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From the Selected Works of Michael P. Johnson

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Pro Bono Analytics – Addressing Business Problems Faced by Nonprofit Organizations

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Available at: https://works.bepress.com/michael_johnson/74/

Pro Bono Analytics – Addressing Business Problems Faced by Nonprofit Organizations

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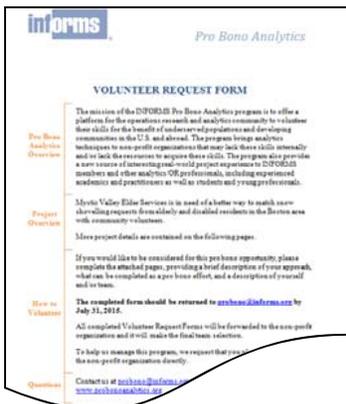
Pro Bono Analytics is a program by INFORMS to link OR & analytics professionals who are willing to volunteer their analytical skills with nonprofit organizations working in underserved areas or with underserved populations, that could benefit from analytics



How does Pro Bono Analytics Work?

1

Nonprofit organization submits a project request



2

Request reviewed by the Pro Bono Analytics Committee and sent to volunteer list



3

Volunteers interested in the project submit a brief proposal



4

Nonprofit organization selects a team for the project



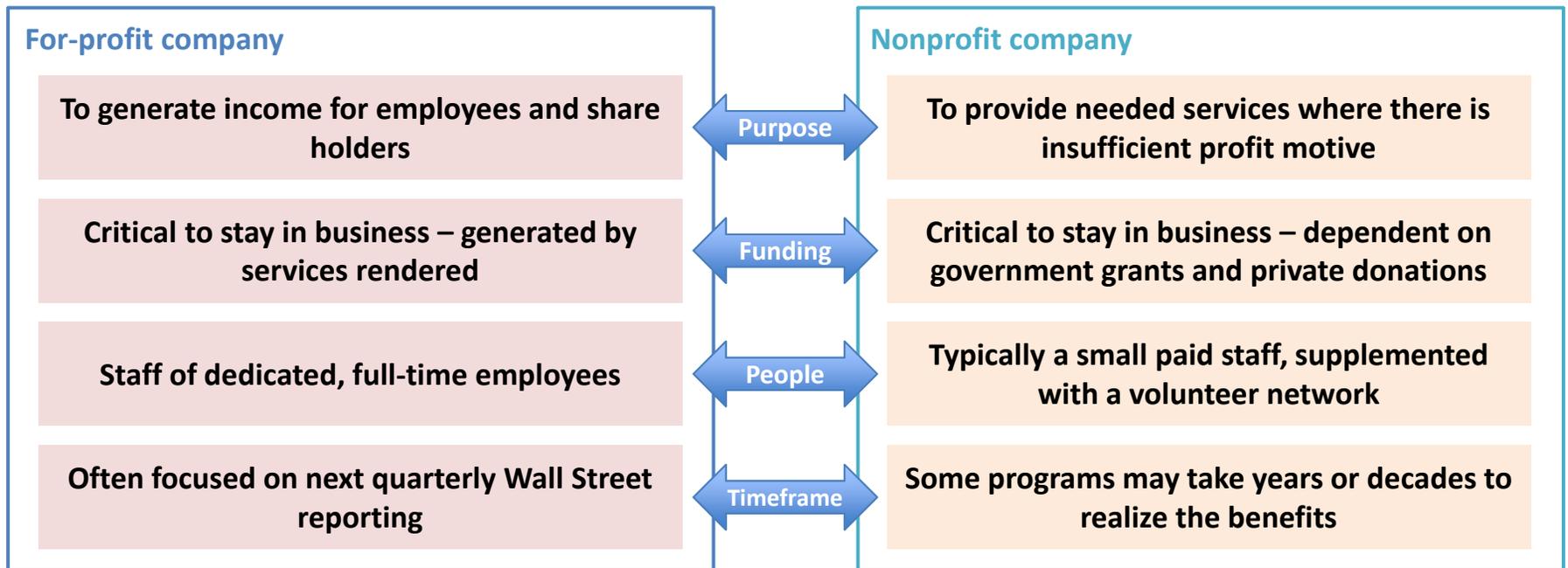
Selected Pro Bono Analytics Projects



Understanding and engaging nonprofit organizations



There are many similarities, but also some key differences between nonprofit and for-profit companies



Common challenges in providing operations research and analytics to nonprofit organizations

- 1 Limited capacity of community partners to collect and analyze data, and to make productive use of analytically-advanced solutions
- 2 Skepticism among community partners that outside experts really understand their problems
- 3 Need for volunteers to move from client-consultant relationship to peer-to-peer relationship to support collaborative problem-solving
- 4 Tension between a specific problem to be solved, and underlying community needs that may not align with funders' immediate priorities
- 5 Acceptance by volunteers trained in OR/analytics that qualitative as well as quantitative data and solution methods may be necessary

Do projects involving nonprofit organizations engaged in social issues have a higher standard for ethics?

