Apocalypse or Redemption: How the Portuguese Media Cover Artificial Intelligence

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Abstract Artificial intelligence (AI) occupies an increasingly important place in the contemporary societies. One of the most visible aspects is the personalization of online content, news or advertising, but the emergence of personal assistants and autonomous vehicles are phenomena that also attracts the attention of the media and, by this way, reach the population. This article studies the Portuguese reality by analyzing the coverage of artificial intelligence by five national newspapers. The conclusions allow us to say that, although it was considered huge, the coverage proved to be superficial, with a high rate of reuse of sources from other texts, presents little diversity in opinions, and does not stimulate debate in society. Among the most common approaches are economics and political. The coverage was positive in most cases, especially in the health area, where the media never criticized the effects of AI.

1 Introduction

Since the 1950s, the field of artificial intelligence (AI) has gone through alternate moments of euphoria and disappointment, but in the last two decades, the world has experienced a new "golden age" [13]. The present moment is highly favorable, a situation made possible by several factors, among which should be highlighted the increase big data available for machine learning, a term coined in 1959 by Arthur Samuel to define the field of study that seeks to give computers the ability to learn without being explicitly programmed [14].

In parallel, the processing capacity of the machines has been exponentially increasing in recent years: "Prior to 2012, AI results closely tracked Moore's Law,

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with compute doubling every two years. Post-2012, compute has been doubling every 3, 4 months" [26:5].

Today, AI is present in applications as varied as self-driving vehicles, voice recognition, autonomous planning and scheduling, gaming, anti-spam software's, logistical planning, robotics and machine translation (Russel and Norvig 2016). AI resources are incorporated in computers and smartphones, but also in televisions, cars and even household appliances. AI is now among the most modern services provided by small technological startups and by mega-corporations that shape the contemporary worldview such as Google, Facebook, Instagram, Netflix, Spotify, Uber, Airbnb, Amazon, among others.

2 Artificial Intelligence and Society

Although artificial intelligence is increasingly present in our lives, it is interesting to note that there is no clear and consensual definition [3, 11, 25].

The term first appeared in 1956, during a seminar at Dartmouth College, organized by a pioneer in the field, the scientist John McCarthy [30], who had the objective of discussing aspects of human intelligence that could be simulated by machines. At the time, McCarthy resisted to use more specific terms such as 'computational intelligence' because he wanted to consider analog device research as well [20].

More than 60 years after that inaugural seminar, experts still propose different answers to the question "What is artificial intelligence?" (Martinez-Plumed et al. 2018).

AI can be analyzed as a field of computer science research, but also as a vast set of engineering practices [30].

Conceptually, definitions can be divided into four major groups: AI as a system that thinks rationally; as a system that imitates human thought; as a system that acts rationally; or as a system that mimics human action.

For Bellman [1], AI is the automation of activities associated with human thought, such as learning, making decisions and solving problems. Winston [35] discards the human paradigm: for him, AI is the field that is dedicated to study computations that make it possible to perceive reason and act.

Nowadays, the predominant line among engineers is that of the rational agent, i.e., artificial intelligence that solves problems without worrying about imitating human thought or behavior. This paradigmatic option has also helped to boost the growth of the area in recent decades, because it is easier to build machines that fly when we do not try to imitate birds perfectly, but only solve problems .

In the last 50 years, there has been a greater trend of investment in the areas of machine learning, health and medicine, and personal assistants [19].

2.1 AI and Public Interest

General interest in the topic has grown exponentially. Between 1998 and 2018, the volume of peer-reviewed AI papers has grown by more than 300%, "accounting for 3% of peer-reviewed journal publications and 9% of published conference papers" [26:5]. According to the *AI Index 2019*, published by the Stanford University, at the graduate level, AI is now by far the most popular specialization among computer science PhD students in North America, with over twice as many students as the second most popular specialization (security/information assurance). "In 2018, over 21% of graduating Computer Science PhDs specialize in Artificial Intelligence/Machine Learning" [26:6].

