© JUN 2026 | IRE Journals | Volume 9 Issue 12 | ISSN: 2456-8880
DOI: https://doi.org/10.64388/IREV9I12-1718559

Web-Based Operations Management in Higher Education: A Review of Google Looker Studio Applications in Internationalization

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Abstract- ***This paper examines how digital transformation can improve the operational efficiency of Internationalization Offices in Higher Education Institutions (HEIs). It reviews literature on digital transformation, web-based information systems, and business intelligence tools, focusing on Google Looker Studio (GLS) as a platform for data visualization, reporting, and performance monitoring. Guided by the Technology Acceptance Model (TAM), the study explores factors influencing system adoption and use. Findings indicate that GLS is a cost-effective and accessible tool that supports data-driven decision-making, operational coordination, and administrative efficiency. However, its effectiveness depends on data quality, system integration, and reliable internet connectivity. The study contributes to discussions on digital governance in higher education and highlights opportunities for further research on business intelligence applications in university administration.***

Index Terms- ***Google Looker Studio, Internationalization, Operations Management, Higher Education, Digital Transformation***

I. INTRODUCTION

In the Philippines, the Commission on Higher Education (CHED) strongly encourages Higher Education Institutions (HEIs) to adopt information and communication technologies (ICT) to strengthen governance, quality assurance, and global competitiveness. One of the academic units affected by this adoption is the Internationalization Office, which is responsible for managing international partnerships, student and faculty exchange, mobility, and global engagement of an institution or school.

Internationalization has become a critical component of higher education development as it enhances academic quality, global collaboration, and institutional reputation (Altbach & Knight, 2007). However, the increasing volume of international transactions and communication leads to operational challenges, particularly when processes are handled manually or through unintegrated tools. Al-Mamary et al. (2014) argue that the absence of an integrated operations management system often leads to data redundancy, slow retrieval, poor communication, and poor administrative performance.

With the advancement of cloud-based platforms, Google Looker Studio (GLS) has emerged as a tool for data visualization, real-time reporting, and operational monitoring. Despite these advantages, the use of GLS as a platform for operations management in Philippine Higher Education administrative offices remains largely unexplored.

This paper aims to review and examine how GLS can support administrative workflows, communication monitoring, and performance evaluation in Internationalization Offices.

II. GLOBAL NATIONAL TRENDS IN EDUCATIONAL DIGITAL TRANSFORMATION

Living in the Information Technology Era has brought significant changes to our world as it accelerates digitalization. Through everyday observation, it is evident that most people now rely on technology to accomplish various tasks—a trend that is also clearly

reflected in higher education. Nugroho et al. (2025) emphasize that the shift toward digital systems is transforming how universities operate, pushing institutions to adopt information technologies to meet rising expectations for efficiency, transparency, and innovation, making these tools essential to their overall strategic and operational functions. This transformation highlights not only the adoption of digital tools but also the increasing reliance on data-driven decision-making.

In Academe, universities use data to improve student performance, support faculty, and make school operations more efficient. Fitsilis et al. (2024) presented that Open Data is a tool to create opportunities for better decision-making, transparency, and new ideas. Similarly, Gorshenin (2018) noted that the development of a learning management system (LMS), a branch of digitalization, is highly effective for creating educational digital platforms. LMS platforms provide opportunities to build connections in communication, facilitate innovative technology use, and serve as a support tool for effective learning. Together, these digital tools and systems form the foundation for more connected and efficient higher education institutions.

Interconnectedness in Higher Education Institutions (HEIs) is crucial, as it strengthens collaboration, improves resourcing, teaching, management, and research. When departments, offices, and external partners are connected, information flows more smoothly, decisions are made faster, and academic services become more efficient (Altback, 2009). Information systems act as the digital backbone that enables institutions to collect, manage, share, and leverage data across borders, thereby enhancing efficiency, transparency, collaboration, and global competitiveness (United Nations, 2013). In this context, digitalization does not only provide tools but also fosters a culture of interconnectedness, where technology and collaboration reinforce one another.

