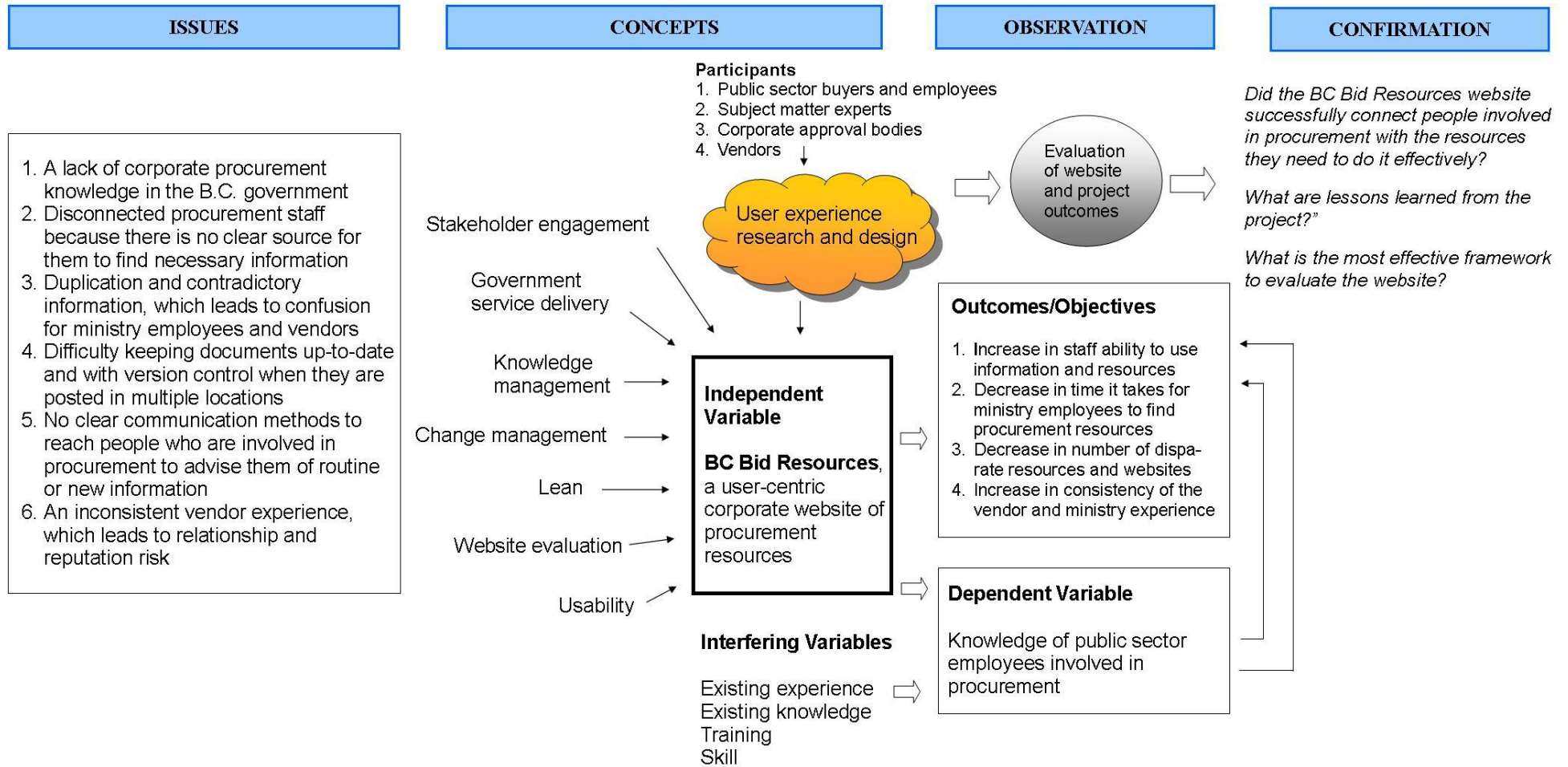
3.9 Conceptual Framework

The conceptual framework for this report (see Figure 1) encompasses themes that were the basis for the creation of the BC Bid Resources and continue to have importance in the evaluation of the site and the development of lessons learned in this study. The issues about current state challenges with procurement were identified through 94 distinct conversations that occurred across government in 2014 (Government of British Columbia Strategic Business and Procurement Transformation branch, 2014a). The issues provided a need for the development of BC Bid Resources, which comprises and utilizes the concepts of stakeholder engagement, government service delivery, knowledge management, change management, Lean, website evaluation and usability. To complete the main concept behind the project of user experience research and design, the Strategic Business and Procurement Transformation branch engaged with participants, including public sector employees, subject matter experts, corporate government approval bodies, and vendor representatives.

The resulting independent variable is the BC Bid Resources site, which affects the dependent variable: knowledge of public sector employees involved in procurement. As stated in the BC Bid Resources project plan, the project objectives are to increase the ability of staff to use information and resources, decrease the time it takes for ministry employees to find procurement resources, decrease the number of disparate resources and websites, increase the consistency of the vendor and ministry experience (Government of British Columbia Strategic Business and Procurement Transformation branch, 2014a, p. 1). The dependent variable - the knowledge of public sector procurement staff - feeds into two of the website's objectives because an increase in procurement knowledge due to the launch of the BC Bid Resources website will increase employees' ability to use the resources and also decrease the time it takes for them to find information related to purchasing. However, interfering variables also influence the dependent variable since existing experience, existing knowledge, training and skills can contribute to the collective knowledge of public sector procurement staff and consequently affect the website's intended outcome to increase employees' abilities to utilize information and decrease the time it takes for them to find information.

The website's outcomes can be observed through evaluation of the project and website, which again will be completed through this study's user experience research. Observation of any outcomes of the website will help to confirm the research questions for this report of whether the BC Bid Resources website successfully connects government employees involved in procurement with the resources they need to do it effectively, what are lessons learned from the BC Bid Resources project, what is the most effective framework to evaluate the website, and if a user experience approach to the project resulted in better outcomes.

Figure 1. Conceptual framework for “Applying a user experience approach to implement BC Bid Resources: Lessons learned and an evaluation framework for the B.C. government’s portal of corporate procurement resources.”



4.0 Methodology and Methods

4.1 Methodology

The main research question of this report is “Did the BC Bid Resources website successfully connect government employees involved in procurement with the resources they need to do it effectively?” The secondary questions are “What are lessons learned from the project?”, “What is the most effective framework to evaluate the website and monitor service delivery?” and “Did a user experience approach to the project result in better outcomes?” To answer these questions, this report’s methodology consisted of a mixed methods research strategy that combines both quantitative and qualitative research. A mixed-methods research strategy was employed with the following objectives:

1. To collect data to complete the evaluation framework for BC Bid Resources
2. To create lessons learned from the BC Bid Resources project and similar government corporate web projects

The main approach used was a goals-based, summative evaluation. A summative evaluation occurs at the end of a project or program cycle to examine its effectiveness (Pell Institute and Pathways to College Network, 2016). The type of summative evaluation utilized was goals-based as the resulting framework will help to determine if the intended goals and objectives of BC Bid Resources were achieved (Pell Institute and Pathways to College Network, 2016). From the completion of the evaluation framework, certain metrics can assist to determine if a user experience approach to the project resulted in better outcomes. This research fulfilled an information gap because there is lack of an evaluation framework to assess the value of the project and the resulting website.

To support the internal evaluation, a lessons learned analysis took place. Specifically, the performance of the project was determined through lessons learned and the performance of the website was determined through the proposed evaluation framework. Additional lessons learned from two other government web initiatives provided insight into strengths and weaknesses of

these projects, which was compared to and combined with the lessons learned for BC Bid Resources. Both the evaluation framework and the lessons learned can be shared with other organizations that undergo similar projects.

4.1 Methods

Quantitative research provided data to supply the website’s evaluation framework. Two methods were selected: web analytics and observational testing. Qualitative research offered in-depth and contextualized data for the evaluation framework and lessons learned component. Four methods were selected: expert interviews, user interviews, document review and a focus group. This approach was designed to balance the requirement that each method be applicable to the report’s deliverables, the intention to collect diverse forms of data for triangulation, and the relative low cost of each method in terms of time and budget. See Figure 2 for a summary of the research methods and respective objectives.

Figure 2. Summary of Research Methods and Objectives

	Objective
Quantitative Research	
Web analytics	Obtain data for the evaluation framework
Observational testing	Obtain data for the evaluation framework
Qualitative Research	
Focus group	Obtain data for lessons learned
Expert interviews	Obtain data for lessons learned
User interviews	Obtain data for the evaluation framework
Document review	Obtain data for the evaluation framework

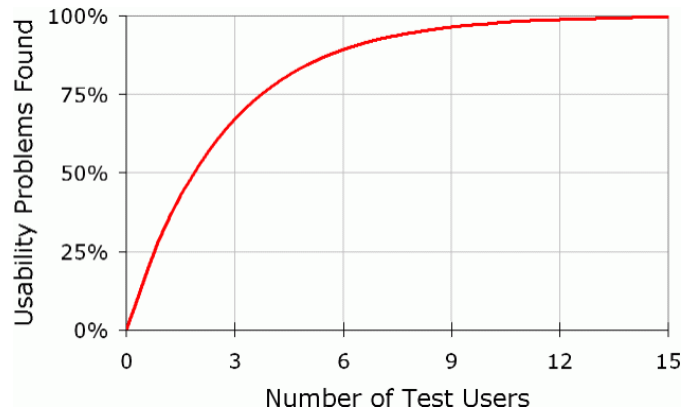
Other valid alternative methods that were not selected include an email survey to find lessons learned from the BC Bid Resources project and other government web projects, and an online

survey to collect data for the evaluation framework. Expert interviews and a focus group were the methods of choice to create lessons learned because they offered the opportunity for richer dialogue and more thorough conversation that cannot be captured through standardized surveys. The online survey, which would be available to all users who visit the BC Bid Resources website, was not utilized in the methodology after a discussion between the researcher and the B.C. government Office of the Chief Information Officer on the strict policies for the implementation of open surveys and collection of personal information. However, the option to collect data through an online survey to determine if the BC Bid Resources website has met its objectives can be kept in mind for future evaluation of the site.

