

A new innovative method to evaluate public news broadcasting: Preserving democracy, culture, and identity during the first AI revolution

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Abstract

As the first AI revolution rapidly eliminates numerous journalism, reporting, and news writing jobs, the debate over taxpayer-funded public broadcasting entities in some countries gains momentum. The potential threats posed by AI-generated content, unregulated or self-regulated social media, and radical social networking sites to public opinion and election results are concerning. This study presents the first cost-benefit analysis of publicly funded broadcasting, with a focus on the CBC/Radio-Canada. The benefits are estimated using mathematical models via the mass (Canadian Newsstream database) and social media (YouTube). CBC/Radio-Canada has contributed 471,706 newsprints via the news wire, while also generating 126,436 videos across 16 YouTube accounts, with 4,031,467,452 views and 8,065,340 subscribers, resulting in a benefit-to-cost ratio of $2.17 \times 10^5:1$. Therefore, CBC/Radio-Canada, as a taxpayer-funded entity, is highly cost-effective and efficient. CBC/Radio-Canada further contributes billions of dollars annually to the local and national economies, while also playing a vital role in preserving the cultures and identities of its many nations, promoting official languages, multiculturalism, tolerance, national cohesion, and international influence, and, most importantly, democracy in an ever-changing world. It is recommended that CBC/Radio-Canada begin offering more Canadian news and content in local, rural, French, Indigenous, Inuit, and other languages.

Keywords

Canadian broadcasting corporation, Radio-Canada, democracy, Canada

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Introduction

During the First and Second Industrial Revolutions (1750 – 1900), mass media growth and development via cheaper printing technology, telegraphs, photography, film, electricity, radio, and faster transportation via steamboats and trains allowed the distribution of news, new ideas to reach the masses, and thus changed the world (BBC, 2025; Jozaghi, 2025; Jozaghi and Jozaghi, 2024). Since that noted period, newer forms of media, such as TVs and the Internet have become prominent, where similar to older media (e.g., news paper and radio), the new platforms can now acts as “connectors of life” in many societies potentially promoting “helping others, political engagement, and [encouraging] membership in different kinds of organisations” (Puppis and Ali, 2023: p. 83). Neff and Pickard (2024) examined different media models across dozens of countries and found at least five broadcasting models, ranging from state-administered to corporatist-only platforms. Based on previous studies, the most successful and arguably the best models for promoting democracy and the rule of law have been identified as publicly funded national broadcasters (Neff and Pickard, 2023, 2024). However, for-profit international mass media growth and the exponential growth of unregulated social media have increasingly distorted the previous forms of media and thus their effectiveness in promoting national cohesiveness, public good, and democracy (Jozaghi, 2025; Jozaghi and Jozaghi, 2024; Keane, 1995).

Moreover, the power of social and mass media, as well as their coverage of international events, may even inadvertently help fringe parties or politicians get national and international attention (Jozaghi, 2025; Jozaghi and Jozaghi, 2024). The Hamas war, for example, helped a fringe anti-Muslim/anti-immigrant/xenophobic party in the Netherlands to get the most votes in the 2023 elections, while parties and discourse promoting antisemitism, islamophobia, and anti-immigrants have been on the rise across the globe (Abboud et al., 2023; CBC News, 2024a; Jozaghi, 2025; Jozaghi and Jozaghi, 2024). Anti-immigrant and refugee discourse of Make America Great Again (MAGA) movement projected in the US unregulated social and mass media, despite scientific evidence of immigrants benefiting the economy, and filling the gap in the job market, mirrors antisemitic discourse during the rise of the Nazis movement in Germany (Becerra et al., 2012; Jozaghi, 2025; Jozaghi and Jozaghi, 2024; Leiva et al., 2020).

Despite such challenges, some politicians in Canada, the US under MAGA, and Europe are raising questions about the value of publicly funded broadcasters to eliminate programs, cut costs, or withdrawing all funding in the age of misinformation, disinformation, and profit-driven international news that contributes to polarization and conspiracy theories (Aïmeur et al., 2023; Barnett, 2010; CBC news, 2024b; Elliott, 2023; Gohil, 2024; Jokinen, 2023; Taylor, 2023; Folkenflik, 2025). It has been evident that many profit-driven news and broadcasters are not driven by the best journalistic practices or principles, instead generating profits comes first (Aïmeur et al., 2023; Barnett, 2010; CBC news, 2024b; Elliott, 2023; Gohil, 2024; Jokinen, 2023; Taylor, 2023). Furthermore, many small and local newsprint companies across Canada have been forced to shut down due to a lack of profitability and a shift in consumer behavior toward more online content (CBC News, 2024b; MacDonald, 2024; Nanji, 2024).

