Data Governance in Ads Marketing and OTT TV Streaming: A Comprehensive Study

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Abstract

This paper explores the critical role of data governance in the domains of ads marketing and Over-The-Top (OTT) TV streaming services. With the increasing volume of data generated by these sectors, effective data governance is essential for ensuring data quality, security, and compliance with regulatory requirements. This study reviews the current literature on data governance, identifies key activities and challenges, in ads marketing and OTT TV streaming. The findings highlight the importance of a structured approach to data governance to enhance data-driven decision-making and maintain user trust.

Keywords- Data Governance, Ads Marketing, OTT TV Streaming, Data Quality, Data Security, Regulatory Compliance.

INTRODUCTION

The rapid growth of digital marketing and Over-The-Top (OTT) TV streaming services has led to an unprecedented increase in data generation. Internet users are increasingly utilizing Video on Demand (VoD) applications such as Netflix, Amazon Prime, and YouTube. Additionally, traditional live television channels are now being streamed by providers like Sling TV and DirectTV Now. According to the Cisco Visual Networking Index (VNI), video content is projected to constitute 80-90% of internet traffic by 2021[1]. VoD services demand significant computational, storage, and network resources, which are both costly and often limited. Therefore, innovative resource management strategies are essential to handle the growing video traffic and ensure effective data governance.

Data governance involves the establishment of policies, standards, and practices to ensure data quality, security, and compliance with legal and ethical standards. In recent years, the volume of data used within organizations has increased dramatically, playing a critical role in business operations. Data governance and data management have been embraced as disruptive technologies that will reshape business intelligence, which relies on data analytics to gain business insights for better decision-making. This paper aims to provide a comprehensive analysis of data governance activities in ads marketing and OTT TV streaming, drawing on existing literature and case studies[1][2].

Studies have partially analyzed VoD services, focusing on user behavior in video watching sessions. These studies, which utilized data collected before 2014 and processed using Hadoop systems, primarily examined mobile live streaming systems. However, they only considered live content and mobile devices, thus overlooking a substantial portion of content and users. Privacy concerns and the limited availability of public data from major video streaming services have further hindered research in this area, making it less advanced compared to studies on mobile traffic patterns and application usage. Notably, the data used in these studies included detailed viewing traces, content types, and anonymized user information such as age group, IP address, and device type. It was the first to employ big data analytics tools like Apache, Spark and Zeppelin to analyze video streaming activities. The extensive size and scale of the data necessitated more advanced analytics tools

Reference No.	Authors	Title	Source	Characteristics
1.	Alhassan, I., Sammon, D., & Daly, M.	Data governance activities: an analysis of the literature	Journal of Decision Systems	This study provides a comprehensive analysis of data governance activities, focusing on defining areas of governance and identifying gaps in the literature. It categorizes data governance activities and highlights the need for a structured approach to data governance.
2.	Janssen, M., Brous, P., Estevez, E., Barbosa, L. S., & Janowski, T.	Data governance: Organizing data for trust worthy Artificial Intelligence	Government Information Quarterly	This paper discusses the importance of data governance in ensuring trustworthy AI. It proposes a framework for data governance that includes principles for data stewardship, transparency, and risk-based governance. The study emphasizes the need for controlled data sharing and the establishment of data provenance to mitigate biases.
3.	Schmuck, M.	Data Governance Issues in Digital Marketing: A Marketer's Perspective	Expert Journal of Marketing	This study explores data governance issues specific to digital marketing, such as data privacy, security, and compliance. It highlights the importance of transparency and control in data collection and management to build trust with consumers. The study also discusses the role of data governance in enhancing customer satisfaction and compliance with data protection regulations.
4.	Rahman, S., Mun, H., Lee, H., Lee, Y., Tornatore, M., & Mukherjee, B.	Insights from Analysis of Video Streaming Data to Improve Resource Management	2018 IEEE 7th International Conference on Cloud Networking (CloudNet)	This paper analyzes video streaming data to improve resource management in cloud networks. It focuses on optimizing resource allocation and enhancing the quality of service for video streaming applications. The study uses data analytics to identify patterns and trends in video streaming usage.
5.	Fan, Shaokun & Lau, Raymond & Zhao, J.	Demystifying Big Data Analytics for Business Intelligence Through the Lens of Marketing Mix	Big Data Research	This study examines the use of big data analytics in business intelligence, particularly in the context of the marketing mix. It identifies data sources, methods, and applications related to marketing intelligence. The study discusses the challenges and future directions of big data analytics in marketing
6.	Cheong, Lai Kuan, & Vanessa Chang	The need for data governance: a case study	ACIS 2007 proceedings	This case study highlights the importance of data governance in managing enterprise data. It outlines a data governance model that includes roles, decision areas, and responsibilities. The study emphasizes the need for a structured approach to data governance to ensure data quality and compliance.