Three types of triangulation were used in the analysis to facilitate the validation of data through cross-verification: data triangulation, investigator triangulation, methodological triangulation (Denzin, 2007, as cited in Speers, 2015). Methodological triangulation, where more than one approach is used, decreased the limitations of each method, cross-validated individual data, and ensured confidence in overall results. Investigator triangulation, where more than one researcher collected data, was utilized in the observation testing, expert interviews, user interviews and focus group, user interviews. Data triangulation was used for the observation and user interviews where different representatives from different user populations were surveyed.

Nielsen and Landauer (1993) determined that the number of usability problems found in a usability test with n users is: $N(1-(1-L)^n)$ where N is the total number of usability problems in the design and L is the proportion of usability problems discovered while testing a single user. As averaged across a large number of projects they studied, the typical proportion of usability problems is 31 per cent. Plotting the curve for $L = 31\%$ has the following result, as shown in Figure 3.

Figure 3. Diminishing returns curve as the proportion of usability problems discovered decreases as the number of users tested increases.



Note: Reprinted from "A mathematical model of the finding of usability problems" by Nielsen, J. and Landauer, T., 1993, *Proceedings of ACM INTERCHI'93 Conference*. Copyright 1993 by Nielsen and Landauer. Reprinted with permission.

This curve displayed how the number of findings reaches diminishing returns with each additional user. Nielsen (2000) highlighted how testing costs usually increase with each additional participant, which affects the return on investment (para. 8). While a researcher should test with at least 15 users to discover all the usability problems, he believed it would be better to spend the research budget on three different studies with five users, where any discovered issues are fixed and then tested with each additional study (paras. 10-11). Nielsen advised that 20 participants are sufficient for quantitative studies, 15 participants for card sorting exercises, and five participants for user testing. His suggestion was taken in account when conducting the observation testing and user interviews for this report.

4.1.1 Web analytics

Web analytics provided data for the proposed evaluation framework to determine if the BC Bid Resources website successfully connected government employees involved in procurement with the resources they need to do it effectively. The B.C. government employs WebTrends, an online web analytics application, to track web traffic and related measurements. The researcher set up parameters to pull statistics on the number of visitors to the site from July 17, 2015 to November 17, 2015 (four months after site launch). The statistics for “average visit duration” and “average

pages view per visit” is to be determined because this requires the creation of an additional WebTrends profile to separate the data for the BC Bid Resources website from its parent website under the Services for Government and Broader Public Sector section of the government website.

4.1.2 Observation testing

Observation testing provided data for the proposed evaluation framework to determine if the BC Bid Resources website successfully connected government employees involved in procurement with the resources they need to do it effectively. In particular, this method measured the usability and findability of the site’s content. Five in-person observation sessions were conducted from September to October 2015 with government employees. The participants are selected by the researcher and client for this report from existing working relationships to represent a range of procurement user personas, as described in the Background chapter (see Appendix B for sample user personas). A large population of purchasers exist across government as this demographic is considered to be anyone who has a certain job role, manages contracts, or makes one-time purchases, such as office supplies or a hotel room for business travel. This method’s sample population also included two participants who do not work in the area of procurement because the website is intended for individuals who are new to the area and its terminology.

The obtrusive observation test sessions were conducted at each participant’s office by the researcher and colleague and included representatives from the following business areas:

- A manager of procurement from the Finance, Policy, Compliance & Procurement branch within the Corporate Services for the Natural Resource Sector
- An analyst from the Procurement Services branch within the Ministry of Technology, Innovation and Citizens’ Services
- A business consultant from the Business Planning and Application Management branch within the Ministry of Health
- An operations manager from the Asset Investment Recovery branch within the Ministry of Technology, Innovation and Citizens’ Services

- A risk management consultant from the Risk Management and Government Security branch within the Ministry of Finance

This method followed a direct observation and structured format where the participants were asked a series of the same questions and requested that they verbally communicate their thought processes. The questions, such as “Where do you go to find information on the conflict of interest in a procurement process?”, were replicated from the online tree test that was conducted in the summer of 2015 before the launch of the site (see Appendix D for a list of all the observation test questions). Participants were neither timed nor graded on how they moved forward (or backwards) in their navigation, but rather graded on if they eventually found the correct webpage for each question. Investigator triangulation was utilized to decrease the chance of bias by having the researcher and her colleague observe and take notes.

4.1.3 Focus group

A focus group provided data to determine what the lessons learned are from the BC Bid Resources project. Four members of the BC Bid Resources project team were invited to participate in the focus group given their involvement in the project from start to finish. The one-hour session was conducted at the Strategic Business and Transformation branch in the fall of 2015 with the following participants:

- Three representatives from the Strategic Business and Procurement Transformation branch within the Ministry of Technology, Innovation and Citizens’ Services
- One representative from the Financial Services branch of the Ministry of Transportation
- One representative from the Finance, Policy, Compliance & Procurement branch within the Corporate Services for the Natural Resource Sector (which is comprised of the miniseries for Agriculture; Environment, Aboriginal Relations & Reconciliation, Energy & Mines, and Natural Gas Development & Housing)

An exploratory research design was employed where the session consisted of open-ended questions that allowed for organic deviation from the question structure (see Appendix E for the

focus group questionnaire). Investigator triangulation was utilized in theory as the researcher took notes that were displayed on a screen and agreed upon by the participants.

4.1.4 Expert interviews

Expert interviews provided data on key learnings from two large B.C. government corporate web projects, which built on and contributed to lessons learned from the BC Bid Resources project. Two individuals were selected by researcher from previous working relationships due to their involvement and knowledge in the area web user experience for the B.C. government. Both participants managed web projects for their entire ministries. The one-hour interviews were conducted at each participant's office by the researcher and colleague in the fall of 2015. The selected web experts were:

- A business consultant from the Business Planning and Application Management branch within the Ministry of Health
- A web manager from the E-Services and Development branch in the Public Service Agency

An exploratory research design was employed where the interviews consisted of unstructured, open-ended questions that allowed for organic deviation from the interview structure. The questions were designed to elicit information about the challenges, issues and decisions made with respect to their projects, as well as the strategies and tools employed in carrying out the initiative (see Appendix F for the expert interview questionnaire). Investigator triangulation was utilized to decrease the chance of bias by having the researcher and her colleague observe and take notes.

4.1.5 User interviews

User interviews provided data for this report's evaluation framework and lessons learned to answer the research questions of "Did the BC Bid Resources website successfully connect government employees involved in procurement with the resources they need to do it

effectively?” and “What are lessons learned from the project?”. In addition to the five observation testing sessions to find quantitative data for the evaluation framework, the same individuals were asked open-ended questions on their thoughts of the BC Bid Resources website to determine its usability for addition into the evaluation framework. The user interviews were conducted at the end of the observation testing session at each participant’s office by the researcher and colleague. The user interviews included the same representatives from the following business areas:

- A manager of procurement from the Finance, Policy, Compliance & Procurement branch within the Corporate Services for the Natural Resource Sector
- An analyst from the Procurement Services branch within the Ministry of Technology, Innovation and Citizens’ Services
- A business consultant from the Business Planning and Application Management branch within the Ministry of Health
- An operations manager from the Asset Investment Recovery branch within the Ministry of Technology, Innovation and Citizens’ Services
- A risk management consultant from the Risk Management and Government Security branch within the Ministry of Finance

An exploratory research design was employed where the interviews followed a semi-structured format (see Appendix G for the user interview questionnaire). Again, investigator triangulation was utilized to decrease the chance of bias by having the researcher and her colleague observe and take notes.

4.1.6 Document review

A document review provided data for the proposed evaluation framework to answer the secondary research question of “What is the most effective framework to evaluate the website and monitor service delivery?”. The review contributed to portions of the evaluation framework that require comparative analysis. The following documents were reviewed to assess whether the

BC Bid Resources website conforms to the project objectives and the organization's objectives, vision and guidelines:

- Shared Services BC web design principles
- B.C. government web design principles
- B.C. government web style guide
- BC Bid Resources project plan
- Procurement Transformation Initiative vision
- Strategic Business and Procurement Transformation branch vision
- Ministry of Technology, Innovation and Citizens' Services service plan
- B.C. government Internet Strategy

These documents were selected due to their applicability to the BC Bid Resources project. The Strategic Business and Procurement Transformation office is part of Shared Services BC, Ministry of Technology, Innovation and Citizens' Services, and leads the Procurement Transformation Initiative across the B.C. government. Since BC Bid Resources is a web project, the B.C. government web design principles, web style guide and Internet Strategy were also selected for review.

4.1 Data Analysis

The methodology for this report included two quantitative methods: web analytics and observation testing. The web analytics method was completed solely by the researcher and required no analysis as it was simply a numerical result for page views. The observation testing utilized investigator triangulation where the researcher and her colleague observed and took notes; however, only the researcher interpreted the data. No analysis was required for the observation testing because the research participants either had the answers right or wrong. There was no statistical analysis required for either quantitative method.