The interest in the subject goes beyond university walls: a global study conducted by McKinsey & Company [5] states that in 2017, 20% of companies of various sizes and sectors of the economy adopted at least one AI solution in their businesses, a figure that in 2018 reached 47%. In December 2019, a Stanford study revealed that this number rose to 58% [26]. This popularization of AI has been accompanied by the growth of journalistic coverage on the subject and in recent years the expression 'artificial intelligence', as well as others associated with it (such as 'machine learning', 'deep learning' and 'Tensor Flow') have been increasingly mentioned in Google searches and in journalistic stories from all over the planet.

A survey conducted in the massive database of the GDELT Project, which monitors the internet news, printed and broadcast in 65 languages, shows that about 0.5% of all news in the world quoted the expression 'artificial intelligence' in June 2019, which compares with about 0.15% in early 2017 [26].

However, what do the media say about artificial intelligence? At a global level, there is a clear prevalence of one issue: the impact of this technology on the human work. Of all the news that cites AI, 17.7% are associated with the words 'job', 'jobs', 'employment' or 'unemployment', according to Perrault and colleagues [26]. In contrast, the percentage that contained either 'biases' or 'biased', one of the most relevant discussions in the development of AIs today, was only 2.4%.

As the interest and relevance of artificial intelligence in the world grows, it becomes more important to understand the construction of public debate on the subject and to stimulate discussion. There is a consensus that much remains to be done in this field because, in general, the subject is unknown to the public, and the debates between specialists and public authorities are not properly reflected in the media.

To some scholars, the issue in the press is often divided between two opposing poles: (a) the utopia of a better future, without diseases and with abundance for all; (b) the dystopia of the robotic apocalypse, when machines revolt against men [7], or when technology deepens inequalities and provide the emergence of a caste of superhumans, an elite of men and women who will be able to afford the latest technology implants to become smarter, stronger and healthier in the face of other mortals, trapped in the frailties of the human condition [12].

A content analysis carried out in six British media that looked at the expressions 'artificial intelligence', 'machine learning', 'deep learning' or 'neural networks' found that almost 60% of them were linked to market agendas, such as the launch of products or services [3]. Interestingly, almost 12% of all articles containing one of these expressions referred to Tesla's billionaire founder, Elon Musk. In other words, the debate on AI remains predominantly restricted to the business world. From this perspective, AI is essentially a way to optimize processes, maximize profits and increase the comforts of modern life.

The clear predominance of economic agendas impoverishes the debate on this complex and multifaceted topic. Lack to the British coverage "a wider range of voices in discussions of AI. Academics, activists, politicians, civilians, and civil servants, amongst others, can all contribute to a rich and sophisticated public debate around AI" [3:9].

When coverage is shallow, it disregards the important differences that AI scholars have about "what AI is, what it will be able to do, and how it can be designed, regulated, and integrated into society" [3:1].

Contributing to the research that seeks to know what the media are talking about AI, in this study we analyzed 123 articles published in five Portuguese media (*Expresso*, *Correio da Manhã*, *Jornal de Notícias*, *Público* and *Observador*) in the first two months of 2020. In addition to trying to understand how the Portuguese press covers the topic of 'artificial intelligence' today, we compare the results obtained with British research and data from the *AI Index 2019*.

It should be noted that in June 2020 Portugal received for the first time the classification of "highly innovative country" by the European Innovation Scoreboard (EIS), which highlights the relevance of broadening the debates on what kind of technological innovation the society is stimulating and how the media reflect this.

3 Empirical Study

This exploratory study uses a quantitative approach to facilitate the description of the complexity of a given hypothesis or problem and the crossing of multiple variables [28].

In view of the scenario presented above, the research problem that arose was the following: In what way do the main Portuguese journalistic websites cover the topic of artificial intelligence? From this central question derive three more: What are the main themes associated with AI? Is the value attributed to AI in journalistic coverage positive, negative or neutral? Is there a difference in media approach?

