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Media Representations of AI – News Coverage and its Contribution to the Communicative Construction of Emerging Technologies

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Abstract: Our research is fuelled by the possibility to analyse two months of reporting on artificial intelligence in articles published by one mainstream UK news outlet which is publicly funded. Firstly, because mainstream news outlets represent a fundamental space in which technical views and expert advice can be provided to the public. Secondly, due to the fact that a systematic analysis of news coverage on AI facilitates a better understanding of who sets the agenda for public discussion as well as how expectations or fears surrounding AI are reflected in articles. Thirdly, analysing the extent to which AI has received news media attention may serve as a valuable indicator of what this innovative and intricate topic means to publics. Our framework of analysis relies on the "politics of representation/signification" and Stuart Hall's encoding/decoding model that pinpoints how meanings are negotiated between encoders (media texts producers) and decoders (media texts receivers). By drawing on the three hypothetical positions (dominant-hegemonic, negotiated and oppositional) that might arise when audience decode media texts, thus generating their own "readings", we aim to explore from a social constructionist perspective how worldviews are put into social practices through technological progress.

Keywords: media representations, artificial intelligence, technology, news coverage, encoding/decoding, media texts.

1. Introduction

As societies are greatly impacted by the evolution of technology and the serious challenges posed by the swift and ongoing transformations that have reshaped not only personal communication, but also our cultural products, the new proposed paradigm is digimodernism (Kirby 2009). With the advent of the Internet, automated systems and

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the rapidly evolving technologies (Dejica-Cartis 2012), it seems that artificial intelligence lies at the heart of the fourth digital revolution for humankind. In order to fully grasp how these emerging technologies, in general, and AI, in particular, trigger societal change around the world in various fields, many actors from the public sphere have engaged in discussions signaling either positive evaluations or commenting on several drawbacks.

Politicians, businessmen or scientists have expressed their points of view regarding the shape and role AI should take especially in relation to imposing some rules and regulations for usage. Nevertheless, a crucial source for the dissemination of knowledge and information about AI that most people has relied on is media. Scientists have already confirmed that public attitudes are greatly influenced by media portrayals, as newspapers, magazines, radio and television significantly shape people's perceptions of and reactions to an emerging technology. In 2005, Scheufele and Lewenstein demonstrated that "cognitive heuristics provided by media significantly influenced public views of nanotechnology in terms of related risks, benefits, and funding." (Sun, Zhai, Shen & Chen 2020).

In fact, the majority of people form opinions or pass judgements with media serving a key role in setting the agenda for public debate. It is a clear indicator "that people draw on media representations to explain or justify certain points of view; that media provide an important conduit for basic information; that media can establish particular associations which are taken up by audiences; and that audiences may be influenced by broader cultural associations in media narratives" (Thornham, Basset and Marris 2009, 382). In other words, public perceptions are shaped when audiences are exposed to media messages, thus actively engaging with different types of texts. As such, further research concerning news coverage on emerging technologies, especially on AI, might help to identify what type of role the media play in providing information to the people and in enhancing different "readings" of media texts, with various media effects and "politics of signification" (Hall in Durham & Kellner 2006, 173).

2. Theoretical framework

2.1. Cultures as networks of "meaningness"

In his influential work, *Representation. Cultural Representations and Signifying Practices* (1997), Stuart Hall signalled that culture implies not only a set of rituals, but also "shared meanings" between participants who appropriate social relations and processes. As such, when referring to culture, the circulation of meanings becomes paramount especially in connection to the production, reception and consumption of media messages. From this perspective, his approach prioritises the semiotic moment, as messages possess a symbolic form, and proposes "maps of meaning" to describe the codes that organise the various potential meanings. Hence, he underlines that every signification has got an ideological dimension which can only be revealed if individuals make sense of both denotation and multiple other factors, such as: the creator and receiver of the message, the channel through which it is conveyed and particularly the system of codes. However, the most significant codes are the "connotative" ones, since

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they "cover the face of social life and render it classifiable, intelligible, meaningful" (Hall in Durham & Kellner 2006, 149).

Additionally, one should exercise caution because equivalence does not characterise this type of codes. Human societies rely on particular ways of categorisation and construct specific sets of social relations, resulting in a "*dominant cultural order*, though it is neither univocal nor uncontested." (Hall in Durham & Kellner 2006, 169). That is, we may consider them universal and timeless although they are the product of our own appropriation built on a "common sense" that we deem quite "natural". If we retrace Hall's description of "connotative codes" and their potential to classify the social world, the "maps of meaning" become indissolubly connected to "structure of discourses in dominance". That is, "the different areas of social life appear to be mapped out into discursive domains, hierarchically organized into dominant or preferred meanings" (*idem*).

In Hall's opinion, "all texts inyolve an economy of meaning: foregrounding certain interpretations and excluding others, seeking to plot a relatively unambiguous route through meaning" (Hall, 1997, p. 166). However, the production and exchange (i.e., giving and taking) of meanings is different according to the type of text that is "re-presented" to the audience. For example, "ethnographic texts, more consciously than others perhaps. direct the reader towards a *preferred reading* since they must navigate the reader on a directed route through potentially complex and unfamiliar terrain." (Hall, *idem*). Thus, rather than discussing institutional/political/ideological order in terms of right or wrong, Hall uses interchangeably *preferred meaning* and *preferred reading* as a crucial concept operating on two prerequisites: encoding and decoding.

