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Open Data and Open Governance in Canada: A Critical Examination of New Opportunities and Old Tensions

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Abstract: As governments develop open data strategies, such efforts reflect the advent of the Internet, the digitization of government, and the emergence of meta-data as a wider socio-economic and societal transformational. Within this context the purpose of this article is twofold. First, we seek to both situate and examine the evolution and effectiveness of open data strategies in the Canadian public sector, with a particular focus on municipal governments that have led this movement. Secondly, we delve more deeply into—if and how, open data can facilitate more open and innovative forms of governance enjoining an outward-oriented public sector (across all government levels) with an empowered and participative society. This latter vantage point includes four main and inter-related dimensions: (i) conceptualizing public value and public engagement; (ii) media relations—across traditional intermediaries and channels and new social media; (iii) political culture and the politics of privacy in an increasingly data-centric world; and (iv) federated architectures and the alignment of localized, sub-national, and national strategies and governance mechanisms. This article demonstrates how each of these dimensions includes important determinants of not only open data’s immediate impacts but also its catalytic ability to forge wider and collective innovation and more holistic governance renewal.

Keywords: open; data; government; governance; collective; innovation; collaboration; media; digital; online

1. Introduction

Many governments are striving to develop so-called open data strategies, taking previously internal and often proprietary sources of information and rendering them public through online spaces. Such efforts are indicative of the emergence of meta-data as a wider socio-economic and societal transformational driven by the advent of the Internet on the one hand, and massive and newly accessible data flows on the other hand [1]. These continually expanding data flows may well constitute new forms of public and private value if harnessed and exploited, something governments are now seeking to do via their open data efforts both directly (by opening up the information to wider access) and indirectly (by allowing for and stimulating innovative usage and application).

However, open data does not fit easily within the rubric of democratic governance and traditional public administration [2]. The movement partly draws sustenance from an evolving and increasingly open and data-driven society shaped by a confluence of both technological and governance patterns emphasizing mobility, collaboration, and participation: it is underpinned by the backend dynamics of cloud computing for information storage and processing, and frontend Web 2.0 platforms (and social media in particular) and tools that facilitate content generation and sharing, thereby feeding the growing meta-data vortex. Open data is thus closely intertwined with the emergence of “Gov 2.0”—and yet its emergence invariably encounters tensions between traditional public sector culture and structures more predicated on control-minded principles such as secrecy and hierarchy [3].

The purpose of this article is thus twofold. First, we seek to both situate and examine the evolution and effectiveness of open data strategies within the Canadian public sector, with a particular focus on local, municipal governments that have led the development of this movement. While national governments often receive greater attention for their efforts due to their heightened technological prominence and greater information holdings, it is locally where Canadian public sector open data efforts have been pioneered, a reflection of the bottom-up nature of many aspects of government innovation and reform in the digital era [3]. At the same time, the inter-relationship between various government levels is also an important determinant of the impacts of open data on jurisdictions as a whole (and thus an issue also examined in this article).

This latter point thus speaks to the second purpose of this article—namely to consider the evolution of open data and its capacities to foster more open and innovative forms of governance for the public sector as a whole (an ambition ascribed to by governments themselves and one in keeping with the spirit of open data as an evolutionary process from basic forms of data availability to more dynamic and participative information eco-systems). This article, therefore, seeks to develop a better understanding of open data’s potential and effectiveness through this wider governance prism—building on the now widely-recognized premise that merely making information available in an open and online format is not sufficient to drive change and create value [4].

The empirical review and critical analysis below stems from four inter-related sources: first, a literature review of the aforementioned topics of open data, open governance, and public value; secondly, a review of open data strategies across the Canadian public sector (with a particular focus on one early and prominent municipal example—as well as the federal government, the latter within its own jurisdiction but also with respect to ramifications for the country as a whole); thirdly, a series of exploratory, qualitative and confidential interviews with a dozen senior governments managers from

all government levels with information management responsibilities; and fourthly, a wider set of conversational interactions pertaining to open data and open governance with approximately eighty public servants and informed citizens as to the present configuration and ramifications of open data for democratic governance in Canada.

In proceeding, the article is organized as follows. The next section further dissects the context of open data, open governance, and Gov 2.0. The third section examines the emergence of open data strategies at the municipal level in Canada (with a particular focus on one leading jurisdiction in this domain). Building on these experiences, the fourth section presents four main thematic dimensions underpinning a normative and still nascent evolution from open data experimentation toward deeper and more systemic change that shall ultimately be necessary in order to forge more open and innovative governance approaches than are feasible within the current confines of Parliamentary democratic governance. A brief conclusion then follows.

2. Background: Open Data, Gov 2.0, and Proprietary Tensions

New participatory mechanisms, systemic openness, and virtualization are underpinning an emerging governance ethos that, for the public sector, is often termed as the emergence of Gov 2.0. At the heart of Gov 2.0 are drivers of collective intelligence and more collaborative forms of governance that are typically associated with a widening online universe and less hierarchical and control-minded forms of governance [5]. From both external vantage points on new societal formations (such as Wikipedia and a myriad of social media-driven movements) as well as internal to the public sector (what Lips characterizes as “public administration 2.0”), governments are increasingly challenged to move beyond a typology of hierarchies and markets and embrace usage of networks typically more open and collaborative in formation and execution [6].

