Examining the Role of Business Intelligence in Non-Profit Organizations to Support Strategic Social Goals

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Abstract

Many non-profit organizations have prioritized the need to be transparent in operating procedures, allocation of funds, and the impact of programs aimed at reducing social issues. In an effort to support this practical business need, we highlight how non-profits utilize information systems (IS) to support their strategic social goals through a case study. We examine business intelligence (BI) practices at a United Way affiliate that created new knowledge on the impact of its programs in the community. The United Way affiliate derived value from the organization’s utilization of an integrated data system which provided visual and spatial map analyses and traditional analytical reports. We examine the relationship between BI-facilitated intellectual capital and its resultant impact on the non-profit’s social goal. Lastly, we discuss lessons learned and provide recommendations for other non-profit organizations engaging in BI practices.

1. Non-Profit Organizations and the Potential for Business Intelligence

The social sector is an important part of the American economy, where there are over 2.3 million non-profit organizations that employ 13.7 million people. Non-profit organizations contribute $804.8 billion to the gross domestic product (GDP), totaling approximately 5.5% and generate $1.51 trillion in revenue, $1.45 trillion in expenses, and $2.71 trillion in total assets [14]. Non-profits focus on impacting society by reducing the negative impact of reoccurring social problems. Examples of social problems include education inequality, chronic homelessness, or the negative impacts of poverty. These complex social problems continuously occur in society, require collaborative intervention by numerous actors, and are not easily resolved [11].

As evidenced in this article, non-profits have begun to explore innovative applications of IS to tackle the complex social problems that they aim to impact. Non-profit organizations are aiming to engage in strategic decisions that can support further attainment of organizational social goals. However, making the connection between an organization’s technological investments and usage with the non-profit’s organizational performance is tenuous and difficult. Business Intelligence (BI) proves to be particularly useful in this endeavor because its sole purpose is to improve decision-making and provide insight into areas important to the organization’s performance.

BI has emerged as a way for organizations to perform analysis and prediction to gain a deeper understanding of its respective business environment and non-profits are starting to capitalize on these capabilities. BI is a broad selection of various technologies, applications, and processes that businesses utilize to gather, store, and analyze data to improve decision making capabilities [18]. According to a 2013 Gartner CIO survey, analytics and business intelligence are the top technology priorities for businesses in the for-profit organizational context. Additionally, there is expected growth in the BI market from $8.5 billion in 2008 to $12 billion in 2014 [18].

2. The Emergence of Business Intelligence

For organizations, the promise of gaining insight into current business operations and new avenues is enticing. A recent review of IS trends and management issues noted that BI has been consistently ranked as the number one priority for organizations across the globe for the last five years [9]. BI can provide access to new forms of data visualization, pattern recognition, and “improvement of business processes, and support for the accomplishment of strategic business objectives” [17]. For-profit organizations have reaped the benefits of investing in developing their BI technology and capabilities. However, historically, the social sector lags behind the for-profit sector in technological advancements. There are many factors that can be looked at as contributing to the lag,
including lack of resources, pressure to spend a majority of donated funds on outreach activities, and a predominately rotating volunteer staff.

Recently in the non-profit sector, organizations have begun to consider various BI application options, such as Altosoft or Tableau [2]. Decreases in the cost of BI applications, improved access to technology and a reduction in data integration and tool usage issues has significantly reduced the barriers that previously hindered non-profit organizations from engaging in BI practices [2]. Additionally, non-profits are creating strategic partnerships to engage in BI practices that allow them to delve deeper into the social issues of their target communities. Therefore, it is essential that IS researchers examine how BI applications are utilized and how BI practices are developed in the non-profit sector.

It is notable that engaging in BI practices and reaping its benefits does not happen overnight. BI must be carefully and strategically woven into the core of the business and the culture of the organization, sometimes requiring a lengthy start-up time. BI, like many other technologies and analytical tools, evolves and matures over time [3, 7]. As evidenced in the for-profit sector, there are at least three stages of BI and analytics [3], ranging from (1) database management systems and structured content to more complicated (2) web-based unstructured content to the highly complex (3) mobile and sensor-based content. BI in the non-profit organizational context resembles the early stages of BI in the for-profit sector. This staged-approach to the evolution of BI is also the likely cause for differential benefits that businesses reap when engaging in BI practices.

