LUISS

Degree Program in Management

Chair of Managerial Decision Making

"Artificial Intelligence in Italian Journalism: Automation vs. Personalization and Their Impact on Economic and Operational Sustainability of Newsrooms Business Model"

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Academic Year: 2024/2025

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1. Introduction

Artificial Intelligence (AI) has become a significant presence in many sectors in today's society, redefining how companies, institutions and individuals tackle complex challenges in their daily activities while fostering innovation. AI is no longer just a technology but a transformative engine shaping both our present and future in previously unimaginable ways, pushing society to redefine balances and priorities in an increasingly digital era. Its ability to process large amounts of data quickly, learn from it and generate automated or personalized solutions is transforming operational processes, business strategies and social interactions.

Among other sectors, AI is also impacting the field of journalism, influencing both production processes and ways of interacting with the audience. Nowadays, many newsrooms strive to innovate to keep up with the times by integrating AI into their operational processes and strategies. However, many Italian newsrooms are still in an early stage of experimentation compared to their international counterparts. This thesis aims to analyze the use and impact of AI in the world of journalism, particularly from the perspective of Italian newsrooms, attempting to contribute to research on AI implementation in such organizations. Specifically, the research question I propose is : "*In the context of Italian newsrooms, should the implementation of artificial intelligence prioritize the automation of editorial processes or the personalization of the reader experience and which of these two strategies contributes more to the economic and operational sustainability of the business model?".* So it seeks to determine whether its use is primarily oriented towards the automation of editorial processes or the personalization of the reader experience. Finally, it highlights which of these two strategies contributes more to the economic and operational sustainability of newsrooms business model.

The research question thus proposes a clear comparison between two main strategies (automation and personalization), exploring the advantages and disadvantages of both perspectives. In this context, AI enables the automation of content production, such as articles on financial data or sports results, improving efficiency and reducing costs. At the same time, advanced algorithms analyze user preferences, offering a personalized reading experience that strengthens the connection between newsrooms and their audience.

To support and validate the analysis and my hypotheses, it is essential to provide empirical evidence and data. For this purpose, I have chosen case studies aimed at making my arguments about the use of AI for the automation of editorial processes and the personalization of the reader experience more credible. Those case studies include, on one side, the newspapers La Repubblica and Corriere della Sera and on the other side, Fanpage and Il Post. I decided to make these two distinctions as the first two newsrooms are traditional realities, while the others two are digital native newspapers.

Moreover, what also supports my distinction was the fact that, thanks to some superficial previous researches, I found out that La Repubblica and Il Corriere della Sera apparently seem to tend to personalize users' experiences, while Fanpage and Il Post to automate editorial processes, but we will analyze this perspective more thoroughly in the following chapters.

To answer the first part of the proposed research question, these two types of cases allow for a comparison of the two different approaches analyzed. Through the case studies, it is possible to identify key factors that have enabled a newsroom to succeed with a specific strategy (e.g., AI for automation or personalization). These factors can become valuable and generalized for other Italian newsrooms. Finally, the relationship between artificial intelligence and the sustainability of the business model (the second part of the research question) will be analyzed through a comparison between the two types of case studies, representative of the strategies of automating editorial processes and personalizing the reader experience, so to determine which contributes more effectively to the economic and operational sustainability of Italian newsrooms.

The research design of my thesis is based on a qualitative approach involving semi-structured interviews as well. In fact, I decided to conduct the interviews with both journalists and AI experts. This dual perspective was essential to gain insights into how artificial intelligence is being adopted and perceived from both a practical newsroom standpoint and a technological, strategic viewpoint. All this is followed by data analysis to draw valid and acceptable conclusions that address the research question proposed at the beginning of this research. The valuable implications that will emerge can guide future strategic decisions and potentially it could serve as a model applicable in other national contexts within the journalism industry.

1.1 Purpose and Structure of the Thesis: Research Question and Objectives

The present study aims to analyze the role of artificial intelligence (AI) in Italian newsrooms, when considering two principal approaches: the automation of editorial processes and the personalization of the reader's experience. The research question I have formulated and on which my elaborate is focused is: *"In the context of Italian newsrooms, should the implementation of artificial intelligence prioritize the automation of editorial processes or the personalization of the reader experience and which of these two strategies contributes more to the economic and operational sustainability of the business model?".* To answer to this last research question, I will present a deep literature review and after that I will be able to formulate six main hypotheses according to what will emerge from the studies already conducted.

To test my hypotheses, I will present some case studies (La Repubblica, Corriere della Sera, Fanpage, Il Post) with the aim of analyzing Italian newsrooms that have adopted automation or

personalization strategies. Furthermore, I will also conduct semi-structured interviews with editors, journalists and executives of Italian newsrooms and with some IA experts, so that they will allow me to gather insights into their perceptions of automation and personalization, the reasons driving Italian newsrooms to choose one strategy over another and to understand how each strategy influences economic and operational sustainability. On one hand journalists will allow me to investigate in practice the sector which I am studying, on the other hand experts will let me obtain a more strategic and technical vision on the adoption of IA in the field of journalism.