Governments are embracing such changes which present significant structural and cultural shifts. The State of Victoria in Australia, for example, has articulated a Gov 2.0 Action Plan premised on the following principles: leadership, participation, transparency, and performance. Aligned with the spirit of such principles, the spreading of web 2.0 experimentation within government is specifically meant to foster collaboration and democratize the creation and exchange of ideas:

The role of citizens in an open government environment—enriched by open government data—can be one of democratic innovators. In an ongoing open innovation process, citizens can draw on open data, and propose both policy-areas to tackle and technical approaches to take [5] (p.187).

The potential recasting of governance in terms of expectations and roles is profound. Rather than gathering information and ideas via highly regimented and contained mechanisms (shaped by a proprietary mindset), this alternative presentation of openness and ideas begins from the premise that the ownership of information and ideas is fundamentally diffused and shared. At the same time, however, such an ethos of openness invariably faces strong pushback from both the traditions of proprietary protection and its organizational cousin that is particularly prevalent in the public sector—namely hierarchical and informational control. For example, one early study of the usage and acceptance of new social media within the public sector found such tensions deeply engrained within Canadian government where information is viewed predominantly as a proprietary asset. The authors

conclude that the most significant impediment to Gov 2.0-inspired reform is the “clay layer” embedded by a hierarchical public service culture [7]. Along with much fanfare in that country with respect to open data initiatives, an independent review of information management processes within the British government found “concern about publishing data externally” [8].

By contrast, open government is based upon the “notion that public sector information is a resource, the release of which will maximize its social and economic value to citizens” [4]. In the Netherlands, for example, an impetus for non-proprietary public data came from the Dutch courts in April of 2009 when a City of Amsterdam’s appeal to impose restrictions and fees over several its data holdings was rejected [4]. Such clashes between proprietary and openness, and control and empowerment shape the pursuit and effectiveness of open data and its wider ramifications while outside of government too, similar tensions between proprietary and open systems are prevalent across many segments of industry and society [9].

Yet a widening ethos of openness draws sustenance from: (i) the Internet as a platform for democratization in the broadest sense; (ii) a widening array of self-expressive and interactive web 2.0 tools and platforms; and (iii) most recently the advent of mobility. As Young puts it, the cloud as a symbolic basis of a wider virtual universe driven by a myriad of smaller and more powerful and mobile computing devices, a penchant to share more and more personal information online—especially via social media, and a new form of enhanced and shared networked intelligence [10]. At the same time, however, accompanying optimistic portrayals of the potential benefits of such intelligence come offsetting concerns pertaining to individual privacy, while open data has similarly sparked fresh concerns about the digital divide and accentuating new forms of “data divides” [11].

Indeed, as important to government efforts to release data is society’s interest and ability in accessing and making use of it. Open data’s origins are interwoven with a growing community of activists and apps developers working initially within the confines of privately-developed operating system platforms such as Apple and Android (the latter built from open sourced coding and thus more portable across a range of companies and devices). The participative flavor of such movements can and has also extended beyond commercial pursuits, as exemplified in February 2013 by the inaugural open data day (the featured a global hackathon of events in cities around the world [12]).

In this vein, Washington D.C.’s local government would pioneer in 2009 what is believed to be the world’s first public sector apps competition, deemed “apps for democracy”. Organizers claim the initiative yielded 47 new apps in one month, generating more than two million dollars of value for the city at a mere cost of fifty thousand dollars: it is also notable that the person responsible for this innovative exercise, Vivek Kundra, would go on to serve as Chief Technology Officer for President Obama later that same year. Yet despite accolades from many quarters, Kundra’s successor in the District of Columbia openly expressed skepticism about the usefulness of such an approach, suggesting while that many apps were “cool” they did little to facilitate sustainable improvements in service and governance for significant proportions of the local populous [13]. Such debates further underscore the complexities of open data’s evolution in terms of its purpose, conduct, impacts, and wider implications.

3. Case Study: Open Data at the Canadian Municipal Level

A precursor to explicit open data strategies, one early example of the potential for government to embrace an ethos of openness came from the City of Nanaimo, British Columbia, on the west coast of Canada which effectively abandoned its prior model of internalized and proprietary and infrastructure and information holdings within the realm of geographic information systems and spatial data mapping. Citing the benefits of open innovation through greater usage and access and heightened redundancy and security, the municipal government opted for open source platforms and freely available proprietary tools such as Google Earth in shifting its data imaging (that it previously regarded as a proprietary asset) to Google's cloud-enabled platform [14]. Some five years later, this same municipality would become the first in Canada to adopt a "Pan-Canadian Open Government License" for its data holdings (the license, negotiated and agreed to by all government levels in Canada, seeks to enable open data usage by third parties in a manner largely free of traditional proprietary restrictions [15]).

