



Article

Digital Intermediaries: More than New Actors on a Crowded Media Stage

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Abstract: Digitization, digital convergence and digitalization are well-known terms that have caused a huge impact on the media landscape in the last two decades. The embedded consequences of the increase of free information online or the lack of stable profits for media companies are present in the day-to-day practices of news companies. However, there is a lack of understanding of how the emergence of new players has modified the logic and rhythm of the media production chain. In this article, we try to identify a theoretical approach to analyze and classify the different roles and actors considered to be disrupting the media stage. Through a systematic literature review of more than 200 articles published in the last twenty years, we identify and define a term to better understand the nature of these new media players: *digital intermediaries*. Furthermore, we argue that there is a need for a clear taxonomy regarding digital intermediaries, paying special attention to the shifts in the news companies' definition and delivery of value.

Keywords: media companies; news production; value chain; value creation; externalization; digital intermediaries



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1. Introduction

Once upon a time, traditional news media companies used to heavily rely on the benefits obtained from the advertising areas of their printed publications. The relationship between media companies and advertisers was quite straightforward: the difficulty of selling news as a purely economic product had always favored the use of advertising space as the ideal tool for obtaining income (Van der Wurff 2012). Several decades later, the emergence of new players started to modify the logic and rhythm of the media production chain. Understanding the existence, roles and functions of those new players has become an important task for both academy and industry in mapping a clear path for organizations. The relationships between news companies and new actors, both inside and outside the media environment, could truly use a new taxonomy that can be translated into favorable strategies not only for enhancing economic performance but also to optimize the value delivery of news companies.

The arrival of the Internet already caused quite some havoc in the marketing areas of news media, especially after many online companies started to offer information for free, which translated into excellent options in terms of distribution (Bakker 2012; Van der Wurff 2012). Since then, and from a management perspective, traditional media companies have tried to create new digital strategies, although they have not yet found a specific business model that is safely replicable (Teece 2010). Along with the lack of trust in what had been the basis of the traditional media business model, new and emerging strategies began to appear and were implemented in an unstructured manner (Casero-Ripollés and Izquierdo-Castillo 2013). Regardless of the effort to increase unique visitors to electronic pages, the benefits obtained did not match those previously generated by advertisers (Günzel and Holm 2013).

Nevertheless, the decrease of advertising income has not been the only challenge to the business model of media companies: they have also had to start reacting to the increasing

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competition for users' attention. Native digital media outlets with less structural costs and the emergence of new players along the news production chain have hindered the financial situation of traditional media companies. Digitalization has had a strong impact over the whole value chain of news media production, not only on the advertising side. Could the media become sustainable without losing sight of their mission of serving society? The question is still up for discussion, whether within industry dilemmas or through the analytical perspective of academic research. Avoiding digitization processes or trying to delay them is no longer a viable option, and news companies are left in the darkness of trial-and-error strategies to attain their sustainability.

Today, with the Internet already established as a key element in the production chain of the media industry (Graham and Hill 2009), digital convergence has become a must for establishing relationships with suppliers, attracting customers or even starting new business adventures. Competition became the key word after the astounding multiplication of the number of available media outlets (Casero-Ripollés and Izquierdo-Castillo 2013), many of them being more economically sustainable thanks to the lack of analogue structures that complements their digital platform. The need for a prosperous business strategy is still a concern, especially after the cluster of mistakes provoked during the first years of the digital transformation of the media (Greenhill et al. 2015).

1.1. Defining Change through Value

From an academic perspective, many researchers have already analyzed the wild transformations experienced by journalistic ventures, as well as their impact on their business models (Achtenhagen and Raviola 2009; Evens et al. 2017; Maijanen and Jantunen 2014; Oliver and Parrett 2018; Vukanović 2016). The innovation strategies that were implemented (Baumann and Heine 2013; Ekdale et al. 2015; Horst et al. 2018) and the threats brought after the outbreak of news aggregators (Günzel and Holm 2013; Kleis Nielsen and Ganter 2018) have also been reviewed and studied in detail. However, literature focused on the irruption of new actors has sometimes considered them as patchy collaborators that have nothing to do with the mission and values of media companies. Despite this lack of attention to an early stage, it is time to admit that new players have an important effect on the logic of business models, especially when they begin to offer new, stimulating and more effective solutions to the creation, production, distribution or monitorization of news.