Concerning the goal of my research, it is to examine the benefits, challenges and practical outcomes when adopting AI in the sector studied. This will help me to identify the results achieved in terms of process efficiency, audience loyalty and their impact on the sustainability of the newsrooms' business models.

My research pursues different objectives. First, it aims to identify the impact of AI on the Italian journalistic industry by analyzing how this technology is transforming both traditional newsrooms and native digital media, with a specific focus on automation and personalization. Secondly, it seeks to evaluate which of the two main strategies contributes more significantly to the sustainability of the business model of Italian newsrooms by analyzing the operational, economic and strategic advantages of automation and personalization, as well as the perceived limitations and providing practical recommendations to promote a sustainable and conscious adoption of AI in the journalism sector. Another objective is related to the latter concept, in fact, to provide concrete advices, it is necessary to offer guidelines and some strategic suggestions to Italian newsrooms, based on the results of my research, so that they can adopt the most sustainable and profitable approach.

In this way, my thesis is going to contribute to the academic debate on artificial intelligence in journalism, thus enriching the current literature with a specific focus on the Italian context, which is still lagging in terms of AI innovation, but also inspires a practical framework to support the digital transformation of newsrooms in Italy and stimulate the conscious adoption of AI in journalism, offering a clear framework for these organizations to enhance sustainability and efficiency through AI.

2. Literature Review

2.1 AI and the Journalism Sector in Italy

2.1.1 Defining IA today

What is Artificial Intelligence? Artificial Intelligence is defined by the European Parliament as "*The ability of a machine to display human capabilities such as reasoning, learning, planning and creativity"*.

The earliest origins of artificial intelligence (also referred to as AI in this text from now on) trace back to philosophical and scientific concepts developed by various thinkers and researchers across centuries.

Early ideas about mechanical intelligence emerged through disciplines such as electronics, mechanics, and engineering.

AI was a distinct subject independent of its philosophical heritage only with the advent of digital computers and contemporary logic that made previously theoretical ideas possible to convert into practical applications.

Artificial intelligence began to be a field of study in the 1950s and it was then that Alan Turing proposed the “Turing Test” to check machine intelligence. During that time, however, applications were limited to specific problems such as chess and equation-solving. During the following decades AI was limited by technological limitations such as low processing power and challenges in designing advanced algorithms that restricted it to practical implementation. A breakthrough was made in the early 2000s with deep learning and convolutional neural networks (CNNs) that enabled AI systems to handle large amounts of data and improve without human interference. Over the course of following years machine learning made it possible for AI to be implemented across various sectors such as health care, education, and manufacturing and overcome some of the original limitations.

Artificial intelligence is now a part of day-to-day life today through avenues like virtual assistants, advanced medical uses, and industrial automated systems. AI programs are more sophisticated with recent advancements and are raising significant ethical and safety concerns with greater ability to mimic human thought processes.

In reality, while AI has great potential to improve industrial efficiency, medical diagnosis, and automated complex operations, it is also faced with risks of data bias, job replacement, privacy violations, and nefarious applications such as deepfake development and disinformation. Growing autonomy of these systems also poses challenges to human control and therefore development of ethical regulation, transparency, and strict oversight is important to ensure that these technologies advance safely and in line with human ethics.

Artificial Intelligence is supported by a foundation of basic technologies that enable machines to mimic human reasoning, learn from data, and interact with the world in more sophisticated ways. Of the major AI technologies, the following are significant and interconnect to form the backbone of modern Artificial Intelligence and offer innovative solutions and improve efficiency across different domains of application.

Machine Learning: Machine learning is a key technology that allows systems to improve and learn by themselves based on experience. Machine learning algorithms read large amounts of information to identify patterns and make decisions without human intervention. It is what powers applications such as trend prediction, voice recognition, and automated generation of journalistic content such as news on financial or sporting news.

Natural Language Processing (NLP): NLP enables computers to read and interpret human language and create it. NLP is used in applications such as virtual assistants, automated translators, and sentiment analysis to make human and machine communication more natural.

Deep Learning: Deep learning is a form of machine learning that uses artificial neural networks with multiple layers (deep neural networks) to learn multiple factors of data. Deep learning powers most advanced AI applications such as image recognition and machine translation because it can learn rich representations of data.

Computer vision: it allows computers to see and interpret the visual world through digital images or video. Deep learning models are used by machines to identify and classify objects with very high accuracy and apply them to areas like medical diagnosis and autonomous cars.

Robotics: it employs various AI technologies to apply to designing and constructing equipment that can perform complex tasks. AI enables robots to navigate in open spaces, recognize objects and make autonomous decisions, widening their scope of operations in fields such as industrial manufacturing and medicine.

Recommendation systems: they scan user data to make personalized recommendations based on what they are interested in and what they do.

Artificial Intelligence is revolutionizing the job market today by means of a deep process of transformation that is distinguished by a differentiated impact on jobs and productive activities. This phenomenon is not homogeneous and is subject to compound dynamics that are determined by the type of required skills, levels of specialization, and adaptability of various categories of professionals.

