Business Intelligence and Small Nonprofits

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Abstract: At present, more than ever before, organizations are using data and analysis to make effective, informed decisions in every sector of society. From medical advances to sports success, data analysis is transforming the manner in which businesses compete in the market. Non-profits are not far behind the for-profit businesses and have realized the value of engaging in data analysis through business intelligence. However, non-profits often lag behind their for-profit peers as they often lack the resources and the skills set needed for complex BI solutions. Given the major types of non-profits that are available and the common challenges they face, certain vendor solutions offer a feasible and effective alternative for non-profit organizations. Microsoft Dynamics CRM is one such solution that non-profit institutions examine as a viable BI solution for non-profits.

Keywords: non-profit, customer relationship management, business intelligence, analytics

INTRODUCTION

As big data takes more importance in the for-profit business world and technology advances make the cost of entry into more advanced data collection and analysis lower, opportunities are proliferating for non-profit business to take advantage of the insights that business intelligence provides. Data collection is nothing new in the non-profit sector (Rosenbaum, 2006). Gathering information on members, patrons and donors has been common practice for many years, especially in fundraising and development (DeBruin, 2005).

Data now plays an increasingly integral role in many non-profits' attempts to target donors, implement new projects, and demonstrate the direct impact of their programs. Software solutions, like Raiser's Edge and integration with large data services like Nexis, enable development staff to target and identify high dollar potential donors who might be interested in supporting their organization or cause. Data on previous donor history is now leading non-profit organizations to expand their network of relationships which consists of targeted individuals who are more likely to believe in their mission, and be more inclined to contribute (Lail 2014). Consequently, the donors are calling for greater transparency and details on how donations are created value in line with the non-profits mission. Data analysis is enabling companies to provide more information on the value created using business intelligence tools.

Nevertheless, the majority of marketing and audience research in non-profits are still largely the realm of focus groups and gut instinct. Event planning, exhibitions, and general marketing efforts are done more through trial and error and general guesses. As business intelligence success stories continue to come to light, more leaders are seeing the value of a well-implemented data solution and are beginning to take a look into this growing field.

The nonprofit BI landscape consists of a wide array of capability. With various vendors and consulting services approaching the needs for reporting and more sophisticated data analysis in different ways. The majority of BI related capabilities in non-profits can be described as: reporting and software that allow information retrieval from a donor database and/or data and statistics-driven predictive modeling that enables donor segmentation and fundraising or engagement opportunity identification (Blackbaud 2014).

Since most non-profit organizations have very limited budgets to work with, picking the right type and size of solution is critical. In the case of non-profits, one size does not fit all. Different types of nonprofits have different needs, goals and markets and addressing these differences can help to clarify what business intelligence solution is the best fit.

TYPES OF NONPROFITS

For the purposes of this paper, the different types of nonprofits will be categorized by their general goals and needs. These are broad categories and not necessarily matched up with legal non-profit classifications.

Social Causes

There are organizations with focuses ranging from global to local and whose purposes are to support a variety of social causes. Charities serving to promote causes like disease awareness, global poverty and education, animal rescue, and more, all have a few common goals. They all seek to get their message out to the largest number of likely donors and supporters for the lowest amount of money. They all need to find, organize and encourage volunteers that will promote and run services and events. Often a large portion of the staff of these organizations might be volunteers themselves, and their available time to help limited. In addition, the priority of any funding will be to serve the main recipients of the charity's purpose rather than anything more than justifiable operational expenses (Burn-Murdoch, 2013). These kinds of organizations face many pressures that business intelligence could provide. According to Lenczner and Philips (2012) the challenge of planning for the future is exacerbated by the difficulty of predicting the priorities and behavior of funders. This is especially an issue when considering that government funding partners, frequently a significant source of revenue, always have a real chance of changing based on political elections.

Arts and Attractions

Much like social cause non-profits, arts and attraction-based institutions seek to reach likely donors and volunteers for limited cost using limited resources. However, these kinds of non-profits also have physical locations, such as museums, historical sites, and parks, which draw their patrons. These locations give a more tangible value proposition for them to use as leverage, but also have the associated maintenance costs that come with a possibly aging structure. In the case of arts institutions like museums and galleries, these might also have ticketed exhibitions that can be marketed separately from the institution itself.

Religious Institutions

Churches and religious institutions share many features with social cause and attraction based non-profits. They also have social causes they support as well as physical locations that serve as gathering places and anchors for their parishioners. Their audience area is more limited and geographic in nature, though information of parishioners who move out of the church's region is kept and might still be used for fundraising. Smaller churches might not have any advanced data collection in place, so might face startup costs and issues that other non-profit types with established data collection methods might not.