Historically, the term "value chain" was firstly defined by the economist Michael Porter in 1985. He described it as the technologically and strategically distinct activities that are successively carried out in a company to produce or deliver its product (or service) to its customers (Van der Wurff 2012). In the specific case of journalistic companies, the "news value chain" focuses mainly on the conceptualization of the stages of content production within media, which are traditionally identified as creation, design, reproduction, distribution, marketing and sales (232). Later, the complexity of relationships within the media production chain was particularly affected by digitization processes. For example, providers of network devices or services that used to play no role in the traditional model of journalism also began to control access to the end consumer, since they now had great power over content providers (Günzel and Holm 2013). However, this "disaggregation of the value creation processes of a supply chain into discrete activities" (Greenhill et al. 2015, p. 314) can also be described as a competitive advantage. For media companies, the organizational restructuring that has occurred in recent decades has been nothing but a response or anticipation to changing markets and technologies (Gade and Raviola 2009).

Initially, the transformations experienced in media organizations as well as their meaning and role in markets (Daidj and Jung 2011; Hess 2014; Vukanović 2016) were conceived as a threat. The disruption caused by the increasing technological boost pushed journalists and companies to evolve from an environment composed exclusively of a newsroom to a much more competitive environment, where the exchange of information and knowledge prevails over rivalry. Digital convergence had a clear impact on the way of

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working in the creation and production of news. Technology redefined traditional tasks in the newsroom, and sped up the communication between people. Nowadays, social media, images, videos, emojis, emails and video calls are among the daily routines of professional journalists, and the printed and the online editions keep evolving far from each other. This process of "vertical disintegration" (Van der Wurff 2012, p. 322) implies that, for reasons of economy of scale or efficiency due to greater specialization, different companies carry out different activities.

However, there are several scenarios in which this shift in the news production chain may result in future alliances. Vertical disintegration can also be understood as an opportunity for creating value through externalization or outsourcing, defined as the performance of processes or activities that were traditionally developed within the company by another external company, as a result of the need for organizations to define their field of action (Bustinza Sánchez 2008). Furthermore, one could argue that this new idea about business models for quality and valuable news must be based on collaboration, a key tool to create more competitive companies (Gade and Raviola 2009). The traditional trend of producing content within the medium itself needs a clearer mapping that allows integrating the processes of the value chain in the social era (Greenhill et al. 2015) for all the companies that intend to optimize their opportunities in the emerging market.

These processes of strategic renewal (Horst et al. 2018; Maijanen and Jantunen 2014) have driven enormous transformations where publishers must rethink their production processes. Indeed, finding a successful business model for quality news has become "the Holy Grail of the 21st century" (Van der Wurff 2012, p. 231) both inside and outside the media industry. News organizations must develop strategies to identify new business opportunities (Naldi et al. 2014; Oliver 2014) through collaboration and outsourcing processes. Graphs, data visualizations and research on audiences are just a few examples of how engaging audiences and stimulating their interests (De Haan et al. 2018; Gelman and Unwin 2013; Schroeder 2014) are key to increasing the value of journalistic products while adding quality to the medium's brand.

1.2. Old Actors, New Intermediaries

One of the clearest consequences of digitization has been the integration of different actors across the creation of news. The audience, for instance, was previously usually situated at the end of the news production chain, and it had little or no participation regarding the value creation process. Nowadays, user participation can impact several stages of the media chain: the creation of the content, its design (the user can create their own front-page even from different media outlets), distribution and, of course, marketing and sales (Greenhill et al. 2015). For a long period, in the face of scarce content (supply), there was abundant attention (demand) that caused competition and consumer choice to be limited and prevented easy access to the industry (Evans 2010). However, traditional media did not know how to take advantage of this more determined incursion of the audience in the process. They trusted that their adaptation activities to technological innovation would significantly increase their income. When this did not happen, many media directors blamed themselves for devaluing the content in the minds of readers (Günzel and Holm 2013), since news was now freely available on the Internet.