Therefore, how can nations combat the growing threat to journalism, democracies, and an ever-changing world, which is being challenged by rapid economic and social media changes linked to the first Artificial Intelligence (AI) revolution? What role can publicly funded broadcasters play during the age of disinformation, misinformation, and the exponential growth of social media, including radical, unregulated, and self-regulated networking sites? Does publicly funded journalism still play a pivotal role in reporting balanced news (e.g., based on facts and non-partisan/non-political)? Can publicly funded broadcasters promote the national interest, democracy, and public good when their operations are not driven exclusively by generating profits? To answer the above questions, the Canadian Broadcasting Corporation (CBC)/Radio-Canada has been selected as a case study, representing a publicly funded broadcaster, to demonstrate the tangible benefits of such a unique institution during the age of the first AI revolution. Below, the implication of the first AI revolution for journalism and democracy is discussed before diverting into the theoretical underpinning of journalism as a promoter of public good, democracy, and its positive contribution to a society's cultural heritage, identity, and social fabric inline with museums, cultural sites, national parks, hospitals, and universities (Brevini, 2013; DeCillia and McCurdy, 2016; Raboy, 2003, 2006; Raboy and Price, 2003; Rowland, 2013).

First AI revolution

The term “artificial intelligence” or “AI” specifically can be translated to mean innovative machines that can complete tasks that would have previously required human intelligence (Schuett, 2019). Today, AIs and their applications are utilized for many unique tasks and operating systems, such as engineering, self-driving cars, traffic control, writing, entertainment, music, and medical diagnoses (Schuett, 2019). The first AI revolution has already begun, and an irreversible prospect is that AI will replace and enhance human intelligence, much like the industrial revolutions, which, since the 1760s, have begun to take over human labor in the mode of production (Jozaghi, 2024a, 2024b; Makridakis, 2017). However, the labor transformation during the first AI revolution will be significant, much shorter, and more dramatic than the industrial revolutions in the past periods, with profound implications for journalism, and therefore for overall society and democracy (Jozaghi, 2024a, 2024b, 2025; Jozaghi and Jozaghi, 2024; Makridakis, 2017). In addition, the potential destructive power of social and mass media, combined with the influence of AI in promoting disinformation and misinformation, changing election results, will become more significant with the evolution of AI technologies (Collier, 2024; Jozaghi, 2025; Seldin, 2024; Wilson, 2024).

Currently, AI applications are programmed for specific and limited skills and tasks being supervised by humans (Triguero et al., 2024). However, it is foreseeable that more advanced, generalized AIs can complete and solve many tasks, filling the workforce gap without being specifically designed or programmed (Triguero et al., 2024). Therefore, an AI can possess general intelligence capable of completing complex tasks like humans or surpass human intelligence, which has been an unachievable aspiration and potentially a societal risk (Triguero et al., 2024). However, the recent development of General-Purpose

Artificial Intelligence Systems (GPAIS) is making the aspiration of AI performing any task better than humans become a reality in the coming years (Triguero et al., 2024).

It has become evident that GPAIS will soon perform more complicated jobs in entertainment, IT, driving, journalism, engineering, arts, and customer services, which will either be complemented or wholly replaced by AIs (Parkin, 2024). While many noted jobs would not require education, others would have required it (e.g., engineering, journalism, and IT) (Parkin, 2024). Disappearance of many high- and low-paying jobs in journalism due to the rise of AI will impact employment rates and, more importantly, the quality of journalism, democracy, society, and cultural heritage. Below, the theoretical discussion further highlights the importance of journalism that is partially or fully funded by the government as a public good, contributing to a society's democratic, cultural, and social life (Brevini, 2013; DeCillia and McCurdy, 2016; Raboy, 2003, 2006).

Theoretical underpinning

Canada, the United Kingdom of Great Britain and Northern Ireland (UK), and many European Union (EU) countries face a public service broadcasting crisis (Allsop, 2024; Gohil, 2024; Golding, 1995; Katz, 1996; Keane, 1995; Padovani and Tracey, 2003). In effect, Katz (1996) suggested that the 'shared public space' has become non-existent with the increased exponential multinational profit-driven TV, satellite, and Internet. Previously, during the industrial revolutions, newsprints were the medium for national cohesiveness and cultural heritage; later, radio and national TV broadcasters became the medium; however, with the increased exponential growth of social networking sites and the Internet, the medium for national discussion, cultural heritage, and cohesiveness has become fragmented, and disjointed (Katz, 1996; Taylor, 2013). Thus, with the elimination of the last joint meeting ground/space for public discourse based on theories of determinism, the cohesion of nations and their cultural heritage and identity linked together via such a medium is in real jeopardy (Katz, 1996; Taylor, 2013).

