Monetization of Social Media Data: A Systematic Review of Studies, Techniques of Analysis, and Strategies for Value Creation

Monetização dos Dados de Mídias Sociais: Uma Revisão Sistemática sobre os Estudos, Técnicas de Análise e Estratégias para Monetização

Cláudia Rodrigues Maia https://orcid.org/0000-0002-7274-0118 Doutora em Administração. Universidade Federal do Rio Grande do Sul – UFRGS – Brasil. claudiarmaia@hotmail.com

Antônio Carlos Gastaud Maçada https://orcid.org/0000-0002-8849-0117 Doutor em Administração. Universidade Federal do Rio Grande do Sul – UFRGS – Brasil. acgmacada@ea.ufrgs.br

Guilherme Lerch Lunardi https://orcid.org/0000-0003-3250-2796 Doutor em Administração. Universidade Federal do Rio Grande - FURG – Brasil. gllunardi@furg.br

ABSTRACT

Social media have become important B2B and B2C communication channels, generating huge amounts of data. However, most companies struggle to measure the value of data and their monetization is still an unknown opportunity. While organizations are increasingly interested in extracting knowledge and monetizing their data by analyzing the value chain, little research has been done to examine data-driven business models and the challenges involved in monetizing the data generated by stakeholder interactions. This study addresses this concern, by conducting a Systematic Literature Review on the monetization of social media data. The search strategy resulted in 35 studies published in the main IS journals identified in Scopus database. Thus, we aimed to map the characteristics of scientific publications related to social media data monetization and the monetizing techniques of analysis and strategies for value creation. We used the bibliometrix package, in the R software. The results present the state-of-the-art about social media data monetization, highlighting different forms of monetization and strategies for generating value through the social media data value chain. The study contributes to the expansion of knowledge of scientific production about social media data and their monetization by exploring value creation opportunities for business.

Keywords: social media data; data monetization; data value; data value chain.

RESUMO

As mídias sociais tornaram-se importantes canais de comunicação B2B e B2C, gerando enormes quantidades de dados. No entanto, a maioria das empresas enfrenta dificuldades para medir o valor dos dados e sua monetização ainda é uma oportunidade desconhecida. Enquanto as organizações estão cada vez mais interessadas em extrair conhecimento e monetizar seus dados através da análise da cadeia de valor, pouca pesquisa foi feita para examinar modelos de negócios orientados por dados e os desafios envolvidos na monetização dos dados gerados pelas interações das partes interessadas. Este

estudo aborda essa preocupação, realizando uma Revisão Sistemática da Literatura sobre a monetização de dados de mídias sociais. A estratégia de busca resultou em 35 estudos publicados nos principais periódicos de SI identificados na base de dados Scopus. Assim, o objetivo do estudo foi mapear as características das publicações científicas relacionadas à monetização de dados de mídias sociais e as técnicas de análise e estratégias de criação de valor para monetização. Foi utilizado o pacote bibliometrix, no software R. Os resultados apresentam o estado da arte sobre a monetização de dados de mídias sociais, destacando diferentes formas de monetização e estratégias para gerar valor através da cadeia de valor dos dados de mídias sociais. O estudo contribui para a expansão do conhecimento da produção científica sobre dados de mídias sociais e sua monetização, explorando oportunidades de criação de valor para negócios.

Palavras-chave: dados de mídias sociais; monetização de dados; valor dos dados; cadeia de valor dos dados.

Recebido em 16/01/2024. Aprovado em 28/01/2025. Avaliado pelo sistema *double blind peer review*. Publicado conforme normas da APA.
https://doi.org/10.22279/navus.v16.1851

1 INTRODUCTION

The rapid growth in the volume of data generated in the online context, and the development of digital services, businesses, and devices (Van't Spijker, 2014) are enabling data to be recognized as potential monetization assets. Refining and extracting valuable information and knowledge from massive amounts of data, which grows daily, provides the formation of a new field of study called "data monetization", defined as the process of converting data and their analysis (analytics) on financial return (Hanafizadeh & Harati Nik, 2020).

As companies move from selling products to selling or renting services, the value of data increases exponentially (Parvinen et al., 2020), requiring new possibilities and methods to be traded as commercial goods (Lawrenz & Rausch, 2021). Driven by the Internet and technology, many organizations stopped being providers of products and services and became facilitators of innovation and collaboration for new ideas in the digital economy (Suseno et al., 2018). Thus, there is a need to seek new ways to assess the creation of value in the current digital ecosystem due to the growth in the number of companies operating in this environment (Suseno et al., 2018). The value generated in the social ecosystem is derived from experience with internal and external stakeholders and multidirectional influence flows (Gosline & Krithivasan, 2021). In this sense, it is relevant to analyze social information arising from communication and collaboration between customers, consumers, and companies.

In this new scenario, consumers are no longer simply passive recipients of services and increasingly become co-creators of value. Today, social media has been used as a space for discussing ideas about products, services, or processes, generating a wealth of content created by themselves (Suseno et al., 2018). This suggests that value is created through dynamic interactions carried out on social media between the stakeholders (Tantalo & Priem, 2016), rather than being created exclusively by one or another digital company. According to Jimenez-Marquez et al. (2019), analyzing what customers are talking about the company on social media is a key factor for companies to succeed in the era of big data. However, analyzing data from social media is a complex task, due to the subjectivity that exists in proofreading the text and the additional resources employed in the raw data. Nevertheless, asdata are becoming more valuable than ever, many organizations have sought to adapt processes that deal with the specifics of big data as they are capable of extracting knowledge and efficiently monetizing data assets (Faroukhi et al., 2020).

The numerous advantages associated with the use of social media to stakeholders have attracted the attention of researchers from different fields, including Information Systems (IS) (Jeyaraj & Zadeh, 2020; Dwivedi et al., 2021). However, little research has examined data-driven business models, as well as the value and challenges involved in data monetization (Parvinen et al, 2020). In order to provide a comprehensive overview of how social media data can generate value for the digital business ecosystem and be monetized by firms, this study presents a systematic literature review aiming at (i) mapping characteristics of the studies about data monetization, (ii) identifying the techniques used in monetizing social media data, and (iii) identifying the main monetizing strategies for value creation. The study seeks to broaden the scientific knowledge about social media data and monetization by exploring value creation opportunities for businesses, in addition to raising awareness in the academic community about the potential for research on monetization and the value of social media data. Next, we present a review of the literature on social media data monetization, followed by the methodological procedures, results, and final considerations.

