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**INUIT TECHNOLOGICAL SELF-DETERMINATION
THROUGH INSTITUTIONS OF GOVERNANCE AND
INDUSTRIALIZATION**

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I hereby declare that I have compiled the thesis/paper (choose one) independently and all works, important standpoints and data by other authors have been properly referenced and the same paper has not been previously presented for grading. The document length is 17,513 words from the introduction to the end of conclusion.



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ABSTRACT

Over the past five centuries, Inuit society in Canada's Eastern Arctic underwent massive social, spiritual, technological and economic transitions. These transitions were the result of the forced assimilation of Inuit into western modes of living and the colonization of Inuit lands. This caused significant societal and cultural damage to Inuit communities. Many of these transitions were the result of the Canadian federal government's policies and programs which forced the assimilation, appropriation or diffusion of new technologies and modes of living across the Canadian Arctic. This occurred without the informed consent or full participation of Inuit. Using the narrative approach to social science research, this thesis explores how Inuit achieved technological empowerment and self-determination through the creation of governance institutions and industry. Historical records or research on Inuit society and the self-described, autobiographical experiences of numerous Inuit are considered in light of what leading social science research says about the relationship between technology, governance and societies. The thesis finds that Inuit recognized that not having control over technological and societal change, resulting from the forced assimilation of western technologies and ways of living through colonialism, was harmful to Inuit society. Inuit, therefore, exerted their agency over these changes by forming institutions of governance and Inuit-owned industries that responded to the dominance of western society's ways of living and supported Inuit society in adapting to the unrelenting forces of technological change and progress in the global world.

Keywords: Inuit; self-governance; technology governance; colonialism; indigenous technology policy

INTRODUCTION

This thesis explores the historical and theoretical aspects of how Canadian Inuit began to utilize, govern and regulate western technologies introduced into Inuit society and within their lands in order to respond to colonialism and protect the Inuit way of life. Through this exploration, the thesis will consider Inuit technological empowerment and self-determination through the creation of institutions governed by Inuit, in the Inuit way, that inform and regulate government programs or policies that may have influence over Inuit society, communities, economies and lives.

The research offers a peek into how, over the past five centuries, Inuit society in Canada's Eastern Arctic underwent massive social, spiritual, technological and economic transitions. These transitions were the result of the forced assimilation of Inuit and the colonization of Inuit lands by European and Euro-Canadian agents (Tapardjuk, 2013; White, 2020). The most drastic of these changes for Inuit society began in the early 20th century and were cemented through active policies of forced integration of Inuit into Canadian society (Watt-Cloutier, 2018). Most of these changes—occurring after the 20th century—were the result of the Canadian federal government's policies and programs which forced the assimilation, appropriation or diffusion of new technologies and modes of living across the Canadian Arctic without the informed consent or full participation of Inuit (Quassa, 2008; Freeman, 2015; Watt-Cloutier, 2018).

Weaknesses exist in the understanding that policy professionals have with technological progress in Canada's Eastern Arctic and the relationship to Inuit society, which only recently experienced such radical modernization. This is due to an ignorance of how the historical, political, institutional and social aspects influence this progress (Innis, 1995). It is hampered by the social sciences', namely economics', and government decision-makers' obsession with quantitative, pecuniary and mathematical methods (Innis, 1995; Drechsler, 2007; Reinert, 2008). Therefore, the following thesis aims to study the qualitative aspects in its consideration of technological development instead of focusing on the narrow quantitative measures that proliferate throughout government decision-making.

In order to conduct this qualitative exploration, the thesis constructs a narrative of Inuit historical

experience with technological change—since the beginning of western colonialism—and Inuit society’s relationship with governing this change. This narrative is constructed from a broad sampling of autobiographical texts written by numerous contemporary Inuit leaders. To support the arguments made by Inuit leaders the analysis makes many references to a number of arguments from social science academics, such as Karl Polanyi, Harold Innis and Neil Postman. This was accomplished through a desktop study whereby historical records or research on Inuit society and the self-described, autobiographical experiences of Inuit are considered in light of what leading social science research says about the relationship between technology, governance and societies.

Defining and Considering Technology

Oftentimes, technology is confused as simply referring to the gizmos and gadgets that proliferate our modern-day lives. Instead, this thesis considers a much broader definition of technology in its quest to consider Inuit society’s response to western technologies. In doing so, the thesis leans on Rudi Volti’s eloquent definition of technology, which is (Volti, 2017, 29): “a system created by humans that uses knowledge and organization to produce objects and techniques for the attainment of specific goals.” As such, references to technology in the following dialogue, is much more expansive than just focusing on only tools and techniques. When discussing technology, this thesis includes important societal technologies such as concepts of community, economics, religion, education, governance and much more.

The written works of Harold Innis, a prominent Canadian social scientist and historian from the early-to-mid twentieth century, discussed at great length the impacts of technologies on indigenous communities and provided narratives of how western technologies were responsible for the wholesale destruction of indigenous Canadian cultures and lands (Innis, 1995). However, while this thesis and many Inuit referenced within it agree with this sentiment in many ways, the thesis also recognizes that Inuit and other indigenous societies in Canada have successfully appropriated, integrated and utilized western technologies to strengthening their cultures, change their ways of living, and protect their lands (Tapardjuk, 2013; Christensen, 2003; Kulchyski, 1989).

The position that this thesis assumes in relation to the impacts of technology on society are quite similar to that of Neil Postman’s, as expressed in his 1993 book “Technopoly”. In that technology can permanently change a society—both for good and for bad—and that all societies must contend with technological change. Furthermore, although uncontrolled technologies are capable of

destroying a society or way of living, societies have some agency over these changes through education and systems of governance (Postman, 1993). However, this agency over adapting and controlling technologies, can be usurped or disrupted by outsiders—such as colonial powers over the colonized—which can lead to disastrous results for cultures and ways of living that do not have agency over technological change (Myrdal, 1957).

Research Question and Goal of Inquiry

In consideration of these starting points, this thesis constructs narratives in order to build an understanding—in a culturally sensitive method—of the historical experience of technological change and colonialism within Inuit society. The purpose of conducting this research is to gain a better understanding—in the social sciences and at the policy level—of how Inuit gained self-determination and governance over the introduction of new technologies. Much work has already been accomplished in relation to Inuit self-governance and self-determination; however, limited research on the topic of Inuit self-governance over technologies exists that is not narrowly focused on specific technologies such as satellite television or broadband Internet. The goal of inquiry of this thesis, therefore, is to contribute to the social sciences and policy spheres by considering and exploring the validity of the following hypothesis in relation to the definition of technology outlined above. The hypothesis is as follows:

Inuit held greater agency over the appropriation and integration of western technologies into Inuit society than colonizing forces believed Inuit had or were capable of. That the policies and activities of colonizing agents related to the governance of technologies caused significant harms to Inuit, because technologies inherently change societies and not maintaining control over that change is harmful. Finally, Inuit society's agency over technological change supported Inuit in designing—or co-designing—societal, economic and governance institutions to manage technological change and appropriation within Inuit lands.

More succinctly, the research question that the thesis aims to answer is whether or not the hypothesis is correct. In answering this question, the thesis attempts to further contribute to overcoming the challenges that Inuit face regarding the governance over and appropriation of technologies. This thesis also brings these challenges up one level of abstraction to show that these challenges are similarly faced by other cultures and societies in analogous situations.

METHODOLOGY

This thesis utilizes the narrative approach to qualitative social science research as its methodology in constructing its insights, arguments and conclusions about Inuit society and their responses to technology through institutions of governance. The reasons for following the narrative approach are threefold: first, much of Canadian social science academia and the collective imagination that Canadians hold of the creation of their nation are built upon great narratives of Canadian history such as the building of the cross-country railroad and the battle between Anglophone and Francophone identities (Roburn, 2013); second, oral traditions of knowledge sharing, which are predominantly narrative-based, combat the mechanization of knowledge—which often devalues non-western cultural values—and encourages creativity in thought (Innis, 1995); and thirdly, but also most importantly, Inuit society’s method of knowledge sharing is through narrative and oral traditions where elders tell stories that contain lessons, insights, information, and skills to youth and members of the community (Uluadluak, 2017).

Harold Innis utilized the narrative approach in his academic efforts to improve the understanding that western society had of Canada’s North and Canadian indigenous peoples (Buxton, 2013). In a criticism of western academia’s approach to the mechanization of knowledge and an increasing dependence of the written word rather than spoken word, Innis argues in the following quote that oral traditions—and implicitly, narrative approaches to knowledge sharing—remain superior to the more prevalent mechanized and quantitative techniques (Innis, 1948/1995, 350-351):

“My bias is with the oral tradition, particularly as reflected in Greek civilization, and with the necessity of recapturing something of its spirit. ... Reading is quicker than listening and concentrated individual thought than verbal exposition and counter-exposition of arguments. The printing press and the radio address the world instead of the individual. The oral dialectic is overwhelmingly significant where the subject-matter is human action and feeling, and it is important in the discovery of new truth but of very little value in disseminating it. The oral discussion inherently involves personal contact and a consideration for the feelings of others, and it is in sharp contrast with the cruelty of mechanized communication and the tendencies which we

have come to note in the modern world.”

Given that this research is prepared for a European university, operating in a western-manner, this thesis cannot be wholly oral in its delivery. Therefore, it leans upon the closest technique available which is the narrative format of research and argument. In doing so, the thesis contributes to the understanding and knowledge within the social sciences about Inuit society and their response to technology through institutions of governance. It constructs micro-narratives within a grander narrative of Inuit achieving self-governance that is well accepted by Inuit, social science academics and global society. This construction of a micro-narrative, that expounds on Inuit self-governance over technologies, affords the research the ability to undertake a nuanced and detailed approach to understanding the issues. This is done in the same way that Innis shared his research about Canada’s North (Buxton, 2013).

The narrative approach is also used by contemporary social scientists when conducting research regarding the rights of Canada’s indigenous peoples in having a say on how modernization and technological diffusion occurs in their communities; Gail Valaskakis—a Canadian aboriginal social scientist whom documented the introduction of satellite technologies into Inuit communities and fought for the rights of indigenous people to have agency over the introduction of technologies into their societies, a scientist that this thesis references—pioneered narrative approaches that would lead to the “collaborative, community-based processes that have since become the norm for northern social science research.” (Roburn, 2013, 299)

In recent decades, scholars have begun to recognize and promote the importance and value of indigenous autobiographical texts when conducting social science research on indigenous communities. These scholars, including the author of this thesis, argue that storytelling and narratives of personal experience have always been central to the sharing of knowledge within indigenous communities. Furthermore, autobiographical texts are often the work of the person themselves, which reduces the inaccuracies of translating knowledge between languages or people (Rak et al., 2015). The autobiographical texts referred to in this thesis were all published by respected publishing houses, most of which being established university-based publishing units in Canada. Therefore, the autobiographical publications of Inuit within this thesis should be valued as important—if not more important—than research conducted by non-Inuit social scientists on the impacts of technological change on Inuit society.

It is with respect to the methods used by prominent social scientists, the importance of indigenous autobiographical texts, and reverence towards Inuit traditions of knowledge sharing that this thesis makes use of the narrative approach in conducting its analysis and constructing its arguments. Though the narrative approach is not the sharing of knowledge through oral traditions, the narrative approach taken by the thesis is a compromise between oral traditions and western paradigms; compromise will be an important theme of this thesis and, thus, compromise fits well into the approach that the thesis must take towards research.