BI can be described from a data processing perspective as “a process that includes two primary activities: getting data in and getting data out” [17]. The term BI is applied when referring to data that is extracted from a system and then used to make organizational decisions. Alternatively, BI can be viewed from a systems perspective where specific business tools combine traditional system-related concepts, such as “data gathering, data storage, and knowledge management,” with analytics to produce information critical for decision-makers [12]. Though the term BI has been used in varying ways, a mainstay of its usage in IS literature focuses on its ability to take vast amounts of data from various sources and provide actionable information for managers.

We examine BI from a process perspective which entails a more holistic view of how organizations use innovative systems and analytic techniques to attain insight into complex internal or external issues and identify action steps to improve the state of affairs. BI is not simply procuring special technology; it entails utilizing the technology to take action [18] towards improving the current state of affairs. Additionally, the benefits gained from BI are not instantly acquired. Many organizations invest in BI with the hopes of tangible benefits as a result of the initial investment sometime in the future [12]. Further, these BI benefits can range from tangible impacts such as cost and time savings for related to data collection and analysis, to intangible impacts such as the “support for the accomplishment of strategic business objective” [6].

In this article, we describe the role of business intelligence at a United Way affiliate organization. In our case study research, we interviewed representatives from the United Way affiliate organization. We also interviewed representatives from UW’s strategic partner organization (referred to as BI Company) that created the database and managed the data collection and analysis of the BI initiative. We examined the interview data and reviewed numerous documents produced by both organizations in order to understand the intricacies of the organization’s BI practices.

3. The Role of Business Intelligence in a United Way Affiliate’s Social Goal Strategy

The United Way (UW) affiliate is a medium-sized, American, Southeastern non-profit organization. UW has been in business for over 80 years under a well-known charitable brand and recently raised approximately $17 million dollars in the 2011-2012 fiscal year. UW focuses on three social areas: Children & Youth, Housing & Stability, and Health & Mental Health. UW collaborates with over 80 Partner Non-profit Agencies (PNAs) to provide programs to address the three social issue areas in these five counties.

UW conducts an annual survey to identify issues that are important to its local communities. The survey results identified education of children and youth as the most important priority in the community. In 2011, UW began a pilot initiative in the Children & Youth social issue area to assess the collective impact that its programs were making in the community. This 10-year initiative is aimed at increasing the graduation rate for at-risk low-performing students. UW partnered with a 3rd party organization (BI Company) to utilize an integrated data system that would link data on individuals...
across multiple government agencies and program service providers.

3.1 United Way Engages in a Collective Impact Social Goal Strategy

Many non-profit organizations operate in a traditional approach to impacting social change. These non-profits fund or provide programs that have activities aimed at reducing the negative impacts of a particular social problem. United Way Worldwide has encouraged all of its affiliate organizations to adopt a new model of social change – Collective Impact. Collective Impact involves coordinating efforts amongst a set of organizations to foster collaboration and focus on the same outcomes. More specifically, Collective Impact is a “systemic, data-driven approach to solving a complex social problem that involves a community wide group of organizations” [4]. The organizations involved in the Collective Impact model must all share a common agenda, measurement systems, mutually reinforcing activities and relationships. The potential impacts from a collective impact model include “heightened vigilance from multiple organizations” focusing on the same social issue, “rapid learning … and immediacy of action” [8].

UW decided in 2011 to adopt a Collective Impact model of social change. Collective Impact is a strategic approach to social change which focuses on a “concentrated and purposeful funding model” [4]. As previously mentioned, education was identified as the greatest need in the target locale. More specifically, UW identified a goal to increase the graduation rate for at-risk, low-performing students serviced by United Way programs. This required UW to engage in a 10-year long initiative to assess the performance of students (ranging from preschool to high school) who receive education-related services from 16 PNAs.