2.2. The encoding/decoding model

In one of the most widely recognised textbooks on mass communication theory, McQuail describes three main processes in which communication can take place provided that important elements such as effects, uses or "gratifications" are also taken into account. Besides the transmission, the ritual and the publicity models, McQuail includes Hall's social constructionist approach towards communication seen as the production of meaning through language (McQuail 2020). That is, people can engage in acts of communication, construct and share meanings with language serving as the privileged medium: "meanings can only be shared through our common access to language. So language is central to meaning and culture and has always been regarded as the key repository of cultural values and meanings" (Hall 1997, 2). The sender-message-receiver linear principles on which the cybernetics and information theories functioned were greatly challenged in Hall's influential model especially in regards to the separation between communication and meaning.

From Hall's perspective, strong emphasis is put on meaning and the key is in the code, as encoding refers to ways in which meaning is produced and brought to surface, while decoding implies reception and a permanent struggle to negotiate meaning within acts of consumption. Another important aspect related to the encoding and decoding processes is the fact that they can be asymmetrical, that is, media texts encoded by

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producers in a particular way may not always be decoded by consumers as initially assumed. Hence, the communicative exchange is greatly influenced by the degrees of "understanding" and "misunderstanding", due to either imperfect transmissions, interruptions or distortions that may appear between the encoder-producer and the decoder-receiver.

Although Hall's model has helped us acknowledge that politics is mediated by broadcast and that "the lack of fit between the codes has a great deal to do with the structural differences of relation and position between broadcasters and audiences" (Hall, *idem*), his groundbreaking work has called for a growing emphasis on audiences' responses, in general, to media products as cultural constructs. This is also the reason why Hall's immensely influential model is frequently considered the reception theory in media. According to Douglas Kellner, "one can study the reception of media culture by analyzing its reviews, criticism, and the ways that the texts become embedded in popular discourses and generate a multiplicity of diverse effects. This mode of reception studies was advanced by Walter Benjamin in the 1920s and 1930s and has been taken up by literary theorists like Jauss who have developed literary reception studies to delineate how literature has been received by various publics." (Kellner 1995, 106).

Some scholars have even claimed that "the most slippery and elusive terrain for mass culture studies continues to be negotiated within audience and reception theory" since "it seems an almost impossible task to conduct reception studies that capture the complexity of those moments in which audiences meet mass culture texts" (Alexander Doty in Thornham, Bassett & Marris 2009, 471). The main argument provided relies not only on the audience's fragmented nature, but also on the products of signifying practices which are perpetually circulated by the media: "No wonder we find it so difficult to theorize the dispersed, anonymous, unpredictable nature of the use of mass-produced, mass-mediated cultural forms. If the receivers of such forms are never assembled fixedly on a site or even in an easily identifiable space, if they are frequently not uniformly or even attentively disposed to systems of cultural production or to the messages they issue, how can we theorize, not to mention examine, the ever-shifting kaleidoscope of cultural circulation and consumption?" (Janice Radway apud Alexander Doty in Thornham, Bassett & Marris, *idem*).

At this point, it is important to signal that communication is not characterised by an absolutely equivalent circuit. There is no perfect correspondence between the processes of encoding and decoding, since the encoder might set some limits and parameters in which messages can be decoded, but it cannot fully control how audiences will respond to them, i.e. "interpret" them. Although some degree of reciprocity must exist, Hall emphasizes that there is no guarantee that messages, especially media products seen as cultural constructs, will be perceived along the ideological lines intended by the encoder of the texts. It is of utmost importance to remember that "correspondence is not given but constructed" (Hall 2005, 125). As a result, the possibility of various decodings which do not necessarily follow from

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encodings is set forth and explained by Hall in three hypothetical positions that have refined the behaviourist models of media effects.

Firstly, media texts may be "read" in a way which "embraces" the ideological codes embedded in the transmitted message. In this case, the artifacts of media culture and their ideological nature draw attention to questions of social power and an ideological hegemony that can be shaped and enforced by mass media. The hegemonic manner in which a message is encoded is, subsequently, "circulated" among readers and unless they contest the "connoted" meaning, they find themselves in the *dominant-hegemonic* position: "when the viewer takes the connoted meaning from, say, a television newscast or current affairs programme full and straight, and decodes the message in terms of the reference code in which it has been encoded, we might say that the viewer is operating inside the dominant code. This is the ideal-typical case of «perfectly transparent communication» – or as dose as we are likely to come to it «for all practical purposes». Within this we can distinguish the positions produced by the professional code. This is the position (produced by what we perhaps ought to identify as the operation of a «metacode») which the professional broadcasters assume when encoding a message which has already been signified in a hegemonic manner (Hall in Durham & Kellner 2006, 171).

Secondly, there is also the possibility for audiences to decode connotative inflections set by a discourse by both agreeing and disagreeing with the hegemonic definitions/dominant directions. If there is a combination of adaptive and oppositional elements, then the readers decode within the *negotiated position*. According to Hall, this version "acknowledges the legitimacy of the hegemonic definitions to make the grand significations (abstract), while, at a more restricted, situational (situated) level, it makes its own ground rules – it operates with exceptions to the rule. It accords the privileged position to the dominant definitions of events while reserving the right to make a more negotiated application to «local conditions», to its own more corporate positions. This negotiated version of the dominant ideology is thus shot through with contradictions, though these are only on certain occasions brought to full visibility. Negotiated codes operate through what we might call particular or situated logics: and these logics are sustained by their differential and unequal relation to the discourses and logics of power." (Hall in Durham & Kellner 2006, 172).

