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Defining, Practicing, and Assessing Innovation by Minnesota's Local Government

by

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A Dissertation

Submitted to the Graduate Faculty of

St. Cloud State University

in Partial Fulfillment of the Requirements

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Doctor of Education

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Abstract

The purpose of the study was to examine, summarize, and categorize how leaders of select cities, counties, and school districts (kindergarten through 12th grade) in Minnesota define, practice, and assess innovation.

The significance of the study was two-fold: 1) the findings may add to the body of research regarding innovation in local government, and 2) may contribute to the understanding of innovations by local government officials.

The study engaged 81 local units of government (i.e., cities, counties and school districts – kindergarten through 12th grade) in the State of Minnesota via electronic survey. Of the 81 local units of government engaged 35 participated, which represented 26 cities, 2 counties, and 7 school districts.

The study and survey tool was designed in three parts comprised of: 1) Survey Participant Profile, 2) Innovation Practices and Types, and 3) Innovation Assessment Practices and Types.

The study contributes to the current body of research knowledge by providing new research on the defining, practice, and assessment of innovation within local units of government. The study ultimately may offer government leaders useable and valuable information about innovation in local government so that it may survive and thrive.

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Chapter 1: Introduction

Defining, Practicing, and Assessing Innovation by Minnesota's Local Government

The interest in and pursuit of innovation by public, non-profit, and private sector leaders can best be described by the phrase "Innovate or Die" coined by Robert Hof (2003) of Bloomberg Businessweek Magazine. Hof's phrasing of "Innovate or Die" expressed the desire of leaders to help their organizations survive or its fear of its failure. Walker, Jeanes, and Rowlands (2002) stated that governments around the world are interested in innovation and Sanford Borins (2002) articulated, "Innovation has become a topic of great interest to managers in both the public and private sector" (p. 247). Governments in the United States and other countries have invested millions of dollars in the pursuit of innovation, which was documented in C. Paul Light's (1998) report on innovation award applications submitted to the Harvard Kennedy School's Ash Center for Democratic Governance and Innovation by local units of government throughout the United States. The investments in innovation by governments have been demonstrated by countries such as members of the European Union (EU) with the regard to their allocation of resources to establish the Eurostat Office. The mission of the Eurostat Office was to provide reports on innovations occurring in the 28 country members of the European Union through a Community Innovation Survey (CIS). The investments of resources made by local and national units of government in the EU demonstrate their interest in innovation. Richard Wolfe (1994) suggested that there was general agreement among researchers on the importance of innovation. Wolfe described the interest in innovation in terms of a desire to enhance organizational competiveness and effectiveness. Jonathan Walters (2001) *Understanding Innovation: What Inspires It? What*

Makes It Successful? (p. 6) identified six key drivers of innovation including:

- Frustration with status quo
- A response to crisis
- A focus on prevention
- An emphasis on results
- Adaptation of technology
- An inclination to do the right thing

Literature does not explicitly indicate that historical innovations, such as the aqueducts and brick roads constructed by the Romans in 312 A.D., were the result of government frustration with the status quo or a desire to be more effective in meeting the expectations of citizens. However, Hof, Walters, and Wolfe contended that the demise of government may be due to systemic inefficiency, ineffectiveness, or its inability to meet the expectations of citizens. Nevertheless, their research did reveal that the interest and drive for innovation by government leaders has become more important for its survival.

In addition to the insights revealed through research, with regard to the shared interests in innovation as a method to address a desire by organizations to survive, the researcher also found that there was not a common language, definition, practice, or assessment of innovation by government in literature. Walker et al. (2002) defined innovation as a process, while Hameed, Counsell, and Swift (2012) referred to innovation as a product. In a study conducted by a collaborative, comprised of the League of Minnesota Cities, Association of Minnesota Counties, and Minnesota School Boards Association, Local Government Innovation–Mini Case Studies (2011) stated that the process of using a citizen listening session

that resulted in the creation of a School Inter-District Cooperative was an innovation (p. 3). The new School Inter-District Cooperative existed separately from the two partnering school districts and helped manage their changing student populations at the time. The new school also helped to reduce their budgets. The process, product produced, and end result were all part of their defining the effort as an innovation. Therefore, the Local Government Innovation–Mini Case Studies supports the premise of Walker et al. (2002) that innovation is defined as a process.

Evan Andrews of History Magazine (2012) wrote an article, *11 Innovations That Changed History*, in which he identified 11 innovations that altered the course of history including: 1) Johannes Gutenberg's printing press, developed around 1440, 2) Thomas Savery's first practical use of external combustion in 1698, and 3) Thomas Edison's and Joseph Swan's development of the first long-lasting light bulb in 1879. Andrew's examples of innovation aligned with the premise of Hameed et al. (2012) that innovation was defined as a product.

The literature reviewed in the study revealed a gap between the abundance of research that illuminated the interest and desire of government leaders to innovate in order to survive and the limited amount of research found through fundamental questions: 1) How do government officials define innovation? 2) What types of innovations are practiced within government? 3) Do factors such as government type, geography, staff size, and budget size influence their probability of innovation? 4) What types of measures are used to assess the innovations practiced in government.?

Problem Statement

The gap between the abundance of research on shared interest and investment by governmental agencies in innovation and the limited amount of research found on how governmental agencies define, practice, and assess innovation was a revealing problem to the researcher. Wolfe (1994) contended that innovation cannot be defined (p. 406). To further complicate matters, John Osborne (1998) suggested that innovation was unmeasurable, because it was "all things to all people." The gap revealed by research, coupled with the conclusions of Wolfe and Osborne, presented the foundational problem that was addressed by the study, which was a limited number of studies found by the researcher that address a common definition, practice, and assessment of innovation as practiced by government.

Purpose of Study Statement

The purpose of the study was to examine, summarize, and categorize how leaders of select cities, counties, and school districts (K through 12^{th} grade) in Minnesota define, practice, and assess innovation.

Research Questions

Based on the literature reviewed, six research questions were formed. Those questions were designed to address the absence of studies that reveal common definitions, practices, and assessments of innovation by local government agencies.

Insights were gained in the study from local government, chief executive officials by examining the following six research questions:

1. What common attributes are used by chief executive officers of local units of government in Minnesota to define innovation?

2. What types of innovation practices are reported by the chief executive officers of local units of government in Minnesota?
3. What type of innovation practice is most frequently reported by the chief executive officers of local units of government in Minnesota?
4. Do the factors of type of government, geographical location, staff size, and budget size influence the probability of innovation by local units of government in Minnesota?
5. What types of innovation assessments are reported by the chief executive officers of local units of government in Minnesota?
6. What type of innovation assessment is most frequently reported by the chief executive officers of local units of government in Minnesota?

Significance of Study

The intent of the study was to show the practices and understanding of innovation in the public sector. There were two issues of significance that guided the study: 1) a desire by the researcher to make new contributions to the current body of research knowledge, and 2) a desire by the researcher to provide a study that was useable and valuable to government officials.

Rationale of Study Approach

The rationale of the design of the study was based upon its significance in contributing to the body of knowledge of researchers and government leaders.

The first rationale was based on there being few scholarly studies on innovation at the local government level that provide insight across cities, counties, and school districts. The study targeted a larger sample pool rather than that of a case study of a single organization.

The second rational related to the targeted population representing cities, counties, and school districts in the State of Minnesota for the study. The targeted populations were broad-based and diverse in their responses. Thereby, the researcher assumed that the responses from local government chief executive officers on the topic of innovation may be valued across the multitude of different types of government.

Definitions and Terms

1. Assessment of Activities–The second component of a Logic Model details the activities; the set of treatments, strategies, innovations, or changes planned for the educational program. For purposes of the study, this means using formal analysis methods, such as qualitative or quantitative techniques, to assess inputs, activities, outputs, and outcomes of innovation. This method is associated with the logic model of evaluation (Frye & Hemmer, 2012)
2. Categorization–The grouping of types of subjects or items together that are similar in nature. The groupings are used to distinguish one set of items from another in some specific way.
3. Chief Executive Officers and Leader–For purposes of the study, this means the highest authorized officer of a local unit of government. The primary role includes overseeing the operations of the organization and assurance of the implementation of policy enacted by the elected officials of the organization.
4. Contribution–To add to, enhance, improve, or advance a thought, idea, process, or product.

5. Developmental Innovation–An innovation that originated from an existing service, thought, or practice and had no significant impact or change on the service industry or customer base (Osborne, 1998).
6. Effectiveness–A measure of quality of the least or highest impact of a system or process. Measures may consist of goals, objectives, missions, visions, and outcomes achieved.
7. Efficiency–A measure of quantity of the least or highest operational performance of a system or process. Measures may consist of variables including wastefulness, costliness, resourcefulness, and time consumption.
8. Expansionary Innovation–An innovation that originated from an existing service, thought, or practice and had significant impact or change on the service industry or customer base (Osborne, 1998).
9. Evolutionary Innovation–An innovation that was original and not based on existing service, thought, or practice and had no significant impact or change on the service industry or customer base (Osborne, 1998).
10. Assessment of Inputs–The first component of the Logic Model's Inputs comprised of all relevant resources, both material and intellectual, expected to be, or available to, an educational project or program. For purposes of the study, this means using formal analysis methods, such as qualitative or quantitative techniques, to assess inputs, activities, outputs, and outcomes of innovation. This method is associated with the Logic Model of evaluation (Frye & Hemmer, 2012).

11. Local Government Official–For purposes of the study, this means a person elected by citizens to serve on the board of governance of a local unit of government, and the chief executive officer, who was appointed by the elected board of governance to oversee the operations of the local unit of government.
12. Local Unit of Government–For purposes of the study, this means a governmental unit that operates within a level below that of a state. A unit of local government's primary purpose does not pertain to serving citizens at a statewide or national level, but at a specific level and within the geographical boundaries of its borders. The term "local government/political subdivision" includes: counties, cities, towns, school districts, regional agencies, public corporations, and special districts (Minnesota Statutes, 2014, Chap. 6, Sec. 465-645).
13. Metropolitan–A geographical area defined by and consisting of a core urban area of 50,000 people or more (U.S. Federal Office of Management and Budget, 2010, Part IV).
14. Micropolitan–A geographical area defined by and consisting of a core urban area of at least 10,000, but less than 50,000, people. (U.S. Federal Office of Management and Budget, 2010, Part IV).
15. Nonprofit Sector–The industry of social organizations which operate for purposes of serving the public good, but was not a unit of government. The primary focus of a nonprofit was to serve social needs of the public and does not pertain to fulfilling the needs of the market.
16. Assessment of Outcomes–The fourth component of outcomes defines the short-term, medium-term, and longer-range changes intended as a result of the

program's activities. For purposes of the study, this means using formal analysis methods, such as qualitative or quantitative techniques, to assess inputs, activities, outputs, and outcomes of innovation. This method is associated with the Logic Model of evaluation (Frye & Hemmer, 2012).

17. Assessment of Outputs–The Logic Model's third component was defined as indicators that the program's activities were underway or completed, and that something (a product) occurred. For purposes of the study, this means using formal analysis methods, such as qualitative or quantitative techniques, to assess inputs, activities, outputs, and outcomes of innovation. This method is associated with the Logic Model of evaluation (Frye & Hemmer, 2012).
18. Phenomenon–An abstract, natural, unplanned, and unanticipated occurrence of a thought, act, process, product, or event, or a combination of such occurrences.
19. Private Sector–The industry of business enterprises that operates for purposes of generating profit. The primary focus of business does not pertain to serving the public good, but market enterprise needs.
20. Process–An activity of manufacturing, producing, or creating a product.
21. Product–An output of an activity, which can be characterized as a widget or doodad.
22. Public Sector–The industry composed of government entities. Government entities include national, state, regional, and local levels. Cities, counties, and school districts (K through 12^{th} grade) are considered local units of government.
23. Rural–All areas that consist of populations less than 10,000 people (U.S. Federal Office of Management and Budget, 2010, Part IV).

24. Total Innovation–An innovation that was original and not based on existing service, thought, or practice, and had a significant impact or change on the service industry or customer base (Osborne, 1998).
25. Typology–The grouping of subjects or items together that are similar in nature. The groupings are used to distinguish one set of items from another in some specific way.
26. Value–For purposes of the study, this means to increase the worth, prestige, or significance of a thought, idea, process, or product.

Research Delimitations

Carol M. Roberts (2010) *The Dissertation Journey* paraphrases Mauch's and Birch's (1993) defined delimitations as actions or factors controlled by the researcher that may significantly affect a study. The study was delimited by:

- Narrow Perspective–The study was directed to chief executive officers (i.e., administrators, managers, and superintendents), thereby, limited in its interpretation as representative of all local government chief executive officers. The survey study was directed to chief executive officers of local units of government because of their comprehensive knowledge, influence, and authority involved in innovations throughout the entire organization. Sandford Borins (2002) concluded that a strong link exists between innovation and leadership in the public sector. He contended that publicly-elected officials and administratively-appointed leaders are the two types of groups who initiate innovation when an organization was under distress. During a crisis situation, it was the publicly-elected official who provided a new vision for the organization, while chief

executive officers were charged with turning the organization around in response to the challenge. Borins further stated that in the United States, 50% of innovations are initiated by middle managers and frontline workers, while executives account for only 25% (p. 467).

- Scope of Problem–The study focused on an examination of innovation in local units of government (i.e., cities, counties, and school districts [K through 12th grade]) located in the State of Minnesota. The study was limited in the number of participants (81 engaged local units of government), thereby, limited in its interpretation as representative of all local units of government. The study was broad in its participants and complex in organizations that they represented. Lawrence Mohr (1987) referred to innovation as being situational and irrational, at best. He suggested that the study and development of a theory on innovation was nearly impossible, because at the foundation of innovational thought are humans. Humans not only differ from one another through thought processes, but they also differ from one another through behaviors. Thereby, Mohr theorized that an attempt to measure consistency and replicate or diffuse innovation consistently across organizations was not rational.
- Isolation of Study–The study focuses on local units of government including cities, counties, and school districts in the state of Minnesota. Special districts, including planning districts, watershed districts, library districts, or townships, were not included in the study due to study limitations of resources, time, and technology.

- Limited Testing of Factors Influencing Probability of Government Innovation–The researcher had limited resources and capacity to test all possible combinations of influencing factors, including government type, geography, staff size, and budget size on the probability of innovation by local units of government (i.e., cities, counties, and school districts [K through 12th grade]).

Organization of Study and Conclusion

This dissertation was developed in a sequential and a deductive reasoning method. The dissertation first started with a broad examination of the concept of innovation in the private, public, and non-for-profit sectors, both domestically and internationally. It then narrowed in focus to explore questions on how local government, chief executive officers defined and reported organizational practices and assessments of innovation, specifically within the State of Minnesota.

While Chapter 1 introduces the subject matter of the study and its significance, shows how the dissertation is structured, discusses the problem that is addressed by the study, and summarizes the findings of the study, the subsequent four chapters address the following issues:

- Chapter 1–Introduction–The chapter introduces the subject matter of the study and its significance, identifies research questions, and provides delimitations and definitions.
- Chapter 2–Literature Review–The chapter presents a summary and findings from several research studies and articles on innovation. The literature reviewed for this

dissertation ranges in topics from the origin of innovation in public and private sectors to methods of assessing innovation.

- Chapter 3–Methodology–The chapter presents the rationale supporting how the study was conducted. There were few studies found by the researcher that utilized typology models and logic models as means of studying innovation. Chapter 3 presents the methodologies (i.e., qualitative and quantitative) used in the study. Both descriptive statistical analysis and multivariate logistical regression analysis were utilized in the study.
- Chapter 4–Findings–The chapter shows the results of the study conducted as described in Chapter 3. Chapters 1 through 4 are organized in a logical and sequential order for purposes of conducting quality research, controlling the study, and ease of succinctly and accurately reporting the study to readers.
    - Chapter 5–Conclusion–The chapter presents the insights learned during the study and provides recommendations for future research regarding the innovation in government. Ultimately, it presents insights deduced from the study that may contribute to the existing body of research and increase information available to public officials on the subject of innovation in government.

Chapter 2: Summary of Literature

Innovation in Minnesota's Local Government

Introduction of Literature Review

"Innovate or Die!" exclaimed Hof (2003). Helena Alves (2012) suggested that the pressures of budgets and social challenges have prompted the public sector to establish innovation as a priority. John Bessant (2005) believed that organizations faced difficult challenges and that their "living" instead of "dying" depended on innovation.

This chapter presents a summary of literature reviewed by the researcher regarding innovation, specifically within the public sector or government. The review starts with a broad examination of innovation in businesses and non-profits, then narrows in focus to innovation within local government. This chapter includes the following four sections: 1) Overview of Innovation 2) Typology of Innovation 3) Assessment of Innovation 4) Summary of Literature Review.

The first section includes several definitions of innovation and explains why organizations are interested in innovation. Both the first and second sections include differing viewpoints of innovation practices. Section two primarily focuses on two types of typological frameworks of innovation. The typological frameworks presented in section two categorizes innovation based upon the impact of the innovation within an organization and industry. The third section focuses on the assessment of innovation, while the fourth section summarizes the entire review of literature.

Section One–Overview of Innovation

In review of literature, two central themes are revealed: 1) the interests and drivers of innovation by government, and 2) definitions and practices of innovation implemented by government. These two themes, and the related literature, provide the foundational premise of the problem addressed by the study, which is the limited number of studies found that address a common definition, practice, and assessment of innovation as practiced by government.

Interests and drivers of innovation. Hof's (2003) phrase "innovate or die" provides context as to why organizations in the private, non-profit, and public sectors value and pursue innovation. Even though survival was a rational reason for an organization to pursue innovation, there are other reasons for which organizations are interested in innovation. The interest in innovation was often expressed in terms of pursuing efficiency and effectiveness in an organization. Wolfe (1994) stated, "Few issues have been characterized by as much agreement among organizational researchers as the importance of innovation to organizational competitiveness and effectiveness" (p. 405).

Hof (2003) reported, in his article *Innovate or Die*, on Clayton M. Christensen's (1997) *The Innovator's Dilemma*, where he made comments regarding how executives of large, traditional businesses were alarmed and in a "funk" because startup businesses had an equal or greater success rate than traditional cornerstone businesses when they employed innovations. In essence, the smaller businesses were more effective than larger, traditional businesses. Hof (2003) said, "Christensen showed that an upstart with an innovation that disrupts existing business models can beat out big guys nearly every time" (p. 304). When innovation in an organization created a market advantage, the pursuit of innovation intensified and became a driving force for further innovation.

Similar to Christensen's perspective of the influence of innovation in the private sector, Walker et al. (2002) indicated parallel interest in innovation by governments around the world. They further suggested that the interest by governments in innovation was primarily due to a desire to boost governmental productivity (p. 467). For example, according to Walker et al. (2002), innovation was promoted by the conservative administration in Great Britain as a concept of "Best Value" in local government. The concept of "Best Value" relates to the development of a market-driven strategy in order to achieve greater performance by government or non-profits. In the study by Walker et al., *Innovation in a Regulated Service: The Case of English Housing Association*, the development of the concept of new "housing associations" structure was viewed as an innovative, market-driven approach to housing by the English housing association sector. These "housing associations" were viewed by British local governments as a preferred structure to the traditional approach of public housing. Walker et al. (2002) suggested that the old governmental approach to housing was viewed as bureaucratic and inefficient (p. 4).

The challenge to survive and do more with less often caused governments to embrace innovation. For example, in Minnesota in the fall of 2008, the Bush Foundation collaborated on the study *Local Government Innovation–Mini Cases Studies* (2011) with cities, school districts, and local-government statewide associations to showcase innovations in local government. The summary report indicated that efforts of innovation were intended to provide better outcomes and greater efficiency in citizen services provided by local governments. Participating local government elected officials and administrators acknowledged that the implementation of innovation does not guarantee cost savings. However, they believed a long-term commitment to innovation might result in building and providing new solutions to

local government, immersed at a time of unprecedented demographic and budget pressures (p. 1).

Light (1998) offered another perspective regarding the interest of innovation by government, which was that of addressing the needs of the public or creating public value. He believed that enhanced efficiency of public service responsiveness, in order to meet the needs of customers and citizens, demonstrated government's interest in innovation. Bartlett and Dibben (2002) stated,

> Interest in innovation processes in the public sector has grown substantially in recent years, for example (Osborne, 1998a; Borins, 2001a). Under conditions of increased fiscal pressure, it was necessary not only to maximize efficiency in the provision of services, but also to innovate and discover new ways of doing things in order to achieve more with less resources. (p. 108)

"Pressures on budgets and rising citizen expectations as to more accessible and flexible services in addition to all the economic, social and environmental challenges that are prevailing have together driven innovation in the public sector" (Bloch, Jorgensen, Norn, & Vad, 2009; Kaul, 1997; Mulgan & Albury, 2003; Scott-Kemmis, 2009). Understanding the interest in, and drivers of, innovations by government may help to describe how innovation may be thought about, defined, and practiced within the public sector.

Definitions and practices of innovation. The term "innovation" has been described in literature from a variety of viewpoints. Walker et al. (2002) indicated that "Innovation is a process, through which new ideas, objects and practices are created, developed or reinvented" (Kimberly, 1981; Rogers, 1995). Hameed et al. (2012) referred to innovation as a technology, product, thought, or idea.

According to King (1992), innovation related to the introduction and application of ideas within a role, group, or organization. Roberts (1988) described innovation as

encompassing both new ideas and the diffusion of those ideas. Innovation was most commonly associated with processes, products or procedures, or outcomes (Abernathy, Clark, & Kantrow, 1983). It was something new and novel to the relevant unit of adoption, rather than newness per se (Aitken & Hage, 1971; Hage & Dewar, 1973; Rogers, 1995), therefore, subjective. It was designed with the intent to benefit the individual, the group, organization, or wider society (Anderson & King, 1991; Hosking & Anderson, 1992; Hosking & Morley, 1991). Finally, innovation was associated with discontinuous change and a process of destruction (Osborne, 1998; Tushman & Anderson, 1986; Tushman and Nadler, 1996).

The review of literature revealed six domains characterizing innovation including: (a) innovation as something new, (b) innovation as a process, (c) innovation as a way of doing business, (d) innovation as groupings, (e) innovation as a phenomena, and (f) innovation as undefinable. Outlined below is a more in-depth review of the six domains.