2 LITERATURE REVIEW

2.1 Social Media Data

Social media are important communication channels between companies and consumers, providing a lot of data generated by users online. However, as they are unstructured, subjective, and found in massive databases, they are not fully used (Chan et al., 2016). When referring to social media, applications like Facebook, WhatsApp, Twitter, YouTube, LinkedIn, and Instagram come to our mind. These apps are powered by user-generated content and are capable of influencing a variety of settings, from buying/selling behaviors, entrepreneurship, and even political issues (Greenwood & Gopal, 2015). In this environment of online interactions, consumer ratings and reviews expressed on social media enhance the quality, credibility, and authenticity of the information, bringing together people with similar interests and goals.

For Momot et al. (2020), the value of social-network information derives especially from network connections or friends. Thus, companies can use their data to improve internal processes and decision-making as well as to improve their products and services, making it necessary to identify the value of social media data so that it can generate value for organizations. An example is the case of Alibaba, which aggregates and analyzes data from users who are part of its digital ecosystem to obtain unique insights into the preferences and purchasing habits of its buyers. The company shares these insights with its partners to help them make better decisions and create new business models (Williamson & De Meyer, 2019).

The phenomenon of social media is already well recognized as an important topic by the main IS journals (Dwivedi et al., 2021; Jeyaraj & Zadeh, 2020) and the combination of measurement of human behavior facilitated by information technology (IT) brings social media analytics to the forefront of IS interest (Jeyaraj & Zadeh, 2020). Thus, the massive volume of data generated by social media interactions has been intensively researched and big data analytics has emerged as an important area of research using various traditional data mining and machine learning techniques (Ghani et al., 2019).

2.2 Data monetization for business

Data monetization has gained importance, both in research and in practice, as an emerging phenomenon driven by current technological trends in the context of big data. Business leaders are looking to generate value from their massive data assets, increasingly seeking to monetize them. However, knowing how to manage the data life cycle and extract insights to generate business value requires a complete understanding of the life cycle of operational, customer, and third-party data (Parvinen, 2020; Alfaro et al., 2019; Faroukhi et al., 2020). Researchers have proposed distinct business models and strategies to monetize data in different contexts (Faroukhi et al., 2020).

Najjar and Kettinger (2013) define data monetization as the conversion of the intangible value of data into real value, usually through sales or other tangible benefits. Before data can be monetized, data needs to be processed and discovered first as it is a value creation process that needs different technologies and business know-how (Najjar & Kettinger, 2013; Liu & Chen, 2015). The use and monetization becoming important and increasingly relevant because it encourages companies to collect and use or sell data for business decision-making, making this a true source of competitive advantage for businesses in the digital economy (Wixom & Ross, 2017). However, many companies do not know exactly how useful these data will be to them (Ray et al., 2020). Most companies find it difficult to value

their data (Parvinen et al., 2020), however, the global data monetization market is expected to reach around US$370 million by 2023 (Allied Market Research, 2018).

According to the research by McKinsey Analytics (2017), many companies monetize their data to a limited extent, indicating that some are struggling to extract economic value from their data. In fact, a step towards data monetization can be very challenging for organizations in practice, as it often requires organizational changes and technology upgrades (Wixom & Ross, 2017).

To remain competitive, companies need to identify the most promising opportunities for data usage, as well as their benefits, to make monetization efforts (Wixom & Ross, 2017). However, there is still a lack of guidance and know-how for companies to start exploring opportunities to create value from their data assets (Liu & Chen, 2015). According to Hanafizadeh & Harati Nik (2020), it is necessary to have a better understanding of the data monetization process based on analytical insights that can result in greater effectiveness and usefulness for organizations, capable of generating competitive and strategic advantage. The idea of monetizing, creating new value, and revenue from data is not new. But, based on the literature, the conclusion is that there are still few journals in the IS area that are dealing with the topic. According to Suseno et al. (2018), empirical studies are limited and necessary to investigate value-creation practices as a result of interactions between stakeholders.

3 METHODOLOGICAL PROCEDURES

According to Kitchenham (2004), Systematic Literature Reviews (SLR) aim to summarize evidence on existing research, identify gaps in the literature, build theoretical frameworks to support new research activities, and collect empirical evidence to support, contradict or generate new hypotheses. Consistent with the rigor for the existence of science, in terms of objectives, this research is characterized as a descriptive scoping review (Paré et al., 2015), as it seeks to describe aspects related to the characteristics, the potential size, and nature of existing literature on an emerging topic. Scoping reviews can identify the conceptual boundaries of a field, the size of the set of research, the types of evidence available, and research gaps in the extant literature (Paré et al., 2015; Xiao & Watson, 2019).

This study is in line with the recommendations of Webster and Watson (2002), whose approach is based on searching titles, abstracts, and keywords to identify relevant articles available in the Scopus database (Dwivedi et al., 2021). As in the study by Dwivedi et al. (2021), the Scopus database was chosen to ensure the selection of only high-quality studies. The initial search did not return results for the terms “social media” AND “data monetization” in titles, abstracts, and keywords. Therefore, for the selection of the portfolio of publications, the following filters were defined: (i) the document should contain the words “social media data” OR “data value” OR “data monetization” in the title, abstract, or keywords (TITLE-ABS-KEY ("social media data") OR TITLE-ABS-KEY ("data value") OR TITLE-ABS-KEY ("data monetization"); and (ii) the document should be an article or review published in the main IS journals indicated by the Association of Information Systems (AIS). The eight main IS journals indicated by AIS were selected (AIS Basket of eight Top Journals), appointed by researchers in the area as the journals that best reflect the discipline based on bibliometric data (Lowry et al., 2013). They are as follows: European Journal of Information Systems, Information Systems Journal, Information Systems Research, Journal of Information Technology, Journal of Management Information Systems, Journal of Strategic Information Systems, Journal of the Association for Information Systems, and MIS Quarterly. In addition to these, other journals indicated by the AIS were selected: Information and Management, Decision Support Systems, Decision Sciences, MIS Quarterly Executive, International Journal of Information Management, and Communications of the Association for Information Systems. The Journal of Big Data

and the Global Journal of Flexible Systems Management were also added to the filter because they are related to the research topic and meet the quality criteria defined for the study.

After applying the publication selection criteria, 35 articles were identified with the necessary specifications, which make up the final research portfolio (Figure 1). To meet the study objectives and guide this review, they were broken down into the following research questions:

RQ1: What are the main characteristics of publications on data monetization, data value, and social media data?

RQ2: What are the social media data analysis techniques used in the studies?

RQ3: What are the main social media data monetization strategies found in the literature?

First, a bibliometric analysis was carried out, focused on themes and the main keywords. This was done through a keyword correlation analysis and thematic map, supported by visual analytics, with research trends in IS. The R software was used, more specifically the bibliometrix package, developed by Massimo Aria & Corrado Cuccurullo. The package in question is intended to assist in the realization of comprehensive and complex scientific mappings involving big data, becoming a useful tool nowadays, when the volume of scientific production gradually increases and science is constantly changing (Aria & Cuccurullo, 2017).