The narrative approach to social science research, also known as narrative inquiry, makes use of stories told directly by people experiencing human or societal phenomena—whether written or spoken and from a variety of contexts—in order to infer meanings, make sense of, and come to an understanding of that phenomena. It involves the collection of materials, such as written texts, speeches, media and other artifacts, then analyzes the stories told within those materials to come to conclusions about the phenomena. (Squire, 2015)

In order to accomplish this task, this thesis undertook a three-part desktop research study to build and analyze the narrative. First, a large number of stories were collected and analyzed from autobiographical, historical, political and academic texts authored by Inuit or respected Northern scholars by: acquiring published books, articles and texts through distributors and publishers; borrowing and reading numerous texts available within the Université Laval's well respected Inuit and northern society collection; and, gathering articles, texts, media and other materials through the Internet from authoritative sources such as academic journals, government websites and indigenous organizations. Second, a historical record of events was composed from a variety of sources such as government documents, published works of anthropologists and historians dating back to the early nineteenth century, and academic articles. This was done in order to place the stories in their historical context. Third, an analytical framework to act as a lens for understanding the stories and the relationships between technology and society was developed by learning from a broad spectrum of social scientists made available through published books or articles from academic journals.

Strengthening the Research Through Autoethnography and Participant Observation

The validity of the research conducted for this thesis was further strengthened by the personal and

professional history that the author has with Inuit communities. This history, described briefly, supported the cultural sensitivity of the research and relevancy of reference materials. Importantly, the author's experiences with Inuit communities provided valuable insights that would otherwise be unavailable to a researcher without it.

Specific social science research methodologies that support the construction of the narrative include: participant observation by the author of Inuit society's responses to technology; and autoethnographic considerations that connect the author's personal experiences and feelings while being a member of and working within Inuit communities. Participant observation and autoethnography are becoming ever more accepted and valuable contributions to social science research (DeWalt and DeWalt, 2011; Ellis et al., 2011). Participant observation is defined as "a method in which a researcher takes part in the daily activities, rituals, interactions, and events of a group of people" towards understanding their norms, routines and culture (DeWalt and DeWalt, 2011, 1). Autoethnography is defined as a method wherein an author retroactively uses prior experiences—which were often not intended to be utilized for research purposes—to analyze lived experiences and events in an effort to explain a culture's norms, practices and beliefs for the purposes of helping members of that culture and outsiders understand a phenomena (Ellis et al., 2011). Both of these methods were utilized heavily in developing the narrative and crafting the insights gleaned from these narratives.

Although the author of the thesis is not Inuit, the author was born and lived much of his life in Iqaluit, Nunavut; an Inuit community located in Canada's Eastern Arctic. The author was primarily raised within Inuit and indigenous communities throughout Canada's North. This accounted for over two decades worth of experiences living, growing and working within Inuit and other indigenous communities in Canada's North. These lived experiences created a strong cultural sensitivity, respect and understanding of Inuit society for the author, including many of the cultural norms and ways of being becoming part of the author's own.

Finally, the author spent the better part of a decade working with Inuit as a senior-level policy professional within the Government of Nunavut collaborating on a broad range of policy issues that included technology and governance. While not specifically mentioned or referred to within the thesis, the author has held conversations with and learned from a significantly large number of Inuit leaders on the topics of technology within Inuit society. Between the years of 2009 and 2019, the author's understanding of technology, governance and Inuit society were benefited from the

following professional relationships and mentorships:

- Working with Inuit Deputy Ministers and Assistant Deputy Ministers in numerous technology, society and economy roles in three different senior policy positions, each exceeding one year's length.
- Directly supporting two Inuit politicians at the ministerial level for economic, technology and social policy and programming.
- Regularly briefing Inuit territorial premiers and cabinet members on important economic, technological and social topics as both a policy professional in government and a government relations professional in a telecommunications company.
- Forming close relationships and friendships with the Inuit owners of two different technology companies, who also sat as members of broadband development boards within Nunavut.
- Participating in a large number of Inuit consultations on economic, small-business, major projects, social and technology topics.
- Representing the Government of Nunavut and describing Inuit experiences with modern technologies as a delegate of the government in telecommunications regulatory proceedings.
- Working with Inuit peers and colleagues on a wide assortment of policy and government programming projects over the reference decade.

These experiences and prior conversations with Inuit aided the author in preparing the thesis and its arguments. The use of participant observation and autoethnography, especially through consideration of the topics in hindsight, provided valuable understanding of the situation when conducting the research. Thus, the thesis' conclusions and insights greatly benefited from the author's experience of living within and working for Inuit leaders and society.

About Nunavut, Inuit and Inuit Societal Values

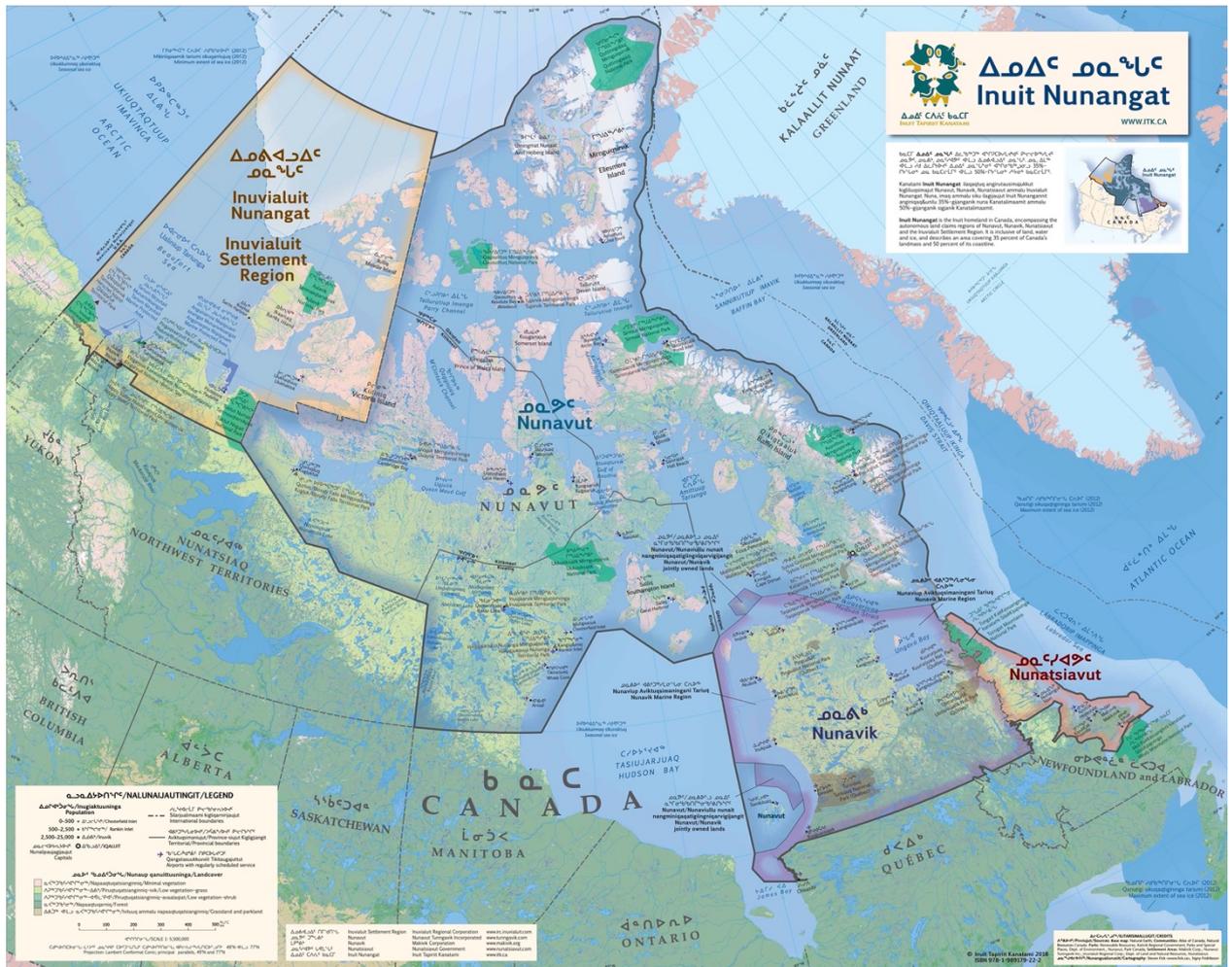
While this thesis is primarily focused on Canadian Inuit of the Canadian Eastern Arctic, it will

often interchange with or refer to the Territory of Nunavut. Nunavut¹ is a geographically large, sparsely populated territory located in the Canadian Eastern Arctic that is home to a significant portion of Canada’s Inuit indigenous peoples. The territory contains 25 communities, spread over a large area and was created on April 1st, 1999 through the *Nunavut Land Claims Agreement*.² There are no roads that connect the communities within the territory, with the vast majority of transportation accomplished by airline throughout the year and a small shipping season in the summer via sealift.³

It would be most appropriate to refer to the region of consideration for this thesis as “Inuit Nunangat”. However, due to the large portion of audience being from outside of Canada and the vast majority of research materials being based upon Nunavummiut⁴ or written by Nunavut Inuit, this thesis will primarily refer to either Nunavut or the Canadian Eastern Arctic.

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1. Nunavut means “Our Land” in the Inuit language, and subtly means “Our Home” to Inuit (Kusugak, 2000).
 2. The *Nunavut Land Claims Agreement*, commonly referred to as the NLCA in its short form, and its enacting legislation the *Nunavut Act* are the federal agreements between the Government of Canada and Inuit that created the Nunavut territory, land right settlements for Inuit, title and land ownership of over 35,000 square kilometres to Inuit, equality of membership, employment and participation in government for Inuit, Inuit royalty rights for resources and minerals, significant amounts of funding to support Inuit self-determination, and a multitude of other rights and promises (Kusugak, 2000; Hicks & White, 2015).
 3. Sealift refers to the use of barges and cargo ships to deliver goods, large materials, vehicles and other important items to the communities within Nunavut.
 4. Nunavummiut is the Inuktut word for “People of Nunavut”.

Figure: Map of Inuit Nunangat



Source: (Fick and Fridriksson, 2008)

There are approximately 37,000 Nunavut citizens, of which over 84% are Inuit (Nunavut Bureau of Statistics, 2016). Although Nunavut has a comparatively small population, it should not be assumed that all people located within the territory are culturally and linguistically homogenous. There are significant differences in culture and language between Nunavut’s different regions and even between communities. Numerous dialects of the Inuit language exist and, given that Inuit culture is closely tied to the land and animals in their specific contexts, there are cultural differences between groups of Inuit and communities. These differences are further compounded by the introduction of outside cultures and languages due to the colonization of Inuit lands by non-Inuit (Dam, 2008).

This thesis admits that, because of the differences between Inuit, there were—and continue to remain—internal conflicts and struggles within Inuit society (Quassa, 2008; Tapardjuk, 2013).

Due to the scope of this thesis, however, the narrative provided about Inuit is painted in broad brushstrokes in order to focus on the important progress made by Inuit society as a whole. Thus, the focus of the thesis, is to consider the steps achieved for all Inuit, by Inuit. Regrettably, because of this decision, much of the political, economic, and social struggles between Inuit communities, regions and groups are not properly visited. Much of the Inuit texts referenced by the thesis discuss these struggles in greater detail, but due to the confinements of this thesis' scope these details are left for future researchers to discuss.

As with all policy papers and research that occurs within Nunavut, this thesis is coached by, follows and respects Inuit Societal Values.⁵ The Inuit Societal Values that this thesis follows are (Nunavut, 2020):

- *Inuuqatigiitsiarniq*: Respecting others, relationships and caring for people.
- *Tunnganarniq*: Fostering good spirits by being open, welcoming and inclusive.
- *Pilimmaksarniq/Pijariuqsarniq*: Development of skills through observation, mentoring, practice, and effort.
- *Piliriqatigiinniq/Ikajuqtigiinniq*: Working together for a common cause.
- *Qanuqtuurniq*: Being innovative and resourceful.

Limitations

The research for this thesis was conducted between the Summer of 2020 and Winter of 2021, during the height of the COVID-19 worldwide pandemic. These unique circumstances placed limitations on the author during the research period. Therefore, the author was required to overcome barriers and seek alternative methods of performing the research.

