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A Public Private Sector Technology Strategic Initiative

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Abstract: Across the United States, there has been an increased demand for municipalities to manage taxpayer's funds and meet the citizens' needs. This paper describes how a county in New York State effectively implemented a public-private interface model to develop a dark-fiber network as a strategic initiative to enhance the county's competitive environment. This network would allow for all the towns and cities within the county, as well as key businesses within the county, to be connected through a high speed broadband network. The main purpose of this project is to create a county-wide fiber infrastructure that not only would improve telecommunications, competition, and reliability but also become a platform to enhance business development.

Keywords: Strategy, Public-Private Interface, Dark-Fiber

INTRODUCTION

This paper addresses the rationale and processes for the development of a municipal based open access dark fiber backbone which is designed to create telecommunications equality and technology-led economic development throughout Ontario County in New York State. It describes the efforts of the County Administrator, the county's Chief Information Officer and the county's Director of the Industrial Development Agency to develop a county-wide fiber-optic infrastructure not only to attract businesses and industry but, with future hopes, to meet the needs of individuals and citizens of the twenty-first century. While the fiber-optic ring is complete and has attracted limited businesses thus far, its projected impact is still on track for long term success. The project has garnished national attention. Many municipalities have attempted similar projects, but have not seen the success that Ontario County has experienced in the early stages of the project. The infrastructure was completed on time and below budget. Initial findings indicate that effective strategic planning followed by implementation of appropriate tactics leads to a higher chance of overall project success. However, the project has met some resistance since going live because of the lingering effects of the recent global recession

PUBLIC-PRIVATE PARTNERSHIPS

The public-private partnership concept has been in use in the world for over forty years, and has been growing at a varying rate with mixed success. Its popularity is due to the fact that governments are more and more eager to increase the quality and efficiency of public services, while facing insufficient budgetary resources to cover investment needs. Confronted with public spending restrictions, municipalities began to turn to the private sector as a source of funds. These public-private partnerships are based on the cooperation of a public entity with private entities aimed at mutual benefits. For this project, Ontario County attracted corporate financial investment for the implementation of a county-wide fiber optic ring with no taxpayer support or obligations.

Public-private partnerships (PPP) are "working arrangements based on a mutual commitment (over and above that implied in any contract) between a public sector organization with any other organization outside of the public sector" (D.W. Brinkerhoff & J.M. Brinkerhoff, 2011). These relationships are cross-sectoral but there is a shared effect between both parties to bring both commitment and competence to the table, thereby creating a classic synergy with the whole being more than the sum of the parts. These mutual agreements share the following features for both parties to enjoy the synergistic effect: Jointly determined goals, Collaborative and

consensus-based decision making, Trust-based and formal/informal relationships and Shared accountability for outcome and results

Brinkerhoff and Brinkerhoff state that public-private partnerships typically evolve from one or more of the following reasons:

- To enhance efficiency and effectiveness through a reliance on comparative advantages and a rational division of labor and resources
- To keep the tax rate at a stable position for years to come
- To move from a no-win situation to a compromise and a potential win-win situation. It potentially would be possible to continue without a partnership, but stakeholders within the county would continue to be dissatisfied and incur losses.
- To provide integrated resources and solutions where the whole will be better than the sum of the parts.
- To improve and open decision-making processes to promote a more formidable operation which would benefit the citizens of the municipality.
- To allow the public sector to avoid up-front capital costs and reduce public sector administration costs
- To allow risk to be transferred from the public to the private sector

However, as with most decisions, there is rationale against the establishment of the public-private partnership including but not limited to the following issues:

- May not achieve their intended public benefits due to poor implementation
- Citizens may not be aware of such partnerships and think the public and private sectors lack the appropriate skills to capitalize on long-term success
- May restrict competition and choice
- Increase costs to consumers
- Loss of jobs for existing workers when partnership is formed