UW partnered with BI Company in order to engage in its Collective Impact effort. BI Company serves as the backbone organization by supporting and facilitating UW’s Collective Impact efforts. More specifically, BI Company coordinates and maintains a shared integrated data system (IDS) that allows for the assessment of the long-term outcomes for PNAs. BI Company worked closely with all 16 PNAs to improve data collection efforts in order to support individual-level data gathering for the analyses that would take place.

3.2 Developing the Necessary Information Systems

The integrated data system that supports the Collective Impact effort is housed and maintained by BI Company. IDS are systems that contain data from multiple agencies, are developed as a general utility (not for any specific initiative), and involve individual-level record linkage. The last criterion has proven to be the most complex and controversial aspect of IDS because it requires various levels of legalese to support this aspect of data collection. BI Company’s IDS is a SQL-based database created in 2004. Table 1 highlights the components of the United Way’s BI initiative.

<table>
<thead>
<tr>
<th>Strategic Approach</th>
<th>Collective Impact</th>
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<tbody>
<tr>
<td>Key IS</td>
<td>BI Company’s Integrated Data System (IDS)</td>
</tr>
<tr>
<td>Data Sources</td>
<td>16 Partner Non-profit Agencies (PNAs)</td>
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<tr>
<td></td>
<td>- Data from 15 service programs</td>
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<td></td>
<td>1 Government Agency</td>
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<td></td>
<td>- Data from County School System</td>
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<tr>
<td>Description</td>
<td>- BI Company’s employees aggregate and analyze data deposited into IDS</td>
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<td></td>
<td>- BI Company provides reports to Partner Non-profit Agencies (PNAs) on program impact and to the United Way Affiliate on impact of all programs collectively</td>
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<td>Impact Assessment</td>
<td>- Program Impact</td>
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<td>- Collective Impact</td>
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BI Company provides UW with an aggregate-level report that speaks to the collective impact the agencies are having on the target population. BI Company also provided visual data analysis through using spatial map analysis to dig deeper into understanding where the social needs are the greatest. The 16 PNAs receive individual reports that speak to the impact that their programs are having on the community. Over the course of the 10-year initiative, UW will be able to develop deep insight into the education-related issues within the community and how its supported programs are impacting those issues.

Table 1. Details of UW’s BI Components
Figure 2. Data Collection in UW’s BI Process

Figure 2 graphically depicts the long-term data collection process in UW’s Collective Impact process. BI Company has a long-term relationship with the County School system and the 16 PNAs to collect data deposits into the IDS. After significant efforts are taken to ensure data quality from the data deposits, BI Company’s employees analyze the data once each record has been linked on an individual-level. The individual-level results are then aggregated in order to preserve the privacy of UW’s program participants. These aggregated results which highlight the impact of individual programs and the collective impact of all programs are provided to the 16 PNAs and UW.

3.3 Managing the Integrated Data System

BI Company managed the setup and maintenance of the IDS which supports UW’s social goal strategy. In the process of setting up the IDS, BI Company encountered difficulties in two areas: Database Architecture and Data Governance and Security.

3.3.1 Database Architecture. BI Company encountered numerous issues in its development of the database architecture. BI Company does not specialize in database management or information systems. UW chose BI Company because it focuses on supporting “social and human capital research and to increase the community’s capacity for data-based planning and evaluation” [16]. Those services include serving as the back-bone organization that provides the technical support structure for collecting data from multiple entities and analyzing the data to gain deeper insight into those social problems.

In the early stages of the database development, there was a challenge in how the data from multiple entities would be linked together in the database. Each of the 16 PNAs had its own process for collecting data and there was little uniformity amongst them. The county school system had a unique identifier for each student but this information was not collected by the PNAs. Due to inconsistent data points from the participating entities, the database architecture was not properly configured to support the process for linking the data on an individual-level.

