Explaining Social Media Variation:

An analysis of internal municipal factors that shape Canadian Municipal Websites

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July 2013

Abstract

This research paper explains the variation in social media features on Canadian municipal websites by measuring internal characteristics of key municipal administrators. The research process used a questionnaire to measure administrators' attitudes towards engagement and municipal corporations' capacity to improve websites moving forward. The results of this survey are contrasted with a dataset that scores each respondent's municipality using predetermined criteria. Representatives from 43 Canadian municipalities agreed to be part of this study. Excel was used to create individual data sets and SPSS was used to compile and analyze the data collected for this study. The Social Media Capacity score of each municipality is used as the dependent variable, which is explored through univariate, bivariate and multivariate analyses including nine independent interval variables. The study finds that 'Age', 'Engagement as council strategic priority' and 'Citizens' pressure to provide online services' significantly explain a proportion of variation in municipal social media features.

Acknowledgements

This research effort would not have been possible without the direction and dedication of Dr. Robert Young. Thank you to all participants and my fellow colleagues for your help developing this paper.

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Chapter 1: Introduction

Information Communication Technology (ICT) integration is increasingly used in the context of daily business transactions, individual communication and government service delivery. Some municipalities are cognisant of the pace in which technology moves forward and how accessible information can be. Municipal websites are receiving more investment and becoming more sophisticated and interactive as a result. It is unclear why some municipal websites are more interactive than others. The first possible answer for most municipalities is financial resources. Financial resources are integral to the development and investment in websites and ICTs. Dolson (2010) discovered that in the cases of Canadian municipalities, external factors such as financial resources are not the only reason for variation across municipal websites. E-governance is a process through which citizens, government, and business are able to interact within an equal platform allowing for authentic engagement and mutual benefit. More specifically, social media services like Facebook, Twitter, YouTube, RSS, and LinkedIn are great tools to engage citizens for one-way and two-way dialogue. Explanations for why some municipalities use more social media features as engagement tools are very limited. This paper looks to explain the variation of social media features using a questionnaire and by analyzing municipalities through a predetermined social media score in 2013. The critical question for this research is what internal factors explain the variation in Social Media features on Canadian municipal websites?

Chapter 2: Literature Review

2.1 New Public Service

(A) New Public Management and the emergence of New Public Service

New Public Service (NPS) is an emerging paradigm in public administration. NPS for the purposes of this paper and context is a public service delivery model that focuses on outcomes and maximizing public value. This is often compared to the established paradigm of New Public Management, which focuses on maximizing outputs and the efficient delivery of public services. The dominant discourse in public service delivery and public administration literature was New Public Management (NPM) from the 1970s to the late 1990s. NPM is said to originate as a dominant paradigm because of national leaders in the United States and the United Kingdom. Ronald Reagan and Margret Thatcher championed the notion that governments need to find increasingly efficient methods to deliver public services during difficult economic times (Inwood, 2004). Globalization of national markets reduced the ability for national governments and municipalities to control their internal economies of scale. The interdependence of national market economies brought changes to public administration discourse in North America and Europe. NPM literature highlights many discussions around accountable and cost-effective service delivery as a means for governance. NPS proponents, like Denhardt, criticize NPM for its focus on cost-efficient services as a means to an end. NPM is comprised of a dominant theoretical model that focuses on maximizing market forces through encouraging self-interested decision makers according to Denhardt (2000).

Table 1 Comparing Perspectives: Old Public Administration, New Public Management, and New Public Service

	Old Public Administration	New Public Management	New Public Service
Primary theoretical and epistemological foundations	Political theory, social and political commentary augmented by naive social science	Economic theory, more sophisticated dialogue based on positivist social science	Democratic theory, varied approaches to knowledge including positive, interpretive, critical, and postmodern
Prevailing rationality and associated models of human behavior	Synoptic rationality, "administrative man"	Technical and economic rationality, "economic man," or the self-interested decision maker	Strategic rationality, multiple tests of rationality (political, economic, organizational)
Conception of the public interest	Politically defined and expressed in law	Represents the aggregation of individual interests	Result of a dialogue about shared values
To whom are public servants responsive?	Clients and constituents	Customers	Citizens
Role of government	Rowing (designing and implementing policies focusing on a single, politically defined objective)	Steering (acting as a catalyst to unleash market forces)	Serving (negotiating and brokering interests among citizens and community groups, creating shared values)
Mechanisms for achieving policy objectives	Administering programs through existing government agencies	Creating mechanisms and incentive structures to achieve policy objectives through private and nonprofit agencies	Building coalitions of public, nonprofit, and private agencies to meet mutually agreed upon needs
Approach to accountability	Hierarchical—administrators are responsible to democratically elected political leaders	Market-driven—the accumulation of self-interests will result in outcomes desired by broad groups of citizens (or customers)	Multifaceted—public servants must attend to law, community values, political norms, professional standards, and citizen interests
Administrative discretion	Limited discretion allowed administrative officials	Wide latitude to meet entrepreneurial goals	Discretion needed but constrained and accountable
Assumed organizational structure	Bureaucratic organizations marked by top-down authority within agencies and control or regulation of clients	Decentralized public organizations with primary control remaining within the agency	Collaborative structures with leadership shared internally and externally
Assumed motivational basis of public servants and administrators	Pay and benefits, civil-service protections	Entrepreneurial spirit, ideological desire to reduce size of government	Public service, desire to contribute to society.

(Denhardt, 2000, p. 554)

Table one provides an accurate summary of three main conceptual pillars discussed throughout public administration theory. The second column of this table shows that administrators steer the direction of governmental organizations under a NPM paradigm. Different levels of government and different governmental organizations are steered by self-interested actors that influence administration and elected officials in a particular direction at a micro level. These actors or stakeholders may be council members, residents, internal administration, business community members, and developers. This model of steering administration through challenging economic times leads to the decentralization of government services at multiple levels. Administration and council are responsible for determining whether their municipal services are essential or discretionary in the local government context. Discussions of whether a service can be delivered through a private service provider rather than a public one became increasingly relevant as well. The implementation of NPM principles services, like waste management, are now a contracted service in many municipalities as a result.

Contracting out the delivery of public services was brought out through a push to decentralize service delivery of many local government organizations. NPS proponents argue that NPM is limited in providing beneficial outcomes because of the inherent focus on performance measurement and maximizing tangible outputs. NPS focuses on providing desired outcomes and generating more public value comparatively. This is said to be achieved through collaborative and participatory public service delivery.

(B) Outcomes, Outputs, Tangibility and Twitter

Outcomes are intangible benefits that are generated by delivering a public service. If a municipality decides to create a Twitter account for example, then the tangible costs are largely operational. Tangible outputs in this scenario could be the amount of municipal website traffic that a tweet generated through a link to the municipal website. The intangible outcome could be that twitter subscribers who follow a municipality's twitter page are generally better informed about that municipality's current events. Twitter also provides intangible benefits that allow its users to 'tweet' responses to a municipal twitter account, thus informing administrators on the receiving end of that tweet. The general outcome is that this facilitates dialogue between government and the people that it serves. The maximization and total value of this outcome depends on how the municipality manages an engagement resource like Twitter and how responsive and technologically savvy their community stakeholders are.

