

Data is The Mission: A Guide to Data Science for Nonprofit Organizations

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Why Nonprofits?

- A Moral importance, about to be even more important.
- Only 3% of Nonprofits use any form of advanced data analysis.
- Nonprofits represent a sizable 12.9% of all private employment in Maryland.
- Nonprofits are all competing over the same smaller and smaller pool of funding sources, rising inflation is only making economic conditions for nonprofits more challenging.

What Makes NPOs Unique?



charity: water

The Problems with Data Science

- NPOs feel left behind, a majority are interested in data science but almost none utilize modern techniques.
- The demand for data science is evident
- Media sentiment favors Nonprofits engages with data.

Flaws with “Data For Good”

- A patchwork of volunteers, corporations, and educators donate their time and data science expertise to NPO under the umbrella of the “data for good” community.

DataKind®

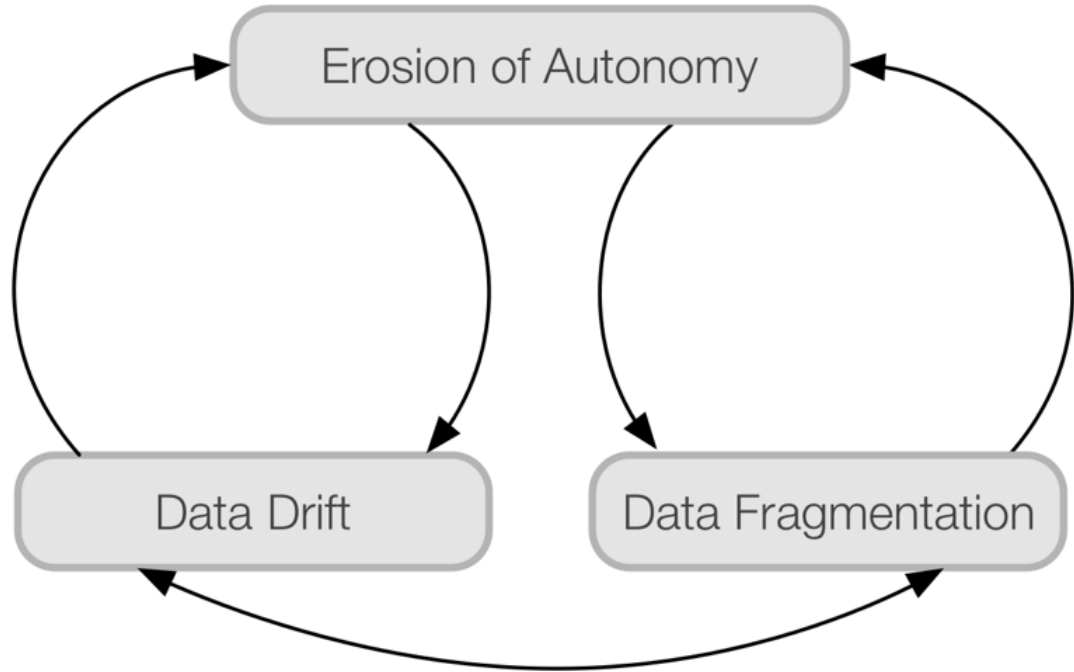


hack4impact

- Volunteers complete all the work -> NPO loses the chance of develop independent data skills
- Most data science questions NPOs are asking are not exciting, making it less appealing to volunteers.
- You can't expect an NPO to jump from Excel tables to Tensor Flow

Data Disempowerment

These three create a sinister feedback loop where the loss of autonomy leads to data drift as outside funders introduce new goals that further the data fragmentation as data moves between systems. The lack of direction leads to a high internal turnover rate, leading to greater reliance on outside consultants for data work, thus perpetuating the cycle



Helpful

Harmful

Internal Origin

Strengths

- Nonprofit employees are more motivated than for-profit peers.
- Many nonprofits work with data every day using tools like Excel
- Nonprofits are aware of the importance of data science, and are eager to start
- Nonprofits smaller scale allow them to be more adaptable.

Weaknesses

- Poor data hygiene of nonprofit data
- Nonprofit employees have poor data literacy
- Nonprofit employees have a lower salary than their for-profit peers.

External Origin

Opportunities

- There is a large community of Data Scientists who volunteer time and expertise to help nonprofits
- Large tech companies, and government agencies offer grants to nonprofits interested in data modernization projects
- Media sentiment of data-driven nonprofits more positive than average.