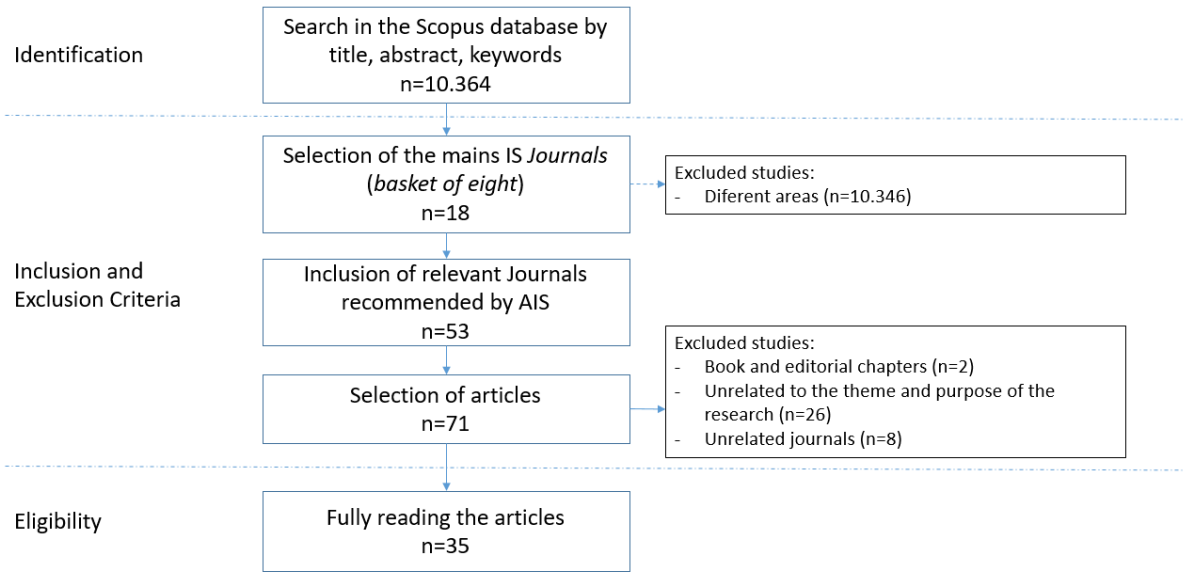

Figure 1. *The selection process of the papers*

Subsequently, the articles were read in full, and their content was classified according to the study objectives. The results of the study are presented in the next section.

4 RESULTS

4.1 Bibliometric analysis of the characteristics of the studies

The search resulted in 35 articles addressing the monetization of social media data (Appendix). When analyzing Figure 2, it is clear that publications related to the topic only started to receive attention in 2013 (2 articles). The number of publications was two articles or less per year until 2017. From 2016 onwards, there is a significant growth in the number of publications, reaching nine articles published in 2020 and three articles published in 2021 (annual growth rate: 5.2%). Given this growth, we can see the importance of the theme today and its relevance in the academic environment.

In order to verify the quality of the articles, we analyzed the most cited studies on the subject and the journals where papers were published. The publications are mainly concentrated in three journals, the International Journal of Information Management – IJIM (8 articles), the Decision Support Systems (7 articles), and the Journal of Big Data (4 articles), representing more than 50% of the final research portfolio. The most cited articles were those by He et al. (2013), with 520 citations, and the one by Stieglitz et al. (2018), with 298 citations – both published in IJIM.

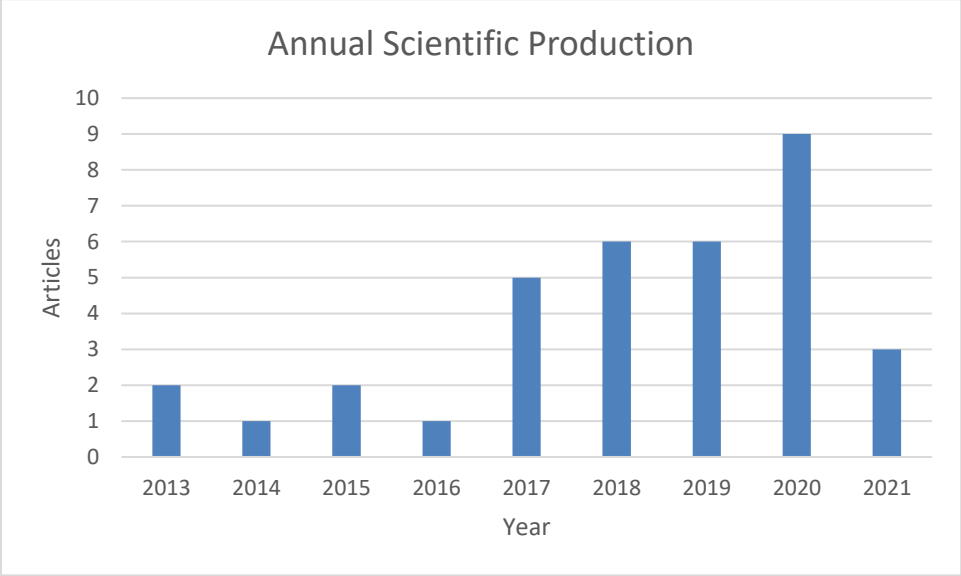

Figure 2. Temporal Evolution of studies

Next, a quantitative analysis of the 20 most cited keywords was performed, which provided a broader view of the topic. Figure 3 shows the word cloud with the highest frequencies pointed out by the authors. It was identified that the term "social media" stands out first in the cloud, followed by the terms "sentiment analysis", "big data", "Twitter", and "data monetization". Corroborating the analysis, Jeyaraj & Zadeh (2020) pointed out in their study that the phenomenon of social media is already recognized as an important topic by the main IS Journals, which was also found in this study.

Figure 3. A*uthors' keyword cloud*

To obtain a comparative view of the centrality and relevance of the keywords, we used the thematic map function. This function creates a map based on co-words network analysis and clustering, inspired by Cobo et al. (2011). The thematic map (Figure 4) shows the network of the main clusters of occurrences of co-words, considering the maximum number of 250 keywords and the maximum number of three keywords for each cluster. According to Tayebi et al. (2019), through the visual design of the thematic map, it is possible to analyze the themes and in which quadrants they are located. Figure 4 shows that the largest cluster comprises social media, Twitter, and data mining framed as driving themes. The second and third most significant clusters are related to some techniques widely used in social media analysis: sentiment analysis, natural language processing (NLP), and text analytics- framed as main themes. The fourth-largest and central cluster represents big data, indicated as a relevant topic, while the fifth cluster comprises the data monetization framed as emerging and undeveloped, marginal themes. The latter has a lower level of importance (density) concerning the four clusters described above; however, it appears as more central and relevant when compared to the clusters related to social media, social media analytics, and sentiment analysis. In this sense, the classification of the monetization theme, in the left quadrant, is pointed out as a special, important theme, but not yet developed. The smallest clusters identified were related to social networks and machine learning –framed as a basic and well-developed theme.