Conceiving the audience in terms of monetization, on the other hand, has become one of the most recent ventures with regard to digital innovation and expansion processes. Examples such as registration, premium access for subscribers or specific applications for various formats and media are combined with other innovation opportunities that seek to involve the user in all stages of the news value chain (Bakker 2012; Van der Wurff 2012). This continuous search to obtain the attention of the audience has become a priority in the face of threats from giants such as Google or Facebook (Küng 2015). Only in the last few years, and for many reasons unrelated to the business of the media itself, have some brands like The New York Times started benefiting from an increase in subscriptions.

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During this breathtaking race in pursuit of audiences, many news organizations lack teams of engineers, graphic designers or programmers dedicated to technical tasks. Some media companies, including legacy ones, cannot afford it either, while others prefer to allocate these resources to other business areas. According to Bakker (2012), there are three different strategies when it comes to controlling production costs: saving on staff, making concessions regarding content (or looking for cheaper content) and using new technologies that allow staff to be replaced, produce content or increase your audience. However, none of these proposals takes into account the possibility of creating strategic alliances with other companies or "digital intermediaries," thus integrating new actors into the value creation chain.

In this context, one may recur to postulates that explain and discuss the interactions between companies in the media ecosystem, such as actor–network theory. However, some academics argue that this theory lacks substantive political critique (Alcadipani and Hassard 2010) or that we should pay "close attention to what boundaries are being created as organizations become flexible, and where, when and for whom these boundaries are being created" (Lee and Hassard 1999, p. 402). Demanding a more reflexive approach to management and organizational knowledge seems necessary, especially when we are still in need of a clear path for media companies and their interactions with other actors, such as start-ups.

The start-up phenomenon is quite a recent topic that reflects a transition to a new media environment defined by keywords such as reach, interconnectedness and immediacy (Hellmueller et al. 2017). Within this transformation of the nature of the journalistic experience, the communication environment has also been modified by the irruption of these kinds of companies. Legacy media have been especially affected, despite the fact that they already had both experience and public recognition in the field. As mentioned above, the emergence of new media companies and the effects on the journalistic landscape have been thoroughly examined in academic literature. However, there is a lack of research on the subject from a more organizational perspective, considering companies that go beyond mere start-up initiatives or small business ventures.

The term "start-up", on the other hand, is neither universal nor neutral. For example, in France these companies are known as "pure players", while many other scholars of journalistic innovation want to separate news initiatives from other more general emerging companies (Powers and Zambrano 2016). This is one of the main reasons why we consider that the use of the term digital intermediaries is more appropriate, since it also includes companies that are not part of the media themselves (e.g., those who work with data visualization, focus on multimedia contents or deliver audience analysis) but have an increasingly important role in the process of creating, producing and curating news content, which proves the term *actor* as a limited and poor label.

2. Materials and Methods

This study focused on the role of these new actors in the news production chain, trying to identify in the scarce academic literature about this phenomenon some elements to set up a basis for a possible definition and characterization of these digital intermediaries. In order to do so, a bibliographic review was conducted in SCOPUS, through which we analyzed articles in both the communication and media management fields written from 2000–2019. The analysis revealed 222 articles in which some of the following keywords were present: digital intermediaries, value chain, outsourcing or servitization (see Appendix A for the completed list of articles).

The publication of articles related to digital intermediaries has been consistent during the past 20 years, reaching its first peak in 2015 with eight new articles published on the topic (Figure 1). After that point, it has increased every year, its highest number being in 2019 with 64 published papers.

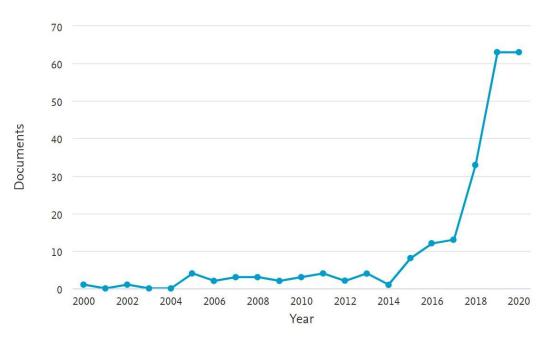


Figure 1. Number of publications containing "digital intermediaries" by year.