Similarly, Keane (1995), after the exponential growth of multi-national-profit-driven corporations and later the Internet and unregulated social networking sites, suggested that "the conventional ideal of a unified public sphere and its corresponding vision of a republic of citizens striving to live up to some "public good" are obsolete" (p.1). In other words, during the initial stage of the first AI revolution, society has become a "complex mosaic of differently sized, overlapping, and interconnected public spheres" (Keane, 1995: p.1; Keane, 2018: p. 60). Such restructuring during the early 1990s and now the initial stage of the first AI revolution has forced politicians and policymakers to revise their understanding of "public life and its "partner" terms, such as public opinion, the public good, and the private/public distinction" (Keane, 1995: p. 1; Keane, 2018: p. 60). It can be argued that without a robust and well-funded public broadcasters and government regulation of social media, the "public good" and "public opinion" will become increasingly fragmented and highly polarized, which is detrimental to politics, public opinion, and democracy, as seen during the rise of MAGA's Trumpism in the US (Keane, 1995)

Furthermore, public broadcasting's contribution to liberal democracy is arguably the most significant contribution during the first AI revolution because CBC/Radio-Canada

and many other public broadcasters around the world help combat misinformation and disinformation and promote public good (Born, 2005; Curran, 1991, 2006; Curran and Seaton, 1997; Dahlgren, 2002; Garnham, 2000; Hendy, 2013; Rowland, 2013, 2015; Scannell, 1996; Scannell et al., 1992). It can be argued that the evolution of democratization has been strengthened by the rise of mass media and now social media, where people have become empowered by the free press, Internet, and social media (Curran, 2002). Press and speech freedoms have been enshrined in many Western and non-Western democracies due to the mass media's critical role in serving the "public good" and keeping the government and elected officials responsible for their actions, policies and platforms (Born, 2005; Curran, 1991, 2006; Curran and Seaton, 1997; Dahlgren, 2002; Garnham, 2000; Hendy, 2013; Keane, 1995; Rowland, 1996, 2013, 2015).

Public broadcasters like CBC/Radio-Canada can be further argued to have essential civic, cultural, and institutional qualities that help maintain and sustain diverse, multi-lingual, multireligious, multicultural countries such as Canada during the age of AI and social media (Raboy and Taras, 2007). Raboy and Taras (2007) maintain that the CBC/Radio-Canada is an "essential [instrument] of national culture, civic engagement, and public life" (p. 101) during an era in which "public life" and medium for cohesiveness have become disjointed and increasingly polarized. Therefore, a cost-benefit analysis based on tangible values (e.g., social and mass media) is needed to go beyond some of the indirect values of CBC/Radio-Canada that are too difficult to evaluate. While previous economic evaluations of public broadcasters have been focused on direct job creation and advertisement revenues, a new review is needed to comprehend the tangible values of social and mass media during the age of the first AI revolution.

Rationale and research questions

It is critical to place values on tangible factors to estimate the benefits of a mass media organization that promotes Canadian identity, culture, tolerance, and multiculturalism in an era of AI, globalization, and social media encroaching on Canadian society. While most economic impact studies may only focus on the direct financial impact on job creation and contribution to the local economies in independent film and movie production, understanding the impact of CBC/Radio-Canada on social media and the traditional forms of mass media is critically important and often neglected.

While obtaining the daily TV and radio audience of CBC/Radio-Canada is challenging, acquiring accurate data via CBC/Radio-Canada's various YouTube channels is arguably much more accessible. Moreover, the impact of mass media can be estimated via newswires linked to CBC English language, and more comprehensive news coverage via the Canadian Newstream database. Subsequently, the outreach, engagement, impact, and influence of CBC/Radio-Canada can be estimated by placing a monetary value on each additional newswire, subscriber, video, and view. Therefore, the cost-benefit ratio is generated by comparing the cost of running the CBC/Radio-Canada to its benefits (generated via social and mass media).

Methodology

The mathematical models used in the study relied on CBC/Radio-Canada's impact via YouTube and newswire generated in newspapers, magazines, and other articles. As shown in [Table 1](#), CBC/Radio-Canada has 16 YouTube accounts that create thousands of videos annually with billions of views and millions of subscribers since inception.

CBC newswire items are generated daily in other local or national newspapers based on CBC reporters and journalists who generate online news. The Canadian Newsstream database goes back to the 1970s and has been compiled from many local and national print newspapers, magazines, and other printed articles ([Jozaghi and Jozaghi, 2024](#); [Jozaghi & VANDU, 2022](#)). As seen in [Table 2](#), the newspapers, magazines, and all other articles shaped by CBC/Radio-Canada journalists and reporters, such as newswires, are listed.