Second, this report's methodology included four qualitative methods: a focus group, expert interviews, user interviews and a document review. Investigator triangulation was again utilized

for the focus group, expert interviews, and user interviews. For the focus group, the researcher asked the participants certain questions and the group collectively agreed on the points that would be recorded. For the expert and user interviews, the researcher asked the participants questions while the researcher and her colleague took notes. This resulted in two sets of field notes, which was combined and interpreted by this report's researcher. For the document review, only the researcher read the documents and compared them to BC Bid Resources. All the qualitative methods were interpreted through relational and thematic analysis. Relational analysis examines the relationships among concepts and thematic analysis finds identifiable themes and patterns (Speers, 2015). The analysis was unstructured for the methods in this study, where the researcher reviewed the field notes and documents and highlighted explicit and implicit terms. After distinct terms and concepts were found, the researcher grouped similar impressions then labeled themes. The objective of the focus group and expert interviews were to find lessons learned on web projects so the researcher analyzed the data across these two methods to find the most common lessons learned. See figure 4 for a summary of the research methods, resulting data and analysis of the data.

Figure 4. Summary of Research Methods, Data and Analysis

Method	Data	Analysis
Web analytics	Quantitative	n/a
Observational testing	Quantitative	n/a
Focus group	Qualitative field notes	Relational and thematic
Expert interviews	Qualitative field notes	Relational and thematic
User interviews	Qualitative field notes	Relational and thematic
Document review	Existing documents	Comparative analysis

4.2 Delimitations and Limitations

There are specific limitations related to the analysis of the data from the qualitative research methods. The sampling sizes followed the recommendations by Nielsen (2000), who advised that 20 participants are sufficient for quantitative studies and five participants for user testing, yet potential problems may exist through insufficient sample sizes of each type of user. This issue, which would decrease the validity of the results, can be mitigated by allowing enough time to collect data and by seeking out certain user types for testing if the sample populations are unbalanced. Second, it should be noted that the presence of a researcher can affect participants' behaviours when they know they are being studied; therefore altering any collected data (University of Southern California Libraries, 2015, para. 48). The observation testing, which required users to navigate through the site to find answers to the researcher's questions, would most likely cause altered behaviours. Third, investigator triangulation was utilized for the observation testing, expert interviews and user interviews where the researcher and her colleague took notes. However, there was no coding of data and only the researcher of this report interpreted the combined data using relational analysis, which could lead to bias and less valid results. Main challenges to the relational analysis approach are that words can have different meanings in different contexts, overall meanings and messages can be overlooked, and not everything that has value can be counted (Speers, 2015). Finally, there are limitations to the full research strategy as it was conducted over a period of four months, which may not classify it as a true cross-sectional study that examines variables at a single point in time. The website is organic in nature and constantly being enhanced so any comments that were made on specific challenges may have been improved since then.

5.0 Findings

This study was completed to determine if the BC Bid Resources website was successful and what are lessons learned from the project. To answer these research questions, a mixed-methods research strategy was employed with the following objectives:

1. To collect data to complete the proposed evaluation framework for the BC Bid Resources website; and
2. To create lessons learned from the BC Bid Resources project and similar government corporate web project.

5.1 Web Analytics

The short-term web analytics for BC Bid Resources contributed data to the evaluation framework for the BC Bid Resources website. From the July 17, 2015 website launch to November 17, 2015, the BC Bid Resources site had 115,460 page views and 30,720 visits. See the Discussion and Analysis chapter for where this data was added to the proposed evaluation framework for BC Bid Resources.

5.2 Observation Testing

The in-person observation testing contributed data to the evaluation framework for the BC Bid Resources website and lessons learned for the BC Bid Resources project. Reusing the same questions from the online site structure test conducted before launch, such as “Where do you go to find information on the conflict of interest in a procurement process?”, allowed the researcher to validate the results of the pre-launch test and provided deeper examination into individual user experiences when navigating through the site.

The participants showed an overall 91 per cent success rate in finding the correct page of information. These results surpass the third online site structure test completed in July 2015,

where there was a 40 per cent overall success rate. The significant increase can be attributed to the live page design where there is the ability to use the content index, search function and hyperlinks to related information that are embedded throughout the page and side bars. Participants demonstrated their use and preference of these tools, which indicated enhanced usability of the site.

Additionally, the observation testing gave the researcher an opportunity to see participants’ eye movement and hear which parts of a webpage they habitually scan first. Again, it was commented that a beneficial design feature of the BC Bid Resources site is hyperlinks to main information topics and related information in the left-hand navigation box, body of page, and right-hand side boxes. See Figure 5 for a page example that highlights this design.

Figure 5. Sample BC Bid Resources webpage



The results from the observation testing can be generalized to the larger user population due to the repetitive results of each individual participant and the correlation between these results and the online site structure test in July 2015. The 91 per cent overall success rate in findability, use of the content index and search function, and design feature of links to related information

contributed to the assessment that the BC Bid Resources website has high usability. This success rate is a key finding that helps to answer the question of whether the site is meeting needs of users and speaks to the validity of applying an user experience approach to the project. See the Discussion and Analysis chapter for where this data was added to the evaluation framework.

It should be noted that observation testing of a website, which is also called design walkthrough testing, is usually completed before launch of the site. Testing a live site can increase the chance of participants' familiarity of site, thereby decreasing the validity of results. It can also decrease the opportunity to make necessary site structure changes if the testing results prove to be less than desirable. For this method, two of the five participants had already visited the site, which increased familiarity of site and decreased the validity of results. One participant said she may have completed the online site structure test conducted before the launch of the site, but could not recall the questions. Regardless, there is the chance that her high results (100 per cent success in being able to find the answers) may be attributed to familiarity of the site structure.

5.4 Focus group

The focus group results were the main and direct component to the lessons learned for the BC Bid Resources project. There was no coding of the qualitative data and lessons learned were summarized from the participants' key points (see Appendix H for full notes from the focus group.) The focus group determined five main reasons that contributed to the successful launch of BC Bid Resources:

- 1) Well-run weekly meetings
- 2) Stayed flexible in overall timelines
- 3) Had the right people on the team
- 4) Clear communication
- 5) Project leadership

The focus group determined three areas for improvement from experience with the BC Bid Resources project:

- 1) Sufficient resourcing
- 2) Larger vision for project and post-launch
- 3) Obtain consent for personal images and privacy approvals for surveys in advance

The resulting lessons learned allowed key members of the project team to share knowledge so that the entire organization may benefit and also to help similar project teams repeat desirable outcomes and avoid undesirable outcomes. See the Discussion and Analysis chapter for where these results are amalgamated into lessons learned for BC Bid Resources.

5.3 Expert Interviews

Two expert interviews contributed to lessons learned for the BC Bid Resources project by providing key learnings from two large B.C. government corporate web projects. The interviews allowed the researcher to derive first-hand experiences from the project managers and contribute this information to overall lessons learned. There was no coding of the qualitative data and notes from each of the two corporate projects were summarized from the participants' key points (see Appendix I for the combined notes from the expert interviews).

The managers for the two separate corporate websites found that their web projects had the following strengths:

- 1) Sufficient resourcing
- 2) Set processes and guidelines before launch
- 3) Established governance group
- 4) Enacted a web content freeze

The managers for the two separate corporate websites found that their web projects had the following weaknesses:

- 1) Insufficient resourcing
- 2) Lack of standards and guidelines
- 3) Insufficient governance structure
- 4) Unreliability of content writers and other government branches
- 5) Lack of a web content freeze

After the launch of the two web projects, the planned next steps were for maintenance, enhancements, and evaluation. See the Discussion and Analysis chapter for where these results are amalgamated into lessons learned for BC Bid Resources.

5.5 User interviews

The user interviews provided data for the evaluation framework of the BC Bid Resources website. There was no coding of the qualitative data and notes from all five interviews were summarized from the participants' key points (see Appendix J for the combined notes from the user interviews). It should be noted that this is a small interview sample and may not be representative of the entire population of BC Bid Resources users; however, the research method does follow the recommendations from Nielsen (2000) that five participants are sufficient for qualitative testing.

Summary of positive feedback on BC Bid Resources content:

- The site has a lot of information
- Content layout that follows the phases of procurement is effective
- References to ministry-specific resources are useful
- Videos load quickly
- It is helpful for learning about procurement before users can attend a Procurement and Contract Management course

Summary of positive feedback on BC Bid Resources design:

- Participants specified the following useful page design features:
 - Font and heading formats
 - Embedded hyperlinks
 - Anchor functionality of Goods and Services Catalogue
 - Useful Links box
- Participants specified the following useful site design features:
 - Topic-based search
 - Content index
 - Left hand side navigation bar

Summary of negative feedback on BC Bid Resources content:

- There is a lot of content [also mentioned as a positive feature]
- New people may not know what they are looking for
- Site may be more useful for when a user has the opportunity to manage a procurement
- Need more information for vendors [to be completed in fall 2016]

Summary of negative feedback on BC Bid Resources design:

- Highlighted links to contact information make the site feel dated and not as professional
- More visual representations would enhance site
- Some content is buried and difficult to find
- There is a duplication of links in sidebar and body of page

Selected comments on the BC Bid Resources site:

- “The site makes sense, but also assumes that you know something [about procurement]”
- “I am quite happy and quite happy referring clients to it”

- “Until you know what procurement means, you won’t need or find the site”

The user interviews included one participant who manages the help desk for inquiries related to BC Bid Resources to find data for the proposed evaluation framework under the criterion of number of inquiries per week for the site. She stated in October 2015 that there were “a few” email inquiries per week, but since January this number has dropped off dramatically. Similarly, the number of phone calls has decreased to approximately one every few weeks. The phone inquiries were generally around links that do not work or missing information, but as of January they generally relate to users not being able to download a document or not being able to find information in the Goods and Services Catalogue. See the Discussion and Analysis chapter for where this data has been added to the evaluation framework.