For the study, 123 articles were collected in five Portuguese media, which make up a representative panorama of the national production of online journalism in the country: the weekly with the largest circulation (*Expresso*), the three largest daily newspapers (*Correio da Manhã*, *Jornal de Notícias* and *Público*) and the largest digital native (*Observador*).

3.1 Sample and Observation

The sample is composed by texts containing the expression 'artificial intelligence' and published between January 1 and February 29, 2020. We also searched texts that include expressions belonging to the same semantic universe of AI, namely 'deep learning', 'machine learning', 'neural networks' and 'Tensor Flow'.

Throughout the analyzed period, only five texts contained one of these expressions without being associated with the expression 'artificial intelligence', a first sign that the coverage of the subject still tends to be more generic.

It should be noted that in this period there was no mention of 'neural networks' or 'Tensor Flow'—the name of the most popular system for creating and training neural networks for AI applications.

After the collection of the 123 texts, separated by newspaper and by date of publication, each one was analyzed and coded individually to form a set of variables designed to meet the objectives of the research, enabling the realization of multiple cross-references. The variables were:

1. Textual genre

    1.1. News: shorter texts, associated with daily facts, such as products or service launches, political speeches, financial results, events.
    1.2. Report: longer texts, generally with more sources and with analytical ambitions to deepen the discussion.
    1.3. Opinion: editorials or texts signed by guests or specialists.
    1.4. Advertising report: also known as 'native advertising', are texts sponsored by companies.

2. Origin

    2.1. Local: article produced by the newspaper itself.
    2.2. News agency: article signed by a news agency and republished.
    2.3. Expert or authority: stories signed by guests (experts on the subject, politicians or authorities).

3. News Peg—following Brennen's et al. [3] categories.

    3.1. Market: the pretext for the publication is a market announcement (company results, product launches, service reviews, corporate events, etc.).
    3.2. Academy: the pretext is an academic issue, such as scientific publications, interviews with researchers, scientific events, etc.
    3.3. Government: government actions, discussions in Parliament, laws, promotion programs with public money.
    3.4. Civil society: related to behaviors, focused on characters, actions of organized society, such as protests, petitions or NGO actions.
    3.5. Others: for texts without a clear pretext.

4. Source—quantity (0–5) and type, following Brennen and colleagues [3], the principles are, like the 'news peg', variable

4.1. Market: companies.
4.2. Academy: universities or research centers.
4.3. Public power: Executive, Legislative or Judiciary.
4.4. Civil society: non-specialized sources or NGO members.
4.5. Writing: reproduction of quotations aired in other media.

5. Theme: main subject of the content. After successive filtering and grouping processes, the following thematic nuclei of each analyzed text were defined: economy, politics, health, curiosities and others.
6. Value: approach to the theme (positive, negative or neutral in relation to artificial intelligence).
7. Weight: a measure of the relevance of mentioning artificial intelligence within the text. This variable is important because it was perceived that in some cases the expression 'artificial intelligence' was only a rhetorical resource. Here it was measured if the text treated the AI as something relevant to the story or if the expression was lateral. The classification has a scale 1–3, being 1 "not very important", 2 "moderately important" and 3 "very important" in cases where the AI is the central theme of the text.

3.2 Results and Discussion

Once the data is collected, we analyze the texts according to the group of variables stipulated. In the case of the variable sources, we remind that only the sources with direct citation were considered, that is, between quotation marks. Figure 1 shows the total distribution of the sample by media.