Lastly, there can also be oppositional readings of media texts if audiences totally reject the hegemonic viewpoint and interpret messages in a globally contrary way. In this position, an absolute contradiction occurs, as the reader "detotalizes the message in the preferred code in order to retotalize the message within some alternative framework of reference." As a clear example to illustrate how people resist ideology, Hall mentions "the case of the viewer who listens to a debate on the need to limit wages but «reads» every mention of the «national interest» as «class interest». He/she is operating with what we must call an *oppositional code*." He further develops the opposition to the status quo in the following situation "one of the most significant political moments (they also coincide with crisis points within the broadcasting organizations themselves, for obvious reasons) is the point when events which are

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normally signified and decoded in a negotiated way begin to be given an oppositional reading. Here the «politics of signification» – the struggle in discourse – is joined." (Hall in Durham & Kellner 2006, 172-173).

3. Methodology and research questions

The BBC was a strategically selected media outlet, since media operating with noncommercial mandates are not financially-driven by commercial profits. According to Havens and Lotz, there are various noncommercial mandates, such as public, community, alternative/do-it-yourself, and governmental. We believe it is important, especially in relation to the mass media's social power to encode ideologies and generate particular discourses of signification, to signal that the British Broadcasting Company is a media with a public mandate: "in the case of public systems such as the British Broadcasting Company and the Public Broadcasting System, that priority is serving the needs of the citizens of the nation that support those media outlets with tax money or contributions" (Havens & Lotz, 2017, p. 26). Besides being a publicly funded media outlet, the BBC is neither right-leaning like the Telegraph and the MailOnline, nor left-leaning such as The Guardian and the HuffPost. We consider that an unbiased mainstream news outlet remains significant for studying media discussion of AI in order to discover how pressing issues regarding this topic are covered and what type of message is conveyed to the public (in other words, the production, reception and consumption of media messages). Based on the fact that media represent, for most people, a pivotal source of information that shapes public perceptions when reporting on emerging technologies, this research poses the following questions:

RQ1. How does the BBC, in its role as one of the mainstream UK news outlets, cover a topic as innovative and complex as artificial intelligence?

RQ2. What type of reference code does the BBC use to encode news texts reporting on AI?

RQ3. Is there a dominant hypothetical position from which decodings of media messages on AI are constructed and, therefore, received?

By examining mainstream media coverage of AI and integrating the social constructionist approach in our analysis, we aimed to answer the previous inquires from a threefold perspective based on text, context and reception/representation. In terms of sampling and corpus, we first collected articles from the official BBC news website. It was not necessary to initiate a targeted search of the keywords "artificial intelligence", as there is a special section dedicated to news coverage of this topic. Based on a manual data collection, we focused only on written articles which appeared in December 2023 and January 2024. Alternatives of data modality (text + audiovisual, text + visual, text + audiovisual + visual) were not selected. The shortcomings of including other types of media messages would have resulted in generating transcripts in order to analyse that kind of news. When encountered, commentaries were also taken into consideration to ensure validity of the abovementioned threefold perspective. Our approach resulted in 60 articles that were sorted chronologically, starting with the latest news published on the 31st of January (see Figure 1). The collected data was, then, arranged based on a

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specific set of parameters (title, author(s), date of publication, section, type of article – news, feature, opinion – theme/topic) and interpreted by using the "three hypothetical positions" of correspondence between encoding and decoding as grid analysis. Predictably, we have also signalled some limitations concerning media framing, since the research does not compare AI-related coverage on multiple platforms, but focuses exclusively on written text. Furthermore, it features only BBC coverage of AI, which is not a technology-specific media outlet (such as the UK edition of Wired).

4. Results

Based on the time span under investigation, an increased frequency of news discourse on technology, in general, and artificial intelligence, in particular, can be observed (25 articles published in December and 34 articles published in January). Thus, more articles appeared during January and there is no doubt that AI received higher visibility in media discourse during the first month of the current year, with more frames to be covered by journalists worldwide. Besides the predominance of articles reporting on AI in January, our analysis also reveals significant aspects regarding frequency. As such, four articles were published in only one day (on the 11th of January 2024), two of them pertaining to the same section: technology (abbreviated "Tech" henceforth like it also appears on the official webpage of the BBC).

Additionally, we can observe that on the 4th, 8th and 19th of January, the BBC offered consistent news coverage of AI by publishing three articles/day. This outcome serves as a confirmation of the prominence of this emerging technology in public discourses. An overview of December shows similarities, as four articles appeared on the 18th of December 2023, with only one included in the Tech section. AI news coverage was also predominant on the 7th and 22nd of December.

Most of the published articles (39) contained the abbreviation for artificial intelligence in their headlines. Few authors wanted to specifically include "artificial intelligence" and did not opt for the short term (3). In addition, some articles reporting on AI in content did not feature the term in their headline (neither the abbreviation, nor the phrase) (17). Instead, other words connected to the topic could be identified such as: "chatbot", "deepfake(s)", "tech boom", "robocall", "machines", "digital", "apps".