Mathematical models allow the estimation of benefits based on the odds ratio of social and mass media impact.

Costs

Deloitte and Touche conducted CBC's previous economic estimation, which reported that the broadcaster cost the taxpayer \$1.1 billion annually up to 2015 ([CBC News, 2011](#)). The

Table 1. The activity of YouTube accounts for CBC/Radio-Canada since its inception.

YouTube channels linked to CBC-radio Canada	Number of videos produced	Number of subscribers	Number of views	Joined (years)
CBC News	30,853	3,600,000	2,074,476,148	10
Radio-Canada (French)	36,969	785,000	357,988,247	13
CBC News: The national	30,384	1,730,000	1,103,914,422	17
CBC Sports	9,493	205,000	217,226,371	11
CBC Docs	408	257,000	55,666,922	7
CBC Kids	3,935	155,000	81,844,443	10
CBC Comedy	2,306	225,000	2306	10
CBC 22 Minutes	1,192	248,000	67,857,898	16
CBC Vancouver	7,993	99,300	72,433,527	13
CBC Alberta	300	2,500	859,197	0.4
CBC Saskatchewan	6,976	24,200	19,618,564	8
CBC Manitoba	3,250	15,600	6,177,511	14
CBC Toronto	160	1,440	567,927	0.5
CBC Nova Scotia	1,448	21,800	10,538,534	12
CBC NL (Newfoundland and Labrador)	5,003	694,000	43,869,052	8
CBC North	662	1,500	273,132	3
Total for all accounts	126,436 ($\mu = 10,536$; $\sigma = 2501$)	8,065,340 ($\mu = 504,084$; $\sigma = 909,689$)	4,031,467,452 ($\mu = 287,961,961$; $\sigma = 27,538,677$)	152.9 ($\mu = 9.6$)

Date of data collection: 2024-2025.

Table 2. The Mass media impact of CBC/Radio Canada for five decades via newswires.

Mass media content and dates	Counts
News Paper	297,707
Magazines	134
All other articles [Blogs, Podcasts, & Websites + Reports + other sources]	173,865
1970-1979	360
1980-1989	12,862
1990-1999	73,968
2000-2009	150,819
2010-2019	150,819
2020-2023	83,288
Total	471,706

Date of data collection: 2024.

taxpayer cost has increased to \$1.24 billion in 2022 (CBC News, 2024c). CBC-Radio Canada generates revenues for 30% of its annual operating budget, while the remaining 70% comes from government funding (CBC News, 2024c). Therefore, the current study relied on a \$1.24 billion value of 2022 for the cost linked directly to the taxpayer, as it is the most recent and up-to-date cost (CBC News, 2024c).

Benefits

While previous costing studies have focused on CBC's direct benefits in creating jobs and contributing to the economy, a recent economic evaluation demonstrated the tremendous benefits of social and mass media in affecting public opinion as a "soft power strategy" while promoting democracy (Jozaghi and Jozaghi, 2024). Therefore, this study uses mathematical models employed in previous costing studies to place monetary values linked to CBC/Radio-Canada's YouTube and mass media in affecting public opinion by promoting Canadian values, democracy, and multiculturalism.

YouTube

Based on the equation below, A represents YouTube's total impact, b symbolizes the number of videos, c symbolizes the number of views, d symbolizes subscribers, and e is the impact via its odds ratio:

$$A = d * \left[\frac{b + c}{e} \right]$$

Values for the above equation are reported in Table 3.

Table 3. The values utilized for the benefit and cost ratio via mathematical equations.

Variables	Values	Notes
Total annual cost of CBC/Radio-Canada	\$1.24 billion	CBC News [2024c] ; CBC News [2011]
The total annual number of videos for CBC channels (b)	13,170	Estimated via data collection
The total annual number of subscribers for all channels (d)	840,140	Estimated via data collection
The total annual number of views for all channels (c)	419,944,526	Estimated via data collection
Odds ratio of impact/return on investment (e)	1.93 (1.54; 2.36) ^a	Allom et al. [2018] ; Tsaltzkan et al. [2023]
Total impact of YouTube annually (A)	1.83×10^{14} (2.29×10^{14} ; 1.495×10^{14}) ^a	Estimated via the model
Total number of English speakers in Canada (g)	27,600,000	Statistics Canada [2022]
The total annual number of newspapers written about the CBC news wire (h)	5513	Estimated via data collection
The total annual number of magazines written about the CBC news wire (i)	3	Estimated via data collection
Odds ratio of impact/return on investment (k)	0.0028 ^b (0.0036; 0.002) ^a	Farrelly et al. [2007]
The total annual number of all other articles written about the CBC news wire (j)	3212	Estimated via data collection
Total number of mass media impact of CBC annually (F)	8.6×10^{13} (6.7×10^{13} ; 1.2×10^{14}) ^a	Estimated via the model
Total mass and social media impact of CBC combined annually (L)	2.69×10^{14} (2.96×10^{14} ; 2.695×10^{14}) ^a	Estimated via the model

^aThe numbers in parentheses represent the sensitivity analysis.