The interviews revealed how habits are ingrained with users. One participant stated she would just contact who she knew to find procurement information. Two participants bookmarked certain web pages, such as the B.C. Government Core Policy and Procedure Manual, to find procurement information. Two participants explained they get frustrated when it takes longer than 20 to 30 seconds to find an answer on a website and would search another resource if it took too long to find what they wanted. These ingrained habits were raised in the user interviews at the beginning of BC Bid Resources project in February and March 2014.

Additionally, the user interviews exemplified the benefits of BC Bid Resources as a website that focuses on user needs and is under continuous enhancements. One participant said that the in-person presentation on how to use BC Bid Resources made the site easier to navigate. These sessions were provided after the launch of the site to walk employees through the site and showcase its features and highlights. To demonstrate the benefit of continuous improvement, two interview participants commented how they disliked that the search function searches all B.C. government webpages. The researcher took this information back to the branch and within a week, a topic-based search functionality that only searched through the BC Bid Resources site was launched. See the Discussion and Analysis chapter for where this data is added to the proposed evaluation framework for BC Bid Resources.

5.6 Document Review

The following documents were reviewed to assess whether the BC Bid Resources website conforms to the project objectives and the organization's vision, objectives and guidelines.

Review of Shared Services BC web design principles

The Shared Services BC web design principles were reviewed to assess whether the BC Bid Resources website conforms to organization's guidelines. The divisional web design principles are listed as:

1. Tell the story: shared services = shared value
2. Simplify, clarify, and visualize
3. Start and finish with services
4. Capitalize on government as a brand differentiator
5. Think conversion instead of compliance
6. Manage high touch expectations
7. Edit with a chainsaw
8. Avoid the void (Government of British Columbia Strategic Business and Procurement Transformation branch, 2014b, pp. 20-21)

The first and fourth principles are particular to Shared Services BC and would not apply to BC Bid Resources. All other guidelines can be applied in some form to BC Bid Resources and the site does follow these values; therefore it can be said that there is verified alignment of BC Bid Resources to the Shared Services BC web design principles.

Review of the B.C. government web design principles

The B.C. government web design principles were reviewed to assess whether the BC Bid Resources website conforms to organization's guidelines. The corporate web design principles are listed as:

1. Evidence-based design
2. Improved wayfinding
3. Balanced approach to services and messaging
4. Accessible without compromise
5. Declare the new (Government of British Columbia, 2015a)

All of these principles are embodied in BC Bid Resources; therefore there is verified alignment of the site to the B.C. government web design principles.

Review of the B.C. government web style guide

The B.C. government web style guide was reviewed to assess whether the BC Bid Resources website conforms to organization's guidelines. The corporate guide is a multi-page online resource that provides stylistic and formatting standards for writing consistent and high quality content for B.C. government websites (Government of British Columbia, 2015b). The BC Bid Resources website differs from the guidelines in the following aspects:

- Pages open in new tabs
- Headings do not use ampersands
- Some pages have two spaces after periods
- Some headings have more than four words per title in the Heading 2 style
- There is very occasional use of "to open ABC click here" hyperlink format
- Some attachments do not always include the file size as part of the hyperlink
- Content writing leans away from use "you" and "your"
- Bulleted lists include periods

All other formatting characteristics are consistent between the B.C. government web style guide and BC Bid Resources. The guide was released in June 2015 and created too short of timelines to review and update all the draft and live webpages in BC Bid Resources site, which launched in

phases from May to July 2015. Apart from the eight points listed above, there is alignment of the site to the B.C. government web style guide.

Review of the BC Bid Resources project plan

The BC Bid Resources project plan was reviewed to assess whether the BC Bid Resources website aligns with the project vision, objectives and outcomes. The BC Bid Resources project vision is to be the one-stop shop for all things procurement. It intends to:

1. Increase corporate procurement knowledge
2. Connect procurement staff with a clear source to find necessary information
3. Reduce duplication and contradictory information
4. Make it easier to keep documents up-to-date and with version control
5. Provide clear communication methods to reach people who are involved in procurement, either for routine or new information
6. Create a consistent vendor experience, which leads to relationship and reputation risk
7. Provide the ability to quickly and efficiently manage procurement opportunities
8. Provide the ability to identify and acquire economically priced goods and services
9. Create reliable, stable, and user friendly web resources and procurement tools
10. Provide program delivery to citizens that is enabled by goods and services acquired through fair and open procurement processes

The BC Bid Resources intended project outcomes are, to affect, an:

- Increase in staff ability to use information/resources
- Decrease in time it takes for ministry employees to find procurement resources
- Decrease in number of disparate resources/websites
- Increase consistency in the vendor and ministry experience (Government of British Columbia Strategic Business and Procurement Transformation branch, 2014a, p. 1)

A brief comparative analysis from the researcher shows verified alignment of the live site to the project vision, objectives and outcomes. As stated in the previous chapter, an online survey that asks visitors to rate the site in relation to its accomplishments of the above points can be employed at a later date. This data will reveal users' perspective of whether the BC Bid Resources website aligns with the project vision, objectives and outcomes to validate or disprove the researcher's assessment of this criterion.

Review of the Ministry of Technology, Innovation and Citizens' Services service plan

The Ministry of Technology, Innovation and Citizens' Services service plan was reviewed to assess whether the BC Bid Resources website aligns with the organization's vision at a ministry level. The service plan mainly applies to service delivery to businesses and citizens. Goal one is to "create conditions for B.C. businesses to be successful" with the objective to "streamline processes and access to information and services so it's easier for businesses to access government resources" (B.C. Ministry of Technology, Innovation and Citizens' Services, 2015, pp. 7-8). Goal two is to "make it easier for citizens and businesses to interact with government" with the objective that "citizens and businesses can easily access government services and information" (p. 9). If these two goals are applied to BC Bid Resources from the perspective that the site will eventually include resources for businesses on how to do business with the government, then there is the assumption of future alignment to the ministry service plan.

Review of the Procurement Transformation Initiative vision

The Procurement Transformation Initiative vision was reviewed to assess whether the BC Bid Resources website aligns with the organization's vision at a corporate level. Procurement Transformation Initiative vision is "to maximize value to citizens through government procurement" (Government of British Columbia Strategic Business and Procurement Transformation branch, 2015a, p.1). Therefore, there is verified alignment to Procurement Transformation Initiative vision.

Review of the Strategic Business and Procurement Transformation branch vision

The Strategic Business and Procurement Transformation branch vision was reviewed to assess whether the BC Bid Resources aligns with the organization's vision at a branch level. The Strategic Business and Procurement Transformation branch vision is "to maximize value to the Province through collaboration and innovation" (Government of British Columbia Strategic Business and Procurement Transformation branch, 2015b, p.1). Therefore, there is verified alignment to Strategic Business and Procurement Transformation vision.

Review of the B.C. government Internet Strategy

The B.C. government Internet Strategy was reviewed to assess whether the BC Bid Resources website aligns with the organization's vision at a corporate level. The Internet Strategy focuses on redesigning the provincial government's online presence to break down organizational structures, enhance the look and usability of the website and create a common user experience (Government of British Columbia, 2012). There is alignment to this strategy as the BC Bid Resources website brings together services and resources from across government and is built into the main government website to create a common user experience as a government brand.

See the Discussion and Analysis chapter where these results are added in the proposed evaluation framework for BC Bid Resources.

6.0 Discussion and Analysis

This report's main research question is whether the BC Bid Resources website successfully connected government employees involved in procurement with the resources they need to do it effectively. The secondary questions examine what the lessons learned are from the project, what is the most effective framework to evaluate the resulting website, and if a user experience approach to the project resulted in better outcomes. To answer these questions, the report utilized a literature review and a mixed methods research strategy to produce two deliverables: lessons learned and a completed evaluation framework.

The literature review was completed to gather knowledge for the development of an effective evaluation framework for BC Bid Resources and to reveal smart practices for recommendations on how to implement monitoring and evaluation. Specific qualitative methods, in the form of expert interviews and a focus group, provided lessons learned for the BC Bid Resources project. Additional qualitative and quantitative research for this study, in the form of web analytics, observational testing, user interviews, and a document review, gathered data to complete the proposed framework. This mixed methods research strategy brought together the analysis that was completed at throughout the BC Bid Resources project in a full circle of user experience research, design and continuous improvement.

The literature review revealed many smart practices in user experience, website evaluation, stakeholder engagement, government service delivery, knowledge management, change management and Lean, that contributed to this report's proposed evaluation framework and related recommendations. For the purpose of developing the most effective evaluation framework for BC Bid Resources, the literature review focused on the concepts of usability, user experience and website evaluation to find useful metrics. The proposed evaluation framework for BC Bid Resources provides original measurements to supplement and complement the present understanding and usage of user experience and web metrics. Apart from where noted below, the researcher created all the criteria and indicators in the custom evaluation framework for BC Bid Resources.

A study by Boonchutima (2012) was considered to be the most relevant work for this report in its related objective to create an evaluation framework for a government website. However, many of the indicators he introduced, such as criteria in the dimension of government's relationship with mass media, may not be appropriate for the evaluation of the BC Bid Resources website because it is a subset of the B.C. government website. For the B.C. government, citizen engagement and two-way communication are more so objectives of the main government internet site and social media platforms, respectively. Boonchutima stated that certain unique indicators, such as website awards, search engine ranking, website ranking compared to competitors, interest from other related organizations' websites, were not previously utilized because government generally does not compete with other organizations (p. 73). Although some government services such as income assistance and business registration are monopoly provisions with the B.C. government, BC Bid Resources does compete with other options to be the sole source of procurement information for public sector buyers. Many other avenues exist for buyers to obtain information; for example, from colleagues, ministry intranets, out-of-date documents or other ingrained procedures. BC Bid Resources aimed to be the single authority that buyers first visit, and re-visit, for required information and resources. While ranking and awards were not included in this report's proposed framework, it does offer a metric to find what other sources users go to for procurement information.

