Data Awareness:

Building A Data Literate Culture in Parks and Recreation

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Data is all around us - active COVID cases in your community, your daily step count, trip advisor reviews, how far away is the nearest Starbucks. More and more, the decisions we make are based on data from a variety of difference sources. With the rise of mobile devices and wearable technology, and the information collected about our online activities, the volume of data has increased dramatically in recent years. _According to IBM_, 90 percent of the world's data has been created in the last two years.

Consequently, the ability to read, understand, create, and communicate data as information is essential if you want to thrive and survive in the 21st century. These essential skills are commonly referred to as data literacy.

But what does this have to do with sport and recreation?

Sport and recreation organizations collect a lot of data. They collect data about sport groups and participants, program registrations, facility rentals and bookings, memberships and passholders, attendance and revenues to name a few. Unfortunately, this data is often fragmented and locked in silos within the organization. Equally important, data literacy in these organizations is often limited, with very little capacity to leverage existing data to make better, and more timely, evidence-based decisions.

But with more data, better tools, and the ability to create more impactful insights, professionals working in the sector are seeing the need for, and potential value in, improving their data and their data literacy.

Below are a few things that might be helpful to those of you wishing to enhance their data literacy.

Data literacy is the ability to read, understand, create, and communicate data as information. Much like literacy as a general concept, data literacy focuses on the competencies involved in working with data. (Wikipedia)

"Being data literate means possessing an understanding of what data is and its characteristics (sources, types, formats and data features), data applications (for analysis, business intelligence, data science, decision support, artificial intelligence, automation and analytics), data techniques (such as pattern discovery, pattern recognition and prediction), and data communication (for instance, storytelling, evidence-based reasoning, decision support and visualization)."

_Source: https://www.sas.com/en_ca/insights/articles/analytics/data-scientist-data-literacy.html_

More data is becoming more mainstream

Recreational and parks professionals have access to an unprecedented amount of data. In addition to the data already collected by their recreation management software, several other sources have become more readily available including:

- Infrastructure and facility maintenance data
- Open-source, mappable community and wellness data
- Market research and insights
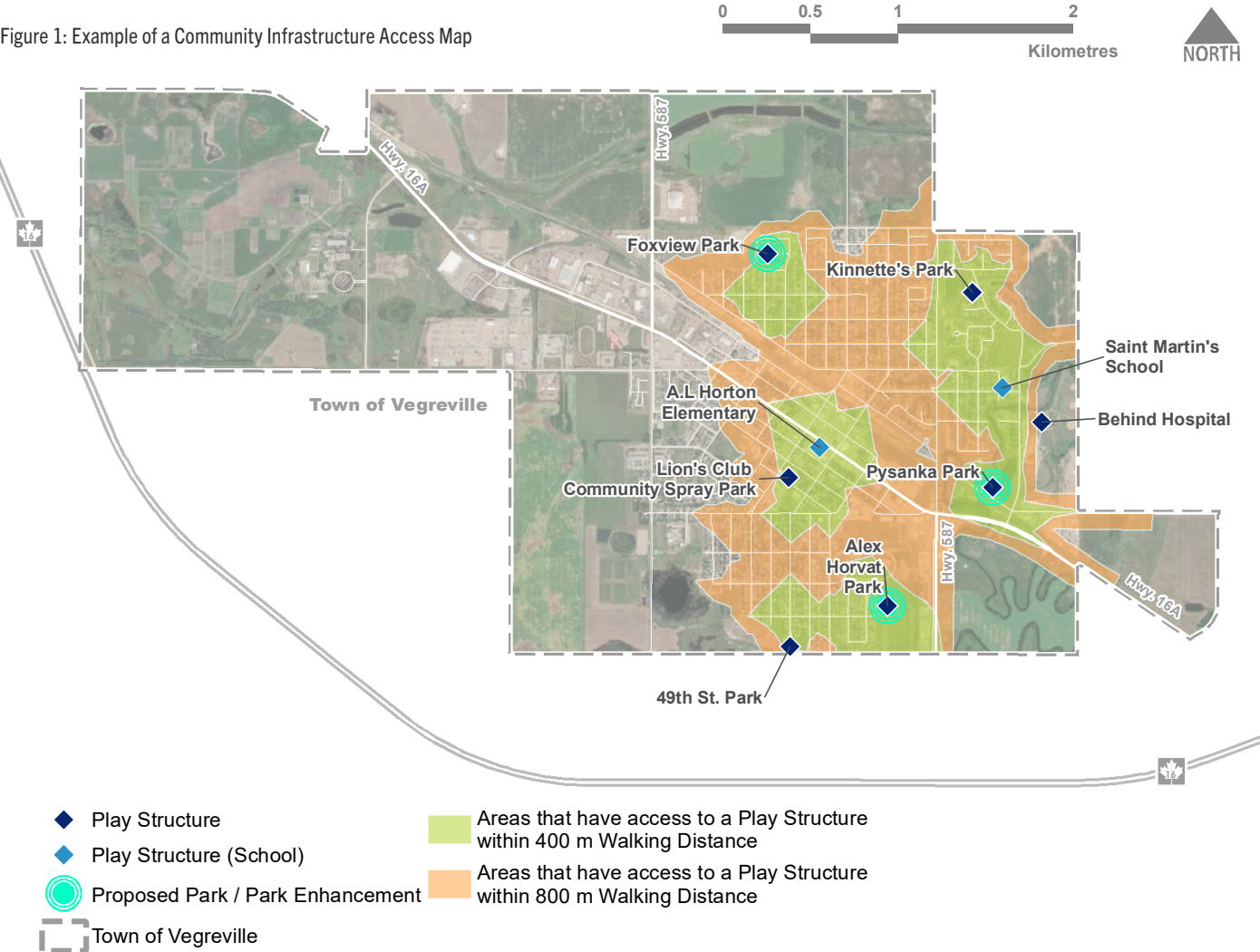- Big data (mobility data, digital behaviour, wearable technology)