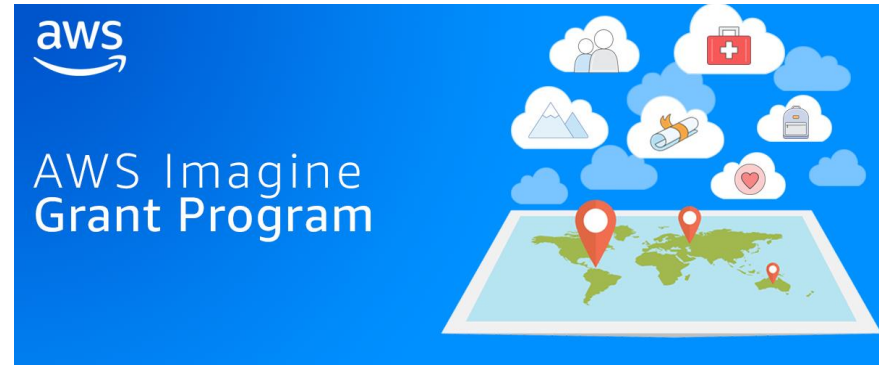
Threats

- Third party consultants supplying data science services for nonprofits unintentionally disempower NPOs through a loss of data autonomy.
- Volunteers may self select flashy projects and overlook more mission relevant mundane tasks.
- Big tech provides advanced tools that are relevant to the actual needs of nonprofits

Practical Data Science for NPOs

- Data As the Mission, not as a side project.
- Data initiatives must be done inside the organization
- Data cannot be left to third parties, it must be core to daily operations.
- Start small with modest tools and techniques
- People First, Tech Second

Case Study: Easter Seals DC MD VA



Project Goals

- Data Modernization
- Improve time to insights
- Improve transparency and access to information.

Challenges



HISTORICAL DATA STORED IN
ANTIQUATED DATABASES

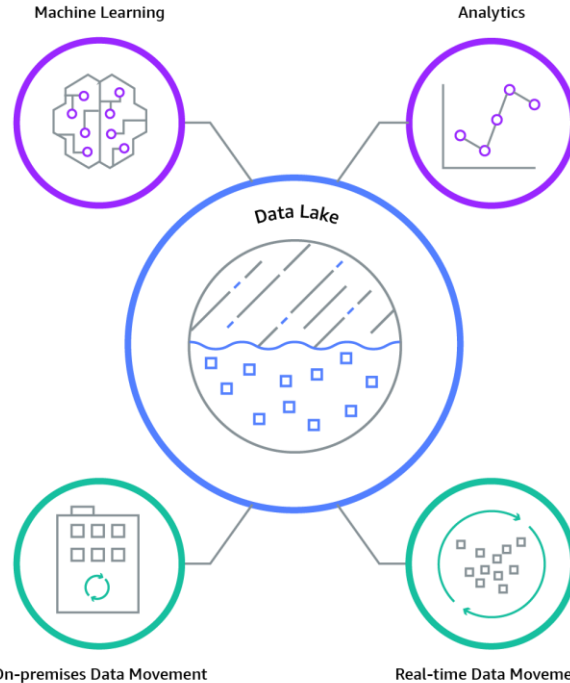


POOR DATA HYGIENE



HIGH INNUMERACY AMONG
STAFF

Implementation



Lessons Learned

- Was a Data Lake the appropriate answer?
- The Easter Seals team was given a project with a codebase they had no staff equipped to maintain
- Data dashboards are a key tool for winning support and increasing organizational buy in for data science.

Policy Recommendations

1. Recontextualize the mission statement to include quantitative measurement of the desired impact of the organization's work. Promoting data as a core pillar of the organization's culture will ensure greater organization by in, improving morale.
2. Invest in hiring talented and motivated staff skilled at data science. Hiring managers can circumvent direct competition with large private companies by looking for less experienced but equally qualified candidates.
3. Develop a data science road map and evaluate at what stage the organization is currently at. Even the most modest of goals can be achievable and provide long-term value from the wisdom within the data.
4. Keep data science projects internal to gain operational learning from years of trial and error. Data is a long-term investment, and every year the wisdom compounds like interest on a loan.
5. Utilize free and reduced-price SAS (Software as a Service) platforms to lower the capital requirements for data hardware but avoid using any cutting-edge tools

Conclusions & Future Work

- Data Will never fully replace the human element
- Survey Maryland based NPOs about their experiences with the disempowering effects of data ambitions.
- Using NLP, identify data driven language used by NPO and construct a classifier. Is the NPO using data or not?

Thank You For Your Time

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