Regarding subjects areas, the keyword "digital intermediaries" appeared in 126 documents in the field of the Social Sciences (Figure 2), followed by 38 papers published in Computer Science, and 30 in the field of the Arts and Humanities. The Business, Management and Accounting field had 14 papers related to digital intermediaries published between 2000–2019, while in the field of Engineering there were ten. Finally, five papers were published in the field of Decision Science, five in Economics, Econometrics and Finance, three in Environmental Science, three in Mathematics and two in Psychology.

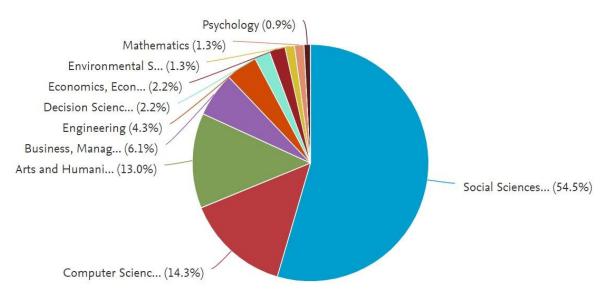


Figure 2. Percentages of publications containing "digital intermediaries" by research area.

Regarding the type of document analyzed, 109 of them (68.6%) were published articles in academic journals, and 18 (11.3%) were conference papers. We also found 12 reviews on the topic (7.5%), 10 book chapters (6.3%), 8 books (5%) and 2 editorials (1.3%). *Convergence* is the academic journal in which the most publications (9) were related to "digital intermediaries" (Table 1), followed by *New Media and Society* (6) and *Media and Communication* (5).

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Table 1. Top ten	publishers of	f content related	to "digital	l intermediaries.
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	2015	2016	2017	2018	2019	
Convergence	-	2	-	2	5	9
New Media and Society	-	-	-	4	2	6
Media and Communication	-	1	-	2	2	5
Digital Journalism	-	-	-	1	3	4
Info	2	2		-	-	4
Information, Communication and Society	-	-	-	1	3	4
Journal of Media Ethics	-	-	1	1	1	3
Journalism Practice	-	-	-	1	2	3
Journalism Studies	-	-	-	1	2	3
El Profesional de la Información	1	-	-	-	2	3

Publications that presented our keyword "digital intermediaries" were analyzed in order to identify how the term was used and to obtain definitions and observations from the text. From the 64 elements published in 2019, more than half of them (60.94%) included our keyword just as a reference to other texts (Table 2), while only 25% had an in-text citation containing the term and explaining either its meaning or combining it with other definitions or concepts from several disciplines.

Table 2. Summary of citations and references to "digital intermediaries" throughout the documents analyzed.

	In-Text Citation	Other Keywords	Reference	Other Topics	Unavailable	Total
2019	16	3	39	1	5	64
2018	14	3	12	0	4	33
2017	3	1	5	1	3	13
2016	5	0	7	0	0	12
2015	1	1	2	3	1	8
2014	0	0	1	0	0	1
2013	1	0	2	1	0	4
2012	1	0	1	0	0	2
2011	1	0	1	2	0	4
2010	0	0	1	2	0	3
2009	1	0	0	1	0	2
2008	0	0	1	2	0	3
2007	0	0	1	1	1	3
2006	1	0	1	0	0	2
2005	0	0	4	0	0	4
2004	0	0	0	0	0	0
2003	0	0	0	0	0	0
2002	1	0	0	0	0	1
2001	0	0	0	0	0	0
2000	1	0	0	0	0	1

3. Results and Discussion

The first substantial definition of digital intermediaries appeared in an article published in 2000 in the *International Journal of Electronic Commerce*. Chircu and Kauffman (2000) defined digital intermediaries as those who are nowadays affected by the Internet, which has displaced "traditional intermediaries" (p. 7). According to the authors, traditional intermediaries are "firms that provide matching services for buyers and suppliers in a traditional, established market" (18). However, they point out some distinctions between those intermediaries who work in "the electronic environment of the Internet" (18), such as the "E-commerce-only intermediaries", and the "E-commerce-able intermediaries", or those who use both traditional and online methods to conduct business transactions (18).

