



CASE STUDY

ALBERTA LIBRARIES DATASET ANALYSIS

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1. Introduction

In today's digital age, data-driven decision-making is transforming public services, enabling organizations to optimize operations, enhance efficiency, and better serve their communities. Libraries, once primarily focused on book lending, have evolved into multifaceted institutions offering a wide range of resources, including digital collections, educational programs, and community services. To meet the changing needs of users, libraries must leverage data analytics to improve resource allocation, streamline operations, and enhance the overall user experience.

This report explores the impact of data-driven decision-making on Alberta Libraries by analyzing key metrics from the Alberta Libraries dataset. The analysis provides insights into user behavior, resource utilization, and service effectiveness, demonstrating how libraries can make informed decisions to maximize their impact. By utilizing data, libraries can identify trends, predict future demands, and implement strategies that foster growth and accessibility.

Through this study, we aim to highlight the significance of data in modern library management and provide actionable recommendations for leveraging analytics to create more efficient and user-centric library services in Alberta.

2. Open Source Data Information

The Alberta Libraries dataset offers a comprehensive overview of library operations, covering key aspects such as funding sources, expenditures, service metrics, and user engagement. This dataset provides valuable insights into how libraries allocate financial resources, manage operational costs, and deliver services to the public. It includes data on library budgets, staffing levels, facility usage, program participation, and borrowing trends, allowing for in-depth analysis of financial sustainability and service effectiveness. Sourced from Alberta.ca and publicly available, this dataset serves as a crucial tool for policymakers, researchers, and library administrators to assess performance, identify trends, and make data-driven decisions that enhance library services across the province.

3. Purpose and Goals

Our primary objective is to evaluate library performance by analyzing key financial, operational, and user engagement metrics. This includes assessing funding allocation, expenditure efficiency, service availability, and user participation patterns to gain a comprehensive understanding of how libraries function. By examining these metrics, we aim to identify trends, strengths, and areas for improvement, enabling stakeholders—such as policymakers, library administrators, and community leaders—to make data-driven decisions. This analysis helps optimize resource distribution, enhance service delivery, and ensure that libraries effectively meet the evolving needs of their communities, ultimately improving accessibility, efficiency, and overall user satisfaction.

4. Key Questions On The Data

- How are Alberta libraries funded, and what are the primary revenue sources?
- How are library expenditures distributed across different categories?
- What operational efficiencies or inefficiencies exist within different library systems?
- How do membership trends impact resource allocation?
- What are the key drivers behind user engagement in library programs and services?