AI not only replaces workers in mechanistic and routine jobs but is also reconfiguring what constitutes work, producing new jobs and re-engineering existing ones. Quantifying AI's impact on the job market is a central element of economics studies and is based on quantitative models that

account for the degree of exposure of jobs to automatization. One of the most effective parameters to capture this phenomenon is that of Fitness of occupations (Fenoaltea et al., 2024), which measures the sophistication of skills required for a job. The more a job relies on a large set of various skills and creative or relational abilities, the less substitutable it is by AI. On the contrary, jobs with repetitive and standardized patterns are more prone to automatization.

The impact of AI is not homogeneous and is very different across sectors. Some sectors such as manufacturing, logistics, and financial services are undergoing large-scale automations with a reduction in employees performing repetitive and highly standardized tasks. In sectors such as banking and insurance, for example, algorithms are replacing operators for functions such as risk assessment and management of transactions. In the health sector, AI is supporting experts in diagnostics and patient management with greater efficiency without completely replacing human intervention. Meanwhile, some jobs are experiencing increased demand for new competences such as for data analysts, AI experts, and cyber specialists. In more creative and relational fields such as marketing and communication, AI supports decision-making processes without replacing strategic and human competences for business development.

AI can be both a complement to and a substitute for human work. When used as a complement to human work, AI expands workers' capabilities and boosts productivity while allowing them to do more complex and higher-value work.

Conversely, substitution is evident when it is possible for human tasks to be done by machines with greater efficiency and less direct intervention. Already this is happening in fields such as industrial manufacturing and customer support, with chatbots and voice assistants capable of handling a large volume of inquiries without human intervention.

In the future, Artificial Intelligence will keep transforming the job market with increasingly profound impacts; it will generate new jobs and reorganize productive processes. In fact, while AI can automate routine jobs, it also generates new jobs in fields such as data science, cyber security, and human-machine management. Hybrid models will be used by firms with AI complementing human workers to make them more productive and efficient while creative and strategic jobs will be less prone to substitution. However, AI may widen inequalities between skilled and unskilled workers and demand investment in training and professional retraining to make a smooth transition feasible. In this scenario, access to AI-based technological tools and advanced training is a major factor of competitiveness in the job market. The digital divide may reinforce inequalities between firms and workers and benefit those with the ability to leverage AI and disadvantage those without the means to adapt to change. To overcome this obstacle, investment in digital literacy training and professional retraining is required to make AI adoption accessible to all job market segments.

Public policies will also be crucial: AI regulation, fostering reskilling programs, and supporting businesses in adopting new technologies will be necessary to balance innovation and social sustainability. Support for businesses, particularly SMEs, highlighted above is required to integrate AI into operations without job losses. Tax credits, digitalization investment funds, and technological support programs can make a balanced transition possible without letting large firms benefit alone. Careful AI adoption should rather be aimed at empowering people and not replacing them to balance innovation and occupational sustainability. In this context, AI should not be considered as a mere element of automation but as a tool to enhance human work and promote inclusive and sustainable economic development.

Therefore, AI in the future workforce will depend on finding a balance between innovation and social sustainability. Companies will have to adapt by investing in upskilling and governments will have to implement policies to minimize the adverse impacts of automation. Success will depend on a managed transition whereby AI is employed to increase productivity without compromising workers' welfare.

We can hence say that AI is a topic of increasingly more widespread debate, and this has been particularly true in recent times. Recently, a highly innovative AI model was developed by China that is called DeepSeek and is capable of delivering surprising results while using less computational resources and power than was initially projected. This has left a great impact on the global tech sector, even on giants like NVIDIA, whose stocks fell by 17%, resulting in a market value loss of about 600 billion dollars. DeepSeek is a revolutionary tool that has been thoroughly analyzed by numerous experts. Here is what the CEO of Appian, Matt Calkins, has to say about it and how he has labeled this discovery as a true "wake-up call" for the sector. His words summarize the magnitude of this innovation:

"*The DeepSeek announcement is a wake-up call and there is going to be a bunch more surprises to follow. Everybody thought that they knew where the value was coming from*."

In reality, DeepSeek is a startup and innovative AI firm that was only formed 20 months ago and comprises a team of skilled young Ph.D. and graduate students. This newcomer has just rocked the industry landscape with its market entry by offering a very competitive AI model for a very cheap price of just 1 yuan (0.14 dollars) per million tokens. This has drastically forced the entire industry to re-evaluate its pricing models and has been a watershed moment for the sector.

2.1.2 The Digital Information Market and AI: AI in Journalism – News Gathering, News Production, and News Distribution

In recent years, the information landscape has dramatically shifted away from print to digital. This has been driven by **digitalization** and by new platforms that have radically changed how we read news. According to the Digital News Report 2024 by the Reuters Institute for the Study of Journalism, today television remains the main source of news for Italians (62%), followed by news sites (54%) and social media (40%). So we can say that there is growing demand for digital sources and this is particularly evident among younger consumers: among those aged between 18 and 24, 78% use the internet for news and 51% use TV (figure below).