- ***Innovation as something new***–While there was no universally accepted definition of innovation, there has been a commonly used word referenced in literature as an essential part of defining innovation, which was "new." The *Merriam-Webster Dictionary* defines innovation as "something new, new idea, method or device." Merriam-Webster traces innovation back to its origin in 1548 to the Latin root of "innovates" and as a past participle of "innovare." This Latin origin characterizes "innovare" as to renew. Medina, Carmona-Lavado, and Cabrera (2005) offer a perspective from their case study conducted in Spain regarding the characteristics of innovation in organizations as something new. Light (1998) denotes it as "whatever is new to you," which was a more general reference of the term.

- ***Innovation as a process***–Innovation was defined as a process. Robert Bland (2007) wrote about the evolution of budgeting as innovation. Bland referenced the transformation of governmental budgeting from a process focused primarily on an accounting of numbers in order to report financial transactions to that of a more complex process that includes analyzing the economy and forecasting future revenues in order to fulfill an organization's strategic direction. Bland also referenced the use of technology and websites to educate and engage the public in the modern day budgetary processes as innovation. Bland believed such evolutions in modern day budgetary processes were acts innovation because of their significant impact on effectiveness of budgeting, as well as the positive effect they had on the way government conducted its business.
- ***Innovation as a new way of doing business***–In the study *Local Government Innovation–Mini Cases Studies* (2011), the League of Minnesota Cities (LMC), Association of Minnesota Counties (AMC), and Minnesota School Boards Association (MSBA) identified innovation in terms of organizational learning and operating in a new collaborative way (p.3). The study identified a multitude of collaborative efforts as innovation. For example, the study reported that local elected officials and city administrators representing the cities of Brooklyn Park, St. Louis Park, Burnsville, Minnetonka, and Woodbury collaborated to share ideas, learn from one another, collectively solve problems, and explore opportunities for change. The study also reported that relationships and trust were enhanced as a result of collaboration between local elected officials and city staff representing

different cities; these collaborative efforts resulted in improvements of service delivery to communities.

A second example of innovation cited in the study *Local Government Innovation–Mini Case Studies* was the number of smaller school districts which were consolidating or creating cooperatives because of migration of young adults from rural areas of Minnesota to larger communities. Consolidation was necessary to facilitate the management of decreasing student populations and financial resources. The study specifically reported on the School Inter-District Cooperative, which paired the districts of Round Lake and Brewster to manage the declining student population and reduced financial resources. Examples of acts of innovation during the pairing process included "listening sessions" with parents from the two districts and sharing district financial data with the district stakeholders. The report indicated that this process resulted in school personnel, families, and community members becoming more comfortable working with one another as they introduced new ideas and ways of doing business (p. 3).

In Great Britain, local units of government initiated new ways of doing business by reforming the traditional bureaucratic structures to a more market-oriented corporate governance structure. According to Barelett and Dibben (2002), local units of government decentralized their managerial model and introduced more commercial styles of management (p. 108). Barelett and Dibben referenced the establishment and work of Great Britain's Chartered Institute of Public Finance and Accountability in training local government executives and establishing

market-oriented financial structured policies as an example of reforming traditional bureaucratic systems.

- ***Innovation groupings***–Osborne (1998) expanded defining innovation by describing types of innovations reviewed in literature; for example, innovation as a process or product. Osborne suggested the following groupings as ways to define innovation based upon other studies.
    - Policy Imperative–This perspective viewed innovation as more than a "concept" or "idea," but a framework, guideline, and directive that shaped how government thinks and operates. The growing need for services, in light of shrinking revenues, causes local governments to think about how and what services to provide; this created the need to innovate. Osborne referenced a number of important studies, specifically the work of LeGrand (1991) on quasi-markets and Wistow, Knapp, Hardy, and Allen (1994) on the mixed economy of care as examples of policy imperative innovation.
    - Organizational Services–Innovation in this grouping related to how government performed in the deliverance of services. Service delivery models could be collaborative, individual, centralized, or decentralized in nature. Services could be rendered with the flexibility to adjust and adapt in real time, based upon the demands, thoughts, expectations, and changes by its customers. Osborne referenced this innovation grouping in the program area of social services. In researching this innovation group, he included studies of the innovation implementation; for example, "patch-work" (Hadley, 1981) and community care reforms (Davies & Challis, 1986; Knapp et al., 1990), as well

as more general reviews of innovation within social services departments (SSDs) (Healy, 1989; Hardy et al., 1989).

- Social Policy Fields–This grouping related to a broader context of innovation in terms of influencing and impacting service or industry fields; for example, childcare services (Gibbons, 1990; Stone, 1990) or community care services (Barritt, 1990; Ferlie, Challis, & Davies, 1989), where instead of acts of innovation initiated by an individual or within a single organization, innovation was initiated by a community.
- Nature and Process–This grouping refers to understanding the nature and process of innovation. As previously stated, Osborne's study of innovation addressed innovation in terms of setting policy, collaborations, or changing the way business was conducted. Those types of innovations are visible and physical in nature. Yet, grouping the nature of, and the process of, thinking about innovation was more of an abstract concept. This grouping was abstract because it focuses on the "why" and "how" of innovation existing within government. Obsorne referenced three important studies: 1) Baldock (1991), Baldock & Evers, (1991); 2) Feller (1981); 3) Gershuny (1983). All relate to the origin of why and how government conducts business. Interestingly, this could relate to government operational efficiency, which would then characterize innovation as the very nature of government doing business.

- ***Innovation as a phenomenon***–Wolfe (1994) stated, "The underdeveloped state of the innovation literature, in spite of the substantial number of studies and reviews conducted across numerous disciplines, suggests that the challenge rests in the

complex, context-sensitive, nature of the phenomenon itself" (p. 406). Wolfe's perspective suggests that a more accurate definition of innovation was that of a "phenomenon." By defining innovation as a phenomenon, it could embody an all-encompassing nature including processes, products, concepts, and new ideas.

Another perspective of innovation as a phenomenon was expressed by W. Brian Author (2009) in his book, *The Nature of Technology*. Author used the term "technology" synonymously with the concept of innovation. Hameed et al. (2012) recognized T. H. Kwon and R. W. Zmud as first making the association between technology adoption and IT innovation adoption in 1987. Author conducted years of study on the concept of innovation within the field of technology, principally in Silicon Valley. Author (2009) stated, "Technology (innovation) is a phenomenon captured and put to use or more usually, a set of phenomenon captured and put to use" (p. 34), and "Technology is a programming of phenomena to our purposes" (p. 51).

Abernathy and Clark (1983) also acknowledged the co-mingling and co-existence of technology and innovation by stating "technology innovation" was a recent "phenomenon." They wrote, "Technological innovation has been a powerful force for industrial development, productivity growth and indeed, our rising standard of living throughout history, but intense study of its industrial role and influence is a relatively recent phenomenon." The perspective of innovation as a phenomenon presents another dimension of innovation and may provide an alternative framework for defining innovation.

- ***Innovation as undefinable***–As detailed, the literature reviewed revealed various ways of defining and framing innovation, thereby, supporting Wolfe's perspective that there cannot, and ought not to, be one common defining of innovation. Wolfe (1994) submitted, "Recently, there has been convergence among innovation scholars indicating that: there can be no one theory of innovation, as the more we learn, the more we realize that 'the whole' remains beyond our grasp" (p. 406).

Conversely, given there was not an apparent consensus on defining what innovation "is," Sanford Borins (2002) articulated what innovation was "not." By identifying what innovation was not, he sought to bring greater clarity to what innovation is. He also indicated what innovation was not by articulating the difference between innovation and inventions. Borins said, "Innovation was not just a good idea, dropped into a suggestion box then implemented" (p. 469). He differentiated the two by referring to inventions as new "concepts," and innovation as new ideas adopted from an existing idea. Therefore, innovation was not a concept.

Although, Osborne (1998) defined groupings of innovations based upon studies that sought to define innovation. He concluded, "Despite the varying strengths of all these studies they have all suffered from both a failure to define exactly what they meant by innovation and also a tendency to treat it as a homogenous concept rather than as a cluster of related ones. Sadly, this conclusion was not new" (p. 1136).

Brian Author (2009) suggested that we intuitively know what innovation is, even if we are unable to create a common definition of it. This quandary was of a similar perspective echoed by U.S. Supreme Court Justice Stewart (1964, 1981) regarding obscenity; "I know it when I see it." Author (2009) stated the following:

> We have a familiarity with nature, a reliance on it that comes from millions of years of at-homeness. We trust nature. When we happen upon a technology such as stem cell regenerative therapy, we experience hope. [...] We know a great deal about technology and we know very little. We know a great deal about technologies in their particular in their in individual sense, but much less about technology in the way of general understandings. We have detailed studies about the history, analysis of the design process, how technologies diffuse, and how technology shape society. But, we have no agreement on what the work 'technology' means, no overall theory of how technologies come into being, no deep understanding of what 'innovation' consists of, and no theory of evolution for technology. Missing was a theory of technology–an 'ology' of technology. (pp. 11-14)

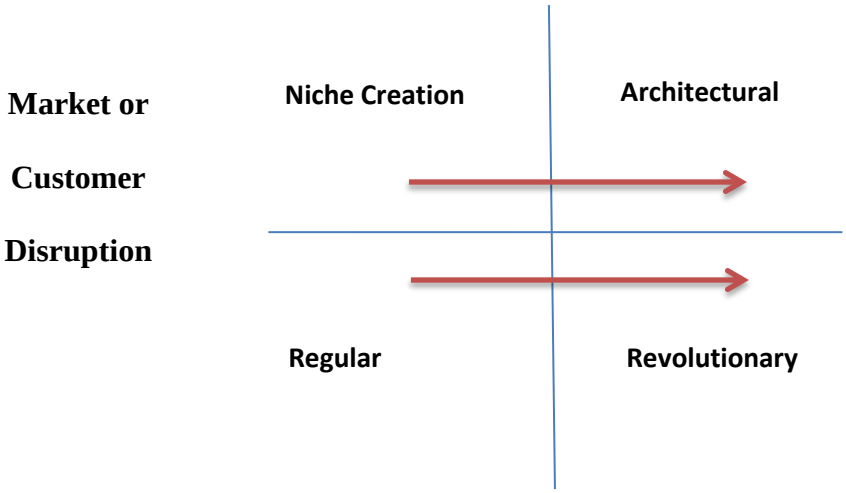
This review of literature supports Osborne's conclusion regarding researchers' difficulties in finding an agreement on a common definition of innovation. While there has not been agreement among researchers on a single definition of innovation, there has been a general agreement in acceptance of the types of innovations. By identifying and agreeing upon types of innovations, researchers may have a starting point for agreeing on a common language that may lead to an "ology" of innovation.

Section Two–Typologies of Innovation

There were two foundational studies on types of innovations conducted by Abernathy and Clark (1983), which provided a foundational framework for categorizing innovations, and another by Osborne (1998). Abernathy's and Clark's study was conducted within the private sector and focused on innovations in relationship to auto companies competing in the marketplace. Their work led to the identification of an innovation typology consisting of four

types of innovation, which were characterized based on the origin of the innovations and the impact of those innovations within the marketplace.

Below is the Organization Process Disruption Diagram developed by Abernathy and Clark, which outlines the four categories of innovation; niche creation, regular, architectural, and revolutionary.



X axis - Impact of innovation on the production systems
Y axis - Impact of innovation on the market

Figure 1. Abernathy's and Clark's organization process disruption diagram.

They describe the four categories as:

- **Regular Innovation (lower left quadrant)**–the refinement or new ideas based upon existing production systems, and has limited disruption or change in the market.
- **Niche Creation (upper left quadrant)**–the refinement of existing ideas and productions systems, but may have a disruptive or changing impact on the market.

- **Revolutionary Innovation (lower right quadrant)**–a new technology introduced and new systems of production are created in-house, but has limited influence on change in the market.
- **Architectural Innovation (upper right quadrant)**–a new technology and production systems introduced in-house, but influence the market and customers in a disruptive way, thereby, causing a change in behavior by the market.

Abernathy and Clark (1983) viewed the 1912 electric starter as a regular innovation, the 1932 Ford V-8 engine as a revolutionary innovation, the 1927 Ford Model A car as a niche innovation, and the 1908 Ford Model T car as an architectural innovation.

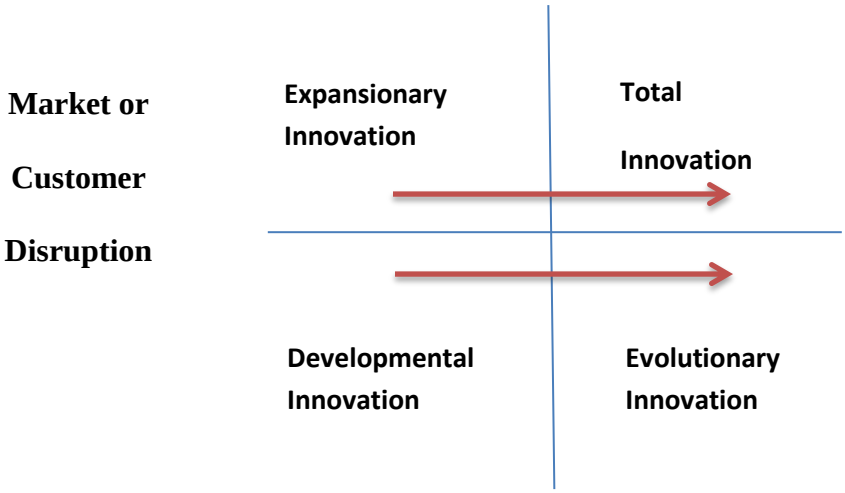
The second of the two studies on innovation types was conducted in the public sector by Osborne (1998). Osborne's work was based on Abernathy and Clark (1983) and subsequently became foundational to other studies in the public sector; for example, Walker et al. (2002) in the application of Osborne's typology within the housing industry in England from 1997-1999.

Osborne established a classification, or categorization of innovations, within social policy. The categorizing of the types of innovations was a two-fold process. The first part of categorizing innovation was based upon the degree of originality or "newness" of the initial concept or act. The second part related to the impact of the innovation concept or act had on "service industry." Osborne (1998) explained:

> In this new typology, the x-axis now becomes concerned with the impact of an organizational change upon the actual services that an agency produces-that is, whether it involves the existing services of an agency, or the creation of new ones (service discontinuity). The y-axis was concerned with the relationship of an organizational change to the clients of a social services agency-that is, whether it meet

the needs of an existing end-user group of the organization, or a new one (end-user discontinuity). (p. 1141)

Below is Osborne's typology diagram.



X axis - Impact of innovation on the production systems
Y axis - Impact of innovation on the service market

Figure 2. Osborne's innovation typology diagram.

This typology diagram follows an *x-axis* (Market or Customer Disruption–Innovation Creation) and a *y-axis* (Organization Process Disruption–Impact of Innovation). If an originating innovation concept extends from an existing service, thought, or practice and has no significant impact or change on the service industry or customer base, then it would be referenced as a Developmental Innovation (*lower left quadrant*). However, should that same innovating concept that extended from an existing service, thought, or practice create a significant shift or impact on the service industry or customer base, then it would be viewed as an Expansionary Innovation (*upper left quadrant*).

Conversely, should an original concept be introduced as a "new" idea or practice and have limited impact on the service industry or customer base, it would be viewed as an Evolutionary Innovation *(lower right quadrant*). However, should that same "new" innovating concept create a significant shift or impact on the service industry or customer base, then it would be viewed as a Total Innovation *(top right quadrant).*

The work of Abernathy and Clark (1983) was very similar to that of Osborne, in regard to categorizing innovations. The difference between the two primarily rested in the fact that Abernathy's and Walker's work focused on the private-sector market and Osborne's work focused on the public sector of social service. Both Abernathy and Clark (1983) and Osborne (1998) provided a consistent framework for categorizing innovation. The categorizing innovation permits government officials and researchers to discuss innovation using a common language.

Section Three–Assessment of Innovation

In the previous section, the challenges for researchers in developing a common definition of innovation was presented. Section Two also presented Osborne's innovation typology which may provide a common language for government officials to discuss innovation. Nevertheless, if the existence of government rests on its ability innovate as suggested by Bessant (2005), then not only was it important for government to have a common language to describe innovation, but just as importantly, it would be for government to know, through assessment, what results may be achieved by innovations.

According to Medina, Carmona-Lavado, and Cabrera (2002),

> It is not a sufficient requirement that the product be introduced onto the market or that the process be used (*Oslo Manual of the OECD/EUROSTAT*, 1997; Audretsch & Acs

> 1991, p. 69), but that it must also be successful (Pavón & Goodman, 1981; Sidro, 1988; Cumming, 1998; Sánchez, 1998, Escorsa & Valls, 2001; Pavitt, 1984) or be sold effectively (Guellec, 1999). Burgelman & Sayles (1986) pointed out that the success criterion for innovation is commercial, while for invention it is technical. (p. 2)

These perspectives illustrate the value in knowing the results of innovations.

One of the most comprehensive studies published by Walker et al. (2002) used Osborne's typology model framework in the public sector. In their work, they used the model to assess innovations from 1997-1999 for English housing associations. Their study used data from the Housing Corporation's *Innovation and Good Practice Database*, which contained 817 entries. The Housing Corporation's database included information on research projects, practices of innovation, and dissemination innovation activities. The purpose of their work was to find out if using the Osborne's typology framework provided useful data on the nature of innovation in the housing market. Their work assessed various areas in government innovation within housing, which included the following:

- The range of types of innovations.
- The origin of the innovation, between domestic and international housing associations.
- Variations in the number of innovations undertaken by a single housing association, rather than in partnership with other housing associations or other organizations.
- The distribution of innovations by stock size, staffing ratio, and the governmental region.

The study found that out of a total of 257 innovations within the study, 16 were classified as total innovations, 31 were classified as expansionary, 104 were classified as evolutionary, and 106 were classified as developmental.

The Osborne typology model provided the foundation for their study regarding the types of innovations practiced, as well as the inferred impacts of the innovations. The inferred impacts of the innovations were indicated in terms of impacts on market penetration and change. Other work has been conducted in the private sector in an effort to assess innovation, but such work has focused more on inputs and outputs, as in the study conducted on Australian manufacturing companies by Medina et al. (2002) and Yamin, Gunasekaran, and Mavondo (1999).

The Ash Center for Democratic Governance and Innovation at Harvard Kennedy School (2014) used the following criteria (i.e., novelty, effectiveness, significance, and transferability) to present awards to local units of government in the United States for acts of innovation:

- **Its Novelty**–The degree to which the program demonstrates a leap in creativity.
    - Does the program represent a fundamental change in the governance, management, direction, or policy approach of a particular jurisdiction?
    - Does the program represent a significant improvement in the process by which a service was delivered?
    - Does the program introduce a substantially new technology or service concept?
- **Its Effectiveness**–The degree to which the program has achieved tangible results.
    - Does the program responds to the needs of a well-defined group of clients?

- Does the program demonstrate its effectiveness in meeting its stated goals and objectives quantitatively and qualitatively?
- Does the program produce unanticipated benefits for its clients?
- Does the program present evidence of already completed, independent evaluation?

- **Its Significance**–The degree to which the program successfully addresses an important problem of public concern.
  - To what degree does the program address a problem of national import and scope?
  - To what degree does the program make substantial progress in diminishing the problem within its jurisdiction?
  - To what degree does the program change the organizational culture or the traditional approach to management or problem solving?
- **Its Transferability**–The degree to which the program, or aspects of it, shows promise of inspiring successful replication by other governmental entities.
  - To what extent can this program be replicated in other jurisdictions?
  - To what extent can this program serve as a model that other jurisdictions was seek to replicate?
  - To what extent are program components, concepts, principles, or insights transferable to other disciplines or policy areas?

Understanding how innovation was assessed may help to better understand innovation and its impact at the local-government level by researchers and government leaders.

Section Four–Summary of Literature Review

Innovation was complex and of interest to governments for various reasons. In a study conducted by Walters (2001), he indicated interest in innovation in terms of drivers of innovation. For example, organizations having frustrations with the status quo or organizations' desires to adapt to technology changes. Another perspective was from Light (1998), who declared that in the end, the purpose for innovation in the public sector was to create public value. Beyond the revelations of Walters and Light, a summary of literature shows that:

- There is a shared interest in innovation in both public and private sectors. Key reasons for this shared interest relate to the operations of an organization regarding its survival, effectiveness, and efficiency.
- There are differences between the public and private sectors regarding the values which drive their pursuit of innovation. Government pursuit of innovation may pertain to addressing the service needs and perceptions of citizens, while the private sector subscribes to winning in a competitive market.
- There was no consensus on the definition of innovation within government. However, there were typological frameworks developed and utilized that provided a way to consistently categorize types of innovation.
- There are limited studies assessing the impact of innovations within government.

The intent of this dissertation was to explore the following six research questions:

1. What common attributes are used by chief executive officers of local units of government in Minnesota to define innovation?

2. What types of innovation practices are reported by the chief executive officers of local units of government in Minnesota?
3. What types of innovation practices are most frequently reported by the chief executive officers of local units of government in Minnesota?
4. How do the factors of type of government, geographical location, staff size, and budget size influence the probability of innovation by local units of government in Minnesota?
5. What types of innovation assessments are reported by the chief executive officers of local units of government in Minnesota?
6. What types of innovation assessments are most frequently reported by the chief executive officers of local units of government in Minnesota?

The six research questions are significant for two reasons: 1) The findings may add to the body of research regarding innovation in local government. 2) The findings may contribute to the understanding innovation by local government officials. Ultimately, by addressing those research questions, this dissertation may contribute to the body of knowledge in the areas of a common definition, practice, and assessment of innovations by local governments.

Chapter 3: Methodology and Materials

Introduction

Chapter 3 describes the methodology conducted in the study. The study was influenced and guided by multiple studies and assessments of innovation including, but not limited to Paul Light's (1998) *Sustaining Innovation*; Anna Serena Vergori's (2013) *Measuring Innovation in Services: The Role of Surveys in Europe*; Australian National Audit Office on Innovation's (2009) *Public Sector–Enabling Better Performance Driving New Direction*; and the Oslo Manual's (3rd ed.) *Organization for Economic Co-Operation and Development Statistical Office of the European Communities.* The significance of these four studies is the incorporation of an array of surveys, interviews, and case study techniques for assessing organizational innovation.

A second pair of studies regarding the assessment of innovation were conducted by Coombs, Narandren, and Richards (1996) in *A Literature-Based Innovation Output Indicator* and Walker et al. (2002) in *Measuring Innovation–Applying the Literature-Base Innovation Output Indicator*. In the latter, innovations were assessed by reviewing data reported by organizations involved in those studies. Those studies utilized Osborne's typology of innovation (i.e., expansionary, development, total, and evolutionary) and determined the outputs produced by innovation type. Those studies were important in that they aided in establishing standards for accessing data, categorizing the data, and identifying the results of innovations. This dissertation intended to categorize the types of innovations practiced and results achieved by local units of government in Minnesota.