The Government of Nunavut, similar to the other northern territorial Canadian governments,

5. All Government of Nunavut activities, work and policies must respect what are known as the “Inuit Societal Values”. Developed under the leadership of Louis Tapardjuk—who is referenced heavily within this thesis—these values represent core, fundamental beliefs and ways of living within Inuit society. These values were determined through significant community consultations and expert committees composed of a broad assortment of Inuit elders. (Tapardjuk, 2013) This thesis respects Inuit Societal Values, and in accordance with appropriate practices, expresses the Inuit Societal Values that this thesis and its research followed. There are additional Inuit Societal Values not listed within this thesis, which can be discovered and learned about at the following URL (last accessed February 17, 2021): <https://www.gov.nu.ca/information/inuit-societal-values>

implemented travel restrictions so that only current residents or essential workers could travel into the territory. This restriction placed an absolute limit on the ability for the author to conduct research or fieldwork while being physically present in the area of interest.⁶ Thus, in order to protect the North's fragile healthcare system and follow the travel restriction put into place, in-person fieldwork in Nunavut was not possible or ethical to accomplish for this thesis.

To accommodate this limitation, the author conducted research in proximity to Université Laval's northern collections as a substitute. However, the access to these resources was also limited during much of the research period due to the numerous strict lockdowns, community health restrictions, curfews and confinements. This limited the author's access to some of physical research materials held within the collections, such as books, articles, and artifacts that were only available within the library. However, there were brief periods wherein restrictions were modestly relaxed allowing the author to make use of these materials.

Nonetheless, the challenges presented by the pandemic provided a learning opportunity for the author and encouraged the author to follow the Inuit Societal Values in completing the thesis by being resourceful and innovative, fostering good spirits, and caring for others.

Answering the Research Question and Reaching the Goal of Inquiry

After accomplishing the research process outlined above, the author of the thesis compiled three micro-narratives to answer the research question and explore the validity of its hypothesis. These three interrelated narratives are developed and presented in a manner that will support the conclusion made by the author at the end of the thesis. To achieve this, the thesis is divided into three parts, each containing a micro-narrative as follows:

1. In the first part, the historical context of the forced westernization of Inuit through colonialism since the 17th century, the socio-economic circumstances that Inuit found themselves as a result, and the experiences of Inuit society with this change are described. This will provide insights and a sensitivity towards how colonialism has limited the ability

⁶ The public health order issued by the Government of Nunavut's Chief Public Health Officer in July 2020 can be found at the following link (Accessed April 29, 2021):
https://www.gov.nu.ca/sites/default/files/travel_restriction_order_9.pdf

for Inuit to fully adapt western technologies for their society and how these changes were disruptive to Inuit;

2. In the second part, the intertwined relationships between Inuit, technological change and society are considered. The purpose of this section is to develop an understanding on how technologies fundamentally change societies, that these changes bring both positives and negatives to any way of living, and why it is important for any society to have control over how technological change takes place;
3. Finally, in the third part, a narrative is provided on how Inuit self-determination over technology and their society through institutions of governance and industrialization was—and is currently being—accomplished. With the cultural sensitivity gained through the first part and an understanding of why it is important for a society to have control over technological change, the thesis will discuss—in this final part—the strength and adaptability of Inuit society in their response to colonialism and the creation of institutions of governance and industry by Inuit to protect and foster their way of life. The thesis will consider the importance of Inuit having control over their society with institutions and industry that function in the Inuit way, the present-day successes that Inuit have achieved in building these, and the challenges that Inuit currently face with governing technological change amidst the dominant western forces.

The three micro-narratives are utilized to draw conclusions from the stories told by Inuit and make inferences through historical and social analysis to answer the research question. In some instances, the thesis enhances the arguments of the narrative by sharing similar stories faced by other indigenous groups around the world. In the end, a conclusion is provided which summarizes the findings discovered through the narratives, a direct answer is provided for the research question, and a call for future research is made.

1. EUROPEAN COLONIALISM, NEW TECHNOLOGIES AND INUIT SOCIETY

This section provides a micro-narrative on the historical context of the forced westernization of Inuit through colonialism since the 17th century, the socio-economic circumstances that Inuit found themselves as a result, and the experiences of Inuit society with this change. This will provide insights and build sensitivity towards how colonialism has limited the ability for Inuit to fully adapt western technologies for their society and how these changes were disruptive to Inuit.

European colonialism in the Canadian Eastern Arctic began in 1670, when King Charles II assigned trade rights to the Hudson Bay Company for all of the territories that drained into the Hudson Bay (Oldmixon et al., 1931; Tapardjuk, 2013). This marked the official start of trade between Inuit and the European economy (Barr, 1994). The Hudson Bay Company's colonial grip over the Canadian Arctic further solidified in 1771 when Samuel Hearne claimed Canada's Arctic for the Hudson's Bay Company (Hearne, 1795/2007; HBC Heritage, 2016b). Land ownership and control was reluctantly transferred from the Hudson's Bay Company to the Government of Canada almost two hundred years later through the Rupert's Land Act in 1869; this transfer of land transitioned Inuit from a corporate, imperial, feudalism-based colonialism to a new form of feudalism under the federal government (Paine, 1977; Innis, 1995). It should be emphasized that Inuit had little, if any, say in how these claims over Inuit lands occurred (Quassa, 2008), even though Inuit played a vastly important role in developing the strength of the Hudson's Bay Company in the Eastern Arctic (Paine, 1977; Innis, 1995).

Prior to the 20th century, few permanent outposts or fur trading posts existed in the Eastern Arctic due to the inaccessibility of the environment. It was not until the mid-1910s to early-1920s that the Hudson Bay Company truly extended their operations into the area (Paine, 1977; Stewart and Lockhart, 2005). For example, the trading post in Nunavut's territorial capital of Iqaluit opened in 1914 in Ward Inlet, a location approximately 65 kilometres south of the present-day city (Qikiqtani Inuit Association, 2014a).

1.1. Introduction of Christianity into Inuit Society

At the same time that European colonialism began in the Eastern Arctic, another major cultural shift occurred within Inuit society through the introduction of Christianity by European missionaries. The conversion from traditional shamanistic spiritualism was encouraged by missionaries, typically being Catholic or Anglican, leading to significant cultural changes within Inuit society (Henderson, 2007; Quassa, 2008; Tapardjuk, 2013). This transition from shamanism to Christianity occurred rather quickly across the North, partly due to the persistence and grandeur of the missionaries but also due to the relative ease for the Christian missionaries to relate the spiritual worldview that Inuit previously held to the new religion (Henderson, 2007).

The difference in popularity of Christian denominations between communities—where some communities had a stronger Anglican presence or Catholic presence—led to different modes of economic and political integration for Inuit. For example, the Catholic missionaries were supportive of the development of Hudson Bay Company trading posts while the Anglican missionaries were generally more supportive of co-operative forms of business development (Tapardjuk, 2013). These differences, encouraged by the different Christian churches, continues to influence the political and economic spheres of the Eastern Arctic (Henderson, 2007; Quassa, 2008; Tapardjuk, 2013).

1.2. The Incongruence of Capitalism with Inuit Traditions

Before the arrival of Europeans, Christianity and corporate-led colonialism, Inuit were not capitalists. Instead, Inuit lived by values much more aligned with socialism and Marxism (Quassa, 2008). In contrast to the dominant, capitalist economic paradigm, the traditional Inuit economy was based upon collectivism, reciprocity, sharing and redistribution of resources (Gombay, 2010; Tapardjuk, 2013). Societal norms and taboos encouraged these forms of economic participation between Inuit instead of market and pricing mechanisms (Henderson, 2007). With the greatest difference being that there were no concepts of land ownership, money or paid labour within Inuit society (Henderson, 2007; Gombay, 2010; Tapardjuk, 2013).

Karl Polanyi, in his book *The Great Transformation*, discusses how the traditional institutions of colonized peoples were destroyed in order for market economies to exist. According to Polanyi, three “fictitious commodities” were invented and organized into markets by capitalist societies.

Polanyi considered these commodities as fictitious, because in order for a commodity to exist it must be produced by a participant. These three commodities and why they were fictitious is as follows (Polanyi, 1944/2001):

- Land: wherein land and nature are commoditized. However, humanity does not create or produce nature, it already exists. Land cannot be separated from nature, even if its commodification demands it.
- Labour: wherein the labour of people is commoditized. However, labour is another term for human activity, which occurs and exists for reasons totally outside of the market system.
- Money: wherein the tokenized value of trade is commoditized. However, money is an invention of banking and finance. Ignoring the tokenized representation of money, the creation of money creates nothing at all.

Land ownership and the separation of land from nature—a prerequisite for concepts related to the ownership of land (Polanyi, 1944/2001)—did not exist within Inuit culture; land and nature was always a shared resource between Inuit and animals (Tapardjuk, 2013). Traditionally, Inuit had lived a semi-nomadic lifestyle that was intertwined with nature and the availability of resources. Inuit never lived in one place permanently, instead moving between different seasonal camps and locations (Arvaluk, 2007; Quassa, 2008; Tapardjuk, 2013; Freeman, 2015). Therefore, great effort had to be made to explain the concept of land ownership to Inuit because it was such a foreign concept (Quassa, 2008).

Money, an important element of capitalist societies, was not well-known or an important concept for Inuit (Quassa, 2008). Before the arrival of Europeans, monetized trade was completely unknown to Inuit society (Gombay, 2010; Tapardjuk, 2013). In order for money to exist, an economy must be based upon the concept of monetary trade and exchange. Inuit society and its economic foundations were premised on entirely different institutions and values (Gombay, 2010).

The “modes of production”, in the sense that Marx described them, within Inuit society were at odds with the capitalist modes of production. The Inuit modes of production within the traditional economy were based upon reciprocity, sharing, cooperation, and the collective responsibility over the commons between man and the animals. Though, one must be careful to not confuse the Marxist terms of production, distribution and consumption with Inuit ways of living. To do so

would be to confuse the very different nature in which Inuit lived in the world and the values of Inuit society. (Gombay, 2010)

Instead, Inuit values and culture are “profoundly ethical” rather than economic and are referred to as *maligarjuat*. These *maligarjuat* apply to all members of Inuit society and are considered to be commitments or principles that Inuit follow. There are four *maligarjuat* within Inuit traditions (Karetak et al., 2017, 3):

1. “Working for the common good and not being motivated by personal interest or gain.”
2. “Living in respectful relationships with every person and thing that one encounters.”
3. “Maintaining harmony and balance.”
4. “Planning and preparing for the future.”

The lack of Polanyi’s three fictitious commodities within traditional Inuit society points to the incongruence between capitalism and Inuit culture. To begin, the commoditization of land and labour is completely at odds with traditional Inuit society. Furthermore, the concept of money—and that of monetary-based trade—was completely foreign to Inuit prior to its introduction by Europeans. Creating these necessary concepts of fictitious commodities, in order for Inuit economic activity to fit within a market economy, had impacts on Inuit society. (Gombay, 2010)

The ideologies and values of a capitalist society—where individualism rules, people must fend for themselves and any failure is a person’s own fault—was completely incompatible with Inuit societal values. Inuit lived co-operatively with a shared, collective responsibility for the survival of the community and the land. Thus, labour and possessions were not something to be purchased or sold. (Tapardjuk, 2013)

Both Quassa and Tapardjuk—important contemporary Inuit leaders—have stated that Inuit society, prior to the arrival of Europeans, was much more aligned with socialism and collectivism than individualistic capitalism. In the words of Tapardjuk (2013, 97-98), “I always maintained that Inuit were the best communists in the world, because they truly lived communalism and their mentality is based on socialism.” Although the European concepts of capitalism were foreign and new to Inuit, they were adapted to fit within the Inuit context (Tapardjuk, 2013).

Other pre-capitalist societies, such as the Andean civilizations studied by anthropologist John

Victor Murra, operated in similar ways. For example, reciprocity and human obligations played an important role in the functioning of pre-capitalist Andean society before the invasion of Europeans. Here too, Marxian methods of analysis become more suitable to understanding these non-capitalist economies and concepts of the fictitious commodities, such as money, were non-existent. It was not uncommon—instead it was very common—for pre-capitalist societies to operate and be organized socially or economically in vastly different ways than those thrust upon them by European capitalists. The changes from functioning in the traditional, pre-capitalist paradigm to a capitalist paradigm was disruptive to other societies as well. (Murra, 2020)

1.3. Traditional Inuit Society and Adaptation to Free-Market Capitalism

While traditional Inuit society was rather different from the global, free-market capitalist society that is prevalent today, it was not completely divergent. For example, trade existed within the traditional economy well before the arrival of Europeans to the region. However, trade was limited to objects that could only be produced or procured in certain localities (Rink, 1875).