to ensure the analysis remains scalable for future research and practical deployment scenarios[1].

This study employs a literature review and content analysis approach to identify key data governance activities and challenges in ads marketing and OTT TV streaming. Open coding techniques were used to categorize data governance activities into five decision domains: defining, implementing, monitoring, controlling, and improving. The analysis draws on existing research and case studies to provide a comprehensive overview of data governance practices in these sectors[4].

LITERATURE REVIEW

Data Governance in Digital Marketing

Data governance in digital marketing focuses on ensuring that marketing data is accurate, complete, and secure. Schmuck (2022) discusses the challenges marketers face in managing data quality and security, emphasizing the need for clear data governance frameworks [3]. Fan et al. (2015) highlight the importance of big data analytics in marketing intelligence, which relies heavily on high-quality data [5].

Effective data governance can help marketers standardize data sources, improve data quality, and ensure data security, ultimately enhancing marketing intelligence and decision-making.

Data Governance in OTT TV Streaming

OTT TV streaming services generate vast amounts of data related to user behavior, viewing habits, and device usage. Rahman et al. (2018) analyzes video streaming data to improves resource management, highlighting the need for effective data governance to manage this data efficiently [4]. The rise of Big, Open, and Linked Data (BOLD) has further complicated data
governance in this sector, as these systems must handle varied, dynamic, and real-time data streams. Janssen et al. (2020) propose a framework for data governance in trustworthy AI systems, which is highly relevant for OTT TV streaming services that rely on AI for content recommendations and user personalization [2].

Data Flow	Description
User Interaction	User watches content on a streaming platform
Data Collection	Data on viewing habits, device usage, and user behavior is collected
Data Storage	Collected data is stored in a centralized database
Data Analysis	Data is analyzed to generate insights for content recommendations and resource management.
Feedback Loop	Insights are used to improve user experience and optimize resource

Table 1. Data Flow in OTT TV Streaming Services

METHODOLOGY

This study employs a literature review and content analysis approach to identify key data governance activities and challenges in ads marketing and OTT TV streaming. Open coding techniques were used to categorize data governance activities into five decision domains: defining, implementing, monitoring, controlling, and improving. The analysis draws on existing research and case studies to provide a comprehensive overview of data governance practices in these sectors.

Table 2. Characteristics of the Included Studies

RESULTS

A.Key Data Governance Activities

The analysis identified 110 data governance activities across the five decision domains. The majority of activities were associated with the 'defining' domain, which includes establishing data roles and responsibilities, data policies, and data standards. However, there was a notable lack of activities related to 'implementing' and 'monitoring' data governance, indicating a gap in practical application and oversight [5].

Decision Domain	Key Activities
Defining	Establishing data roles and responsibilities, developing data policies and standards, defining data quality metrics
Implementing	Deploying data governance tools, training staff, integrating data governance into workflows
Monitoring	Tracking data quality and compliance, conducting audits, using data analytics for monitoring
Controlling	Implementing access controls, ensuring regulatory compliance, managing data lifecycle
Improving	Refining data governance policies, incorporating feedback, adapting to new technologies

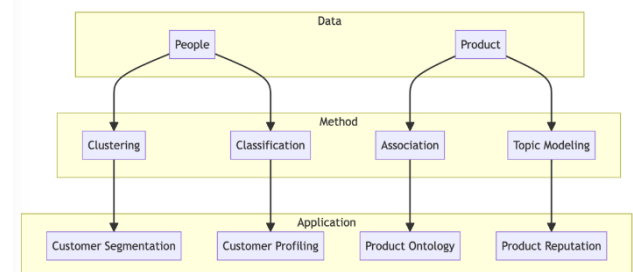Table 3. Key Data Governance Activities Across Decision Domains