5. Metrics and KPIS

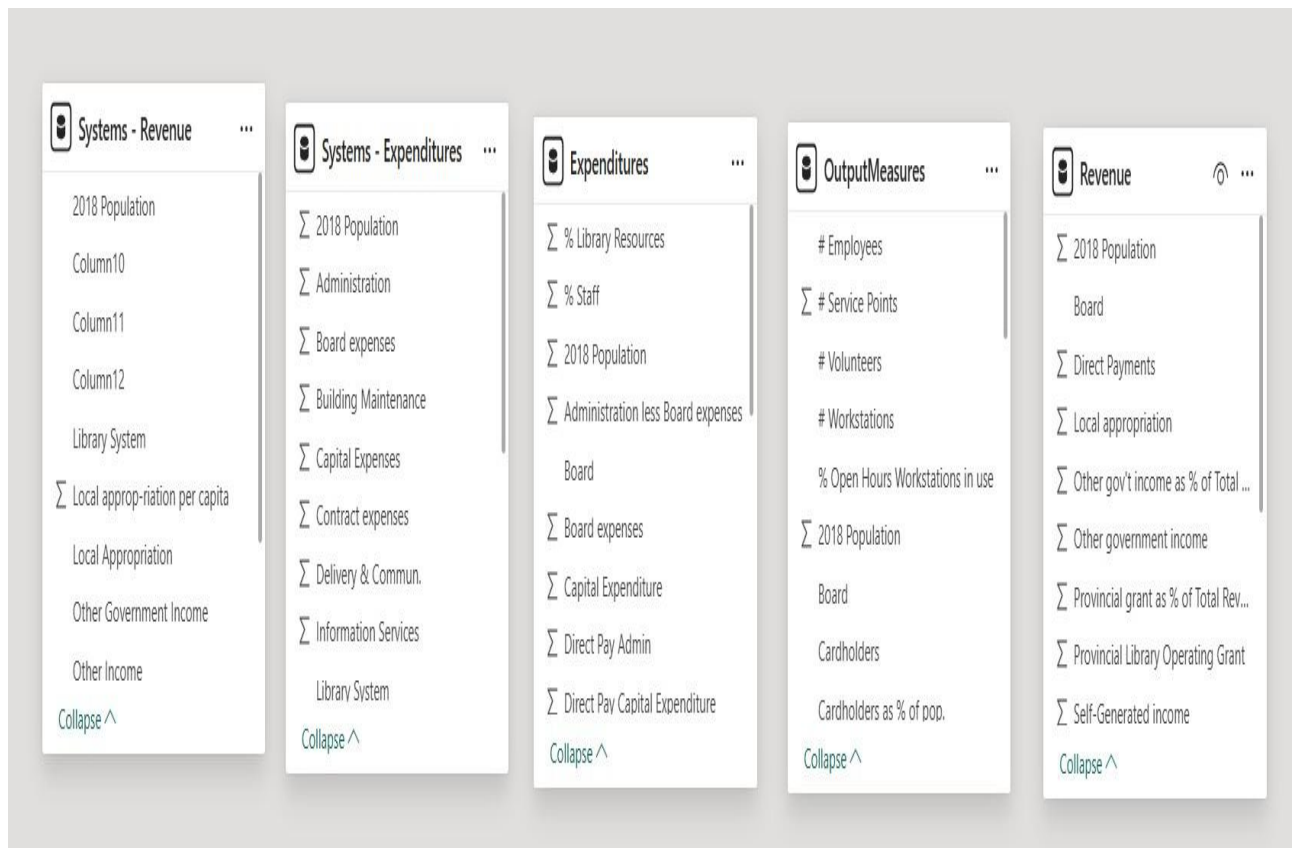
- **Revenue Sources Analysis** – Examines how libraries are funded by breaking down income from local appropriations, provincial grants, and self-generated revenue (e.g., fees, donations). This helps assess financial stability and funding diversification.
- **Expenditure Distribution** – Tracks how funds are allocated across key areas such as staffing, facility maintenance, technology upgrades, and collection development. Understanding spending patterns ensures efficient budget management.
- **Service Efficiency** – Measures the effectiveness of library operations by evaluating staffing levels relative to the population served and the number of service points. This helps determine resource adequacy and operational reach.
- **Circulation Trends** – Analyzes borrowing patterns of physical books, e-books, and digital media over time. This insight helps libraries adjust collections to match user preferences and demand.
- **User Engagement** – Assesses library usage through metrics like program participation rates, demographic trends in memberships, and workstation usage. This helps gauge community involvement and identify areas for service improvement.

6. Data Model

The dataset includes multiple dimensions:

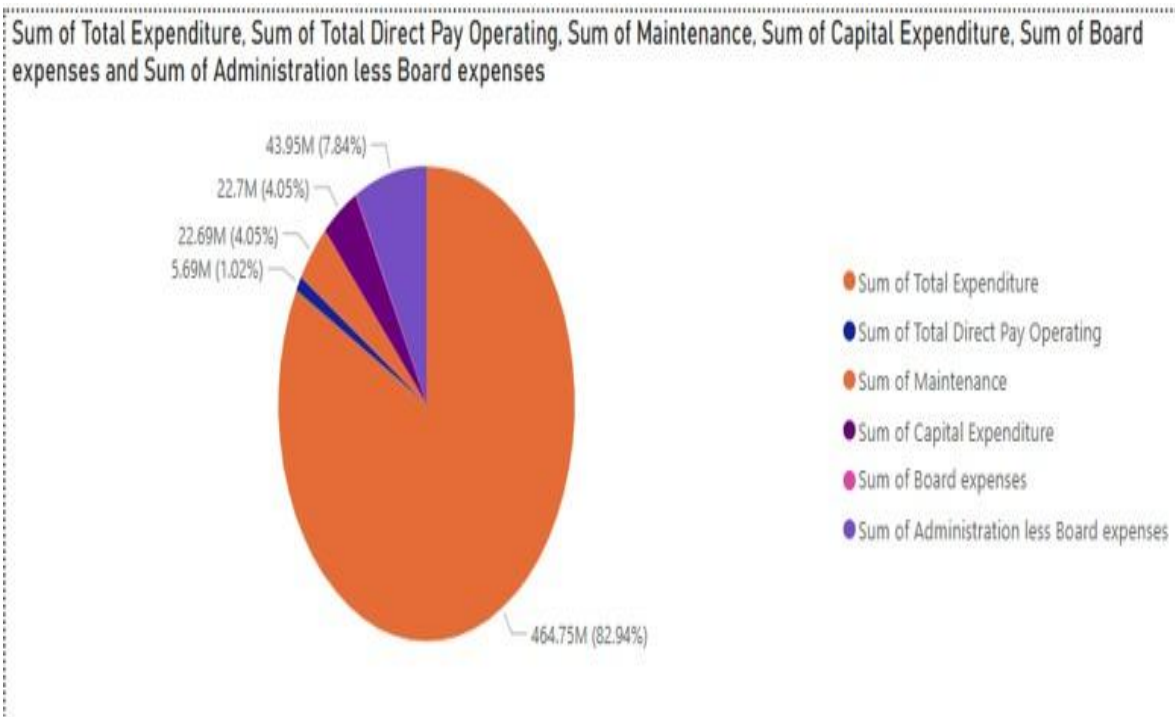
- **Revenue & Expenditure Tables:** Track financial inflows and outflows.
- **Operational Metrics:** Includes data on service points, employees, and circulation.
- **User Engagement Metrics:** Captures membership trends and program attendance.

7. Datasets



8. Power BI Dashboard

The pie chart provides a visual representation of how library funds are allocated across different expense categories, highlighting the dominance of total expenditure in the overall budget. Total expenditure accounts for **82.94%**, indicating that the majority of financial resources are directed toward core library operations and services.



Other expense categories include:

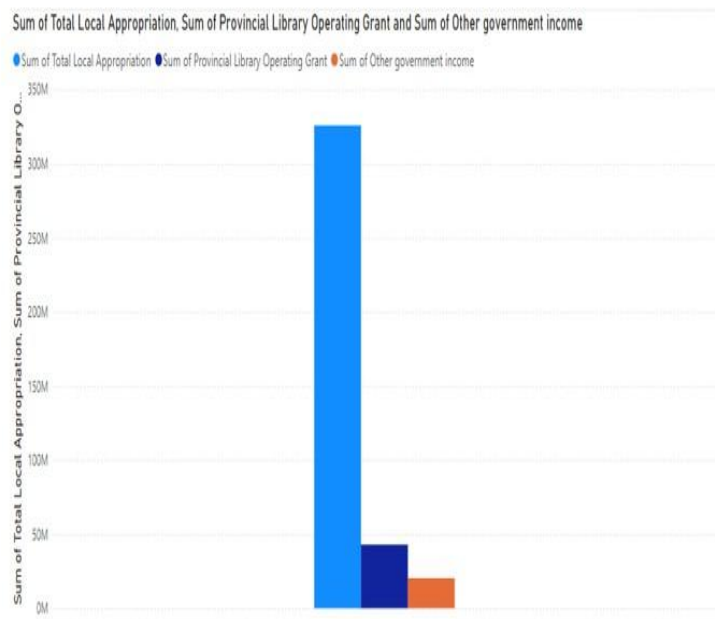
- **Direct Pay** – Covers salaries and wages for library staff, reflecting the importance of human resources in service delivery.
- **Maintenance** – Represents costs associated with facility upkeep, repairs, and infrastructure improvements to ensure a functional and welcoming environment for patrons.