The newspaper *Público* dedicates more space to the topic, followed by *Expresso.* They are the two most important media in the country, aimed at urban readers with a high level of education [29] and generally considered the most credible Portuguese newspapers [27]. It is followed by the only digital native in the sample, the *Observador*, launched in 2014, which is part of the sample for comparison with other

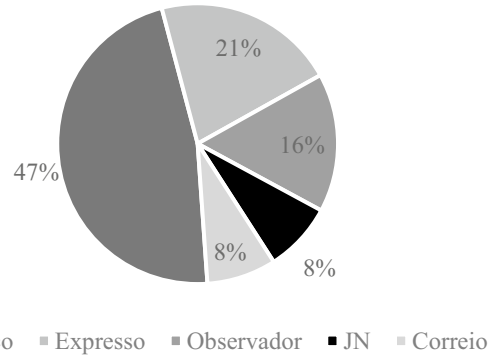

Fig. 1 Texts containing the expression 'artificial intelligence'. Own elaboration

traditional media and also because it is the first Portuguese media with a political position—in this case, European liberal [9]. *Correio da Manhã* and *Jornal de Notícias*, influential periodicals of a more popular nature, are tied with ten texts each containing the expression 'artificial intelligence'. It can already be pointed out that the subject is markedly more present in the reference newspapers.

In general, the coverage was considered voluminous, with an average of about 60 articles/month referring to AI. In other words, if these technologies are incorporated into the daily lives of citizens, their existence seems to be more and more incorporated into Portuguese journalism as well. However, this expressive quantity is not synonymous with quality, since most texts have zero or one source of information cited in direct discourse, and even in articles that record more than one source, there is no diversity of points of view.

Sources, Plurality and Diversity

When evaluating the quality and depth of a journalistic text, one of the important aspects is to verify the presence of diversified and reliable sources of information, carefully selected [18]. Nowadays, the ease of access to online content is accompanied by the potential threat of growth and professionalization of malicious sources of misinformation, which can confuse even professional journalists [22].

In the case of online journalism, the situation seems to be even more complicate due to the intense and exhausting pace of work [2], a situation that leads reporters to depend on the sources that are most available to respond in an agile and minimally reliable manner. In this scenario, professional sources are gaining strength, such as press releases produced by public relations, information retrieved from other news sites and news agencies [6], convenient and institutionalized sources.

Unfavorable working conditions among digital journalism producers "give reason to assume that online journalists are at a heightened risk of using sources that are fraudulent, distorted or inaccurate" as Manninen [18:215] notes in a study conducted with online journalists in Finland.

Numerous studies on journalism deal with the role of sources in journalistic processes, namely the impact of sources in defining what is news [17], political, ideological and ethical issues [23], and how technological transformations have altered the dynamics in the search of information [8]. In addition, classic concepts such as gatekeeper [4, 33] have been reviewed in the light of hyper-connected post-modernity [10, 24].

In Michael Schudson's sense, the sources are "the deep, dark secret of the power of the press. Much of this power is exercised not by the news institutions themselves but by the sources that feed them information" [32:134].

In the online environment, this relationship becomes even more complex. As Sundar and Nass [34] point out, there are multiple layers of sources on the web confusing the public's perception of the original source of information: the news sites linked to newspaper companies dispute space with social-bookmarking sites (e.g., digg.com), social networking sites (e.g., Facebook) and microblogs (e.g., Twitter) and each element in the communication chain can be perceived and defined as a source. Especially problematic, therefore, are the frequent news articles entirely

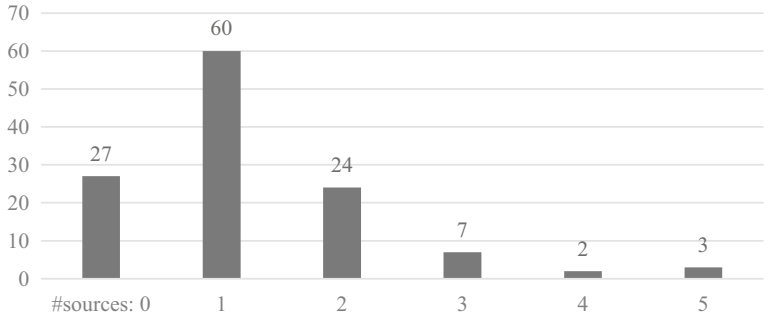

Fig. 2 Quoted sources by article (n = 123). Own elaboration

written based on quotations from other media. Inattentive readers will perceive the source of that information as the newspaper that compiled it, not the original sources, whose reputation may be questionable [15].