We believe these setbacks were due to the use of contract IS developers, rather than a dedicated employee within BI Company. In May 2013, BI Company hired a dedicated database employee who manages modifications and ongoing updates to the IDS. The new database employee was tasked with restructuring the architecture and re-configuring the individual-level data matching process.

3.3.2 Data Governance and Security. BI Company placed numerous safeguards in place to ensure the security of the highly sensitive and private data collected from the PNAs and county school system.

There were two levels of security. The first-level of security required researchers to secure a data license request (providing access to the data) from an oversight committee tasked with governing all of the collected data. The committee ensures that predetermined policies and procedures, based on an agreement between the data depositors and BI Company as to how the data can be used, are closely followed. The second-level of security focused on the physical security of the system, where there is only one access point terminal and only one individual is authorized to access the database. These levels of security added a significant time lag between when BI Company received data deposits and when it provided the analyzed reports to the PNAs and UW. For example, it took approximately 4-5 months to receive data from the data depositors, 6 months to request and receive access to the data, and 6 months to pull, clean, and analyze the data. A BI Company representative stated this highly secure process made the database ‘too secure to function.’

BI Company determined that there were some modifications that could be made to streamline the entire process, making access to the data more feasible. However, all of the safeguards were put in place for a reason. BI Company collects individual-level data from federal, state, and local governments, and non-profit program providers. All parties involved are greatly concerned with keeping data de-identified in order to ensure the data privacy of social program participants. BI Company is still currently developing options to address the duality in priorities.
4. The Development of BI-facilitated Intellectual Capital

As stated before, BI is a broad term that encompasses a great deal of business-related computational and analytical systems and processes. It can provide organizations with great insight into its business environment and highlight new avenues for strategic actions. Intellectual Capital (IC) is a term that has been applied to describe the intangible resources and assets that allow an organization to excel strategically. More specifically, IC is intellectual material that has been transformed into a more valuable asset. Intellectual material includes knowledge, information, and experience which can be applied for wealth building [15]. BI has the potential to provide non-profit organizations with knowledge that supports their strategic efforts to impact social change on a social issue or problem, rather than for wealth building.

Organizational knowledge creation is essential for non-profit organizations as they are able to leverage knowledge in the approaches that they employ to impact change in the community. Organizational knowledge creation “involves developing new content or replacing existing content within the organization’s [knowledge set]” [1]. It also includes recombinations of existing knowledge which can lead to new avenues of strategic actions for the organization. Knowledge creation in the non-profit context provides organizations value through how the knowledge is applied towards the non-profit’s social goal or mission. Through engaging in BI activities, non-profits are able to create value in the development of new knowledge, recombination of existing knowledge, and application of knowledge on targeted social problems. IC is a form of tacit knowledge within an organization that uniquely taps into the way that BI supports knowledge creation and application in the non-profit context.

IC has three sub-dimensions: human capital, structural capital, and relational capital. Human capital refers to the “skills, competencies, and abilities of individuals and groups” [15]. The intelligence of the organizational members allows organizations to continually learn, innovate, and revamp their strategic efforts. Structural capital refers to the “knowledge assets that are property” [15] which include the mechanisms, processes, and procedures that are embedded in the organizational structure. Relational capital refers to the “value of relationships with suppliers, allies, and customers” [15]. More pointedly, relational capital is the knowledge that is embedded in ex-firm association, produced from external organizational links.

These three sub-components intersect and overlap with each other in how they are created, developed, and leveraged [21]. It is not merely the existence of these concepts in a non-profit organizational setting but in how they are inter-related to create a unique set of knowledge assets for the organizations involved. The business value in non-profit BI utilization lies in the potential for how knowledge gained has been or can be applied towards the non-profit’s strategic goals. Figure 3 is a graphical depiction of the interaction between IC components in the value creation process for non-profits [10]. Value is created through the support of the development and application of BI-facilitated strategic decisions that impact social goals.

4.1 Impacts on UW’s Intellectual Capital

Using the aforementioned IC framework, we discuss the value-generating impacts experienced by UW as a result of engaging in BI practices.