The major topics that emerged from the collected data were connected to AI research and development (23), specific use of AI tools (8), AI regulation in the UK, US and the EU (6) and, last but not least, the impact of AI on jobs (5). Most of the published articles were included in the Tech section (17), although a fair amount of them also pertained to the Business category (15). Concurrently, the BBC framed their coverage of AI based on news reporting from different parts of the UK (Hull & East Yorkshire, UK, Beds, Herts & Bucks, Suffolk, Kent, Oxford, Cambridgeshire, Cornwall, Coventry & Warwickshire, Wiltshire), but also US, Canada, India, Asia or Europe. This outcome signals, once more, the high societal stakes of AI technologies and the implications of their deployment on a global scale.

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5. Dicusssion

Negative reporting on AI focused on various problems connected to emerging technologies such as ethical considerations, security risks (the cyber-crime theme is covered twice in December), privacy invasion and also proneness to malfunctions. Taking into consideration attitudes or moral evaluations, news coverage included a fair number of optimistic media articles focusing on how to leverage AI systems in various industries. In this respect, we signal a prevalent discursive construction of benefits that AI-driven technologies bring to the healthcare sector. News media frequently report on positive outcomes and a successful integration of datafication and automation in this field: "Warwick scientists develop AI tool to aid cancer treatment decisions" (31st January 2024), "Ipswich Hospital uses AI to detect lung cancer in new research project" (16th January 2024), "How portable X-ray machines are helping remote patients" (8th January 2024), "Cambridgeshire firms banking on AI for dementia care and drugs" (3rd January 2024), "AI as good as doctors at checking X-rays – study" (11th December 2023), "Can AI find the children at risk of mental health conditions?" (7th December 2023), "South west hospital admissions could be reduced using AI" (5th December 2023). This strong increase in different narratives reporting on AI, especially in connection to a topic that is of utmost importance in societies, emphasises a strong need to address the beneficial forms of technology usage in media discourse. Thus, the debates set forth in the public arena have a decisive impact on the decoding process of the news text(s), as the receivers are given the opportunity to agree, disagree or negotiate as they "evaluate" the media message(s).

Among the frequent narratives which circulate in the selected media discourses, news representations of AI in transportation are also encoded with potential advantages that the use of technology can bring: "Artificial intelligence to analyse rush hour traffic" (23rd January 2024), "How AI is helping to prevent three buses turning up at once" (18th January 2024), "AI robot to identify and fill in potholes in Hertfordshire" (10th January 2024), "Where will all the electric cars be charged" (9th of January 2024), "Oxfordshire based firm Oxa designs the AI behind self-driving vehicles" (8th January 2024), "Tech Trends 2024: AI and electric vehicle deals" (22nd December 2023), "AI used to deter deer from railway tracks over festive period" (20th December 2023). Critical questions regarding these positive evaluations set forth various interpretations connected to how the digital transformation of society is controlled and by whom.

AI is given meaning in media reporting also as a potential competition for people's jobs, with news texts signaling replacement and shifts that are taking place: "AI to hit 40% of jobs and worsen inequality, IMF says" (15th January 2024), "Gaming voice actors blindsided by 'garbage' union AI deal" (11th January 2024), "Animators say 'AI isn't going to get you an Oscar'" (11th January 2024), "Luton AI engineer wants more South Asian women in technology careers" (4th January 2024), "Can artificial intelligence help you get fit?" (4th January 2024), "What do employers expect staff to know about AI?" (5th December 2023). Unlike the positive framing of research and development in the healthcare sector, the encoding of messages seems to follow a more nuanced critical discourse about representations of AI in the workplace. As such, the

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implications in this case are that the decoded messages should be centred on perceiving the limitations to the benefits of labour automation.

By reporting on risks and threat-evaluations of AI, the selected news texts engage in critical discourses about fundamental issues that play a huge role in societies such as cyber-crime, information disorder especially in relation to "deepfakes", surveillance and privacy invasion: "ChatGPT: Italy says OpenAI's chatbot breaches data protection rules" (31st January 2024), "X blocks searches for Taylor Swift after explicit AI images of her go viral" (27th January 2024), "Fake Biden robocall tells voters to skip New Hampshire primary election" (22nd January 2024), "Why are there so many deepfakes of Bollywood actresses?" (22nd December 2023), "Fears UK not ready for deepfake general election" (21st December 2023), "Cornwall shoppers asked to be aware of Christmas scams" (18th December 2023), "The people creating digital clones of themselves" (7th December 2023), "ChatGPT tool could be abused by scammers and hackers" (7th December 2023). Thus, the encoded meaning not only reflects trends in society, as a growing number of people (especially teenagers) are exposed to false information and become more vulnerable to cyber-attacks, but also establishes the discursive construction of risks and, possibly, even a call for audiences to be educated in due time.