Inuit conducted trade between themselves, between their camps or clans and also with First Nations cultures such as the Dene and Cree. To some extent international trade occurred, although that distinction may be moot given the lack of any nation-state in the area at the time. Evidence also points to the Norse and Inuit cultures trading goods well over a thousand years ago. (Inuit Heritage Trust, 2009; Venovcevs, 2010; Gombay, 2010; Freeman, 2015)

Nonetheless, since capitalism has reached almost all corners of the world there are few places, if any, that are not affected by it. Societies that do not wish to be left behind the various concepts of progress made at the global level must participate within the capitalist regime or find ways to accommodate their traditions within the capitalist mechanisms going on around them. (Perez, 2003)

Fortunately, Inuit are famously innovative and became full participants in the Canadian Arctic's newly developing international economy (Henderson, 2007). The success of the Inuit at harvesting furs and pelts, coupled with the ability of the Hudson Bay Company to bring these items to market in Europe, encouraged an explosion of economic activity across the Arctic (Goldring, 1986). The fur industry flourished throughout the North over the years following the early 20th century (Paine, 1977; Obbard et al., 1999). By the mid-1930s, the Hudson Bay Company had over 200 outposts

spread all across the Canadian Eastern Arctic (Usher, 1971) and a monopoly over all economic activity throughout the region (Paine, 1977). Some of these trading locations are still in operation today under the banner of The North West Company (The North West Company, 2020). On one side of the deal, the Hudson Bay Company was acquiring luxury materials at bargain rates by exploiting the local indigenous labour. On the other side, Inuit were accessing technologies and goods that were previously unavailable (Innis, 1956).

1.4. Inuit Society’s Movement into Permanent Settlements

The expansion of permanent fur trading posts across the Arctic had a significant and abrupt impact on Inuit society (Bonnycastle, 1954). In response to the fur trade, many Inuit—who, since the beginning of Inuit history, were semi-nomadic peoples—began settling in permanent communities in order to gain better access to these new trading posts (Bonesteel, 2006). This movement into permanent settlements marked a significant and major societal and technological shift for Inuit society (Pitseolak and Eber, 1993; Henderson, 2007; Watt-Cloutier, 2018).

Canadian government initiatives cemented the movement of Inuit into permanent settlements and further perpetuated the harms related to this transition (Paine, 1977; Dorais, 1997; Henderson, 2007; Arvaluk, 2007; Tapardjuk, 2013). Major influences, following the fur trade, included the United States of America’s military run DEW-line sites⁷ (Henderson, 2007; Lackenbauer et al., 2005) and “Ottawa’s plan to educate Inuit children, provide medical treatment for the aged and infirm, and distribute social transfers” (Qikiqtani Inuit Association, 2014b, 22). These government programs and policies, which received little to no input from Inuit, forced the relocation of Inuit into permanent communities in unfamiliar lands and hunting areas leading to the loss of Inuit subsistence capabilities and the starvation of Inuit. If it had not been for the American military offering paying work to Inuit, many Inuit could have died (Watt-Cloutier, 2018).

Inuit are not the only indigenous group of the Arctic whose semi-nomadic livelihoods were

7. The Distant Early Warning Line or DEW-line was a Cold War initiative, beginning in the 1950s, that saw the creation of a network of over 50 radar stations across the North American Arctic. These stations existed to detect—and provide an early warning for—USSR nuclear bombers flying over the polar region (Lackenbauer et al., 2005). The DEW-line sites had a significant impact on Inuit, encouraging Inuit to move into settlements near the DEW-line bases in order to gain access to the wage-based employment that these projects offered (Watt-Cloutier, 2018).

severely disrupted by government policies and actions. The Sámi of Northern Fennoscandia—primarily Finland, Sweden and Norway—traditionally followed semi-nomadic reindeer herding practices, where reindeer herders would guide their reindeer to different areas depending on the season, weather and environment. Sámi herders would bring their reindeer to the areas which ensured the highest availability of food, which was highly variable depending on the weather, season, and year. Their semi-nomadic lifestyles and herding practices became severely disrupted by government actions, such as: the creation of national borders limiting the movement of Sámi—which to the Sámi were arbitrary and nonsensical borders; and active agricultural policies by government officials who completely misunderstood, and continue to misunderstand, how to properly regulate reindeer herds and the vastly large territories that reindeer herders must travel in the Arctic environment for survival. These government initiatives have led to similar outcomes for Sámi, as experienced by Inuit, causing socio-economic insecurities, disruptions of traditional livelihoods, and dependency on social transfers. Ultimately, government policy—which did not understand Sámi society or culture and did not adequately consult Sámi in the development of policies—created a situation where the traditional, semi-nomadic Sámi livelihoods, such as reindeer herding, fell “from a position of affluence and relative strength, to one of relative poverty and dependence on state mechanisms of support.” (Reinert and Oskal, forthcoming 2021, 15)

1.5. The Harmful Effects of Westernized Residential Schools

A critical cultural influence on Inuit, which cannot be ignored, was the creation of residential schools for Inuit children between the 1940s and 1960s with the majority of Inuit children sent to residential schools in 1950s. The initial residential schools were typically located far from Inuit families and run by the Catholic or Anglican religious organizations. Missionaries and government officials strongly pressured Inuit parents to send their children to the schools without parents fully understanding the consequences. (Quassa, 2008; Tapardjuk, 2013)

Inuit languages were not allowed to be spoken nor Inuit customs allowed to be practiced while at these schools. Furthermore, Inuit children were not taught about Inuit identity and culture, they were only taught about western things (Dorais, 1997; Quassa, 2008; Tapardjuk, 2013). The introduction of residential schools damaged the relationships between Inuit parents and children because Inuit children lost their language and traditional skills. In the worst cases Inuit children faced tremendous amounts of physical and sexual abuse at the hands of educators (Quassa, 2008;

Tapardjuk, 2013; Watt-Cloutier, 2018).

The harmful effects of loss of language on a society has also occurred to cultures outside of North America. Such as with Ukrainian children—under the rule of both Catherine the Great and Stalin—who experienced the diminishment of their language and culture as a result of the explicit prohibition of the Ukrainian language and culture in school, sport, and government. The prohibition of language has also led to cultural and socio-economic strife within Ukraine between ethnic Ukrainians and ethnic Russians that continues to be dealt with today (Kononenko and Holowinsky, 2001; Taranenko, 2007).

1.6. Colonialism, Welfare Colonialism, and Neocolonialism

Inuit found themselves in new communities far removed from their traditional lifestyles without access to the abundant jobs and services promised by government created settlements or local industry. In many cases, the new communities supported military bases and not traditional activities. This meant that Inuit who moved into permanent settlements had limited access to the traditional resources required to return to the land. Thus, the movement of Inuit into permanent settlements, the destruction of family bonds and the passing down of traditional knowledge due to residential schools, and a lack of local industry, created a dependence on government assistance programs and welfare for survival. The transition from self-sufficiency to dependence on government programs and services was very destructive for Inuit society. (Canada, 1996; Tapardjuk, 2013; Watt-Cloutier, 2018)

This perpetual dependence of Inuit on government programs and assistance is referred to by Robert Paine as “welfare colonialism”. This form of colonialism is where—either deliberately or unintentionally—government bureaucrats, programs and policies have kept Inuit from: attaining the standards of living or levels of wages that non-Inuit inhabiting Inuit lands enjoy; and, creating Inuit institutions, processes and forms of government that best support Inuit in achieving modernity in the Inuit way (Paine, 1977). This dependence on government assistance—what Paine calls welfare colonialism—remains today as indicated by the high levels of dependence that Nunavut Inuit continue to have on social assistance programs, the total imbalance of Inuit employment figures compared to non-Inuit, and the dominance that outside corporations have over the territorial economy (Nunavut, 2020).

Colonialism also continues today in the form of neocolonialism (Nungak, 2000). Neocolonialism refers to the continuation of colonial ideologies, attitudes and actions that have occurred following the dismantling of territorial imperialism; in the case of Canada, this would refer to the continuation of colonialism following the end of British Imperialism and the monopolistic, industrial-based colonialism represented by the Hudson Bay Company. Neocolonialism is often inconspicuous and primarily related to ideological, economic or political activities, instead of the more pronounced imperialist colonialism, which was territorial, militaristic, and cultural (Spivak, 1991).

Neocolonialism is just as damaging to a society as intentional colonialism was, if not more so. Often pursued through the best of intentions, neocolonialism exercises control over a society's "methods of production, standards of consumption, criteria of success or failure, systems of values, and behaviour patterns" (Schumacher, 1974, 162). The exertion of neocolonialism perpetuates an inescapable dependence of the colonized to the dominating system. This forced subjugation to neocolonial systems—even if subtle and unintentional—"destroys the possibilities of self-reliance and self-help." (Schumacher, 1974, 163)

1.7. Colonialism Limited Local Industrial Development

Compounding the issues related to development in the Canadian Arctic, was that colonial, western powers purposefully took "special measures to hamper the growth of indigenous industry" (Myrdal, 1957, 57), such as legislation, administration and institutions that maintained power over the colony to ensure that the colonized market remained a market for its own manufacturing industries. This is because these countries were interested in acquiring the primary resources that its manufacturing industries required from the colonies. Thus, colonizers were able to better exploit the natural resources and cheap indigenous labour of the colonies. Colonial monopolistic interests and businesses were fortified and supported by the structure of legislation, administration and institutional systems. (Myrdal, 1957)

The typical advice given by Western countries for developing economies and previously colonized peoples continues to encourage the dependence on resource extraction instead of building up local industrial capacities (Reinert, 2008). While the development of a resource-based sector may appear beneficial in the short-run, it does little to improve the long-run outcome of the economy (Myrdal, 1957; Reinert, 2008).

Western civilization has proven to have a strong penchant for looting the resources of colonized areas without providing “consideration of the problems which follow the exhaustion of material to be looted.” (Innis, 1995, 314) Thus, any developing economy should critically consider and remold any economic advice they are given from a more advanced economy (Myrdal, 1957).

A prime example of this is the Eastern Arctic’s fur and sealing industry which was poised to become a North American economic powerhouse, with Inuit fuelling a high rate of economic productivity (Goldring, 1986). Unfortunately, the Great Stock Market Crash of 1929, which led to the Great Depression (Hillmer, 2013), decimated the value of fur in the global market (Obbard et al., 1999). Declining fur prices in the 1930s forced the closure of a large number of fur trading posts (Innis, 1956). By the mid-1950s, more than half of all fur trading posts across the North shut their doors (Usher, 1971). A strong anti-sealing campaign, which started in the late 1960s, and a second minor economic depression coupled with European trade restrictions on seal products in the 1980s has, even today, severely hampered the fur and sealing industry in the Eastern Arctic (Sealing Nunavut, n.d.; Arnaquq-Baril, 2016; Watt-Cloutier, 2018).

Today, a large amount of attention is placed on the mining sector as an important economic participant in and driver of Nunavut's economy (Nunavut, 2020). Initial interest in the Eastern Arctic’s rich mineral and natural resources occurred around the 1950s, but had originally started in the North at much earlier time. Nunavut's first operational mine was the Rankin Nickel Mine which began operating in 1957. The price of nickel had risen so high, due to the Korean War, that the costs of operating a mine in Nunavut became economically viable (Cater and Keeling, 2013). Inuit remain conflicted and concerned about whether or not the development of the mining industry in proximity to Inuit communities would bring the benefits promised by the project proponents (Czyzewski and Tester, 2016; Mayors and HTO Chairpersons of Mittimatalik, Igloodik, Sanirajak, Arctic Bay, and Clyde River, 2020).