In the case of this study, most articles have zero or only one source, which is in line with the above prognosis. Figure 2 shows the distribution of the texts according to the number of sources cited in direct speech, i.e., using quotations in quotation marks.

The data allow us to verify that 71% of the sample is composed by the sum of texts without any source (22%) and texts with only one source (49%) cited in quotation marks, which causes some concern regarding what could be expected from reference vehicles.

As Manninen [18] states, the ease of access to sources and the reduction in the costs of circulating content did not revolutionize journalism's production methods, but only simplified and accelerated already consolidated processes. "The increase of productivity has been realized as more products, instead of better products. […] With no temporal or spatial limits to content, there is never time to waste—any excess could be put toward creating more content" [18:215].

Brennen and colleagues [3] notes that in the case of special press coverage, including science and technology journalism, the situation is even more dramatic, with successive cuts made over the last few years by the economic crisis that plagues most media groups. "These changes mean that some outlets cover these stories less frequently, task non-specialist reporters with reporting these stories, give their reporters less time and fewer resources to cover them, or encourage more reliance on press releases or wire articles" [3:2].

When we analyze the textual types codified in this study (advertising report, news, opinion and report), the prognosis is partially better, since 17 (63%) of the 27 texts without quotes are opinion articles, signed by experts or authorities in their fields of work. Another 9 (33%) are news, and the remaining case is an advertising report sponsored by a private company (the only case of custom-made text in the sample). Not quoting statements from third parties is relatively common in opinion texts, but we consider relevant the fact that about one third of the occurrences of articles

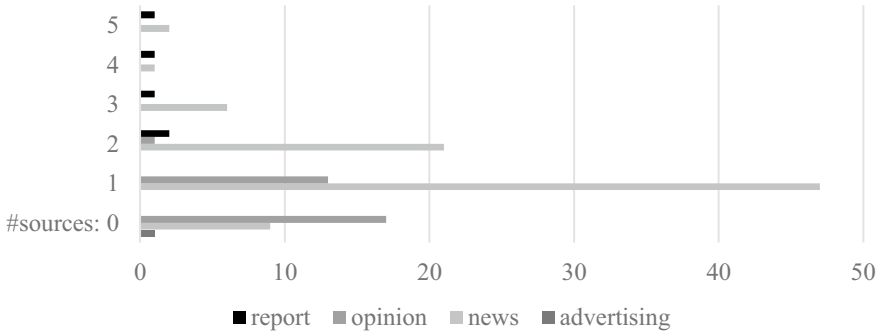

Fig. 3 Quoted sources by textual type. Own elaboration

without any source are framed as 'news'. Of this one third, half were produced by the same media, the *Observador* site, which seems to reinforce the hypothesis already discussed previously that, although exclusively digital vehicles have not created the processes that lead to the pressure for journalists' productivity, they have intensified them.

If in the category 'texts without any cited source' the opinion-active gender predominates, in all the other extracts there is a prevalence of news materials, as illustrated in Fig. 3.

Considering the total sample, 29% of the texts have more than one source expressly cited. But what are these sources? Will there be plurality and diversity of voices in the articles dealing with artificial intelligence in the Portuguese press? Kischinhevsky and Chagas point out that "the diversity of voices is advocated by journalism theorists as a criterion to ensure quality in an informative coverage" [16, 21] reinforce that the concepts of plurality and diversity are not only of interest to the students of mass communication, but also fundamental to the maintenance of the public sphere and the health of democracy itself.

Here, we consider plurality as a quantitative aspect in the selected sample: the more sources, the more plural will the media discourse be. However, diversity is a qualitative order and presupposes different perspectives to enrich the journalistic text. Thus, there is no diversity when a reporter interviews several fonts from the same field or perspective, reinforcing the weight of a single argument. As Kischinhevsky and Chagas state, "knowing where the news comes from is not only a rhetorical question, but a decisive factor in maintaining journalism as a social institution and part of the set of public interests in a democratic society" [16:114].