For example, the recently announced *CPRA National Infrastructure Database* will provide sport and recreation organizations and local communities with current and reliable information about infrastructure in their communities and regions including overall inventories, location, age and condition, and ownership.

Easy to use, **open-source data** (data that is publicly accessible for free) is also now available to explore such things as the demographic profile of a community and the general health of its residents. Census data compiled by StatsCan is an example of open-source data. While it has been available for many years, *recent enhancements* have made it much easier to retrieve information and map the results. Findings from the *Canadian Community Health Survey* and other large health and wellness studies like the *Canadian Index of Wellbeing* are also available. These sources of data are useful for demonstrating the social impact and benefits of providing sport and recreation opportunities and expanding our understanding of social and health equity in the sector.

Increasingly, the public sector (including parks and recreation) is turning to market research to provide additional data to identify key markets (service areas) and target audiences (users). For example, _market segmentation_ is being used by both governments and other recreation operators to divide people into smaller (similar) groups based on geography, demographics, behaviors and psychographics to help explain things like who is visiting their facilities, why they are visiting, where do they live, what types of programs and services they need and want, and how they like to be communicated with.

Big data is also finding its way into many aspects of the public sector. Big data includes mobility data, digital behviour data (web analytics) and data from wearable devices (FitBit, Garmin, and Apple Watch to name a few). **Mobility data** is time and location information generated by activity or transactions on your smartphone. Although not without controversy, anonymized and aggregated data is used to show movement patterns of like groups of people by tracking location-enabled mobile devices. Mobility data can help recreation and parks professionals better understand who is visiting a site, how often, and where they live. When linked to market research data it is possible to develop detailed profiles of users in a catchment area, whether you have accurate user registration data or not.

Figure 1: Example of a Community Infrastructure Access Map

Legend:
- ◆ Play Structure
- ◆ Play Structure (School)
- ◉ Proposed Park / Park Enhancement
- ⬚ Town of Vegreville
- 🟩 Areas that have access to a Play Structure within 400 m Walking Distance
- 🟧 Areas that have access to a Play Structure within 800 m Walking Distance

63.2% of Vegreville residents can access a play structure within 400 m
89.9% of Vegreville residents can access a play structure within 800 m

Better tools make lighter work

In addition to broader access to more data, recreation and parks professionals also have more tools at their disposal. Key among them include:

- Geographic Information System (GIS) - Mapping and spatial analysis tools
- Business intelligence (BI) and data integration tools
- Advanced analytics and more specifically predictive modeling

A **geographic information systems (GIS)** is a system that creates, manages, analyzes, and maps all types of data. It involves **combining (layering) different spatial** data sets to define and map a geographic location or area like a city or a catchment area, locate a point of interest like a recreation facility, and describe the characteristics of a given location or area.