Problem Statement

The gap revealed in research between the abundance of research on shared interests and investments by governmental agencies in innovation and the limited amount of research found on how governmental agencies define, practice, and assesse innovation, has led to the problem that was addressed by the study. Wolfe (1994) contended that innovation could not be defined (p. 406). Osborne (1998) suggested that innovation was unmeasurable, because it was "all things to all people." The gap revealed by research, coupled with the conclusions of Wolfe and Osborne, presented the foundational problem that was addressed by the study, which was that a limited number of studies address a common definition, practice, and assessment of innovation as practiced by government.

Purpose of Study Statement

The purpose of the study was to examine, summarize, and categorize how leaders of select cities, counties, and school districts (K through 12th grade) in Minnesota define, practice, and assess innovation.

Research Questions

The literature reviewed assisted to frame the design of the study and subsequent research questions. The following six research questions were explored in the study:

1. What common attributes are used by chief executive officers of local units of government in Minnesota to define innovation?
2. What types of innovation practices are reported by the chief executive officers of local units of government in Minnesota?
3. What types innovation practices are most frequently reported by the chief executive officers of local units of government in Minnesota?

4. Do the factors of type of government, geographical location, staff size, and budget size influence the probability of innovation by local units of government in Minnesota?
5. What types of innovation assessments are reported by the chief executive officers of local units of government in Minnesota?
6. What types of innovation assessments are most frequently reported by the chief executive officers of local units of government in Minnesota?

The explorations of the six research questions outlined above were intended to discover new insights to better understand innovation within local units of government, therefore, the balance of Chapter 3 explains the methodology of how the research questions were addressed.

Research Design

The study employed both qualitative and quantitative methodologies in the analysis of data. The study qualitatively assessed how participants define innovation and quantitatively assessed how participants categorize innovations which are practiced and measured within their organizations.

The qualitative methodology was employed with research question 1. Commonly used words to describe innovation were identified, and themes and forms of innovation were also grouped. The type of qualitative analysis used to analyze question one related to *Research that Aims at the Discoveries of Regularities*, which the researcher and a second expert researcher sought to identify commonalities or regularities of words and themes written within the descriptions of innovation as defined by participants. Tesch (1990) proposed that the regularities may be viewed as a conceptual order of organizing the analysis and

interpretations of the data. The steps taken to create a conceptual order of analyzing and interpreting question 1 are later outlined in a table.

Slavin (2007) suggested that qualitative research was descriptive in that the data collected may be displayed in words or pictures rather than numbers. He further suggested that qualitative research was a process by which the researcher may acquire a full picture or story of the issue studied (p. 121). In the study, chief executive officers of local units of government were asked by the researcher to define innovation. Understanding how innovation was defined by local governmental officers was helpful in understanding the rationale for pursuing innovation through local government.

Survey questions 2, 3, 5, and 6 were analyzed using descriptive statistics, which quantitatively identified the number and percentage of the types of innovations practiced. The most frequent type of innovation practiced was identified also. Holcomb (1998) defined the use of descriptive statistics in the terms of organizing and summarizing data.

Survey question 4 was analyzed using a simple regression analysis and a multivariate logistics regression model. Slavin (2007) stated that when a researcher obtains data about more than two variables without manipulation and then seeks to determine a correlation between those variables, it was considered a correlational study. A Multiple Logistic Regression Model was run in a software and services (SAS) program. Hosmer (2000) referred to a logistic regression model as the new standard for analyzing relationships between variables. Hosmer also proposed that the use of a multiple logistic regression was a reasonable approach to analyzing cases where there was more than one independent variable. The selected factors in the study were analyzed using statistical software SAS 9.4 University Edition. The analysis focused on the tendency to innovate as a dependent variable while “type

of jurisdiction," "location of the jurisdiction," "size of the staff," and "size of the budget" were the four independent variables under consideration.

A similar use of a correlative study method was used by Osborne, Chew, and McLauglin (2008), where they showed innovations in the voluntary and community organizations (VCOs) sector in England. While their study focused on two case studies, they employed quantitative analysis in showing the correlation between the types of innovations employed by the organizations and their geographical areas; for example, rural, urban, and suburban regions.

Research Participants

One of two initial points of interest and significance in conducting this research by the researcher was contributing to the current body of research, thereby, the researcher believed that conducting the study using a multi-jurisdictional approach would help make such a contribution. The literature found by the researcher focused on individual cases or organizations, such as the Innovation in American Government Awards, the Institute of Public Administration of Canada (IPAC, 2014) Innovation Awards, and the Commonwealth Association for Public Administration and Management (CAPAM, 2014) Innovation Awards. Osborne et al. (2008) focused on voluntary and community organizations. Walker and Jeanes (2001) reported on innovations in the housing market, as delivered by three independent housing associations. There were no studies found by the researcher that provided salient information on innovation at the local-government level among cities, counties, and school districts on a broad scale. The study endeavored to gather, analyze, and assess data among cities, counties, and school districts on a broad scale.

The second of two initial points of interest and significance in conducting this research by the researcher was to provide useful information to government leaders, thereby, the researcher believed that conducting the study using a multi-jurisdictional approach would help make such a contribution. The finding of the study related directly to the diverse types of local units of government, including cities, counties, and school districts. According to a Minnesota state statute (Chap. 6, Sect. 465-6.45), the term "local government/political subdivision" includes counties, cities, towns, school districts, regional agencies, public corporations, and special districts. For purposes of this study, local government refers specifically to cities, counties, and school districts, which account for a total 1,268, or 41.16%, of all Minnesota local units of government.

The findings of the study related to the geographically diverse types of local units of governments includes those located in metropolitan, micropolitan, and rural areas. The terms "metropolitan statistical areas" and "micropolitan statistical areas" are geographical areas used by federal statistical agencies and delineated by the U.S. Federal Office of Management and Budget (see Appendix A–Office of Management and Budget Delineation).

The Minnesota Department of Health's (2014) website, *Defining Rural, Urban and Underserved Areas in Minnesota,* displays a map (see Appendix B–Minnesota Department of Health Delineation Map and Appendix C–Minnesota Department of Health Delineation) of all 87 Minnesota counties by delineation (i.e., metropolitan, micropolitan, and rural). Based on the map, there were a total of 81 local units of government included in the study, as well as their chief executive officers. The study consisted of one county from each metropolitan, micropolitan, and rural area, totaling representation of three county governments. The study consisted of a total of 22 school districts, including 15 school districts within the metropolitan

delineated county, 3 micropolitan, and 4 rural, respectively. The study also consisted of a total of 56 cities, including 46 cities within the metropolitan delineated county, 4 micropolitan, and 6 rural, respectively.

The study was directed to chief executive officers including chief administrators, managers, and superintendents of the local units of government. While innovations are initiated throughout all levels of organizations, chief executives have broad knowledge, influence, and authority in adopting innovations developed throughout the organization (Borins, 2001b; Kanter, 1988).

Human Subject Approval

During the process of conducting the study, the researcher took every necessary and required measure necessary to ethically protect all study participants and the integrity of all data collected. The researcher completed the required application for the St. Cloud State University Institutional Review Board upon approval to proceed with the study by the research committee. The study commenced only after the approval of the application by Institutional Review Board had been granted.

Instrumentation

Implementation of the study consisted of administering a web-based electronic survey to 81 local-government chief executive officers (see Appendix D–Study Survey). Manheim and Rich (1986) stated that "survey research is a method of data collection in which information is obtained directly from individual persons who are selected so as to provide a basis for making inferences about some larger population" (p. 105). The survey was designed in three parts: 1) Survey participant profile 2) Innovation practices and types 3) Innovation assessment practices and types.

Part one–Survey participant profile. The first part of the survey solicits demographical data about the participant, the organization, and the governing board. Demographical questions pertaining to the participant (chief administrative officer) includes their title and gender. Another aspect of the profile applies to the organization, including its type, geographical location, staff size, and budget size.

Part two–Innovations practices and types. The second part of this survey consisted of an open-ended question defining innovation, as well as a listing of innovations practiced by the study participant organizations. By having the participants describe innovation in their own words, an active research framework or appreciative inquiry method was employed. The intent was to encourage respondents to openly and candidly share their authentic definition of "innovation" without the pressure of being influenced by an externally-imposed framework by the researcher. Cooperrider and Whitney (2005) wrote of appreciative inquiry as an approach that fully engages the researcher in the thought and spirit of the survey responder. The purpose and results of such an approach affords the researcher to explore a deeper sense of insight from the responder. The study seeks to explore such depths of thought, feelings, and perspectives of the chief executive officers of local units of government.

Survey respondents were asked to identify innovations developed in the past four years. The listings of self-identified innovations were categorized based upon Osborne's typology model, including developmental, evolutionary, expansionary, and total innovation types, which are described in detail in Chapter 2 of the study.

Part three–Innovation assessment practices and types. The third part of the survey asked participants to self-identify the types of assessments of innovation practiced by the

organization. Identification of the types of assessment of innovation were based upon the logic model evaluation, which centers around four areas of assessment including inputs, activities, outputs, and outcomes. Frye and Hemmer (2012) spoke of the challenges of evaluating educational systems, because the programs are about fundamental change. Because change can be intended or unintended and processes are non-linear, they wrote specifically of the utilization of the logic model evaluation method. The Logic Model approach to program evaluation is currently promoted or required by some U.S. funding agencies (Frechtling, 2007), thus, it is of value to the researcher to know what this approach could offer (p. 294). Frye and Hemmer (2012) describe the components of the logic model as follows:

- Inputs–The first component of the Logic Model's inputs comprise all relevant resources, both material and intellectual, expected to be available to an educational project or program.
- Activities–The second component of a Logic Model details the Activities, the set of treatments, strategies, innovations, or changes planned for the educational program.
- Outputs–The Logic Model's third component was defined as indicators that the program's activities are underway or completed, and that something (a product) happened.
- Outcomes–The fourth component of outcomes define the short-term, medium-term, and longer-range changes intended as a result of the program's activities.

The software program Survey Monkey, a web-based survey instrument, was used for surveying the study participants. The survey tool provided anonymity and confidentiality to

study participants. A pretest of the survey tool was administered to two graduate students and seven college professors. Manheim and Rich (1986) suggested that "Administering the instrument to a small sample similar to the larger sample to be contacted to ensure that instructions can be correctly interpreted and the items produce the desired type of response" (p. 171), which emphasized the importance of conducting a pretest. Upon completion of the survey, the results were tabulated and documented by the researcher.

Data Collection

The solicitation and collection of the data for the study derived from the surveying of 81 local government chief executive officers. The solicitation and collection of their responses involved: a) a letter of introduction and solicitation of participation, b) an email of solicitation and link to complete the survey, and c) reporting of survey results to local units of government in Minnesota as an incentive to participate.

- Letter of Introduction and Solicitation of Participation–An introduction letter developed in PDF format was sent electronically to the targeted study participants (i.e., chief managers, administrators, and superintendents) of the selected local units of government (see Appendix E–Solicitation of Participation Letter) in Minnesota. This email was sent from a chief executive officer, within the area of the participants, to participants for purposes of encouraging participation. The letter explained the study, purpose of the study, study process, invitation to participate, and commitment of sharing of results. Within three days of dispersing the electronic letter of engagement, a follow-up phone call was placed to each participant confirming that original email was received.

- Surveying of Study Participants–An electronic survey was developed and sent to the chief executive officers of the selected local units of government by the St. Cloud State University Statistical Consulting & Research Center regarding: 1) defining innovation, 2) identifying the types of innovations practiced, and 3) identifying the types of innovation assessments practiced (see Appendix F–Letter of Introduction and Survey Engagement). Survey Monkey, which is a web-based electronic survey tool, was used for surveying the study participants. A link to the survey and its instructions were embedded within the introduction letter. A follow-up phone call was placed within three days to each participant confirming that letter with the embedded survey link was received and that the survey could be accessed electronically by the participant. The participants were given 20 business days, or four weeks, to complete the survey. Ten days after distributing the introduction letter and survey link, a follow-up email was sent to each participant reminding them to: 1) complete the survey, 2) inform the group as to the percentage of completed surveys by the participants at that time, and 3) reminded them of the deadline. After 10 days, and every day following a follow-up communication, it was repeated, encouraging 100% completion of the surveys.
- Reporting of Survey Result–As an incentive to encourage participation in the study, survey results and reporting a commitment by the researcher to share the results of the survey was made to the participants, as well as local government state associations. In addition, the researcher committed to presenting the findings at state associations for annual conferences. Dissemination of survey results was

important for two reasons: 1) To provide an incentive for participation 2) To provide information to local government leaders (i.e., elected officials and chief executive officers) to use in future policymaking and operating local units of government.

Data Analysis

The survey data analysis consisted of examining each question of the survey. Analysis of data was done using the statistical package provided by Survey Monkey and Software and Services (SAS) program. The demographical profile information was analyzed for each research question; for example, innovation practices, types of innovation, and results of innovative practices evaluated, in order to determine any significant relationships based on demographic profiles. The listing of innovations provided by the participants in part two of the survey was analyzed by profile characteristics. The responses were categorized by Osborne's typology of four types of innovation (expansionary, development, total, and evolutionary). In part three of the survey, participants were asked to identify how the innovations indicated in part two of survey were evaluated. The evaluations were categorized based on the logic model's four types of evaluation: inputs, activities, outputs, and outcomes.

The software tool, Survey Monkey, served as the collection and storage point for all survey responses. Survey Monkey has preset control options designed in the program that required respondents to answer selected questions prior to proceeding to a following question. This aspect of Survey Monkey helped to control respondent input for consistency of responders' purposes. As mentioned earlier, confidentiality was critical to the integrity of the study. Therefore, using Survey Monkey was an advantage since participants could respond without revealing their names or the names of the organizations that they represent. Survey

Monkey provided quality control and system security measures. Consistency, confidentiality, security, and the liberty to speak truthfully contributed to the dependability of research responses.

Summary Methodology and Materials

Governmentally-elected administrative leaders in the United States, and other countries, have invested millions of dollars in innovations, as demonstrated in Light's (1998) documentation of innovation award applications submitted to the Harvard Kennedy School's Ash Center for Democratic Governance and Innovation, and by the European Union's Eurostat Office. The mission of the Eurostat Office was to provide reports of innovation to and from members across of the European Union. Although there are millions of dollars spent by government in the pursuit of innovation, the term "innovation" remains without a common definition. Wolfe (1994) submits that innovation cannot be defined(p. 406). While undefinable, Osborne (1998) suggests that innovation is unmeasurable, because it was "all things to all people."

The purpose of the study was to examine, summarize, and categorize how leaders of select cities, counties, and school districts (K through 12th grade) in Minnesota define, practice, and assess innovation.

The study explored and addressed the following six research questions:

1. What common attributes are used by chief executive officers of local units of government in Minnesota to define innovation?
2. What types of innovation practices are reported by the chief executive officers of local units of government in Minnesota?

3. What types of innovation practices are most frequently reported by the chief executive officers of local units of government in Minnesota?
4. Do the factors of type of government, geographical location, staff size, and budget size influence the probability of innovation by local units of government in Minnesota?
5. What types of innovation assessments are reported by the chief executive officers of local units of government in Minnesota?
6. What types of innovation assessments are most frequently reported by the chief executive officers of local units of government in Minnesota?

The exploration of the six research questions of the study was intended to provide information about the role of innovation within local governmental units in Minnesota. This research was significant because it may contribute to the body of knowledge in literature, regarding innovation within local governmental units and to the understanding of innovation by local government leaders. Ultimately, the study will contribute to resolving the problem of there being a limited number of studies found by the researcher which address a common definition, practice, or measurement of the value created by innovation in government.

Chapter 4: Findings and Data Analysis

Introduction

The gap between the abundance of research regarding shared interests and investments in innovation by governmental agencies and the limited amount of research found on how governmental agencies define, practice, and assess innovation has led to the uncertain question of whether or not government in the public sector (i.e., small-to-large budgets, small-to-large staff sizes, rural-to-metropolitan locations, cities and counties, or kindergarten to 12th grade school districts) was actually innovative. Beyond the limited findings in research regarding the practice of innovation by government, research revealed that there was no common definition of innovation. Thereby, research revealed the problem that a limited number of studies found show a common definition, practices, factors of influence, and assessment of innovation as performed by government. As a result, the researcher endeavored to examine, summarize, and categorize innovation, descriptions of innovation, types of practices, factors of influence, and types of assessments of innovation as reported by chief executive officers representing a total of 81 cities, counties, and school districts (K through 12th grade) in the State of Minnesota.

The researcher designed and administered a web-based electronic survey to 81 local government chief executive officers. The study consisted of one county each delineated as a metropolitan, micropolitan, and rural county area totaling a representation of three county governments. The study consisted of a total of 22 school districts, including 15 school districts within the metropolitan delineated county, 3 micropolitan, and 4 rural, respectively. There were a total of 55 cities, including 45 cities within the metropolitan delineated county, 4 micropolitan, and 6 rural, respectively. The study explored six research questions:

1. What common attributes are used by chief executive officers of local units of government in Minnesota to define innovation?
2. What types of innovation practices are reported by the chief executive officers of local units of government in Minnesota?
3. What types of innovation practices are most frequently reported by the chief executive officers of local units of government in Minnesota?
4. Do the factors of type of government, geographical location, staff size, and budget size influence the probability of innovation by local units of government in Minnesota?
5. What types of innovation assessments are reported by the chief executive officers of local units of government in Minnesota?
6. What types of innovation assessments are most frequently reported by the chief executive officers of local units of government in Minnesota?

Method

The software tool, Survey Monkey, was used to electronically survey participants and to store data collected. An advantage of using Survey Monkey was the ability to provide confidentiality to participants. Participants were able to complete their surveys without revealing their personal names or the names of the organizations they represented. The survey was not administered by the researcher, but by the St. Cloud State University Statistical Consulting & Research Center, on behalf of the researcher, which added an additional level of confidentiality for participants.

The survey was designed in three parts: 1) Survey Participant Profile, 2) Types of Innovation Practiced and Factors of Influence, and 3) Types of Innovation Assessments

Practiced. The first part of the survey solicited demographical data about the organizations represented by their chief executive officer, including the type of organization, geographical location, staff size, and budget size. The second part of the survey consisted of an open-ended question that asked participants to define innovation and to list innovations practiced within their organizations over the past four years. In addition, the types of innovations were self-identified and listed by the participants. The third part of the survey asked participants to self-identify the types of innovation assessments conducted by the organization over the same four-year period. Identification of the types of assessments reported was based upon a logic model evaluation of inputs, activities, outputs, and outcomes.

The first study question was conducted using an open-ended question. The type of qualitative analysis used to analyze question number one related to a verification method which the researcher and an expert researcher independently reviewed the descriptions of innovation as defined by participants for commonalities or regularities through words and themes.

Tesch (1990) proposed that the regularities may be viewed as a conceptual order of organizing the analysis and interpretations of the data. The steps taken to create a conceptual order of analyzing and interpreting question were as follows:

- **Step 1: Initial Reading of Survey Responses by First Reader (Researcher)**–A total of 33 of 35 participants described innovation in their own words. Each description was reviewed for general understanding of what the responder conveyed.

- **Step 2: Initial Reading of Survey Responses by Second Reader (Expert Survey Researcher)**–A total of 33 of 35 participants described innovation in their own words. Each description was reviewed for general understanding of what the responder conveyed.
- **Step 3: Identification of Common Descriptive Words and Themes of Innovation and Descriptive Themes of Innovation Form Used by Participants (Performed Individually by Readers)**–Each of the 33 descriptions was assessed for common descriptive words and themes. The term "common" refers to high frequency of use of descriptive words or themes shared among each of the responses. In addition to the identification of descriptive words and themes, common forms of innovation (i.e., product/services, production process, thought processes or ideas) were identified.
- **Step 4: Review and Numeric Counting of the Frequency of the Common Descriptive Words and Themes of Innovation and Descriptive Themes of Innovation Form Used by Participants**–Each common descriptive word, theme, and form was given a numeric label. The numeric numbers for each descriptive word, theme, and form of innovation were then totaled. The percentage of the number of times each descriptive word, theme, and form of innovation were calculated and documented.
- **Step 5: Listing, Ranking, and Reconciling of the Most Frequently Used Common Descriptive Words and Themes of Innovation and Descriptive Themes of Innovation Form Used by Participants (Combined Results of the**

Two Readers)–The two readers created a combined list of commonly used descriptive words, themes, and forms of innovation based upon their individual analysis of the data.

- **Step 6: Final Listing of Ranked Most Frequently Used Common Descriptive Words and Themes of Innovation and Descriptive Themes of Innovation Form Used by Participants**–The four common words, themes, and forms most frequently reported numerically and the highest percentage of innovations from the combined analysis were identified. A single listing of most frequently used descriptive words, themes, and forms of innovation was quantified, ranked, and listed.

The participants' responses were qualitatively and quantitatively analyzed. The researcher and a third-party, trained researcher independently analyzed and coded all responses based on the number of times a descriptive word, theme, and form of innovation was mentioned by the participants.

The individual descriptive words (i.e., new, creative, idea, and change) embedded within the responses were the most commonly used to define innovation. Words such as "of" or "and" were not considered descriptive words, thus, were not counted. There were thematic phrases stated in the responses. Themes (i.e., achieving results, problem solving, improvement, or being different) were identified, coded, and counted as a particular type of theme. Words and themes describing the innovation form (i.e., product/service, idea, process or thinking) were identified, coded, and counted.

Survey questions two and three were analyzed using descriptive statistics, which quantitatively identified the number and percentage of the types of innovations practiced. The

most frequent type of innovation practiced was also identified. Holcomb (1998) defined the use of descriptive statistics in the terms of organizing and summarizing data. Survey question four was analyzed using a simple regression analysis and a multivariate logistics regression model. The Multiple Logistic Regression Model was run in through a Software and Services (SAS) program. Hosmer (2000) referred to a logistic regression model as the new standard for analyzing relationships between variables. Hosmer also proposed that the use of a multiple logistic regression was a reasonable approach to analyzing cases where there was more than one independent variable. The selected factors in the study were analyzed using statistical software SAS 9.4 University Edition. The analysis focused on the tendency to innovate as a dependent variable while "type of jurisdiction," "location of the jurisdiction," "size of the staff," and "size of the budget" were the four independent variables under consideration. Survey questions five and six data were analyzed using descriptive statistics. The quantitative analysis identified the number and percentage of the types of assessments of innovations practiced and the most frequent type of assessment employed.