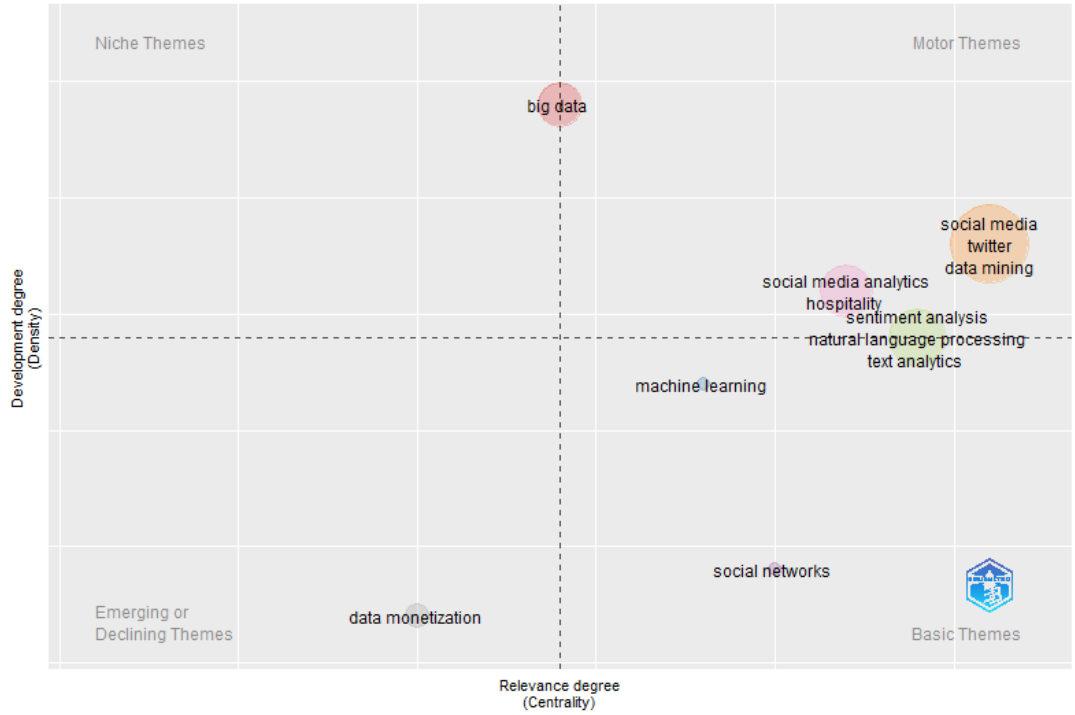

Figure 4. *Thematic map of keywords*

Through the thematic map, it is possible to see that the themes of big data, social media, and data monetization are still loosely associated in the IS literature, indicating the relevance of this study for a better understanding of the theme in the academic environment. After the bibliometric analysis, the main techniques for analyzing social media data are presented, followed by the strategies found in the literature for data monetization.

4.2 Social Media Data Analysis Techniques

Social media platforms, in addition to textual data, offer many possibilities of data formats, including images, videos, sounds, and geolocation (Stieglitz et al., 2018) which can be called unstructured data and structured data. According to Jimenez-Marquez et al. (2019), some data are usually associated with the review texts, they are the number of stars, the number of votes that considered the review useful, the photo or video of the reviewer, popularity of the reviewer, number of reviews provided by the reviewer, images to illustrate or support the argument, type of services provided (as indicated by customers), overall rating of the service/product provider, etc. These resources generate huge amounts of information that are commonly called big data or social media big data (Jimenez-Marquez et al., 2019) that are being generated due to the growth of social media usage.

According to OLeary and Storey (2020), social media users disclose substantial information, and some of that information can provide deep insights that can be used to create value. Many companies are gaining valuable insights from this data by applying big data techniques (Jimenez-Marquez et al., 2019). Although there is a lot of literature on the challenges and difficulties of data analysis methods and techniques, there is still no clear understanding of the stages of data discovery, collection, and preparation (Stieglitz et al., 2018).

In this sense, the authors point out benefits for professionals who wish to collect and analyze social media data. The article by Jimenez-Marquez et al. (2019) proposed a two-stage framework, due

to the complexity involved in analyzing social media data. The authors indicate that the proposed framework serves as a bridge between data analysis and technology. Thus, machine learning algorithms were applied for the analysis of unstructured text data obtained in the preparation stage.

OLeary and Storey (2020) explored social media content through text sentiment analysis to generate value. The authors point out that value can be realized from data exhaust and suggest an approach to generate innovations and facilitate the evolution of systems to benefit managerial decision-making. Furthermore, Lo, Chiong & Cornforth (2016) demonstrated the possibility of identifying the main followers to help companies in decision-making. Semi-supervised and supervised machine learning techniques were used (Twitter Latent Dirichlet Allocation - LDA, Fuzzy Match, and Support Vector Machine - SVM) to identify key members of the Twitter social network to differentiate their customers from the general public, enabling market segmentation to improve business decision-making (Lo, Chiong & Cornforth, 2016).

Another possibility for analyzing social media data is identifying the most shared topics. Ibrahim & Wang (2019) collected tweets associated with online retailers and used a combination of text analytical approaches including topic modeling, sentiment analysis, and network analysis to identify emerging topics and areas that generate customer dissatisfaction. These insights can help companies to better understand their customers and enable them to translate information into meaningful knowledge to improve their performance (Ibrahim & Wang, 2019). However, the true value of data is rarely discovered due to the information overload in social media, but it would be possible to interpret these data and extract value with proper techniques.

Table 1.

Summary of social media data analysis techniques

Analysis techniques	Source
Regression Analysis	Hu et al. (2019)
Trend Analysis	Stieglitz et al. (2018)
Network Analysis	Ibrahim & Wang (2019)
Content Analysis	Suseno et al. (2018); Stieglitz et al. (2018); Ibrahim & Wang (2019)
Sentiment Analysis	Lau & Liao (2014); Stieglitz et al. (2018); Dong et al. (2018); Jimenez-Marquez et al. (2019); OLeary & Storey (2020); Ibrahim & Wang (2019); Chang, Ku & Chen (2019); Wu et al. (2020); Ilk & Fan (2020); Sasikala & Mary Immaculate Sheela (2020); Zheng et al. (2020)
Natural Language Processing-NLP	Abbasi et al. (2018); Chang, Ku & Chen (2019); Jimenez-Marquez et al. (2019)
Fuzzy Match	Lo, Chiong & Cornforth (2016)
Latent Dirichlet Allocation – LDA	Lo, Chiong & Cornforth (2016); Ibrahim & Wang (2019)
Support Vector Machine - SVM	Lo, Chiong & Cornforth (2016)
Cluster analysis	Van Dam & Van De Velden (2015)
Text Mining	He, Zha & Li (2013); Dong et al. (2018)

Note. The table was created by the author based on multiple sources. Sources are listed directly in the table. For complete references, see the reference list.