1.8. Colonialism and Forced Westernization Affected Inuit Society

Not only is a new technology—such as living in permanent communities inside western-style housing and eating western food, following a new religion, and the forced exposure to new forms of education or language—disruptive to indigenous societies, their adaptation to a new technology and—vice-versa—the adaptation of a technology to meet their needs was and is severely restricted by colonialism. This is because the “imposition of alien and hegemonic legal and political”

(Pfaffenberger, 1992, 512) regimes from a colonial system limits or negates the capacity of indigenous peoples to utilize their own traditions, governance mechanisms and social controls to make the necessary modifications to a technology or their society to ensure that the new technology is beneficial (Pfaffenberger, 1992).

Due to the introduction of European economic motives, technologies and colonialism, Inuit society underwent major, irrevocable structural changes following contact and these changes continue to affect today's generations (Valaskakis, 1992; Henderson, 2007; Gombay, 2010; Qikiqtani Inuit Association, 2018). European and Western forces have overshadowed Inuit traditional society ever since (Nungak, 2000; Newfoundland and Labrador Heritage Web Site, 2008; Gombay, 2010).

1.9. Section Summary

The micro-narrative of this section has shown that the forced assimilation of western technologies, institutions and ways of living into Inuit society by colonialism was, and continues to be, destructive to Inuit communities. Colonialism also limited the capacity of Inuit to adapt western technologies and institutions to best support the Inuit way of life. This domination over Inuit technologies, institutions and ways of living by western forces remains an issue today that reduces the capacity of Inuit to adapt modern technologies to best support Inuit society.

2. THE INTERTWINED RELATIONSHIPS BETWEEN INUIT SOCIETY AND TECHNOLOGICAL CHANGE

This section's micro-narrative considers the intertwined relationships between Inuit, technological change and society. The purpose of this section is to develop an understanding on how technologies fundamentally change societies, that these changes bring both positives and negatives to any way of living, and why it is important for any society to have control over how technological change takes place.

The known socio-economic history of Canada's Eastern Arctic began thousands of years ago when Inuit first settled there (Inuit Tapiriit Kanatami, n.d.). Social, cultural and economic activities during these times were vibrant, but were far from the types of activity that is seen in the arctic today (Gombay, 2010; Collier, 2012). For example, money was non-existent and concepts of ownership and production were drastically different (Henderson, 2007; Arvaluk, 2007; Gombay, 2010). The activities that occurred within Inuit society prior to the introduction of European modes is commonly referred to as the 'traditional society' or 'subsistence economy'⁸ (Alberta Education, 2006; Gombay, 2010). Today, both of these paradigms—that is, the European and the traditional—operate side-by-side in the Arctic (Gombay, 2010).

Inuit society existed in the traditional sense for many generations and it was not until Inuit contact with modern Europeans did that begin to change (Henderson, 2007; Arendt, 2010; Gombay, 2010; Watt-Cloutier, 2018). Inuit-European contact first began when European explorers arrived at the Davis Strait sometime in the early-to-mid 16th century in search of a passage from Europe to the Pacific Ocean. The first formal record of an Inuit introduction to Europeans happened when Martin Frobisher, on his expedition to find the Northwest Passage, landed on the shores of Frobisher Bay in 1576 (Nungak, 2000; Fossett, 2001). Following first contact, the whaling business dominated most economic activity in the Eastern Arctic until late into the 19th century (Allen and Keay, 2006).

8. The term 'traditional economy' will be used throughout this document for simplicity. However, the terms 'subsistence' and 'traditional' can be used interchangeably.

The arrival of Europeans, whalers and trading posts brought with them new technologies and articles for trade such as bread, coffee, sugar, tobacco, lamps, and tools for hunting (Rink, 1875; Valaskakis, 1992).

2.1. The Introduction of Western Technologies Permanently Changed Inuit Society

Following exposure to Europeans, Inuit recognized that their lifestyle would no longer be the same due to the introduction of European capitalism and new technologies. In his manuscripts, Peter Pitseolak—a famous artist and the first Inuit photographer who lived in the Canadian Eastern Arctic between 1902 and 1973—described the benefits of having access to western technologies, yet lamented about the loss of the Inuit traditional lifestyle (Pitseolak and Eber, 1993, 148):

“I’m happy about having white man’s food when you want it, and I’m happy about having a place to live where the heat is always the same. In the old days you had to make your own hut every fall and you had to gather all the moss for insulation: the heat was never even. It’s a steady heat nowadays in the houses the white man supplies. ...

“Not all of our young people will learn the good ways, but the better ones, the ones who care about themselves, will learn the new ways. I have often thought that one day there will be an Eskimo⁹ doctor. Not now but in the future. Perhaps one of my grandchildren when he grows up. I think this because my mother was almost a doctor. She was always cleaning the wounds.

“For myself, I am sad that the Eskimo way has gone.”

It is clear that Pitseolak recognizes, if not laments, that the introduction of European technologies were permanently changing Inuit society. Indeed, all human civilizations experience technological change, either resulting from inventiveness or by appropriating new technologies from other cultures (Volti, 2017). These technologies, whether or not they originate in the culture itself, have

9. The term “Eskimo” is an anachronism and generally considered a derogatory term by many Inuit. The term originates from the Cree language where the Cree called Inuit people “escheemau” which meant “sickening human”, because the Cree would get sick from the sight of Inuit eating raw meat (Freeman, 2015, 87). Nonetheless, numerous elders and Inuit in the western arctic continue to use the term (Christensen, 2003). In an effort to avoid editorialization, the term was left as is in the quote.

the power to radically change values, norms, and traditions (Innis, 1995).

2.2. Technologies Change a Society's Institutions

Many studies of technological development focus on technical change, such as the transition from town criers to printing presses to radio to television to the Internet, instead of focusing on significant changes made to cultural, political and economic institutions. Academics and proponents of technological development often have difficulty in assessing the impacts that technology may have on another culture, because they lack the capacity to assess anything outside of their own culture without the analysis first being coloured by their own cultural biases. They fail to recognize the importance that history, populations, institutions, politics, economics and geography play in the progress of technology. (Innis, 1995)

A society's institutions—based upon the prior, reigning ways of doing things—are ill-prepared to respond to the significant economic and social ramifications of technologies. The mismatch between emerging technologies and a society's institutions or laws lead to significant social disruptions. It is not until a society defines entirely new ways of modelling, regulating, managing and structuring organizations, economies and social institutions that the entire society can benefit from the new technologies. (Perez, 2003)

In one example, Harold Innis describes how the printing press drastically redefined the role of the institution of religion in European society. With the rapid dissemination of information, made possible by the printing press, came the rise of public opinion which reduced the role of the religion. The book tore down the edifice of the church, leading to religious wars, revolutions and the destruction of social institutions. (Innis, 1995)

If a technology is established in a society, which does not have the socio-technical institutions in place to support that technology, the society will become dependent on another society from the outside for that support. This is because the utilization, development and operation of modern technologies requires a massive network and amount of knowledge, experience, finances and institutions that are already present in the societies that invented the technology (Schumacher, 1974). Without the corresponding institutions, these types of societies—who rely heavily on social and political institutions to acculturate to a new technology—are at risk of not being able to adapt nor will they be able to reduce their dependence on foreign institutions, societies or economies

(Innis, 1995).

2.3. Technologies Change Cultures and Ways of Living

Societies exposed to radically different technologies must contend with the inherent biases within those technologies. Technologies are created by a society in order to respond to a specific requirement or cultural value (McLuhan, 1994). Once any new technology is introduced into a society, it then does what those biases within the technology are intended to do. This changes the society, whether or not this change is conscious or unconscious (Postman, 1993). Technological change within a society, whether from invention or appropriation, is thus inseparable from changes in cultural values (Innis, 1995).

Although western technology is often seen as unbiased, there is an inherent bias within western technologies because they are created by and support activities from western culture rather than Inuit culture (Quassa, 2008). In one glaring example, the introduction of written language technologies into Inuit society in the 20th century by Christian missionaries (Valaskakis, 1992; Tapardjuk, 2013) led to “a type of civilization dominated by the eye rather than the ear” (Innis, 1995, 321).

Technology is often mistakenly believed to only be beneficial because it makes life cleaner, easier and longer. In reality, a new technology, once introduced into a society, carries with it both positives and negatives. In some respects, a culture or way of living can be better supported with the new technologies (Postman, 1993). While, in other aspects, the technology can carry massive costs and, in some cases, eradicate a culture (Postman, 1993; Innis, 1995). As described by Pfaffenberger (1992, 495), “technology is ... both creator and destroyer, an agent both of future promise and of culture's destruction.” These changes impact how people live their lives, the relationships that people have, the way work is done, and the perceptions that people have of the world (Postman, 1993).

It may appear counter-intuitive to someone from the western world, but the shift away from the traditional lifestyle led to a major upheaval within Inuit society and their socio-economic structures. Prior to contact with modern Europeans, Inuit society was not similar at all to the western culture (Quassa, 2008). An entirely new way of living had come about for Inuit (Fossett, 2001).

These complete and radical technological overhauls within society can be called technological revolutions. With each technological revolution¹⁰, entire sets of technology within the society are replaced and made out-of-date. These significant innovations, and the elimination of prior technologies, drastically changes people, skills and organizations. (Perez, 2003)

In today's globally dominant westernized values we are surrounded by technology "zealots" and "technophiles" who are obsessed with seeing the proliferation of technology without bounds. These zealots are incapable of seeing any negatives related to a technology, and instead are drunk on the capabilities of what a technology can do. They are unable to consider what a technology can undo. Furthermore, due to its integration with western culture and its constant desire for technological progress, new technologies are typically not scrutinized to determine what harms they may bring about to non-western societies. (Postman, 1993)

People within the "advanced" societies believe that because of their "superior" technologies they are a "superior" civilization. If they possess certain unique capabilities—such as fostering new methods of communications, engaging in different forms of scientific thought, or producing material goods at a much greater rate—their society is full of advantages that must be bestowed upon the "lesser" civilizations. It is their civilization's duty to spread "democracy, education, progress, individualism, and other blessed words" to the disadvantaged. (Innis, 1995, 322)

The impetus for continuous growth and development in the pursuit of public benefit is, more often than not, pursued by those who are already rich and powerful. Those already in power profit greatly from this progress, while the poor and those bereft of power cling helplessly to their old ways of life (Polanyi, 1944/2001). Even in the modern age, the new advanced technologies typically enhance the power of and accumulate power within the dominant political and economic structures (Innis, 1995; Postman, 1993). The end result for this imbalance means significant social disruption and dislocation of livelihoods (Polanyi, 1944/2001).

10. Western capitalism has experienced five technological revolutions since the 1770s: first, the 'Industrial Revolution'; second, the 'Age of Steam' and Railways; third, the 'Age of Steel, Electricity, and Heavy Engineering'; fourth, the 'Age of Oil, Automobiles, and Mass Production'; and fifth, the 'Age of Information and Telecommunications'. (Perez, 2003)

2.4. Societies Must Have Control Over Technological Advancement

Unrestrained technological advancement can completely annihilate a culture or way of life and, in the worst case, destroy a society. Harold Innis argued that the uncontrolled introduction of European technologies had disastrous effects on North American indigenous peoples. The proliferation of advanced and specialized technologies from Europe led to an unsustainable increase of efficiencies in the harvesting of wildlife—leading to the devastation of the food supply—and completely disturbed the social balances within North American indigenous cultures. The radical innovations and rapid shifts in culture “lead to the wholesale destruction” of some indigenous communities. (Innis, 1995, 9)

As described by Pitseolak above, western technologies, such as western foods or dwellings, brought conveniences to Inuit society that were well enjoyed by Inuit; however, transitioning to these new technologies and becoming dependent on new technologies meant the loss of the Inuit ways of living, self-sufficiency and culture (Pitseolak and Eber, 1993; Arvaluk, 2007; Tapardjuk, 2013; Freeman, 2015). While Inuit feel remorse for losing traditional skills, such as hunting, most Inuit do not want to return to the old ways. What Inuit desire and expect is a synthesis between the traditional and modern ways of living while keeping the old Inuit traditions alive (Tapardjuk, 2013).