The plurality of texts is compromised by the low number of sources heard in the sample. In the total of 123 texts collected, 152 fonts were mapped (average of 1.24 per text). When we exclude from this total the 'written' sources (references to speeches, press releases and other previously published reports), the total of citations drops to only 75, that is, only these sources were effectively interviewed by the authors of the articles. In this case, the average of sources duly interviewed per text drops to only 0.61, which weakens the principle of plurality of voices.

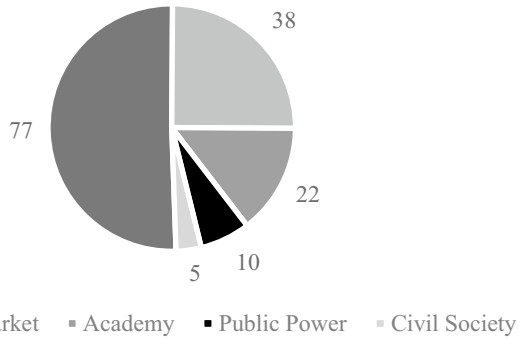

Fig. 4 Quoted sources origin. Own elaboration

To analyze the aspect of diversity in the sample, we classified the sources according to their origin. The result is what appears in Fig. 4.

Most (51%) of the sources with direct citation come from other texts, mainly from reports published in prestigious international newspapers such as *The New York Times* and *The Guardian*. In the sequence, market sources appear (25%), academics (14%), interviews with members of one of the three Powers (7%), and members of civil society, whether in the form of representatives of non-governmental organizations or ordinary citizens (3%).

The data confirm Brennen's et al. [3] study on AI coverage in the UK press. The British press, however, seems to be less dependent on written sources (about 40% of the total, compared to 51% in Portugal), but more dependent on the market (33% in the UK and 25% in Portugal). The other proportions were very similar.

When we analyze in detail how the news combines sources from different backgrounds, we find that only 9 articles in the sample (7% of the total) mix sources from different backgrounds. Still, in most of these few cases the combination is made between one or more written source (mainly newspaper articles) and one or more market sources. Qualitatively, therefore, it is possible to state that the diversity of sources is also a point to improve in Portuguese coverage of artificial intelligence.

Themes, Euphoria and Fear

Considering the topics addressed in the texts of the sample, there was a predominance of economy (36%), followed by political issues (33%) and health (14%). An expressive set of news about sparse themes, sometimes of humorous tone, was grouped under the heading of 'curiosities' (e.g.: "The creator of copy and paste dies"), making up 15% of the total. The remaining subjects, with a more fragmented theme, dealt with themes such as environment and education and appear under the heading 'others', as shown in Fig. 5.

The trend of a predominantly economic AI coverage was observed in the UK [3], where 60% of the stories had as news peg the announcement of a product or service. In the Portuguese case, it is interesting to note that although the economic agenda predominates, there is also a notable emphasis on the social-political discussion of

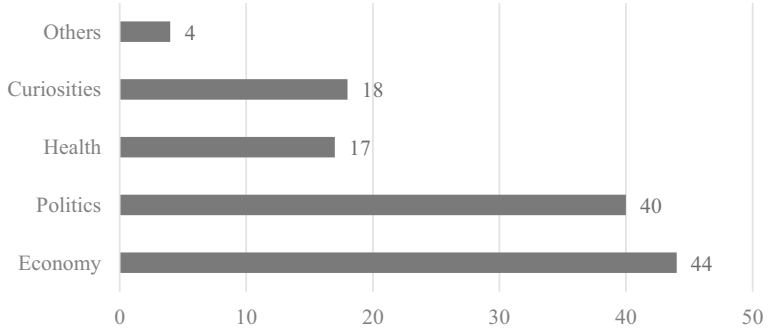

Fig. 5 Themes. Own elaboration

AI, in matters that speak of threats to democracy and privacy, regulation of the sector, and the plans and proposals of public authorities in the adoption of these technologies, including budgetary allocations. Although the discussions raised in these articles are in line with the social mission of journalism, what is noticeable is that the lack of sources and depth of debate hampers the full achievement of this role.