With the rational for and against being formed above, infrastructure services, such as the implementation of the county-wide fiber-optic ring, can be delivered through the formation of the public-private partnership. The reason for this being is that, through various studies, it has been concluded that neither a purely public nor a purely private infrastructure development approach is likely to be sustainable in the long-term. A purely public approach may cause problems such as slow and ineffective decision-making, inefficient organizational and institutional frameworks, and lack of competition and efficiency, which are collectively known as government failure. On the other hand, a purely private approach may cause problems such as inequalities in the distribution of infrastructure services, an example of what is known as market failure. To overcome both government failure and market failure, a public-private partnership approach can incorporate the strengths of both the public and private sector (Kwak, Chih, Ibbs).

A public-private partnership is particularly attractive in those instances where there is strong demand for rendering services such as communication infrastructure, water supply, wastewater disposal and treatment, waste management, public transport, construction of cultural facilities, public administration buildings, hospitals, schools and even prisons but there is a lack of sufficient municipal capital to finance costly investments or to modernize inefficient infrastructure. This paper uses a case study approach to describe a potentially successful public-private partnership to develop a county-wide broad band infrastructure through collaboration between the county and private sector.

METHODOLOGY

This case study is based upon interviews with Ontario County's Chief Information Officer, Chief Administrator, Director and Officer of the Industrial Development Agency and Finance Committee Chair. Additional information was gathered by collection and analysis of the meeting minutes of the County Board of Supervisors and Access Ontario as well as the minutes of the County's Finance Committee, Planning and Research Committee, and Industrial Development Agency Committee.

Ontario County is located in Western New York State roughly 300 miles northwest of New York, NY, 30 miles southwest of Syracuse, NY, and 30 miles southeast of Rochester, NY. The area that Ontario County is

situated in is more commonly referred to as the Finger Lakes Region with the county touching Canandaigua Lake and Seneca Lake. Geographically, the county is 644 square miles, a majority of which is rural and suburban in nature. Ontario County is governed by a Board of Supervisors composed of representatives from eighteen (18) towns and two notable cities, Canandaigua and Geneva, which have populations of 11,264 and 13,617, respectively (U.S. Census Bureau, 2010). The total population for Ontario County in 2010 was 105,650, which indicates a five percent (5%) approximate population increase based on the 2000 Census results. On a micro-level, the median household income for Ontario County in 2010 was \$55,339 and per capita money income was \$21,533 as stated in the 2010 Census results.

Financially, the Ontario County government has been able to maintain a balanced revenue and expense relationship, while decreasing tax rates by more than seven percent (7.3%) since 2006 (Ontario County 2012 Budget). .. In 2011, county expenses were \$199,925,343, while revenues were \$211,749,975. (Wager, 2011) In order to remain financially stable and refrain from increasing the tax rate, the Ontario County Government utilizes the public-private partnership business models in order to fund county projects and initiatives.

On a business level, Ontario County has nearly 300 companies spanning six major industries, which include agribusiness/food and beverage, green industries, healthcare, manufacturing, small businesses, and technologies (Ontario County, 2011). The top ten employers span all industries and are listed in Table 1.

Table 1

Ontario County Top Ten Employers	
Abbey Industries /Ontario ARCS	Finger Lakes Racing Assn. Inc.
Constellation Brands	G.W. Lisk Co., Inc.
Clifton Springs Hospital	Hobart William Smith College
F.F. Thompson Hospital	Pactiv
Finger Lakes Healthcare System	Wegmans Markets

(Ontario County, 2011)

AXCESS ONTARIO

Originally named Finger Lakes Regional Telecommunications Development Corporation in 2005, Axxess Ontario was given its current name in December of 2009. The not-for-profit corporation was developed to give the county a group of individuals who would direct and implement the development of the fiber ring. The board consists of a variety of technologically savvy individuals as well as those with professional and leadership credentials and insight into a project of this magnitude. The development of a public-private partnership for the consideration of this study began in early 2000, when the idea for the fiber ring was developed. In 2006 ECC Technologies was hired as Project Consultants for Ontario County's Regional Open Access Telecommunications Model . As project consultants, ECC Technologies was tasked with the development of the Ontario County Fiber Ring Business Plan. This plan, completed in January of 2005, outlines the development, management and operations of a municipally supported telecommunications system within Ontario County, New York. The goal of this system is to support economic development, public safety, healthcare, education and telecommunications competition in this rural community. ECC technologies along with the administrators of the county found the need for an advanced telecommunications system and thus the fiber optic ring project began.