In addition, technology has a significant role in improving communication and documentation within organizations. It streamlines workflows, reduces errors, and allows faster and more accurate information transfers. Platforms like Microsoft Teams, Slack, and Google Chat facilitate instant collaboration, while cloud-based systems and LMS platforms improve record-keeping and documentation. Automation and templates are also available for generating reports, forms, and logs, further reducing human errors and saving time. Collectively, these technological advancements demonstrate how digital systems support both operational efficiency and organizational connectivity in higher education.

III. INTERNATIONALIZATION AND ITS OPERATIONAL CHALLENGES

The Commission on Higher Education (CHED) formally adopted the Policy Framework and Strategies on the Internationalization of Philippine Higher Education through CHED Memorandum Order No. 55, series of 2016 (CMO 55, s. 2016). This memorandum establishes internationalization as a strategic, system-wide mandate for Higher Education Institutions (HEIs) to actively engage in global academic practices. The primary objective of internationalization is to enhance the overall quality of higher education in the Philippines by encouraging HEIs to innovate and align their programs with international standards.

Internationalization Offices play a critical role in managing institutional partnerships, Memoranda of Understanding (MOUs), student exchanges, and mobility programs. Due to the volume and complexity of these tasks, ensuring accuracy, efficiency, and consistency in documentation is essential. However, reliance on manual operations often presents significant challenges. Custodio-Bachiller, Busch, and Guzman (2022), in their study “Process Managing the Study Abroad Experience: An Innovative Framework,” argue that managing partnerships, documentation, communication, and student mobility through manual or uncoordinated processes frequently leads to inefficiencies, delays, and errors. Similarly, Maria (2020) emphasizes that cloud-based tools can streamline processes, making them faster and more reliable. She advocates for a “lean mindset” in international student services, which involves eliminating unnecessary burdens, avoiding redundant paperwork, and focusing on value from the student’s perspective.

Moreover, Qui (2019), in a case study on institutional internationalization, highlights operational challenges arising from unclear and ineffective communication channels between faculty, staff, and the administration responsible for managing international programs. Such challenges further underscore the limitations of manual processes in complex academic operations.

From a global perspective, universities worldwide are increasingly adopting digital tools to enhance efficiency, governance, and institutional performance. According to a 2025 Devdiscourse article, "Digitalization reshapes global higher education: Universities turn to AI for smarter governance," higher education institutions are leveraging cloud platforms, artificial intelligence (AI), and automation to improve routine tasks, enhance data accuracy, and facilitate faster decision-making. This shift toward digital administrative systems reflects a broader global trend in HEIs toward modernization, operational efficiency, and smarter governance.

IV. WEB-BASED INFORMATION SYSTEMS FOR EDUCATIONAL ADMINISTRATION

Web-based Information System is a type of information system that uses web technologies to collect, process, store, and provide information. This type of system allows users to access, manage, and interact with data remotely by the use of the internet. It is also used to provide real-time update and centralized management, and has a great accessibility as it can be used in different devices promoting portability. Moreover, Web-based systems have become central infrastructure for modern academic administration as it increases transparency, enables real-time communication, and it allows institutions to document everything. The scholars of E-government and public information systems show that a platform that is ICT-enabled is a ground for an openness culture as it limits discretionary procedures and providing public documents. It is also stated that ICT-enabled platforms can be used for higher education administration (Bertot, Jaeger, & Grimes, 2010). In the context of university, Turnbull et al. (2022) presented that web systems are a medium to act of authorization to verify actions and policies quickly such as a) institution portals, b) partner portals, c) official data (enrollment, approvals, MOUs).

Web platforms enable multi-channel communication, the 2000 literature of Garrison, Anderson and Acher states that structured web environments support effective, trustful communication, and collaboration. These elements are not only important in the academic portion but also in administrative workflows. The communication of the Inquiry framework clearly shows that the online environment has a great impact to improve clarity and reduce misunderstandings across stakeholders.

Web-based operations management systems highlight some benefits. It reports the following: a) centralized documentation, b) real-time accessibility, and automated workflows with monitoring capabilities.