2.2 E-Governance/E-Government[1]

(A) Overview of E-Governance Literature

With the progression of Information and Communication Technology (ICTs) scholars have discussed in detail how levels of government can better themselves. How one defines 'better' is discussed in many different contexts. This paper focusses on transparency and accountability through open platforms of governance as areas of improvement. E-Governance is a concept in

[1] E-Governance and E-Government are used interchangeably

which levels of governments utilize information and communication technologies to help facilitate daily administration and provide more efficient and effective services to citizens, businesses, and government agencies (Long, & Siau 2009). García-Sánchez et. al (2012) describe e-government as a reform "undertaken by public administrators ... [to increase transparency of public bodies] and citizen participation" (p.11). E-governance is generally accepted as a beneficial concept in theory. E-government practice is the subject of many cross-national studies that evaluate different levels of government and their investment in e-government services. Much of the e-government literature is not limited to a municipal focus. The generalizations of e-government service in one country's national context are not necessarily relevant in another's. The challenges of implementing e-government features in most contexts are generally accepted in terms of e-government development stages. The following review examines some of the models that help to contextualize why e-government features differ across Ontario municipal websites.

(B) E-Governance, Factors and Variation

Gil-Garcia and Pardo (2005) characterize five challenges when implementing e-government initiatives in different government contexts: (1) information and data, (2) information technology, (3) organizational and managerial issues, (4) legal and regulatory, and (5) institutional and environmental. Gil-Garcia and Pardo define information and regulatory data as the quality of data. The primary question for stakeholders who are initiating e-government development in their municipality is whether the data used is accurate, consistent and complete. It is possible that a significant relationship exists between these two external factors. The quality of data may depend on the external factors of a municipality, such as population and Gross Domestic Product (GDP) per capita.

Information technology challenges refer to whether e-government initiatives are within the capacity of a municipality. A municipality's capacity relates to security issues of a website,

technological incompatibilities of current resources, complexity of new emerging technological integration, and the skills and experience of an IT department in a municipality.

Gil-Garcia and Pardo (2005) describe organizational and managerial challenges when discussing the following topics: the size of e-government initiatives; the attitudes and behaviour of leaders and practitioners; the diversity of the organization; the lack of alignment towards organizational goals; multiple or conflicting goals; resistance to change; and lastly, turf and conflicts. These challenges are prevalent in many municipalities and within many different contexts. For example, many municipalities across Ontario are investing web-streaming and recorded voting solution for municipal council meetings. This is one example where public administrators are encouraging transparency and e-government content. When proposing service options such as this to municipal elected officials, some may feel uncomfortable with such a proposition and may resist change in fear that they will be increasingly accountable to their constituents. Elected officials may be enthusiastic about increased transparency because of false accusations from their peers on the other hand. Depending on the age of administrators and elected officials, individuals may be hesitant or eager to learn about Facebook, Twitter, and other Internet based tools that can be integrated with their municipal website. Motivations for such e-government initiatives will vary depending on the leaders and practitioners in each municipality. This is consistent with behaviour and attitudes of leaders and practitioners, organizational goals, resistance to change, and others.

Legal and regulatory challenges are evident in Ontario municipalities for numerous reasons, one being annual budget cycles. Since the 2008 global financial crisis many municipalities are managing large reductions in their discretionary spending. A municipality may not see e-government investment as a priority and would rather invest in alternative services, such as social housing opportunities. Legal challenges may occur in situations where a municipality needs to draft new by-laws in areas beyond their internal expertise. A municipality may expand their services because of the advantages of e-government and internet accessibility depending on

the development stage of the municipality. It is important to note that municipal expertise and organizational capacity for developing IT management and e-government features are not equal. A zero or minimal growth municipality of 50,000 will have different internal and external challenges than a newly developing municipality with a similar population.

Gil-Garcia and Pardo's framework is useful. Their list of challenges is a summation of over twenty-six authors. Moon, an author cited by Gil-Garcia and Pardo, provides a five-stage framework that attempts to show how municipalities develop their e-government services. Moon (2002) identifies e-government development through five stages. The first stage is defined as one-way communication. A municipal website displays information to citizens and businesses and other organizations about municipal departments, contact information, events, and more. The second stage is two-way communication in which citizens can register for programs and services, request government records, or request government services (such as street lights). The third stage includes service and financial transactions. This stage allows for online propriety registration, business license applications/renewal, and online payment of fines, taxes, utility bills, license, and permit fees (Moon 2002). The fourth stage covers electronic integration. Integration in this context means the integration of government services and information for local, provincial, or federal levels that can be found in one location. Under an integrated system, citizens for example can vote electronically from one online location for different types of government elections. The fifth is political participation and is not covered in their survey, but includes open chat rooms and in today’s context, video conferencing, and potentially live streaming. Moon's study demonstrates that lack of technical, personnel, and financial capacities are internal factors that are major barriers to e-government development. Moon's results, which are from an earlier study, demonstrate that most municipalities have reached stage 1 and 2 capacities. Many municipal websites are moving to stage three, which allow residents to pay tickets and other government services online. Twitter is an example of stage five, which provides

direct one-to-one, one-to-many and many-to-one communication between politicians and their constituents to a degree.

Much of the e-government literature discussed above and within the general discourse often speaks about the general benefits. The authors up to this point provide some insight into the use of external factors for e-governance measurement. The literature around factors that explain variation in e-government municipal website features is limited both in the volume of research papers that are published in this area, as well as in explaining what factors contribute to the variation of municipal websites.

As a result of the limitations of the literature, Dolson's (2010) research investigates the external factors that contribute to the variation of Canadian municipal websites in 2009. The external factors used to explain variation of e-government include population size, age of population, population change because of immigration, GDP per capita, and post-secondary education rates of residents. Dolson and Young's research explores variation of Canadian Municipal Websites through E-Content, E-Participation, and Social Media Features. Their research measured external factors in which e-participation and social media (two of three items in the e-governance dependent variable) do not have a statistically significant relationship with the independent variables. Dolson & Young (2013) conclude that "municipalities are better at using their websites to deliver information than they are at engaging citizens in online participation or interacting with them through new social media" (p.28). They suggest that future research should concentrate on internal factors.

2.3 Conclusion

This brief literature review provides an overview New Public Management, New Public Services, and E-Governance. The methodology below uses the NPM and NPS language and values to design the questionnaire, which provides the data for the independent variables. The discussion of E-Governance provides the context for the study. Dolson provides the external factors that explain 30.1 percent of the variance in e-governance features collectively, and 11.9 percent of social media features. When reviewing the social media data, it became obvious that the data is slightly out of date because of updated websites in the last three years, yet Dolson's criteria is still sound. Her criterion is used as the basis for updating the social media dataset as a result. The purpose of this research report is to continue with Dolson & Young's suggestion and investigate the internal factors that explain variation of social media features in the context of e-governance.

Chapter 3: Hypotheses

The research question of this paper is 'What internal factors explain the variation in Social Media features on Canadian municipal websites?' The hypotheses of this paper are original and reflective of what is initially thought to impact municipal websites' social media capacity.

H1: The younger the person in control of the website, the more social media features on the municipal website there is.

H2: The higher the administrator's education earned, the more social media features on the municipal website there is.

H3: If cost-effectiveness is a desirable quality of public administration, there will be more numerous and updated social media features on the municipal website.

H4: If participatory policy making is considered slow and time consuming, there are few or no social media features on the municipal website.

H5: If citizens have put tremendous pressure on a municipality to provide online services, there will be more numerous and updated social media features on the municipal website.

H6: If a municipal organization has the human capacity to manage the continual advancements in information technology, there will be more numerous and updated social media features on the municipal website.

H7: If engagement efforts with local stakeholders are a strategic priority, there will be more numerous and updated social media features on the municipal website.

H8: If council is supportive of increased budget spending on the municipal website, there will be more numerous and updated social media features on the municipal website.