The necessity for credibility in a website evaluation was put forward by Boonchutima (2012), Muntarbhornn (2004) and Fisher, Bentley, Turner and Craig (2005). Boonchutima highlighted one possible indicator that measures "a decrease in the number of phone calls enquiring information, because users are able to acquire the information themselves when the website is considered adequately credible" (2012, p. 73). This theory can be applied to BC Bid Resources, to a greater degree from a usability perspective, where a reduction in the amount of inquiries to the Procurement Services Branch help desk, Strategic Business and Procurement Transformation email inbox and/or BC Bid Resources website editor email inbox would suggest that users can find the information they require online. Related to this concept is the study from Gauld, Gray and McComb (2009), where the researchers recorded the time taken for users to find contact email addresses on government websites. The study is similar to the observation testing and user

interview methods executed for this report to complete two quantitative indicators in the proposed evaluation framework for BC Bid Resources.

Herold and Fedor (2008) stated that changes in organizations failed outright for one or more of the following seven reasons. The most relevant to BC Bid Resources is the possibility that “there was poor adaptation on the part of those expected to change their behaviour” (p. 18). This reason magnifies the need for sufficient change management efforts, and led to the creation of specific criterion for the proposed evaluation framework to evaluate users’ change in behaviour. Chiou, Lin, and Perng (2010) stressed the importance of including strategic issues in website evaluation. This smart practice led to the creation of metrics in the framework for BC Bid Resources to ensure that the website meets intended vision and objectives. In particular, the evaluation framework for the BC Bid Resources will work in alignment with B.C. government web guidelines from government. In the past year, the researcher has been involved in developing new internet standards for the B.C. government, including the web style guide and visual design guide (British Columbia Government, 2015), and the proposed framework will reference them.

In addition to the studies that provide information to support or contribute to the evaluation framework for BC Bid Resources, there are numerous findings, observations and statements made by the authors that were incorporated in the recommendations for this report. Hodin (2013) and Aakhus and Bzdak (2015) believed that stakeholder input should continue throughout the process of project design. This theory aligns with the development and launch of BC Bid Resources and encompasses this report’s basis of user experience research and design. For successful knowledge and change management, Gamble and Blackwell (2001) proposed using specific actions, such as user training, clear roles and responsibilities, and consistent, agreed-upon measures in evaluation. Similarly, Chang (1994) and McDavid, Huse and Hawthorn (2013) advised that certain points should be considered in change management, which include what to evaluate, what criteria to use, how to collect the information, and who to report the results to. This information amplified the need for this report’s deliverable of an evaluation framework and contributed to the recommendations.

Garvin (1998) advised that the effective transfer of knowledge throughout the organization includes standardized training programs. This guidance relates to BC Bid Resources, where the site employs one subject matter expert editor who also teaches the B.C. government's Procurement and Contract Management courses across the province. This arrangement allows for continuity between what is presented in the BC Bid Resources site and what is taught in-person classroom training. It also provides an avenue in which to promote the online resource to attendees. The suggestion from Garvin will be taken into account in the Options to Consider and Recommendations chapter of this report. Nightingale and Srinivasan (2011) focused their book on how organizations can go further than Lean projects within individual departments to a holistic approach that allows all departments of a company to work together as whole. The Lean projects in government are occurring in silos and it is rare to see Lean thinking applied across divisions (Lean BC, 2013), if it has been applied this manner at all. The book is germane to the BC Bid Resources project because of its emphasis on how to achieve support from stakeholders (Nightingale & Srinivasan, 2011), which can be considered part of the user experience research design that is increasingly important for government. The BC Bid Resources project allowed for Lean and continuous improvement thinking to be applied across numerous business areas, resulting in a website that streamlined access to procurement resources for ministries and the broader public sector. As Gothelf and Seiden (2013) recommended a Lean approach to drive design in short, iterative cycles to assess what works best for the business and the user, it would be worthwhile to incorporate Lean (or continuous improvement) ideology into all user experience-based web projects.

6.1 Lessons Learned

The lessons learned from BC Bid Resources project and two similar corporate web projects were examined through a focus group and expert interviews to create combined lesson learned for a successful user-centric web project. Relational and thematic analysis was used where relationships between concepts were examined and identifiable themes and patterns were found. The primary lessons learned are that a successful web project requires both thorough planning and sufficient resourcing. The key learnings, which allow for smooth project management and a

successful launch of the resulting website, are elaborated below with points that draw from the qualitative data.

1) Thorough planning

- Establish guidance and processes first
 - For example: roles and responsibilities, training, consent form requirements, user personas, experience maps, style guide, workflow processes, content documentation, and change management guidelines
- Give enough time and allow for flexible deadlines
 - Consider a phased approach for content development and launch
 - Plan for a potential web content freeze to mitigate version control issues

2) Sufficient resourcing

- Enlist dedicated resources for the project team with the right people and strong leadership
 - Examine temporary assignments, co-op students or contractors as resources
- Involve key stakeholders throughout the project through user experience mechanisms such as interviews, focus groups, user testing and re-testing
- Set proper roles responsibilities for content writers, approval bodies, and business areas that are considered dependencies
- Specific to web projects, a pool of web editors can alleviate any bottlenecks

These combined key learnings can be shared with other organizations that are undergoing similar user experience-based projects. The following Options to Consider and Recommendations chapter presents a particular suggestion that encompasses the lessons learned and will contribute to the success future Strategic Procurement and Business Transformation projects.

6.2 Evaluation Framework

The following evaluation framework for the BC Bid Resources website presents a solution of how to determine if the BC Bid Resources website successfully connected government employees involved in procurement with the resources they need to do it effectively. This is a direct deliverable to this report's secondary research question of "What is the most effective framework is to evaluate the website and monitor service delivery?" The completion of the framework will additionally help to determine if a user experience approach to the project resulted in better outcomes. The model described in this chapter is designed to suit the specific character and circumstances of the BC Bid Resources website and for use in longitudinal studies that takes measurements over time. It encompasses a set of indicators to monitor and gauge the performance of BC Bid Resources in its objective to provide public sector procurement staff with reliable, up-to-date, and user-centric online resources. The framework can be adapted for the ability to assess other web projects based in user experience research and design.

Earlier this report, specific methods were presented as mechanisms to collect data. The results from the methods were detailed in the Findings chapter and are also included in the evaluation framework below (Figure 6) as short-term results of the site since its launch on July 17, 2015. The following Options to Consider and Recommendations chapter presents one solution that addresses how the evaluation framework can best be utilized for ongoing monitoring, incorporation of new ideas and needs, and continuous improvement of the website.

Figure 6. Proposed evaluation framework for the BC Bid Resources website

1. USAGE			
Criterion	Indicators	Data Source	BC Bid Resources
Website reaches target audience	<ul style="list-style-type: none"> • Number of page views • Number of visits • Average visit duration • Average pages view per visit 	<ul style="list-style-type: none"> • WebTrends software 	<ul style="list-style-type: none"> • 115,460 page views from the July 17, 2015 to November 17, 2015 • 30,720 visits from the July 17, 2015 to November 17, 2015 • Average visit duration TBD ¹ • Average pages view per visit TBD ¹
Users' behaviour change in accordance with website objectives	<ul style="list-style-type: none"> • User evaluation • User feedback 	<ul style="list-style-type: none"> • Online survey • User interviews 	<ul style="list-style-type: none"> • Data TBD from online survey ² • Sample of five user interviews conducted in fall 2015 revealed that users still contact who they know and bookmark old webpages
2. EFFECTIVENESS OF CONTENT			
Criterion	Indicators	Data Source	BC Bid Resources
Website content has high level of usability (accurate, reliable, up-to-date, credible, objective and sufficient information)	<ul style="list-style-type: none"> • Number of Procurement Services help desk inquiries regarding website • Number of emails to website inbox • Quality of inquiries • User feedback 	<ul style="list-style-type: none"> • Procurement Services help desk administrator • Strategic Business and Procurement Transformation email inbox • BC Bid Resources website editor email inbox • User interviews 	<ul style="list-style-type: none"> • Approximately three inquiries per week to the Procurement Services help desk in fall 2015, which dropped to approximately one email per week and one phone call every three weeks since January 2015 • Approximately two emails or less per month to the BC Bid Resources website editor and Strategic Business and Procurement Transformation email inbox • Inquiries are generally for missing information or broken links • Sample of five user interviews conducted in fall 2015 revealed that users are generally pleased with the site's usability

3. PRESENTATION			
Criterion	Indicators	Data Source	BC Bid Resources
Website presentation conforms to the organization’s guidelines	<ul style="list-style-type: none"> • Comparison analysis 	<ul style="list-style-type: none"> • Shared Services BC web design principles • B.C. government web design principles • B.C. government web style guide 	<ul style="list-style-type: none"> • Verified alignment to Shared Services BC design principles • Verified alignment to B.C. government web design principles • Close alignment to B.C. government web style guide
4. USER SATISFACTION			
Criterion	Indicators	Data Source	BC Bid Resources
Website is highly user friendly (navigation, efficiency, functionality, findability, learnability, and memorability)	<ul style="list-style-type: none"> • User feedback • Success of content findability • Number of Procurement Services help desk inquiries regarding website • Number of emails to website inbox • Quality of inquiries 	<ul style="list-style-type: none"> • User interviews • Observation testing • Procurement Services help desk administrator • Strategic Business and Procurement Transformation email inbox • BC Bid Resources website editor email inbox 	<ul style="list-style-type: none"> • Sample of five user interviews conducted in fall 2015 revealed users’ requests for enhanced user experience (these requests have since then been implemented) • Observation testing showed 91% overall success rate in content findability and use of content index and topic-based search functionality • Approximately one email per week and one phone call every three weeks since January 2015 to the Procurement Services help desk • Approximately two emails or less per month to the BC Bid Resources website editor and Strategic Business and Procurement Transformation email inbox • Help desk inquiries are generally for missing information, broken links or assistance to find information