Media portrayals of the risks and harmful deployment of AI even raise questions of governance sometimes and encompass news content on the necessity of regulation particularly in connection to the rise of various bots. "Local conditions" call for a more negotiated meaning, since news frames are centred on AI regulation in the UK, US and the EU: "What happens when you think AI is lying about you?" (19th January 2024), "Minister Alex Burghart seeks to avoid outsourcing AI projects to tech firms" (11th January 2024), "Urgent need for terrorism AI laws, warns think tank" (3rd January 2024, "AI cannot patent inventions, UK Supreme Court confirms" (20th December 2023), "Twitch U-turns on 'artistic nudity' policy" (18th December 2023), "AI: EU agrees landmark deal on regulation of artificial intelligence" (9th December 2023). As such, governmental-political interventions are validated through media discourse which pursues the role of encoding the regulatory interventions and policy frameworks that are much required in the public perception of AI.

In terms of audience "readings" the already signified code used in the news texts and interpreting it through its own framework of knowledge, we observe an overwhelming majority of reactions to content on AI regulation and, specifically, to the social and political risks that are at stake. The headline "Fears UK not ready for deepfake general election" and the "signified" code used in the subheading "Artificial Intelligence (AI) has already been used to disrupt elections around the world - and there are fears among senior politicians and the security services that the UK will be next." generated 1756 commentaries, demonstrating an increased interest in media discourse on tech disruptions and their potentially negative effects at least in the UK political stage. Due to the fact that a content analysis based on all the commentaries would have resulted in an exceeding length of this research paper, we have selected some of the "highest rated" commentaries with the help of a navigation tool incorporated by the

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BBC. Thus, the alternatives “latest”, “oldest” and “most replied” commentaries were not taken into consideration.

Our findings show mixed reception, as some readers agreed with the connoted meaning, thus, operating inside the dominant code, while others negotiated decodings and even operated in oppositional codes with alternative frameworks being brought into discussion. The positions are illustrated in the following set of reactions which correspond to the previous sequence of correspondence between encoding and decoding: “This speaks more about the intelligence of the UK electorate than anything else. When Martin Lewis or Elon Musk try and sell you bitcoin you’ve got to engage your brain.” (agreeing), “Deep fake .... it’s hard enough to trust a thing our government says, so interference in our election process would just cap the past 13 years!” (agreeing), “Not sure what is more dangerous, lying real Tories or lying deepfake Tories” (negotiating), “It’s all about who can sell the most convincing lies to appeal to the greatest self interest. The future looks grim.” (negotiating), “I heard £14m is scammed a month in the UK in online fraud. Yes a lot of it is very cleverly done, but come on Brits, get a bit more savvy.” (negotiating), “It is as much about confirmation bias, people believing what they want to be true. See also: Brexit.” (negotiating), “I’m not sure even the most devastating of deep fake videos could do more damage to the Conservative party than they have already done to themselves.” (negotiating), “For a very large section of the UK population, a sophisticated AI generated deepfake video to spread lies is completely overengineered. A simple tabloid article devoid of facts and evidence written in language a 7 year old can understand, has been sufficient for decades.” (disagreeing), “Of course we are not. Regulation, controls and monitoring of generated political content is non-existent. Maybe the Tories should re-name their Twitter account ‘factcheckUK’ again…” (disagreeing), “To be honest, I think a deepfake AI prime minister would probably do a better job of running the country.” (disagreeing), “Pretty sure the majority of people know how they’re going to vote, even accounting for the LIES, sorry, manifesto pledges.” (disagreeing).

Media discourse was also centred on the deployment of AI in the workplace and its consequential meaning(s) for the general public. “AI to hit 40% of jobs and worsen inequality, IMF says” published on the 15th of January sparked many people’s interest in this specific topic, generating 900 responses in the commentaries section. We believe that a trace of cause-effect in the decoding of this media message can be detected based on the use of the word “worsen” in the headline. This might serve as a relevant linguistic indicator of a dominant meaning which is attached to the existing “maps of problematic social reality” (Hall in Durham & Kellner, 2006, p. 169). The inclusion of an authoritative actor (the International Monetary Fund) also becomes highly relevant to perceive how the impact of technology is contextualised in AI news coverage.

Another news text that generated public discussion was centred on AI application in the field of transportation. In this case, agenda-setting and news framing shaped audiences’ perceptions and evaluations of economic benefits and helped to build meaning of specific issues such as “Where will all the electric cars be charged?”. This inquiry connected to technological trends in the transportation sector generated 739

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commentaries, demonstrating an increased level of reception to media coverage of AI technology and its effects on transformations in this societal domain. Strong implications regarding benefits and risks of AI tools deployment also shaped media discourse, thus triggering reactions among audiences and influencing public discourse as well.