Chapter 4: Methodology

4.1 Introduction to Methodology

The literature review above presents the background for the methodology. The discussion of New Public Management and New Public Service provides the language for that paradigm. A questionnaire was developed from the literature review using NPM and NPS attitudes and tendencies. The questionnaire also includes questions that attempt to explain the social media capacity of a municipality beyond the scope of NPM and NPS. The second piece of this research used a section of Dolson's e-government index. Dolson's social media sub-index provides the criteria for measuring municipal websites. The purpose of recompiling her data using the same list of municipalities was to provide a consistent and up-to-date addition to her work. The municipalities chosen for this research originated from Dolson's Major Research Project. Appendix 1 shows the amount of municipalities (43) that completed a questionnaire and contributed to this research paper. Dolson's research evaluated 109 municipalities in total, all of which received the questionnaire (Appendix 2). The Social Media Capacity score is only calculated for the municipalities that submitted a full-questionnaire. Each municipality's score is reflective of their municipal website on July 4, 2013 (see Appendix 1). Improvements since then are not reflected in this data.

4.2 Independent Variables: questionnaire development process

Determining the methodology originates from Dolson's recommendations in her concluding statements (Dolson, 2010). Dolson recommends that because her research into external municipal factors only explains 30.1 percent of the variance in municipal website e-governance scores, there must be internal factors that contribute to the missing 69.9 percent of the variance. Her methodology does not index Social Media Capacity as high as E-Content and E-Participation, but in 2013, participation and finding new ways to open up dialogue with citizens is

becoming increasingly important. A focus on Social Media Capacity is more relevant for civic administrators in Canada. A short questionnaire provides the basis for measuring internal factors that may explain the variance of numerous municipal websites' Social Media Capacity as a result.

(A) Independent Variable Definitions

Attached in Appendix 2 are ten questions that represent nine independent variables: age, education, attitude towards cost-effectiveness, participatory policy making, public engagement, experience with citizen's pressure for online services, organization's human capacity to manage IT advancements, strategic priority of council to improve engagement efforts, and if council is supportive of municipal budget spending on the municipal website. Questions three to ten were used to score the respondent. The highest theoretical score of a respondent is 31.

The questionnaire was split up in four different sections: 'Personal Information', 'Administration', 'Workplace', and 'Perceptions of Council'. The first question represents the name of the municipality that was only used to organize the questionnaire responses in relation to the social media capacity scores. The second question, the age of the respondent, was measured as an interval variable. The third question, education, was scored as follows: High school education assigns a value of 1, College assigns a value of 2, Undergraduate assigns a value of 3, Masters assigns value of 4, and Doctorate assigns a value of 5. Question four measures the degree that the respondent believes cost-effectiveness is a desirable quality of publication administration. If a person selected 'Strongly Disagree', they scored a value of 1. If the respondent selected 'Strongly Agree', a value of 4 was assigned. Question five described participatory policy making as slow and time consuming and was codified oppositely of question four; if a person selected 'Strongly Disagree' they scored a value of 4, and 'Strongly Agree' assigned a value of 1. Question five focuses on decentralization and expedient public service delivery; engaging stakeholders under a NPM paradigm is slow and time consuming. Question six measures the respondent's attitude towards 'engaging the public for meaningful dialogue provides better outcomes'. If the respondent strongly agreed with question six the respondent was assigned a

value of 4. If a person selects ‘Strongly Disagree’, the value assigned will be 1. Questions seven through ten scored the same way.

(B) Administering the questionnaire

Western University’s Political Science Ethics Committee reviewed the questionnaire, the focus of the study, and how this research would be completed before the questionnaire was administered to the respondents. This required all emails to respondents to include a reason for this research and full transparency of how the respondents’ data was to be managed. SurveyMonkey was used to create and submit the questionnaire to 109 municipal administrators through a submission list after approval. Determining who in the municipal organization should appropriately fill out the questionnaire and accurately reflect this research was challenging.

The goal of the questionnaire is to measure the internal factors of the administrator in a municipal organization that is responsible for determining what Social Media Capacity features were on their municipal website. Instead of navigating through 109 municipal organizational structures, senior administrators (almost all CAOs) received the questionnaire and were instructed to forward the email appropriately. This was supposed to be done if the email recipient felt as if a person inside their organization was better suited to answer the questionnaire to meet the research aim of this paper.

4.3 Data collection time period

SurveyMonkey was used to email 109 contacts a questionnaire with detailed instructions on June 24, 2013. Four emails rejected delivery of SurveyMonkey emails to the respondent. SurveyMonkey sent a reminder email to 72 recipients that had yet to fill out the original questionnaire on June 27, 2013. The four municipalities that blocked SurveyMonkey received a personalized email on June 27, 2013. The results of the questionnaire were codified twice to ensure error-free data in the first week of July. The Social Media Capacity data was compiled for all 43 municipal websites that submitted completed questionnaires on July 4. Two partial

questionnaires that had no more than two questions filled out were not included in this dataset and were discarded. Updates to the municipal websites past July 4 are not reflected in this dataset.

4.4 Compiling the dependent variable dataset

Dolson (2010) developed criteria for evaluating municipal websites' Social Media Capacities as discussed earlier. The scoring for each municipality was taken entirely from her research. Table 2 shows how the information was calculated.

Table 2 – Social Media features criteria

Criteria items	Social Media Capacity	
	0	1
1. The municipality has a link on its homepage to its Facebook page	No	Yes
2. The municipality has a link on its homepage to its Twitter page	No	Yes
3. The municipality has a link on its homepage to its RSS feed page	No	Yes
4. The municipality has a link on its homepage to its YouTube channel	No	Yes
5. The municipality's Facebook wall enables comments	No	Yes
6. The municipality has posted information on its Facebook wall	No	Yes
7. The last tweet is less than a month old	No	Yes
8. The last RSS news item is less than a month old	No	Yes
9. The last YouTube post is less than 4 months old	No	Yes
10. The municipality has at least one other social media tool link on its home page: (ex. LinkedIn, Flicker)	No	Yes
TOTAL	/10	

(Dolson, 2010, p. 35)

Each municipal website was evaluated based on four social networking platforms and one miscellaneous platform: Facebook, Twitter, RSS, YouTube, and one other (such as LinkedIn or Flicker). The first four and last criteria items require an icon or link to a social networking website to be on the homepage of the municipal website and not a departmental website. If

criteria items one though four are not met the municipal websites were still checked for links on different pages. Criteria items 5 through 9 do not require criteria items one through five to be met.

The questionnaire municipal data (independent variables) and the Social Media Capacity score (dependent variable) for each municipality were merged to create a complete dataset. SPSS was used to compile this dataset and export the results for the purposes of the analysis.

Chapter 5: Analysis

5.1 Analysis Introduction

Chapter five shows the results of this study through Univariate, Bivariate, and Multivariate analysis. All missing data was managed through SPSS and assigned a value of 0. The information below removed respondents with missing data for specific models in order to provide complete and accurate results.

5.2 Univariate Analysis

Table 3 - Descriptive Statistics

Variable	Mean	Std. Deviation	N	Range
Social Media Capacity scores (dependent variable)	5.12	3.507	43	0-10
Age	42.30	9.235	40	26-59
Education	3.07	.856	43	1-5
Cost effectiveness is a desirable quality of public admin	3.58	.663	43	1-4
Participatory policy is generally slow	2.16	.574	43	2-4
Public engagement equals better outcomes	3.47	.505	43	3-4
Citizens' pressure to provide online services	2.74	.790	43	1-4
Human capacity to manage IT advancement	2.40	.660	43	1-4
Engagement is a council strategic priority	3.45	.550	42	2-4
Council support's increase website spending	2.62	.697	42	1-4

Table 3 summarizes the descriptive statistics of the dependent variable and the independent variables. The mean, standard deviation, the number of municipalities of each variable, and the response range are shown.