Part One–Survey Participant Profile

The subjects of the study were executive officers of local units of government including cities, counties, and school districts (K through 12th Grade). There are a total 1,268 cities, counties, and school districts in the State of Minnesota. Eighty-one (81) subjects were identified and communicated with regarding participation in this research study. Communication with the subjects was conducted by the St. Cloud State University Statistical Consulting & Research Center. An initial email survey invitation with an embedded link to the survey and 10 follow-up reminders to each of the 81 participants were dispersed. Subjects

were made aware that their participation in the survey would be confidential and specific information pertaining to the identities of the participants would not be shared publicly. There are no direct quotes from the participants stated in this report, thereby, limiting the risk of a link between a specific response and a particular participant. All data was presented in aggregate as an additional measure of protecting the identity of the participants.

There were a total of 35 participants in the study. They accounted for 43.21% of the total 81 subjects solicited to represent their organizations in the study, and 2.74% of the total number of cities, counties, and school districts (from this point forward, all school district references shall refer to kindergarten through 12th grade) in Minnesota. The 35 participants were described demographically according to type of local government unit, geography, size of staff, size of budget, and title of respondent.

Table 1

Type of Local Unit of Government

Local Unit of Government	City	County	School District	Total
Number of Participants	26	2	7	35
Percentage of Participants	74.29%	5.71%	20.0%	100%

Of the 81 engaged local units of government, a total of 56 city governments (69.14%), 3 county governments (3.70%), and 22 school districts (27.16%) comprised the survey pool. Table 1 shows that there were 35 participants in the survey of 81 local units of government, which was a 43.21% participation rate. Of the 35 participants, 26 represented city governments (74.29%), 2 county governments (5.71%), and 7 school districts (20.0%).

The percentage of participation by cities was 5.15% higher than that of the percentage of cities engaged in the total survey pool. While there were only three counties engaged in the

study, the percentage of participation counties participation in the survey was higher than its percentage of engagement in the survey by 2.01%. Contrary to the increased participation of cities and counties, school districts participation percentage decreased as compared to its engagement. School districts percentage of participation was 7.16% lower than its percentage of engagement in the entire study.

There are 853 city governments in Minnesota, according to the League of Minnesota City's website (February, 2017). There are 87 county governments, according to the Association of Minnesota County's website (February, 2017), and 328 public operating elementary and secondary independent school districts, according to the Minnesota Department of Education's website (February, 2017), respectively. The percentage of participation by city government, county government, and school districts (K through 12th Grade) within the survey pool are proportionately similar to that of the total number of cities, counties, and school districts (K through 12th Grade) within the State of Minnesota. The percentage of city government study participation was slightly higher (7.02%) than its proportional percentage makeup of Minnesota local units of government, whereas, the percentage of school district participation was slightly lower (5.87%).

Table 2

Geographical Area

Geographical Area	Micropolitan County Area	Rural County Area	Metropolitan County Area	Total
Number of Participants	3	11	21	35
Percentage of Participants	8.57%	31.43%	60.0%	100%

Of the 81 local units of government engaged in the study, 8 represented Micropolitan County Areas (9.88%), 11 Rural County Areas (13.58%), and 62 Metropolitan County Areas

(76.54%). Of the 35 participants in the survey, 3 participants represented Micropolitan County Areas (8.57%), 11 Rural County Areas (31.43%), and 21 Metropolitan County Areas (60.0%).

The percentage of participation by local units of government located in a Micropolitan County Areas was similar to that of the total survey pool. The percentage of participation by local units of government located in a Rural County Area was significantly higher (17.85%) than that of the total survey pool. Local units of government from a Rural County Area participated at 100%, whereas, local units of government from Micropolitan and Metropolitan County Areas did not. Local units of government located within a Metropolitan Area County participated considerably less at 16.54% lower than its percentage of representation within the survey pool of 81 engaged local units of government.

The study described local units of government in geographical terms including metropolitan, micropolitan, and rural areas. The terms metropolitan statistical areas and micropolitan statistical areas are geographical area terms used by the federal statistical agencies and delineated by the U.S. Federal Office of Management and Budget.

The Minnesota Department of Health's website (2014), *Defining Rural, Urban and Underserved Areas in Minnesota,* displays a map of all 87 Minnesota counties by delineation (i.e. metropolitan, micropolitan, and rural). The state map identified 23 metropolitan (26.44%), 18 micropolitan (20.69%), and 46 rural area counties (52.87%). There was one of each of the county delineated areas (i.e., metropolitan, micropolitan, and rural) selected for the study. Thereby, the cities and school districts (K through 12th Grade) located within the three delineated county areas were included in the study.

Table 3

Staff Size

Unit Staff Size	Small (less than 50 employees)	Medium (50 to 200 employees)	Large (more than 200 employees)	Total
Number of Participants	13	14	8	35
Percentage of Participants	37.14%	40.0%	22.86%	100%

Of the 35 participants, 13 participants represented a small local unit of government in terms of the number of employees (37.14%), 14 medium size (40.0%), and 8 large size (22.86%). The researcher did not know the staff size of the local units of government engaged in the study. Only after participation or reviewing survey responses would the staff size become known to the researcher. Thereby, the researcher was not able to compare the percentage of staff-size distribution within the total pool of 81 local units of government engaged to that of the percentage of staff-size distribution within the pool of 35 participants.

Table 4

Budget Size

Unit Budget Size	Small (less than $25 million)	Medium ($25 to $75 million)	Large (greater than $75 million)	Total
Number of Participants	24	7	4	35
Percentage of Participants	68.57%	20.0%	11.43%	100%

Of the 35 participants, 24 participants represented a small local unit of government in terms of the size of budget (68.57%), 7 medium size (20.0%), and 4 large size (11.43%). The researcher did not know the budget size of the local units of government engaged in the study. Only after participation would the budget size become known to the researcher. Thereby, the researcher was not able to compare the percentage of budget size distribution within the total

pool of 81 local units of government engaged to that of the percentage of budget size distribution within the pool of 35 participants.

Table 5

Respondents by Title

Respondents by Title	Manager	Superintendent	Administrator	Department Head	Total
Number of Participants	9	7	15	4	35
Percentage of Participants	25.71%	20.0%	42.86%	11.43%	100%

While innovations are initiated throughout all levels of organizations, chief executive officers have broad knowledge, influence, and authority in adopting innovations developed throughout the organization (Borins, 2001b; Kanter, 1988). There were 9 local government managers (25.71%), 7 superintendents (20.0%), 15 administrators (42.86%), and 4 department heads (11.34%) who participated in the survey. Beyond the need for chief executives officers to receive and respond to the survey, participant titles were not used or analyzed further in the study.

Part Two–Innovation–Practices and Types

Research question one. The first research question was "What common attributes are used by chief executive officers of local units of government in Minnesota to define innovation?" In Table 6, it shows the responses from 33 of the 35 (94.3%) survey participants to research question one (see Appendix G–Survey Question One Data Analysis).

Table 6

Most Common Descriptive Words for Innovation

Descriptive Word	Number of Mentions (n=33)	Percentage of Mentions (n=33)
New	15	45.46%
Idea	8	24.24%
Creative	6	18.18%
Change	4	12.12%
Total	33	100.00%

Fifteen, or 45.45%, of the participants described innovation in terms of being "new," while another 8 (24.24%) participants described innovation as an "idea." Other top descriptive words were "creative" with 6 mentions (18.18%) and "change" with 4 mentions (12.12%), respectively.

Table 7

Most Common Descriptive Themes of Innovation

Descriptive Theme	Number of Mentions (n=33)	Percentage of Mentions (n=33)
Different	11	33.33%
Improvement	10	30.30%
Problem Solving	7	21.21%
Achieve Results	4	12.12%
Others	1	03.03%
Total	33	99.99%

Of the 35 participants, 11 (33.33%) described innovation thematically as something "different" or "unlike anything" (i.e., product, service, idea, etc.) that existed. Following closely behind the "something new" theme was a grouping of 10 (30.30%) participants who described innovation thematically as an "improvement." Other top descriptive themes were

"problem solving" with 7 mentions (21.21%) and "achieve results" with 4 mentions (12.12%), respectively.

Table 8

Most Common Descriptive Forms of Innovation

Descriptive Form	Number of Mentions (n=33)	Percentage of Mentions (n=33)
Process	20	60.60%
Product/Service	5	15.15%
Idea	5	15.15%
Thinking	3	09.10%
Total	33	100.00%

The most significantly described form of innovation was "a process," which was described by 20 (60.60%) of the participants. The next and closest described forms of innovation were "product/service" and "idea," which accounted for 5 (15.15%) of the participants. Following next was "thinking" as the fourth most commonly described form of innovation with 3 (9.09%) participants describing it as such.

Research question two. The second research question was "What types of innovation practices are reported by the chief executive officers of local units of government in Minnesota?" The following tables reveal the number of participant responses and the types of innovation practiced (see Appendix H–Survey Question Two and Three Data Analysis). Table 9 shows the number of participants who identified and described at least one innovation within the last four years.

Table 9

Implemented Innovation within 4-Year Survey Period

Number of Responses	Yes	No	No Response or N/A	Total
Number of Participants	16	14	5	35
Percentage of Participants	45.71%	40.0%	14.29%	100%

There were 16 participants (45.71%) that reported at least one innovation within their organizations in the past four years. The table above shows that there were more organizations that reported an innovation than those who reported no innovation. Fourteen (40.0%) of the 35 total participants did not report an innovation within the past four years.

There are four types of innovation described by Osborne (1998), including:

- Developmental Innovation–An innovation that originated from an existing service, thought, or practice and had no significant impact or change on the service industry or customer base
- Expansionary Innovation–An innovation that originated from an existing service, thought, or practice and had significant impact or change on the service industry or customer base
- Evolutionary Innovation–An innovation that was original and not based on existing service, thought, or practice and had no significant impact or change on the service industry or customer base
- Total Innovation–An innovation that was original and not based on existing service, thought, or practice and had a significant impact or change on the service industry or customer base that are referenced in the next three tables.

Table 10 shows the types of innovations reported for one innovation within the four-year reporting period.

Table 10

Types of First Innovations Reported within 4-Year Survey Period

Type of Innovation (n=16)			
Development Innovation	Expansionary Innovation	Evolutionary Innovation	Total Innovation
7	1	1	7
43.75%	6.25%	6.25%	43.75%

There were 16 participants (45.71%) that reported at least one innovation within their organizations over the past four years out of the total 35 participants. The number of innovations reported after the first innovation diminishes by the number of organizations conducting a second and third innovation within the four-year reporting period. Development Innovation (innovation based on existing product, but no impact on industry behavior) and Total Innovation (innovation based on an original idea and impacted the way industry behaves) were the top two reported types of innovation practiced within the past four years. Both were reported by 7 (43.75%) out of the 16 participants who reported at least one innovation. Expansionary Innovation (innovation based on existing product and impacted the way industry behaves) and Evolutionary Innovation (innovation based on an original idea, but no impact on industry behavior) were reported less often. Both were reported by only one participant, or 6.25%, of the total 16 organizations with reported innovations. Table 11 shows the types of innovations reported for a second innovation within the four-year reporting period, of which there were five participants indicating a second innovation.

Table 11

Types of Second Innovations Reported within 4-Year Survey Period

Type of Innovation (n=5)			
Development Innovation	Expansionary Innovation	Evolutionary Innovation	Total Innovation
2	3	0	0
40.00%	60.00%	0.00%	0.00%

There were five (14.28%) participants that reported a second innovation within their organization over the past four years out of the total 35 participants. Expansionary Innovation (innovation based on existing product and impacted the way industry behaves) was identified as the most reported innovation by three (60.00) of the five participants who reported a second innovation within their organizations. Development Innovation (innovation based on existing product, but no impact on industry behavior) was the second most reported innovation by two (40.00%) of the five participants who reported a second innovation. The table above shows that there were no participants who reported Evolutionary or Total Innovations as a second innovation. There was only one participant that reported a third and fourth innovation within the four-year reporting period. The one participant accounted for 2.86% of the total 35 participants and 6.25% of the 16 participants who reported at least one innovation within their organizations. Total Innovation (innovation based on an original idea and impacted the way industry behaves) was reported as the type of innovation by the one participant.

Research question three. The third research question was "What types of innovation practices are most frequently reported by the chief executive officers of local units of government in Minnesota?" There were four innovations identified by the participants based

on Osborne's (1998) typology model of organizational innovations including developmental, evolutionary, expansionary, and total innovation types (see Appendix H–Survey Question Two and Three Data Analysis). Osborne's typology model was described in detail within Chapter 2 of the study.

The most frequently reported type of innovation practiced by participants was Total Innovation (innovation based on an original idea and impacted the way industry behaves). Total Innovation and Development Innovation were tied for the most frequently reported innovations. Each of the two top reported types of innovations reported were declared 9 out of the 23 total innovations reported (39.13%) over the four-year reporting period. Table 12 shows the frequency of types of innovation reported by participants within the four year reporting period.

Table 12

Frequency of Reported Types of Innovations

Types of Innovation Reported	Total Number of Innovations Reported (n=23)	
	Number of Innovations Reported	Percentage of Total Number of Innovations Reported
Development Innovation	9	39.13%
Expansionary Innovation	4	17.39%
Evolutionary Innovation	1	4.35%
Total Innovation	9	39.13%
Total	23	100.00%

Development Innovation and Total Innovation were most frequently mentioned for the first innovation within the four-year reporting period. Both were reported by 7 (43.75%) out

of the 16 participants reporting at least one innovation. Expansionary Innovation was reported most frequently for the second innovation reported within the reporting period by three (18.75%) followed by Development Innovation with two reported innovations (12.5%) out of the 16 participants who reported innovations within their organizations. There was only one participant that reported a third and fourth innovation within the reporting period and in both cases, Total Innovation was practiced.

Research question four. The fourth research question was "How do the factors of type of government, geographical location, staff size, and budget size influence the probability of innovation by local units of government in Minnesota?" This analysis focused on the tendency to innovate as a dependent variable while "type of jurisdiction," "location of the jurisdiction," "size of the staff," and "size of the budget" are the four independent variables under consideration. The study was based on the assumption that the dependent variables mentioned influenced the probability of innovation by local units of government. The dependent variables used are dummy variables, hence, they are coded as binary. Table 13 shows the probability of innovation.

Table 13

Analysis of Maximum Probability Estimates

Parameter	Estimate
Intercept	10.6678
Type of Local Unit of Government	13.2004
Located in Rural County Area	-2.6933
Located in Metropolitan County Area	-0.3907
Staff Size Small	2.3026
Staff Size Large	-0.8846
Budget Size Small	-11.8865
Budget Size Large	-0.7277

A simple regression analysis was used in the Table 15 to show general tendencies of innovation among city and school districts in relation to the factors of geography, staff size, and budget size. Counties were not included in this analysis due to the small number of participant subjects. The analysis shown in the table above was based upon the dependent variables used as dummy variables and coded as binary due to the categorical data collected from the participants.

School districts where more likely to innovate (estimated at 13.2004) than cities. The analysis shows that geography (i.e., rural, micropolitan, and metropolitan) had no positive impact on the likelihood of innovation for either cities or school districts (see Appendix I– Survey Question Four Data Analysis). However, micropolitan and metropolitan areas had less of a negative influence on the likeliness of innovation on the two jurisdictions than locations in a rural area. If the two jurisdictions were located in a metropolitan area, it was estimated

that they would experience a lesser negative influence (-0.3907) on the likeliness of innovation than being located in a rural or micropolitan area.

The analysis shows that the staff size (i.e., small–less than 50 employees, medium–50 to 200 employees, and large–greater than 200 employees) had varied influence on the likelihood of innovation for either cities or school districts. Small size staff had the most (2.3026) positive influence on the likeliness of innovation among the three staff sizes, whereas, the larger the staff size, the less influence it had on the likeliness of innovation. The larger staff size had a slight negative influence (-0.8846) on the likeliness of innovation. Medium size staff probability of influence on innovation was between the small and large size staff influence on innovation was slightly positive or neutral.

The analysis shows that the budget size (i.e., small–less than $25 million, medium–$25 to $75 million, and large–greater than $75million) had a wide distribution of negative influence on the likelihood of innovation for either cities or school districts. A small budget had the most (-11.8865) negative influence on the likeliness of innovation among the three budget sizes, whereas, the larger the budget size had the least negative influence (-0.7277) on the likeliness of innovation and was close to having a neutral influence. Medium budget size influence was between the small and large size staff influence.

Using the multiple logistic regression model, the researcher was able to compute the estimated tendency for innovativeness. For example:

1. **Model interpretation accounting for the various locations of the cities with a medium staff and a large budget:**

Using the model the estimated tendency for innovativeness (P(INOV=1)) for a city (TYPE=0) located in a rural area (LOCR=1), employing a medium staff (STAFFS=0, STAFFL=0), and having a large budget (BUDGL=1) was computed.

Location rural: (0, 1, 0, 0, 0, 0, 1)

LOG(odds of INOV) = $10.6678 + 13.2004 * (0) - 2.6933 * (1) - 0.3907 * (0) + 2.3026 * (0) - 0.8846 * (0) - 11.8865 * (0) - 0.7277 * (1) = 7.2468$

The odds of INOV for this jurisdiction are e^7.2468 = 1403.6 and the probability of INOV was

P(X) = $\frac{1403.6}{1404.6} = 0.99928$ or approximately 99.928%.

Location micropolitan: (0, 0, 0, 0, 0, 0, 1)

LOG(odds of INOV) = $10.6678 + 13.2004 * (0) - 2.6933 * (0) - 0.3907 * (0) + 2.3026 * (0) - 0.8846 * (0) - 11.8865 * (0) - 0.7277 * (1) = 9.9401$

The odds of INOV for this jurisdiction are e^9.9401 = 20745.8 and the probability of INOV was

P(X) = $\frac{20745.8}{20746.8} = 0.99995$ or approximately 99.995%.

Location metropolitan: (0, 0, 1, 0, 0, 0, 1)

LOG(odds of INOV) = $10.6678 + 13.2004 * (0) - 2.6933 * (0) - 0.3907 * (1) + 2.3026 * (0) - 0.8846 * (0) - 11.8865 * (0) - 0.7277 * (1) = 9.5494$

The odds of INOV for this jurisdiction are e^9.5494 = 14036.27 and the probability of INOV was P(X) = $\frac{14036.27}{14037.27} = 0.999928$ or approximately 99.992%.

Based on data analysis, there was not a big difference in a probability to innovate considering the location of the jurisdiction. It was highly likely cities will be actively innovating if they employ a medium staff and large budget independent of their location. Hence, location does not have a significant impact for the cities with the above characteristics.

2. **Model interpretation accounting for the variable staff size of the cities in a metropolitan area with a small budget size:**

Using the model the estimated tendency for innovativeness (P(INOV=1)) for a city (TYPE=0) located in a metropolitan area (LOCME=1), employing a small staff (STAFFS=1), and having a small budget (BUDGS=0) was computed.

Staff small: (0, 0, 1, 1, 0, 1, 0)

LOG(odds of INOV) = $10.6678 + 13.2004 * (0) - 2.6933 * (0) - 0.3907 * (1) + 2.3026 * (1) - 0.8846 * (0) - 11.8865 * (1) - 0.7277 * (0) = 0.6932$

The odds of INOV for this jurisdiction are e^0.6932 = 2.0001 and the probability of INOV was

P(X) = $\frac{2.0001}{3.0001} = 0.66667$ or approximately 66.667%.

Therefore, the probability of innovation by a city in a metropolitan area, employing a small staff, and having a small budget was 66.667%.

Staff medium: (0, 0, 1, 0, 0, 1, 0)

LOG(odds of INOV) = $10.6678 + 13.2004 * (0) - 2.6933 * (0) - 0.3907 * (1) + 2.3026 * (0) - 0.8846 * (0) - 11.8865 * (1) - 0.7277 * (0) = -1.6094$

The odds of INOV for this jurisdiction are e^-1.6094 = 0.200007 and the probability of INOV was

P(X) = $\frac{0.2}{1.2} = 0.166666$ or approximately 16.666%.

The odds ratio was $\frac{0.66667}{0.166666} = 4.00$

A city located in a metropolitan area, employing a small staff, and having a small budget was approximately four times more likely to have innovation than a city located in a metropolitan area employing a medium staff and having a small budget.

Staff large: (0, 0, 1, 0, 1, 1, 0)

LOG(odds of INOV) = $10.6678 + 13.2004 * (0) - 2.6933 * (0) - 0.3907 * (1) + 2.3026 * (0) - 0.8846 * (1) - 11.8865 * (1) - 0.7277 * (0) = -2.494$

The odds of INOV for this jurisdiction are e^-2.494 = 0.08258 and the probability of INOV was

P(X) = $\frac{0.08258}{1.08258} = 0.07628$ approximately 7.628%.

The odds ratio was $\frac{0.66667}{0.07628} = 8.74$

A city located in a metropolitan area, employing a small staff, and having a small budget was 8.74 times more likely to have innovation than a city located in a metropolitan area employing a large staff and having a small budget. A city located in a metropolitan area, employing a small staff with a small budget, was much more likely to engage in innovation activity compared to a city located in a metropolitan area, employing a medium staff and a small budget, and a city located in a metropolitan area, employing a large staff and having a small budget. Hence, if a city in a metropolitan area has a small budget, then its probability to innovate increases as the staff was reduced.

3. Model interpretation accounting for the variable budget size of the cities in a metropolitan area with a medium staff size:

Using the model the estimated tendency for innovativeness (P(INOV=1)) for a city (TYPE=0) located in a metropolitan area (LOCME=1), employing a medium staff, (STAFFL=1) and having a small budget (BUDGS=0) was computed.

Budget small: (0,0,1,0,1,1,0)

LOG(odds of INOV) = $10.6678 + 13.2004 * (0) - 2.6933 * (0) - 0.3907 * (1) + 2.3026 * (0) - 0.8846 * (0) - 11.8865 * (1) - 0.7277 * (0) = -1.6094$

The odds of INOV for this jurisdiction are e^-1.6094 = 0.200007 and the probability of INOV was

P(X) = $\frac{0.200007}{1.200007} = 0.166672$ or approximately 16.67%.

Thus, the probability of innovation by a city in a metropolitan area, employing a medium staff, and having a small budget was 16.67%.

Budget medium: (0,0,1,0,0,0,0))

LOG(odds of INOV) = $10.6678 + 13.2004 * (0) - 2.6933 * (0) - 0.3907 * (1) + 2.3026 * (0) - 0.8846 * (0) - 11.8865 * (0) - 0.7277 * (0) = 10.2771$

The odds of INOV for this jurisdiction are e^10.2771 = 29060 and the probability of INOV was

P(X) = $\frac{29060}{29061} = 0.999947$ or approximately 99.99%.