Indigenous Sri Lankan fishermen had a similar experience in their transition from traditional sail-powered ocean-going fishing boats to boats that made use of outboard motors. In making this transition two outcomes occurred: first, the techniques and knowledge related to how to pilot a sail-powered ship was lost in the fishing community; and second, the rapid increase of productivity and capacity to harvest fish around the coastal areas led to the depletion of the fish stock. This led to the fishermen no longer being able to catch enough fish to afford gasoline to power their boats. Due to the loss of their sailing-knowledge, the fishermen had to make use of rowing-boats that could only navigate in waters very close to the shore. This meant that the advancement of technology actually led to a technological retrogression to a point where the Sri Lankan fishermen’s productivity fell to levels below that which had existed traditionally. (Endresen, 2021) The concerns that Inuit hold regarding the loss of their traditional knowledge and ability to live off the land was also something that indigenous Sri Lankan fishermen experienced on the seas.

In order to benefit from the appropriation of a technology—and achieve the synthesis that Inuit

desire—a society must have control and capacity to “engineer the social, economic, legal, scientific, and political context of the technology. A successful technological innovation occurs only when all the elements of the system, the social as well as the technological, have been modified so that they work together effectively.” (Pfaffenberger, 1992, 498) As Gunnar Myrdal put it: “Neither our techniques of politics, administration and social reforms nor our techniques in production and distribution can with advantage be simply taken over.” (Myrdal, 1957, 100)

Due to the capability of technology to irreparably change a culture—whether for better or worse—that culture’s traditions and values are in jeopardy of being forever lost or modified. Thus, every culture must negotiate with technology, whether it does so intelligently or not (Postman, 1993). If a traditional way of life must be sacrificed in the pursuit of development or technological change, it should be the people whose traditions are at risk that make the decisions on what should be abandoned or kept. These decisions—whether to reject traditions in favour of modernity, or vice-versa—can only be made through the participatory action of the entire population and not by the sole discretion of political and economic elites (Sen, 1999). Thus, the institutions governing social, economic and technological development must represent a greater scope of society and not just technical experts or government administrators (Schumacher, 1974).

Ultimately, Inuit recognize that technologies are not just good or bad, what becomes good or bad is the lack of control over how new technologies are appropriated and integrated into Inuit society. Inuit are remarkably adaptable and have transitioned as a society to new technologies and ways of living in just over a hundred years that took other societies thousands of years to achieve. It is the forced appropriation of technologies in manners that do not fit within Inuit ways of living, or the forced westernization of a non-western societal institutions, that becomes harmful to Inuit society. (Quassa, 2008; Freeman, 2015)

2.5. Section Summary

This section’s micro-narrative considered how all societies must contend with technological change. Due to this, these changes to a society will occur whether or not that society wishes for it to happen. In order for a society to benefit most from these technological changes or to protect their ways of living from a dominant paradigm, those societies must have control over how new technologies are or are not integrated into the society. If a society does not have this control, the results of technological change are harmful to that society. The section found that Inuit do not

want to be left behind the progress made in the modern-day world. Importantly, the section discussed how Inuit want control over how progress and technological appropriation is achieved in order for Inuit to be able to create a synthesis between the traditional Inuit ways of living and modern technologies.

3. INUIT SOCIETY'S RESPONSE TO WESTERN TECHNOLOGIES THROUGH INSTITUTIONS OF GOVERNANCE AND INDUSTRY IN THE 20TH AND 21ST CENTURY

This section provides a micro-narrative on how Inuit self-determination over technology and their society through institutions of governance and industrialization was—and is currently being—accomplished. With the cultural sensitivity gained through the leading parts and an understanding of why it is important for a society to have control over technological change, this final narrative will speak about the strength and adaptability of Inuit society in their response to colonialism and the creation of institutions of governance and industry by Inuit to protect and foster their way of life. The section will consider the importance of Inuit having control over their society with institutions and industry that function in the Inuit way, the present-day successes that Inuit have achieved in building these, and the challenges that Inuit currently face with governing technological change amidst the dominant western forces.

The proliferation of new technologies throughout the world is impossible to avoid in today's globalized civilization. A society can either adopt or adapt a technology that has engrained itself in the processes of modern life, but it cannot avoid being impacted by it. Some societies certainly reject modern technologies. However, given the global nature of modernity, it is impossible for a society to not be somehow affected by technologies and global development. No matter what decision a society makes—whether to accept or reject technologies—a society must, nonetheless, negotiate with the advancement and introduction of new technologies. (Rama Murthy, 2013)

For many centuries, western observers believed that intensive contact with the industrialized world and new technologies would completely eliminate Inuit people and culture. This prophecy has not yet materialized. Instead, Inuit have successfully integrated Euro-Canadian practices, religious beliefs, and technologies. While doing so, Inuit have maintained a strong sense of cultural specificity while adopting many western customs, such as writing systems, music and dances. The story of Inuit culture in recent memory is the synthesizing of the old and the new. (Amagoalik, 2000; Tapardjuk, 2013)

3.1. Inuit Are Early Adopters of Many Technologies

Inuit are not laggards in terms of appropriating new technologies and have actually been early adopters for a number of technologies (Tapardjuk, 2013; Freeman, 2015). The rapid adoption and appropriation of European technologies—such as horses, firearms, tools, and European crops or agricultural techniques—is found throughout the histories of indigenous communities across the Americas (Murra, 1984; Innis, 1995).

For example, Inuit were some of the earliest users of the first commercially produced snowmobiles, when in 1965 the Igloolik co-operative purchased a “Moto Ski”. This snowmobile was heavily used by Inuit in the community to support hunting and travel over the sea ice (Tapardjuk, 2013). Inuit were also some of the earliest utilizers of flight for travel, using commercial airlines and government airplanes to travel between northern communities or to cities in the south (Freeman, 2015). Recently, western technologies—such as the tape recorder and computer—have supported Inuit in connecting to, accessing, and learning from their oral histories and traditions (Tapardjuk, 2013).

Inuit lifestyle and culture is continuously changing and evolving (Quassa, 2008), with outsiders often misinterpreting the evolving and changing of Inuit culture as passive and accepting. This perception of passivity is a misunderstanding and underestimation of Inuit society (Tapardjuk, 2013). Although Inuit are capable of becoming accustomed to other ways of living—such as European modes—it does not necessarily mean that it will be completely natural for Inuit (Freeman, 2015). Furthermore, the utilization of new technologies within Inuit society, does not make Inuit any less Inuit (Christensen, 2003).

Nonetheless, Inuit are modern peoples that do not want to be left behind the technological or economic progress made in global society. To this point, Inuit—through the Inuit Circumpolar Council’s *Inuit Arctic Policy*—demand participation within, access to, and control over how technologies are introduced into their communities (Inuit Circumpolar Council, 2016).

3.2. Inuit Society and the Information Age

The latest global technological revolution to occur is the Information Age which began in 1971 with the introduction of the Intel microprocessor ‘computer on a chip’ (Perez, 2003). It is

characterized by high levels of productivity and competitiveness between globally networked firms that are supported by large amounts of knowledge and information through powerful computer processing and communications technologies (Castells, 1997). Global society is still in the midst of undergoing of this information revolution, with many parts of the world covered by its related infrastructures and influenced by its institutions (Wilson, 2004).

The two most common views that Inuit hold toward the technologies of the Information Age are: first, Inuit society will be inundated with foreign culture and media in other, non-Inuit, languages that will eventually drown out and destroy Inuit culture, language and customs; and second, that digital technologies allow Inuit to protect, enhance and share their language and culture among Inuit and with non-Inuit around the world. (Christensen, 2003)

Indeed, Inuit have a right to be concerned about modern technology's impact on their society, as these types of technologies can lead to the rapid dissolution of traditional beliefs (Postman, 1993). However, Inuit have proven highly capable of appropriating new, advanced technologies to benefit and strengthen culture, traditions, customs, language, and local economies (Kulchyski, 1989).

As commonly seen with Inuit adaptability towards technological change, Inuit have successfully utilized the computer to change the power and control of the publishing of Inuit texts from primarily the churches and missionaries to anyone with a computer and printer (Dorais, 1993). Inuit have also proven to have successfully linked digital technologies and culture, where Inuit assert their cultural identities online as well as offline. Inuit have used “the Internet as another ordinary part of life in ways defined by themselves and adopted to local reality” (Christensen, 2003, 14).

3.3. Inuit Recognize the Need for Control Over Technologies Within Their Communities

Inuit communities, themselves, have certainly recognized that technologies can be harmful to Inuit culture if Inuit do not have control, representation or participation within the technology. For example, after the introduction of satellite broadcast television in the North—following a federal government led satellite initiative to broadcast Canadian media across the country—the Inuit municipality of Igloolik banned satellite television from the community between 1973 and 1983 because of the lack of Inuit-language programming. Iglulingmiut (people from Igloolik) were

concerned that Inuit language and culture would be in jeopardy because the only media made available via satellite television was either English-language or French-language media. It wasn't until the creation of the Inuit Broadcasting Corporation, and the inclusion of Inuit-language media on the satellite broadcasts, that Igloolik lifted the satellite television technology ban within the community. (Quassa, 2008; McMahon, 2013)

It would be easy to confuse the technological diffusion of broadcast television to the small communities in the Canadian Arctic as something natural because of the widespread popularity of television across the North American continent. It was not the technology of televised broadcast media itself that created the national satellite initiative, funded the launch and operation of the satellite, and encouraged adoption of satellite television within remote communities. In reality, the broadcast television and communication satellites that began beaming media to these communities was a consciously planned government program and policy endeavour. Throughout these development programs, Inuit were not properly consulted. (Valaskakis, 1992; Valaskakis, 2007)

At the time, it would have been almost unheard of or unimaginable to consider banning broadcast television technologies within a community; it was perhaps almost blasphemous to the reigning culture of television in North America. Nonetheless, Inuit recognized that they needed control and representation within the technology before they wanted that technology within their community. This is a clear example of where it is not technology that drives proliferation and appropriation, it is competing socio-technical systems that are in control. (Valaskakis, 1992)

More recently, the federal government encouraged the development of satellite broadband Internet in remote, arctic communities (McMahon, 2013). Similar to the national satellite initiative of the 1970s, the government failed to properly consult with Inuit communities on how Internet should be included in their communities before creating the development programming (Valaskakis, 2007).

3.4. Building Institutions of Governance to Harness Control Within Inuit Lands

The colonial past and recent history in the Canadian Arctic is rife with examples where Inuit were not involved at all in the development of government legislation, policies, or programs (Tapardjuk, 2013, Brideau, 2019). There were many programs and policies from the Canadian federal

government implemented in the Canadian North without first consulting Inuit (Freeman, 2015).

The imposition of non-Inuit institutions and values on Inuit communities is a common occurrence with disastrous outcomes (Paine, 1977). The foreign institutions and ways of living have limited Inuit capacity towards adapting to change in the Inuit way. This has led to high unemployment, food insecurity, housing crises, poor health, high suicide rates, and alcohol and substance abuse within Inuit society (Henderson, 2007). To overcome these challenges, Inuit must be given the opportunity to create Inuit institutions of governance that have real—and not just symbolic— influence over government programming and decision-making regarding technologies and ways of living that affect Inuit (Tapardjuk, 2013).