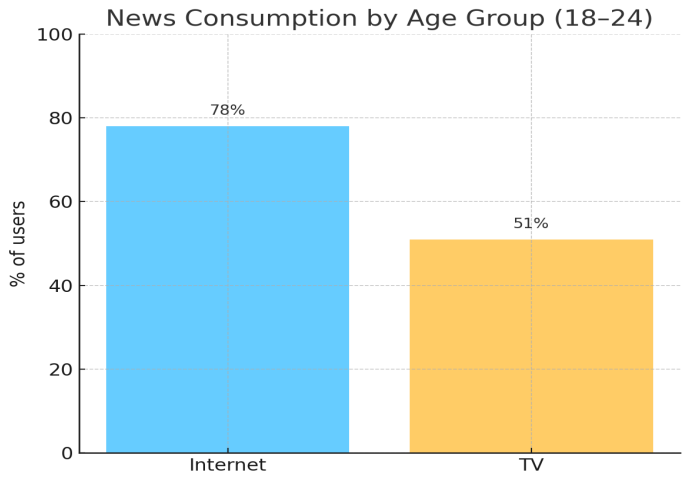

Table 1: News consumption by age group (18-24)
https://reutersinstitute.politics.ox.ac.uk/digital-news-report/2024/italy

Besides this, in particular the phenomenon of digitalization has changed also the scenario of online journalism brands in the information market. Conventional news providers are now challenged by emerging digital entrants such as Fanpage, Il Post, The Huffington Post and OPEN.

Thus, going digital has set off a chain reaction that has forced the news industry to adapt to **changing consumer behavior**. Audiences have shifted from passive consumers of print news to active users who access information on-demand, across multiple platforms (e.g. social media) and often expect content to be personalized, interactive and immediate. In fact, due to this, there is an increasing diversification of information forms for news providers today. News are now accompanied by newsletters, podcasts and video content. Social networks - sometimes friends, sometimes adversaries - have a profound influence on news distribution. Enforcing audience loyalty has become

necessary not just for financial considerations but to maintain credibility. Events such as the COVID-19 epidemic and Ukraine crisis made readers realize how crucial it is to trust sources and introduced them to risks of increasing polarization and generally useless chatter on social networks. While newspaper subscription is a mark of trustworthiness, not all can afford it, especially during a trend of increasing costs for digital services.

Journalism today is presented with the daunting reality of reconnecting with audiences that are more and more saturated with information overload while expanding coverage, with the average age of subscribers being more than fifty. Media outlets need to differentiate themselves in order to compete, yet not all can afford to do this with the correct technology. Automated content creation, reader interest-based content and information adaptation across formats are now necessary for a multi-channel, data-driven strategy. **Artificial intelligence** is a central tool in this regard, with big publishers developing proprietary tools while smaller operations look to external partnerships to move ahead.

Just as thirty years ago the internet transformed journalism and information, we are going through a similar revolutionary transition with AI. In 1991, the web transformed the media environment by making information more accessible and reducing journalism's function as intermediaries and disrupting traditional business models. AI is doing it again today. Traditional tools are no longer sufficient to deal with this revolution; the industry must adapt and leverage new technologies to remain ahead. As with digitalization in the past, AI is reshaping news-making and news-consuming practices and presents unprecedented challenges and possibilities.

The beginning of 2023 put both the potential and controversy of tools like ChatGPT-3 in the spotlight with hopes for future technological advancements and fears of a future ruled by machines. This recalls the key question: Is the journalism industry truly prepared for this revolution? In Charlie Beckett's estimation, as professor of journalism at the London School of Economics and director of JournalismAI, newsrooms need to bridge their AI knowledge gap. " *If you're not keeping up with AI, start now. Don't worry about robots. Ensure that someone in your company is trained in AI, which can even be done online. Then identify an existing challenge or issue and start researching. AI may not always be the solution since journalism faces many problems - but start small and experiment.*" (Beckett, 2024).

Beckett advises a phased implementation of testing with a clear message that AI is not a catch-all for every journalism issue but can be incredibly effective used in a strategic manner.

The emergence of digital platforms, social media, and AI has revolutionized news gathering, production and distribution. Journalistic professionals are now required to adjust to new dynamics to

guarantee accuracy and ensure public trust. Already in 2019, AI was deployed in newsrooms to aid in three major areas just mentioned:

- **News Gathering**: AI optimizes journalistic workflows by monitoring trends and events and extracting relevant data from vast archives. *Reuters*, for instance, developed *News Tracer*, an advanced software designed to continuously monitor social media 24/7. Using sophisticated algorithms, this tool identifies potentially newsworthy events, filtering them from the vast stream of online information. A notable example of its effectiveness occurred in 2015 when Reuters was the first outlet to report on the *San Bernardino shooting*. The system quickly detected social media posts describing the incident, enabling journalists to verify its authenticity and publish the news promptly. AI thus allows for constant monitoring of information sources, automating the identification of notable events. Advanced tools, such as *Computer Vision* for image and video recognition, enhance the efficiency of extracting relevant content, while semantic analysis algorithms assist in fact-checking, contributing to greater information reliability. This reduces journalists' workload, allowing them to focus on interpreting and verifying data rather than manually gathering it.
- **Production of news**: has been enhanced by supported editing tools, automated content creation using data and repurposing of content across platforms and formats. *Associated Press* is a good example and has since 2014 employed automated systems to manage part of editorial workflow, particularly for financial and sports news coverage. With the ability to analyze financial data of publicly traded companies, AI can produce reports and news updates for news agencies without human interference. This has boosted production to 4,400 financial reports from 300 without displacing human journalists. Interpretation of data is still required through human input for spotting abnormalities and providing deep insights, while artificial intelligence processes and compiles numerical information with speed and efficiency. Automated writing tools scan large amounts of data and generate coherent and readable textual content to enable journalists to create detailed and up-to-the-minute news updates. Further, with synthetic media tools that can turn text to video or audio content, newsrooms can expand offerings of information and reformat content to suit different forms required by digital platforms.
- **News distribution**: has enhanced user experience by personalizing information to readers' interests, fostering audience loyalty and subscription rates. Hence, it is through news distribution that AI comes into play to personalize the reader's experience. Recommendation systems read user consumption patterns and suggest news relevant to them and optimize content presentation on digital platforms. This practice increases audience engagement and news reading by tailoring content to each reader's individual needs. Along with this, automated translation processes and synthetic media make news distribution possible across different languages, expanding the audience

and making information more accessible. However, this personalization can lead to "information bubbles", limiting users' exposure to alternative perspectives and influencing public opinion. Particularly in news distribution, the BBC has introduced a revolutionary tool to overcome language barriers. In 2016, its News Lab employed *Synthesia*, AI-based software, to create multilingual versions of news broadcasts by *Matthew Amroliwala* that were originally presented in English. Text is translated to Spanish, Mandarin and Hindi by the system and synthesized speech is generated that mimics the voice of the journalist and synchronizes lip movements on video for a natural and authentic appearance. This tool has significantly expanded the BBC's audience with modest investment in synthetic media tools. Contrary to this, in Italy, Rai is still on the verge of launching an English-language channel, while similar techniques can be applied to existing shows and make international extension possible with significant savings.

Thus, AI is revolutionizing newsrooms with sophisticated news gathering, creation and distribution tools. Numerous examples reveal that AI is already integrated into editorial workflows and streamlines journalistic work. ChatGPT-3 is tested for writing assistance, while DALL-E 2 enables even smaller newsrooms to generate personalized images. Tools like Whisper automate interview transcription and DeepL optimizes translations. RADAR (Reporters And Data And Robots), used in the United Kingdom, is a tool for automated creation of local news articles that has generated over 400,000 content units in three years and showed that AI can increase news coverage on a scalable basis. Bertie, developed by Forbes, suggests trending topics and optimized headlines to maximize reader engagement. Washington Post and Heliograf developed an AI journalist that can generate stories in real time and enable human reporters to focus on in-depth storytelling. On the personalization front, The Wall Street Journal has introduced a dynamic paywall that adjusts content access to user behavior to maximize subscription conversions. Meanwhile, The New York Times has developed Project Feels that studies the emotional impact of stories to maximize context ads and reader engagement. All these examples reveal that AI is not merely a tool for automating but also a key driver for personalization and financial sustainability in the digital information era. Thus, we can say that AI has to be increasingly integrated into newsroom workflows. However, all these innovations do not seek to replace journalists but to make them optimize work and free them of repetitive and low-value-added tasks. For instance, automated transcription software spares hours of work for reporters to transcribe interviews and instead allows them to spend time on analysis, investigative reporting, and good storytelling. AI is not a threat to journalism but a means to make it more efficient and productive.

Beckett stated in an interview: "*When photography was invented, artists thought they would become extinct: what's the point of a painter if you can take a photograph? There are probably more artists today than when photography was first introduced. Computers create art, cameras create art, but we still appreciate art made by humans.*" (Beckett, 2023).

AI offers various alternatives depending on what editorial companies are seeking to achieve and instead of replacing the journalist role might make them central personnel for monitoring and controlling these technological resources. Here, journalism experts will be able to free themselves from routine tasks and focus on creativity and quality content development, with more human input that no machine can rival.

Ultimately, AI is not meant to cause difficulties for newsrooms but to offer solutions to enhance journalistic work. As Beckett has put it, "*If your role can be easily replaced, then maybe it wasn't that strong to begin with*".

It is important to highlight that with growing AI adoption, office dynamics and work patterns are altering and it is increasingly necessary for journalists to work with experts in machine learning algorithms and data science. In fact, even new jobs are emerging in the journalism sector such as content personalization specialists, editorial algorithm coders, and data analysts. This is to say that while AI is reducing jobs for certain traditional roles, it is also providing new career options for those who are willing to learn about emerging technologies.