5. COMPLETION OF OBJECTIVES			
Criterion	Indicator	Data source	BC Bid Resources
Content aligns with the project vision, objectives and outcomes	<ul style="list-style-type: none"> • User evaluation • Comparison analysis 	<ul style="list-style-type: none"> • Online survey • BC Bid Resources project plan 	<ul style="list-style-type: none"> • Data TBD from online survey ² • Verified alignment to BC Bid Resources vision, objectives and outcomes
Content aligns with the organization’s objectives and vision	<ul style="list-style-type: none"> • Comparison analysis 	<ul style="list-style-type: none"> • Procurement Transformation Initiative vision • Strategic Business and Procurement Transformation vision • B.C. government Internet Strategy • Ministry of Technology, Innovation and Citizens’ Services service plan 	<ul style="list-style-type: none"> • Verified alignment to Procurement Transformation Initiative vision • Verified alignment to Strategic Business and Procurement Transformation vision • Verified alignment to B.C. government Internet Strategy • Future alignment to Ministry of Technology, Innovation and Citizens’ Services service plan

¹ “Average visit duration” and “Average pages view per visit” is to be determined because this requires the creation of an additional WebTrends profile to separate BC Bid Resources topic data from the Services for Government and Broader Public Sector sub-theme data

² Data from an online survey that asks users through a Likert scale if BC Bid Resources has met its intended project outcomes is to be determined. It is recommended that this survey be conducted solely by the Strategic Business and Procurement Transformation office due to strict policies from the B.C. government Office of the Chief Information Officer regarding employee surveys

The framework has more of an emphasis on user experience than traditional program evaluation frameworks because the BC Bid Resources project was based in user research and the resulting website designed to be user-centric. Due to this focus, there is a general balance between indicators that require quantitative or qualitative data. All of the indicators utilize data that can be obtained by employees in the Strategic Business and Procurement Transformation branch. The multiple criteria and measurements provide options for an evaluator to select different combinations to check whether the BC Bid Resources website is successful in achieving its intended objectives for ongoing or real-time monitoring and reporting. The results are to be reported to Brooke Hayes, Executive Director of the Strategic Business and Procurement Transformation branch. Additionally, this framework can be shared with other public and private sector organization for the evaluation of their web presences. All criteria in the framework can be kept as-is; however, the indicators and related data sources would have to be slightly modified to apply to the organization in question.

One limitation of the framework is related to the limitations of the B.C. government content management system. The content management system utilizes a template that restricts the amount of creativity in webpage design and produces uniform web pages that align with certain style and standards. Therefore, the evaluation framework does not include criteria for visual appeal or design. In the development of the framework, potential indicators that would have to be completed in collaboration with external organizations, such as interest from other agencies or the number of links from related websites to BC Bid Resources, were not included. Additionally, the framework was filled out in the short-term (four to six months after launch), which may not be indicative of the site's true success. Finally, because this is an *ex post* evaluation unique to BC Bid Resources, there are no baseline measures or comparison groups available (McDavid, Huse, & Hawthorn, 2013, pp. 24-25). The following chapter presents recommendations on how to implement monitoring and evaluation of BC Bid Resources.

7.0 Options to Consider and Recommendations

7.1 Options to Consider

There are three options to the problem of how the Strategic Business and Procurement Transformation branch can evaluate whether the BC Bid Resources website successfully connects government employees involved in procurement with the resources they need to do it effectively:

1. Maintain the status quo

The option to maintain the status quo does not require additional costs. The Strategic Business and Procurement Transformation branch met its commitment in the *Small Business - Doing Business with Government* report by delivering BC Bid Resources as a solution to address the problem of how to provide government buyers and sellers with the resources they need for procurement processes. However, this option does not allow for an evaluation to demonstrate if the solution was actually effective and successful. Long-term implications also exist from lack of any measurement. As stated in the Background chapter, the Strategic Business and Procurement Transformation branch has not yet evaluated whether a user experience research approach to their projects was worthwhile and the branch may continue to spend time, money and effort on user experience research for their initiatives without any evidence to show this practice is valuable. Additionally, without any methods for evaluation and monitoring, the resources and information in BC Bid Resources website may become unreliable, out-of-date, and less user-centric, which misaligns with the BC Bid Resources project vision.

2. Rely on traditional web analytics for monitoring and evaluation

The option to rely on traditional web traffic analytics is a low cost option, particularly because the Strategic Business and Procurement Transformation branch presently has a WebTrends account to view metrics for the BC Bid Resources website. The method of stating page views is currently used for reporting requirements and/or for communication to executive of the

popularity of the site and its webpages. However, there are many potential issues: the number of page views is a subjective measure that can demonstrate the relative popularity of the website, but does not prove if the BC Bid Resources successfully connects government employees involved in procurement with the resources they need to do it effectively. Second, there are no baseline web traffic statistics for comparison, within the B.C. government or in other jurisdictions that have similar procurement websites. Third, WebTrends is limited in comparison to other analytics software and the B.C. government is looking to replace the current WebTrends analytics software in the upcoming year (S. Wadhwa, personal communication, December 23, 2015). Potential disadvantages are similar to the first option, where a lack of in-depth method for evaluation and monitoring may lead to the resources and information in BC Bid Resources website becoming unreliable, out-of-date, and less user-centric, consequentially diverging from the BC Bid Resources project vision.

3. Implement an ongoing maintenance and evaluation system for BC Bid Resources

The option to implement an ongoing maintenance and evaluation system can be done at a relatively low cost to the organization if employees within the Strategic Business and Procurement Transformation branch complete the actions within the proposed operation. This option would allow for the branch to determine if the BC Bid Resources successfully connects government employees involved in procurement with the resources they need to do it effectively. Additionally, this option would allow for the secondary research questions to be answered, namely: “What is the most effective framework is to evaluate the website and monitor service delivery?” and “Did a user experience approach to the project resulted in better outcomes?” By implementing a system for monitoring and evaluation the BC Bid Resources website, the Strategic Business and Procurement Transformation branch can ensure that the site is kept up-of-date and user-centric, which conforms to the objectives of the BC Bid Resources project vision. The branch can also validate whether a user experience approach to the project resulted in better outcomes and thus assume that past and future projects benefit from comprehensive research with stakeholders and end users. Use of the proposed evaluation framework would represent a formative evaluation of the BC Bid Resources website as an on-going process that allows for

feedback to be implemented during a program cycle (Pell Institute and Pathways to College Network, 2016).

7.2 Recommendations

From the findings of the report, the recommendation is **Option 3 – Implement an ongoing maintenance and evaluation system for BC Bid Resources.**

The proposed evaluation framework presented in the previous chapter provides a basis upon which to evaluate the BC Bid Resources website. In addition to using this tool, there are additional activities that could be undertaken to enhance the ability of the Strategic Business and Procurement Transformation branch to monitor and continuously improve the BC Bid Resources website. Further detail on each of the four recommendations is presented below.

7.21. Immediate Actions

1. Assign responsibility for ongoing maintenance and evaluation of BC Bid Resources

It is recommended that Strategic Business and Procurement Transformation branch establish a system for the maintenance and evaluation of the BC Bid Resources with the following objectives:

- Dedication of roles and responsibilities within the division for BC Bid Resources
- Management of guidance and process documents, including creation of a logic model
- Governance of ongoing maintenance and on boarding of new content
- Assurance of continuity between the BC Bid Resources site and the Procurement and Contract Management curriculum
- Administration of change management and continuous improvement of the website
- Utilization of the proposed evaluation framework for performance measurement

While there is currently a mechanism in place for updates to web content, it is recommended that formal roles, responsibilities and processes be developed in the immediate future. The logical choice for the responsibility of ongoing maintenance and evaluation for BC Bid Resources is Brooke Hayes, Executive Director of Strategic Procurement and Business Transformation, or Liz Busch, Director of Outreach and User Experience within the Strategic Procurement and Business Transformation. Governance and change management documents, similar to what is used for the divisional web presence, should be created and shared with stakeholders. There is an increasing importance to establish a monitoring and evaluation of the BC Bid Resources site as vendor content is created, there is the chance key employees involved in the site development may move to other roles, and more focus is given to the ministry and vendor outreach program as part of the Procurement Transformation Initiative.

7.21. Future Actions

1. Complete performance measurement every year using the proposed evaluation framework

It is recommended that the BC Bid Resources website be evaluated at least once a year using the proposed evaluation framework. A short-term evaluation was completed for the purpose of this report and the remaining parts of the framework can be filled out in the near future. As stated in the Discussion and Analysis chapter, the data needed to complete the framework can immediately be obtained by employees in the Strategic Business and Procurement Transformation branch. It is most rational for the framework to be completed in July of every year to align with the anniversary of the website launch. Additionally, all evaluation data should be retained as comparative benchmarks going forward.