Centralized documentation. Web-based operations management systems consolidate important documentation such as memoranda, agreements, records, and approval into one place. The benefit of this is it reduces version conflicts and potential loss of the documents. This makes the management and audit easier. (Turnbull et al., 2022)

Accessibility and real-time updates. Web-based platforms offer portability as it can be accessed by the stakeholders anytime and anywhere. This feature is important in internationalization as delays can cost a lot in everyday operations. From the reviews of Perez et al., 2023 as cited by Bates, 2015, information and communication channels promote engagement and stop setbacks for administrative and academic operations.

Automated workflows and monitoring. The modern web system is a platform to reduce manual processing time that lessens inconsistency and it produces data for monitoring which can be used for the improvement of process and assurance (Bates, 2015).

V. GOOGLE LOOKER STUDIO AS A TOOL FOR ACADEMIC AND ADMINISTRATIVE PROCESS AUTOMATION

Google Looker Studio (GLS) is a cloud-based data visualization and business intelligence platform that makes raw data into interactive dashboards and reports (Google, 2023). It integrates google workspace applications such as sheets, forms, drive, which are widely used in academic settings. Due to its accessibility and real-time processing, looker studio is a relevant platform to use for academic and administrative environments.

Educational institutions can use looker studio to see key performance indicators (KPIs) such as student enrollment, academic performance, faculty schedules, research outputs, and other institutional performances (UNESCO, 2021). The growing demand for data-driven decision-making in education encourages administrators to adopt dashboard-based systems that can provide analytics which can be used for planning and evaluation (OECD, 2020). In internationalization offices, looker studio can be utilized to track mobility, monitor partnership activities, and evaluate collaboration trends – a thing to use to improve transparency and strategic decision-making.

Moreover, GLS promotes collaborative access, administrators and staff may view and analyze the web-based system simultaneously. According to Educause (2022), collaborative digital dashboards enhance coordination, reduce redundancies, and improve institutional responsiveness. This platform can be used to make the communication stronger, and reduce delays due to easier consolidation and reporting.

One of the primary advantages of GLS is its capability for automated data visualization and reporting. Through connection in live data sources, dashboards automatically update its information that eliminates the need to manual encoding. These features reduce human error and enhance the speed and accuracy of administrative reporting. (Google, n.d).

Another advantage of GLS is its no-code interface. It allows a non-technical user to create interactive visual reports using the user-friendly tools, filters, and customizable layouts. Ramirez-Montoya et al. (2022) presented low-code no-code platforms encouraging non-IT personnel to take part with digital innovations, reducing the dependency on specialized technical staff.

Despite the GLS's advantage, GLS presents some limitations. One of these is the reliance on internet connectivity. Real-time performance may be affected in areas with unstable connectivity (UNESCO, 2021).

Another limitation is its limitation in advanced analytics capabilities. Though GLS is efficient when it comes to visualization, GLS is not fully functional in advanced predicting modeling, statistical analysis, and heavy data processing. This advancement is already available in more specialized business intelligence platforms (OECD, 2020).

In addition, the effectiveness of GLS depends heavily on the quality of the organization data. If the dataset created is poorly encoded, inaccurate visualization and misinformed decisions can be seen. Lastly, GLS is free, some advanced connectors and integration require third-party service, which may be a setback for institutions with limited budgets (Google, 2023).

VI. OPERATIONS MANAGEMENT FRAMEWORK IN ADMINISTRATIVE SYSTEMS

An operations management system consists of interconnected components that work as one to support the efficiency of an organization. These are the following fundamental components:

Process mapping. It involves a visually defining workflows to identify the sequence of tasks, different roles, decision-making, and potential efficiencies (Dumas et al., 2018)

Task Tracking. This is a type of system that allows administrators to monitor progress, tasks, deadlines, and accountability in real time. According to Laudon and Laudon (2020), task tracking tools strengthen the

visibility and support performance evaluation as it provides measurable processes indicators.

Document control. Document control ensures accuracy, prevents data loss, regulates access, and supports audit trails (ISO, 2018). The management of documents is significant in international offices that handle MOUs, mobility documents, and compliance reports.