Figure 2: Example of an Amenity Catchment Map
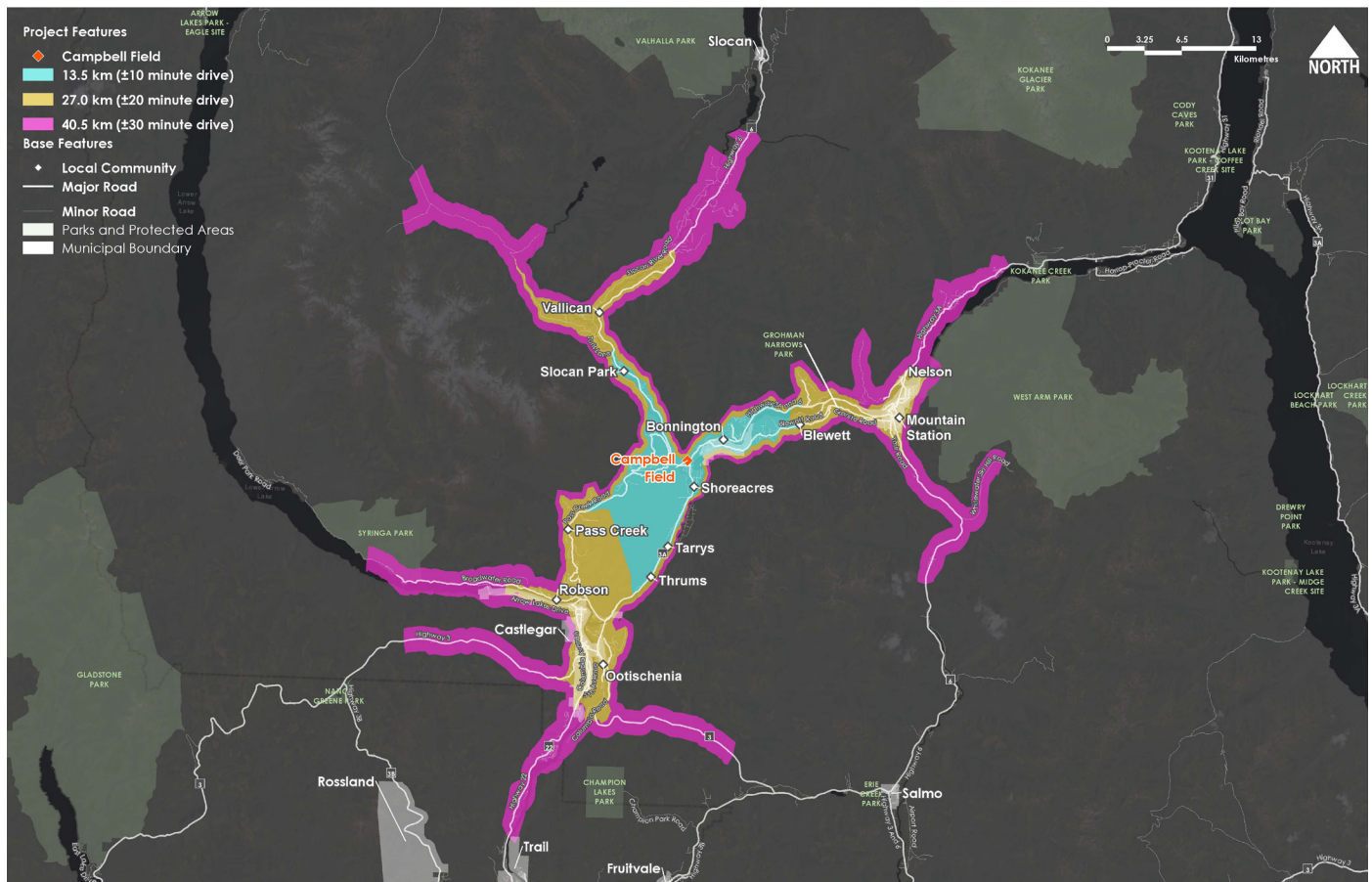
Business intelligence (BI) and data integration tools have all but eliminated the frustration of working with data from different systems. For example, linking your membership and passholder data with your registration data or your financial data is made much easier. BI makes data analysis more accessible, interactive, visual, and collaborative for sport and recreation organizations by:

- Breaking down silos (data and governance structures);

- Standardizing data definitions and formats;

- Creating *interactive maps and dashboards* instead of reams of spreadsheets;

- Replacing text heavy reports with compelling infographics; and

- Replacing static monthly reports with dynamic, real-time reporting that can be easily shared with your leadership teams, elected officials, and the public.

At is roots, **predictive modeling** forecasts future events based on past behaviour. Predictive analytics uses data, statistical algorithms and *machine learning* to identify the likelihood of future outcomes based on historical data. So rather than rely exclusively on using last year's data on attendance and program registrations to forecast what will happen this year, many inputs are combined to create a model that predicts the most likely future attendance and registration patterns. For example, *ActiveXchange Canada*, a data and analytics platform purpose built for the sports and recreation sector, is using predictive modelling to assess what facility, program, pricing and operational changes would make the greatest positive impact on service delivery, social benefit to the community and the bottom line.

Meaningful insights lead to action

As a result of greater access to existing and new data sources and better tools, connecting data to action is easier than ever before. Insights generated from research and data today:

- are more relevant (local data is more readily available and can be integrated with data from other sources).

- are dynamic and interactive (BI makes creating and sharing interactive maps and dashboards as well as compelling infographics easier).

- are forward looking (predictive analytics are focused on predicting the most likely future, offering clues on how that future will be achieved).

- are connected to action (consistent and reliable data provides greater transparency and accountability, both of which are important to senior leaders, elected officials, funders and the general public).

In sum, increasing data literacy among recreation and parks professionals will result in a more informed and sport and recreation sector. Developing your data literacy skills will enable you:

- To better understand the communities you serve;

- To determine what are the programs and services they need and want;

- To identify strategies to engage and connect with them;

- To demonstrate the impact your programs and services on your community and those who live there; and

- To ensure that everyone have fair and equity access to them.

Additional Resources:

Statistic Canada data Literacy Training videos
https://www.statcan.gc.ca/en/wtc/data-literacy

NRPA - Data Analysis at Park and Recreation
https://www.nrpa.org/contentassets/f768428a39aa4035ae55b2aaff372617/data-analysis-park-and-recreation.pdf

Data Literacy Tools and Resources
https://dataliteracy.com/resources/