When the BBC reported that "Microsoft says AI is getting deployed 'at sale'", we believe that the visibility and ranking of this topic had a "meaningful" impact due to this precise phrase which serves as another linguistic indicator. While some readers agreed with the connoted meaning, thus, operating inside the dominant code, our findings also reveal negotiated decodings and even oppositional codes with alternative frameworks being brought into discussion. To illustrate these positions, we have selected the following reactions from 59 commentaries which correspond to the previous sequence of correspondence between encoding and decoding: "'At Scale' is one of the biggest potential problems" (agreeing), "That is exactly how Microsoft works. They are aggressive and lack empathy for any fair competition - hence the law suits over the years. The more your employer invests in Microsoft, the quicker that company will need less humans until it is no longer required anyway. The Luddites always disagree with visionaries but Luddites are often the business leaders." (agreeing), "AI is the future. If you bury your head in the sand you will be left behind. We just need to maximise the benefits from it. Yes it will do the jobs of many people but that's what happened with the Industrial Revolution and the world didn't end then." (agreeing), "Does Facebook use AI in its algorithm? If so, it's a load of rubbish. It doesn't matter how many flat earth/chemtrails/alien astronauts/giant trees/tartaria/annuaki drivel pages I delete/hide/unfollow it still bombards me with more. I do think that both the threats and benefits of AI have been overblown." (negotiating), "Ironic how the first to go will be white collar and 'creatives'. If you do manual Labour, you will be safe for a while." (negotiating), "None of it is 'AI'. The use of the term is entirely marketing drivel for pre-packed - often very 'mature' - algorithms and heuristics. There are very real threats from AI. Fortunately for us, its arrival date is no sooner than unproblematic 'nuclear fusion for free energy for everyone'." (disagreeing), "I've just parted company with chatGPT, it is not as powerful as perplexity which also doesn't share my information with Microsoft. One has to look at what MS's mass AI means - really. It's reading your documents at work - the ones you created and its learning to do your job." (disagreeing).

The tangible beneficial impacts of AI tools being deployment to enhance people's wellbeing also sparked reactions, as 55 commentaries were added to the headline "How weather apps are trying to be more accurate". However, our findings show that the highest rated reactions generally entail an oppositional decoding signaling either the need for human expertise to provide interpretations in this particular field or the faulty tools already used by the media outlet reporting on this topic: "The weather is much more accurate than it ever was. It is a forecast, they can't predict the future. The forecast is based on data and several models from which they use derive it. All the moaners on here expecting 100% accurate weather in their tiny corner of the

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UK, Get a grip!", "Weather forecasts don't and never will take microclimates like frost hollows, gaps between buildings and shelter provided by hills fully into account. You do, and always will, need local knowledge to interpret whatever the forecasters say.", "Meanwhile, the BBC's own weather pages continue to be awful - clear presentation, yes, but conflicting with their own information almost every day, depending on whether you read the text summary or look at the detailed hourly breakdowns, which are very often very different from each other! Consistency within output is fundamental, even if the overall forecast isn't perfect (and no-one's is)."

Trust and security as key issues in the debate concerning the emerging technologies have also been prominent in news coverage, thus becoming more salient in public discourse as well. Nevertheless, we suspect a cause-effect trace for the audience's reactions (36 commentaries) based on the inclusion of an authoritative voice in the following headline "Nvidia boss Jensen Huang confident about AI safety". By conducting analysis on some of the highest rated commentaries, we highlight a general skepticism among public opinion, with some people adopting a negotiated position towards the questions of safe forms of technology uses: "Of course he beleives in the 'Saftey of A.I.' - the chips his company manufactures will be selling for big money and he and his shareholders reap the rewards. But he's really not thinking of the bad actors out there planning multiple A.I. generated scams that will fleece people of thier hard earned money. The governence of A.I. is already under question." (disagreeing), "At a time when the ethics of the development of Artificial Intelligence (AI) is dividing opinion, the founder of the world's leading AI chip maker says he's not concerned. He is the producer of the chips that develop AI...he is going to say that to ensure his business prospers.....like cigarette manufacturers claiming smoking is good for your health!" (disagreeing), "Let me rewrite that – 'Man who stands to profit hugely from AI says no problem with AI'" (disagreeing), "A hundred competing models all using the same fundamental architecture and the same training data (basicslly, the Internet) are as redundant and as wasteful of energy as a hundred Bitcoin miners trying to perform the same calculation faster than all the others. In today's world, _every_ large scale waste of energy with no or at best speculative economic benefit is a clear and present danger." (negotiating), "If you ask any company/Director/CEO about a product they are selling and hoping to make money from, they will tell you its amazing, A.I is no different, however the world is littered with failures, and I think unless we are careful, A.I might be our last failure" (negotiating).

6. Conclusions

The timeframe for the analysis spanning from December 2023 to January 2024 resulted in a manual collection of data left for content analysis, with 60 articles produced by one mainstream UK news outlet (the BBC) in the special section dedicated to "Artificial Intelligence" on its official website. The collected news reporting on AI has helped us highlight the versatility and plurality of this topic, as various news sections, including business, technology and politics, have incorporated portrayals, thus fostering insight the discursive construction of both benefits and drawbacks.

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In addition, the analysis conducted on AI news framing enabled us to identify several major topics / predominant themes that gradually surfaced when this emerging technology was (re)presented to the public. As such, the encoding/decoding grid of analysis was applied to acknowledge and interpret media discourse and "readings" of news texts, by no means neglecting the societal contexts and audience response. Our findings can help bridge a deeper understanding of the intersection between news framing of emerging technologies (with emphasis on the development of AI especially in recent years) and public discourse acting as an inevitable corollary of media coverage. There is also evidence that issues connected to the social-political implications of digital transformation and AI become more salient for audiences, who actively engage in discussing the risks and limitations for human agency.