Therefore, the probability of innovation by a city in a metropolitan area, employing a medium staff, and having a medium budget was 99.9947%.

Budget large: (0,0,1,0,0,0,1)

LOG(odds of INOV) = $10.6678 + 13.2004 * (0) - 2.6933 * (0) - 0.3907 * (1) + 2.3026 * (0) - 0.8846 * (0) - 11.8865 * (0) - 0.7277 * (1) = 9.5494$

The odds of INOV for this jurisdiction are e^9.5494 = 14036.27 and the probability of INOV was

P(X) = $\frac{14036.27}{14037.27} = 0.999928$ or approximately 99.9928%.

Hence, the probability of innovation by a city in a metropolitan area, employing a medium staff, and having a large budget was 99.9928%.

A city located in a metropolitan area, employing a medium staff with a small budget, was much more unlikely to engage into innovation activity compared to a city located in a metropolitan area, employing a medium staff and having a medium budget, and a city located in a metropolitan area, employing a medium staff having a large budget. As shown, medium- and large-budget cities have higher probability to innovate than those with a small one. Thus, if a city in a metropolitan area has a medium staff, then its probability to innovate increases as the budget size increases. By using the multiple logistic regression model, the researcher was able to identify the innovation odds ratio between jurisdictions accounting for their type, location, staff size, and budget size.

Part three–Innovation assessment practices and types. The third part of the survey asked participants to self-identify the types of assessments used to evaluate the innovations enacted. Identification of the types of assessment employed was based upon the logic model evaluation, which centers around four areas of assessment, including inputs, activities, outputs, and outcomes. Frye and Hemmer (2012) spoke of the challenges of evaluating educational systems, because the programs are about fundamental change.

Research question five. The fifth research question was "What types of innovation assessments are reported by the chief executive officers of local units of government in Minnesota?" Participants reported conducting one to four innovations within in the four-year reporting period. There were a total of 43 assessments conducted on the first innovation reported by 16 participants, which are shown below. There was a possibility of four types of assessments of innovation (i.e., inputs, activities, outputs, and outcomes). Table 14 shows the types of assessments conducted on the innovations reported by the participants within the four-year reporting period.

Table 14

Type of Innovation Assessment Reported for First Innovation

(n=43)				
Inputs	Activities	Outputs	Outcomes	Total Assessments
11	11	9	12	43
25.58%	25.58%	20.93%	27.91%	100.00%

There were 14 participants (87.50%) who reported an assessment of innovation out of 16 participants who reported at least one innovation within the reporting period. There were a total of 43 types (62.32%) of assessments reported out of a total of 69 assessments reported

for all reported innovations. There were 11 (25.58%) assessments of Inputs (all relevant human, material, and intellectual resources utilized to implement all activities) conducted out a total of 43 assessments conducted for all reported first innovations. There were 9 (20.43%) assessments of Activities (strategic actions, innovation employed, and changes created to produce all outputs); 11 (25.58%) assessments of Outputs (items, events, programs or processes produced by activities) and 12 (27.91%) assessments of Outcomes (the short-term, medium-term, and long-term changes intended as a result of the program's activities) reported, respectively. Of the five organizations that reported a second innovation within the four-year reporting period, 18 assessments were conducted on the five innovations reported, as shown in Table 15.

Table 15

Type of Innovation Assessment Reported for Second Innovation

(n=18)				
Inputs	Activities	Outputs	Outcomes	Total Assessments
4	5	5	4	18
22.22%	27.78%	27.78%	22.22%	100.00%

Of the five participants who reported a second innovation within four years, all five reported that they conducted an assessment of innovations. There were a total of 18 types (26.09%) of assessments reported on the second innovation out of the total of 69 assessments reported for all reported innovations. There were 4 (22.22%) assessments of Inputs (all relevant human, material, and intellectual resources utilized to implement all activities) conducted out a total of 43 assessments conducted for all reported first innovations. There were 5 (27.78%) assessments of Activities (strategic actions, innovations employed, and

changes created to produce all outputs); 5 (27.78%) assessments of Outputs (items, events, programs or processes produced by activities) and 4 (22.22%) assessments of Outcomes (the short-term, medium-term, and long-term changes intended as a result of the program's activities) reported, respectively. There was only one participant that reported a third and fourth innovation within the four year reporting period, which the participant reported a total of 8 types of innovation assessments conducted on the two innovations.

Research question six. The sixth research question was "What types of innovation assessments sre most frequently reported by the chief executive officers of local units of government in Minnesota?" For purposes of the study, this means using formal analysis methods, such as qualitative or quantitative techniques, to assess inputs, activities, outputs, and outcomes of innovation. This method is associated with the logic model of evaluation (Frye & Hemmer, 2012).

There were 14 participants (87.50%) who reported an assessment of innovation out of 16 participants who reported at least one innovation within the reporting period. There were 69 total assessments conducted for all innovations reported by participants who reported at least one innovation within the reporting period. Table 16 shows the frequency of types of assessments of innovations reported by the participants within the four year reporting period.

Table 16

Frequency of Reported Types of Innovation Assessments

Types of Assessments of Innovations Reported	Total Number of Assessments of Innovations Reported (n=43)	
	Number of Innovations Reported	Percentage of Total Number of Innovations Reported
Inputs	17	24.63%
Activities	16	23.19%
Outputs	18	26.09%
Outcomes	18	26.09%
Total	69	100.00%

There were two types of assessments of innovations equally reported most frequently, which were assessments of outputs and outcomes. Assessment of outputs and outcomes were reported 18 (26.09%) out of the 69 total assessments of innovations reported within the four-year reporting period. Assessment of inputs was the third most frequently reported with 17 (26.63%) and assessment of activities was reported 16 (24.63%) out of the 69 total assessments of innovations, respectively.

Conclusion

Through qualitative and quantitative analysis, the study shows how chief executive officers of local government describe and define innovation. Having chief executive officers self-define innovation was significant because research revealed that there was no common definition of innovation. The study revealed commonalities and regularities of words and themes used in defining innovation.

The study revealed the types of innovation practices created by local units of government (i.e., cities, counties, or kindergarten to 12th grade school districts). Development

Innovation and Total Innovation were most frequently mentioned for the first innovation within the four-year reporting period. Chief executive officers of 35 local units of government reported that the most frequent types of innovations practiced in their organizations were created based upon existing ideas, processes, and services. An equally practiced innovation reported by chief executive officers was an innovation that originated from a new conceptual idea and product. Prior to the study, research revealed a gap between the abundance of research regarding shared interests and investments in innovation by governmental agencies. There was limited information found in literature by the researcher pertaining to what types of innovations were practiced by governmental agencies.

There was no research found by the researcher that analyzed the relationship between the level of innovation by local units of government and the factors of type of government, geography, budget size, and staff size. In the study, it was found that a positive relationship of influence on the probability of innovation for cities and school districts with smaller staff sizes. Conversely, the study found a more negative relationship of influence on the probability of innovation for cities and school districts with smaller budget sizes. In the study it was found that a city located in a metropolitan area, employing a medium staff with a small budget, was much more unlikely to engage in innovation activity compared to a city located in a metropolitan area, employing a medium staff and having a medium budget, and a city located in a metropolitan area, employing a medium staff and having a large budget.

The researcher found that government assessed the innovations created at 87.50%, and for second, third, and fourth innovations, 100%. The researcher found that assessments of innovation outputs and outcomes were most frequently reported. Participants focused their assessments of innovation on the areas of product and service productivity, and differences

made by innovations for the organization or customer. The finding of the types of innovation assessments conducted by government was significant, because research revealed that limited studies were conducted on the subject. The balance of the study provides a final summary of the findings and insights of the researcher discovered during the course of conducting the study.

Chapter 5: Summary, Findings, Future Research Recommendations, and Conclusion

Introduction

The balance of the study presents the final conclusions and recommendations of the researcher. The study started with a literature search of the question, "What did research show about innovation in government?" Research revealed that there was a gap between the abundance of research regarding the shared interests and investments in innovation by governmental agencies and the limited amount of research found on how governmental agencies define, practice, and assess innovation. Walker et al. (2002) stated, "That governments around the world are interested in innovation," and Borins (2002) articulated, "Innovation has become a topic of great interest to managers in both the public and private sectors" (p. 247). The gap led to the question of uncertainty of innovation in government by the researcher. Beyond the limited findings in research, regarding the practice of innovation by government, was the finding in research that there was not a common definition of innovation. Wolfe (1994), contended that innovation cannot be defined (p. 406), and Osborne (1998) suggested that innovation was unmeasurable, because it was "all things to all people."

Based on literature research, the researcher was led to explore the problem of there being a limited number of studies found that show common definitions, practices, factors of influence, and assessments of innovations as performed by government. The researcher believes that the findings of the study may contribute to the body of knowledge of research and may be of value to government leaders, including those elected and appointed, because it began to address the problem previously stated. The study revealed:

- How chief executive officers of local government defined innovation

- What types of innovations are reported to be practiced by local units of government
- What type of innovation was most frequently reported to be practiced by local units of government
- Whether or not factors of government type, geographical location, budget size, and staff size influence the probability of innovation
- What types of assessments of innovation are reported to be practiced by local units of government
- What type of assessment of innovation was most frequently reported to be practiced by local units of government

The study was designed in three parts: 1) Survey Participant Profile 2) Innovation Practices and Types (and the relationship between local government factors and the probability of innovation) 3) Innovation Assessment Practices and Types.

Part One–Survey Participant Profile

Part one of the study focused on identifying who and what type of local unit of government were engaged in the study. The participants of the study were executive officers of local units of government including cities, counties, and school districts (kindergarten through 12th Grade). The study was directed towards chief executive officers, because while innovations are initiated throughout all levels of organizations, chief executives have broad knowledge, influence, and authority in adopting innovations developed throughout the organization (Borins, 2001b; Kanter, 1988).

There are a total of 1,268 cities, counties, and school districts (K through 12th Grade) in Minnesota. The study engaged 81 (6.4%) of the local units of government. There were a total of 35 (43.21%) of the 81 local units of government engaged in the study, or 2.76% of the total number of local units of government (only cities, counties, and school districts – kindergarten through 12th grade) in the State of Minnesota.

Type of local unit of government. There were 26 city participants, which represented 74.29% of the total participants; however, there were a total of 56 cities representing 69.14% of the total 81 local units of government. Dissimilarly, there were a total of 22 (27.16%) school districts engaged in the study. There were 7 (20.0%) school districts that participated in the study, which was a slightly lower participation rate than the percentage of school districts engaged in the study. There were a total of 2 (5.71%) county representatives that participated in the study, which was a higher percentage of participation than its percentage of engagement by the 3 (3.7%) counties engaged in the study.

Corresponding to the type of local unit identified are responses identified by title of the responding chief executive officers. The primary purpose for having the respondents identify their title was related to ensure chief executive officers were responding, because they possessed broad knowledge, influence, and authority in adopting innovations developed throughout the organization (Borins, 2001b; Kanter, 1988). The study did not analyze the relationships between the title positions and the probability of innovation, as it was conducted with other factors (i.e., type of organization, geography, staff size, and budget size) due to measures of ensuring the confidentiality of participants. While the title of “superintendent” was highly correlated to school districts, the titles of manager, administrator, or department head are frequently used by cities and counties throughout Minnesota. There were 7 (20.0%)

superintendents that participated in the study, along with 9 (25.71%) managers, 15 (42.86%) administrators, and 4 (11.43%) department heads.

Geographical area. The study described local units of government in terms of geographical area, such as those located in metropolitan, micropolitan, and rural areas. The terms “metropolitan statistical areas” and “micropolitan statistical areas” are geographical areas used by the federal statistical agencies and delineated by the U.S. Federal Office of Management and Budget.

There were three micropolitan local units of government that represented 8.57% of the total participants. The three participating micropolitan local units of government participation was slightly lower than the eight (9.88%) micropolitan local units of government engaged in the study. There were 11 rural local units of government that represented 31.43% of the total participants. The 11 participating rural local units of government percentage of participation was higher than the 11 (13.58%) rural local units of government engaged in the study. Rural local units of government participated at 100% of the total number of rural local units of government engaged in the study. No other geographical area of local units of government participated at 100%. There were 21 metropolitan local units of government that represented 60.0% of the total participants. The 21 participating metropolitan local units of government percentage of participation was lower than the 62 (76.54%) metropolitan local units of government engaged in the study.

Staff size. There were 35 participants in the survey of a total of 81 local units of government engaged, which represented organizations with three different staff sizes. Each of the three organizations represented more than 20% of the distribution in participation. Local units of government with a larger staff size of more than 200 employees represented the least

number of participants, however, the 8 participants accounted for 22.86% of the participants, respectively. According to the Minnesota Office of the State Auditor website (2017a), all cities in Minnesota average approximately 44.09 full-time employees and 58.41 part-time employees, while counties average 405.68 full-time employees and 107.56 part-time employees, respectively. Local units of government with 50 or more employees represented 62.86% of the 35 participating local units of government.

Budget size. There were 35 participants in the survey of a total of 81 local units of government engaged, which represented organizations with three different budget sizes. The distribution of participation among local units of government with the three different budget sizes identified in the study had a wider distribution of participation than those with different staff sizes. Local units of government with a smaller budget of less than $25 million accounted for 68.57% of the total 35 participating local units of government. According to the Minnesota Office of the State Auditor website (2017b), the average budget for all cities in Minnesota was $7,068,985.00, while the average budget for counties was $72,624,762.00, respectively. Participants representing local governmental units with medium-sized budgets of $25 million to $75 million accounted for 20.0% of the participants, while those with budgets greater than $75 million accounted for 11.43%.

Part Two–Innovations–Practices and Types

While Part One of the study focused on the what types of local unit of government were engaged in the study, Part Two focused on commonalities and differences in the practice, and assessment of innovations within the three different types of local units of government (i.e., cities, counties, and school districts–kindergarten through 12th grade). In

addition, Part Two examined the relationship between the factors of local government unit type, geography, budget size, and staff size, and the probability of innovation by the participants.

Research question one. The first question of Part Two explored how the participants described innovation. The first research question was "What common attributes are used by chief executive officers of local units of government in Minnesota to define innovation?" There were two descriptions that the researcher consistently found in research regarding innovation, including: 1) innovation was something "new" and 2) innovation must generate "value." Both of these descriptions were found commonly stated by study participants.

Fifteen, or 45.45%, of the participants described innovation in terms of being new, while eight, or 24.24%, described it as an idea. Other top descriptive words were "creative" (6 mentions or 18.18%) and "change" (4 mentions or 12.12%), respectively. Eleven, or 33.33%, of the participants described innovation thematically as "something different" or "unlike anything else." Closely behind was a group of 10, or 30.30%, of participants that described it thematically as an "improvement." Other top descriptive themes were "problem solving" (7 mentions or 21.21%) and "achieve results" (4 mentions or 12.12%), respectively.

The most significantly described form of innovation was "a process," which was described by 20, or 60.60%, of the participants. The next, and closest, described forms of innovation as "product/service" and "idea," which accounted for 5 participants each, or 15.15%. Following next was "thinking," the fourth most commonly described form of innovation with 3, or 9.09%, participants describing it as such.

Research revealed that there was not an agreed upon definition of innovation in the public, non-profit, or private sectors. Wolfe (1994) contends that innovation cannot be defined

(p. 406), and Osborne (1998) suggests that innovation was unmeasurable, because it was "all things to all people." Based on the study, there are three principles in defining innovation: 1) something new, 2) process or transformative process, and 3) an improvement value for an organization. That would mean innovation could not be something that currently exists, could not be a change for change's sake, or exist without improved value.

Based on the study or the describing of innovation by the participants, the researcher presents the following definition of innovation: *Innovation is the physical creation of something new that generates value.* Innovation can take the form of a product, service, process, or thought as long as the three principles exist. The findings support the research of Walker et al. (2002) in defining innovation as a process, while Hameed et al. (2012) referred to innovation as a product. However, based on the study, the researcher suggests that an innovation cannot stop at the stage of idea, but must evolve to generate something. King (1992) related innovation to the introduction and application of ideas, while Roberts (1988) described innovation as encompassing both new ideas and the diffusion of those ideas. The study supports the premise that innovation must evolve beyond an idea to generate something new that creates value. The finding of the research was also contrary to Osborne's (1998) *Policy Imperative* grouping, which describes innovation as a framework, guideline, and directive that shapes how government thinks and operates. Based on this study, a newly created process of operating by government could be an innovation; however, the concept of government operating in an innovative manner would not.

Implemented an innovation within the 4-year survey period.

- There were 33 (40.74%) of the 81 local units of government engaged in the study that indicated that they had an innovation within the four-year reporting period,

and 94.29% of the 35 actual participants in the study. While 33 participants indicated that they had a created an innovation within the reporting period, only 16 (45.71%) identified at least one specific innovation within their organization over the past four years. Of the 35 participating local units of government, almost half (45.71%) created at least one identifiable innovation in the past four years. The researcher was not able to determine, based upon the information provided in the survey, whether the 17 participants who did not identify a specific innovation over the four-year reporting period (although they indicated that they had created an innovation during the four years), were unable to do so due to not being aware of the specifics of the innovation or decided not to complete the balance of their survey. If the researcher accepted that 33 (94.29%) of the 35 participants did in fact create an innovation, the rate of innovation among those who participated in the study would be exceptionally high (94.29%). The researcher was surprised that local units of government are innovative as such a high level.

Types of innovations reported within the four-year survey period. Of the 35 participants, 17 (48.57), or almost half, indicated that they believed their organization was innovative, while 10 (28.57%) participants indicated that they did not believe their organizations were innovative. Another 8 (22.86%) of the 35 participants did not respond ,regarding whether or not they believed their organization was innovative. Research does not reveal what level of innovation, or how many innovations, is needed to be created over a specific period of time in order to indicate whether or not an organization is innovative. In the study, 16 participants (45.71%) reported at least one innovation within their organization over the past four years out of the total 35 participants. The number of innovations employed by

participants after the first innovation diminished to five (14.29%) for a second innovation over four years, and down to only one organization with a third innovation. Of the 16 participants that reported one innovation within the four years, Development Innovation (innovation based on existing product, but no impact on industry behavior) and Total Innovation (innovation based on an original idea and impacted the way industry behaves) were the top two innovation types reported.

The third research question was "What types of innovation practices are most frequently reported by the chief executive officers of local units of government in Minnesota?" There were four innovations identified by the participants based on Osborne's (1998) typology model of organizational innovations, including developmental, evolutionary, expansionary, and total innovation types. The most frequently reported type of innovation practiced by participants was Total Innovation (innovation based on an original idea and impacted the way industry behaves). Total Innovation and Development Innovation were tied for the most frequently reported innovations. Each of the two innovation types were reported to be practiced 9 out of the 23 innovations (39.13%) created over the four-year reporting period. In the comprehensive study of innovation, using Osborne's typography model, of English housing associations from 1997-1999 by Walker et al. (2002), they found that out of a total of 257 innovations within the study, 16 (6.22%) innovations were classified as total innovations, 31 (12.06%) innovations classified as expansionary, 104 (40.47%) innovations classified as evolutionary, and 106 (41.25%) innovations classified as developmental. In the that study, the type of innovation was identified by the researcher and not self-identified by the research participant, as conducted in this study. Nevertheless, the innovation type of "developmental innovation" was frequently practiced.

In review of the descriptions of the actual innovations in the study that were created by the participants, the researcher did not find an accurate reporting, based upon the definition provided in the study and to the participants, of "total innovation" among the entire innovation descriptions. While there were innovations that were new to the organizations, the actual innovations were evolutions of ideas, products or services from other organizations, or that already existed. For example, the creation of a research lab to seek new ways of doing business was identified as a total innovation by one organization. However, that does not preclude that research lab from creating a total innovation in time. Yet, the research lab in and of itself was not a total innovation as reported by one participant.

The fourth research question was "Do the factors of type of government, geographical location, staff size, and budget size influence the probability of innovation by local units of government in Minnesota?" A city located in a micropolitan area with a medium staff and a large budget was 0.9993 times more likely to innovate than a city located in a rural area with a medium staff and a large budget. The study found a positive relationship of influence on the probability of innovation for cities and school districts with smaller staff sizes, and a more negative relationship of influence on the probability of innovation for cities and school districts with smaller budget sizes. These findings show a more positive influence on the probability of innovation by factors of a larger budget size, larger staff size, and location in a metropolitan area. The influencing factors are compounded by school districts, because school districts are more likely (13.2004 estimate) to innovate than cities.

The researcher was not as surprised to find that a city located in a metropolitan area, employing a medium staff with a small budget, was much more unlikely to engage into innovation activity compared to a city located in a metropolitan area, employing a medium

staff and having a medium budget, and a city located in a metropolitan area, employing a medium staff and having a large budget. The researcher was also surprised that a small staff size has a positive influence on innovation. A conclusion drawn from the study by the researcher was that a multiple logistic regression model could be effectively used to identify the innovation odds ratio between jurisdictions accounting for their type, location, staff size, and budget size.

Part Three–Innovation Assessment Practices and Types

The third part of the survey sequentially follows the questions of Parts One and Two of the study. The question, "If government innovated and the type of innovations most frequently created were understood in relation to factors such as geography and budget size," what differences would have been created by those innovations, interested the researcher. Therefore, the researcher asked participants to self-identify the types of assessments used to evaluate the innovations enacted. Identification of the types of assessments employed was based upon the logic model evaluation, which centers around four areas of assessment, including inputs, activities, outputs, and outcomes. While the study does not show the impact or differences made by innovations based on the assessments of innovation, Part Three of the study does show whether or not those participants who reported innovations conducted an assessment of those innovations.

Frye and Hemmer (2012) spoke of the challenges of evaluating educational systems, because the programs are about fundamental change. There were a total of 43 assessments conducted for the first innovation reported by participants. Assessments were conducted at a

high rate. There were 14 participants (87.50%) who reported an assessment of innovation out of 16 participants who reported at least one innovation within the reporting period.