^b(2.8% odds ratio for every \$1000 spent).

Mass media

Mass media values are based on newswire data from CBC/Radio-Canada reporters and journalists. The mathematical model used is based on data reported in [Table 3](#).

Where F is the mass media's total impact, g is the estimated number of speakers of English language in Canada, h is the newswires that generated the total newspaper articles, i is the magazine articles' total generated linked to the newswires, j is the final added number of other articles combined linked to newswires, and k is the impact (e.g., odds ratio):

$$F = g * \left[\frac{h + i + j}{k} \right]$$

The last model below is the weighted value of total benefits, L , linked to social and mass media of CBC/Radio-Canada:

$$L = F + A$$

It is essential to highlight that the above-noted symbols, including letters for social and mass media and mathematical notations, represent the relationships and different variables. The overall model thus helps convey the proper phenomenon and precise estimated values (McClung, 2023).

Validity and reliability

Like quantitative, mixed-method, and qualitative research, reliability and validity are critical in cost-benefit studies (Jozaghi, 2024c). Previous research concluded that there is no universal technique for determining the model's validity; each mathematical model requires assessment in the study context (Buxton et al., 1997; Eddy, 1985; Sheldon, 1996). Similarly, examining the model transparency, the data's origin, the coherence of the study's research questions, and the appropriateness of the sensitivity analysis is crucial. Furthermore, previous costing studies have established guidelines and criteria to enhance the assessment of the mathematical models in economic evaluations; these included: "(1) simplicity of the model; (2) transparency of the results; (3) quality of the data utilized; (4) sensitivity analysis usage to account for any uncertainties; and (5) comparing the model against other costing studies" (Jozaghi, 2024c).

The cost-benefit report falls within the guidelines required for determining validity and reliability because the models employed in this analysis have been employed by previous peer-reviewed evaluations that have also examined similar contexts (e.g., mass and social media) (Allom et al., 2018; Clayforth et al., 2014; Jozaghi and Jozaghi, 2024). The models are simplified, and the parameters are based on transparent data collection via the World Wide Web. As shown in Tables 1, 2, and 3, the source of each mathematical parameter is displayed with subsequent references. The sensitivity analysis utilized in the current study is 20% for the parameters shown in Table 3, specifically, the odds ratio of impact (Allom et al., 2018; Clayforth et al., 2014; Jozaghi and Jozaghi, 2024).

Results

As shown in Table 1, 16 YouTube channels linked to CBC/Radio-Canada created over 126,436 ($\mu = 10,536$; $\sigma = 2501$) videos, 4,031,467,452 ($\mu = 287,961,961$; $\sigma = 27,538,677$) views, and 8,065,340 ($\mu = 504,084$; $\sigma = 909,689$) subscribers since joining YouTube. The average annual value is estimated at 419,944,526, 13,170, and 840,140 for views, videos, and subscribers, respectively, for the average of 9.6 years since CBC/Radio-Canada began using YouTube as an additional outlet to disseminate content further. Consequently, the annual benefit-cost ratio for YouTube alone is 1.48×10^5 : 1.

Mass media results linked to newswire-generated 297,707 newspaper articles, 134 magazines, and 173,865 other articles since the 1970s, totaling 471,706 articles, as shown

in Table 2. This translates to an annual total of 8,735 articles for 54 years of data. The data in Table 3 also indicates 5513 newspapers, three magazines, and 3212 other articles annually. These values produce an annual benefit-cost ratio of 6.9×10^4 : 1, as obtained from Table 3. Therefore, social media (e.g., YouTube) generates more benefits than mass media (e.g., newswires), once again confirming the power of the new medium of media (social media, podcasters, and social media influencers).

Table 3 results show the total value of the benefit-cost ratio of 2.17×10^5 : 1. The sensitivity values in parentheses indicate different ranges within the expected estimation. For example, the upper limit of the benefit-cost ratio based on sensitivity analysis for YouTube was 1.847×10^5 : 1, while the upper limit value for mass media was 9.7×10^4 : 1. The sensitivity analysis values for YouTube for the lower limit estimation was 1.21×10^5 : 1, while the lower estimates were 5.4×10^4 : 1 for the impact of mass media. Finally, the sensitivity analysis for the combined social and mass media impact for the upper limit was 2.39×10^5 : 1, while the lower limit was 2.17×10^5 : 1.