ECC Technologies is the sole provider of professional services to support the operation of Axxess Ontario's dark fiber network. The goal of ECC Technology's part of this relationship is to provide the day to day operational oversight and management of the dark fiber network as well as monitoring and maintaining the network assets. In addition to these services, ECC Technology will oversee the adherence to FCC regulations to ensure the fiber optic network continues to meet the goals set forth by the County.

ECC Technologies has been the foundation for all that Access Ontario has achieved thus far in the development of the fiber ring, having worked with them from project concept to implementation. Under Access Ontario's direction, ECC Technologies has successfully completed the following initiatives thus far in their working relationship:

- Design and construction of nearly 200 miles of backbone and lateral fiber in the county.
- Development of revenue sources (\$3,441,174) by developing relationships with clients who are executing long term contracts (Table 2)
- Maintenance of installed fiber including response to and correction of fiber damage (Access Ontario, 2011)

Knowing how critical it is that Access Ontario is able to support its carrier (Verizon Wireless) and enterprise (Thompson Health) customers, ECC Technologies has been an integral part to the development of the company thus far, and will continue to be for years to come. Not only is ECC Technologies vital in terms of the long term development of Access Ontario but it also provides the following services which will ease the maintenance burden off Access Ontario:

- Budget development, forecasting and reporting
- Create and oversee sales, changes/add-on to current service
- Billing
- Manage day-to-day operations therefore allowing the Access Ontario CEO to focus on strategic initiatives
- Implement the strategic initiatives as described by the Access Ontario CEO and Board of Directors
- Implement operational tools

WHY FIBER OPTIC

An Ontario County telecommunications study was conducted, and defined the telecommunications industry within Ontario County as segmented and diverse. The county had five different phone companies, two different area codes, and the lack of a truly developed sustainable telecommunications infrastructure. The survey that was handed out had focus groups representing education, municipalities, healthcare, and business. Major issues that were brought up by these groups include the following:

- The Ontario County Healthcare community identified network reliability as a major telecommunication issue that must be taken care of. Participants of the survey indicated that frequent outages were experienced which could prove to be fatal in the healthcare industry. Additionally, lack of affordable services to some of the rural areas of the county were seen as having a significant negative impact on the healthcare community
- The Corporate and Business segment expressed major concerns regarding the high speed network connections available to the home. Specifically, technology based businesses within the county are putting a greater emphasis on having the ability to have high-speed connections to the home. To further solidify this point within the study, two employees who participated in the study, considered moving to Monroe County to have access to more reliable and faster broadband network
- Education institutions within the county are, for the most part, satisfied with the current service being offered to them. The major concerns these focus groups identified were redundancy and diversity.
- The municipalities who participated in the focus groups also came to the general consensus that their telecommunication desires were met. These entities thought that the telecommunications industry within Ontario County needs to spend more time on understanding and providing telecommunications to the business environment. The responses from the above corporate and business focus group would support this.
- The general consensus when viewing the results of the study was that, in general, most sectors were content with the service being provided, but, nonetheless there were a number of issues that still needed to be addressed. These main issues deal with redundancy, reliability, telecommunications competition, affordability and availability of services in rural areas.

Although the survey requested information from a variety of different sectors, the main sector in which this project would benefit is the business sector. The healthcare industry, municipality industry and education industry reported they were satisfied with the services, but could require attention down the road. However, the business sector raised some major issues, such as re-location due to a lack of a reliable telecommunications infrastructure, so this requires immediate attention. With the educational and healthcare sectors already fixed within the community, they don't require the attention that the business sector does. They have much more freedom to locate elsewhere which could prove devastating to the long-term development of the county.