2. Review the evaluation framework every two years and amend as required

It is recommended that the governance group review the proposed evaluation framework every two years to determine if the criteria and indicators continue to be relevant and effective for assessing the performance of BC Bid Resources website. As described earlier in the Discussion

chapter, the framework allows for an evaluator to select different combinations of measurements to evaluate the success of the site. These measurements can be adapted to fit potential changes in objectives given the dynamic nature of the site and the environment of procurement transformation. Additionally, the creation of the logic model for BC Bid Resources would be useful for ongoing evaluation of the site.

3. Review and apply lessons learned for future projects

It is recommended that the Strategic Business and Procurement Transformation branch review lessons learned from the BC Bid Resources web project and two other corporate government websites for future user-centric initiatives. While the research for this report focused on web projects, the lessons learned can be shared with other business areas and organizations that intend to lead any project based in user experience research and design. It would be beneficial for the branch to focus on explicit change management efforts, such as user training and usage promotion, which was specified in the lessons learned for the BC Bid Resources project as a larger vision for post-launch and is supported by smart practices from the literature review.

8.0 Conclusion and Limitations

This study gains a better understanding of the effectiveness of taking a user experience approach to develop the BC Bid Resources website, propose a completed evaluation framework for the site, and present lessons learned from the project and similar corporate web projects. As part of the B.C. government's Procurement Transformation Initiative, the new BC Bid Resources website provides public sector staff with resources that are necessary to work in the area of procurement. However, it is not enough to simply introduce a new service and assume that it is effective. The BC Bid Resources website must be evaluated and improved upon as the government works toward achieving the best possible outcomes for transforming procurement within the public sector. The user experience research for this report's objective to evaluate the effectiveness of the BC Bid Resources website complements and ties together the time and effort spent on research to develop and launch the site.

In order to determine smart practices for a project of this nature, this study first looks at the literature on usability, user experience, website evaluation, stakeholder engagement, government service delivery, knowledge management, change management, and Lean. The literature review gathers knowledge for the development of an effective evaluation framework for BC Bid Resources and contributes to recommendations on how to implement monitoring and evaluation. This report relates the key smart practices identified in the literature to the unique challenges of the BC Bid Resources project as a corporate web project based in user experience design. If the recommendations are followed, the provincial government can expect to realize several benefits similar to those documented in the literature, including better stakeholder engagement, government service delivery, knowledge management, and change management.

This paper presents a number of lessons learned for the BC Bid Resources project based insights from the project team and two other corporate government web projects. These combined lessons learned reveal that a successful web project requires thorough planning and sufficient resourcing (with a focus on user experience design). While these two requirements can be said to be necessary for any project, the theory of completing lessons learned aligns with the theory behind user-

centric projects where stakeholder research and evaluation is done continually throughout the project and post-launch.

Second, this report presents an evaluation framework for the BC Bid Resources website. The evaluation framework provides a performance measurement system that collects indicators of success, monitors the overall effectiveness of BC Bid Resources, and allows for the identification of opportunities for improvement. This proposed framework provides original measurements to supplement and complement the present understanding of user experience and web evaluation metrics as found in the literature. Based on an initial, short-term evaluation, the completed evaluation framework demonstrates that in the short-term, the BC Bid Resources site was assessed to have high usage effectiveness of content, presentation, user satisfaction and completion of objectives. Although the underlying principles of evaluation remain constant, new approaches to gathering data and evaluating effectiveness can be considered as needed to support continuous improvement.

There are three options to the problem of how the Strategic Business and Procurement Transformation branch can evaluate whether the BC Bid Resources website successfully connects government employees involved in procurement with the resources they need to do it effectively:

1. Maintain the status quo
2. Rely on traditional web analytics for monitoring and evaluation
3. Implement an ongoing maintenance and evaluation system for BC Bid Resources

From the findings of the report, the recommendation is to implement an ongoing maintenance and evaluation system for BC Bid Resources. To proceed with this option, this report recommends the following actions:

1. Assign responsibility for ongoing maintenance and evaluation of BC Bid Resources
2. Complete performance measurement every year
3. Review the evaluation framework every two years and amend as necessary

4. Review and utilize lessons learned to BC Bid Resources and for future projects

The recommendations provided in this report aim to build on the success of the BC Bid Resources project to date. They highlight the need for governance of BC Bid Resources, and as part of this, the implementation of a system to monitor the effectiveness of BC Bid Resources through the proposed evaluation framework.

Limitations of this report include the constraints of the literature review where the concepts for this study are expansive and abundant. The proposed evaluation framework for BC Bid Resources has its own limitations as it presents six criteria to evaluate the effectiveness of the website, yet there are numerous possible dimensions for a task of this nature. Multiple methods can also be utilized for each measurement to assess the criteria and validate the data collected. There is also the potential bias of the researcher in the evaluation of the BC Bid Resources website as she is an internal government employee who was on the project team and continues to maintain the site. Furthermore, success may be interpreted in different ways to the branch and government executives, thereby affecting the evaluation of the website.

While this report is useful in capturing the experiences and opinions of users, experts and project team members, it does not represent a complete and endorsed assessment of the BC Bid Resources website. As a result, further work can be done to review and expand the proposed evaluation framework and complete another evaluation after the site has been live for a year. Additionally, the lessons learned presented in this report can be enhanced by gathering supplementary key learning from government corporate user experience projects not covered in the research.

The findings of this study contribute to the existing collection of relevant reports and publications on user-centric projects and to the greater understanding of the need for user experience research in government service delivery. As one of the only pieces of research that focuses on the evaluation of government web projects based in user experience, this study provides critical knowledge of the opportunities and problems related to these initiatives, as well as strategies to mitigate any issues. Therefore, this study creates a strong foundation from which

interested stakeholders can better understand the benefits and challenges in delivering user-centric corporate projects. The overall lessons learned and evaluation framework in this report are applicable to any organization that aims to implement a project or web initiative based in user experience research.

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12.0 Appendix

Appendix A: BC Bid Resources project plan

MyProcurement [BC Bid Resources] will be a one-stop shop for all things procurement. The project will introduce a common portal to procurement resources for anyone that procures in government, across all phases of the procurement lifecycle. This project is documented as one of the foundational components of the Procurement Transformation Initiative; the requirement was identified through 94 distinct conversations that occurred across government in 2014 about current state challenges with procurement. The four main challenges are that procurement within the B.C. government is complicated, disconnected, under constrained capacity, and has unequal focus on parts of the purchasing lifecycle.

The project will meet the needs of public sector procurement staff by providing:

- The ability to quickly and efficiently manage procurement opportunities
- The ability to identify and acquire economically priced goods and services
- Reliable, stable, and user friendly web resources and procurement tools
- Program delivery to citizens that is enabled by goods and services acquired through fair and open procurement processes

The intended project outcomes are:

- Increase in staff ability to use information/resources
- Decreased time it takes for ministry employees to find procurement resources
- Decrease in number of disparate resources/websites
- Increase consistency in the vendor and ministry experience

Appendix B: Sample user personas for BC Bid Resources

Primary
User

Nelson *the "newbie"*

- **Demographics:** Nelson is a 27 year-old purchasing agent for the Ministry of Infrastructure in Nanaimo. He started with the government three years ago.
- **One day in the life:** He is the only purchasing agent in his office and had to teach himself the inner workings of procurement. His background is in business, yet he finds his new position challenging.
 - **Main info sources:** Nelson was told to bookmark the Office of the Comptroller General and Procurement Services Branch websites. He visits them at least three times a week.
 - **Top obstacles/issues:** He is constantly overwhelmed with all the information out there and knows he has to use Corporate Supply Arrangements, but isn't sure if he has to sign a contract to access each arrangement.
 - **Values:** Wants as much information as possible so that he can excel at his job. He is excited about procurement and wants to take the Procurement and Contract Management Program course as soon as he has the time.



"I don't know what's available or where it is. Things could be presented better, especially in an era of smartphones and tablets.."

Oscar *the occasional purchaser*

- **Demographics:** Oscar is a 36 year-old financial accounts manager in the Ministry of Green Environment and Carbon Planning. He is currently working on his CA designation.
- **One day in the life:** His position manages the accounts payable/receivable, but when his office needs stationery or mobile phones contracts, it falls on his desk.
 - **Main info sources:** He visits the OCG's website first for information, then searches the [@Work](#) site and PSB site in the hopes of finding an answer to his occasional questions.
 - **Top obstacles/issues:** Oscar would like to pass the purchasing responsibility to a colleague, but their resources are limited. He recently joined the Procurement Community of Practice and listens to each monthly webinar. When he has problems, he goes to his ministry's finance department.
 - **Values:** He appreciates strict rules within government procurement and wishes that all public sector employees knew about core policy and referenced it for every purchase.



Primary User

Umberto *the unaware*

- **Demographics:** Umberto is a 42 year-old program manager for the Ministry of Family Resources in Northern BC. He has worked for his whole career with the branch, beginning as clerical staff in the 80's.
- **One day in the life:** He loves his job and is busy managing people, but doesn't have time to deal with all that procurement business. He's not be aware of CSAs and regularly buys office products from Monks across the street.



- **Main info sources:** The ministry's procurement SharePoint is his go-to. He knows there are other sites out there; however, it is too overwhelming, so he relies on this one site.
- **Top obstacles/issues:** Umberto knows there are procurement rules, but thinks they are too complicated. He doesn't want to talk to procurement specialists because he feels they make him do more work that he doesn't see adding value. Umberto prefers to use his PCard to avoid having to go through formal procurement processes.
- **Values:** Umberto values strong relationships with his team, his program area, and his clients.

"It's like going into a library and finding books in different languages or realizing you don't have your library card to take out information..."