Table 4 - Website Scores (Dependent Variable)

Score	Frequency	Percent
0	7	16.3
1	2	4.7
2	6	14.0
3	1	2.3
4	1	2.3
5	3	7.0
6	4	9.3
7	5	11.6
8	6	14.0
9	3	7.0
10	5	11.6
Total	43	100.0

Table 3 and 4 show the results for municipal website scores. The Social Media Capacity score averaged 5.12 out of 10. The range shows that municipalities scored as low as 0 and as high as 10 out of 10. The frequency table shows that seven municipalities scored zero, which is actually the mode for that variable. Two and eight were the second most frequent scores with a value of six.

Table 5 - Education

Education level	Frequency	Percent
High school	1	2.3
College	10	23.3
Undergraduate	18	41.9
Masters	13	30.2
Doctorate	1	2.3
Total	43	100.0

The Education variable represented in Table 3 is numeric. The mean education of the administrators is 3.07, which represents an undergraduate education. Table 6 shows that an undergraduate education represents 41.9 percent (18) of the respondents. A master's degree is the next most frequent education level with 13 respondents and 30.2 percent of the dataset. Both high school and doctorate educations only represent one person each in this questionnaire.

Table 6 - Ages

Ages	Frequency	Percent
26	1	2.3
27	1	2.3
31	4	9.3
32	1	2.3
33	2	4.7
34	2	4.7
35	1	2.3
37	1	2.3
39	1	2.3
40	4	9.3
41	2	4.7
42	1	2.3
43	4	9.3
44	1	2.3
45	1	2.3
49	2	4.7
50	3	7.0
51	2	4.7
53	1	2.3
57	2	4.7
58	1	2.3
59	2	4.7
Total	40	93.0
Missin	3	7.0
Total	43	100.0

Table 3 and 6 show the results for the first independent variable, which is the respondent's age. It is important to remember that in this study the respondent represents the municipal administrator that controls which social media features were on their municipality's

website. The average age of this administrator is 42.30. Only 40 of the 43 questionnaires were used for this variable because three individuals did not provide their age. The youngest respondent is 26 and the oldest administrator is 59 in this dataset.

Table 7 - Cost effectiveness is a desirable quality of public admin

Response	Frequency	Percent
Strongly Disagree	1	2.3
Disagree	1	2.3
Agree	13	30.2
Strongly Agree	28	65.1
Total	43	100.0

Table 3 and 7 shows the results for 'Cost effectiveness is a desirable quality of public admin.' The variable on average was strongly agreed with (3.58). The frequency table demonstrates that 65.1 percent (28) of respondents 'Strongly Agree' with the statement in the questionnaire and 13 (30.2%) of the respondents 'Agree'. Only two people outside this range responded differently (one person disagreed and one person strongly disagreed) which represents 4.6 percent of the respondents collectively. All areas at least have one response and all municipal representatives provided a response for this data.

Table 8 - Participatory policy is generally slow

Response	Frequency	Percent
Disagree	11	25.6
Agree	28	65.1
Strongly Agree	4	9.3
Total	43	100.0

Table 3 and 8 shows the results for 'Participatory policy is generally slow'. The mean response for participatory policy is generally slow is 2.16. The frequency for 'Agree' represents 65.1 percent of this data. Four people (9.3 percent) strongly agree with the statement. Eleven

people (25.6%) disagreed that participatory policy is generally slow. All 43 municipalities are represented in this dataset.

Table 9 - Public engagement equals better outcomes

Response	Frequency	Percent
Agree	23	53.5
Strongly Agree	20	46.5
Total	43	100.0

Table 3 and 9 shows the results for the indicator ‘Public engagement equals better outcomes’. The mean response is that respondents generally ‘Agree’ (3.47) public engagement results in better outcomes. Table 9 shows that 23 (53.5%) people ‘Agree’ and 20 (46.5%) ‘Strongly Agree’ with the statement. No respondent chose to ‘Disagree’ or ‘Strongly Disagree' and all respondents are represented.

Table 10 - Citizens' pressure to provide online services

Response	Frequency	Percent
Strongly Disagree	2	4.7
Disagree	14	32.6
Agree	20	46.5
Strongly Agree	7	16.3
Total	43	100.0

Table 3 and 10 shows the respondent’s experience with ‘Citizens’ pressure to provide online services’. The mean response is 2.74, which represents ‘Agree’ if rounded up. Table 10 shows that 20 (46.5%) of people agreed and 14 (32.6%) disagreed that citizens are pressuring their department to provide online services. Two people strongly disagreed and seven strongly agreed. All respondents responded for this question (N = 43).

Table 11 - Human capacity to manage IT advancement

Response	Frequency	Percent
Strongly Disagree	2	4.7
Disagree	24	55.8
Agree	15	34.9
Strongly Agree	2	4.7
Total	43	100.0

Table 3 and 11 shows the respondent's opinion of their organizations "Human capacity to manage IT advancement". The mean response for this indicator is 2.40. On average, respondents disagree that their municipality have the capacity to manage IT advancements. Table 11 suggests that over half of respondents believe that this is the case. Table 11 shows that 15 (34.9) suggest that their organization has the capacity to manage IT changes; two people strongly disagree (4.7%) and two strongly agree (4.7%). All 43 administrators provided a response for this variable.

Table 12 - Engagement is a council strategic priority

Response		Frequency	Percent
	Disagree	1	2.3
	Agree	21	48.8
	Strongly Agree	20	46.5
	Total	42	97.7
Missing		1	2.3
Total		43	100.0

Table 3 and 12 shows the respondent's observation of whether their municipal council considers engagement as a council strategic priority. A mean of 3.45 demonstrates that on average Councils 'Agree' with the statement. Table 12 shows that 20 (46.5%) people 'Strongly Agree', 21 (48.8%) 'Agree' and 1 (2.3%) disagree. The support for engagement in Canadian municipalities is very high. Forty-two administrators responded to this question and the results were very one-sided.

Table 13 - Council support's increase website spending

Response		Frequency	Percent
	Strongly Disagree	2	4.7
	Disagree	15	34.9
	Agree	22	51.2
	Strongly Agree	3	7.0
	Total	42	97.7
Missing		1	2.3
Total		43	100.0

Table 3 and 13 shows the respondents observation of whether their 'Council support's increase website spending'. The mean for this indicator was 2.62. The mean when rounded up reflects the 'Agree' response. As a result, Table 13 shows that 22 (51.2%) respondents agreed that their council is increasing website spending, 15 (34.9%) disagreed; three municipalities strongly agreed (7%) and two strongly disagreed (4.7%). All but one administrator responded to this question.

5.3 Bivariate Analysis

SPSS and the Pearson Correlation tool were used to develop the Bivariate Correlation table below. Table 14 shows the relationships between the dependent variable (Social Media Capacity) and the independent variables (indicators from the questionnaire).

Table 14 – Bivariate Correlation: Dependent and Independent

Variable	Method	Social Media Capacity
Social Media Capacity	Pearson Correlation	1
	N	43
Age	Pearson Correlation	-.353*
	N	40
Education	Pearson Correlation	-.003
	N	43
Cost effectiveness is a desirable quality of public admin	Pearson Correlation	.142
	N	43
Participatory policy is generally slow	Pearson Correlation	.191
	N	43
Public engagement equals better outcomes	Pearson Correlation	.171
	N	43
Citizens' pressure to provide online services	Pearson Correlation	.045
	N	43
Human capacity to manage IT advancement	Pearson Correlation	.103
	N	43
Engagement is a council strategic priority	Pearson Correlation	.320*
	N	42
Council support's increase website spending	Pearson Correlation	.090
	N	42
*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).		