Today, more than thirty Canadian municipalities, of all sizes have undertaken open data strategies. One such example, adopted in 2012 by the City of Halifax puts forth the following drivers of doing so (summarized here): restrictive data policies limiting the public good; costly and inefficient public data sharing processes; local community movements seeking greater data access and usage; open data as a driver of economic growth; and open data as a platform for increased transparency and citizen engagement [16]. Whereas the first and second drivers apply mainly to the internal apparatus of information management by the municipality, the latter themes underscore the wider societal and participatory dimensions of open data as a key source of collective innovation across both civic and economic pursuits as well as the interdependencies across both realms. In a manner that previews much of the discussion below, it bears noting that while this strategy was adopted by Halifax City Council prior to local elections in 2012, this effort would receive a considerable boost by the election of a new Mayor that same year publicly committed to an "open government" platform.

The City of Edmonton would become, in 2010 the first Canadian municipality to launch a formal apps competition—inspired by the Washington DC model. Today, as is the case around the world several Canadian cities and towns have undertaken such initiatives with the aim of spurring public involvement in not only accessing previously government-held data but devising innovative ways to make use of such data via smart devices, consistent with the societal evolution described by Young and others above.

In the case of Edmonton, thirty-two apps were devised by members of the local public, developed from a wider set of eighty-six conceptual ideas submitted online by interested parties, on a range of topics ranging from restaurant inspections, transportation, arts and culture, and many others. The contest criterion for selecting winners (across a number of categories) included four components: (i) accessibility—ability for the application to be used by a broad array of citizens; (ii) usability—usefulness and utility to citizens overall, or any particular demographic of users; (iii) creativity—originality, uniqueness and inventive nature of the application; and (iv) the number of community votes received. City managers were satisfied with this pilot initiative as an early, if modest example of how to spur data usage for public interest pursuits—as well as an important learning platform for other likeminded initiatives undertaken by Edmonton officials to build on this foundation.

Moreover, many other Canadian cities would follow suit with their own open data projects and apps competitions, and an Edmonton-led alliance of Canadian municipalities known as the “G-4” would facilitate a further sharing of competencies and ambitions in this regard [17]. In a manner akin to the DC experience upon which the Edmonton model was based, therefore, data availability and a corresponding apps competition may be viewed as small but important steps along a winding and potentially more transformative path.

With respect to this wider transformative potential (and thus the relationship between open data and wider forms of open and innovative governance), three aspects of the City of Edmonton example are noteworthy. First, open data personifies the notion of a “smart community”, a concept first devised in California in the 1990’s by researchers there and one that continually becomes more relevant through various phases of technological and online innovation, including today’s emphasis on mobility. Indeed, underscoring this relationship, Edmonton has been a participant in IBM’s showcase “smart cities” initiative in recent years, a program that reinforces the importance of proximity and community even in an increasingly virtual and mobile era (a summary of the applicability of the concept to Edmonton is available online [18]). The notion of a smart city is a fluid and widely-encompassing concept (as is the case in Edmonton where the label under the auspices of the IBM program includes an array of initiatives), but it nonetheless reminds us that there are important public and collective interest as well as private interest dimensions to technological and information infrastructures and resources and their deployments and usage.

Secondly, the City of Edmonton’s initial open data catalogue and apps competition are now viewed through the wider municipal prism of “open government”—an expansive shift in language meant to address some of the wider cultural cleavages at play in a public sector that has not traditionally viewed information resources and their management as functions conducive to systemic openness. Accordingly, the City’s pursuit of open government has revealed fundamental tensions within the public sector stemming from, in most all democracies the underlying historical principles of secrecy and hierarchy that have codified information usage and management. On the one hand, there is a commitment to heightened transparency that has become a hallmark of the Internet era. Yet on the other hand, there is trepidation and recognition of limits in this regard. Indeed, in the digital era there is evidence that many governments have sought to limit openness in attempts to ensure consistency in disclosing and messaging information—or alternatively in justifying blockages of access on a widening cadre of policy and political grounds [19]. Access to information system have thus become increasingly formalized and costly processes of reviewing and administering requests—reflecting a mindset of imposed rather than embraced and regularized openness.

Such tensions relate directly to the City of Edmonton experience (and a wider evolution of open data in Canada, as explained further below). City officials responsible for open government initiatives in several municipalities acknowledge considerable friction in moving their agenda forward through a legalistic and regimented access to information regime built up over decades (with considerable resources devoted to such causes). Moreover, an online review of the City of Edmonton’s main portal finds the open government agenda (including open data catalogues) subsumed within a more traditional communications apparatus much more predicated upon informing rather than involving the public in, local affairs [20].

Accordingly, the coexistence of traditional media intermediaries and new social media capacities is an important dimension of the open data experience both externally and internally. In the realm of construction data, for instance, an early and prominent open data success in Edmonton, the role of the traditional media in being leveraged as a partner to generate awareness and access to the municipal data catalogue has been acknowledged [21]. Yet the media's traditional orientation as a so-called fourth branch of democratic governance, coupled with the heightened forms of activism and sensationalism online, often reinforce inward and proprietary forms of information management and communications for government entities (a challenge that is accentuated at the national level, as further described below).