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Edwards (2006), on the other hand, defined digital intermediaries as those who "operate exclusively in cyberspace" (p. 168). Liu, however, based his definition on the study of a real case. After doing some research on China's informatization in rural areas, Liu (2012) argued that digital intermediaries are "some form of human agency, which had access to a source of information [and] interpreted and communicated it to a group which did not have access" (p. 95). Years later, Mansell (2015) developed an idea of digital intermediaries that added "providers of data marketplaces and platforms, data analytics products and services, mobile and cloud apps, software, IT equipment and the telecommunication infrastructure" (p. 8) to the mix.

Tambini and Labo (2016) focused on the UK media market in order to determine the implications of digital intermediaries for news plurality, arguing that the intermediaries have "the potential to influence the flow of online information between providers (publishers) and consumers" (p. 38). Their research was based on the work of Robin Foster, published in 2012 in a report from the Reuters Institute for the Study of Journalism. Foster explains that an intermediary is "a person or organisation that acts as an agent between other people or things" (2012, p. 25), therefore defining digital intermediaries as organizations that bring "news content from third-party providers to consumers using a variety of digital software, channels, and devices" (25).

Enli and Syvertsen developed a shared definition, as well focusing on what digital intermediaries are not, especially after talking about their reluctance "to being defined as media companies, defining themselves instead as technology companies" (2016, p. 145). Understood as a "third party which enters an industry and provides new digital services" (145), the authors defined digital intermediaries as "internet intermediaries" (145) or "digital disruptive intermediaries (DDI)" (p. 45), explaining that, with regard to linear television (the topic of their article in *Media and Communication*), Netflix, HBO, Amazon and YouTube are the most disruptive intermediaries.

This is not the first time that particular companies are depicted as digital intermediaries. There was a trend in the articles we reviewed of introducing the concept of *platform* as the main definition of digital intermediaries. For example, YouTube was represented using this term by "the online services of content intermediaries, both in their shelf-characterizations and in the broader public discourse of users, the press and commentators" (Gillespie 2010, p. 348). Twitter and Facebook were added to the list on several occasions (Johnson 2016; Johnson and Kelling 2018; Larsson 2019; Lewis and Molyneux 2018; Myllylahti 2018; Segado-Boj et al. 2019), as well as the search engine Google (Bilić and Primorac 2018; Johnson 2017; Kreiss and Mcgregor 2018; Nechushtai and Lewis 2019; Sjøvaag et al. 2019; Tambini and Labo 2016) and other well-known companies such as eBay, Amazon, Uber, Apple, WhatsApp and Airbnb (Dodds 2019; Kleis Nielsen and Ganter 2018; Lobato 2016; Toff and Nielsen 2018).

In Foster's classification, for instance, there are four broad groups: "news aggregators like Yahoo, search engines like Google, social media like Facebook, and digital stores/devices like Apple" (Foster 2012, p. 6). As shown, definitions were created for already existent platforms. Foster added Yahoo and MSN to the content aggregators, Bing to the search engines, Twitter to the social media and Amazon and Google Play to the digital stores (23). Khan (2018) affirmed that the platform Change.org should be considered as an intermediary in his analysis of the media system in Indian democracy. Finally, Davidson and Poor stated that platforms such as Kickstarter must also be included in the practice of "online journalism and on social media platforms" (Davidson and Poor 2019, p. 6).

All the published works showed agreement on some of the benefits of digital intermediaries for audiences or clients. However, they struggled to define a clear relationship between digital intermediaries and their dominant market positions. For example, there was explicit concern about the power digital intermediaries might have on journalism and its independence (Bødker 2019; Puschmann 2019); the legal and ethical frameworks that must be applied to them (Marano 2019; Ward 2018); how journalists are affected by the asymmetrical and dependent power relationships between them and digital intermediaries

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(Dodds 2019; Kleis Nielsen and Ganter 2018; Pyo et al. 2019); and how data and privacy issues are handled (Fletcher and Nielsen 2018; Popiel 2019). Again, we must take into consideration the repercussions of power exchange within digital intermediaries and its effects on the public sphere. For instance, Twitter's decision to suspend President Trump's account shows how an intermediary, i.e., a social media platform, can create some ethical struggles between freedom of speech and censorship, thus affecting the value that a particulate digital intermediary creates, represents and distributes.