Inuit have proven to be highly successful at forming institutions of governance and political movements in response to the imposition of western technologies and governance on Inuit society. This skill is exceptionally impressive considering the fact that Inuit were not given the right to vote or participate in political organization until the mid-1960s. The numerous regional, territorial, national, and international organizations of governance that Inuit have built in this time is a testament to their adaptive skills. (Quassa, 2008; Tapardjuk, 2013)

A brief recounting of events provides clear indication of the strength and capabilities of Inuit to form powerful institutions of governance. By the late-1960s to early-1970s, Inuit were attending residential schools that were now run by the federal government instead of religious organizations. However, these federal schools were still far removed from Inuit communities. In contrast to the early residential schools, the federal schools allowed Inuit children to speak Inuktitut, have more religious freedoms, learn a variety of trades or vocations, and permission to express their own views. The first wave of students sent to federal residential schools were quick to recognize the importance of political activity, organization, and the creation of institutions of governance, in order to fight for Inuit rights. It was at these government-run residential schools where Inuit children learned to defend and stand up for their rights against westerners. These initial students were highly influential in the creation of the Inuit organizations which negotiated the *Nunavut Land Claims Agreement* and created the territory of Nunavut. All of this accomplished in a remarkably short period of time. (Quassa, 2008; Tapardjuk, 2013; Watt-Cloutier, 2018)

Upon returning to their communities and being given the opportunity to vote in the mid-1960s, a significant number of these students—now young adults—began running for local community

councils, forming political newspapers, and creating the initial organizations to represent Inuit interests to federal and territorial government officials. By the 1970s, Inuit formed the national-level Inuit representation organization, Inuit Tapiriit Kanatami, and began lobbying the federal government towards negotiating a land claims agreement for an Inuit settlement area, ownership of Inuit lands, and self-government. On May 25th, 1993, Inuit were successful in negotiating and signing the *Nunavut Land Claims Agreement*. (Canada, 1993; Henderson, 2007; Quassa, 2008; Tapardjuk, 2013)

In less than forty years, Inuit were able to: gain the right to vote; formed powerful representational organizations to fight for Inuit self-government; negotiated and settled the largest indigenous land claims in history; created an entirely new public government built on a modified Westminster-style parliament that respects Inuit Societal Values; and created a large number of institutions of governance that support Inuit participation in a wide range of policy decisions (Amagoalik, 2000; Henderson, 2007; Quassa, 2008; Tapardjuk, 2013; White, 2020). These are remarkable feats of political organization which elucidate Inuit prowess in forming institutions that support Inuit and a capacity to adapt to new realities facing Inuit society (White, 2020).

3.5. Technology Governance and the Nunavut Land Claims Agreement

The *Nunavut Land Claims Agreement (NLCA)* sets out—among many other things—provisions for the rights of Inuit in government (Article 23), economy (Article 24), and the development of social and cultural policies (Article 32). Articles 23 and 24, respectively, aim to improve the representation of Inuit within government and the economy in Nunavut; these articles, if properly implemented would certainly improve the capacity for Inuit to influence government and economic decision-making. However, fulfilling these articles has yet to materialize in government actions. This is indicated by the legal victory of the Nunavut Inuit representational group Nunavut Tunngavik Incorporated (NTI) against the Government of Canada for the government’s failure to implement these promises (Nunavut Tunngavik Incorporated, 2015). The numerous independent reports of the implementation status of the *NLCA* also state that not enough is being accomplished to incorporate Inuit into the decision-making, governance, and economic activity within the territory (Price Waterhouse Coopers, 2006).

Article 32¹¹ is of significant importance regarding Inuit participation and inclusion of Inuit societal values in the decision-making of government programming and policies related to technological development. In the narrow interpretation of Article 32, this provision is limited to social and cultural policies and programs such as language promotion in the territory. However, as argued throughout this thesis, technology directly influences the social and cultural aspects of societies; these spheres cannot be separated, technology policy and programming *is* social and cultural policy and programming. It is the opinion of this thesis that, by not properly consulting Inuit on government programming and policies related to the introduction of new technologies, the governments—both federal and territorial—are not fulfilling the obligations of Article 32; this failure to fulfill Article 32 is also recognized in the *NLCA* implementation reports (Price Waterhouse Coopers, 2006).

The Nunavut Social Development Council¹², which was created through Article 32, could have fulfilled this role by providing Inuit input and injecting Inuit Societal Values into the social and cultural programs and policies undertaken by government. However, in a seemingly self-contradiction of purpose, NTI disbanded the council, ejected all of its board members and limited the council’s role to simply being a reporting body within NTI in the early 2000s. The leadership of NTI at the time was at odds with the purpose of the council and what the board members

11. The relevant provisions from Article 32 in the *NLCA* in relation to this thesis are as follows:

“32.1.1 Without limiting any rights of Inuit or any obligations of Government, outside of the Agreement, Inuit have the right as set out in this Article to participate in the development of social and cultural policies, and in the design of social and cultural programs and services, including their method of delivery, within the Nunavut Settlement Area.”

“32.2.1 Government obligations under Section 32.1.1 shall be fulfilled by Government:

(a) providing Inuit with an opportunity to participate in the development of social and cultural policies, and in the design of social and cultural programs and services, including their method of delivery, in the Nunavut Settlement Area; and

(b) endeavouring to reflect Inuit goals and objectives where it puts in place such social and cultural policies, programs and services in the Nunavut Settlement Area.”

12. The *NLCA* clearly indicates the roles in which the Nunavut Social Development Council would undertake:

“32.3.3 The [Nunavut Social Development Council] shall assist Inuit to define and promote their social and cultural development goals and objectives and shall encourage Government to design and implement social and cultural development policies and programs appropriate to Inuit. Accordingly, the Council may:

(a) conduct research on social and cultural issues;

(b) publish and distribute information on social and cultural issues to Inuit, governments and the public;

(c) consult and work in collaboration with community, regional, territorial, federal and other bodies and agencies involved in social and cultural issues;

(d) advise Inuit and governments on social and cultural policies, programs and services that relate to the Nunavut Settlement Area; and

(e) undertake other activities relating to social and cultural issues in the Nunavut Settlement Area.”

believed its purpose was (Tapardjuk, 2013). The Social and Cultural Development Department within NTI, which assumed the roles of the council, found itself so underfunded and understaffed that it is ineffectual in fulfilling the purpose of Article 32 (Price Waterhouse Cooper, 2006; Tapardjuk, 2013).

3.6. The Importance of Inuit Institutions of Governance

Government and governance institutions must play a role in how technological, industrial, and economic progress is achieved in a society. Not only should government intervene in the rate of progress, government must also intervene in the direction of progress in order to ensure real development (Polanyi, 1944/2001). Laws, policies and regulations can be one response to these problems associated with development (Postman, 1993). Policies and regulations can also be a strong constraint on the power and influence of national or international corporate interests in development (Babe, 1990). It is only logical and rational for inhabitants of a region, who are interested in seeing the development of their region, to demand the capacity for self-government and independence in setting and determining the policies and legislation that directs their development (Schumacher, 1974).

Advancements in technology and the required reforms to political, administrative, and social institutions cannot simply be copied from the advanced economies or southern Canadian jurisdictions into Inuit society. It is not possible to create successful Inuit institutions of governance by transplanting Inuit Societal Values, customs and traditions into institutions built upon western traditions (White, 2020). This is because, in most cases, the institutional reforms responding to new technologies were created in the context of the advanced economies and are likely inappropriate for another culture or society to appropriate them (Myrdal, 1957).

Accommodating the rights, interests and aspirations of indigenous peoples is currently becoming one of the more pertinent issues facing Canada (White, 2020). The importance of consulting indigenous people early in the process of developing government programming and policies is now recognized by the Canadian federal government. This recognition, known as the “Duty to Consult”, is meant to ensure that all federal government departments and agencies consult and accommodate indigenous people when taking any action or decision that might affect indigenous peoples or their rights (Brideau, 2019).

However, it is important to recognize that northern indigenous political culture is significantly and fundamentally different than the dominant Euro-Canadian models, values and approaches to governance; these differences in conceiving politics and governance means that indigenous governance models are very different than the western methods (White, 2020). These differences between the values and rules of Inuit society with western society means that applying western models of governance on Inuit in Inuit lands makes little sense (Tapardjuk, 2013).

In order to support Inuit self-determination with technology, the institutions of governance holding power over technologies and government programming or policies must reflect Inuit Societal Values, operate in the Inuit language, be managed by Inuit and employ Inuit. If not, the benefits to Inuit, brought by these institutions, would only be symbolic. Inuit recognize that self-determination and self-sufficiency requires full Inuit participation. Economic, social, and political life within Inuit communities must be in balance with Inuit Societal Values and in balance between those three spheres. (Tapardjuk, 2013)

Inuit leadership, including those who negotiated the land claims agreement, believe that they can achieve substantial benefits for their people and gain significant control over their land and governance processes by making compromises and being flexible (Kusugak, 2000; Quassa, 2008, Tapardjuk, 2013). In short, Inuit acknowledge that the western governance models are a necessary compromise in order to increase Inuit influence over decisions (Tapardjuk, 2013).

Although some northern institutions have been successful in integrating Inuit Societal Values into decision-making, their organizational structures, operations and manner of doing things remains deeply rooted in the western bureaucratic paradigm (Quassa, 2008; Tapardjuk, 2013). Inuit ways of conceiving politics, governance values and bureaucratic modes are very different from the dominant western methods. If Inuit culture is forced into an institutional culture that is western, the dominant culture—which is by far the western culture—will dominate Inuit culture and win (Quassa, 2018).

This overwhelming dominance of western governance models—and western scientific thought as well—devalues the relevance and importance of Inuit Societal Values in governance while simultaneously limiting the influence of Inuit within the institutions that govern them and their lands (White, 2020). The inclusion of Inuit values systems in governance is required in order to reconcile these differences between Inuit and western societies (Tapardjuk, 2013).

3.7. Inuit-owned Industry and Strengthening Control Over Development

Inuit leaders also recognize that Inuit-owned and controlled industry must also be supported in Inuit lands in order to strengthen Inuit self-determination and institutions of governance (Tapardjuk, 2013). Canadian social historian Ian MacPherson, eloquently stated the purpose of developing industry within the North that is supportive of Inuit and Inuit values (MacPherson, 2009, 160):

“The answer to the problems of the Arctic lies in a long, slow, painful process whereby northern people develop knowledge and skills so they can be effectively and prudently involved in the developing market economies of the Arctic regions and better able to protect their distinctive, northern way of life. If our northern neighbours are ever going to be more than wards of a paternalistic government or pawns in the hands of the big corporations exploiting natural resources, development of the people themselves is the only answer.”

Increasing Inuit-owned industry within the territory of Nunavut would have two positive outcomes: first, the territory would be better able to generate tax revenues with a larger and growing local industry (Henderson, 2007; Tapardjuk, 2013); and second, increased Inuit-ownership would help ensure Inuit control over the industries operating within the territory (Tapardjuk, 2013).

From a fiscal and legislative perspective, the final authority for all territorial government activities and decisions technically rests with the Canadian federal government. Although it is unlikely to have the federal government overturn territorial legislation, the risk remains as long as the territory does not have provincial status. This is because the territory itself is not able to generate enough revenues to pay for expenditures, through taxes or other avenues, and thus depends on federal government transfers. Therefore, due to the continued financial dependence on the federal government, the territory’s authority has yet to be devolved from the national level. (Henderson, 2007; Tapardjuk, 2013; White, 2020)

From another perspective, Inuit-owned and managed industrialization within the territory would better support the position of Inuit at the national and global economic stage.¹³ In the words of

13. It is unlikely, given the geographical, environmental and infrastructural context of the Canadian Arctic that the

Tapardjuk (2013, 92), “Unless Inuit took control over their own commerce and their own enterprises, they would always remain underdogs. Inuit would never get ahead in life and would continue to be product consumers at most.” In order to fully support Inuit, the territory of Nunavut must transition from a territory of consumers to a province of producers (Tapardjuk, 2013).

Industrialization is a key and dynamic force within development. Real, long-term economic development focuses on increasing productivity, incomes, and living standards among the population. This is accomplished through industrialization and increasing manufacturing capabilities (Myrdal, 1957; Reinert, 2008). Furthermore, development through industrialization, including the technological progress and social modernization that results from it, is a substantive and powerful method of improving the social, economic, political, and civil situations of a society (Sen, 1999).