4.1.1 UW’s Human Capital. UW’s Organizational members include those within UW and its PNAs, as it operates as an alliance to effect social change within the community. Through engaging in the Collective Impact approach, there was a noticeable change in the knowledge set of UW’s organizational members. In order to support individual-level data analysis, each of the 16 PNAs had to revamp the way that they collected data from program participants. In the past, the PNAs collected any data that generally addressed any of the social goals identified by UW. The Collective Impact approach required all PNAs to collect the same data for the same goals. BI Company had to send its researchers to each of the 16 PNAs in order to ensure that the data was being collected appropriately. In many cases, BI Company
provided technical support to the PNAs through creating spreadsheets, revising forms and applications, and revamping intake processes to support the proper collection of all required data points. The level of data-related and technical expertise required to engage in the social goal strategy of Collective Impact was outside the knowledge set possessed by UW and PNA employees. Thus, UW’s partnership with BI Company expanded its organizational knowledge set and improved the strategic reach of its initiatives.

4.1.2 UW’s Structural Capital. The IDS that supports the BI efforts is located on the property of BI Company. However, the sole purpose of the IDS is to support an “increase in the community’s capacity for data-based planning and evaluation” [13]. Simply focusing on the physical asset aspect of organizational capital is an antiquated approach to understanding the role of information systems in organizational practices. The entire Collective Impact approach is supported by the IDS. Yet, UW does not have any rights to the IDS itself; it doesn’t need to maintain ownership over the IDS. UW finds its value in the documents and artifacts that are a result of the application of the IDS in its organizational setting.

4.1.3 UW’s Relational Capital. This aspect of intellectual capital is particularly applicable in the non-profit context. The Collective Impact approach requires a high-level of collaboration with multiple entities across multiple systems. Any of the 16 PNAs would not be able to, on their own, gather and analyze the amount of data that Collective Impact requires. It is in the unique combination of UW, its 16 PNAs, and BI Company that it is able to achieve an in-depth analysis in to the communities that it serves. For example, UW was able to obtain visual mapping of the locations of its participants and programs and identify a relationship to city-wide child poverty statistics. BI Company created spatial maps using data collected and analyzed from the PNAs and a 2010 American Community Survey on 5-year estimates of child poverty. The spatial map analysis provided UW with the knowledge that 41.8% of its service locations were in areas with child poverty rate over 30%, yet there were few program locations in areas that suffered from high child poverty (over 50%). Armed with this knowledge, UW can now strategize its actions to address these concerns, whether through advocating for more funding for these areas or through supporting PNAs in expanding service locations. This knowledge is not simply for UW but shared with the community, the PNAs, and government agencies. Thus, UW gains value from investing and engaging in the BI process – the high level of data collection and analysis resulting in actionable knowledge – which is primarily supported by these inter-organizational relationships.

4.1.4 Interaction of IC Components. Engaging in a comprehensive BI initiative at UW has required its organizational members to further develop their skills, specifically related to identifying ways to measure the impact in UW social issue areas. There was a great need to interact with outside entities to better understand what data each party could provide and how the data would lead to the overall outcome of interest. For example, UW developed logic models that map targeted goals (aimed at the overall goal of increasing the graduation rate) to viable outcomes and measurement indicators for those outcomes. One of those targeted goals is to “increase [the] number of students who benefit from mentoring experiences.” The outcomes are that “Students have a positive experience with their mentor” and that “Mentors positively influence school-related behavior and activities.” To assess these outcomes, UW identified the following indicator: “# / % increase in attendance and positive school behavior of students who are assigned a mentor. The BI initiative required UW to request this information from BI Company, who then developed a data sharing relationship with the county school system in order to get attendance records on those students who receive mentoring services from a PNA.