Discussion

As this research has demonstrated, the annual cost-benefit ratio aligns with previous research in this domain. For example, previous studies demonstrated that CBC contributes to the local economy, with benefits reaching CAN \$3.7 billion annually via job creation and direct and indirect economic contributions (CBC News, 2011). Therefore, this estimate in the current study aligns with a previous costing study, which estimated a return value of 2.26×10^5 for every dollar spent only on YouTube and mass media newswires. Based on the previous evaluations, CBC/Radio-Canada costs the taxpayer a dime daily (CBC News, 2024c). Therefore, “CBC/Radio-Canada is one of the worst-funded public broadcasters in the world, with four times less funding than the U.K. (BBC) and France (France 24) and eight times less than Germany (DW)” (CBC News, 2024c). The cost-benefit ratio also showed that CBC/Radio-Canada should be expanded as the benefits far outweigh the costs. Some reports show that CBC/Radio-Canada reaches seven in 10 Canadians monthly via TV, radio, social media (e.g., X [formerly known as Twitter], Instagram, Facebook, & Snapchat), and other available avenues (CBC, 2024a).

Beyond the significant direct and indirect benefits associated with CBC/Radio-Canada, the public broadcaster can also be viewed as an “essential civic institution” that facilitates the sustenance and connections to a multilingual, multi-religious, diverse, and multi-cultural society (Raboy and Taras, 2007). It can be argued that national broadcasters promote national identity, culture, and heritage via their programming, films, and engagement (Raboy and Taras, 2007). Some researchers have compared public broadcasters such as the CBC/Radio-Canada to museums, hospitals, cultural sites, and universities not only because they can act as promoters of cultural heritage but because they can “enhance public life and enrich individual lives” (Rowland, 2013: p. 8).

DeCillia and McCurdy (2016) compare CBC/Radio-Canada to a critical public service organization. Unsurprisingly, a 2013 survey reported that 80% of eligible Canadians agreed that “CBC plays an important role in strengthening Canadian culture and identity” (Nanos, 2019). Furthermore, thousands of Canadians observed “We Vote CBC!” signs

among all the political signs during the 2015 federal election across Canada, demonstrating Canadians' appreciation of the national broadcaster (Anderson and Kohut, 2024; Bain, 2015; Friends of Canadian Media, 2024; Nanos, 2019).

Moreover, Benkler et al. (2018) maintain that nations with well-funded public broadcasters (e.g., Germany) are more immune to the toxic influence of misinformation, disinformation, and conspiracy theories, and are less affected by mass polarization. In effect, the rise of MAGA movement in 2016, where a political leader would do anything to get elected (e.g., foreign adversary or ultra rich tech-oligarchies), promote misinformation, conspiracy theories, lying, divisional policies, break the oath of office to stay in power indefinitely at any cost to the nation, and later pardon the coup rioters as his first directives as the 47th president in office to reward pure royalty, like many autocrats in the past century, is a reality of the age of AI, lack of well funded public broadcasters, and polarizing politics (Applebaum, 2024; Friedman, 2025; Jackson, 2025; McAdams, 2024; Stanford Law School, 2025; Wintemute et al., 2024). MAGA's tariff economic utopia policies are increasingly pushing the US toward failed socialist economies, such as Cuba and Venezuela, that has brought nothing but high inflation, corruption, high unemployment, poverty, and shrinking GDP (Di Martino, 2019). Saurwein et al. (2019) further highlight that those nations with well-funded public broadcasters "achieve higher market shares, stronger relevance as an information source and greater trust in independence from external constraints" (p. 304).

In other words, CBC/Radio-Canada remains one of the pillars against misinformation and disinformation in the initial stage of the first AI revolution. While many non-democratic countries rely on controlling mass and social media to shape public opinion and extend their regime's survival, freedom of the press, expression, and association are core fundamental rights in democracies (Marauhn, 2007). Freedom of the press, expression, and association has allowed democracies to thrive. Multi-language publicly funded news platforms, Radio Free Europe, Radio Free Asia, BBC, Voice of America (VOA), Deutsche Welle (DW), Japan's Nippon Hōsō Kyōkai (NHK), France 24 en direct, Australian Broadcasting Corporation (ABC), Spanish television (Televisión Española, or TVE), and Korean Broadcasting System (KBS) have allowed access to information for billions who have not been able to access truthful news since WW II (Johnson, 2017). The non-partisan and publicly funded free press has allowed citizens to hold their elected representatives accountable for their actions and promote democracy (Snyder and Stormberg, 2010).