Primary User

Hélène *the hopeful vendor*

- **Demographics:** Hélène is a 48 year-old vendor in Hope and wants to become a supplier to the government for their new innovative product. She recently moved from Trois-Rivières.
- **One day in the life:** She wants to do business with government - especially how to access government employees to speak with them on how to do this. She is just trying to keep things afloat as the president of her business. During weekday evenings, she takes English classes at the local college.



- **Main info sources:** Hélène reads Le Journal de Québécois daily and has coffee and Skype dates with her business friends to learn more about procurement processes.
- **Top obstacles/issues:** She knows about BC Bid, but has never used it due to lack of knowledge with RFPs. Her friend told her to check the PSB CSA page a couple times a year to see when arrangements expire; however, the CSAs she has interest in have not come up.
- **Values:** Hélène values personal relationships and would prefer to call someone to find information, rather than searching the web for answers. She finds BC a difficult province to do business in, despite the recent BC Jobs Plan.

"I just want to talk to someone who would be interested in my product."

Appendix D: Observation test questions

1. Where would you find solicitation templates?
2. Where would you find information on records management for a competitive process?
3. Where would you find information on debrief meetings?
4. Where would you find procurement learning opportunities?
5. Where would you find an existing corporate supply arrangement?
6. Where would you find information on core policy?
7. Where would you find information on reference checks during the evaluation process?
8. Where would you find information on what you can direct award?
9. Where would you find information on insurance requirements?

Appendix E: Focus group questionnaire

1. What the strengths from the BC Bid resources project?
2. Please elaborate/tell me more.
3. What were the weaknesses from the BC Bid Resources project?
4. Please elaborate/tell me more.

Appendix F: Expert interview questionnaire

1. What is your current role?
2. What was your role with the _____ project?
3. What were the high-level steps for the project?
4. How much emphasis did you put on user experience for the project? What did you do?
5. What were the strengths of the project?
6. What were the weaknesses of the project?
7. What was the biggest surprise with the project?
8. What would you have done differently?
9. Do you have lessons learned from the project that you can share?
10. What is your process for maintaining the site?
11. What is your process for enhancements to the site? Does it go through continual improvement?
12. How do you evaluate whether the site has met its objectives?
13. What other types of projects or initiatives should be implemented to build on this one?

Appendix G: User interview questionnaire

1. Have you visited the site before?
2. What are your initial thoughts on the site?
3. Tell me more about _____? Is there anything else?
4. After observation test: Is there anything you particularly enjoy about the site?
5. Is there anything about the site layout that is unclear or confusing?
6. Is there anything in the layout you would like to be different?
7. Is there anything else you would like to add?

Appendix H: Full notes from the focus group

1) Well-run weekly meetings

The project had efficient meeting formats with effective minutes; flexibility in scheduling. The factors that promoted this success:

- “Start on time, end on time” meetings
- Timely, concise minutes with a consistent format to see progress
- In-person or online option for meetings
- The team knew who is doing what
- Meeting frequency was flexible and moved from every two weeks to weekly
- Missed meetings were easy to catch up on from minutes
- Opportunities for meetings to finish early

2) Stayed flexible in overall timelines. The project team took the time to do it right. The factors that promoted this success:

- Meeting frequency changed
- Deadlines were flexible and could be updated, dependent on resource availability
- Commitment at senior level
- Project not tied to public announcement
- Willingness of project team to communicate and members were heard
- Trust and mutual respect within team
- Flexibility allowed of team to be more thoughtful with project plan and allowed for change of direction from multiple branches

3) Had the right people on the team. The members that continued on the team were dedicated and enthusiastic. Factors that promoted this success:

- Invested, responsive, responsible team with trust and mutual respect
- Self-selecting processes to find the right members
- Recruitment from pre-established relationships
- Responsibilities were shared fairly
- Contributions from multiple areas from across government
- Good mix of SMEs from ministry and corporate

4) Clear communication

There was advance notice and buy-in (for tasks such as authorship and approvals). Factors that promoted this success:

- Well-run meetings that were relevant, timely, clear and with concise minutes
- Good delineation
- Good plan for authorship and approvals
- Executive support

- Project and page writing focused on end user

5) Project leadership.

Project was run by excellent leadership, which contributed to many, if not all, of the successes listed. Factors that promoted this success:

- Had a clear open door policy where each member's' opinion was heard
- Utilized existing relationships and created executive support with a link to the ADM committee
- Shared effective meeting and minutes templates
- Provided the ability to take smart risks

The focus group created three areas for improvement from experience with the BC Bid Resources project:

1) Require dedicated resources within the project team and corporate approval bodies for a project of this magnitude.

- We didn't know what we didn't know
- Dedicated resources for web work, writing and editing which would allow for cross-proofing
- Examine co-ops and TAs and identify internal across gov positions interested in opportunity
- Communicate timelines and future deadlines

2) Larger vision for project and post-launch

- Revisit the usefulness of tasks, such as user persona development
- Utilize better planning / tracking tools for the overall project plan and for webpage edits and approvals.
- Allow for extensions in deadlines
- Find, create and/or update templates for project planning and tracking
- Revisit where the biggest pushes are work are required
- Create a plan for ongoing maintenance (in the areas of website governance, content development and links to ministry resources)

3) Obtain consent for personal images and privacy approvals for surveys in advance.

- At the beginning of the project, understand what consent and privacy approvals are needed
- Speak to other SMEs on what may be required

Appendix I: Combined notes from the expert interviews

The managers for the two separate corporate websites found that their web projects had the following strengths:

- 1) Sufficient resourcing
 - Twenty subject matter experts had access to their content management system and three contractors were solely dedicated to content management system work.
- 2) Established processes and guidelines
 - Timelines, roles and responsibilities, workflow processes, content lifecycle documentation and change management guidelines were set in the planning phase.
- 3) Established governance group
 - A governance group, comprised of managers and directors, was established to develop standards and lead a Lean project on how to maintain the site.
- 4) Web content freeze
 - A freeze on content changes for three to four months before launch and two weeks post-launch made the migration more efficient.
 - but this also does not apply to BC Bid Resources

The managers for the two separate corporate websites found that their web projects had the following weaknesses:

- 1) Insufficient resourcing
 - The large turnover of web writers created resourcing issues.
 - Content owners were writing copy in addition to their positions' responsibilities, which created difficulty in keeping to scheduled timelines.
 - There was no position dedicated to developing and maintaining the site structure, which created a gap in this area of expertise.
- 2) Lack of standards and guidelines
 - There was no continuity in writing style between the content owners.
- 2) Insufficient governance structure
 - There was no governance in place on how to maintain the site after launch.
 - Website is an ongoing investment, you just can't let it sit there.
- 3) Partnerships
 - The lack of a single contact at Corporate Online Services created miscommunication and delayed timelines.
- 4) Lack of a content freeze
 - The content was concurrently updated while being migrated, which created inefficiencies.

Appendix J: Combined notes from the user interviews

Positive Feedback on Content

- The site has a lot of information [mentioned a few times]
- Some content is buried and some content too light on detail, but it may lead to ministry content
- It is not too cumbersome with too much in there
- Appreciate the reference to procurement specialists
- Site is good for learning about procurement before users get into the PCMP courses
- Like how the site is broken into phases, which CSNR uses too
- “The site makes sense, but also assumes that you know something [about procurement]”
- “I am quite happy and quite happy referring clients to it”

Positive Feedback on Design

- The bolded and underlined main headings on main page help to guide the eye, and logo on bottom is cool
- Overall layout to be quite well done
- The BC Bid Resources in-person presentation and the context index make the site easier to navigate
- Content index works for her; if someone is used to the site and frequently use it then they may use the left hand navigation
- Question: “Is there anything you particularly enjoy about the site?”
 - Useful Links box
 - Anchor functionality of Goods and Services Catalogue
 - Left hand sidebar to see where you can go
 - Tools and Templates and Useful Links box
 - Like the hyperlinks, “Search the site” is good, video loads quickly

Negative Feedback on Content

- There is a lot of stuff and for someone who doesn’t know what they are looking for; granted, you need a lot of stuff
- Not for newbies, they need a mentor to walk you through what you need, but this is understood for huge contracts
- Need more info on vendors like the PDF on how to do business with government; wants “what to expect” for vendors like in MyHR site because opportunities seem complicated and this should be made more approachable for vendors
- Site may be more useful for when a user has the opportunity to manage a procurement

Negative Feedback on Design

- At first look, wondered by LSB and PSB were highlighted throughout the content; this makes it feel dated and not as professional
- “Until you know what procurement means, you won’t need or find the site”
- “Sometimes it is hard to find what I am looking for”

- Does not like it says contact PSB on every page because she gets a few emails a week from this, such as how links do not work, there is some content missing, etc. [Site launched a month after she started so can't tell if there was a great influx]
- Question: "Is there anything in the layout you would like to be different?"
 - Duplication with sidebar and body of page
 - "Can we make it more pretty? It looks pretty good, but I am a visual person" and it would be nice to have more visual representations
 - Releasable Information content hard to find
 - Some sites have site map and context index is like that (especially for how to buy services)
 - Side tool bar and how users can't see everything in it

Negative Feedback on Search

- Suggestion to add a sub-theme search to top of each page in IA
- Doesn't like how long the bar is for the search function
- Does not like how the search function searches through all of Gov 3.0 [sub-theme search was released after this]

Additionally, one interview participant who uses the site also manages the help desk for inquiries related to BC Bid Resources. She stated in October 2015 that there were "a few" email inquiries per week since the launch of the site, but since January this number has dropped off dramatically. In alignment with this, the number of phone calls approximate to one every few weeks. The inquiries were generally around links that do not work or missing information, but as of January they generally relate to users not being able to download a document or not being able to find info to do with the G&S catalogue).