Figure 1. Data Governance Framework

A. Challenges in Data Governance

Several challenges were identified in the implementation of data governance frameworks. These include the complexity of managing data from multiple sources, ensuring data quality and security, and complying with regulatory requirements such as GDPR [3]. The lack of clear roles and responsibilities and insufficient data governance tools for data profiling and cleansing were also significant barriers to effective data governance.
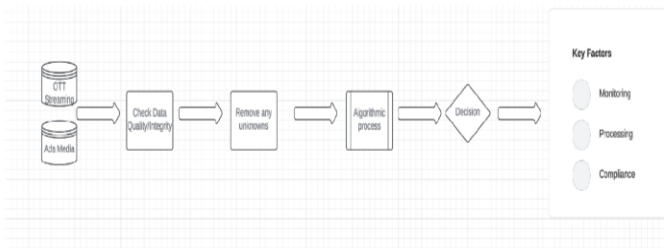
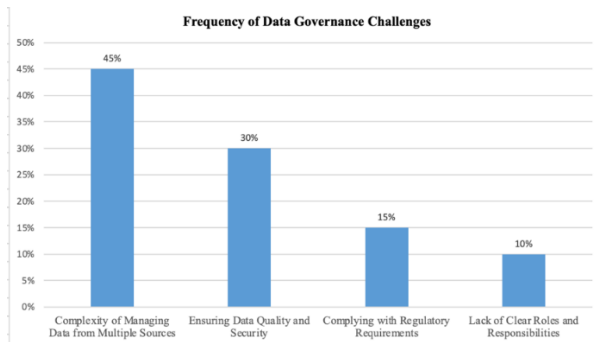Figure 2. Data Governance Steps

Figure 3. Frequency of Governance Challenges

II. DISCUSSION

The findings highlight the critical need for a structured approach to data governance in ads marketing and OTT TV streaming. A comprehensive data governance framework should include clear policies and standards, robust data quality and security measures, and effective monitoring and control mechanisms. Collaboration between business and IT is essential to ensure that data governance initiatives are aligned with corporate objectives and can be effectively implemented [6].

III. CONCLUSION

Data governance is essential for managing the vast amounts of data generated by ads marketing and OTT TV streaming services. This study provides a comprehensive analysis of data governance activities and challenges in these sectors, highlighting the need for a structured approach to data governance. Future research should focus on developing practical frameworks for implementing and monitoring data governance to enhance data quality, security, and compliance.

IV. REFERENCES

[1]. Alhassan, I., Sammon, D., & Daly, M. (2016). Data governance activities: an analysis of the literature. Journal of Decision Systems, 25(sup1), 64–75.https://doi.org/10.1080/12460125.2016.1187397.
[2]. Janssen, M., Brous, P., Estevez, E., Barbosa, L. S., & Janowski, T. (2020). Data governance: Organizing data for trustworthy Artificial Intelligence. Government Information Quarterly, 37(3),101493.
[3]. Schmuck, M. (2022). Data Governance Issues in Digital Marketing: A Marketer's Perspective.
[4]. Rahman, S., Mun, H., Lee, H., Lee, Y., Tornatore, M.,& Mukherjee, B. (2018). Insights from Analysis of Video Streaming Data to Improve Resource Management. 2018 IEEE 7th International Conference on Cloud Networking (CloudNet), Tokyo, Japan, pp. 1-3, doi:10.1109/CloudNet.2018.8549180.
[5]. Fan, Shaokun & Lau, Raymond & Zhao, J. (2015). Demystifying Big Data Analytics for Business Intelligence Through the Lens of Marketing Mix. Big Data Research, 2,10.1016/j.bdr.2015.02.006.
[6]. Cheong, Lai Kuan, and Vanessa Chang. "The need for data governance: a case study." ACIS 2007 proceedings (2007): 100.