Thirdly, there are important ramifications to consider with respect to participation and inclusiveness—and whether or not open data initiatives are likely to augment or diminish existing digital divides (or instead foster newer forms of data divides as some have suggested). The above Edmonton quote suggests empowerment: residents 'making more informed choices and decisions about their community and their government'. This ambition also speaks to the participatory and political dimensions to open government and the shifting roles and inter-relationships of elected officials, city managers, and citizens. Open data is viewed by many proponents as a step along an evolutionary path toward "ubiquitous engagement"—a term denoting high levels of democratic literacy and involvement on the part of the citizenry in most every aspect of governance and one further examined below [22].

Addressing any prospective digital divide is a theme absent from the formal pronouncements of the City of Edmonton, suggesting an implicit view that the creation of open data and open government (and the likeminded deployment of apps) can increase the sphere of community awareness and involvement by introducing novel channels and mechanisms (and more generally by leveraging the Internet as a platform for information openness). It also bears noting that the City's internal open data advocates are younger and more technology-savvy than most public servants and thus keen to exploit this new, online frontier. The point is not to suggest insensitivity to the digital divide, but arguably the opposite—and an implicit belief that greater openness and technological mobility can help build more social inclusion. In the case of Edmonton, it is perhaps also the case that this issue has not received much prominence with respect to the open data and open government initiatives specifically, since they have been viewed as pilot activities with experimental and ground-breaking aims (nonetheless noting as well that accessibility was the first dimension of the criterion for judgment in the local apps competition). Yet the absence of formal linkages between openness and inclusion is a noteworthy point and a theme further examined below.

The other prominent dimension of the digital divide with relevance to open data is geographic: the relative size of organizational capacities and informational holdings of local government on the one hand, and the local populous on the other hand. A growing technological and online cleavage between large and small communities is thus a widely shared concern among smaller municipalities where tighter financial and human resource capacities often limit innovation and experimentation, as does more limited and uneven technological infrastructures for the community as a whole. Accordingly, until quite recently the open data has largely emerged across Canada within the confines of urbanization.

Yet along with the aforementioned example of Nanaimo, British Columbia, the small Alberta County of Grand Prairie (approximately 500 km's northwest of Edmonton) suggests a widening of

open data's parameters and highlights the importance of thinking strategically across jurisdictional boundaries. The small town announced, in June 2013, that it had become the first municipality in that Province to adopt the pan-Canadian Open Government License (also adopted in Nanaimo, BC) and in doing so, was deploying a new open data catalogue with over 40 databases at its inception [23].

While a pan-Canadian approach to open data licensing is a noteworthy development in this regard, enabling smaller communities to sign onto this movement with fewer resources and greater awareness than would otherwise be the case, other strategic dilemmas also present themselves. Beyond shared licensing expertise, the ten Canadian Provinces and the federal government seem primarily intent on constructing and promoting their own open data apparatus, an important variable in the visibility and effectiveness of more localized efforts at the municipal level. Conceiving some appropriate parameters for a federated architecture for the country as a whole—sensitive to and open to municipal perspectives and involvement, is thus one important dimension of the future of open data initiatives and the wider potential for more open and innovative governance systems to emerge across the Canadian public sector and society at large. Understanding four such prominent dimensions is the task now at hand.

4. Analysis and Findings

The central lesson to be derived from Canadian municipalities at present is one of cautious exploration on the one hand, and rising expectations on the other hand. The former stems from tensions between a traditional government apparatus emphasizing proprietary ownership and limited disclosure, and the reality that despite the widening prominence of big data and online mobility as economic and social realities, it is not obvious that the electorate as a whole is technologically equipped or civically-minded to engage at substantive and widespread levels in open data efforts sponsored by governments. Yet at the same time, the growing ubiquity of mobile and smart devices, the advent of open source operating systems and social media platforms, and the widening commitment by governments themselves to expansive public engagement objectives all suggest that the underlying rationale for open data is strengthening and that it shall continue to do so.

In other words, while open data may be viewed by some inside and outside of government as a technically-focused and largely incremental project axed upon information formatting and accessibility (with the degree of openness and sharing subject to a myriad of security and confidentiality provisions), such an approach greatly limits its potential impacts. Furthermore, it seems out of step with the rhetoric increasingly deployed by governments themselves set upon loftier ambitions: wider notions of open government and at minimum; and at a maximum a fuller governance reform agenda associated with the attributes of Gov 2.0 and ubiquitous engagement. Evidence from around the world suggests that governments most everywhere are pursuing a widening cadre of reforms within this spectrum of activity [5].

As noted at the outset, our underlying purpose going forward is to draw from the preceding review of local initiatives and to normatively probe their future within the wider context of Canadian democratic context (both administrative and political). In doing so, we are seeking an understanding of the most likely factors that will either shape or stymie the realization of more open and innovative and governance—by which we mean systems of governance consistent with the spirit and participative logic of ubiquitous engagement, societal empowerment, and collective intelligence [1].