The focus here is not simply on the knowledge created by the UW or BI Company or on the knowledge resources that are established through the network that is required in the non-profit BI process. The focus is also on the interaction between the two which enables UW to develop action-oriented knowledge. In the previous example, if the results of the data analysis show that over time these mentoring services are improving school attendance rates, even amongst other extraneous factors, UW can strategize to improve other locales where these types of programs can make an impact. Prior to the BI initiative, UW only had anecdotal evidence that addressed the impact of mentoring programs. This type of targeted knowledge of the collective impact that a particular program has in a community is extremely valuable to the organization because it is directly connected to the social goal of improving the graduation rate.

Throughout the BI initiative, UW organizational members had to develop documentation during the BI process that provided value to the organization and
the community at large. As mentioned before, UW developed a logic model to map the social goals, outcomes, and indicators that would drive the assessment of the Collective Impact effort. This documentation is different from the documentation that BI Company developed in the process. Through the BI initiative, UW was able to identify the common pitfalls and notable success that occurred while implementing the Collective Impact model. UW developed a process for identifying the overall social issue that it aims to address; identifying goals, outcomes, and indicators that address the social issue; identifying the entities that can provide data that supplements the assessments of program impact; and working with BI Company to build the relationships with those external entities and analyzing the data into aggregate form which provides meaningful information. Additionally, UW gains value from the utilization of the IDS. This system provides the capability of linking UW service participants with data retrieved from government entities.

Throughout the BI process, there was a great deal of knowledge sharing that occurred between UW, its PNAs, and BI Company. Initially, UW met with the PNAs to explain the Collective Impact initiative and discuss the potential benefits from more in-depth data collection and analysis. However, it was not initially determined that BI Company would have an integral role in providing technical assistance to the partner agencies as the state of the agencies’ data collection methods was not up to par. As UW progressed in the BI process, this deficiency was identified and appropriately addressed. Further, the outputs of the BI process – an effort by all three organizational members (UW, the PNAs, and BI Company) – take the form of text-based reports, data visualization maps, and spatial map analyses. These results provide an in-depth analysis on the impact of UW programs at a collective level. For example, UW was able to identify four high schools with the lowest graduation rates and analyze them further. UW assessed a spatial map that compared the reading proficiency of elementary and middle schools that feed into those poor-performing high schools. This resulted in identifying that the reading proficiency of three out of the four high schools were below grade level. Another spatial analysis map highlighted the location of UW programs in the vicinity of those elementary, middle, and high schools. UW identified at least two schools where students had low reading proficiency and where no UW programs were offered. This highlighted opportunities where UW programs could expand into and possibly redirect resources, in order to ensure wide availability of programs to those students in need. This BI-facilitated knowledge provided insights that tie directly to UW’s high school graduation rate social goal and enable UW to better strategize towards its goals.

5. Lessons Learned by UW

BI practices are integral to the Collective Impact social goal strategy. In fact, it is the central way for matching data collected on individuals from multiple stakeholders, such as PNAs and government agencies. UW’s partnership with BI Company and its utilization of the IDS are at the core of the Collective Impact social goal strategy. There is a great deal to be learned from the successes and setbacks that UW faced as it engaged in BI practices.

5.1 Procure Financing

The Collective Impact initiative requires significant financial support, whether the non-profit chooses to create an in-house IDS or partner with a 3rd party organization. In UW’s case, it contracted BI Company to conduct the Collective Impact initiative over a 10-year period. BI Company included in the contract payment for product development, technical support provided to PNAs, and data analysis and reporting. The fees included an initial setup cost with an additional amount to be paid on-going each year. Non-profits are extremely restricted in spending and prioritize all efforts that help maintain a low overhead ratio. UW was able to procure grants to support the BI initiative. As the economy continues to slowly recover, other organizations may find it difficult to secure funding for BI initiatives.