Figure 6 presents the main news peg for the publication of the stories. It should also be noted that the proportional participation of academia (15%) and civil society (7%) in guiding the theme in the Portuguese media is quite restricted.

In some cases, although the news peg for the publication was codified as 'Market', as in the text "'Artificial intelligence needs to be regulated', says the executive president of Google" (Público 2020), from a statement by the CEO of a large technology company, the subject was classified as political/public power, because it deals mostly with the regulatory issue—one of the subjects, by the way, more present in our sample, given the high temperature of the European news on the regulation of so-called big techs. Hence the disparity between the 'economy' theme (36%) and the 'market' news peg (46%) in the sample. Although below the index found in the United Kingdom, we consider it relevant to note that almost half of all texts collected come

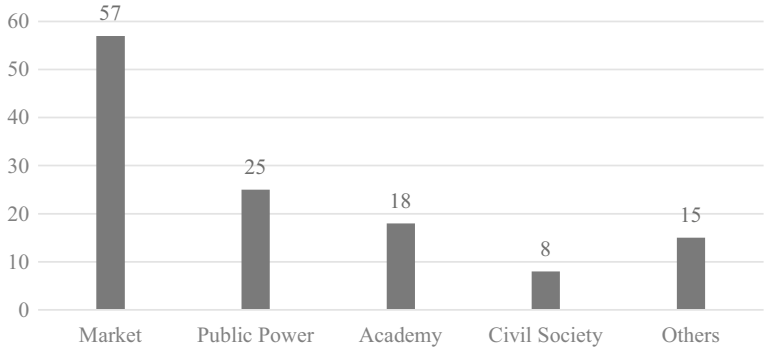

Fig. 6 News pegs. Own elaboration

from company announcements and technology executives. Another curiosity: the British media fetish by businessman Elon Musk, cited in 12% of the articles studied by Brennen and others [3], is not even by far accompanied by the Portuguese media, which only mentioned the businessman in one occurrence among 123 texts.

Regarding the discussion on the political aspect of AI in the Portuguese media, the results are in line with the Stanford University's Human-Centered Artificial Intelligence Institute's global study, which conducted an automated analysis of over 60,000 English-language news bases and concluded that "Global news coverage of Artificial Intelligence has increasingly shifted toward discussions about its ethical use" [26:150].

After classifying the most frequent topics in the sample, we sought to understand whether mentions of artificial intelligence were positive, negative, or neutral, and how they were distributed in relation to newspapers and subjects. The coverage in relation to AI in general is positive in 59% of the cases, neutral in 27% and negative in only 15%.

The comparison between the topics covered and the value given to AI reveals how the media frames the "intelligent" technologies because it is in the field of health news that we have the highest rate of texts favorable to AI: 94% of the stories are positive, and 6%, neutral. No article that mentions AI when dealing with health applications is critical, skeptical, or frankly negative.

In the sequence, 80% of the pieces with the subject economy are positive, 16% neutral and only 5% negative. When we make a second cut for the texts dealing specifically with entrepreneurship and startups, the most numerous subsets of the 'economy' category, we find 100% positive mentions. In other words, whenever the Portuguese press referred to a startup in the period, it was in a favorable manner.

The approach only changes in matters dealing with politics (a set subdivided into the categories 'government', 'democracy', 'regulation', 'human rights' (which includes 'privacy') and 'geopolitics'. In this group, 47% is neutral, 33% negative, and 19% positive. In other words, one third of the texts that frame AI as a political issue provide critical coverage, citing potential threats to privacy and human rights, to the future of work, and to democracy itself. These findings are summarized in Fig. 7.