By developing its industrial capability and capacity, a society is able to enhance the strength of its political institutions and increase the resources available to its governments. Thus, an industrialized society is more capable of achieving independence from others, maintaining its values and securing its continued existence (List, 1841/1921). A more advanced and industrialized economy is also better able to exert influence through economic or political means on other economies (Hirschman, 2015). This relationship between industrialization-based economic progress and the strength of public institutions is a powerful argument for industrial development for underdeveloped economies and previously colonized peoples (Myrdal, 1957).

Building up industry in any community will lead to its further development. This is because any new industry in a community will create opportunities for employment and higher incomes, especially for those who were previously underemployed or unemployed. The new industry and the higher incomes of the population creates demand, allowing local businesses to flourish as the

mass export of manufactured goods is viable, ecological or competitive. Instead, modern industrialization in Canada’s Eastern Arctic could be seen as an opportunity for, but not limited to: the development of advanced services or informational and knowledge goods for the local market and for export nationally or globally (Moulier Boutang, 2011); hosting of data centers and digital services for the global market that take advantage of the natural cooling effects of the arctic weather with an additional benefit of recaptured heat able to be utilized for local food production (Ljungqvist et al., 2021); the manufacturing of products for the local market via micro-factories—such as additive or subtractive manufacturing—offering greater customizability of products for local needs, the reduction of transportation distances, and limiting production waste (Kostakis et al., 2016); and advanced scientific and social research given the rising importance of climate change or the recent international interests in remote outposts and interplanetary exploration (Canada, 2020; Osinski et al., 2006).

sales of their products and services increase. An increase in the local market's labour, capital, and business pools attracts other businesses and industries into the community. This creates a virtuous cycle of increasing investments, profits, and savings within the community, which reinforces the increased demand and profits. This cycle repeats and encourages further growth. (Myrdal, 1957)

The understanding that poverty and underdevelopment leads to worsening poverty, reduction in political power and greater disparity between the developed and underdeveloped is as old as human wisdom. The world's most popular tome of the human experience, the Holy Bible, expresses well the understanding of this cycle (Myrdal, 1957):

“For whoever has will be given more, and they will have an abundance. Whoever does not have, even what they have will be taken from them.” (Matthew 25:29, Holy Bible: NIV)

Regions and communities that have not experienced the development of industry and the growth resulting from this development, are not able to afford and maintain important public institutions that encourage industrialization or further development. This institutional inferiority will place less-industrialized communities at a disadvantage from the industrialized communities. (Myrdal, 1957)

Advanced industrial economies exhibit greater quality of life, more economic and societal freedoms, and greater life expectancy with lowered mortality rates (Sen, 1999). However, paradoxically, analysis shows that the historical record of early industrialization and rapid economic growth can be hazardous to public health, social relations, cultural norms, customs and values, and the functioning of government. Therefore, public policy must be in place to ensure that the negative aspects of industrialization are offset (Szreter, 2004).

Upon mentioning industrialization, visions appear of Charles Dickens' Coketown in the novel *Hard Times* where the Victorian-era industrial town lay hidden behind a thick layer of smog and soot that not even the sun could penetrate. Where children labourers toiled over porcelain and working families were unable to make ends meet (Dickens, 1854/1905). However, modern industrialization need not be so destructive of the environment nor exploitive of the people. Technology resulting from and developed during the Information Age have made possible new forms of industrialization that are less impactful on the local environment and more emancipatory than other forms that existed between the industrial revolution in 1770 and of mass manufacturing

in 1908. (Kostakis et al., 2016)

An excellent example of non-destructive forms of industrialization occurring today in the Canadian Arctic is the Inuit Art sector (Arctic Co-operatives Limited, n.d.). Inuit carvings and handicrafts first caught the attention of the Hudson Bay Company in the early-1930s and by the 1950s the company had become a major international supplier of Inuit art (HBC Heritage, 2016a). With the support of Arctic Co-operatives, the popularity of Inuit arts grew rapidly, bringing with it a new Eastern Arctic economic sector. Inuit art has maintained its high value status to this very day providing economic opportunities for many Inuit artists (Tapardjuk, 2013).

One cannot ignore, nor forget, that the notion of supporting industrialism is a strongly western concept. Industrial society carries with it a whole set of cultural values which cannot be expected to already be within other, not yet industrialized, societies. Industrialism implies a rebalancing of cultural values from the preceding norm to those responding to the desires of time, technology, sciences, engineering, and accounting. It cannot be assumed that these values are present within a culture that has not yet been industrialized. (Innis, 1995)

3.8. Education is Another Important Key

In response to this, education that supports Inuit towards running institutions, government and industry must exist. Education, both basic and advanced, is required for any society to have a chance in development and utilizing new technologies to their advantage (Myrdal, 1957).

Inuit recognize that education provides Inuit with the ability to better cope with the Euro-Canadian institutions and global economy that structure Inuit life in the North. This is because, through education, Inuit are better able to understand, operate, and succeed within the western dominated world. Inuit also recognize the importance of being educated in their own language so that Inuit can control institutions and create industries that properly integrate Inuit Societal Values within them (Tapardjuk, 2013).

3.9. Inuit Inclusion and Full-Participation in Development is Required

History has proven that programs and policies—even those with good intentions—can be

destructive to Inuit communities if they do not include Inuit Societal Values (Tapardjuk, 2013). Furthermore, Inuit no longer wish to remain subjects of and held in a perpetual childlike relationship with paternalistic, neocolonial governments (Quassa, 2008). Inuit argue and continuously work toward further development—in governance, technology, and economy—in order to support Inuit society towards reducing or eliminating their dependence on outsiders (Tapardjuk, 2013).

It is too narrow of a focus to consider only economic or technical values when developing programming and policies for public interest. The social issues must also be considered (McMahon, 2013). Equitable and rational development does not spontaneously occur through technical and pecuniary focused decision-making; development is “brought about by policy interferences”. A proper understanding of the society and communities in question is required to adequately respond to the social issues of development (Myrdal, 1957).

Above all, Inuit recognized that they must participate in the decision-making and development of government programs and policies that encourage the appropriation of, access to or dependence on new technologies. In order to be of full benefit to Inuit, these institutions governing technology in Inuit society must be based upon Inuit Societal Values; because, as long as government decisions are based upon another culture’s values, those decisions will not help in supporting Inuit. This inclusion of Inuit and Inuit Societal Values within policy making, regulatory regimes, decision-making, and the development of Inuit-owned industry would lead to Inuit empowerment and strengthening of Inuit society.

3.10. Section Summary

This final narrative spoke of how Inuit society—amidst the harms of colonialism—were not laggards in adopting new technologies that benefitted the Inuit ways of life nor was Inuit society or culture destroyed by modernization. It discovered that Inuit recognized the importance of seizing control over how change occurred in Inuit lands and that Inuit leaders formed strong institutions of governance to respond to and control these changes. Inuit believe that development and modernization must occur in Inuit society in order to be competitive and strong within global society, but at the same time this development must be controlled and formed in a manner that best supports Inuit. In response to this, Inuit formed impressive institutions of governance, settled the largest land claims agreement in history, created entirely new economic sectors, and built Inuit-

owned industries to take control of their economy. To support all of this, Inuit understand that education—in the Inuit language and Inuit methods—is an important key to fostering Inuit development in leadership roles within the institutions and industries that govern technological change and progress.

CONCLUSION

This thesis presented a narrative on the experience of Inuit society with technological change resulting from the forced assimilation of western technologies through colonialism and the response to this by Inuit through the creation of institutions of governance and Inuit-owned industry. The narrative was built upon the experiences and advice of Inuit leaders through their autobiographical texts in a manner that is respectful of the storytelling method of knowledge sharing within Inuit society. Furthermore, the insights from Inuit on technological change and society were supported by historical records and similar conclusions made by leading social scientists.

The research question that this thesis set out to answer was whether or not the following hypothesis is valid:

Inuit held greater agency over the appropriation and integration of western technologies into Inuit society than colonizing forces believed Inuit had or were capable of. That the policies and activities of colonizing agents related to the governance of technologies caused significant harms to Inuit, because technologies inherently change societies and not maintaining control over that change is harmful. Finally, Inuit society's agency over technological change supported Inuit in designing—or co-designing—societal, economic, and governance institutions to manage technological change and appropriation within Inuit lands.

By constructing the historical micro-narratives about Inuit society, colonialism, technological change, and responding to this change the thesis discovered important conclusions related to the hypothesis. In summary, the discoveries made in each of the three micro-narratives are:

- First, that the forced assimilation of western technologies, institutions and ways of living into Inuit society by colonialism was, and continues to be, destructive to Inuit communities. Colonialism also limited the capacity of Inuit to adapt western technologies and institutions to best support the Inuit way of life. This domination over Inuit technologies, institutions, and ways of living by western forces remains an issue today that reduces the capacity of

Inuit to adapt modern technologies to best support Inuit society.

- Second, that all societies must contend with technological change. Due to this, these changes to a society will occur whether or not that society wishes for it to happen. In order for a society to benefit most from these technological changes or to protect their ways of living from a dominant paradigm, those societies must have control over how new technologies are or are not integrated into the society. If a society does not have this control, the results of technological change are harmful to that society. The thesis also found that Inuit do not want to be left behind the progress made in the modern-day world. However, Inuit want control over how progress and technological appropriation is achieved in order for Inuit to be able to create a synthesis between the traditional Inuit ways of living and modern technologies.
- In the third narrative, the thesis spoke about how Inuit society—amidst the harms of colonialism—were not laggards in adopting new technologies that benefitted the Inuit ways of life nor was Inuit society or culture destroyed by modernization. Inuit recognized the importance of seizing control over how change occurred in Inuit lands and that Inuit leaders formed strong institutions of governance to respond to and control these changes. Inuit believe that development and modernization must occur in Inuit society in order to be competitive and strong within global society, but at the same time this development must be controlled and formed in a manner that best supports Inuit. In response to this, Inuit formed impressive institutions of governance, settled the largest land claims agreement in history, created entirely new economic sectors, and built Inuit-owned industries to take control of their economy. To support all of this, Inuit understand that education—in the Inuit language and Inuit methods—is an important key to fostering Inuit development in leadership roles within the institutions and industries that govern technological change and progress.

The thesis' narrative also considered a number of challenges presently facing Inuit society with regards to technological change, institutions of governance, and industry, such as:

- Colonialism, through the guise of neo-colonialism, continues to be an issue that Inuit society and institutions must contend with;
- The dominance of western governance models and science devalues Inuit models of governance and knowledge systems;
- Significant attention is placed on harmful, resource-extracting activities instead of

industrialization activities that would best support Inuit development and protection of Inuit lands; and

- Not all promises made, through the Nunavut Land Claims Agreement, are being achieved which limits the capacity for Inuit to strengthen their institutions of governance and Inuit-owned industries.

In short, a succinct answer to the thesis' research question—wherein the hypothesis is found to be correct—is as follows:

Inuit recognized that not having control over technological and societal change, resulting from the forced assimilation of western technologies and ways of living through colonialism, was harmful to Inuit society. Inuit exerted their agency over these changes by forming institutions of governance and Inuit-owned industries that responded to the dominance of western society's ways of living and supported Inuit society in adapting to the unrelenting forces of technological change and progress in the global world.

This exposition of Inuit society's response to technological change through institutions of governance and industry, including the limitations on research resulting from the COVID-19 pandemic, leaves important research questions to be answered by future work. Research conducted on this topic could achieve the following:

- Learn from much broader sampling of Inuit perspectives, through interviews with Inuit leaders and community consultations, about how Inuit are responding to technological change through institutions of governance and industry; and
- Explore how Inuit society can be better supported in responding to the challenges facing Inuit institutions of governance and industry within the dominant western paradigms, continued colonial attitudes, and rapid technological changes.

It is the author's hope that this thesis has contributed to the understanding and sensitivity towards Inuit society, technological change and the importance of supporting Inuit institutions that operate in the Inuit way. It is also hoped that this thesis spurs future research and interest by technology governance academics and researchers on this important topic. Through mutual respect, understanding and sensitivity we—as a global community—can work together to achieve prosperity, foster development, and govern technological change that best supports Inuit and other

cultures around the world.

* * * *

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