2.1.3 The Economic and Operational Sustainability of Newsrooms and the Business Model

Digitalization has revolutionized journalism, transforming how news is created, disseminated and consumed. The transition has altered business models, which previously used to bank on sales of print copies and print advertising (Picard, 2011). To counter the crisis and achieve long-run sustainability, newsrooms have been compelled to rethink radically.

When we talk about sustainability in the long run we mean the capacity of a news organization to carry on in a stable, independent and competitive manner over a sustained period of time, notwithstanding changes in the market, technology and audience behavior. It entails crafting a model that is economically sound, operationally effective and editorially meaningful.

Economic sustainability is brought about by the creation of stable and diversified income streams, like digital subscriptions, paid-for content, events or collaborations (Küng, 2015). Operational sustainability is related to the internal process efficiency. Last, editorial sustainability relies upon the capacity to produce quality, niche-specific content to a predominantly digital crowd through personalization and reader behavior analysis (Napoli, 2019).

Artificial Intelligence plays a crucial role in the transformation of business models, as it serves as a strategic tool for building sustainability across multiple levels. Specifically, economic and operational sustainability in the digital era depend significantly on how effectively newsrooms embrace technological advances, including AI, and adapt to evolving consumption patterns.

The rapid pace of reader behavior and emergence of new digital entrants pushed news organizations to reexamine their business models to be able to sustain themselves and expand in the long term. Innovations like smart paywalls, personalized content and strategic use of social media have emerged as effective tools to boost revenue and maintain relevance.

In the past, journalism business models rested on a very different economics than that of today and relied heavily on physical distribution and monopoly of local information. Traditional advertising was the principal source of revenue and newspaper and magazine ads promised large revenues with no digital substitutes. Companies were ready to pay top dollar for advertising space since newspapers offered the best means to cover the local audience. Combined with this, direct sale of physical copies, both newsstand and subscription-based, promised a steady stream of revenue, reinforcing commitment to the print medium. Additional revenue was generated by some news outlets through syndication, i.e., selling stories to multiple newspapers and expanding coverage of content. Sponsorships and native advertising were also common and were placed in stories without intruding on readers. Another significant source of revenue was sponsored physical events, such as conferences and meetings with experts in the field, reinforcing contact with the local audience and offering networking for the sponsor. However, this profitable and relatively stable business model was heavily reliant on monopoly of access to local information and physical distribution, factors that have been gradually eroded by digital platforms and social media.

In digital society, this transition away from a system that is based on traditional advertising and physical distribution of copies to a system based on digital subscription, paywalls, sponsored content and interactive content is defined by the phenomenon of **"*mediamorphosis*".** It was coined by Roger Fidler, regarded as the pioneer of digital journalism, in the 1990s. He couldn't imagine how deep this transition in the media sector would be. Now this transition is happening to the entire supply chain, including business models that until recent times remained static.

So, to be clearer, the term "*Mediamorphosis*" is used to describe the transition and evolution that is happening in media firms in response to technological advancements and changes in audience behavior. It is a trend that witnesses traditional and digital media blending to form new business models and forms of content. *Mediamorphosis* is a reflection of a need for innovation to succeed in a situation in which attention by users is more and more fragmented across social and digital platforms.

It is not merely a transition in distribution and monetization behavior but also a redefinition of how audiences are spoken to through personalized engagement and direct engagement with readers.

To appreciate this *mediamorphosis* for what it is – revolutionary – look to the example of The New York Times and what it did in third-quarter 2020. It hit seven million subscriptions and a milestone in which digital subscription revenue exceeded that of the newspaper edition. CEO Meredith Kopit Levien pointed out how this strategy of quality journalism as a pay-worthy product is now the key to newspaper expansion. Its target is to hit 10 million subscribers by 2025. One of the reasons for subscription increase was curiosity about Donald Trump's presidency, while total advertising revenue fell by 30%, including a fall in digital advertising by 12.6%. The newspaper conceded that advertising business is shrinking despite giants such as Facebook and Google still dominating the field.

Alongside business model changes, news sources have rethought how to generate more revenues with new tools. Especially in terms of advertising, it has been observed that digital advertising yields less than traditional advertising and this is a reflection of this trend in the information sector. In his opinion, this is a trend that can be noticed everywhere. Newspapers used to generate 50% of revenue through advertising and the other 50% through consumer sales. Television markets are now experiencing the same trend, as can be seen with digital platforms such as Netflix, AppleTV+, Amazon Prime, and YouTube. The question is why digital advertising yields less despite rising profits for giants such as Facebook and Google, a trend that has hit the entire media sector.

In the book called "*I mercati dei media 2019*" by Luca Barbarito, Antonella Ardizzone, and Anna Maria Bagnasco, two fundamental reasons are advanced for why increased online users are not accompanied by increased advertising revenues. First is technological dependence on market giants. With their ability to collect and analyze vast amounts of user data, these giants can deliver highly customized advertising campaigns. This competitive advantage is difficult to match for other advertising companies and compels them to ally with Google and Facebook to deliver effective digital campaigns. Second is oversupply of advertising space in digital media compared to traditional media. Whereas in traditional newspapers advertising space was restricted and therefore costly, online there is nearly no limit to space that can be offered, and this leads to ad prices dropping. This oversupply of advertising space leads to downward pricing competition that reduces the economic value of digital advertising.