Participants assessed:

- Inputs–The first component of the Logic Model's Inputs comprises all relevant resources, both material and intellectual, expected to be available to an educational project or program.
- Activities–The second component of a Logic Model details the Activities, the set of treatments, strategies, innovations, or changes planned for the educational program.
- Outputs–The Logic Model's third component was defined as Indicators that the program's activities are underway or completed, and that something (a product) occurred.
- Outcomes–The fourth component of outcomes define the short-term, medium-term, and long-term changes intended as a result of the program's activities with regard to innovation. There were 11 (25.58%) assessments of Inputs (all relevant human, material, and intellectual resources utilized to implement all activities) out of a total of 43 assessments conducted for all reported first innovations. There were 9 (20.43%) assessments of Activities (strategic actions, innovation employed, and changes created to produce all outputs); 11 (25.58%) assessments of Outputs (items, events, programs or processes produced by activities) and 12 (27.91%) assessments of Outcomes (the short-term, medium-term, and long-term changes intended as a result of the program's activities) reported, respectively.

Unlike the level of innovation diminishing for the second, third, and fourth innovations, the level of assessment remained high. There were five participants that reported a second innovation, and only one participant that reported a third and fourth innovation. However, the assessment level for the second, third, and fourth innovations was 100%. In addition, assessments of the second, third, and fourth innovations included inputs, activities, output, and outcomes.

The sixth research question was "What types of innovation assessments are most frequently reported by the chief executive officers of local units of government in Minnesota?" Medina et al. (2002) stated that introducing innovation into the market was not sufficient; that it must also be successful. Thereby, in order to determine or classify a product as an innovation, it ought to be assessed for determination of added value. There were 69 total assessments conducted for all innovations reported by participants who reported at least one innovation within the reporting period. There were two types of assessments of innovation equally reported most frequently, which were assessments of outputs and outcomes. Assessment of outputs and outcomes were reported in 18 (26.09%) of the 69 total assessments of innovations reported within the four-year reporting period. Assessment of inputs was the third most frequently reported with 17 (26.63%) and assessment of activities was reported 16 (24.63%) out of the 69 total assessments of innovations, respectively.

Future Research Recommendations

After the process of conducting this study, the researcher presents the following five recommendations for research, practitioners, and for the further advancement or improvement of the study.

Recommendations:

1. Study of the number of innovations necessary to be determined as an innovative organization.
2. Further research of the relationships between factors of local government type, geography, budget size, and staff size, and the types of innovations created.
3. Research the impact generated by the reported innovations.
4. Conduct research with a larger number of participants to improve the reliability and validity in showing relationships between government and factors of type, geography, staff size, and budget size.
5. Research the causes of the diminishing number of innovations over time.

Research Limitations

Roberts (2010) paraphrases Mauch and Birch (1993) by defining limitations as actions or factors not controlled by the researcher that may significantly affect a study. The study was limited by:

- Data Access–There was limited data documenting and measuring innovations in cities, counties, and school districts in Minnesota due to the revelations of research indicating that there was not a single shared definition for innovation among those entities.
- Technology Disparities–Technology was used for administering an electronic survey to study participants. A disparity in access, application of technology, and comfort of use of technology could have limited the study participation level.

- Broad Generalization–Interpretation of the findings was limited as representative of all local units of government. The concept of innovations pertains to both the intrinsic nature of workers; curiosity, confidence, and self-motivation, as well as, extrinsic environment that includes resources, encouragement, and recognition. Glor (1998) suggested that individual characteristics and environmental conditions both contribute to workplace innovation. The circumstances, conditions, situations, environments, resources, and capabilities of humans in one organization may vary from that of another.

Conclusion

What assures the sustainability and value of government 200 years from now? Hof (2003) answered the question in three words, "Innovate or Die." The study explored, in part, the essence of the phrase "Innovate or Die." In order for government to innovate at its "best," it would need to be able to evaluate its ability to innovate and the value of the innovation to its organization and market. If there were a common definition throughout government. then leaders would be able to consistently assess and compare value created by acts of innovation across the sector. A common definition of innovation would assist government leaders in measuring its return-on-investment (ROI) in innovation. Based upon the study, the researcher defined innovation as: *Innovation is the physical creation of something new that generates value.* If this definition were commonly accepted and utilized, innovation could then be assessed by two critical factors, which are 1) its sense of newness and 2) its value of improvement upon the existing.

The approach taken in the study was sequential and in a rational manner, explored with regard to defining innovation. The researcher surmised that if there were a common

definition of innovation, then it may be of significance to government leaders in their understanding of the types of innovation practiced by government, the types of innovations most frequently practiced by government, and how the factors of type of government, geographical location, staff size, and budget size influence the probability of innovation by government. The study found that local government units (i.e., cities, counties, and school districts-kindergarten through 12th grade) in Minnesota innovated at almost 50%. The study found that development and total innovation types were most commonly reported by local government chief executive officers. The study found that school districts innovated at a higher probability than cities and that budget size made a difference in the probability of innovation, while the staff size did not.

The original proposition by Hof (2003) that an organization not innovating meant the demise of that organization encouraged the researcher to explore whether or not local units of government assess the innovations. The researcher found in the study that local units of government in Minnesota assessed innovation at a high level (87.50%) across the areas of assessing inputs, activities, outputs, and outcomes. Assessment of outputs and outcomes were assessed most frequently. The study did not analyze the findings of those assessments; however, showing the existence of practicing assessment was a significant step for government to be able to adjust and improve its capability to innovate.

Humans have innovated since their early development. Individuals, governments, and enterprises have all contributed to the evolution of innovation. The Agrarian Era ushered in mechanical innovation, while the Industrial Revolution added processes that improved efficiency and effectiveness. Innovation continues to drive thinking in society from a

mechanistic (i.e., technology), process driven (i.e., strategic planning and six sigma), and humanistic perspective (i.e., collaborating and partnering).

Wolfe (1994), stated, "Few issues have been characterized by as much agreement among organizational researchers as the *importance* of innovation to organizational competitiveness and effectiveness." Walker et al. (2002) also stated, "There has been a growing *expectation* by governments around the globe that public service organizations should and will innovate to enhance performance." Research conducted in the study revealed the importance, and growing expectations, for government to innovate. However, there is no common definition of innovation in literature. Without a common definition, how could it be determined within an organization that an innovation had been created, was it just a good idea, or was it the retooling of an old idea? How could it be determined if an innovation was effective or generated the desired value for the organization? The study does not address or provide the answers to these questions, yet, it does address the problem of there being a limited number of studies found by the researcher which address a common definition, practice, and assessment of innovation with in government.

The study contributes to the current body of research knowledge by providing new research on the defining, practice, and assessment of innovation by local units of government. The study ultimately may offer government leaders useable and valuable information about innovation in local government so that it may survive and thrive. "Innovate or Die."

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Appendix A: Office of Management and Budget Delineations

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

February 28, 2013

OMB BULLETIN NO. 13-01

TO THE HEADS OF EXECUTIVE DEPARTMENTS AND ESTABLISHMENTS

SUBJECT: Revised Delineations of Metropolitan Statistical Areas, Micropolitan Statistical Areas, and Combined Statistical Areas, and Guidance on Uses of the Delineations of These Areas

1. **Purpose:** This bulletin establishes revised delineations for the Nation's Metropolitan Statistical Areas, Micropolitan Statistical Areas, and Combined Statistical Areas. The bulletin also provides delineations of Metropolitan Divisions in those Metropolitan Statistical Areas that have a single core with a population of at least 2.5 million as well as delineations of New England City and Town Areas.

   The delineations of the statistical areas shown in the appendix's nine lists take effect immediately. The delineations reflect the Standards for Delineating Metropolitan and Micropolitan Statistical Areas that the Office of Management and Budget (OMB) published on June 28, 2010, in the *Federal Register* (75 FR 37246 - 37252) and the application of those standards to Census Bureau population and journey-to-work data. This bulletin also provides guidance on the use of the delineations of these statistical areas.

2. **Background:** Pursuant to 44 U.S.C. 3504(e)(3) and 31 U.S.C. 1104(d) and Executive Order No. 10253 (June 11, 1951), OMB delineates Metropolitan Statistical Areas, Metropolitan Divisions, Micropolitan Statistical Areas, Combined Statistical Areas, and New England City and Town Areas for use in Federal statistical activities. The appendix's lists represent the product of OMB's once-a-decade comprehensive review of statistical area standards and delineations. OMB issues periodic updates of the areas between decennial censuses based on Census Bureau data.

3. **Update of Statistical Areas:** This bulletin provides the delineations of all Metropolitan Statistical Areas, Metropolitan Divisions, Micropolitan Statistical Areas, Combined Statistical Areas, and New England City and Town Areas in the United States and Puerto Rico based on the standards published on June 28, 2010, in the *Federal Register* (75 FR 37246 - 37252) and Census Bureau data. The appendix to this bulletin provides the following lists of statistical areas that are recognized under the standards:

   List 1 is an alphabetical list by title of 929 Metropolitan Statistical Areas and Micropolitan Statistical Areas in the United States and Puerto Rico.

List 2 provides titles, codes, delineations, principal cities, and Metropolitan Divisions for 388 Metropolitan Statistical Areas (381 in the United States and 7 in Puerto Rico). There are 11 Metropolitan Statistical Areas that contain a total of 31 Metropolitan Divisions. List 3 provides titles, codes, and delineations for the 31 Metropolitan Divisions within their respective Metropolitan Statistical Areas.

List 4 presents the titles, codes, delineations, and principal cities for 541 Micropolitan Statistical Areas (536 in the United States and 5 in Puerto Rico).

List 5 identifies 169 Combined Statistical Areas and their 524 component Metropolitan and/or Micropolitan Statistical Areas.

List 6 identifies in each state the Metropolitan Statistical Areas, Metropolitan Divisions, Micropolitan Statistical Areas, and Combined Statistical Areas.

List 7 provides titles, delineations, principal cities, and New England City and Town Area Divisions for 38 New England City and Town Areas.[1]

List 8 provides titles and delineations for 6 Combined New England City and Town Areas and their 26 component New England City and Town Areas.

List 9 identifies in each state the New England City and Town Areas, the New England City and Town Area Divisions, and the Combined New England City and Town Areas.

A change in the standards as well as their application to new Census Bureau data has resulted in an increase in the number of Combined Statistical Areas. First introduced in the 2000 standards, Combined Statistical Areas can serve as an important geographic tool for the Federal statistical data community. They can be characterized as representing larger regions that reflect broader social and economic interactions, such as wholesaling, commodity distribution, and weekend recreation activities, and are likely to be of considerable interest to regional authorities and the private sector. If specified criteria are met, adjacent Metropolitan and Micropolitan Statistical Areas, in various combinations, may become the components of a Combined Statistical Area. It should be noted that Combined Statistical Areas complement, but do not supersede Metropolitan and Micropolitan Statistical Areas, which retain their separate component identities.

[1] Consistent use of counties in delineating metropolitan and micropolitan statistical areas makes it possible to have comparable areas across the Nation for preparing and disseminating Federal statistics. Cities and towns, however, are the primary units of local government in the six New England states, where counties generally have little or no official governmental functions. A wide variety of statistical data, from both Federal and local sources, is compiled for cities and towns in New England. OMB and its predecessor agencies have a longstanding history of delineating statistical areas on a city and town basis in the New England states.

The 2000 standards also introduced the construct "Metropolitan Division," which is used to refer to a county or group of counties within a Metropolitan Statistical Area that has a population core of at least 2.5 million. While a Metropolitan Division is a subdivision of a larger Metropolitan Statistical Area, it often functions as a distinct social, economic, and cultural area within the larger region. Metropolitan Divisions can be directly compared with each other, but comparisons of them with entire Metropolitan Statistical Areas would be inappropriate. Federal agencies will continue to provide detailed data for each Metropolitan Division.

4. **Uses of Statistical Area Delineations:** All agencies that conduct statistical activities to collect and publish data for Metropolitan Statistical Areas, Metropolitan Divisions, Micropolitan Statistical Areas, Combined Statistical Areas, and New England City and Town Areas should use the most recent delineations of these areas established by OMB.

   OMB establishes and maintains the delineations of Metropolitan Statistical Areas, Metropolitan Divisions, Micropolitan Statistical Areas, Combined Statistical Areas, and New England City and Town Areas solely for statistical purposes. This classification is intended to provide nationally consistent delineations for collecting, tabulating, and publishing Federal statistics for a set of geographic areas. The Metropolitan and Micropolitan Statistical Area Standards do not equate to an urban-rural classification; many counties included in Metropolitan and Micropolitan Statistical Areas, and many other counties, contain both urban and rural territory and populations.

   In periodically reviewing and revising the delineations of these areas, OMB does not take into account or attempt to anticipate any nonstatistical uses that may be made of the delineations, nor will OMB modify the delineations to meet the requirements of any nonstatistical program. Thus, OMB cautions that Metropolitan Statistical Area and Micropolitan Statistical Area delineations should not be used to develop and implement Federal, state, and local nonstatistical programs and policies without full consideration of the effects of using these delineations for such purposes. These areas should not serve as a general-purpose geographic framework for nonstatistical activities, and they may or may not be suitable for use in program funding formulas.

   OMB recognizes that some legislation specifies the use of Metropolitan Statistical Areas for program purposes, including the allocation of Federal funds, and will continue to work with the Congress to clarify the foundations of these delineations and the resultant, often unintended consequences of their use for nonstatistical purposes. In cases where there is no statutory requirement and an agency elects to use the Metropolitan, Micropolitan, or Combined Statistical Area delineations in nonstatistical programs, it is the sponsoring agency's responsibility to ensure that the delineations are appropriate for such use. When an agency is publishing for comment a proposed regulation that would use the delineations for a nonstatistical purpose, the agency should seek public comment on the proposed use.

   An agency using the statistical delineations in a nonstatistical program may modify the delineations, but only for the purposes of that program. In such cases, any modifications should be clearly identified as deviations from the OMB statistical area delineations in order

to avoid confusion with OMB's official delineations of Metropolitan, Micropolitan, and Combined Statistical Areas.

5. **Lists of Metropolitan Statistical Areas, Metropolitan Divisions, Micropolitan Statistical Areas, Combined Statistical Areas, and New England City and Town Area Delineations:** This bulletin and its appendix that provides the nine lists of statistical areas are available electronically from the OMB web site at http://www.whitehouse.gov/omb -- under "Bulletins;" of note, this update, historical delineations, and other information about population statistics is available on the Census Bureau's web site at: http://www.census.gov/population/metro.)

   The 2010 Standards for Delineating Metropolitan and Micropolitan Statistical Areas are available at http://www.whitehouse.gov/omb/inforeg_statpolicy.

6. **Inquiries:** Inquiries concerning the Metropolitan and Micropolitan Statistical Area Standards and the statistical uses of their delineations should be directed to Katherine K. Wallman (202-395-3093). Inquiries about uses of the statistical area delineations in program administration or regulation should be directed to the appropriate agency.

Jeffrey D. Zients
Deputy Director for Management

Attachments

OMB Bulletin No.
Appendix

METROPOLITAN STATISTICAL AREAS

METROPOLITAN DIVISIONS

MICROPOLITAN STATISTICAL AREAS

COMBINED STATISTICAL AREAS

NEW ENGLAND CITY AND TOWN AREAS

COMBINED NEW ENGLAND CITY AND TOWN AREAS

Lists 1 through 9

Statistical and Science Policy Branch
Office of Information and Regulatory Affairs
Office of Management and Budget

Metropolitan Statistical Areas, Metropolitan Divisions, Micropolitan Statistical Areas, Combined Statistical Areas, New England City and Town Areas, and Combined New England City and Town Areas

1. Brief Overview of the Classification

The Office of Management and Budget (OMB) published the Standards for Delineating Metropolitan and Micropolitan Statistical Areas in a *Federal Register* Notice (75 FR 37246 - 37252) on June 28, 2010. (The standards are available at *http://www.whitehouse.gov/omb/inforeg_statpolicy/*.) That Notice also provides information on the public review process that preceded the adoption of the standards and an explanation of the key terms used in the standards. The 2010 standards replace and supersede the 2000 standards for defining Metropolitan and Micropolitan Statistical Areas. OMB's 2010 standards provide for the identification of the following statistical areas in the United States and Puerto Rico:

- Metropolitan Statistical Areas (including Metropolitan Divisions, where applicable)
- Micropolitan Statistical Areas
- Combined Statistical Areas
- New England City and Town Areas (including New England City and Town Area Divisions, where applicable)
- Combined New England City and Town Areas

Metropolitan Statistical Areas have at least one urbanized area of 50,000 or more population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties. Micropolitan Statistical Areas have at least one urban cluster of at least 10,000 but less than 50,000 population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties. Metropolitan and Micropolitan Statistical Areas are delineated in terms of whole counties (or equivalent entities), including in the six New England States. If specified criteria are met, a Metropolitan Statistical Area containing a single core with a population of 2.5 million or more may be subdivided to form smaller groupings of counties referred to as Metropolitan Divisions.

The classification includes about 94 percent of the U.S. population – about 85 percent in metropolitan statistical areas and about 9 percent in micropolitan statistical areas. Of 3,143 counties in the United States, 1,167 will be in the 381 metropolitan statistical areas in the United States, and 641 counties will be in the 536 micropolitan statistical areas (1,335 counties are outside the classification).

In view of the importance of cities and town in New England, the 2010 standards also provide for a set of geographic areas that are delineated using cities and towns in the six New England states. The New England City and Town Areas (NECTAs) are delineated using the same criteria as Metropolitan and Micropolitan Statistical Areas and are identified as either metropolitan or micropolitan, based, respectively, on the presence of either an urbanized area of 50,000 or more population or an urban cluster of at least 10,000 but less than 50,000 population. If the specified criteria are met, a New England City and Town Area containing a single core with a population of at least 2.5 million may be subdivided to form smaller groupings of cities and towns referred to as New England City and Town Area Divisions.

If specified criteria are met, adjacent Metropolitan and Micropolitan Statistical Areas, in various combinations, may become the components of a set of complementary areas called Combined Statistical Areas. For instance, a Combined Statistical Area may comprise two or more Metropolitan Statistical Areas, a Metropolitan Statistical Area and a Micropolitan Statistical Area, two or more Micropolitan Statistical Areas, or multiple Metropolitan and Micropolitan Statistical Areas that have social and economic ties as measured by commuting, but at lower levels than are found among counties within Metropolitan and Micropolitan Statistical Areas. The geographic components of Combined New England City and Town Areas are individual metropolitan and micropolitan NECTAs, in various combinations. The

areas that combine retain their own designations as Metropolitan or Micropolitan Statistical Areas (or NECTAs) within the larger Combined Statistical Area (or Combined NECTA). Combined Statistical Areas can be characterized as representing larger regions that reflect broader social and economic interactions, such as wholesaling, commodity distribution, and weekend recreation activities, and are likely to be of considerable interest to regional authorities and the private sector.

OMB's standards provide for the identification of one or more principal cities within each Metropolitan Statistical Area, Micropolitan Statistical Area, and NECTA. Principal cities encompass both incorporated places and census designated places (CDPs). In addition to identifying the more significant places in each Metropolitan and Micropolitan Statistical Area or NECTA in terms of population and employment, principal cities also are used in titling Metropolitan and Micropolitan Statistical Areas, Metropolitan Divisions, Combined Statistical Areas, NECTAs, NECTA Divisions, and Combined NECTAs. A principal city may be only a part of a place if a portion of that place is outside of the Metropolitan Statistical Area, Micropolitan Statistical Area, or NECTA for which the place is principal.

The geographic components of Metropolitan and Micropolitan Statistical Areas and Metropolitan Divisions are counties and equivalent entities (boroughs, and a municipality in Alaska, parishes in Louisiana, municipios in Puerto Rico, and independent cities in Maryland, Missouri, Nevada, and Virginia). The counties and equivalent entities used in the delineations of the Metropolitan and Micropolitan Statistical Areas are those that were in existence as of January 1, 2010.

This appendix includes the following nine lists that provide information on the statistical areas that are recognized under the 2010 standards using data from 2010 Census and the American Community Survey.

- List 1 is an alphabetical list by title of 929 Metropolitan Statistical Areas and Micropolitan Statistical Areas in the United States and Puerto Rico.
- List 2 provides titles, codes, delineations, principal cities, and Metropolitan Divisions for 388 Metropolitan Statistical Areas (381 in the United States and 7 in Puerto Rico).
- List 3 provides titles, codes, and delineations for the 31 Metropolitan Divisions within their respective Metropolitan Statistical Areas.
- List 4 presents the titles, codes, delineations, and principal cities for 541 Micropolitan Statistical Areas (536 in the United States and 5 in Puerto Rico).
- List 5 identifies 169 Combined Statistical Areas and their 524 component Metropolitan and/or Micropolitan Statistical Areas.
- List 6 identifies in each state the Metropolitan Statistical Areas, Metropolitan Divisions, Micropolitan Statistical Areas, and Combined Statistical Areas.
- List 7 provides titles, delineations, principal cities, and New England City and Town Area Divisions for 38 New England City and Town Areas.
- List 8 provides titles and delineations for 6 Combined New England City and Town Areas and their 26 component New England City and Town Areas.
- List 9 identifies in each state the New England City and Town Areas, the New England City and Town Area Divisions, and the Combined New England City and Town Areas.

2. Guidance on Presenting Data for Metropolitan and Micropolitan Statistical Areas, Metropolitan Divisions, Combined Statistical Areas, NECTAs, NECTA Divisions, and Combined NECTAs

Metropolitan and Micropolitan Statistical Areas represent the basic set of county-based areas delineated under this classification. If specified criteria are met, Metropolitan Divisions are delineated within Metropolitan Statistical Areas that have a single core with a population of at least 2.5 million. Not all Metropolitan Statistical Areas with urbanized areas of this size will contain Metropolitan Divisions.

The criteria used to determine what counties are included in a Metropolitan Statistical Area are different from the criteria that are used to group counties in Metropolitan Divisions, which represent the subdivisions of (larger) Metropolitan Statistical Areas. As a result, it is generally not appropriate to rank or directly compare Metropolitan Divisions (or NECTA Divisions) with Metropolitan and Micropolitan Statistical Areas (or Metropolitan and Micropolitan NECTAs). However, because of the large population concentrations represented by Metropolitan Divisions, it may be desirable for some analyses, for example, to include Metropolitan Divisions in a table in which Metropolitan Statistical Areas are ranked. It would, of course, be appropriate to rank and compare Metropolitan Divisions. Even though Metropolitan Divisions represent subdivisions of (larger) Metropolitan Statistical Areas, they often function as distinct areas within Metropolitan Statistical Areas. Researchers analyzing demographic and economic patterns, trends, and processes within large Metropolitan Statistical Areas should also take into consideration data for specific Metropolitan Divisions. Research and analyses that previously made use of data for Primary Metropolitan Statistical Areas should now use data for Metropolitan Divisions.

Because Combined Statistical Areas represent groupings of Metropolitan and Micropolitan Statistical Areas (in any combination), they should not be ranked or compared with individual Metropolitan and Micropolitan Statistical Areas.