He, Zha & Li (2013) also point out that companies need to monitor and analyze information from their competitors, and to do this, text mining techniques were applied to analyze unstructured Facebook and Twitter data from the largest companies in the sector. In addition, Pääkkönen & Jokitulppo (2017) suggest that many techniques based on Machine Learning (ML) have been used to assess aspects

related to the quality of social media data. Jimenez-Marquez et al. (2019) claim that to obtain better results in data analysis, organizations are using several ML techniques in their analysis. In Table 1 we present a summary of these techniques.

4.3 Social Media Data Monetization Strategies

After identifying the main analysis techniques applied in social media data analysis, this section presents the paths and strategies for data monetization identified in the literature. Some models, approaches, and paths were proposed to monetize data in different contexts. Najjar and Kettinger (2013) indicated three pathways that can help companies to monetize data: (i) high analytical capacity, (ii) high technical data infrastructure, considering hardware, software, and network aspects, and (iii) data sharing with suppliers to improve their analytical capabilities and also avoid high costs (Faroukhi et al., 2020).

Parvinen et al. (2020) present three approaches to data monetization. In this sense, companies can sell data, data analyses, and data-based services. The authors also identify that the growing resources available allow companies to start integrating their internal data with external data, considering new usages through data enrichment. Alfaro et al. (2019) also described three monetization approaches that were applied at a financial institution: selling information solutions, improving operations by using data to generate returns through operational gains and wrapping offers with analytical capabilities or experiences, aiming to increase a product's price, wallet share, market share, or customer loyalty.

Hanafizadeh & Harati Nik (2020), in turn, developed a data monetization configuration based on themes identified in a systematic review. The themes identified were the monetization layer, refinement layer, base layer, and accessing and processing restrictions layer, which represent the layers that play an important role in the data monetization mechanism. In the monetization layer, the themes are related to direct sales, analyses and insights, and end-consumer. Concerning the data refinement process, themes such as assets, models, data-driven operations, and value were identified, and, within the third aspect, which provides a basis for the success of data monetization, the themes are related to people, perceptions, analytical and technical capabilities, and platforms. In the last layer are the legal, ethical, and privacy issues, which affect all other layers

In the context of monetization, and more specifically of social media data, organizations need to consider privacy and security issues, since data include user information (Gerlach et al., 2015). Many companies do not monetize data due to reputation risks and issues of trust and property of data that can foster many conflicts between sellers and buyers in cases of data marketing (Thomas & Leieponen, 2016). In this way, the limited understanding of the regulation on data privacy becomes a barrier for monetization (Mendonça, 2021).

Table 2.
Strategies for monetizing social media data

Strategies	Description	Authors
Strategy for gaining revenue	Directly sell social media data or generate insights to make decisions, improve operational efficiency and gain competitive advantage.	Hanafizadeh & Harati Nik (2020); Faroukhi et al. (2020); Parvinen et al. (2020); Alfaro et al. (2019); Chen et al. (2017)
Strategy for reducing costs	Identify opportunities for improvement in processes and operations based on available data.	Hanafizadeh & Harati Nik (2020); Parvinen et al. (2020); Alfaro et al. (2019); Chen et al. (2017)

Strategy for developing and using analytical capabilities	Develop capabilities to extract value from data by generating insights.	Hanafizadeh & Harati Nik (2020); Najjar & Kettinger (2013)
Strategy for data governance	Develop skills for proper use of data, considering security, privacy, ethics, and data quality.	Gerlach et al. (2015); Hanafizadeh & Harati Nik (2020); Parvinen et al. (2020)

Note. The table was created and adapted by the author based on multiple sources.

It should be noted that only one article was found in this systematic review proposing a model of data monetization. Faroukhi et al. (2020) point out the need to adopt such models to meet big data specificities, as well as new strategies to deal with large volumes of information and find the hidden knowledge in the data (Jimenez-Marquez et al., 2019). In this sense, strategies were identified in the literature, also called approaches by some authors, which define the necessary paths for the monetization of data by organizations. Based on the studies identified in the systematic review, we found that organizations can adopt different strategies to monetize their data: (i) strategy to gain revenue, (ii) strategy to reduce costs, (iii) strategy to develop and use analytical capabilities; and (iv) data governance strategy (privacy, security, and data quality). In Table 2 we describe these strategies used by companies to monetize social media data, whether for monetary and/or non-monetary benefits.

4.4 Value Generation from Social Media Data

Moore (2015) introduced two types of monetization for customer-related data: direct monetization and indirect monetization. The sale of data is known as direct and the use of data for improvements in performance, processes, and products is known as indirect (Hanafizadeh & Harati Nik, 2020). Alfaro et al. (2019) addressed the direct generation of benefits by selling information solutions to external customers, improving operations, applying analytical processing to guide products, and benefiting from the economic impact of projects based on data monetization.

Despite the importance of monetization, a few research has considered monetization (Faroukhi et al., 2020) and none has analyzed the generation of value through monetizing social media data. Currently, many digital platforms offer different products and services "for free". Transactions that take place within these platforms generate value as users and consumers provide different aspects of their personal data, such as location, preferences, relationship, and personal behavior, especially when linking their access to their social networks. Thus, data value creation arises when data is transformed and monetized through commercial use strategies.

The various types of transaction platforms such as advertising platforms (e.g., Facebook and Google), e-commerce platforms (which include online marketplaces like Amazon and eBay), service platforms (like Uber, Airbnb, and Spotify), and cloud platforms (such as AWS, Google Cloud Platform, and Microsoft Azure) are used to monetize data and generate revenue for companies. Typically, all these platforms link users' accounts to their social media profiles. Thus, the value of user data arises when this data is compiled in large volumes and processed to provide insights and help companies, governments, and other organizations to make their decisions based on the data of individuals.