It is particularly true for economies in the west such as those of Europe and America, while in India and China this is not so: there copies of printed newspapers are still in demand and newspapers are experiencing a period of financial prosperity.

In western markets, publishing is slowly converting to subscription mode mainly due to the decreased value of advertising space and the changed share distribution. With traditional print advertising, publishers used to get to keep 85% of every euro that was put in, while with digital now, technological intermediaries like Google and Facebook get to capture 61% and leave only 29% for the publisher.

Despite the rise in advertising on the web (+1.9% as reported by Agcom) owing mainly to web platforms (+6.7%), revenues for periodical and print publishing still fell. The crisis was deepened by the pandemic with a -19% decline in H1 2020 and only streaming content remaining relatively stable.

Italian publishers lack a clear strategy: they are trying to balance the free online model with subscription and this "hybrid" strategy is eating into subscription revenue. There is too much emphasis on visitor numbers to free versions of websites and too little on converting them into paying subscribers. To take just one example, with millions of visitors to corriere.it it is unclear how much RCS has generated in subscription revenue.

Advertising now serving a different role than it did previously in media business models with competition between legacy publishers and large digital platforms (Facebook, Google, and Amazon), there is a battle on two fronts: content distribution and ownership.

Publishers are becoming more strategic about how they deal with their treasured content that is considered to be their "*crown jewels*." Instead of giving it all to OTT (Over-The-Top) platforms such as Google, Facebook, or Amazon, they give only part of it. They do this because they need to retain control of top revenue-driving content and not be too dependent on digital platforms for distribution. They selectively partner and give only selected sections or articles to attract new readers while retaining exclusive access to premium content on their own platforms such as their sites or subscription-based apps.

It allows them to leverage the vast audience of digital platforms to create visibility and traffic without compromising subscription revenues or premium advertising. In practice, they are employing a "freemium" strategy: part of the content is made available for free to attract the audience, while the rest is left for paying subscribers. An example is that of Facebook, which in late 2019 signed with News Corp, owner of The Wall Street Journal and The New York Post, for a venture to add a special news section to the social network with more in-depth content than that made available by users through plain links.

In content distribution via the media, this part of the supply chain is very important; in fact, it is learning to avoid mistakes by other industries, such as that of music, whose position has been

weakened by music streaming. In contrast, the book industry has been able to find equilibrium between digital and physical.

In light of developments in the market in this sector, there are two major methods of distribution that are being experimented with:

- **Proprietary Channels**: Players choose to distribute content using proprietary channels to keep complete control of user data, revenues, and customer experience. Disney and Netflix are examples that utilize proprietary infrastructure to exert market power and reduce intermediaries.
- **Strategic Alliances**: Others choose to collaborate with established platforms such as The New York Times that provide its documentaries on Netflix. This strategy allows them to grow to a wider audience through leveraging partner platforms' distribution while involving revenue sharing and third-party recommendation algorithm dependency.

In newsstand terms, they are transforming in a manner that should not be underestimated. Newsstands are no longer merely points for selling prints but are instead local distribution points. This is a move to address newspaper sale decline but offers potential for new uses as pick-up points for online trade, emulating models already adopted by giants like Amazon. This move not only guarantees a newsstand business life anew but also reduces distributors' logistics costs.

Therefore, with reduced traditional advertising and growing online competition, newsrooms have turned to two business models mainly:

- **Digital Subscriptions**: Although there is general distrust of the media in Italy, there are some publications with a faithful readership that is willing to pay for quality content. The trick is to convert casual readers into habitual subscribers by improving the user experience and adapting editorial content. In this regard, the Paywall tool is exceptional. A paywall is a strategic tool used by news sources to monetize web content. It is a digital wall that prohibits access to articles and only allows paying users or subscribers to read them. The paywall has been a significant milestone in newsroom business models that moved away from an advertising-based to a digital subscription-based model.
- **Advertising (Print and Digital)**: Advertising space is still a revenue earner whose effectiveness is based on newspaper circulation rates. Fewer physical copies sold meant that there was a decrease in advertising placements and it was necessary to diversify revenue sources.

These two models can coexist and are sometimes merged by bigger publishing companies to cover more operational expenditure. However, there is still a crisis in the industry because copies sold are on the decline and investment in advertising is going down partly as a result of readers not believing traditional media.

In today's age of news consumption through digital means, financial sustainability for online news sources is increasingly based on having a loyal audience of readers. This is meant to create a steady stream of income through subscription and initiatives such as events and membership. Success is measured by having a strong rapport with readers and getting them to become active and engaged members of the journalism community instead of passive news consumers. This model not only generates direct income but also establishes a community and sense of trust that can help to combat growing distrust of the media.