Healthcare and Education

Though both healthcare and education institutions use business intelligence for fundraising purposes, like other categories of non-profits, these businesses both use data collection and analysis more intensely for their day to day operations. Hospitals track many metrics regarding patients and inventory, and schools do similarly for students, alumni, and classes. Often these institutions will have established processes and internal understanding of the value of business intelligence. They also share similar problems with other non-profit categories discussed previously when it comes to marketing and fundraising efforts. The recommendations for all categories can be beneficial for all types.

There are many different BI options available for marketing and fundraising efforts. These solutions offer a wide variety of report and analysis options that non-profit organizations can use to better manage their customer

relationships. Blackbaud (2014) describes six different analytics that serves the needs of non-profit organizations (see Figure 1). While all non-profits would like to be doing advanced statistical analysis and forecasting, most find themselves working with descriptive analytical BI tools (i.e., categories one through four in figure one), to management donor relationships. While there is some growth in non-profit creating BI solutions that incorporate traditional data with big data to get at a rich feed of information on their donors, they are few and far between at present. Some of the major obstacles faced by non-profits limit their capabilities to effectively use data for decision making.

Major Categories of Nonprofit Analytics

1. Standard Reports

Typically generated on a regular basis, standard reports describe what happened in a particular area. They answer the questions "What happened?" and "When did it happen?". They are not useful in making long-term decisions. Examples include monthly or quarterly financial reports.

2. Ad Hoc Reports

Generally, ad hoc reports let you ask questions and request a custom report to find the answers. They answer the questions "How many?", "How often?", and "Where?". A custom report that describes direct marketing campaign performance is an example of this type of report.

3. Query Drilldown or On-Line Analytical Processing (OLAP)

Query drilldown allows for some discovery. OLAP lets you manipulate the data to find out how many, what geography, what class year, what gift level, etc. Query drilldown and OLAP answer the questions "What exactly is the problem?" and "How do I find the answers?". An example of this is sorting and exploring data about different types of donors and their annual giving behavior.

4. Alerts or Triggers

With alerts or triggers, you can learn when you have a problem or opportunity and be notified when something similar happens again in the future. Alerts can appear via email, as a flag within the software, or as red dials on a scorecard or dashboard. They answer the questions "When should I react?" and "What actions are needed now?". An example of an alert or trigger would be an email to a gift officer indicating that a donor prospect just received a windfall from the sale of his company.

5. Statistical Analysis

With statistical analysis, nonprofits use more complex analytics, like frequency models and regression analysis. We begin to look at why things are happening using donor behavior data and then begin to answer questions based on the data. Statistical analysis answers the questions "Why is this happening?" and "What opportunities am I missing?". A nonprofit discovering where upgrade opportunities exist in their active donor file is an example of an organization using statistical analysis.

6. Forecasting

Forecasting is one of the most useful analytical applications, as it enables effective resource and budget allocation. It answers the questions "What if these trends continue?", "How much is needed?", and "When will it be needed?". As an example, nonprofits can use forecasting to predict how declining acquisition response rates will affect their overall fundraising goals, enabling budget allocation and strategy refinement.

Figure 1: Major Categories of Non-profit Analytics (Adopted from Blackbaud 2014)

COMMON CHALLENGES FACED BY NON-PROFITS

There are several issues that almost all of these types of institutions face when it comes to implementing and developing business intelligence solutions.

Amount of Data Available

As noted in an article about small arts data mining, "... where Tesco may have 35,000 SKUs per store and a large arts organization may have hundreds or even thousands of different products in a year (think of a large receiving venue), a small arts organization may only have half a dozen exhibitions or productions in a year. There simply are not enough SKUs to mine data at this level (Thelwall, 2012). In order to get a good distribution of data that can be used for predictive analytics, one first needs a critical mass of data collected. Though there is not a set number for all cases, most small institutions are going to have a hard time gathering enough data to do more than make a weak guess.

One in a few, Arts Boston has a possible solution. Arts Boston, a nonprofit that helps organizations with their marketing needs, has taken that concept a step further by convincing 60 of its 150 area members — from the Boston Symphony Orchestra to the Danforth Museum in Framingham — to pool their data to get a more comprehensive, crossover look at the region's arts scene and patrons (Fitzgerald, 2014). In addition, they provide access to general demographic data on about 1.4 million households in the greater Boston area. This enables member institutions to a new and wide array of data to mine from. "'We can now step back and look at the regional market in ways we could never do before," said John Beck, deputy director at Arts Boston" (Fitzgerald, 2014). One might note that they got less than half of the member institutions to join the effort, presumably due to privacy and data security concerns. Though this solution holds promise, it would require a dedicated central agency to spearhead the effort and convince people to come on board.

Multiple un Integrated Databases

Many organizations and institutions already have established databases for collecting data on patrons and donors. These are often siloed in different departments (Courtis, 2013). Much like the data integration problem that many larger and for-profit companies face, these various databases have yet to be integrated to form "a single version of the truth." Access to clean data collection procedures are key to improving the quality of data analyzed by non-profits (Carr, 2014).