Despite the uncertainty, digital intermediaries present more than threats or opportunities for news markets: they also create *value*. In 2002, Griffin and Halpin (2002) explored digital intermediaries in an article in *Information Polity*. This was the first time that the concept of *value* was analyzed with regard to these intermediaries, such as "websites" (p. 217) that match and provide "an environment of trust for transacting parties" (217). Podobnik et al. (2009), on the other hand, affirmed that electronic markets function as digital intermediaries that "create value" (p. 71) by bringing consumers and providers together, thanks to the immediacy and the decrease of costs. This characteristic was also analyzed by Tang et al. (2011), when they identified two types of capabilities that digital intermediaries can develop to mediate in interorganizational processes: "bridging capabilities" (p. 7) that enable information exchange and "bonding capabilities" (7) that increase both the efficiency and coordination of operations.

Related to the consequences that the irruption of digital intermediaries has for the media production chain, Hänninen emphasized how the popularity of these new actors has "significant implications for retail, marketing and distribution" (Hänninen 2019, p. 1) that change the established patterns in the value chain of media companies. Ibarra, Orue-Echevarria, Escalante and Benguria, on another note, focused especially on cloud services and the value they create for "cloud computing clients and vendors alike" (2016, p. 283). Enli and Syvertsen (2016) aimed to analyze how digital intermediaries change the way value is created or distributed, but they fail to do so because their article was more focused on the challenges presented to media business models and the changes in marketing, content and rhetorical strategies.

Mansell, on the other hand, explained that value moves "from data collection and creation, through storage, aggregation and organisation, to analysis, processing, marketing and distribution" (Mansell 2015, p. 9), which is perhaps a more accurate idea of the true impact of digital intermediaries on media's value chain. Studoes like the one by Granados et al. began to elucidate the implications of digital intermediaries for travel markets, arguing that the result would be a "shorter value chain" (Granados et al. 2008, p. 80) due to the direct transactions of the intermediaries with the consumers. Despite the processes of intermediation already present in research on online websites and platforms (Boukis 2019; De-Aguilera-Moyano et al. 2019; Joosse and Brydges 2018), the "hybrid entities using digital technology as an interface" (Enli et al. 2019, p. 396) are still undefined and unsorted. The term "digital intermediary" is often substituted by *platforms*, *news aggregators* or even start-ups, but none of those terms clarify or explain the particularities of all of the new media actors born from the Internet era. We argue that a digital intermediary can be placed at any point of the production chain, not only as a distributor of information or as a mere tool to analyze audiences. Digital intermediaries can and should be classified in different categories attending to key concepts such as the mission of the company, how they improve the news creation process and what kind of value they are creating or delivering.

4. Conclusions

After the conducted review, some new tendencies of the transformation of the media industry have arisen in our analysis. The frame for the majority of the reviewed articles relied on knowledge acquired after decades of market changes and digital convergence and on analyses of other facts at a later stage. However, we believe that this frame could be enriched by an approach that considers the effects of digital intermediaries on both the media's value chain and the news production chain. Therefore, we can conclude that our

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theoretical contribution to the field is made through the definition of *digital intermediaries* as companies or business initiatives that may be unrelated to the media but offer products or services that relate to and affect the production chain of journalistic companies, both enriching and adding value to the final media product.

From a practical point of view, this article proposed that these intermediaries might seem to be the key to designing new solutions to the problem of lack of funding and resources in journalistic companies, since the creation of innovative and quality content does not only translate into an improvement in journalistic practice, but also enriches, and even makes profitable, public participation. Further research is required to overcome the limitations of this article, such as an in-depth analysis of the publications in 2020, but also to gather empirical knowledge on the role of digital intermediaries, such as tech companies, in the processes of value creation. Through future analysis and classification of digital intermediaries focused on on where they act in the value chain or how they establish relationships with the media company, we could take advantage of the shapeshifting media market and finally understand what might come for the news industry. It is true that Google and Facebook are giants, but they are not the only actors in this play. Many others, probably smaller actors, continue adding value to many production processes that deliver content in innovative and outstanding ways. The key is not to be found only at the beginning of the production chain, where news aggregators live. We should not pretend either that the answers are at the end, where platforms rule and distribute content through metrics.