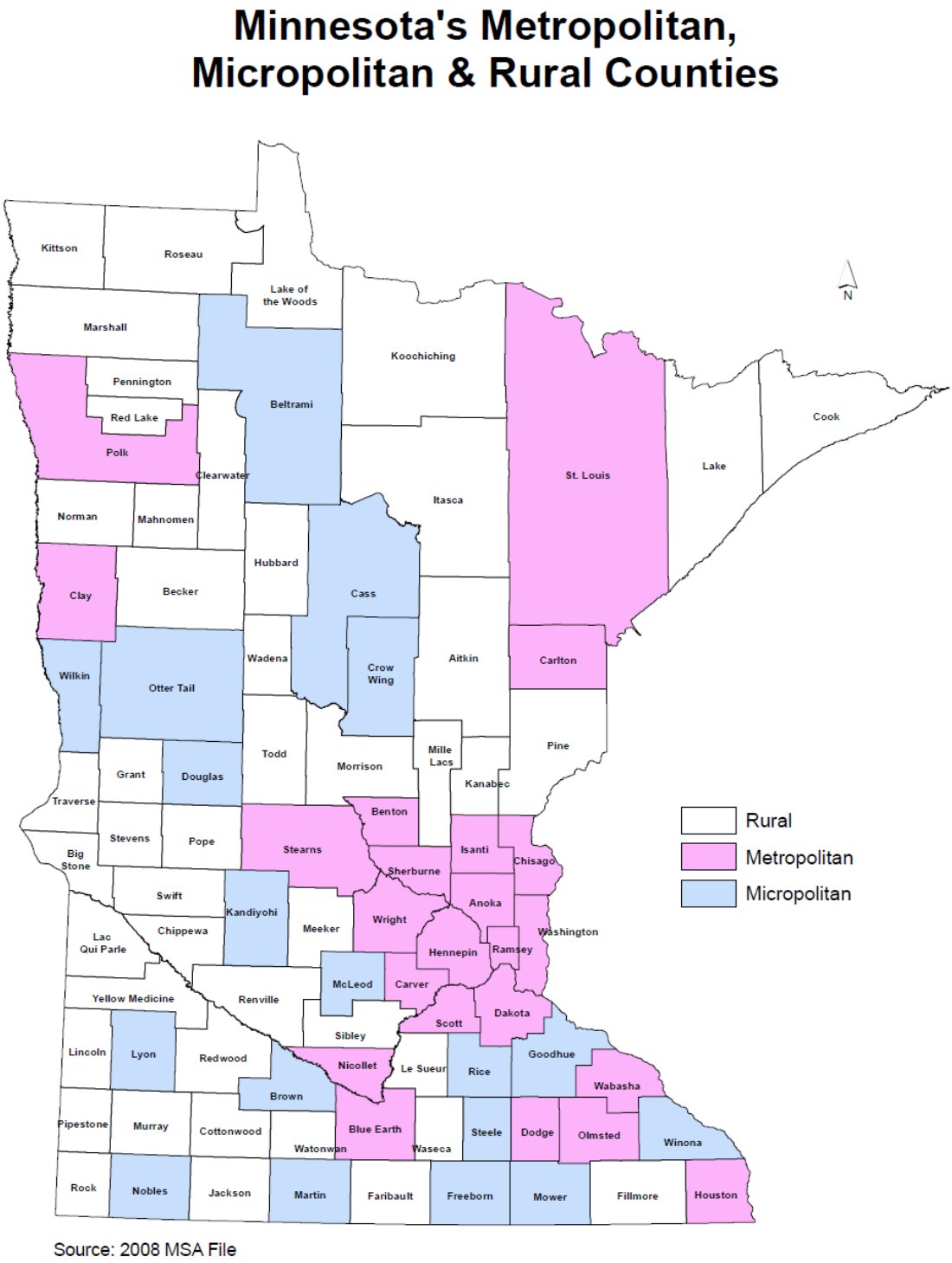
Because Combined New England City and Town Areas (NECTAs) represent groupings of Metropolitan and Micropolitan NECTAs (in any combination), they should not be ranked or compared with individual Metropolitan and Micropolitan NECTAs.

3. Codes for Metropolitan and Micropolitan Statistical Areas, Metropolitan Divisions, Combined Statistical Areas, New England City and Town Areas (NECTAs), NECTA Divisions, and Combined NECTAs

Codes for Metropolitan and Micropolitan Statistical Areas, Metropolitan Divisions, NECTAs, and NECTA Divisions are 5 digits in length. This replaces the 4-digit code previously used. Codes for Metropolitan and Micropolitan Statistical Areas and Metropolitan Divisions fall within the 10000 to 49999 range and are assigned in alphabetical order by area title. Metropolitan Divisions are distinguished by a 5-digit code ending in "4." NECTA and NECTA Division codes fall within the 70000 to 79999 range and are assigned in alphabetical order by area title. NECTA Divisions are distinguished by a 5-digit code ending in "4."

Combined Statistical Area and Combined NECTA codes are 3 digits in length. Combined Statistical Area codes fall within the 100 to 599 range. Combined NECTA codes fall within the 700 to 799 range.

Appendix B: Minnesota Department of Health Delineation Map



Source: 2008 MSA File

Appendix C: Minnesota Department of Health Delineation

Minnesota Department of Health Defining Rural, Urban and Underserved Areas in Minnesota

Rural and Urban Areas

The Office of Rural Health and Primary Care also defines rural to urban areas by referring to the **Metropolitan and Micropolitan Statistical Areas**, which use a county designation. Then, by default, defines other counties as rural if they are not in a metropolitan or micropolitan statistical area.

- Current Lists of Metropolitan and Micropolitan Statistical Areas and Definitions -- U.S. Census Bureau
- Metropolitan, Micropolitan and Rural Counties in Minnesota

The Office of Rural Health and Primary Care also defines rural to urban areas by referring to the **Metropolitan and Micropolitan Statistical Areas**, which use a county designation. Then, by default, defines other counties as rural if they are not in a metropolitan or micropolitan statistical area.

- Current Lists of Metropolitan and Micropolitan Statistical Areas and Definitions -- U.S. Census Bureau
- Metropolitan, Micropolitan and Rural Counties in Minnesota

Metropolitan and Micropolitan Statistical Areas Main Metropolitan and micropolitan statistical areas (metro and micro areas) are geographic entities delineated by the Office of Management and Budget (OMB) for use by Federal statistical agencies in collecting, tabulating, and publishing Federal statistics. The term "Core Based Statistical Area" (CBSA) is a collective term for both metro and micro areas. A metro area contains a core urban area of 50,000 or more population, and a micro area contains an urban core of at least 10,000 (but less than 50,000) population. Each metro or micro area consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core.

Current Lists of Metropolitan and Micropolitan Statistical Areas and Delineations

A metropolitan or micropolitan statistical area's geographic composition, or list of geographic components at a particular point in time, is referred to as its "delineation." Metropolitan and micropolitan statistical areas are delineated by the U.S. Office of Management and Budget (OMB) and are the result of the application of published standards to Census Bureau data. The standards for delineating the areas are reviewed and revised once every ten years, prior to each decennial census. Generally, the areas are delineated using the most recent set of standards following each decennial census. Between censuses, the delineations are updated annually to reflect the most recent Census Bureau population estimates. Areas based on the 2010 standards and Census Bureau data were delineated in February of 2013.

The files below show delineations of metropolitan and micropolitan statistical areas and related statistical areas delineated by OMB since February 2013. Related statistical areas include New England City and Town Areas (NECTAs), which are conceptually similar to metropolitan and micropolitan statistical areas, but are delineated using cities and towns instead of counties; Combined Statistical Areas, which are aggregates of adjacent metropolitan or micropolitan statistical areas that are linked by commuting ties; and Combined New England City and Town Areas, which are aggregates of adjacent NECTAs that are linked by commuting ties.

Appendix D: Study Survey

Section One: Profile

Thank you for participating in this online study survey regarding "Defining, Practicing and Assessing Innovation by Minnesota's Local Government". Please, carefully read each of the five questions below and provide as complete and accurate an answer as possible. You will be prompted by the electronic survey tool to respond to each question. The survey tool is programmed to not proceed forward to the next question until each previous question is answered. If a question does not apply to your situation, please respond with "Not Applicable - N/A", which will permit you to proceed to the next question. This online survey should take approximately 15 minutes. We are very interested in studying your responses to these questions. Thank you for your time.

Section One: Profile
Please identify which of the following characteristics best describe your organization.

* 1. Type of Jurisdiction:

◯ City/town ◯ County ◯ School District

* 2. Geographical area location (note: Micropolitan county area is an area consisting of a core urban area of at least 10,000 but less than 50,000 people).

◯ Micropolitan county area ◯ Rural ◯ Metropolitan

* 3. Staff size:

◯ Small (less than 50) ◯ Medium (50-200) ◯ Large (more than 200)

* 4. Budget size:

◯ Small(less than $25 million) ◯ Medium($25 - $75 million) ◯ Large(more than $75 million)

* 5. Respondent title:

◯ Manager ◯ Administrator

◯ Superintendent ◯ Department head

* 6. Define innovation in your own words.

* 7. In the past 4 (2013 - 2016) years has your local unit of government created or generated an innovation?

Yes No

* 8. Please provide a brief description of an innovation that has been implemented within your organization in the past 4 years.

* 9. What year was the innovation initiated?

* 10. What was the origin of the innovation?

- ◯ Improved on an existing idea
- ◯ It was a totally new idea.

* 11. Did this innovation have an impact on the way other agencies or organizations do business?

- ◯ Yes
- ◯ No

Innovation Assessment: The following questions will ask about how this innovation was evaluated. Here is some relevant information related to these questions:

Assessment Type Definitions:

. **Inputs (Resources)** - All relevant resources, both material and intellectual, used to initiate and implement a concept, project or product.

. **Activities** - The steps and tasks taken in order to execute a concept.

. **Outputs (End Product)** - The product(s) generated by the steps taken and tasks executed to implement a concept.

. **Outcomes (Impact)** - The impact or difference made in regard to the client, customer or market in which actions were directed or concept commenced.

12. Please select all evaluation types that apply to this innovation based on the terms listed (check all that apply). The evaluation was based on:

- [ ] the resources allocated to the innovation.
- [ ] activities used to produce the innovation.
- [ ] the end product that was produced.
- [ ] the impact it had on services
- [ ] no evaluation conducted

* 13. Is there another innovation activity your local unit of government has participated in during the past 4 years?

- ◯ Yes
- ◯ No

* 14. Please provide a brief description of an innovation that has been implemented within your organization in the past 4 years.

* 15. What year was the innovation initiated?

* 16. What was the origin of the innovation?

- ◯ Improved on an existing idea
- ◯ It was a totally new idea.

* 17. Did this innovation have an impact on the way other agencies or organizations do business?

- ◯ Yes
- ◯ No

Innovation Assessment: The following questions will ask about how this innovation was evaluated. Here is some relevant information related to these questions:

Assessment Type Definitions:

. **Inputs (Resources)** - All relevant resources, both material and intellectual, used to initiate and implement a concept, project or product.

. **Activities** - The steps and tasks taken in order to execute a concept.

. **Outputs (End Product)** - The product(s) generated by the steps taken and tasks executed to implement a concept.

. **Outcomes (Impact)** - The impact or difference made in regard to the client, customer or market in which actions were directed or concept commenced.

18. Please select all evaluation types that apply to this innovation based on the terms listed (check all that apply). The evaluation was based on:

- [ ] the resources allocated to the innovation.
- [ ] activities used to produce the innovation.
- [ ] the end product that was produced.
- [ ] the impact it had on services
- [ ] no evaluation conducted

* 19. Is there another innovation activity your local unit of government has participated in during the past 4 years?

- ◯ Yes
- ◯ No

* 20. Please provide a brief description of an innovation that has been implemented within your organization in the past 4 years.

* 21. What year was the innovation initiated?

* 22. What was the origin of the innovation?

- ◯ Improved on an existing idea
- ◯ It was a totally new idea.

* 23. Did this innovation have an impact on the way other agencies or organizations do business?

- ◯ Yes
- ◯ No

Innovation Assessment: The following questions will ask about how this innovation was evaluated. Here is some relevant information related to these questions:

Assessment Type Definitions:

. **Inputs (Resources)** - All relevant resources, both material and intellectual, used to initiate and implement a concept, project or product.

. **Activities** - The steps and tasks taken in order to execute a concept.

. **Outputs (End Product)** - The product(s) generated by the steps taken and tasks executed to implement a concept.

. **Outcomes (Impact)** - The impact or difference made in regard to the client, customer or market in which actions were directed or concept commenced.

24. Please select all evaluation types that apply to this innovation based on the terms listed (check all that apply). The evaluation was based on:

- [ ] the resources allocated to the innovation.
- [ ] activities used to produce the innovation.
- [ ] the end product that was produced.
- [ ] the impact it had on services
- [ ] no evaluation conducted

* 25. Is there another innovation activity your local unit of government has participated in during the past 4 years?

- ◯ Yes
- ◯ No

* 26. Please provide a brief description of an innovation that has been implemented within your organization in the past 4 years.

* 27. What year was the innovation initiated?

* 28. What was the origin of the innovation?

- ◯ Improved on an existing idea
- ◯ It was a totally new idea.

* 29. Did this innovation have an impact on the way other agencies or organizations do business?

- ◯ Yes
- ◯ No

Innovation Assessment: The following questions will ask about how this innovation was evaluated. Here is some relevant information related to these questions:

Assessment Type Definitions:

. **Inputs (Resources)** - All relevant resources, both material and intellectual, used to initiate and implement a concept, project or product.

. **Activities** - The steps and tasks taken in order to execute a concept.

. **Outputs (End Product)** - The product(s) generated by the steps taken and tasks executed to implement a concept.

. **Outcomes (Impact)** - The impact or difference made in regard to the client, customer or market in which actions were directed or concept commenced.

30. Please select all evaluation types that apply to this innovation based on the terms listed (check all that apply). The evaluation was based on:

- [ ] the resources allocated to the innovation.
- [ ] activities used to produce the innovation.
- [ ] the end product that was produced.
- [ ] the impact it had on services
- [ ] no evaluation conducted

* 31. Is there another innovation activity your local unit of government has participated in during the past 4 years?

- ◯ Yes
- ◯ No

* 32. Please provide a brief description of an innovation that has been implemented within your organization in the past 4 years.

* 33. What year was the innovation initiated?

* 34. What was the origin of the innovation?

- ◯ Improved on an existing idea
- ◯ It was a totally new idea.

* 35. Did this innovation have an impact on the way other agencies or organizations do business?

- ◯ Yes
- ◯ No

Innovation Assessment: The following questions will ask about how this innovation was evaluated. Here is some relevant information related to these questions:

Assessment Type Definitions:

. **Inputs (Resources)** - All relevant resources, both material and intellectual, used to initiate and implement a concept, project or product.

. **Activities** - The steps and tasks taken in order to execute a concept.

. **Outputs (End Product)** - The product(s) generated by the steps taken and tasks executed to implement a concept.

. **Outcomes (Impact)** - The impact or difference made in regard to the client, customer or market in which actions were directed or concept commenced.

36. Please select all evaluation types that apply to this innovation based on the terms listed (check all that apply). The evaluation was based on:

- [ ] the resources allocated to the innovation.
- [ ] activities used to produce the innovation.
- [ ] the end product that was produced.
- [ ] the impact it had on services
- [ ] no evaluation conducted

* 37. Do you view your organization as an innovative organization?

◯ Yes ◯ No

* 38. Please briefly explain why or why not.

Thank you for participating in this survey.

Appendix E: Solicitation of Participation Letter

Dear Administrative Friends and Colleagues:

I am emailing you to ask that you join me in completing a short and important online survey. Back on September 21, 2016, you received a survey on *"Defining, Practicing, and Assessing Innovation by Minnesota's Local Government"* from the St. Cloud State University, Statistical Consulting & Research Center. The deadline for having completed the survey now extends to October 25, 2016. **Tomorrow, October 11th, the St. Cloud State University, Statistical Consulting & Research Center, will resend you a link to the survey.** Please look for the email and ensure it does not go to your spam. Again, I ask that you join me in completing the online survey.

In Minnesota, we all are continuing to try learning as much as we can about innovation, so that we may continue to lead the nation in providing excellence in local government. For this reason there are 81 local units of government are participating in this study on "innovation", which is led by Mr. Reggie Edwards, Pre-Doctorate Fellow, Minnesota State University, Mankato, Department of Government/Public Administration, and Doctoral Candidate, St. Cloud State University. The more participants that engage in the study, the more reliable and representative of government the results of the study will be.

After the study is completed, Mr. Edwards will be holding a meeting to share the results of the survey with all participants. He has offered to share the results of the research at the 2017 State Association Annual Conferences.

The completion of this study will provide Minnesota with another opportunity to understand how we can lead the country in "good government". I ask that you **please complete the online survey by Tuesday, October 25, 2016.** If you have questions or do not get an email with the survey link, please contact Mr. Edwards at [redacted] and/or via email at [redacted].

Thank you in advance for your participation in this research project.

Respectfully Yours,

[redacted], County Administrator
[redacted] County

Appendix F: Letter of Introduction and Survey Engagement

Dear Local Government Administrative Leader,

The St. Cloud State University, Statistical Consulting & Research Center requests your participation in a short online survey on behalf of Doctoral Candidate, Mr. Reggie Edwards. Mr. Edwards is a Pre-Doctorate Fellow at Minnesota State University, Mankato, in the Department of Government/Public Administration, and a Doctoral Candidate at St. Cloud State University.

You should have received an email approximately two days ago from a fellow administrative leader or Mr. Edwards regarding a study entitled, "*Defining, Practicing, and Assessing Innovation by Minnesota's Local Governments*". In the email you were requested to participate in a short online survey on innovation in your organization. Please click on this link (www//….) to begin completing your survey. It should take no more than approximately 15 minutes to answer the fourteen (14) questions on the survey.

There are 80 other local units of government including cities, counties and school districts in Minnesota, participating in this study. The purpose of this study is to examine, summarize, and categorize how chief executive officers of local units of government in Minnesota define, practice, and assess innovation. This study will be conducted via an electronic survey tool.

As mentioned in the email the more participants that complete this study, the more reliable and representative the results will be which is why your participation is so crucial. The benefits of this study will be:

1. To further the understanding of innovation in government
2. To provide insight on innovation across cities, counties and school districts in rural and urban areas
3. To help government make more informed decisions regarding investment of resources
4. To provide information that will be presented at a county wide meeting to share the results of the survey with all participants

Please note that the survey results will be confidential. Information pertaining specifically to you or your jurisdiction will not be shared. The results will show differences and similarities regarding innovation between jurisdictions, according to the type of governmental unit, geographical area, budget, and employee size. There will be no direct quotes from your survey that may link a comment to your responses. All data shall be presented in aggregate.

This study will be the first of its kind in the United States. The completion of this study will provide Minnesota with another opportunity to lead the country in thinking and in searching for ways to be the best government possible. You may access other related studies conducted on the subject of innovation in the public sector at your local library or university. All dissertations are made public and stored in the St. Cloud State University Repository; therefore, you may access this study and others there.

By participating in this survey it is considered an *implied consent*, which means the submittal of your completed survey will indicate that you voluntarily consented to participating in the study. There is no penalty or loss of benefit should you choose not to participate or not complete the survey. Again, all responses will remain confidential.

Please click on this link (www//….) to start your survey. Please complete your online survey by Wednesday, October 5th. If you have questions in regard to the survey tool, please contact Mr. Reggie Edwards at [redacted] and/or via email at [redacted] You may also communicate with Dr. John Eller, Research Advisor, St. Cloud State University at the email [redacted] or by phone [redacted]. Thank you for your participation in this research project.