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Annex – Figure 1. Research design

No.	Title of the article	Author(s)	Date of publication	Section	Type of article (news, feature, opinion)	Theme/topic
1.	"Warwick scientists develop AI tool to aid cancer treatment decisions"	Oprah Flash (BBC News, West Midlands)	31st January 2024	UK, Coventry & Warwickshire	News	AI research and development (healthcare)
2.	"ChatGPT: Italy says OpenAI's chatbot breaches data protection rules"	Imran Rahman-Jones (BBC News)	31st January 2024	Tech	News	AI regulation in the EU
3.	"Microsoft says AI is getting deployed 'at scale'"	-	30th January 2024	Business	News	Impact of AI on tech firms
4.	"India's ancient carpet weaving industry meets AI"	Priti Gupta (Mumbai)	30th January 2024	Business	News	AI research and development (handmade carpets)
5.	"X blocks searches for Taylor Swift after explicit AI images of her go viral"	Nadine Yousif (BBC News)	28th January 2024	US & Canada	News	Impact of AI on social media platforms

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6.	"Taylor Swift deepfakes spark calls in Congress for new legislation"	Imran Rahman-Jones (BBC News)	27th January 2024	Tech	News	AI regulation in the US
7.	"Should AI play an ever-growing role in tackling crime?"	Jane Wakefield (Technology reporter)	26th January 2024	Business	News	AI tools (software systems)
8.	"NHS data sale can fuel tech boom – Blair and Hague"	Sam Francis (political reporter, BBC News)	26th January 2024	Politics	News	AI research and development (healthcare)
9.	"Kirsty Gilmour working with AI firm in bid to end online threats"	Iona Ballantyne (BBC Scotland)	25th January 2024	Sport (Badminton)	News	AI tools (software systems)
10.	"Artificial intelligence to analyse rush hour traffic"	Richard Madden and Paul Murphy (BBC News)	23rd January 2024	UK (Hull & East Yorkshire)	News	AI research and development (means of transport)
11.	"Fake Biden robocall tells voters to skip New Hampshire primary election"	Max Matza (BBC News)	22nd January 2024	US & Canada	News	US election 2024
12.	"DPD error caused chatbot to swear at customer"	Tom Gerken (Technology reporter)	19th January 2024	Tech	News	AI failure
13.	"Google starts building £790m site in Hertfordshire"	Lewis Adams & PA Media (BBC News, Hertfordshire)	19th January 2024	UK, Beds, Herts & Bucks	News	Investing in AI
14.	"What happens when you think AI is lying about you?"	Zoe Kleinman (Technology editor)	19th January 2024	Tech	News	AI regulation in the UK
15.	"How AI is helping to prevent three buses turning up at once"	Christine Ro (Technology reporter)	18th January 2024	Business	News	AI research and development (means of transport)
16.	"Ipswich Hospital uses AI to detect lung cancer in new research project"	Rachael McMenemy (BBC News Suffolk)	16th January 2024	UK, Suffolk	News	AI research and development (healthcare)
17.	"AI to hit 40% of jobs and worsen inequality, IMF says"	Annabelle Liang (Business reporter)	15th January 2024	Business	News	Impact of AI on jobs
18.	"CES 2024: AI pillows and	James Clayton (BBC North America	13th January 2024	Tech	News	AI research and development

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	toothbrushes - is it all getting a bit silly?"	technology reporter)				(new products)
19.	"AI could be used to stop vandalism of historic sites"	Flaminia Luck (BBC News, South East)	12th January 2024	UK, Kent	News	AI research and development (preservation strategies)
20.	"Minister Alex Burghart seeks to avoid outsourcing AI projects to tech firms"	Brian Wheeler (BBC News)	11th January	UK, Politics	News	Government AI projects
21.	"Gaming voice actors blindsided by 'garbage' union AI deal"	Tom Gerken (Technology reporter)	11th January	Tech	News	Impact of AI on jobs (voice actors)
22.	"Our fingerprints may not be unique, claims AI"	Zoe Kleinman (Technology editor)	11th January	Tech	News	AI tools (forensic science)
23.	"Animators say 'AI isn't going to get you an Oscar'"	Susan Hornik (Business reporter	11th January 2024	Business	News	Impact of AI on jobs (writers and illustrators of comic books)
24.	"AI robot to identify and fill in potholes in Hertfordshire"	Danny Fullbrook (BBC News, Hertfordshire)	10th January 2024	UK, Beds, Herts & Bucks	News	AI research and development (infrastructure)
25.	"New material found by AI could reduce lithium use in batteries"	Shiona McCallum (Technology reporter)	9th January 2024	Tech	News	AI research and development (chemistry)
26.	"Where will all the electric cars be charged?"	Christine Ro (Technology of Business reporter)	9th January 2024	Business	News	AI research and development (means of transport)
27.	"'Elvis AI show more like time travel than Abba hologram' – creator"	Danny Fullbrook & Roberto Perrone (BBC News, Hertfordshire)	8th January 2024	UK, Beds, Herts & Bucks	News	AI research and development (holograms)
28.	"Oxfordshire based firm Oxa designs the AI behind self-driving vehicles"	Curtis Lancaster (BBC News)	8th January 2024	UK, Oxford	News	AI research and development (automotive industry)
29.	"How portable X-ray machines are helping remote patients"	Christine Ro (Technology reporter)	8th January 2024	Business	News	AI research and development (healthcare)