In my estimation, then, four main dimensions of public sector adaptation must be addressed if open data is to evolve along such an expansionary, participative, and ultimately transformative path. They include: first, an appropriate conceptualization of public engagement and the value of doing so; secondly, the role of the media, in terms of both traditional intermediaries and new social media platforms and processes; thirdly, forging a political and data culture conducive to both responsible data activism and civic engagement and their inter-relatedness; and fourthly, the necessity of a holistic and participative governance framework for the country as a whole as an eventual alternative to the present patchwork of separateness. These four challenges are inter-related and expansive: whereas the first is somewhat incrementally focused on existing open data initiatives (and also, as shall be discussed and referenced, the most well understood), it is only via the second, third and fourth dimensions that significant sources of value and benefit will be derived through innovation both for public sector entities and for society as a whole. We now examine each in turn.

4.1. Public Value Management and Inclusive Public Engagement

As already noted, there is widespread recognition that merely making data accessible is insufficient as a driver of innovation and net benefit—and that in addition, even making many public data holdings available is a task frequently encountering resistance within a traditional government mindset and apparatus of secrecy and information control. Shifting beyond this proprietary mindset thus requires a new lexicon—one that stems from the governance framework of “public value management” (PVM) as an alternative to traditional public administration and new public management [24]. PVM, in turn, is consistent with what others have termed, “public administration 2.0” [2].

The commonality of such approaches is an outward and adaptive public service with collaborative networks rivaling hierarchies and markets as the central organizing principle, and where ongoing participation of the citizenry is the norm rather than the exception. In this regard, the many technical, policy, legal, and political issues at play in moving open data toward this higher plane are well understood and well articulated—by scholars, governments, think tanks, private sector bodies, and international organizations [1,2,3,6]. The OECD’s efforts in fostering an international dialogue and comparative framework for capturing the empirical performance of open data initiatives is particularly noteworthy since it begins to institutionalize an openness mindset, grounding such a mindset into shared reforms and objectives [4].

While the OECD effort and other likeminded initiatives such as the Open Government Partnership underscore the globalizing dimensions of the open data and open government movements, it is arguably locally where the most traction can be gained in concretely measuring the impacts of openness initiatives—and as importantly where the community itself can become engaged in doing so. In this sense, the missing element thus far of municipal open data efforts in Canada and elsewhere has been in devising a performance scorecard measuring usage, outcomes, and public value creation as opposed to data availability and rates of access. In Ontario, moreover, municipalities have begun asking themselves whether such measurement schemes should best be done collectively—for the municipal sector as a whole, building on likeminded schemes already in place to address performance measurement in other realms, notably service delivery [25].

The essential point here, in my estimation, and in keeping with the prism of public value management and ubiquitous engagement, is for governments to not undertake such an evaluation scheme directly themselves but rather to do so in an open and shared manner with the affected (and engaged) communities. There are two reasons for such a claim. First, public value is a highly fluid term with many potential qualitative and quantitative dimensions of social, economic, and democratic dimensions to quality of life and it is crucial, therefore, to engage in an open conversation as to what should be measured and how. Secondly, and related to this first point, the advent of Web 2.0 and open source communities are indicative of a decline of societal deference to traditional authoritarian structures. As a result, if performance measures are to be viewed as legitimate by the citizenry—and this is a central tenant of public value management, it must be involved in its formation and deployment.

The practical implication that follows is strong and direct ties between open data and public engagement, a point underscored by Salt Lake City in their articulation of an open governance framework encompassing both elements and others designed to foster innovation, participation and inclusiveness [26]. Accordingly, metrics for the pursuit of open governance, within the confines of public value management must address not only levels of participation online but also the extent to which such levels build more inclusion or instead reinforce or potentially widen existing societal, socio-economic and informational cleavages.

In this regard, for example, the OECD rightly underscores open data and open government as a driver of greater self-empowerment social participation: Yet this effort, and others like it, may well underplay the extent to which this relationship does not evolve in a positive manner organically, without strong offsetting strategies on the part of public sector authorities (working in concert with civic and private partners) to ensure that Web 2.0 and social media platforms (the implicit and increasingly explicit basis for open data and open government) contribute to societal inclusiveness rather than accentuate inequality. There is considerable merit, in this regard, in a clear alignment of open data and open governance with what Jaeger terms as a “formal policy for digital inclusion” [27].

4.2. Media Relations

The devising of apps competitions reflects the online foundations and drivers of open data and the potential for mobility and participation to drive innovative usage and deployment. While most local apps competitions, such as the Edmonton example, have played an important experimental purpose, a key challenge has been in mobilizing public awareness and involvement in such initiatives. Governments, at all levels, thus often find themselves deploying efforts via traditional communications and media channels to attempt to raise awareness and spur activity in online spaces.

In this regard, the importance of media relations to open data is an important observation underscored by Howard in his own advice to the Government of Canada with respect to their own efforts [28]. He explicitly evokes the British newspaper, The Guardian and its data repository as an example of how government efforts can benefit from such third party outreach and linkage [29]. In a similar manner, many American municipalities, including the aforementioned Salt Lake City have deployed open data platforms devised by third party, civic organization devoted to such efforts (in this example, the organization Code for America is also an open source proponent as well, seeking to apply such principles to government and democratic reform around the world, particularly for cities [30]).