(A) Independent and Dependent Variables

Two independent variables demonstrated significance at the 0.05 level of all the bivariate relationships. The first one is 'Age', which demonstrated a negative and moderate correlation of -.353 when measured against Social Media Capacity. This suggests that younger administrators tend to have more social media features on their municipal website. The second independent variable was 'Engagement is a council strategic priority', which produced a positive and moderate correlation of .320. Municipalities that have engagement as a council strategic priority tend to have more social media features on their municipal website as a result. The value in Table 14 shows that only 'Age' and 'Engagement is a council strategic priority' significantly and moderately correlate with municipalities social media score.

Seven of nine independent variables did not significantly correlate with the dependent variable. Education correlated negatively with a value of -.003, which is very weak. 'Cost effectiveness is a desirable quality of public admin' correlated positively with a value of .142, which is weak. The response 'Participatory policy is generally slow' has a correlation of .191 and represents a nearly moderate relationship. 'Public engagement equals better outcomes' correlated positively with a weak value of .171. 'Citizens' pressure to provide online services correlated positively with a weak value of .045. An organization's 'Human capacity to manage IT advancement' correlated positively with a weak value of .103. 'Council support's increase website spending' correlated positively with a weak value of .090. These independent variables all demonstrate a weak correlation, which suggests the independent variables tend to influence the dependent variable to an extent; unfortunately, these variables represent insignificant correlations. These results demonstrate that the majority of the hypotheses do not exemplify the impacts on municipal websites social media features. These independent variables tend not to significantly influence the social media score of municipalities in this study.

(B) Independent Variable Matrix

Table 15 below shows the results for independent variables in the bivariate matrix.

Table 15 – Bivariate Matrix: Independent Variables

Variable	Method	Age	Education	Cost effectiveness …. desirable quality of public admin	Participatory policy is generally slow	Public engagement equals better outcomes	provide online services	Human capacity to manage IT advancement	Engagement is a council strategic priority	increase website spending
Age	Pearson Correlation	1	.226	.103	.141	-.070	-.261	.154	.178	.045
	Sig. (2-tail)		.161	.526	.386	.669	.104	.342	.279	.787
	N	40	40	40	40	40	40	40	39	39
Education	Pearson Correlation	.226	1	.137	.170	**.419****	.027	.034	**.316***	.031
	Sig. (2-tail)	.161	-	.383	.276	.005	.863	.827	.041	.844
	N	40	43	43	43	43	43	43	42	42
Cost effective.. is a desirable quality of public admin	Pearson Correlation	.103	.137	1	-.192	-.116	-.118	**-.320***	.076	.007
	Sig. (2-tail)	.526	.383	-	.218	.460	.449	.036	.633	.962
	N	40	43	43	43	43	43	43	42	42
Participatory policy is generally slow	Pearson Correlation	.141	.170	-.192	1	.225	.094	.140	-.013	.040
	Sig. (2-tail)	.386	.276	.218	-	.146	.549	.370	.936	.801
	N	40	43	43	43	43	43	43	42	42
Public engagement equals better outcomes	Pearson Correlation	-.070	**.419****	-.116	.225	1	**.365***	.007	**.476****	.086
	Sig. (2-tail)	.669	.005	.460	.146	-	.016	.966	.001	.588
	N	40	43	43	43	43	43	43	42	42
Citizens' pressure to provide online services	Pearson Correlation	-.261	.027	-.118	.094	**.365***	1	-.121	**.310***	-.036
	Sig. (2-tail)	.104	.863	.449	.549	.016	-	.439	.046	.822
	N	40	43	43	43	43	43	43	42	42
Human capacity to manage IT advancement	Pearson Correlation	.154	.034	**-.320***	.140	.007	-.121	1	.051	.005
	Sig. (2-tail)	.342	.827	.036	.370	.966	.439	-	.748	.975
	N	40	43	43	43	43	43	43	42	42
Engagement is a council strategic priority	Pearson Correlation	.178	**.316***	.076	-.013	**.476****	**.310***	.051	1	.015
	Sig. (2-tail)	.279	.041	.633	.936	.001	.046	.748	-	.924
	N	39	42	42	42	42	42	42	42	42
Council support's increase website spending	Pearson Correlation	.045	.031	.007	.040	.086	-.036	.005	.015	1
	Sig. (2-tail)	.787	.844	.962	.801	.588	.822	.975	.924	-
	N	39	42	42	42	42	42	42	42	42

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

The second independent variable ‘Education’ correlated positively with two other independent variables: ‘Public engagement equals better outcomes’ and ‘Engagement is a council strategic priority’. The respective results are .419 at .01 and .316 at .05 levels of significance, which represents moderately strong and moderate correlations. These relationships suggests if respondents believe that engagement equals better outcomes, and when engagement is a council strategic priority, the respondent's education earned tends to be higher in both individual relationships with these independent variables.

The third independent variable ‘cost effectiveness is a desirable quality of public administration’ correlated negatively with an organization’s ‘Human capacity to manage IT advancement’. The relationship demonstrates a moderate value of -.316 at a .05 level of significance. This demonstrates that if the respondent believes cost effectiveness is a desirable quality of public administration, the human capacity to manage IT advancement in their municipality tends to be lower.

The fifth independent variable ‘Public engagement equals better outcomes’ correlated positively with two more independent variables as well as Education; ‘Citizens’ pressure to provide online services’ and ‘Engagement is a council strategic priority’ significantly correlated with the fifth variable. The respective values were .365 at .05 and .476 at 0.01 levels of significance which represent moderate and moderately strong relationships. These correlations suggest that when the respondent believes ‘Public engagement equals better outcomes’, ‘Engagement is a council strategic priority’ and if they experience ‘Citizens’ pressure to provide online services’, they tend to be more educated when correlated with these independent variables individually.

The sixth independent variable ‘Citizens’ pressure to provide online services’ correlated positively with one variable in addition to ‘Public engagement equals better outcomes’. The additional independent variable ‘Engagement is a council strategic priority’ demonstrated a moderate correlation value of .310 at the .05 level of significance. This demonstrates that

'Citizens pressure to provide online services' tends to increase when engagement is a council strategic priority. The result does not make much sense when codifying these variables for the purposes of correlating them and then returning them back into their original form. If one independent variable interval value increases, this tends to result in an interval value increase of the other independent variable.

The age of the respondent and their attitudes towards 'Participatory policy is generally slow' did not significantly correlate with any other independent variables. The last independent variable, 'Council supports increase website spending', did not correlate with any other independent variables significantly.

5.4 Multivariate Analysis

Linear multiple regression was performed in SPSS to undertake the multivariate analysis. Three models were used to explain variation in the dependent variable associated with the independent variables for this section. Model 1 incorporates all the independent variables and the dependent variable in one linear regression equation. Model 2 is a linear regression equation that incorporates a small set of independent variables, which excludes insignificant independent variables.