Many technology savvy institutions are making the investment to create an integrated collection and analysis system, like the Colorado History Museum. "During the planning process, we made two important decisions. The first was to contract nearly all of the auxiliary services—retail, café, catering, guest services, custodial and landscaping—to a single vendor. Service Systems Associates (SSA) won the bid and became our partners in developing a seamless approach to visitor services and in selecting a single point-of-sale (POS) system for all of the revenue generating functions. SSA introduced us to Bright Star Partners, which prompted our second major decision: to purchase a business intelligence system (BI) to sit on top of the POS" (Center for the Future of Museums, 2013). However, not all institutions have such developed plans or the monetary resources to implement such solutions.

The Cleveland Art Museum is one such organizations that does not have the organizational resources or the know how to create a viable BI solution.

CASE STUDY – CLEVELAND ART MUSEUM

According to Elizabeth Bolander, the Director of Research and Evaluation, at the Cleveland Museum of Art the creation of an Office of Research and Evaluation created a need for business intelligence. The department was created and approved by their Interim Director, Chief Curator, and Deputy Director of Advancement. The department has been around since May 1, 2014, though both of the functional areas (audience research and development research) have been part of museum operations for over five years.

The director further elaborated, “We use a lot of different types of data - revenue, attendance, online analytics, etc. - and use monthly dashboards to share the highlights with leadership and staff. For development work, we use a tool that does not give great functionality.” There is a need for a solution that would enable regular wealth screenings, segmentation analysis. “We need new reports and defined metrics that help the Office of Research and Evaluation better track their gift officer's time and department effectiveness (prospects qualified, visits made, solicitations made, etc.). In addition, there is a need for more in-depth work on profiling, prospecting, and data analysis to look at trends within the CRM data.” The director indicated that they are well aware that they need a integrated centralized solution give them a holistic view of their visitors. Either non-members or members, the Museum of Art in interested in a BI solution that would be like a rewards tracker that would give them some of that insights with different audiences.

Elizabeth Bolander also stated, “In addition to all of that is our audience research and evaluation. We do observations, interviews, focus groups, surveys, in-space tracking, mystery shopping, and other evaluation activities at different points in project development (front end, formative, summative). Demographic information of our visitor base, among other key results, come from this work. Our general exit survey data is collected throughout the year and reported quarterly.”

When asked what challenges they have face, she said, “I would say the biggest challenges are time/prioritization (everyone wants data and there's only so many hours), lack of data standards, and cost. The big opportunities that I see are tying and analyzing more of our aggregate ticketing and membership data and figuring out ways to better streamline our processes to allow for more time to be dedicated to analysis and sharing results versus preparing and collecting data.”

The Cleveland Art Museum is looking for a BI solution that would fit their analysis needs and also provide them with integrated high quality data for decision making. Microsoft Dynamics CRM offers one such solution.

MICROSOFT DYNAMICS CRM

Dynamics CRM is an integrated customer relationship management system that is designed to be an all-in-one database accommodating all of an organization's needs. It offers a solution that includes the ability to manage donations, conduct fundraising campaigns, and coordinate volunteers (see figure two). The tools offered through Dynamics CRM can track donation requests from ask to thank you, store templates for receipts, letters, and sign-up sheets, and gather information about potential donors, sponsors, and volunteers.