The growth of social media and networking sites (e.g., Facebook, X, WhatsApp, YouTube, Instagram, Snapchat, Pinterest, Reddit, LinkedIn, and many more) has enabled the exponential growth of freedom of expression, press, and association worldwide (Coyle and Vaughn, 2008). Like the growth of mass media and communication (e.g., telegram, phones, photography, film, radio, electricity, and cheaper printing methods) shortly after the industrial revolutions (the first and the second), the exponential growth of media (social and mass) during the first AI revolution thanks to Internet has great potential to reach international audiences in promoting democracy, and human rights worldwide (Jha & Kodila-Tedika, 2020; Ortiz-Ospina, 2019; Zanzoun, 2017).

In effect, it is not surprising that China, Russia, Iran, North Korea, Cuba, Venezuela, and many others fear social media/networking sites and the Internet the most and, over the past decades, have gone to curtail access to free Internet, social networking sites, foreign language media, reporters, journalists, bloggers, and news content (Belovodyev et al., 2023; Coleman, 2024; Zhang, 2024). In effect, most social networking sites, such as Facebook, X, YouTube, and Google, are banned and blocked in Iran, China, Russia, and North Korea, and state-controlled similar social media and search engine entities are promoted as alternatives (Belovodyev et al., 2023; Bond and Allyn, 2022; Talmadge, 2016; Tilley et al., 2024; Zhang, 2024). The slowdown of Internet service and outage of Wi-Fi during each Iranian uprising against religious fundamentalists is evidence of the enormous potential of the Internet and social media in shortening the autocratic regime's survival (Burgess, 2022; Iran International Newsroom, 2022).

However, similar to the rise of Bolsheviks and Nazis, who capitalized on the innovation of mass media after the industrial revolutions to expand their destructive propaganda, fake news, conspiracy theories, fake promises (e.g., free bread promises for the poor affected by economic ruins of WWI in the Russian Empire by Bolsheviks, and "make Germany great again" during Nazis rise to power after devastation of the great depression) the expansion of social media and the Internet during the first AI revolution has also allowed the adversaries and internal enemies to capitalize on the strength of democracy, the free press, to weaken democracies and the rule of law via hacking, fake news, fake videos, unregulated radical chat groups, social media influencers, podcasters, unregulated social networking sites, long term political asset development, and AI content to change public opinion toward a candidate or a movement more favorable to their maligned goals as already seen in the rise of MAGA and the successful Brexit (Applebaum, 2017; Applebaum, 2024; Denisova, 2017; Harold, 2021; Jozaghi, 2025; Jozaghi and Jozaghi, 2024; Lucas, 2025; Mackinnon, 2020; Office of the director of National Intelligence, 2023; Rosenfeld, 2019; Seldin, 2024; Smith, 2021; Unger, 2019; Unger, 2022; Wintour and Mason, 2014; Steerpike, 2022; Cadwalladr and Jukes, 2018; Batey, 2024).

Subsequently, CBC/Radio-Canada has the potential to remedy the growing threat to Canadian democracy, identity, and cultural heritage (English speakers, the Québécois, Indigenous, Inuit, and Métis nations) during the first AI revolution by expanding Canadian news and media content based on ethical practices that promote the respect of human dignity, human rights, and diversity and promote positive dialogue, fairness, integrity, accuracy, while providing balanced/non-partisan perspectives based on facts and not profits (Achi, 2024). Unlike unregulated social media, foreign media, social media influencers, and radical podcasters/online content outside Canada, CBC/Radio-Canada is governed by journalistic standards and integrity and is monitored by the Canadian Radio-television and Telecommunications Commission (CRTC) (Achi, 2024). CBC's expansion (based on this study's results) of Radio-Canada French language, Indigenous and ethnic channels, such as CBC Inuinnaqtun, CBC Inuktitut, CBC Cree, CBC Ojibway, CBC Mandarin, CBC Hindi, CBC Panjabi, CBC Urdu, CBC Arabic, CBC Spanish, CBC Filipino, and other languages, has the potential to give a safe alternative to

the growing encroachment of foreign media, MAGA movement, adversaries, and states on the Canadian mass media, public opinion, and Canadian democracy.

Limitations

This analysis did not consider CBC/Radio-Canada's intangible values (such as preserving Canadian identity, culture, multiculturalism, French language/culture/identity, democracy, reporting on Indigenous, Inuit, and Métis and international issues), and being nonpartisan, based on good journalism, and not profits. The noted intangible values are the most valuable assets of a national broadcasting corporation. Furthermore, the current analysis omits CBC/Radio-Canada's presence on Facebook, X (formerly Twitter), Instagram, Snapchat, and other social media platforms. Moreover, CBC/Radio-Canada's most important value is its TV and radio outreach, which was omitted in the current analysis.