- **Honest** in reporting our results, even when they fail to yield the desired outcome.
 - Is it OK to skew results so donors to a nonprofit feel better about providing support?
- **Objective** in our assessments of facts, irrespective of our opinions or beliefs.
 - How should we report a poor outcome assessment for a program we like?
- **Alert** to possible unintended or negative consequences that our results and recommendations may have on others.
 - In an effort to help some, does our work have a negative impact on others?



Members of the Institute for Operations Research and the Management Sciences (INFORMS) advance the science and practice of quantitative decision-making via operations research and analytics. We recognize a responsibility to uphold high ethical standards on behalf of society, our organizations, and the profession.

The following ethical guidelines are intended to be aspirational, something INFORMS members should attempt to follow throughout their career.

JOIN THE ETHICS IN O.R. & ANALYTICS GROUP
on INFORMS Connect! Go to "All Communities" and click the blue Join button.



To communicate the value of OR and analytics, must put it in terms of what business problems can be solved

- How can we attract and retain donors?
- How can we sustain and grow successful programs?
- How can we decide whether or not to start a new program?
- How can we decide whether or not to terminate a program?
- How can we increase staff and volunteer utilization?
- How can we make our work more relevant?

When working with a nonprofit, define and stay focused on the business problem first, and the OR/analytics solution second



How can OR and analytics help solve business problems faced by nonprofit organizations?

Business Problem: How to improvement operational efficiency

A church cooks and delivers hot meals to the elderly and homebound. The volunteer delivery drivers wish to minimize total distance driven, so as to reduce wear and tear on their cars, while ensuring that meals are delivered to clients during specified timeframes. How many drivers are needed, and what sequence of deliveries for each route should be followed?

Business Problem: How to better utilize limited people time

A community health center serves low-income residents, many of whom are uninsured and have unstable personal situations. Given limited resources to provide uncompensated care and limited time to address no-shows, how can the center set priorities for providing free care and minimize the down-time of health service providers?



How can OR and analytics help solve business problems faced by nonprofit organizations?

Business Problem: Need to develop a strategic plan, with goals of sustainability and equity rather than profit

A community-based nonprofit is devoted to developing small community gardens to provide low-cost and nutritious food to residents facing food insecurity. Many neighborhoods desire their own gardens, yet there are limited organizational resources to lease plots from the city, to teach farming techniques to residents and to provide necessary tools and seeds. Moreover, land leased for community gardens from the city may be eventually purchased by developers to build new housing for profit. How can this organization develop a strategy to identify and develop community gardens in a sustainable and equitable manner?



How can OR and analytics help solve business problems faced by nonprofit organizations?

Business Problem: How to measure and communicate impact

A community development corporation provides a variety of services: housing development, community organizing, economic development, adult education and many others. Given uncertain funding streams, limited information about future demands for and limited understanding of the social benefits of these services, how can the organization allocate resources towards fundraising and program management to balance efficiency and equity?

Business Problem: How to serve high need people in high cost areas

A mobile dentistry service for low-income rural residents requires providers to travel long distances to serve relatively few but high-need clients. Is there a design for routes and services that can enable this service to be self-supporting? If not, how can the service make the best case for sustained subsidies?



How can OR and analytics help solve business problems faced by nonprofit organizations?

Business Problem: How to expand a successful program

An organization developing 'safe spaces' within homeless shelters for educational enrichment, safe play and emotional supports wishes to expand to new cities. Expansion requires willing host partners, funders to provide operating support and volunteer staff. Given differing levels of these resources, and differing levels of need, in which cities should the service expand, and how and where should they provide new safe spaces?

Business Problem: How to best launch a new program

A local church wishes to engage at-risk youth to divert them from violence and toward counseling others. However, the organizers, not being at-risk youth themselves, may not know how to build a service that responds to authentic needs. How can they engage with community residents to do a needs assessment, train peer counselors and identify desired impacts?



What can INFORMS and Pro Bono Analytics do *with* and *for* nonprofit organizations to build strong relationships?



- 1** Listen and ask questions
- 2** Move from the problem that brought you two together to the problem that the organization really wants to solve
- 3** Increased understanding, 'satisficing' and making incremental improvements are perfectly fine (initial) project outcomes
- 4** Adapt the collaboration style to the organization: does it want a consultant, partner or listening board?
- 5** Understand that many nonprofits focus as much on social change as service delivery

Be part of Pro Bono Analytics!

Sign up today as a volunteer on the web site, or contact a member of the Pro Bono Analytics Committee



www.probonoanalytics.org
probono@informs.org

Thank You!