The main point here is that in order to spur open data usage and innovation, government cannot do so alone but rather must situate their efforts within an information polity or eco-system emphasizing collaboration and interdependence. Therefore, how governments align with and make use of both traditional media and new social media venues is crucial to open data undertakings and the wider pursuit of innovative and open governance systems. While often viewed as separate topics within the rubric of Gov 2.0, open data and social media and online engagement are, in fact, closely intertwined, a point implicitly made in Lee and Kwak's aforementioned presentation of ubiquitous engagement.

A challenge, however, is that social media is most often viewed by governments as a communications vehicle, one meant to push information and awareness rather than generate spaces and opportunities for listening and involvement [31]. As explained further below in terms of political culture, the ramifications of this point are often further accentuated at national levels. Open data can thus become tainted as government propaganda rather than a genuine attempt to engage, a point underscored by research in the US demonstrating how transparency of government data does not in itself directly yield greater levels of public trust but instead can often erode such levels if pursued through more traditional approaches to information management and communications [32].

Conversely, research undertaken in various European locales demonstrate how social media engagement can be enhanced through a virtuous cycle of traditional media deployment (to generate awareness and third party interest and greater collective learning, in a manner not unlike the British Guardian example above) and new social media venues allowing for direct public input and involvement in policy-making and service design [33]. Likeminded research further underscores that in capturing value from social media engagement, new data analytics are an essential competency for government to partake in this new online and data-driven space, less from a communications perspective and more in terms of understanding and capturing the benefit flows from the collective intelligence of this information eco-system and its various stakeholders including the citizenry [1].

Consequently, whereas open data has largely been pursued as transparency-driven effort incrementally altering the information management and communications architecture of governments, if it is to be a driver of innovative and open governance, a more novel and multi-faceted engagement architecture is required. In keeping with public value management and ubiquitous engagement, such an alternative architecture must comprise a more robust and inter-disciplinary set of skills and organizational competencies involving media intermediation, meta-data analytics, and public engagement. For most governments at present, such capacities remain at their inception and significantly under-developed. It also is important to underline that referenced research of the two previous paragraphs was undertaken at the sub-national level (in a manner akin to open data where experimentation with social media engagement has been most robust), where greater degrees of freedom often exist for local governments to work with media actors less constrained by the adversarial and television-centric political arenas of national levels. Building on this point, we now turn to the nature of politics, political culture, and a corresponding data culture as an important dimension of open data's evolution toward open governance.

4.3. Politics and Privacy

A casual observer of the open data scene in Canada may well presume that with the Government of Canada's 2011 launching of its own open data portal and Open Government strategy [34], a national strategy is now in place for the country as a whole being led by the federal government. This would be erroneous. As described above, open data has primarily been a bottom-up effort with the federal government playing catch up as of late.

In several respects, actions on the part of the federal government merit positive recognition—notably launching open data within its own jurisdiction (*i.e.*, within its own organizational and policy and service apparatus), and for contributing as one partner in the creation of the aforementioned pan-Canadian open data licensing framework now being voluntarily adopted by several other provincial and local governments across the country. In addition, much like the City of Edmonton and Salt Lake City examples reviewed above, the federal government has sought to embed open data within a wider framework of open government and participative governance encompassing three dimensions: information, data, and dialogue. Finally, the participation of the Government of Canada in various international forums can only heighten the visibility of openness-driven agendas for all governments and all citizens in Canada.

Yet the offsetting danger is twofold: first, in this federal visibility crowding out localized initiatives; and secondly, in the fact that the Westminster Parliamentary governance model (characterizing federal and provincial levels in Canada) is particularly ill-suited to the fostering of open governance given its reliance on secrecy and adversarial politics. Excessive partnership has been recognized even by Parliamentarians themselves as corroding democratic legitimacy and conduct and the resulting political culture is one of centralized information management and control, one resolutely associated with Prime Ministerial dominance, and one increasingly viewed as in need of an overhaul [35]. When added to this historically-rooted evolution the current scandals plaguing the upper chamber of Canadian Parliament (the Senate), stemming from an absence of transparency, it is hard to imagine a poorer set of conditions for the pursuit of open data and open government initiatives.

Indeed, the Minister responsible for such initiatives federally personifies such contradictory tensions—serving as President of the Treasury Board, the central agency responsible for expenditure oversight and itself a recipient of much criticism for its command and control mentality [36]. While this same Minister is lauded by one prominent open data expert for providing leadership as a catalyst for aforementioned open government initiatives [37], other reports surface in the media pertaining to this same individual approving a new electronic network designed to reinforce the importance of secretive information flows and interactions within and across central agencies [38]. In fairness, this latter initiative centers on information deemed sensitive and classified (and is aimed to reduce hacking and breaches), though it underscores the tensions inherent within this central agency and with respect to its role and mindset: even the Minister has repeatedly acknowledged the excessive secrecy and flawed functionality of the government's information management apparatus.