(A) Model 1 – All Variables

Table 16 – Model 1 Social Media Capacity: ANOVA[a]

	Sum of Squares	df	Mean Square	F	Sig.
Regression	185.643	9	20.627	2.061	.068[b]
Residual	290.255	29	10.009		
Total	475.897	38			

a. Dependent Variable: Website scores

b. Predictors: (Constant), Council support's increase website spending, Engagement is a council strategic priority, Cost effectiveness is a desirable quality of public admin, Age, Participatory policy is generally slow, Education, Human capacity to manage IT advancement, Citizens' pressure to provide online services, Public engagement equals better outcomes

Table 17 – Model 1 Social Media Capacity Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.625[a]	.390	.201	3.164

a. Predictors: (Constant), Council support's increase website spending, Engagement is a council strategic priority, Cost effectiveness is a desirable quality of public admin, Age, Participatory policy is generally slow, Education, Human capacity to manage IT advancement, Citizens' pressure to provide online services, Public engagement equals better outcomes
b. Dependent Variable: Website scores

Table 18 – Model 1 Regression Coefficients[a]

	Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Correlations		
	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part
(Constant)	1.624	5.280		.308	.761	-9.174	12.422			
Age	-.209	.063	-.545	-3.312	.002	-.338	-.080	-.338	-.524	-.480
Education	-.195	.712	-.046	-.274	.786	-1.651	1.260	-.009	-.051	-.040
Cost effectiveness is a desirable quality of public admin	.280	.860	.054	.325	.747	-1.478	2.037	.122	.060	.047
Participatory policy is generally slow	1.524	1.013	.239	1.504	.143	-.549	3.596	.107	.269	.218
Public engagement equals better outcomes	-.366	1.343	-.052	-.273	.787	-3.114	2.381	.161	-.051	-.040
Citizens' pressure to provide online services	-1.250	.739	-.286	-1.690	.102	-2.762	.262	-.013	-.299	-.245
Human capacity to manage IT advancement	.500	.876	.094	.571	.572	-1.290	2.291	.161	.106	.083
Engagement is a council strategic priority	3.412	1.161	.535	2.939	.006	1.037	5.787	.294	.479	.426
Council support's increase website spending	.396	.742	.078	.533	.598	-1.122	1.914	.071	.099	.077

a. Dependent Variable: Website scores

The bivariate analysis showed that ‘Age’ and ‘Engagement is a council strategic priority’ to be the only significant correlations with the dependent variable at .05 level. When running the linear regression equation using SPSS an analysis of the variance is provided through ANOVA. The “Sig.” value provides us with a measure of good fit. The measure of good fit value for this model was .068, as shown in Table 16. Model 1 does not represent a measure of fit above the .05

level, which is less than ideal. Nonetheless, the F value is 2.061, which is almost significant at the .05 level. The Adjusted R Squared, which explains our overall dependent variable variance as a result of our independent variables, is equal to .201. This suggests that 20.1 percent of the variance in municipalities' social media features is explained through the nine independent variables. Table 18 shows the Regression Coefficients for all nine variables used in this regression model. Both 'Age' (.002) and 'Engagement is a council strategic priority' (.006) are significant at the .01 level. 'Citizens pressure to provide online services' was nearly significant at the .10 level with a value of .102. 'Education', 'Cost effectiveness is a desirable quality of public admin', 'Participatory policy is generally slow', 'Public engagement is generally slow', 'Public engagement equals better outcomes', 'Human capacity to manage IT advancement' and 'Council support's increase website spending' were all insignificant. The insignificance of these independent variables contributed to the "Sig" value of .068 as shown in Table 16.

(B) Model 2 – Significant Variable List

Table 19 – Model 2 Social Media Capacity: ANOVA[a]

	Sum of Squares	df	Mean Square	F	Sig.
Regression	115.791	2	57.896	5.788	.007[b]
Residual	360.106	36	10.003		
Total	475.897	38			

a. Dependent Variable: Website scores
b. Predictors: (Constant), Engagement is a council strategic priority, Age

Table 20 – Model 2 Social Media Capacity Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.493[a]	.243	.201	3.163

a. Predictors: (Constant), Engagement is a council strategic priority, Age

b. Dependent Variable: Website scores

Table 21 – Model 2 Regression Coefficients[a]

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations		
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
(Constant)	3.696	3.705		.997	.325	-3.819	11.210			
Age	-.154	.056	-.403	-2.732	.010	-.268	-.040	-.338	-.414	-.396
Engagement is a council strategic priority	2.331	.940	.365	2.480	.018	.425	4.237	.294	.382	.360

a. Dependent Variable: Website scores

Model one provides some insight into the independent and dependent variables' relationship. In order to achieve a better measure of fit SPSS was used to run the linear regression equation again. In Model 2 the significant independent variables, 'Age', and 'Engagement is a council strategic priority' from the bivariate analysis were used to find a better fitting model of good fit. Table 18 shows ANOVA for Model 2. The F value of 5.788 is highly significant, indicating that the whole relationship did not occur by chance. Table 19 represents the Model 2 Summary, which includes the Adjusted R Square. The Adjusted R Square remains the same as Model 1 at .201. This was not surprising as the significant independent variables that explain a proportion of social media capacity variance were isolated for Model 2. Nonetheless, the respondent's 'Age' and 'Engagement being a council strategic priority' within this regression model contributed to a better measure of fit. Table 20 shows the Regression Coefficients for the two variables used in this regression model. Both 'Age' (.010) and 'Engagement is a council strategic priority' (.018) were significant at the .01 level. The significance of each independent variable changed from .002 and .006 to .010 and .018 for 'Age' and 'Engagement is a council strategic priority' respectively for this regression model. The outcome as represented in Table 19 remains the same with an Adjusted R Square value of .201.

(C) Model 3 – Best representation of a model of good fit

Table 22 – Model 3 Social Media Capacity: ANOVA[a]

	Sum of Squares	df	Mean Square	F	Sig.
Regression	144.421	3	48.140	5.083	.005[b]
Residual	331.477	35	9.471		
Total	475.897	38			

a. Dependent Variable: Website scores

b. Predictors: (Constant), Engagement is a council strategic priority, Age, Citizens' pressure to provide online services

Table 23 – Model 3 Social Media Capacity Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
3	.551[a]	.303	.244	3.077

a. Predictors: (Constant), Engagement is a council strategic priority, Age, Citizens' pressure to provide online services

b. Dependent Variable: Website scores

(C) Table 24 – Model 3 Regression Coefficients

		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Correlations		
	Variables	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	6.183	3.879		1.594	.120	-1.691	14.058			
	Age	-.186	.058	-.486	-3.214	.003	-.303	-.068	-.338	-.477	-.453
	Citizens' pressure to provide online services	-1.185	.682	-.271	-1.739	.091	-2.569	.199	-.013	-.282	-.245
	Engagement is a council strategic priority	2.948	.981	.462	3.005	.005	.957	4.939	.294	.453	.424

a. Dependent Variable: Website scores

The bivariate analysis shows that ‘Citizens pressure to provide online services’ was nearly significant at .10 level of significance in its relationship with the dependent variable. The variables in Model 2, ‘Age’ and ‘Engagement is a council strategic priority’, are added with ‘Citizens pressure to provide online services’ to form Model 3. SPSS was used once again to run Model 3, which produced some notable results. The ANOVA table shows a model of good fit to the 0.005 level. The null hypothesis can be rejected as a result. The Adjusted R Square value for model three is larger, explaining 24.4 percent of the variance in the dependent variable. Table 23 shows the Regression Coefficients for three variables used in this regression model. ‘Age’ (.003) and ‘Engagement is a council strategic priority’ (.005) are both significant at the .01 level. ‘Citizens’ pressure to provide online services’ (.091) in this model is significant at the .10 level. For this regression model, the significance of each of the included independent variables changed slightly. ‘Citizens’ pressure to provide online services’ became significant at the .10 level which was not achieved in previous regression models. In combination of Table 21, 22 and 23 it is evident that Model 3 is a moderately good explanatory model, the best found to fit the data; explaining 24.4 percent of the variance in the social media features.