In opposite to what was observed in a study in the United Kingdom [3], in which the political alignment of the media proved to be a decisive factor in the choice of topics by the media (newspapers on the right wing pointing out economic advantages of AI, and newspapers on the left wing seeing a threat to jobs), in the Portuguese media there was no significant difference in the way of covering the topic. This conclusion reinforces a previous study by Santana Pereira and Nina on the lack of clear identification of the Portuguese media with political parties or ideologies: "Portugal is, after Denmark, the member state of the European Union in which the political orientation of the most prominent newspapers is less evident to the public" [31:233].

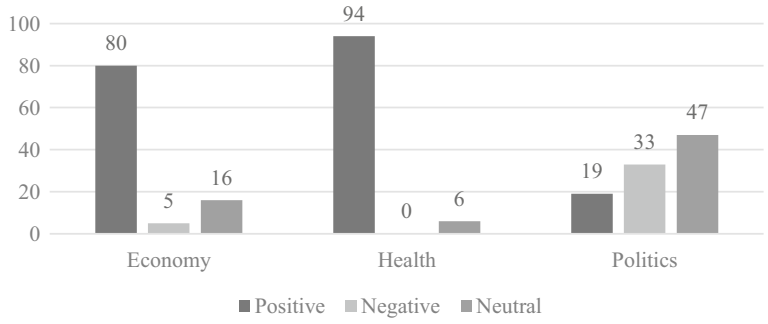

Fig. 7 Value attributed to AI, by theme. Own elaboration

4 Conclusion

Artificial intelligence has entered the daily life of societies through literature and cinema. Movies such as *Metropolis* (Fritz Lang), *2001: A Space Odissey* (Stanley Kubrick) or *Blade Runner* (Ridley Scott), to name a few references from different decades, are examples of this process. In the case of literature, authors such as Isaac Asimov or Arthur C. Clarke, have made artificial intelligence aware to the public opinion through the problems produced by their works.

Although this theme has been present in society for over 100 years, it was the technological development associated with the popularization of Internet and, more recently, smartphones, that put AI in our daily lives. The increase in processing and storage capacities, together with the immeasurable amount of personal data that circulates on the networks, began to be used in the development of products and services in all fields of human activity, with immediate impact on journalistic content. Therefore, in this work we seek to know what kind of approach the Portuguese media take on artificial intelligence.

Compared to other science-related topics, artificial intelligence has an important presence in the media, with an average of 61 news items per month in the five Portuguese newspapers analyzed. Most of the news (68%) was published in the two newspapers (*Público* and *Expresso*), which is not surprising given the nature of the topic.

Economic news predominates, mostly with a positive tone, as occurred in the United Kingdom [3]. The difference is that in Portugal no consistent association was identified between ideological approaches and the editorial orientation of the media. Next comes politics, an umbilical situation linked to discussions about privacy and democracy in its connection to misinformation processes.

The mostly positive approach has to do with the way the subject is approached, appearing represented as the solution to current and future problems, namely in themes related to ecology, health and well-being. The exception are the political themes, where the negative approach overcomes the positive one, but the neutral tone prevails, which annuls the weight of negativity.

In terms of sources, most of the content (71%) has zero or a single source, which is usually another media or a press release, which proves a tendency to resort to republication. The 'news' genre has the largest number of sources, but the plurality is small because, when the documentary sources are removed, the average is 0.61 source, which, to make matters worse, are mostly other media (51%). Market sources (25%) and academics (14%) are the other two privileged sources, with the three powers (7%), and members of civil society (3%) at the end.

Recovering the title of this work, *Apocalypse or redemption: how the Portuguese media cover the issue of artificial intelligence*, we can say that the Portuguese press clearly attributes a positive value to AI, presenting it as a salvation. This trend may be influenced by the existence of many news pegs coming from the market, as companies seek to sell products/services and therefore favor a positive approach. Using only one source (the market) and with ever smaller newsrooms where science journalists are a rarity, we can guess that this trend will continue for a long time.

Future studies should increase the observation period and look for news that accomplishes one of the journalism basic rules—the contrast of sources—situation only possible when there is more than one, something with little presence in this study.

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