5.2 Define Common Outcomes

Prior to beginning the Collective Impact social goal strategy, UW identified a high-level goal in a social problem area. This is the preliminary step that is needed in order to support collaborative initiatives by the Partner Agencies. There are numerous stakeholders that are involved in the Collective Impact approach, including government agencies, 3rd party data management entities, and partner non-profit agencies. For example, UW’s high-level goal is to “increase the graduation rate for at-risk, low-performing students.” It is essential to involve many stakeholders in this process in order to ensure that it is relevant and attainable. UW utilized its annual community survey to identify this goal. UW aims to replicate the Collective Impact social goal strategic approach in the Health and Human Services social issue area. Therefore, it has refined its approach to
defining shared outcomes and measures in an effort to support replication. Since its inception in 2011, UW has gone through the Collective Impact process at least twice and learned from minor tweaks and adjustments that were made.

5.3 Collect Common Data

Collecting common data required UW to use a shared data measurement approach that had the capacity to store the data that PNAs collect from program participants and related data from various government agencies in a highly secure and private information system. Examples of government agencies include Department of Family and Child Services, Department of Social Security, School systems, law enforcement agencies, etc. BI Company noted that due to the recent changes in federal laws (e.g. Freedom of Information Act), there were fewer challenges in getting data from government agencies. UW mitigated many of the typical concerns that non-profits have with data management by using a 3rd party provider to store and analyze the data, ensuring privacy, security, effective management, and impartiality in the analyzed results.

5.4 Analyze Common Data

Analyzing the common data is where the efforts in the previous steps pay off. The analyzed data provides insightful information on the effectiveness of evidence-based programs and services. The analysis also provides opportunities to consider increasing capacity for high-performing programs and revising funding strategies based on evidence of community impact. This approach greatly improves the quality of insight into the issues and solutions in a community as both qualitative and quantitative information is gathered and analyzed on program participants. A better understanding of the program processes is also gained because changes can be made while data is analyzed and information on impact is assessed.

In the first year of the 10-year Collective Impact initiative, UW has been able to prove that its program clientele are the neediest in their community. UW received a descriptive baseline report that allows for future measurement of changes (whether positive or negative) in its program clientele over a period of time. However, the data analysis step can have a significant time lag of 6 months or more between when the data is collected and when the reports are produced. This time lag is primarily due to the amount of data clean-up and verification that is necessary, including cleaning the data deposits, matching the data to program participants, validating the data matching, aggregating the data, and gaining insight into what the data means. As mentioned previously, there are also oversight committees that ensure that no individualized data can be determined from the reports. However, these concerns may only be present with the specific BI Company that UW partnered with; there may be less oversight with other 3rd party organizations.

6. Guidelines for BI Practices in the Social Sector

The collaboration between UW, its 16 PNAs, and BI Company allowed for new knowledge to be gained concerning the issues in the local community. UW was able to analyze where its supported programs were located with respect to the targeted population. UW was also able to determine that students serviced by its programs were located in the areas with the highest poverty populations. These important insights into the business environment of UW could not have been gained without the support of its BI practices.

UW’s initial success in engaging in BI practices can be looked at as an exemplar for other non-profit organizations that are interested in supporting the achievement of the organization’s social goals through utilizing IS at a higher-level. As a result of this practical interest for non-profit organizations, we have identified four guidelines for other non-profit organizations that want to engage in BI practices to better support the achievement of the organization’s social goals.

6.1 #1: Be Mindful in Selecting Your BI Partner Organization

Non-profits may not have in-house capabilities to engage in BI practices. Thus, it is essential to partner with competent 3rd party organizations that can provide BI services to non-profits. The chosen 3rd party organization has to be well versed in both technical details of databases and data management, but also in the contextual nature of the type of data that non-profit’s typically deal with. There are academic institutions, other non-profit agencies, and for-profit companies that specialize in providing these types of technology services to non-profit organizations. For example, other United Way affiliates collaborate with G*Stars (for employment
programs) or Vesta (for Emergency Shelter & Emergency Assistance) to collect, manage, analyze, and report outcomes across multiple service providers using data from federal, state, and local levels. Regardless of the chosen data management option, non-profits have to identify ways in which to ensure high levels of data security and privacy. This is especially critical since many of the non-profit program participants are a part of vulnerable populations, including children and the elderly, and the sensitive data collected may be on mental health checkups or behavioral issues.