While the origination of the county-wide project began with the county's Chief Information Officer, elected and appointed county officials were deeply involved in ascertaining and defining the potential costs and benefits of the project. County administrators realized that if the county was to achieve *sustainable* economic growth into the future, they needed to implement a new system that would produce the results that the people within the county desired. To achieve this goal, they looked for the fastest and most effective system that they could find which led them to the idea for a fiber optic ring. Internet users throughout the county were noticing performance issues due to the internet overload and the increased size of files and data being transferred. The need to close the "digital divide" was imminent in order for the county to continue to be successful and experience *sustainable* economic development. Mike Manikowski, director of the county's Industrial Development Agency (IDA) believed that "If we didn't have broadband, we would be behind the 8-ball" for economic development.

Knowing how pressing the need was for more reliable internet infrastructure, Ed Hemminger put together a seemingly impossible idea he had in the early 2000's to fruition in 2006. Hemminger wanted to hang fiber optic strands throughout the entire county, which would connect all municipalities as well as healthcare, education, and critical businesses. Hemminger, Astles, Manikowski and the other administrators put together a presentation for the county's board in order to convince them of the need for the fiber optic ring. The administrators knew that they needed to present their ideas in such a way that the board would see the benefits that would be derived from the project. Two of the most important aspects of their presentation were that the ring would go through all towns and hit all municipalities and the project would help the digital divide.

Once the idea of the ring and the need for it within county was agreed to, the task of deciding how to engineer the design presented itself. Initial implementation of the ring started with three potential alternatives. The first idea was to build the ring piece by piece over time. This posed the question of "what if we start and never finish" and allowed too many decisions to be made along the way. The second idea was to connect only the northern half of the county where most of the population and businesses reside. The third and most prominent idea was to connect the entire county all at once. The third idea would keep the entire county connected, allow for the county to grow economically and technologically as a whole, and would potentially connect all surrounding counties in the future. A driving factor in accepting the third plan was the potential for a stable lasting system stretching from the New York State Thruway in the north to US Interstate Route 86 to the south.

ACCESS ONTARIO FUNDING

In order to successfully construct the fiber optic ring and cover initial operating costs, the chief executives of Ontario County driving the project needed to find initial funding. The original estimate for the completion of 200 plus miles of the ring was \$7.5 million, as estimated by ECC. Due to the desire of the Ontario County government to avoid subsidizing taxpayer dollars for county projects, several alternative funding opportunities were utilized to secure the necessary capital for the project. A public-private interface capital model was utilized using county funds and private sector capital. Ontario County provided the capital for the fiber optic ring project. The county's elected Board of Supervisors Directors approved a one million dollar loan at zero percent to finance the initial design and development of the ring. In addition, an additional one and a half million dollars was provided to use the fiber ring for the next 25 years.

In 2007, Empire Pipeline, a National Fuel Company, approached the Ontario County government to negotiate the construction of 77 miles of pipeline connecting the northern gas pipeline in Rochester, New York

to the southern tier pipeline in Corning, New York. The most logical and financially feasible construction for the new pipeline would lead the pipeline directly through the heart of Ontario County. Being opportunistic, executives in Ontario County worked with Empire Pipeline to negotiate the terms of Empire Pipeline building their pipeline across the county. The negotiated contract enabled Empire to begin construction, while Ontario County received \$4.5 million through a payment in lieu of taxes (PILOT) arrangement. PILOTs are setup to compensate a local government for some or all of the tax revenue (usually property tax revenue) that it lost because of the nature of the ownership or use of a particular piece of real property. The Ontario County IDA organized this arrangement and the \$4.5 million was re-directed for funding of the fiber optic ring. (Hemminger, 2009). In addition, the Ontario County Board of Supervisors has committed \$12 million of public funds (over 25 years) to support the fiber optic ring, indicating the high commitment of the county to the success of the project (Acess Ontario, 2011).