Chapter 6: Discussions and Interpretations

The Descriptive Statistics results shown in table 3 were somewhat expected. The range of municipalities was selected originally by Dolson to get a wide-range of municipalities, and thus experiences. The Social Media Capacity scores reflect this decision with an average score of 5.12. In some cases, municipalities have departmental social media websites but not a corporate one. The analysis did not determine why this is the case but personal municipal experience in Information Technology suggests that municipalities are still managing how to approach developing a social media policy framework that will affect the entire municipality, which is consistent with stage four of Gil-Garcia and Pardo's (2005) challenges of moving forward with more sophisticated and integrated e-governance features. There are also discussions about what information a municipality wants to keep up-to-date through social media, what types of dialogue are appropriate, and what the outcome of this type of engagement will be. Qualitative research in this area will enrich and perhaps explain the missing variance in the overall model.

Another observation worth noting is that Technology and Social Media were often associated with younger demographics. This study found that respondents were on average 42.3 years old, ranging from 26-59. It is possible that the Canadian demographics are shifting towards younger administrators in similar capacities as the respondents of this study. It is important to distinguish users of social media and technology, from those that operate the services and maintain the technology. Those that operate and maintain IT services are likely more senior in status and age.

'Education' is another area that is surprising and also encouraging. Respondents have an undergraduate education on average. The next most frequent was a master's degree. It is an expectation that the levels of highly educated administrators will continue to increase, especially graduate degrees.

The bivariate analysis provided the basis for evaluation and interpretation of the variables used in the context of 2013 administrators' attitudes and social media advancements in local government.

The bivariate analysis results were surprising. Only two significantly correlate with the dependent variable of the nine independent interval variables that are tested. 'Age' negatively and significantly correlated with the dependent variable at the .05 level. The second significant correlation was 'Engagement is a council strategic priority'. The average response was 'Agree'. Table 12 shows that all but one respondent agreed or strongly agreed that their council set engagement as a strategic priority. It would be interesting to see if Engagement as a council strategic priority was relevant five years ago with the respondent's municipalities and if it will continue to do so in the next five and ten years. If an individual evaluated the respondent's municipal strategic plans and determined if there is a positive or negative change compared to this data in 2013 one could then speculate that this correlation is increasing. The new data can be correlated with the dependent variable once this is determined. It is an expectation that both the engagement independent variable and the social media capacity score will continue to increase in five years. This is of interest because New Public Service is an emerging paradigm. Engagement methods are often cited in NPS literature for the purposes of creating more effective and representative policy. Evaluating the past and future of strategic planning efforts that include engagement as a priority may prove to be useful if this significant relationship between 'Engagement is a council strategic priority' and 'Social Media capacity' correlates higher.

'Participatory policy is generally slow' correlated with the dependent variable at a value of .191, which is the largest insignificant correlation. This correlation was particularly surprising when compared to other independent variables that one would expect would correlate higher; such as 'citizens' pressure to provide online services' which was one of the lowest correlated variables.

'Council support's increasing website spending' correlated insignificantly with a very weak value of .090. The univariate statistics demonstrate that the mean response for this independent variable is actually 'Agree'. It is possible that in a local government context, increasing municipal website spending is focused on e-content and e-participation, as Dolson describes, rather than social media. If a municipality chooses to use Twitter, Facebook, LinkedIn, YouTube, RSS, or Flickr for example, the cost to do so can be absorbed as an operational cost. For example, the Webmaster creates a social media website link to a municipality's homepage, which is an operational cost likely assumed by the Information Technology department or Communications department. Then the cost of designing the corporate policy for social media acceptable practices may be an operational cost assumed by a corporate strategy department. If municipalities want to move to stage 4 and 5 of Moon's e-governance model through online services, like political participation through live discussion forums, investments in servers and networking infrastructure would be required. It is possible that this independent variable is not impactful for social media now but it will be in five years. The questionnaire combined with Dolson's e-participation and e-content criteria as well as qualitative research methods could provide further insight.

The bivariate analysis also shows the significant correlations of the independent variables. Education significantly correlated at the 0.01 level with 'Publication Engagement equals better outcomes' moderately strong with a value of .419. This suggests that the more formally educated a respondent is, the more they tend to believe that better outcomes are achieved through public engagement methods. A method to further research in this area is to ask in the questionnaire, which department and what position the respondent works in. It is possible that the emails to mostly CAOs were eventually forwarded to a person in Communications or IT. Attitudes around participation will vary across department and role in an organization and unfortunately, the initial resources for the questionnaire did not provide the means for an extended questionnaire. Regardless, this is still an interesting and significant correlation.

Education also significantly correlated with ‘Engagement is a council strategic priority’ at the .05 level moderately with a value of .316. Attitudes and behaviours of administrators rather than council are being quantified in this case study. It is outside the scope of this study to understand how engagement becomes a strategic priority; it could be a result of residents complaining about inaccessible governance to their councillor, or perhaps it originated from a survey that administrators of a municipality used to measure residents input. A focused quantitative study on council attitudes and behaviour is appropriate here for future research.

The response for ‘cost effectiveness is a desirable quality of public administration’, significantly and moderately correlated at the .05 level with an organization’s ‘Human capacity to manage IT advancement’ at -.320. Unfortunately the literature thus far did not explain why this is the case. Conceptually, one can expect that if it is desirable to deliver quality public services, organizations should have the IT capacity to manage the advancements in technology, as technology is often said to simplify and expedite functions in many different organizations. The only conclusion that can be arrived at this time is that local government organizations believe cost effectiveness is important, but do not associate that with an increase in technology expenditures; both capital and operational.

‘Public engagement equals better outcomes’ significantly correlated with two more independent variables. These were (i) ‘Citizens’ pressure to provide online services’ which moderately correlated with a value of .365 at the .05 significance level and (ii) ‘Engagement is a council strategic priority’, which correlated moderately strong with a correlation value of .476 at the .01 level. (i) The second displayed a moderate correlation with a value of .365 as a result. The third correlation (ii) was moderately strong with a value of .476. The bivariate analysis demonstrated at the .05 significance level an increase in ‘citizens’ pressure on administration to provide online services’ which resulted in a moderate correlation of .310 with ‘Public engagement equals better outcomes’.

Multivariate analysis through three linear regression models explains at best 24.4 percent of the variance of the Social Media Capacity of municipal websites. The insignificance of 7 out of 9 independent variables was unexpected. In regards to the variables that were not significant, it was surprising to see that education of the respondent did not correlate significantly with municipalities Social Media Capacity score. This is likely a result of any number of factors. For example, the original recipient of the questionnaire is not actually the most the appropriate person to respond to questionnaire given the context. The person who received the forwarded questionnaire is not the right person, or the appropriate person filled out the questionnaire but that one person in the organization was not responsible for all the decisions that determine which social media features are used. The third example is the most telling. Local government organizations are complex which makes it difficult to quantify what directly results or impacts one tangible thing; like social media features.

Despite all the insignificant independent variables, Model 3 accounts for one of the surprises, 'Citizens pressure to provide online services' variable. This variable became statistically significant at the .10 level with a T value of .091 in Model 3. This influenced the regression equation when partnered with the two significant independent variables; 'Age' and 'Engagement is a council strategic priority'. This result may be explained through Tables 15 and 22. When analyzing Table 22, 'Age' demonstrated a significance value of .002 and 'Engagement is a council strategic priority' a value of .006.