Respectfully Yours,

Saint Cloud State University,
Statistical Consulting & Research Center

Appendix G: Survey Question One Data Analysis

Words				Themes				Form			
New	Creative	Idea	Change	Achieves Results/Goals	Problem Solving	Improvement	Different	Widget	Idea	Process	Thinking
		1		1					1		
1			1			1					1
1		1			1					1	
			1			1			1		
						1				1	
	1						1			1	
							1				1
			1			1		1			
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	1				1					1	
1	1						1			1	
15	6	8	4	4	7	10	11	5	5	20	3

Appendix H: Survey Questions Two and Three Data Analysis

#	Type of jur	geog	staff	budg	title	def	inov	descr	year	origin	impact	evalres	evalact	evalresul	evalserv	inov2	inov3	inov4	organizii	why
1	2	2	2	2	1	1	1	1	2012	1	1	1	1	1	1	0	0	0	1	1
2	0	2	0	0	2	1	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	1
3	0	2	2	2	3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	0
4	0	1	0	0	2	1	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1	1
5	2	1	1	0	1	1	1	1	2014	0	0	1	1	1	1	0	0	0	0	1
6	2	2	2	1	1	1	1	1	2014	0	0	0	0	0	0	0	0	0	1	1
7	0	2	0	0	2	1	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1	1
8	0	2	0	0	2	1	1	1	2010	0	1	1	0	1	1	0	0	0	1	1
9	0	2	1	0	0	1	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	1
10	0	2	2	1	0	1	1	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
11	2	2	2	2	1	1	1	1	2013	1	1	1	1	1	1	1	1	1	1	1
12	0	2	1	1	0	1	1	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
13	0	1	0	0	2	1	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	1
14	1	0	2	1	2	1	1	1	2010	1	1	1	1	1	1	1	0	0	1	1
15	0	1	0	0	2	1	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	1
16	0	2	1	0	0	1	1	1	2013	0	0	0	0	0	0	0	0	0	n/a	n/a
17	2	1	1	0	1	1	1	1	2001	0	0	1	0	0	0	0	0	0	1	1
18	0	1	0	0	2	1	1	1	2015	1	1	1	1	1	1	0	0	0	1	1
19	0	2	2	2	0	1	1	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20	0	2	1	0	0	1	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	0	1	1
21	0	2	1	0	0	1	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	0	0	1
22	0	2	0	0	2	1	1	1	2012	1	1	0	0	1	0	0	0	0	1	1
23	0	2	1	0	2	1	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	1
24	2	1	1	0	1	1	1	1	2015	1	0	0	0	0	1	0	0	0	1	1
25	0	0	1	2	2	1	1	1	2014	0	0	0	1	1	1	1	0	0	1	1
26	0	1	0	0	2	1	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	0	0	1
27	2	1	1	0	1	1	1	1	2013	0	0	1	1	1	1	0	0	0	1	1
28	0	2	0	0	3	1	1	1	2015	1	1	1	1	1	1	1	0	0	1	1
29	0	1	0	0	2	1	0	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	0	0	0	1
30	1	1	1	0	2	1	1	1	2011	1	1	1	1	0	1	0	0	0	1	1
31	0	2	1	0	3	1	0	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	0	0	1
32	0	2	0	0	3	1	1	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	0	n/a	n/a
33	0	2	1	0	2	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
34	0	2	2	1	0	1	1	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
35	0	0	1	1	0	1	1	1	2012	0	0	1	0	1	1	1	0	0	1	1

Appendix I: Survey Question Four Data Analysis

```
PROC FORMAT;
   VALUE YES_NO  0 = 'No'
                 1 = 'Yes';
RUN;
DATA LOGISTIC;
   INPUT ID INOV TYPE LOCR LOCME STAFFS STAFFL BUDGS BUDGL @@;
      LABEL INOV= 'Did the jurisdiction conduct an innovation?'
               TYPE = 'what type of jurisdiction?'
LOCR= 'Is the jurisdiction located in the rural area?'
LOCME= 'Is the jurisdiction located in the metropolitan area?'
STAFFS='Does the jurisdiction have a small staff?'
STAFFL='Does the jurisdiction have a large staff?'
BUDGS='Does the jurisdiction have a small budget?'
BUDGL='Does the jurisdiction have a large budget?';
IF LOCR =1 THEN LOCR=1; ELSE LOCR=0;
IF LOCME=2 THEN LOCME=1;ELSE LOCME=0;
IF STAFFS=0 THEN STAFFS=1;ELSE STAFFS=0;
IF STAFFL=2 THEN STAFFL=1;ELSE STAFFL=0;
IF BUDGS=0 THEN BUDGS=1;ELSE BUDGS=0;
IF BUDGL=2 THEN BUDGL=1;ELSE BUDGL=0;
   FORMAT INOV TYPE YES_NO. LOCR LOCME STAFFS STAFFL BUDGS BUDGL;
DATALINES;
1     1     1     2     2     2     2     2     2
2     0     0     2     2     0     0     0     0
3     0     0     1     1     0     0     0     0
4     1     1     1     1     1     1     0     0
5     1     1     2     2     2     2     1     1
6     0     0     2     2     0     0     0     0
7     1     0     2     2     0     0     0     0
8     0     0     2     2     1     1     0     0
9     1     0     2     2     2     2     1     1
10    1     1     2     2     2     2     2     2
11    1     0     2     2     1     1     1     1
12    0     0     1     1     0     0     0     0
13    0     0     1     1     0     0     0     0
14    1     0     2     2     1     1     0     0
15    1     1     1     1     1     1     0     0
16    1     0     1     1     0     0     0     0
17    1     0     2     2     2     2     2     2
18    0     0     2     2     1     1     0     0
19    0     0     2     2     1     1     0     0
20    1     0     2     2     0     0     0     0
21    0     0     2     2     1     1     0     0
22    1     1     1     1     1     1     0     0
23    1     0     0     0     1     1     2     2
24    0     0     1     1     0     0     0     0
25    1     1     1     1     1     1     0     0
```

```
26    1    0    2    2    0    0    0    0
27    0    0    1    1    0    0    0    0
28    0    0    2    2    1    1    0    0
29    1    0    2    2    0    0    0    0
30    1    0    2    2    2    2    1    1
31    1    0    0    0    1    1    1    1
;
RUN;
PROC LOGISTIC DATA=LOGISTIC DESCENDING;
   TITLE "Predicting Innovation Outcome Using Multivariate Logistic
Regression";
   MODEL INOV=TYPE LOCR LOCME STAFFS STAFFL BUDGS BUDGL/
      RISKLIMITS;
RUN;
```

Predicting Innovation Outcome Using Multivariate Logistic Regression

The LOGISTIC Procedure

Model Information

Data Set	WORK.LOGISTIC	
Response Variable	INOV	Did the jurisdiction conduct an innovation?
Number of Response Levels	2	
Model	binary logit	
Optimization Technique	Fisher's scoring	

Number of Observations Read	31
Number of Observations Used	31

Response Profile

Ordered Value	INOV	Total Frequency
1	Yes	19
2	No	12

Probability modeled is INOV='Yes'.

Model Convergence Status

Quasi-complete separation of data points detected.

Warning: The maximum likelihood estimate may not exist.

Warning: The LOGISTIC procedure continues in spite of the above warning. Results shown are based on the last maximum likelihood iteration. Validity of the model fit is questionable.

Model Fit Statistics

Criterion	Intercept Only	Intercept and Covariates
AIC	43.381	34.453
SC	44.815	45.925
-2 Log L	41.381	18.453

Testing Global Null Hypothesis: BETA=0

Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	22.9275	7	0.0018
Score	13.2830	7	0.0655
Wald	4.0071	7	0.7790

Analysis of Maximum Likelihood Estimates

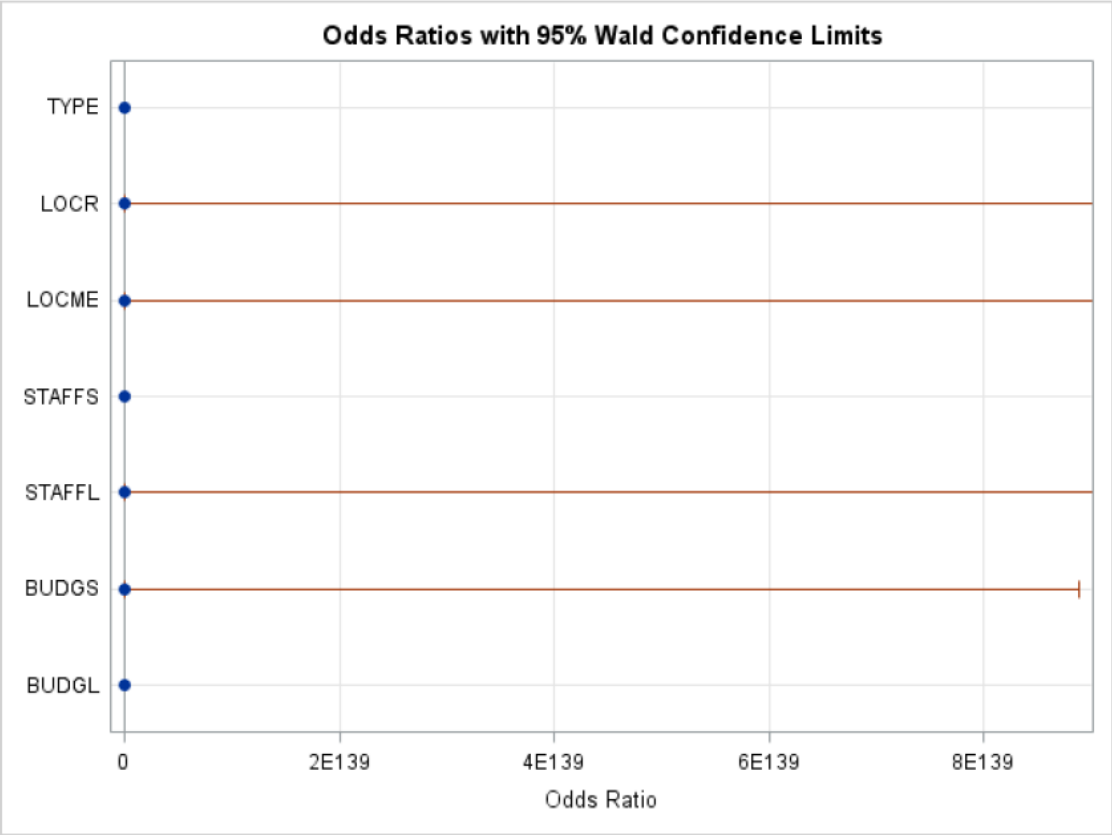
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	10.6678	136.1	0.0061	0.9375
TYPE	1	13.2004	52.0247	0.0644	0.7997
LOCR	1	-2.6933	218.1	0.0002	0.9901
LOCME	1	-0.3907	218.1	0.0000	0.9986
STAFFS	1	2.3026	1.3964	2.7189	0.0992
STAFFL	1	-0.8846	186.0	0.0000	0.9962
BUDGS	1	-11.8865	170.5	0.0049	0.9444
BUDGL	1	-0.7277	99.7697	0.0001	0.9942

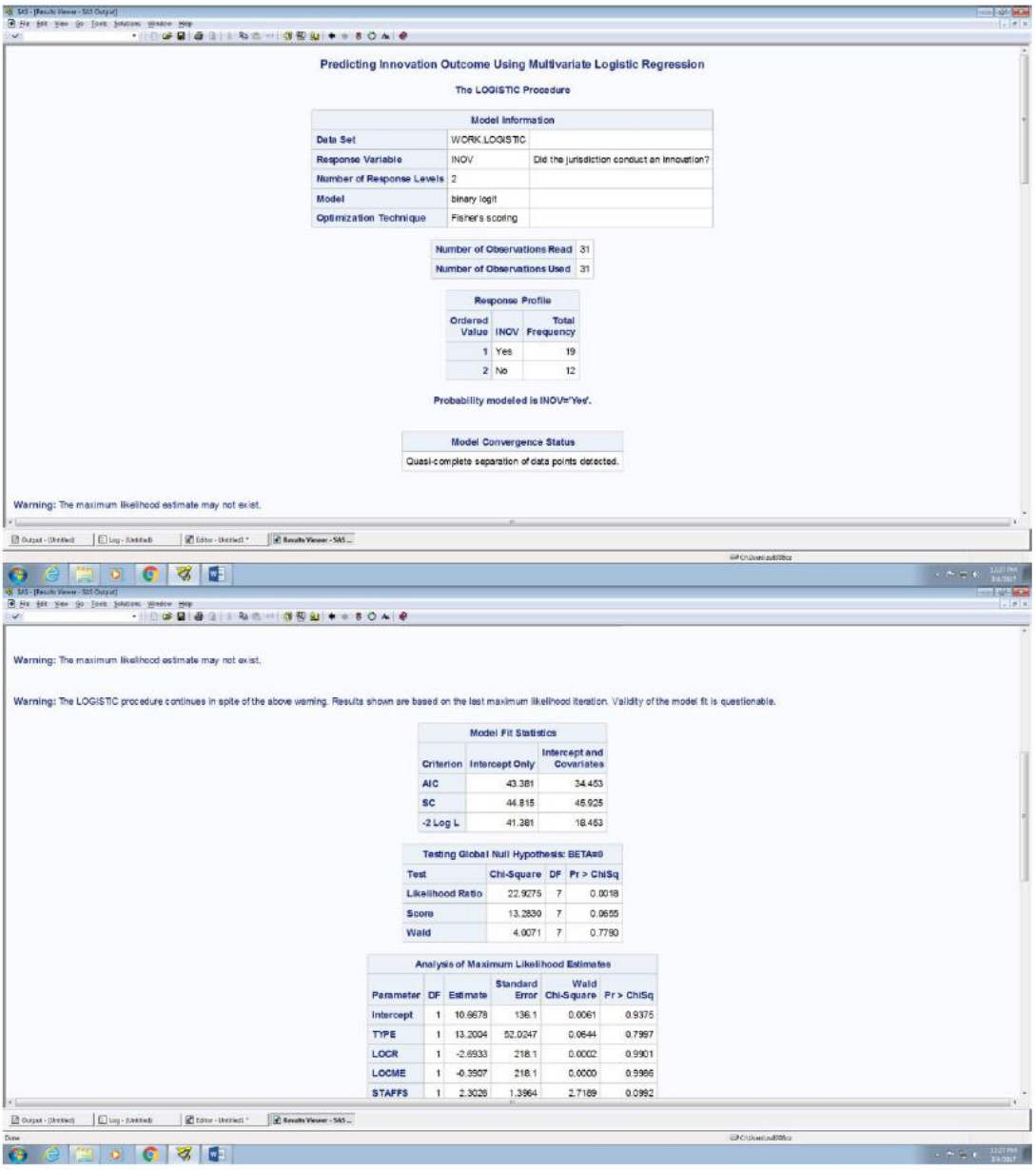
Association of Predicted Probabilities and Observed Responses

Percent Concordant	86.0	Somers' D	0.842
Percent Discordant	1.8	Gamma	0.960
Percent Tied	12.3	Tau-a	0.413
Pairs	228	c	0.921

Odds Ratio Estimates and Wald Confidence Intervals

Effect	Unit	Estimate	95% Confidence Limits	
TYPE	1.0000	>999.999	<0.001	>999.999
LOCR	1.0000	0.068	<0.001	>999.999
LOCME	1.0000	0.677	<0.001	>999.999
STAFFS	1.0000	10.000	0.648	154.397
STAFFL	1.0000	0.413	<0.001	>999.999
BUDGS	1.0000	<0.001	<0.001	>999.999
BUDGL	1.0000	0.483	<0.001	>999.999





Predicting Innovation Outcome Using Multivariate Logistic Regression

The LOGISTIC Procedure

Model Information		
Data Set	WORK.LOGISTIC	
Response Variable	INOV	Did the jurisdiction conduct an innovation?
Number of Response Levels	2	
Model	binary logit	
Optimization Technique	Fisher's scoring	

Number of Observations Read	31
Number of Observations Used	31

Response Profile		
Ordered Value	INOV	Total Frequency
1	Yes	19
2	No	12

Probability modeled is INOV='Yes'.

Model Convergence Status
Quasi-complete separation of data points detected.

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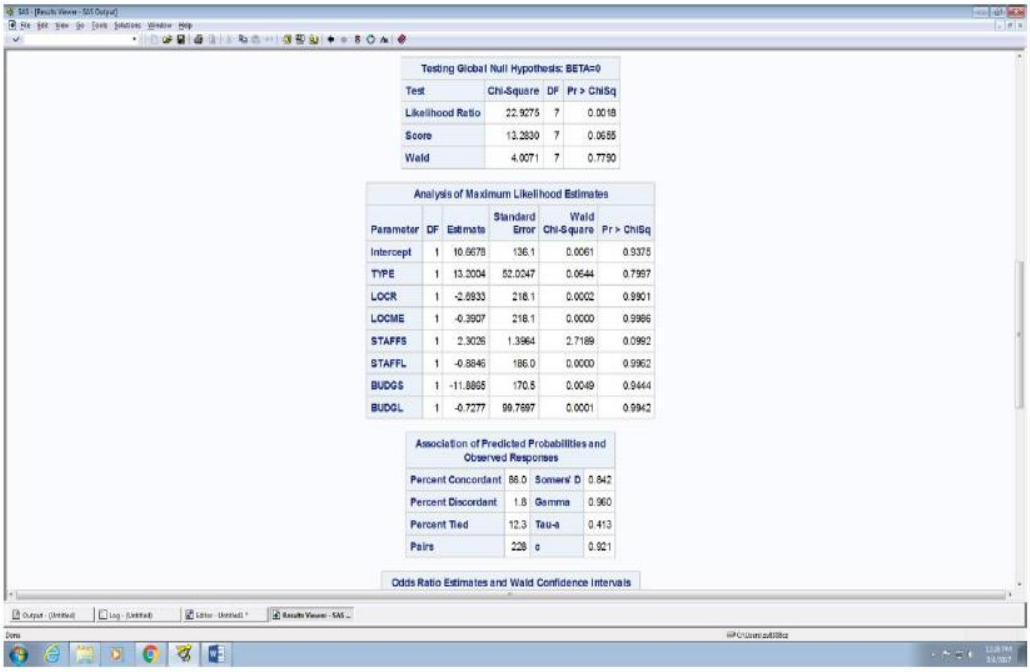
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	22.9275	7	0.0018
Score	13.2830	7	0.0655
Wald	4.0071	7	0.7780

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	10.6678	136.1	0.0061	0.9375
TYPE	1	13.2004	52.0247	0.0644	0.7997
LOCR	1	-2.6933	218.1	0.0002	0.9901
LOCME	1	-0.3507	218.1	0.0000	0.9986
STAFFS	1	2.3026	1.3964	2.7169	0.0992



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STAFFS	1	2.3026	1.3964	2.7189	0.0992
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BUDGS	1	-11.8865	170.5	0.0049	0.9444
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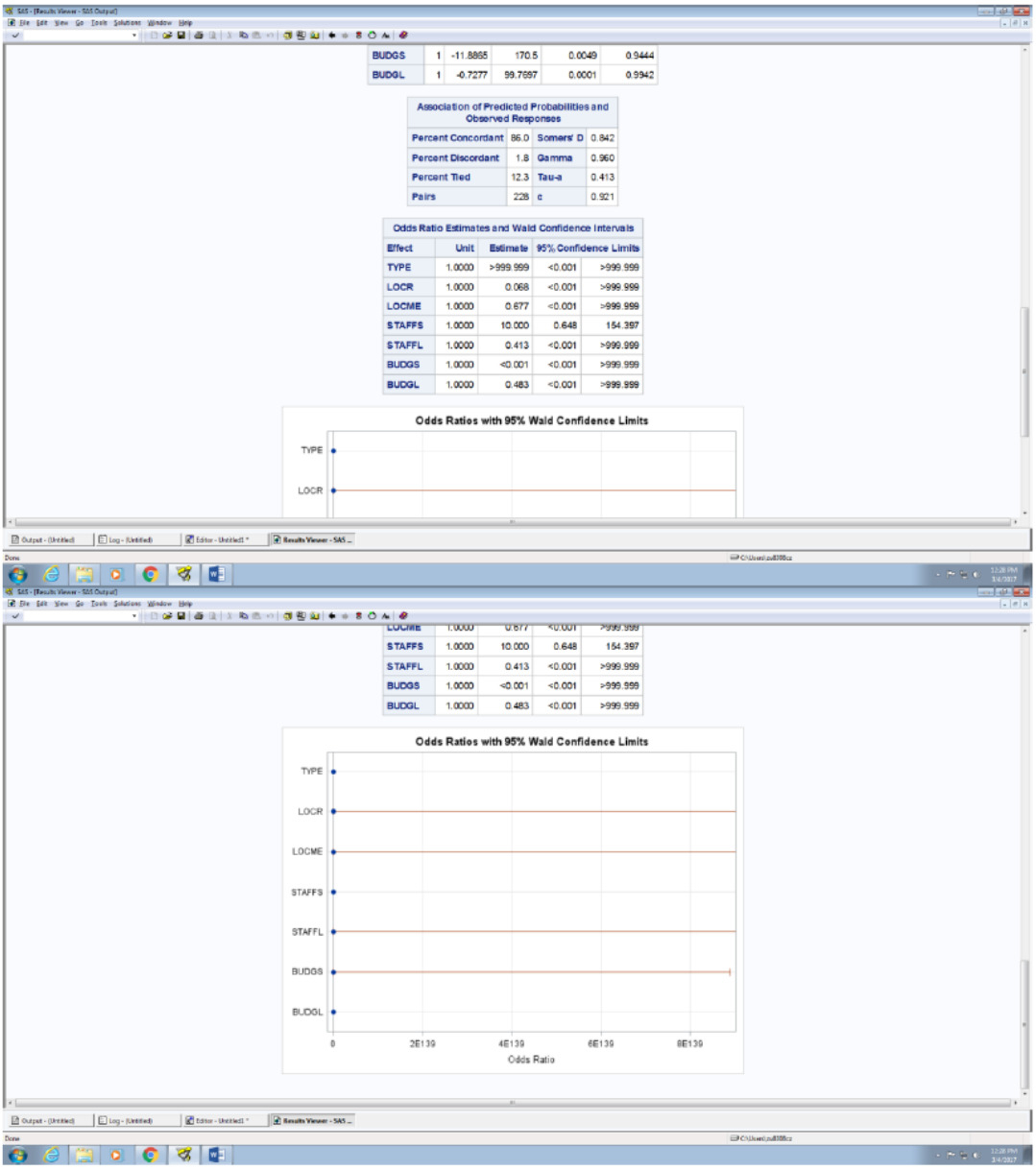
Odds Ratio Estimates and Wald Confidence Intervals



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Odds Ratio Estimates and Wald Confidence Intervals				
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LOCME	1.0000	0.677	<0.001	>999.999
STAFFS	1.0000	10.000	0.648	154.397
STAFFL	1.0000	0.413	<0.001	>999.999
BUDGS	1.0000	<0.001	<0.001	>999.999
BUDGL	1.0000	0.483	<0.001	>999.999

Appendix J: Institutional Review Board (IRB) Approval

ST. CLOUD STATE UNIVERSITY
EDUCATION FOR LIFE.

Institutional Review Board (IRB)

720 4th Avenue South MC 204K, St. Cloud, MN 56301-4498

Name: Reginald Edwards

Address 509 N Fifth St
Mankato, MN 56011 USA

Email: sovsystems.reggie@gmail.com

IRB PROTOCOL DETERMINATION:
Exempt Review

Project Title: Defining, Practicing, and Assessing Innovation by Minnesota's Local Government

Advisor John Eller

The Institutional Review Board has reviewed your protocol to conduct research involving human subjects. Your project has been: **APPROVED**

Please note the following important information concerning IRB projects:

- The principal investigator assumes the responsibilities for the protection of participants in this project. Any adverse events must be reported to the IRB as soon as possible (ex. research related injuries, harmful outcomes, significant withdrawal of subject population, etc.).

- For expedited or full board review, the principal investigator must submit a Continuing Review/Final Report form in advance of the expiration date indicated on this letter to report conclusion of the research or request an extension.

-Exempt review only requires the submission of a Continuing Review/Final Report form in advance of the expiration date indicated in this letter if an extension of time is needed.

- Approved consent forms display the official IRB stamp which documents approval and expiration dates. If a renewal is requested and approved, new consent forms will be officially stamped and reflect the new approval and expiration dates.

- The principal investigator must seek approval for any changes to the study (ex. research design, consent process, survey/interview instruments, funding source, etc.). The IRB reserves the right to review the research at any time.

If we can be of further assistance, feel free to contact the IRB at 320-308-3290 or email ri@stcloudstate.edu and please reference the SCSU IRB number when corresponding.

IRB Institutional Official:

Latha Ramakrishnan

Dr. Latha Ramakrishnan
Interim Associate Provost for Research
Dean of Graduate Studies

OFFICE USE ONLY

SCSU IRB# 1594 - 1992	**Type:** Exempt Review	**Today's Date:** 7/27/2016
1st Year Approval Date: 7/27/2016	**2nd Year Approval Date:**	**3rd Year Approval Date:**
1st Year Expiration Date: 7/26/2019	**2nd Year Expiration Date:**	**3rd Year Expiration Date:**