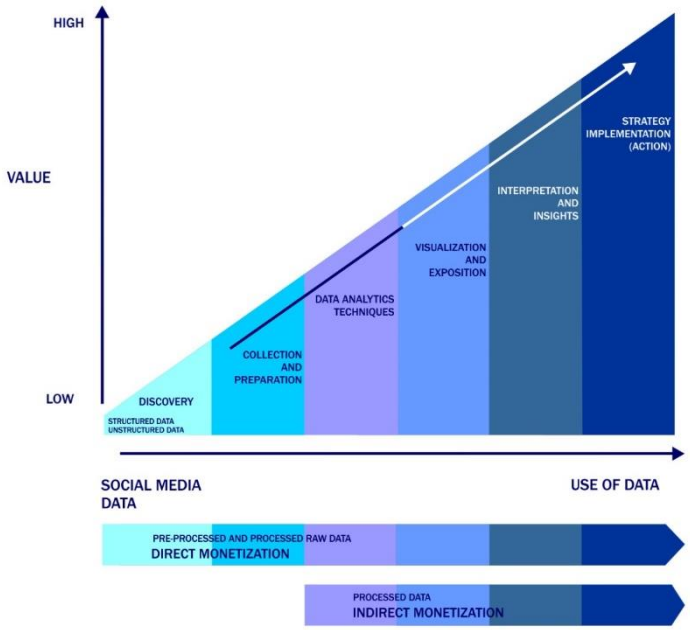

Figure 5. Flow of value generation from social media data, adapted from Kotorov (2017).

In this sense, based on academic literature, we adapted the Data Value Chain approach proposed by Kotorov (2017) and developed a framework (Figure 5) that represents the value generation flow of social media data divided into six steps: (i) generation and discovery of data, (ii) collection and preparation for data enrichment, (iii) application of data analysis techniques, (iv) visualization and exposition, (v) interpretation and insights, and (vi) implementation of the strategy by organizations. Through this flow, it can be seen that the indirect monetization of social media data depends on the application of techniques to generate insights and implement strategies by organizations. Direct monetization can occur at any stage of the data value chain, whether through raw, pre-processed, or processed data.

5 FINAL CONSIDERATIONS

In the last decade, social media has become a critical channel for B2B and B2C communication, generating vast amounts of data. However, many companies face challenges in measuring the value derived from this data, leaving monetization as an underexplored opportunity. This study aimed to address this gap by answering three key research questions (RQs):

RQ1: What are the main characteristics of publications on data monetization, data value, and social media data?

Our review revealed that publications on this topic began gaining attention in 2013 and grew significantly from 2016 onwards, reflecting its increasing importance. Most articles are published in high-impact journals such as IJIM, Decision Support Systems, and Journal of Big Data. Keyword analysis highlights themes such as social media, big data, sentiment analysis, and data monetization, though the latter remains an emerging and underexplored area. These findings emphasize the need for further research to establish a cohesive framework linking these concepts.

RQ2: What are the social media data analysis techniques used in the studies?

Sentiment analysis is the most frequently applied technique in the reviewed studies, offering insights into customer opinions, preferences, and perceptions. Other widely used techniques include text mining, Latent Dirichlet Allocation (LDA), Fuzzy Match, Support Vector Machines (SVM), and Natural Language Processing (NLP). These methods are essential for extracting actionable insights from unstructured social media data, forming the foundation of monetization strategies.

RQ3: What are the main social media data monetization strategies found in the literature?

We identified four core strategies organizations can adopt to monetize social media data: (i) strategy to gain revenue, (ii) strategy to reduce costs, (iii) strategy to develop and use analytical capabilities; and (iv) strategy to data governance. These strategies enable organizations to unlock multiple benefits, such as increasing revenue, reducing costs, improving productivity, mitigating risks, identifying market trends, optimizing pricing, and fostering stronger relationships with customers.

Furthermore, we propose a framework illustrating the value-generation process of social media data, helping companies identify new monetization opportunities and navigate the complexities of this process.

This study contributes to the literature by providing a comprehensive definition of social media data monetization as the process of creating value from large volumes of social media data for monetary and non-monetary benefits. Monetization can occur through direct data sales, intra-organizational insights generation, or the commercialization of insights.

Our findings benefit both academics and practitioners by shedding light on the potential of social media data monetization as a revenue source and cost-reduction mechanism. For future research, we recommend exploring tailored monetization models to address big data challenges and examining sector-specific applications in industries such as healthcare, retail, telecommunications, finance, and insurance.

Finally, we acknowledge that data monetization strategies may vary across sectors due to differences in data characteristics, regulatory environments, and market needs. Future studies should explore these variations to deepen understanding and identify sector-specific monetization opportunities.

REFERENCES

Abbas, A., Zhou, Y., Deng, S., & Zhang, P. (2018). Text analytics to support sense-making in social media: A language-action perspective. MIS Quarterly, 42(2). Alfaro, E., Bressan, M., Girardin, F., Murillo, J., Someh, I., & Wixom, B. H. (2019). BBVA's Data Monetization Journey. MIS Quarterly Executive, 18(2).

Allied Market Research. (2018). Global Data Monetization Market Expected to Reach $370,969 Million by 2023. Available at: https://www.prnewswire.com/in/news-releases/global-data-monetization-market-expected-to-reach-370969-million-by-2023---allied-market-research-678756413.html. Accessed: 18 April 2021.

Aria, M., & Cuccurullo, C. (2017). Bibliometrix: An R-tool for comprehensive science mapping analysis. Journal of Informetrics, 11(4), 959–975.

Chan, H. K., Wang, X., Lacka, E., & Zhang, M. (2016). A mixed-method approach to extracting the value of social media data. Production and Operations Management, 25(3), 568–583.

Chang, Y.-C., Ku, C.-H., & Chen, C.-H. (2019). Social media analytics: Extracting and visualizing Hilton hotel ratings and reviews from TripAdvisor. International Journal of Information Management, 48, 263–279.

Chen, H.-M., Schütz, R., Kazman, R., & Matthes, F. (2017). How Lufthansa Capitalized on Big Data for Business Model Renovation. MIS Quarterly Executive, 16(1).

Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., & Herrera, F. (2011). Science mapping software tools: Review, analysis, and cooperative study among tools. Journal of the American Society for Information Science and Technology, 62(7), 1382–1402.

Dong, W., Liao, S., & Zhang, Z. (2018). Leveraging financial social media data for corporate fraud detection. Journal of Management Information Systems, 35(2), 461-487.

Dwivedi, Y. K., Ismagilova, E., Rana, N. P., & Raman, R. (2021). Social media adoption, usage and impact in business-to-business (B2B) context: A state-of-the-art literature review. Information Systems Frontiers, 1–23.

Faroukhi, A. Z., El Alaoui, I., Gahi, Y., & Amine, A. (2020). Big data monetization throughout Big Data Value Chain: A comprehensive review. Journal of Big Data, 7(1), 3.

Gerlach, J., Widjaja, T., & Buxmann, P. (2015). Handle with care: How online social network providers' privacy policies impact users' information sharing behavior. The Journal of Strategic Information Systems, 24(1), 33-43.

Ghani, N. A., Hamid, S., Hashem, I. A. T., & Ahmed, E. (2019). Social media big data analytics: A survey. Computers in Human Behavior, 101, 417-428.