At the same time, the aforementioned openness agenda has largely been subsumed not only by Senate scandals (rooted in tensions between secrecy and transparency) but also a pervasive political culture of information control and efforts to leverage both traditional and new media channels for communicative rather than consultative efforts [39]. One such example stems from the tens of millions

of dollars spent on promoting ‘Canada’s Economic Action Plan’ via television, radio, print, and online. Studies have since shown that not only is there little online take-up in terms of accessing details of the information presented, but that such advertising is generally viewed as propaganda and thus deepens cynicism and distrust [40]. It also bears underscoring that the amounts spent on the promotion and marketing of the action plan considerably dwarf the financial resources invested into the promotion of the open governance framework. Lastly, the Canadian approach to promoting awareness pertaining to economic stimulus fares poorly in comparison to that of the US—and its flagship development of “recovery.gov”, a comparison that arguably underscores the traditionalism and proprietary nature of Canadian political culture at the federal level both generally and with respect to information management and technological initiatives specifically [3].

This wide cleavage between traditionalism and openness is thus central to not only the conduct of open data initiatives directly but if and how they are catalysts for wider institutional reforms of the sort sought by those, inside and outside of government, seeking more novel and participatory approaches to open and innovative governance. In order to evolve along such a path (toward ubiquitous engagement), a precondition for doing so is a cultural reorientation of both the information management culture internally (seemingly underway but also highly contested) and the political culture externally. The latter dimension is central to shaping the expectations and willingness of citizens to partake in more open and participatory governance, not only with respect to apps development but more broadly in making use of public information holdings in new “and unanticipated ways” (to quote from the Government of Canada’s open data definition).

At the heart of these cultural tensions are fluid and evolving notions of privacy—impacting whether and how governments gather and share information on the one hand and whether and how citizens share information and partake in both private and public venues and interactions online on the other hand. The relationship between open data, open and innovative governance, and privacy is complex and tenuous. On the one hand, one data efforts by government focus on non-personal information and conform to ongoing and strict privacy provisions—a point communicated by governments at all times. On the other hand, as open data is tied to open government and open dialogue, a culture of information sharing and data openness is encouraged, particularly online. This latter orientation is consistent with the ethos of Gov 2.0 and an information eco-system predicated upon public value management—and it raises important questions re how open data and likeminded initiatives on the part of government will shape personal behavior online and also impact civic culture.

In other words, how governments seek to address and ultimately resolve the contradictory forces of privacy and data sharing will impact not only the pursuit of open data but the larger ability to drive innovative and open governance. This is so since the necessity of more active forms of public awareness, vigilance and involvement (and by extension the escalating risks of passive acceptance and ignorance) can only augment going forward, in what Wolf describes as the “data-driven life” emerging from the interplay of four fundamental alterations to the relationship between people, data and technology:

First, electronic sensors got smaller and better. Second, people started carrying powerful computing devices, typically disguised as mobile phones. Third, social media made it normal to share everything. And fourth, we begin to get an inkling of the rise of a global super-intelligence known as the cloud [14] (p.11).

Young underlines how current approaches to managing data are poorly suited to this new environment, as current systems of consent and rights stem from an analog era rather than present digital realities [14]. Part of her proposed basis for new solutions in an increasingly virtual and data-driven environment is an emphasis on the value and importance of personal responsibility. She thus calls upon individuals to become “data activists” in moving beyond passive usage and acceptance of online processes and offerings that bundle, share, and integrate data in highly complex and opaque manners—and to seek greater openness, understanding and vigilance. Young rightly underscores that such an individualized determination of appropriate privacy trade-offs must also be complemented by a deeper public dialogue as to the collective implications of such choices, a basis for shared enlightenment and thus a culture of data activism.

Such a reorientation of privacy as much about responsibility as rights provides an encouraging middle ground between the extremities of those seeking privacy guarantees and those instead viewing privacy as unrealistic or simply out of date. It can also draw sustenance from the collectivized dynamics of open source communities that have sought some degree of balance between open collaboration and competition in fostering new innovations in both backend infrastructure and content creation. Data activism and democratic engagement are thus closely intertwined and only a more proactive and open political dialogue—one less constrained by partisanship and secrecy, can lay the groundwork for this sort of cultural reorientation that itself is a requirement of the pursuit of a more open sourced-orientation of democratic discourse and conduct [3].

The danger, conversely, of a largely rights and reassurance orientation toward privacy matters is an accentuation of passiveness with respect to individual awareness and behavior and a further engraining of what Nabatchi describes as the “democratic deficit” presently on display in most democracies, the US and Canada among them [41]. In such a setting, open data is likely to remain highly constrained by a political culture poorly suited to active participation (of the sort sought by open data enthusiasts) and one often shaped by legalistic and adversarial debates surrounding privacy rights and breaches (including frequent attacks on governments themselves for excessive secrecy that further erode government’s legitimacy with respect to being viewed as a proponent and honest broker of open governance).

In sum, the present confluence of traditional policy and structural approaches to public sector information management and communications, the overwhelmingly secretive and adversarial political culture of Parliamentary democracy, and a dated and under-developed political and public discourse pertaining to privacy and data cultures more widely, significantly constrain the legitimacy and capacity of all governments to lead an agenda of open governance. For reasons explained, such constraints are particularly intense at the Canadian federal level.