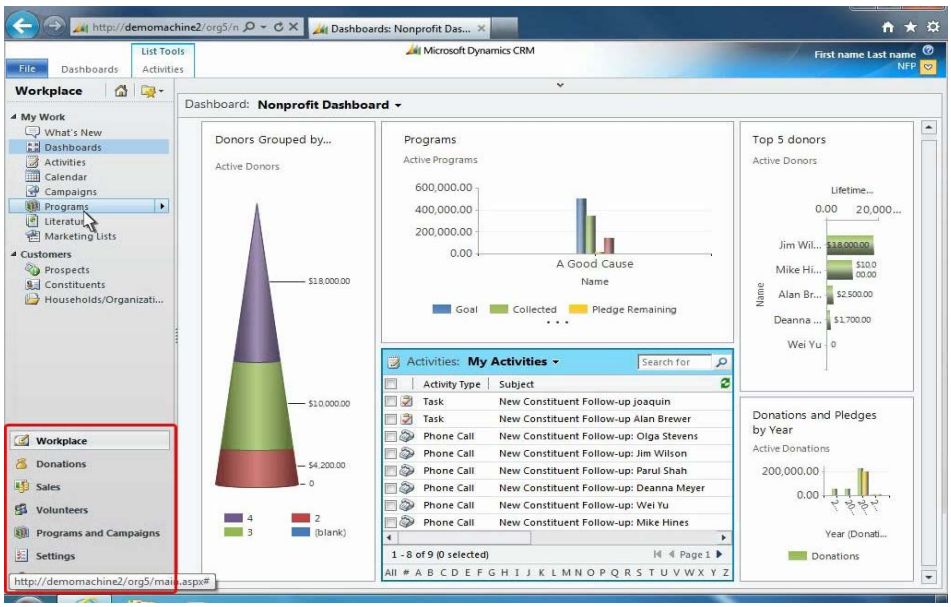

Figure 2: Sample Microsoft Dynamics CRM dashboard for non-profit organizations

Microsoft has created a template that enables non-profit organizations to get the power and features generally afforded to traditional businesses as a non-profit centric solution that is user-friendly, and is able to handle donation management, reporting, member management, direct mail correspondence, and email (Techsoup Global 2016). According to Reviews.com (2015), Microsoft Dynamics CRM is one of the top three BI solutions for non-profit organizations due to its affordable pricing and reporting abilities.

Daub (2013) provides a visual of the functionality offered by Microsoft's non-profit Dynamics CRM solution (See figure three). It supports many of the typical business process flows seen in non-profit organizations. In so doing it provides data that can presents each of the six major categories of analytics for non-profits presented in figure one.

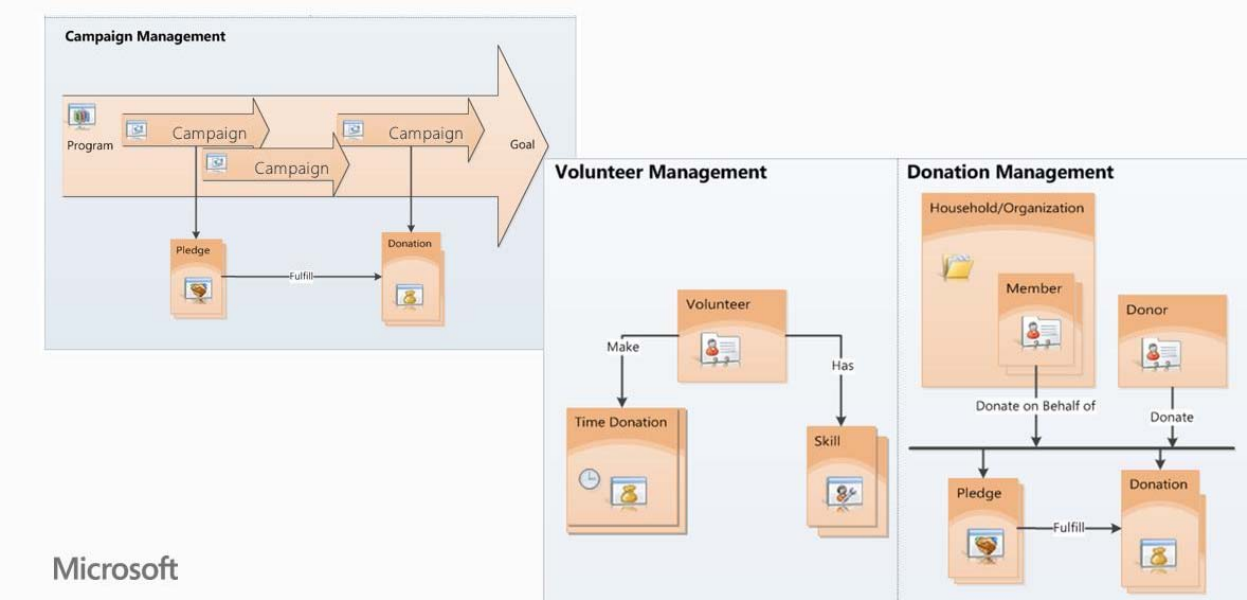

Figure 3: A solution object model for non-profit Microsoft Dynamics CRM solutions

Furthermore, using SharePoint, Microsoft Azure as connectors and Microsoft Office applications for data visualization, the non-profit Microsoft Dynamics CRM solution offers the ability to gain rich insights from combining structured and unstructured data. By providing the ability to incorporate big data in an affordable manner that is easy to use with low organizational resource constraints addresses the common challenges faced by the different types of non-profits.

CONCLUSION

Developments have already begun in the territory of non-profit organizations, but it is still far from broad adoption. Institutions like the Cleveland Museum of Art are looked at closely by other similar nonprofits as they blaze trails that are well established in the for-profit world, but are still new to them. Informed and educated leadership is key, as only they can put the level of resources into motion that a full and integrated business intelligence solution requires. As an awareness of the possibilities is combined with knowledge of the nature of the organization and the market continues to merge, more and more organizations will begin to take advantage of BI and analytics opportunities that are feasible for non-profit organizations. By meeting each of the major analytics needs of various types of non-profits and addressing each of the common challenges faced by non-profits, Microsoft Dynamics CRM offers a good BI alternative for non-profit organizations.

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