We have seen this play many times before: new actors appear on scene, while the *legacy* ones try to adapt to the new demands of an already challenging public. However, we must take a look behind the curtains of media management, focusing on the consequences of the irruption of digital intermediaries not as a mere threat, but as a marvelous opportunity. The beauty of the process, the uniqueness of it, is vested in all the different stages of what media production is. Every twist and turn, every infographic, every fact-checked piece of content and every freelancer serving as a news agency are adding beauty and value to the journalistic product. A taxonomy is due not only from an academic perspective but also from a social one. The entangled relationships between publishers and digital intermediaries are meant to be released and transformed into future partnerships that increase what news is and how it is perceived by the audience.

Author Contributions: C.G.-T. has conducted the literature review, analyzed the data and developed the results and discussion. C.S.-C. has developed the theoretical aspects of the study and added key elements to the conclusions. All authors have read and agreed to the published version of the manuscript.

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Data Availability Statement: The data presented in this study are available in Appendix A.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. List of Reviewed Articles.

Authors	Title	Journal/Source Title	Year
Aegidius A.L.	The music streaming metaphor and its underlying tangle of transcodes	Popular Communication	2020
Al-Sobhi F., Weerakkody V., Al-Shafi S.	The role of intermediaries in facilitating e-government diffusion in Saudi Arabia	Proceedings of the European, Mediterranean and Middle Eastern Conference on Information Systems: Global Information Systems Challenges in Management, EMCIS 2010	2010
Al-Sobhi F., Weerakkody V., Kamal M.M.	An exploratory study on the role of intermediaries in delivering public services in Madinah City: Case of Saudi Arabia	Transforming Government: People, Process and Policy	2010
Al-Yaseen H., Al-Soud A.R., Al-Jaghoub S.	Assessing Jordan's e-government maturity level: Citizen's perspective on awareness, acceptability and usage of e-government services (book chapter)	Public Affairs and Administration: Concepts, Methodologies, Tools, and Applications (book)	2015
Alalwan J., Thomas M.	An evaluation framework to assess e-government systems (book chapter)	Human-Centered System Design for Electronic Governance (book)	2013
Alonso Ibarra J., Orue-Echevarria L., Escalante M., Benguria G.	Empowering services based software in the digital single market to foster an ecosystem of trusted, interoperable and legally compliant cloud-services	CLOSER 2016—Proceedings of the 6th International Conference on Cloud Computing and Services Science	2016
Alsobhi F., Kamal M., Weerakkody V.	Current state of e-Services in Saudi Arabia: The case of intermediaries in facilitating government services in Madinah city	Proceedings of the European and Mediterranean Conference on Information Systems, EMCIS 2009	2009
Amakoh K.O.	Maintaining journalistic authority: The role of nigerian newsrooms in "post-truth era"	Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)	2020
Arriagada A., Ibáñez F.	"You Need At Least One Picture Daily, if Not, You're Dead": Content Creators and Platform Evolution in the Social Media Ecology	Social Media and Society	2020
Arthurs J., Drakopoulou S., Gandini A.	Researching YouTube	Convergence	2018
Barrett B., Kreiss D.	Platform transience: changes in facebook's policies, procedures, and affordances in global electoral politics	Internet Policy Review	2019
Bärtl M.	YouTube channels, uploads and views: A statistical analysis of the past 10 years	Convergence	2018
Bechtold E.	Terrorism, the internet, and the threat to freedom of expression: the regulation of digital intermediaries in Europe and the United States	Journal of Media Law	2020
Bent E., Kelling K., Thomas R.J.	Electoral Reckonings: Press Criticism of Presidential Campaign Coverage, 2000-2016	Journal of Media Ethics: Exploring Questions of Media Morality	2020
Bergeron M.	Reexamining traditional compromises in shoulder-mount HDTV camera-recorder systems	Society of Motion Picture and Television Engineers—SMPTE Technical Conference and Exhibition 2007, SMPTE 2007	2007
Berthold H., Grewar M., Chillas S., Townley B.	Appropriating value: On the relationship between business models and intellectual property (book chapter)	Research Handbook on Intellectual Property and Creative Industries (book)	2018

 Table A1. Cont.