- **Capital Expenditure** – Includes investments in new buildings, renovations, technology upgrades, and major asset purchases that contribute to long-term library development.
- **Board Expenses** – Accounts for costs related to library governance, including meetings, policy development, and administrative oversight.
- **Administration** – Encompasses general operating costs such as office supplies, software, marketing, and other managerial functions necessary for efficient library management.

The dominance of total expenditure in the pie chart suggests that library funding is primarily focused on sustaining daily operations and service delivery, while the remaining categories, though smaller in proportion, play crucial roles in maintaining and improving library infrastructure and governance.

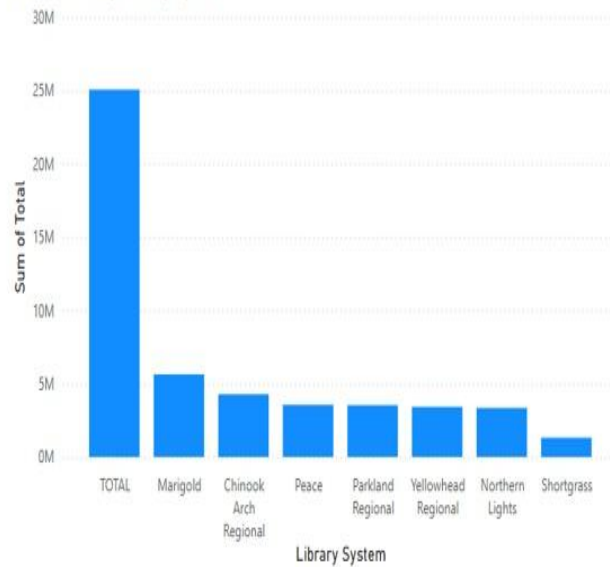
Source of Income

1. Local Appropriation
2. Provincial Grant
3. Other Government Sources



Revenue Generate by Library System

Sum of Total by Library System



The bar chart shows that the "TOTAL" library system has a significantly higher sum of total compared to other individual systems, with Marigold being the next highest, while Northern Lights and Shortgrass have the lowest. Understanding what "TOTAL" and "Sum of Total" represent is crucial for accurate interpretation

9. Results

- **Revenue Insights** – The primary source of library funding comes from local appropriations, indicating strong community and municipal support. In contrast, self-generated income—such as membership fees, donations, and late fines—contributes a smaller share, suggesting limited reliance on independent revenue streams.
- **Expenditure Trends** – A significant **82.94%** of total expenses go toward operational costs, including staff salaries, facility maintenance, and day-to-day library services. This highlights the priority given to sustaining core library functions over administrative or capital investments.
- **Operational Performance** – Efficiency in service delivery varies across different library systems. Some libraries operate with lower costs per user while maintaining high service quality, whereas others face higher expenses for similar levels of service. This variation suggests opportunities for optimizing resource allocation.
- **User Trends** – Membership participation fluctuates depending on location, with urban libraries often seeing higher foot traffic than rural counterparts. Additionally, there is a growing shift toward digital resource usage, as more users engage with e-books, online databases, and virtual programs, reflecting changing user preferences in library services.

10. Conclusion

Analyzing the Alberta Libraries dataset offers valuable insights into financial management, operational efficiency, and user engagement, enabling libraries to optimize resource allocation and improve service delivery. These findings highlight opportunities to enhance user satisfaction and operational effectiveness, demonstrating the significant role of open data in supporting data-driven decisions and improving public services.