After initial funding was secured from the Ontario County Board of Directors and the Empire Pipeline deal, construction of the fiber optic ring began in 2007. ECC was responsible for the design and construction management of fiber optic ring and contracted Syracuse Utilities to build the ring. The fiber optic ring was completed under budget in December 2010. The final cost of the project was \$5.5 million.

Since the completion of the ring, ECC Technologies, on behalf of Access Ontario, has secured in total more than \$3.4 million through long-term contracts (Table 2). ECC has also targeted several other key potential customers and are pursuing those opportunities.

Table 2

Revenues secured through long-term contracts and customers	
Verizon Wireless	\$2,165,305
Iberdola, USA	593,895
FLTG	404,063
TW Telecom	180,000
Finger Lakes Community College	60,000
Thompson Health	37,912
Total	\$3,441,175

CURRENT PROGRESS AND FUTURE ENDEAVORS

In December 2010, after almost three years of construction, Aaccess Ontario announced the completion of the dark fiber ring around all of Ontario County. The length of the completed ring is over 200 miles and passes through each town in the county. Although the ring was over 20 miles longer than they had expected, the project was completed on time and well under budget. Most of the ring was constructed above ground, on preexisting telephone poles, due to the fact that above ground fiber is easier to maintain and more cost efficient to construct. The average cost to hang the fiber is over \$60,000 less than the average cost to bury the fiber.

Aaccess Ontario has developed two different business models in order to promote leasing and use of the ring. The Service Provider Model leases portions of the ring to telecommunication service providers who will provide connection to businesses and homes. The Point-to-Point Model is directed toward private users. For example, colleges, hospitals and municipalities could use the ring for their own private network. Verizon follows this model through their cell towers. The county took out a loan to build the ring to Verizon towers and Verizon will pay them back.

These two models provide a stable form of value engineering that give the county optimum benefit and management of the fiber ring. Through the Point-to-Point Mode, Verizon has saved eighty percent (80%) on their telecommunication costs and there is hope that more service providers will see the benefits of the ring and work with the county. Although it is difficult for a small not-for-profit organization to collaborate with such a large company, the county is anticipating that they will gain support of AT&T in the next few years.

Since the completion of the ring there has been increased interest in access and usage by businesses stimulating large economic benefits; businesses have relocated operations in order to be in closer proximity to

the ring. Rochester Gas and Electric has connected its operations to the ring and it now able to read their data more quickly and give customers more efficient service. Discussions have been made with New York State Electric and Gas to potentially sign with Access Ontario to connect to the ring as well.

Aside from connecting more businesses to the ring and leasing segments, the goal of Access Ontario is to bring the fiber to individual residents of the county. The costs of connecting fiber to each home from the ring are insurmountable without the support of private companies. It would be ideal for companies such as Verizon or AT&T to provide the funding for the connection, but there has been little progress thus far. Individual users have expressed the need and interest in the fiber-to-the-home project and there is hope that an acceptable business strategy will be accepted in the near future.

CONCLUSIONS

The fact that Access Ontario constructed a fiber optic ring around the entire county without the financial support or goal of competing with private companies has made the administration a target for positive inquiries from across the entire country. The FCC has even indicated that the work done in Ontario County is a potential model for their broadband initiative (Opsahl 2010). Projects such as Access Ontario's have been attempted in various other cities and states, but the business strategy of Access Ontario is extremely progressive. The county's elected and appointed officials wanted to decrease the digital divide throughout the county with the support of the private sector. Through the use of Public Private Partnerships, Access Ontario has created a broadband telecommunications infrastructure that is anticipated to be one of the engines for economic growth. However, key issues to address in the future are first, to identify whether or not this technological infrastructure will attract commercial customers to finance the operational aspects, and, second, to ascertain if this project provides an economic advantage for the county for businesses and homeowners.

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