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30.	"Character.ai: Young people turning to AI therapist bots"	Joe Tidy (Cyber correspondent)	5th January 2024	Tech	News	AI tools (chatbots)
31.	"Microsoft announces AI key on Windows 11 PCs"	Imran Rahman-Jones (BBC News)	4th January 2024	Tech	News	AI research and development (IT)
32.	"Luton AI engineer wants more South Asian women in technology careers"	Farzana Chaudry & Danny Fullbrook (BBC News, Bedfordshire)	4th January 2024	UK, Beds, Herts & Bucks	News	Impact of AI on jobs (technology careers)
33.	"Can artificial intelligence help you get fit?"	Kathrine Latham (Technology reporter)	4th January 2024	Business	News	Impact of AI on jobs (personal trainers)
34.	"Urgent need for terrorism AI laws, warns think tank"	Chris Vallance & Imran Rahman-Jones (BBC News)	3rd January 2024	Tech	News	AI regulation in the UK (legislation must keep up with online terrorist threats)
35.	"Cambridgeshire firms banking on AI for dementia care and drugs"	Janine Machin, (Technology correspondent, BBC East)	3rd January 2024	UK, Cambridgeshire	News	AI research and development (healthcare)
36.	"New York Times sues Microsoft and OpenAI for 'billions'"	Tom Gerken (Technology reporter	27th December 2023	Tech	News	AI and copyright infringement
37.	"Google: What were people in England searching for this year?"	Tim Dodd (BBC England)	25th December 2023	UK, England	News	AI tools (trends)
38.	"Why are there so many deepfakes of Bollywood actresses?"	Noor Nanji & Shruti Menon (BBC News)	22nd December 2023	Entertainment & Arts	News	Impact of AI on India's film industry
39.	"'We want to let people know before floods hit them'"	Suzanne Beame (Technology reporter)	22nd December 2023	Business	News	AI research and development (infrastructure)
40.	"Tech Trends 2024: AI and electric vehicle deals"	Ben Morris (Technology of Business editor)	22nd December 2023	Business	News	AI research and development

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						(AI powered services)
41.	"Fears UK not ready for deepfake general election"	Brian Wheeler & Gordon Corera (BBC News)	21st December 2023	UK, Politics	News	Impact of AI on UK democracy
42.	"AI cannot patent inventions, UK Supreme Court confirms"	-	20th December 2023	Tech	News	AI regulation in the UK (patent rights)
43.	"AI used to deter deer from railway tracks over festive period"	Shivani Chaudhari & Neil Lancefield (BBC News and PA Media)	20th December 2023	UK, Cambridgeshire	News	AI research and development (means of transport and animal protection)
44.	"Bollywood: How AI may affect India's vast film industry"	Devang Shah (BBC News, Delhi)	18th December 2023	World, India	News	Impact of AI on India's film industry
45.	"Imran Khan: Pakistan ex-PM used artificial intelligence to campaign from jail"	- (Reuters)	18th December 2023	World, Asia	News	Impact of AI on the political arena
46.	"Cornwall shoppers asked to be aware of Christmas scams"	- (PA)	18th December 2023	UK, Cornwall	News	Impact of AI on creating tools for cyber-crime
47.	"Twitch U-turns on 'artistic nudity' policy"	Shiona McCallum (Technology reporter)	18th December 2023	Tech	News	Impact of AI on streaming platforms
48.	"Bedfordshire Police use AI to save hours on admin duties"	Janine Machin (BBC News, Bedfordshire)	14th December 2023	UK, Beds, Herts & Bucks	News	AI research and development (admin duties for police officers)
49.	"Name that whale! How AI aces animal spotting"	Andrea Murad (Technology reporter)	14th December 2023	Business	News	AI research and development (animal recognition)
50.	"AI as good as doctors at checking X-rays – study"	Lee Bottomley (BBC News West Midlands)	11th December 2023	UK, Coventry & Warwickshire	News	AI research and development (healthcare)

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51.	"AI: EU agrees landmark deal on regulation of artificial intelligence"	-	9th December 2023	World, Europe	News	AI regulation in Europe
52.	"Google admits AI viral video was edited to look better"	Tom Gerken (Technology reporter)	8th December 2023	Tech	News	AI tools (limitations)
53.	"Can AI find the children at risk of mental health conditions?"	Janine Machin (Correspondent, BBC East)	7th December 2023	UK, Cambridgeshire	News	AI research and development (healthcare)
54.	"The people creating digital clones of themselves"	MaryLou Costa (Business reporter)	7th December 2023	Business	News	AI tools (chatbots)
55.	"ChatGPT tool could be abused by scammers and hackers"	Joe Tidy (Cyber correspondent)	7th December 2023	Tech	News	Impact of AI on creating tools for cyber-crime
56.	"Google claims new Gemini AI 'thinks more carefully'"	Shiona McCallum and Zoe Kleinman (Technology team)	6th December 2023	Tech	News	AI tools (chatbots)
57.	"Nvidia boss Jensen Huang confident about AI safety"	Suranjana Tewari (BBC News, Singapore)	6th December 2023	Business	News	Impact of AI on computer chips
58.	"South west hospital admissions could be reduced using AI"	Bea Swallow (BBC News)	5th December 2023	UK, Wiltshire	News	AI research and development (healthcare)
59.	"What do employers expect staff to know about AI?"	Sooraj Shah (Technology of Business reporter)	5th December 2023	Business	News	Impact of AI on jobs (on the lookout for AI skills)
60.	"How weather apps are trying to be more accurate"	Suzanne Beame (Technology reporter)	4th December 2023	Business	News	AI research and development (weather forecast)

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