Gosline, R., & Krithivasan, K. (2021). Creating Collaborative Ecosystems to Transform Customer Experience. MIT Sloan Management Review. Available at: https://sloanreview.mit.edu/sponsors-content/creating-collaborative-ecosystems-to-transform-customer-experience/. Accessed: 18 April 2021.

Greenwood, B. N., & Gopal, A. (2015). Research note—Tigerblood: Newspapers, blogs, and the founding of information technology firms. Information Systems Research, 26(4), 812–828.

Hanafizadeh, P., & Harati Nik, M. (2020). Configuration of Data Monetization: A Review of Literature with Thematic Analysis. Global Journal of Flexible Systems Management, 21(1), 17–34.

He, W., Zha, S., & Li, L. (2013). Social media competitive analysis and text mining: A case study in the pizza industry. International Journal of Information Management, 33(3), 464–472.

Hu, Y., Xu, A., Hong, Y., Gal, D., Sinha, V., & Akkiraju, R. (2019). Generating business intelligence through social media analytics: Measuring brand personality with consumer-, employee-, and firm-generated content. Journal of Management Information Systems, 36(3), 893-930.

Ibrahim, N. F., & Wang, X. (2019). A text analytics approach for online retailing service improvement: Evidence from Twitter. Decision Support Systems, 121, 37–50.

Ilk, N., & Fan, S. (2020). Combining Textual Cues with Social Clues: Utilizing Social Features to Improve Sentiment Analysis in Social Media. Decision Sciences.

Jeyaraj, A., & Zadeh, A. H. (2020). Evolution of information systems research: Insights from topic modeling. Information & Management, 57(4), 103-207.

Jimenez-Marquez, J. L., Gonzalez-Carrasco, I., Lopez-Cuadrado, J. L., & Ruiz-Mezcua, B. (2019). Towards a big data framework for analyzing social media content. International Journal of Information Management, 44, 1–12.

Kitchenham, B. (2004). Procedures for undertaking systematic reviews: Joint technical report. Computer Science Department, Keele University and National ICT Australia Technology, 127, 106-366.

Kotorov, R. (2017). The Data Value Chain: Steps for Monetizing Your Data. Available at: https://www.idevnews.com/stories/6998/The-Data-Value-Chain-Steps-for-Monetizing-Your-Data. Accessed: 20 February 2022.

Lau, R. Y., Li, C., & Liao, S. S. (2014). Social analytics: Learning fuzzy product ontologies for aspect-oriented sentiment analysis. Decision Support Systems, 65, 80-94.

Lawrenz, S., & Rausch, A. (2021). Don't Buy A Pig In A Poke A Framework for Checking Consumer Requirements In A Data Marketplace. Proceedings of the 54th Hawaii International Conference on System Sciences, 4663.

Liu, C.-H., & Chen, C.-L. (2015). A review of data monetization: Strategic use of Big Data. The fifteenth international conference on electronic business (ICEB 2015), 7.

Lo, S. L., Chiong, R., & Cornforth, D. (2016). Ranking of high-value social audiences on Twitter. Decision Support Systems, 34-48.

Lowry, P. B., Gaskin, J., Humpherys, S. L., Moody, G. D., Galletta, D. F., Barlow, J. B., & Wilson, D. W. (2013). Evaluating journal quality and the association for information systems senior scholars' journal basket via bibliometric measures: Do expert journal assessments add value?. MIS Quarterly, 993-1012.

McKinsey Analytics. (2017). Fueling growth through data monetization. Available at: https://www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/fueling-growth-through-data-monetization. Accessed: 20 April 2021.

Mendonça, D. (2021). Vencendo os desafios para a monetização de dados. Available at::https://www.ey.com/pt_br/big-data-analytics/os-5-principais-desafios-das-organizacoes. Accessed: 20 april 2021.

Momot, R., Belavina, E., & Girotra, K. (2020). The use and value of social information in selective selling of exclusive products. Management Science, 66(6), 2610–2627.

Moore, S. (2015). How to Monetize Your Customer Data-Smarter With Gartner. Smarter With Gartner.

Najjar, M. S., & Kettinger, W. J. (2013). Data Monetization: Lessons from a Retailer's Journey. MIS Quarterly Executive, 12(4).

OLeary, D., & Storey, V. C. (2020). Discovering and Transforming Exhaust Data to Realize Managerial Value. Communications of the Association for Information Systems, 47(1), 11.

Pääkkönen, P., & Jokitulppo, J. (2017). Quality management architecture for social media data. Journal of Big Data, 4(1), 1–26.

Paré, G., Trudel, M. C., Jaana, M., & Kitsiou, S. (2015). Synthesizing information systems knowledge: A typology of literature reviews. Information & Management, 52(2), 183-199.

Parvinen, P. Pöyry, E. Gustafsson, R. Laitila, M. Rossi, M. (2020). Advancing data monetization and the creation of data-based business models. Communications of the Association for Information Systems, 47(1), 2.

Ray, J., Menon, S., & Mookerjee, V. (2020). Bargaining over Data: When Does Making the Buyer More Informed Help? Information Systems Research, 31(1), 1–15.

Sasikala, P., & Mary Immaculate Sheela, L. (2020). Sentiment analysis of online product reviews using DLMNN and future prediction of online product using IANFIS. Journal of Big Data, 7(1), 1-20.

Stieglitz, S, Mirbabaie, M., Ross, B., & Neuberger, C. (2018). Social media analytics – Challenges in topic discovery, data collection, and data preparation. International Journal of Information Management, 39, 156–168.

Suseno, Y., Laurell, C., & Sick, N. (2018). Assessing value creation in digital innovation ecosystems: A Social Media Analytics approach. The Journal of Strategic Information Systems, 27(4), 335–349.

Tantalo, C., & Priem, R. L. (2016). Value creation through stakeholder synergy. Strategic Management Journal, 37(2), 314–329.

Tayebi, S., Manesh, S., Khalili, M., & Sadi-Nezhad, S. (2019). The role of information systems in communication through social media. International Journal of Data and Network Science, 3(3), 245-268.

Thomas, L. D., & Leiponen, A. (2016). Big data commercialization. IEEE Engineering Management Review, 44(2), 74-90

Van Dam, J. W., & Van De Velden, M. (2015). Online profiling and clustering of Facebook users. Decision Support Systems, 70, 60–72.

Van't Spijker, A. (2014). The new oil: Using innovative business models to turn data into profit. Denville: Technics Publications.

Webster, J., & Watson, R. T. (2002). Analyzing the past to prepare for the future: Writing a literature review. MIS Quarterly, xiii–xxiii.

Williamson & De Meyer (2019). How to Monetize a Business Ecosystem. Harvard Business Review. Available at: https://hbr.org/2019/09/how-to-monetize-a-business-ecosystem. Accessed: 18 April 2021.