Overall, this study found two internal factors correlated significantly at the .05 level. This study found a third independent variable, citizens' pressure to provide online services that impacts the regression model results and is statistically significant at the .10 level. It is expected that some the independent variables, like 'Council support's increase website spending', are actually significant in other areas of e-governance like e-participation and e-content but not social media. The questionnaire data from the respondents is likely significant and could be used, with permission of respondents, for further study with other dependent variables. Dolson's adjusted r

squared value for external factors that explain social media features in 2010 is .119. Her dependent variable data is slightly out of date which is why this research paper includes an updated dataset using her criteria. This and Dolson's data do not mean that 36.3 percent of the social media features variance is explained through the determined internal and external factors, but rather there is still a majority of social media features that is unexplained despite the current literature as a result.

Chapter 7: Conclusion and Next Steps

This paper seeks to acknowledge two realities: Local governments are forced to acknowledge and manage technological changes; and secondly, the language academically and in practice around serving citizens instead of treating them as customers are changing. The research question for this paper was 'What internal factors explain the variation in Social Media features on Canadian municipal websites?' The table below demonstrates the results of the study as it relates to the hypotheses.

Table 25 – Hypotheses Testing:
Independent Variables and impact on Social Media Capacity score

H1: The younger the respondent, the more social media features on the municipal website there is.	Reject Null Hypothesis
H2: The higher the administrator's education earned, the more social media features on the municipal website there is.	Accept Null Hypothesis
H3: If cost-effectiveness is a desirable quality of public administration, there are few or no social media features on the municipal website.	Accept Null Hypothesis
H4: If participatory policy making is considered slow and time consuming, there are few or no social media features on the municipal website.	Accept Null Hypothesis
H5: If citizens put tremendous pressure on a municipality to provide online services, there will be numerous and updated social media features on the municipal website.	Reject Null Hypothesis
H6: If a municipal organization has the human capacity to manage the continual advancements in information technology, there will be numerous and updated social media features on the municipal website.	Accept Null Hypothesis
H7: If engagement efforts with local stakeholders are a strategic priority, there will be numerous and updated social media features on the municipal website.	Reject Null Hypothesis
H8: If council is supportive of increased budget spending on the municipal website, there will be numerous and updated social media features on the municipal website.	Accept Null Hypothesis

Table 22 shows that both hypotheses one, five and seven can reject the null hypothesis because of statistical significance. Chapter seven alludes to the belief that in different research contexts, such as Dolson's E-Participation and E-Content, H8 will be significant. Some of the independent variables will prove to become significant in five years as social media becomes more important in the context of local government engagement practices.

First, the total full responses to the questionnaire were 43 of 109. Of the 43 municipalities, there were still a good range in terms of population and location across Canada, but a higher response rate could shift the direction of the results. Second, the questionnaire provided a simple response mechanism that allows administrators to respond quickly. This is ideal in cases where graduate students are asking senior local government administrators for their time. A comparative analysis of this and one where municipalities with a population over 125,000 are analyzed may or may not demonstrate a difference in result. It is estimated based on personal experience with larger municipal websites that they do not have any more sophisticated social media service. Rather, larger municipalities are more consistent with a higher number of features. Using Dolson's research criteria and the questionnaire used in this study, results for larger population sizes may provide a good comparative result for internal and external factors that explain variance of social media features.

If a longer questionnaire is used in the next five years to get a better quantitative understanding of this research, it is suggested that more questions that focus on IT internal factors are added. This may take the form through questions like department budget allocations; which department handles social media operation, content, review; and have there been internal struggles from council, administration, or residents to expand engagement outreach through social media? This can then be followed up through qualitative questions that analyze cross-departmental collaborations by investigating whether the respondent's municipality had a social media policy. For example, 'Do you have a social media policy – what did it include? What are the obstacles for improving or expanding this policy?'

Dolson's study could also be updated and paired with the questionnaire in this research to get a full and accurate result in terms of the next steps for this particular research focus area. A qualitative research piece would expand the result of that study and explain a portion of the missing variance. Qualitative research could investigate, in summary, what obstacles or motivations explain the variation in social media capacity.

This paper's bivariate and multivariate analysis uncovered two significant independent variables that explain the variation in social media features; 'Age' and 'Engagement is a strategic priority of council'. The regression equation in Model 3 suggests that 'Citizens' pressure to provide online services' contributed to a larger Adjusted R Score which explains 24.4 percent of the variation in social media features on Canadian municipal websites. This research explained one of Dolson's three E-Governance areas through internal factors. Further qualitative research efforts, as discussed above, could contribute to the explanation of why social media features vary through collaboration with updated internal and external data.

Social Media features within an emerging NPS paradigm will become more important when discussing engagement, information and two-way dialogue methods with citizens in the future. New Public Service and New Public Management both demand accountability and transparency of governance. Social Media is a means to deliver on these demands while also creating new avenues for two-way communication and collaboration. This research continues to skim the surface of what contributes to the variance of e-governance features, specifically social media features. Fortunately, three internal factors in the multivariate analysis demonstrated statistical significance.

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Appendices

Appendix 1: Studied Municipalities

Municipality	Social Media Score
City of Abbotsford	5
Cape Breton Regional Municipality	1
City of Chilliwack	8
City of Brandon	10
City of Clarence-Rockland	0
City of Cornwall	8
City of Grande Prairie	10
City of Guelph	10
City of Kamloops	8
City of Kelowna	10
City of Langford	2
City of Leamington	4
City of New Westminster	6
City of Port Coquitlam	8
City of Prince Albert	0
City of Sarnia	5
City of St. Thomas	2
City of Stratford	9
City of Thunder Bay	7
City of Welland	7
City of Woodstock	6
City of Coquitlam	7
District of Delta	8
District of North Vancouver	6
District of Saanich	2
District of West Vancouver	0
Haldimand County	0
Municipality of East Hants	0
Norfolk County	2
Regional Municipality of Wood Buffalo	10
Rocky View County	7
The City of Red Deer	8
Town of Ajax	9
Town of Aurora	6
Town of Caledon	1
Town of Grimsby	0
Town of Halton Hills	2
Town of Innisfil	2
Town of Lakeshore	5

Town of Newmarket	7
Town of Tecumseh	3
Town of Whitchurch-Stouffville	0
Township of Langley	9

Appendix 2: Questionnaire

Questionnaire

1. Personal Information

***1. What municipality do you work for?**

***2. How old are you?**

years

***3. What is the highest level of education you have completed?**

- ◯ High school
- ◯ College
- ◯ Undergraduate
- ◯ Masters
- ◯ Doctorate

2. Administration

Please answer the following questions based on your thoughts and experiences working in municipal organizations -past and present.

4. Cost-effectiveness is a desirable quality of public administration.

Strongly Disagree	Disagree	Agree	Strongly Agree
◯	◯	◯	◯

5. Participatory policy making is generally slow and time consuming.

Strongly Disagree	Disagree	Agree	Strongly Agree
◯	◯	◯	◯

6. Engaging the public for meaningful dialogue provides better outcomes.

Strongly Disagree	Disagree	Agree	Strongly Agree
◯	◯	◯	◯

3. Your workplace

Please answer the following questions based on your thoughts and experiences working in your current municipal organization.

7. Citizens have put tremendous pressure on my department to provide online services.

Strongly Disagree	Disagree	Agree	Strongly Agree
◯	◯	◯	◯

Questionnaire

8. My organization has the human capacity to manage the continual advancements in information technology.

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

4. Perceptions of Council

Please answer the following two questions in reflection of your council's actions in the past, present, and possible future.

9. It is a strategic priority of Council to improve engagement efforts with local stakeholders.

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

10. Council is supportive of increased budget spending on the municipal website.

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○