6.2 #2: Learn the Best Practices in Data Management

Even though many non-profits may outsource their BI needs to expert 3rd party organizations, it is still advisable for those managing the IS initiative to support their social goal strategies to be aware of the best practices in data management. The non-profit organization has to provide assurances to those that are participating in the IS initiative on how the data will be managed.

For those non-profits that decide to create their own IDS in order to support their social goal strategy, it is essential to have a dedicated database administrator that is tasked with creating and updating the system. Though non-profits are more interested in the results of the data analysis than in the mechanics of how the information systems operate, it is essential to understand the importance of properly setting up and maintaining the system up front. The old adage ‘garbage in, garbage out’ becomes exaggerated when the information system is not properly planned out from the start.

6.3 #3: Understand that BI Practices Reach Beyond the Focal Organization’s Boundaries

It is important for large non-profits that are considering engaging in large-scale social change strategies (e.g. Collective Impact) to understand the reach of BI practices. In UW’s case, its decision to engage in a long-term BI initiative affected its collaborating partner non-profit agencies. The alliances that non-profits have related to their social goal strategies are impacted by engaging in BI practices. Therefore, it is essential for non-profits to be open with their intentions and include their strategic partners in certain aspects of the development and setup of the BI initiative. Taking into consideration the concerns of strategic partners up front can proactively address issues that may arise later on in the process. Overall, having a key individual or team that can serve as an assimilator of issues, assuager of concerns, and developer of action plans can ensure the successful roll-out of the BI initiative.

6.4 #4: Be Patient as it Takes Time to Reap Benefits from BI Practices

For many non-profits, the focus of their social goal strategy is to impact change in social areas. Non-profit organizations operate within a complex business environment characterized by a significant reliance on volunteers, collaboration with other non-profit organizations, and the pursuit of community-driven strategic objectives. More specifically, the impacts of the non-profits efforts can take many years to be realized. In a similar fashion, the efforts to engage in BI practices can take a while before the non-profit reaps its benefits. In the case of UW, the first year setup was to establish a baseline to understand the characteristics of its target population. It was mostly descriptive in nature and helped determine that UW was indeed focusing on the neediest in its local community. In future years, UW will have actual metrics of improvement in various areas related to improving the high school graduation rate. As such, non-profit organizations that are interested in engaging in BI practice must understand that it is as much a long-term information system initiative as it is a long-term social goal strategy. Patience is required to fully realize the benefits for both the non-profit and the target community.

7. Concluding Comments

All research has its limitations. A limitation of this research is the use of one organization to develop a theoretical understanding of how BI practices facilitate the development of intellectual capital in non-profit organizations. However, guidelines for case study research highlight that it is appropriate to use one case when the case provides unique insight into the phenomenon of interest [19]. We highlight the role of BI in non-profit social goal strategies, specifically how BI provides value to UW through its impact on developing intellectual capital.

There are future research opportunities that can extend from this study. Research can examine how the role of BI changes in the Collective Impact social goal strategy at different United Way affiliates and other non-profit agencies. This can lead to the development of an evolutionary approach of BI capabilities in social goal oriented organizations. Additionally, future research can more fully develop
the theoretical understanding of how BI facilitates the development of intellectual capital across organizations that vary in size, budgets, and social goal focus areas. Incorporating other theoretical concepts, such as organizational learning, can lead to greater insight into how BI practices are developed.

In the social sector, the prevalence of limited budgets, lack of skillful IS workers, and conflicting priorities cause technology initiatives to be an afterthought. However, non-profits that are ahead of the curve are able to more efficiently and effectively utilize IS to support their social goals. Engaging in and developing a set of BI practices is a great way for non-profits to gain a better understanding of their business environment, specifically related to impacts on the social issues faced in a targeted community. Though there are significant considerations for non-profits prior to engaging in BI practices, there are also significant positive benefits that can be gained. Following the guidelines provided will help non-profits in their strategic efforts to better utilize information systems in support of their social goals.

8. References