In relation to operations management, digital transformation models are also relevant. Digital transformation in administrative systems is guided by established information systems and technology adoption models. One of the most widely used frameworks is the Technology Acceptance Model (TAM), developed by Davis (1989). TAM is a theory that explains how users accept and use a new technology and is based on two factors: perceived usefulness and perceived ease of use. It states that users will adopt a technology if the user believes it will be beneficial and easy to use. If a person believes a technology is both useful and easy to use, their intention to use the technology increases.

VII. SYNTHESIS

Today's Information Technology era mandates that HEIs undergo digital transformation to maintain competitiveness and efficiency. This transformation is driven by the need of transparency, efficiency and innovation in operational functions (Nugroho et al., 2025) HEIs are adopting digital systems, including Learning Management Systems (LMS) (Gorshenin, 2018) and cloud platforms, to support data-driven decision-making (Fitsilis et al., 2024), which in turn improves student performance, faculty support, and administrative efficiency Importantly, these digital tools foster a culture of interconnectedness, serving as a digital backbone that allows for smoother information flow, faster decision-making, and enhanced collaboration across departments and with external partners (Altback, 2009; United Nations, 2013), thereby strengthening all areas of academic and administrative practice.

A primary application of this digitalization is in addressing the complex operational challenges of Higher Education Internationalization. While internationalization is a strategic mandate (CHED, 2016), its administration is often hampered by manual processes that lead to inefficiencies, delays, and communication failures (Custodio-Bachiller, Busch, & Guzman, 2022; Maria, 2020; Qui, 2019). The solution lies in implementing Web-based Information Systems (Turnbull et al., 2022) that provide centralized documentation, real-time accessibility (Perez et al., 2023, as cited by Bates, 2015), and automated workflows (Bates, 2015). These systems align with the global trend toward smarter governance (Devdiscourse, 2025), reducing human error, streamlining communication (Garrison, Anderson, & Acher, 2000), and ensuring that administrators and staff have instant, accurate access to necessary data for effective operations management.

To facilitate this digital transformation, platforms like Google Looker Studio (GLS) (Google, 2023) offer an accessible, cloud-based solution for process automation and data visualization. GLS transforms raw data into interactive dashboards, enabling administrators to track key performance indicators (KPIs) (UNESCO, 2021; OECD, 2020) and monitor internationalization activities without manual encoding, promoting transparency and strategic planning. The successful adoption of such systems (Educause, 2022; Ramirez-Montoya et al., 2022), guided by frameworks like the Technology Acceptance Model (TAM) (Davis, 1989), depends on their perceived usefulness and ease of use. Ultimately, the integration of structured operations management components—such as process mapping (Dumas et al., 2018), task tracking (Laudon & Laudon, 2020), and document control (ISO, 2018)—with user-friendly digital tools is essential for modern HEIs to achieve institutional responsiveness and efficient global engagement.

VIII. CONCLUSION

This review demonstrates that Google Looker Studio offers a promising approach to improving operations management in Internationalization Offices. By integrating data visualization, real-time reporting, and centralized workflows, GLS can address key challenges in administrative processes.

The study contributes to the growing discourse on digital transformation in higher education and highlights the need for further empirical research on the implementation of business intelligence tools in administrative contexts. Future studies may explore system effectiveness across different institutions and the integration of advanced analytics for enhanced decision-making.

ACKNOWLEDGMENT

“He cuts off every branch in me that bears no fruit, while every branch that does bear fruit He prunes so that it will be even more fruitful.” — John 15:2 (NIV) This paper would not have been possible without the guidance and grace of the Lord, who has removed the things in my life that we did not truly need and helped us appreciate the people who have supported and strengthened us throughout this journey.

We would also like to express my sincere gratitude to my research advisers Dr. Clarizza L. De Leon, for their valuable insights, encouragement, and constructive guidance, which made this study timely, relevant.

To my best friend, Engr. Gizelle Mae Domingo, thank you for your constant encouragement, motivation, and belief in my ability to move forward and stay productive.

To my Family, I am deeply grateful for your unwavering support, love, and faith in all my goals and endeavors.

This journey would not have been possible without all of you. Thank you very much.

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