

An Evaluative Study on the Role of Data Carpentry Tools in Library Management

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This study examines the utilization of data carpentry tools in contemporary library management, highlighting its capacity to improve data organization, analysis, and informed decision-making. As libraries evolve into data-centric settings, the incorporation of open-source data technologies presents significant enhancements in operational efficiency, digital resource management, and strategic planning. The study utilized a descriptive research design to thoroughly assess secondary data sources for the evaluation of several data carpentry tools frequently employed in libraries. The analyzed tools were OpenRefine, Koha, MarcEdit, Pandas, Tableau, SQL, DSpace, R, Google Refine, and Zotero. The tools were evaluated according to their usability, functionality, interoperability, and overall influence on library operations. Research findings indicated that these techniques markedly enhanced multiple facets of library management, encompassing cataloguing precision, meta-data enhancement, digital repository up keep, and bibliometric evaluation. The work flow automation and data cleansing functionalities offered by technologies such as OpenRefine and Pandas diminished manual labor and redundancy, resulting in enhanced data processing efficiency. Moreover, Koha and DSpace improved integrated library systems and digital asset management, and technologies such as Tableau and R facilitated sophisticated data visualization and predictive analytics. These features allowed libraries to discern user behavior trends, anticipate resource needs, and enhance collection development strategies. The study emphasizes the significance of interoperability and easy data inter change among library systems, enabled by these tools. By endorsing standardized formats and open protocols, data carpentry tools enhance collaboration and facilitate data reuse across platforms. The implementation of data carpentry tools is revolutionizing conventional library management into nimble, data-driven operations. These tools enhance resource management and service delivery while also promoting the long-term sustainability of library systems. Future research may encompass comparative studies among institutions, case-based implementation evaluations, and user-focused assessments to enhance data carpentry methodologies in library science.

Keywords: *Data carpentry; Data visualization; Digital repositories; Predictive analytics; Workflow automation*