4.4. Toward a Federated and Participative Architecture

Such a poorly suited democratic governance context obviously casts a shadow over municipal efforts to drive experimentation with more open and innovative governance systems, also raising the issue of how provinces respond in kind in furthering many of their own open data initiatives (and broader and likeminded reforms) and what sort of overall national stitching is required across these

various jurisdictional levels. Or conversely, is it optimal to allow each government level to pursue open data efforts and related governance reforms at their pace in their own manner?

The problem with this latter trajectory is that it is decidedly out of step with both the nature of virtualization and the rhetoric of governments themselves in espousing greater collaboration and even integration across previously separate governance domains. Eaves goes one step further and envisions a shared platform for municipalities to “act more like the web” in not only adopting shared open data licensing but also adapting to more open sourced styles of software design and deployment across the municipal sector as a whole [42]. A growing number of examples suggest that in an era of cloud computing, municipalities are beginning to forge this sort of shared undertaking [43].

While such rhetoric has been accompanied by a growing willingness on the part of government managers to pursue inter-jurisdictional dialogue and important though often modest service integration initiatives (see note below regarding the Joint Councils), the broad contours of the public sector’s digital infrastructure (including newer and more contemporary facets such as cloud-based systems and social media channels) remain separate and parceled across federal, provincial, and municipal level processes. There is currently no political architecture in Canada at present to bring a holistic, public-sector wide perspective to technological planning—and in a related manner, open data and open government agendas.

Such a traditional federalist context (federalist in a political and constitutional sense) does not directly hamper the ability of municipalities to experiment both with their own jurisdictions and with one another, and in continuing to provide a basis for eventual reforms at higher order levels of government. Clearly, however, at some point the country will require some form of national framework and national repository to better coordinate and integrate various open data initiatives into a more robust and effective framework for innovative and open governance. The emphasis is on national—as opposed to federal (which implies, somewhat confusingly, the Government of Canada), meaning that all levels of government would partner and contribute in some manner. While the Joint Councils (comprising two bodies, the Public Sector Service Delivery Council and the CIO Council, with representation from all three levels of government) that informally bring together officials from all three levels of government offer something of a point of departure for this type of collaborative effort, a more robust and formalized mechanism will also be required with direct and shared forms of accountability via both political and public participation. This latter element, public participation, is essential to the essence of what must be envisioned for the next generation of information architectures for the public sector—namely truly shifting from a proprietary mindset to one of outward openness and engagement.

If new forms of “ubiquitous engagement” are indeed the long term goal (as it would appear both conceptually and as espoused by governments themselves), and if open data is to truly become a platform for the pursuit of such directions, then the governance architecture underpinning the organizing and disseminating of information assets must be fashioned in a similarly open-sourced manner. A new language of a more collaborative federalism is thus required [44]. While devising specific parameters for such a mechanism is outside the scope of this article, the germane point to underscore here is that in order to foster genuine and innovative forms of public engagement, and in order to escalate open data to more open and innovative governance, such a path must itself be shared and participatory.

5. Conclusions

Open data initiatives are underway in over thirty municipalities in Canada, most all provinces, and within the federal government. In many of these cases, as with the City of Edmonton and the Government of Canada, open data has been explicitly tied to a more ambitious open government agenda that seems in keeping with widening calls both within and outside of government for an expansion of systemic transparency and a cultivation of meaningful forms of public engagement. Nevertheless, the successful pursuit of this wider and deeper transformative agenda is dependent upon understanding and resolving a number of tensions between traditional approaches to both information management and the conduct of politics more generally and the current embracement of new principles and practices associated with the advent of Gov 2.0, mobility, and societal openness and data centrality.

Both public administration and democratic processes are affected, as is the wider political culture and how it is shaped by an increasingly data-driven and virtual setting. While this article has sought to primarily examine the internal governance dynamics of the public sector (within and across government levels), as well as evolving relations between government, the citizenry, and the media, more effort must also be placed on new partnerships and interdependencies with civil society formations and the private sector (both of which are important contributors to a meta-data eco-system). Such relations also constitute an important area of study for researchers in understanding not only the public sector dynamics of open data and open government, but also the wider ecology of actors and synergies that can leverage such openness for public interest and collective pursuits. In addition, more research is required to better understand and measure both quantitatively and qualitatively the relative costs and benefits associated with specific outcomes tied to both public sector action and the wider societal dynamics potentially unleashed from greater data openness and participatory governance arrangements.

In sum, open data represents an important, albeit tentative, first step down what remains for most governments a cautious and evolutionary path. Yet the growing prevalence of an openness culture and meta-data issues and controversies suggest that a wider and more holistic transformational prism of open and innovative governance is required, one that seeks to not only inform but also empower a more engaged and participatory society. Only through systemic transparency and ongoing dialogue can the benefits and risks of this new environment be appropriately weighed in a collective manner.

Conflicts of Interest

The author declares no conflict of interest.

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