The equations utilized for projecting benefits portray the benefits linearly, whereas, in reality, such a growth model would project the saturation limit. Subsequently, a logistic model could have projected more realistic scenarios. Despite the noted shortcomings, the sensitivity analysis facilitated the estimation of costs and benefits based on reality. In addition, social media models place equal value on each user effort, such as liking or commenting on YouTube, or being a subscriber. However, actions like being a YouTube subscriber generate greater influence and should receive more significant weight. This research also does not include the likes or comments added on YouTube channels, potentially underestimating benefits.

Moreover, the social media effects in this analysis only included English, as the Canadian Newstream does not provide any data on French, Inuinnaqtun, or Inuktitut. Furthermore, it can be argued that some CBC/Radio-Canada channels and programs, such as CBC Kids, CBC Comedy, and CBC 22 Minutes, do not contribute to the democratic aspects of a publicly funded broadcaster. Moreover, CBC/Radio-Canada hosts or sponsors numerous arts and literature awards, including the CBC Literary Prizes, which promote Canadian culture, literature, arts, and innovation (CBC, 2024b). Finally, the benefits of the CBC Gem, a digital gateway network, were omitted in this research. Consequently, it can be concluded that the economic evaluation ratios of the current research are heavily underestimated.

Conclusion

Recently, the German security establishment permanently closed a newspaper linked to the far right due to its increased willingness to promote "revolution," coup, and violent overthrow of democratically elected governments (DW, 2024a; 2024b). Belgian French nation of Wallonia's public broadcaster, RTBF, has tightly controlled coverage of far-right rhetoric, thus preventing destructive rhetoric from taking hold by enforcing the "cordon sanitaire" or sanitary barrier (Joyner, 2024). Such media policy has kept the extreme parties at bay, while in the Flanders Nation of Belgium (Dutch-speaking), the lack of such media rules has helped the far-right parties win major successes (Joyner, 2024). The rise

of conspiracy theories, fake news, radical podcasts, social media influencers, online hateful content, and radio has been linked to the rise of ultra-nationalist, radical left/right, populist, Trumpism, anti-free-trade, anti-monarchist, anti-NATO, anti-EU, and anti-immigrant groups throughout the world (Aratani and Smith, 2025; Mannie, 2024; Wilson, 2024; Boynton, 2024; DW, 2024c; France 24, 2024; Sarkar, 2024; Turner, 2024).

The value, authority, and outreach of Canada's only publicly funded broadcaster continue to be debated in parliament, where the previous Canadian governments (conservatives or liberals) have not only slashed the funding to the organization over the years but most recently, the official leader of the opposition, has promised to completely defund the CBC/Radio-Canada English service if it forms the next government in 2025 (Bell, 2015; Chidley and Turbide, 2003; Taylor, 2023). With increasing multiculturalism, diversity, Indigenous self-determination, immigration, and globalization, the Canadian government has a legal and moral obligation to protect French, Inuit, and Indigenous languages through an expanding public broadcaster. The South African Broadcasting Corporation (SABC) is a notable example of a national broadcaster offering Indigenous language programming (Du Plessis, 2006). For instance, SABC provides programming "in non-official languages like Khoi, Nama, and San" (Du Plessis, 2006).

While many adversaries spend billions per year to advance their agendas and causes via mass and social media in many Western, Asian, African, Middle Eastern, and South American countries via Think-Tank, sponsoring political causes, social media influencers, podcasters, demonstrations, media personalities, journalists, television/radio/newspaper experts/commentators/celebrities/academics, developing long term political assets, and AI algorithms to change public opinion, it is also time for Canada to play a larger role on the international mass media via CBC/Radio-Canada to catch up with other nations that have news and programming in different languages via their tax-payer funded broadcasters. The recent trends of decreasing local and rural newsprints that have connected communities for centuries, allowing activism on behalf of their communities, and blocking Canadian news content from Meta (Facebook and Instagram) threaten journalism and Canadian identity, heritage, and the French language (McKenna, 2024).

Therefore, profit sharing of social media corporations and tax incentives/annual grants/subsidies by federal, provincial/territorial, and local governments could significantly enhance the diversity and inclusivity of public news broadcasting and mass media, fostering a more informed and engaged society to promote Canadian identity and democracy in Canada and internationally (Neff et al., 2022). It is also essential to increase funding to CBC/Radio-Canada, allowing local, regional, rural, French, and Indigenous programming to continue and expand, while providing stability for future generations to pursue well-paid journalism as a career. Finally, the CRTC must be given more regulatory powers and funding to monitor unregulated/self-regulated social media, podcasters, social media influencers, and online content to protect Canadian democracy from the potential threats of fake news, conspiracy theories, AI-generated videos, and destructive propaganda that threaten our institutions, Canadian identity, and democracy.

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Ethical statement

Ethical approval

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