Wixom, B. H., & Ross, J. W. (2017). How to monetize your data. MIT Sloan Management Review, 58(3), n/a-13. Available at: https://sloanreview.mit.edu/article/how-to-monetize-your-data/. Accessed: 20 February 2022.

Wu, P., Li, X., Shen, S., & He, D. (2020). Social media opinion summarization using emotion cognition and convolutional neural networks. International Journal of Information Management, 51, 101978.

Xiao, Y., & Watson, M. (2019). Guidance on conducting a systematic literature review. Journal of Planning Education and Research, 39(1), 93-112.

Zheng, L., He, Z., & He, S. (2020). A novel probabilistic graphic model to detect product defects from social media data. Decision Support Systems, 137, 113369.

Appendix

Authors	Title	Year	Source title	Cited by
Noshad, M., Choi, J., Sun, Y., Hero, A., Dinov, I.D.	A data value metric for quantifying information content and utility	2021	Journal of Big Data	-
Bogaert, M., Ballings, M., Van den Poel, D., Oztekin, A.	Box office sales and social media: A cross-platform comparison of predictive ability and mechanisms	2021	Decision Support Systems	-
Ghasemaghaei, M.	Understanding the impact of big data on firm performance: The necessity of conceptually differentiating among big data characteristics	2021	International Journal of Information Management	10
Sasikala, P., Mary Immaculate Sheela, L.	Sentiment analysis of online product reviews using DLMNN and future prediction of online product using IANFIS	2020	Journal of Big Data	5
Faroukhi, A.Z., El Alaoui, I., Gahi, Y., Amine, A.	Big data monetization throughout Big Data Value Chain: a comprehensive review	2020	Journal of Big Data	22
Zheng, L., He, Z., He, S.	A novel probabilistic graphic model to detect product defects from social media data	2020	Decision Support Systems	3
Parvinen, P., Pöyry, E., Gustafsson, R., Laitila, M., Rossi, M.	Advancing data monetization and the creation of data-based business models	2020	Communications of the Association for Information Systems	4
Wu, P., Li, X., Shen, S., He, D.	Social media opinion summarization using emotion cognition and convolutional neural networks	2020	International Journal of Information Management	22
Ray, J., Menon, S., Mookerjee, V.	Bargaining over Data: When Does Making the Buyer More Informed Help?	2020	Information Systems Research	3
Hanafizadeh, P., Harati Nik, M.R.	Configuration of Data Monetization: A Review of Literature with Thematic Analysis	2020	Global Journal of Flexible Systems Management	8
Oleary, D., Storey, V.C.	Discovering and transforming exhaust data to realize managerial value	2020	Communications of the Association for Information Systems	1
Ilk, N., Fan, S.	Combining Textual Cues with Social Clues: Utilizing Social Features to Improve Sentiment Analysis in Social Media	2020	Decision Sciences	1
Chang, Y.-C., Ku, C.-H., Chen, C.-H.	Social media analytics: Extracting and visualizing Hilton hotel ratings and reviews from TripAdvisor	2019	International Journal of Information Management	73

Jeong, B., Yoon, J., Lee, J.-M.	Social media mining for product planning: A product opportunity mining approach based on topic modeling and sentiment analysis	2019	International Journal of Information Management	83
Hu, Y., Xu, A., Hong, Y., Gal, D., Sinha, V., Akkiraju, R.	Generating Business Intelligence Through Social Media Analytics: Measuring Brand Personality with Consumer-, Employee-, and Firm-Generated Content	2019	Journal of Management Information Systems	19
Ibrahim, N.F., Wang, X.	A text analytics approach for online retailing service improvement: Evidence from Twitter	2019	Decision Support Systems	29
Jimenez-Marquez, J.L., Gonzalez-Carrasco, I., Lopez-Cuadrado, J.L., Ruiz-Mezcua, B.	Towards a big data framework for analyzing social media content	2019	International Journal of Information Management	51
Alfaro, E., Bressan, M., Girardin, F., Murillo, J., Someh, I., Wixom, B.H.	BBVA's data monetization journey	2019	MIS Quarterly Executive	16
Suseno, Y., Laurell, C., Sick, N.	Assessing value creation in digital innovation ecosystems: A Social Media Analytics approach	2018	Journal of Strategic Information Systems	40
Rathore, A.K., Das, S., Ilavarasan, P.V.	Social Media Data Inputs in Product Design: Case of a Smartphone	2018	Global Journal of Flexible Systems Management	4
Abbasi, A., Zhou, Y., Deng, S., Zhang, P.	Text analytics to support sense-making in social media: A language-action perspective	2018	MIS Quarterly: Management Information Systems	37
Dong, W., Liao, S., Zhang, Z.	Leveraging Financial Social Media Data for Corporate Fraud Detection	2018	Journal of Management Information Systems	50
Stieglitz, S., Mirbabaie, M., Ross, B., Neuberger, C.	Social media analytics – Challenges in topic discovery, data collection, and data preparation	2018	International Journal of Information Management	298
Lim, C., Kim, K.-H., Kim, M.-J., Heo, J.-Y., Kim, K.-J., Maglio, P.P.	From data to value: A nine-factor framework for data-based value creation in information-intensive services	2018	International Journal of Information Management	90
Meire, M., Ballings, M., Van den Poel, D.	The added value of social media data in B2B customer acquisition systems: A real-life experiment	2017	Decision Support Systems	36
Pääkkönen, P., Jokitulppo, J.	Quality management architecture for social media data	2017	Journal of Big Data	6
Spiekermann, S., Korunovska, J.	Towards a value theory for personal data	2017	Journal of Information Technology	42
Geva, T., Oestreicher-Singer, G., Efron, N., Shimshoni, Y.	Using forum and search data for sales prediction of high-involvement projects	2017	MIS Quarterly: Management Information Systems	28

Chen, H.-M., Kazman, R., Schütz, R., Matthes, F.	How Lufthansa capitalized on big data for business model renovation	2017	MIS Quarterly Executive	33
Lo, S.L., Chiong, R., Cornforth, D.	Ranking of high-value social audiences on Twitter	2016	Decision Support Systems	26
Gerlach, J., Widjaja, T., Buxmann, P.	Handle with care: How online social network providers' privacy policies impact users' information sharing behavior	2015	Journal of Strategic Information Systems	46
Van Dam, J.-W., Van De Velden, M.	Online profiling and clustering of Facebook users	2015	Decision Support Systems	50
Lau, R.Y.K., Li, C., Liao, S.S.Y.	Social analytics: Learning fuzzy product ontologies for aspect-oriented sentiment analysis	2014	Decision Support Systems	111
Najjar, M.S., Kettinger, W.J.	Data Monetization: Lessons from a retailer's journey	2013	MIS Quarterly Executive	38
He, W., Zha, S., Li, L.	Social media competitive analysis and text mining: A case study in the pizza industry	2013	International Journal of Information Management	520