Authors	Title	Journal/Source Title	Year
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Bødker H.	Continuity	Journalism	2019
Bossio D.	Journalism and social media: Practitioners, organisations and institutions	Journalism and Social Media: Practitioners, Organisations and Institutions (book)	2017
Boukis A.	Exploring the implications of blockchain technology for brand-consumer relationships: a future research agenda	Journal of Product and Brand Management	2019
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Cádima F.R.	Media, diversity and globalisation in the digital age	Janus.net	2017
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Cano-Orón L.	Dr. Google, what can you tell me about homeopathy? Comparative study of the top10 websites in the United States, United Kingdom, France, Mexico and Spain	El Profesional de la Información	2019
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Chua S., Westlund O.	Audience-centric engagement, collaboration culture and platform counterbalancing: A longitudinal study of ongoing sensemaking of emerging technologies	Media and Communication	2019
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Colbjørnsen T.	The streaming network: Conceptualizing distribution economy, technology, and power in streaming media services	Convergence	2020
Crain M., Nadler A.	Political manipulation and internet advertising infrastructure	Journal of Information Policy	2019
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Davidson R.	The Role of Platforms in Fulfilling the Potential of Crowdfunding as an Alternative Decentralized Arena for Cultural Financing	Law and Ethics of Human Rights	2019
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De Vuyst S.	Hacking gender and technology in journalism	Hacking Gender and Technology in Journalism (book)	2020
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Dodds T.	Reporting with WhatsApp: Mobile Chat Applications' Impact on Journalistic Practices	Digital Journalism	2019
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Gorwa R.	What is platform governance?	Information Communication and Society	2019
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Griffin D.	How does e-government innovation affect local government's accountability to the public?	Innovation and the Public Sector	2007
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Johnson B.G.	Tolerating and managing extreme speech on social media	Internet Research	2018
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Kreiss D., Mcgregor S.C.	Technology Firms Shape Political Communication: The Work of Microsoft, Facebook, Twitter, and Google With Campaigns During the 2016 U.S. Presidential Cycle	Political Communication	2018
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Kwok C.	Implementing successful G2B initiatives in the HKSAR: An empirical evaluation of G2B websites	Journal of Information, Communication and Ethics in Society	2014
Larsson A.O.	Winning and losing on social media: Comparing viral political posts across platforms	Convergence	2020
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Marano p.	Navigating insurtech: The digital intermediaries of insurance products and customer protection in the EU	Maastricht Journal of European and Comparative Law	2019
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Maryani E., Rahmawan D., Karlinah S.	The implications of social media on local media business: Case studies in Palembang, Manado and Bandung	Jurnal Komunikasi: Malaysian Journal of Communication	2020
Meese J.	Authors, users, and pirates: Copyright law and subjectivity	Authors, Users, and Pirates: Copyright Law and Subjectivity (book)	2018
Meese J., Hurcombe E.	Facebook, news media and platform dependency: The institutional impacts of news distribution on social platforms	New Media and Society	2020
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Ogembo D., Lehdonvirta V.	Taxing earnings from the platform economy: An EU digital single window for income data?	British Tax Review	2020
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Perry M., Ferreira J.	Moneywork: Practices of use and social interaction around digital and analog money	ACM Transactions on Computer-Human Interaction	2018
Pignard-Cheynel N., Amigo L.	Le chargé des réseaux socio-numériques au sein des médias: Entre logiques gatekeeping, marketing et participative	Reseaux	2019
Podobnik V., Petric A., Trzec K., Jezic G.	Software agents in new generation networks: Towards the automation of telecom processes	Studies in Computational Intelligence	2009
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Popiel p.	Terms of public service: Framing mobile privacy discourses	First Monday	2019
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Sánchez R.A.	Collaborative economy: A new market for the social economy [Economía colaborativa: Un nuevo mercado para la economía social]	CIRIEC-España Revista de Economía Pública, Social y Cooperativa	2016
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Schlosberg J.R.	Media Ownership and Agenda Control: The hidden limits of the information age	Media Ownership and Agenda Control: The Hidden Limits of the Information Age (book)	2016
Scolari C.A., Fraticelli D.	The case of the top Spanish YouTubers: Emerging media subjects and discourse practices in the new media ecology	Convergence	2019
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Thorson K.	Attracting the news: Algorithms, platforms, and reframing incidental exposure	Journalism	2020
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Wilczek B.	Complexity, Uncertainty and Change in News Organizations	JMM International Journal on Media Management	2019
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