One of the models that is gaining prominence is that of membership, which aims to engage readers as active contributors to the journalism community. It is more than simple subscription: it invites readers into editorial decision-making and encourages debate and participation through forums and blogging. It aims to make readers feel part of a community and to build trust and create a sense of commitment between reader and newspaper. One that has been successful is that of The Guardian, which introduced a scheme for membership to offer financial sustainability without paywalls or advertising.

Besides this, news organizations are trying to diversify revenue streams through emerging digital products and services including:

- **Podcast and video streaming**: Rapidly expanding multimedia platforms with appeal to a younger audience and offering new advertising channels.
- **Premium Newsletters**: Carefully selected and customized content that increases reader engagement and provides value.
- **E-commerce and Merchandising**: Merchandising of branded products or products related to editorial content (books and events for a fee).
- **Online Courses and Masterclasses**: Offering learning content on topics in the specialization of the publication (such as journalism, creative writing, economics).

Also to blame for business model shifts in light of digital transformation are developments in artificial intelligence that are having several impacts on content creation, distribution, and monetization. Perhaps AI has its biggest impact on content creation through automation. Newsrooms use advanced algorithms to generate automated stories on mundane topics such as sports scores or financial news, freeing news staff to do more in-depth investigations. Not only is this making operations more efficient but also allowing for greater and faster coverage of events.

AI has also revolutionized user experience personalization. With browsing history and reader preferences analytics, news sources are capable of offering personalized content that increases user

engagement and audience loyalty. Recommendation engines offer articles based on individual interests to enhance overall experience and increase higher engagement with the site.

In monetization terms, AI streamlines advertising strategy with highly targeted campaigns. By analyzing user behavior, newsrooms are able to segment audiences more precisely and make advertising more efficient and advertising revenues greater. With this data-driven strategy, advertisers are able to realize a higher return on investment and news platforms become more competitive in digital advertising.

The use of AI has also created new products and services. An example is personalized newsletters and automated briefs that offer content to readers based on what they are interested in. Such value-added services create additional revenue and differentiate the editorial product in a very competitive marketplace.

Ultimately, AI has fostered strategic partnerships and collaborations between news organizations and tech companies. Such collaborations enable leveraging AI potential to improve content quality and operational efficiency and open up new monetization channels through access to advanced tech and specialized expertise.

It has become imperative for news outlets to evolve to digital transition to stay in business. Videos, interactive graphics, podcasting, and video streaming are gaining prominence, mostly among young people. It is costly to implement these technologies and is made complicated by financially constrained newsrooms.

Artificial intelligence (AI) offers unprecedented potential for content customization and reader engagement. However, costs and integration are major challenges for the majority of news organizations. To address these challenges, some newsrooms are adopting the practice of "*iterative journalism*" (proposed by Francesco Marconi), in which content is updated on a regular basis based on user feedback and trending subjects.

In short, we can say that financial sustainability for newsrooms depends on embracing digital transition and on building a loyal audience of readers. In a context of growing distrust in traditional news sources, the recipe for success seems to consist in combining technological innovation with community engagement. News sources must adopt flexible and diversified business models based on digital subscription, memberships, niche advertising, and interactive content.

Artificial intelligence is central to this shift but must be implemented transparently and ethically to avoid further losses of trust. Finally, newsrooms must invest in digital training for staff and technical infrastructure to compete in the global news environment.

Long-term investment and innovation in research and development are key to newsrooms' new business models that enable them to quickly adapt to keep up with technological developments

and shifts in consumption patterns. Most of these news outlets also actively collaborate with startups and universities to create a dynamic open innovation ecosystem that accelerates the development of innovative solutions.

New York Times, Wall Street Journal, Associated Press, Reuters, BBC, and Washington Post are addressing the crisis in the sector by innovative and strategic means. They have established inter-disciplinary R&D Labs (Research and Development Laboratories) that are pivotal to ensuring economic and operational sustainability in the digital information environment.

These labs do not exclude including journalists, who are still charged with upholding professionalism and fundamentals of the craft. They are accompanied by engineers, developers, coders, data scientists, and visualization designers in a shared environment that brings editorial and technical acumen together. This brings with it the ability to test innovative means of data exploration and storytelling to make content more engaging and personalized and to improve user experience.

2.1.4 The Ecosystem of Italian Newsrooms

The Italian publishing industry is experiencing a serious technological innovation delay, as with the digital revolution three decades ago. The overall growth is slow with some fascinating experiments. The reasons are numerous and we will look at the most pertinent ones. The delay built up on our country is above all due to a lack of a well-structured information system and a lack of technical skills among experts. Joined with these are also economic issues that particularly affect small and medium-sized enterprises, not having at their disposal, often, the means for investment for innovation. Apart from these technical issues, another fundamental barrier is a lack of awareness at corporate level regarding actual possibilities that technology can offer for supporting growth and development for the sector.

We have witnessed a clear demand for investment in R&D for newsrooms before. Newsrooms nowadays require data scientists, analysts, visualization experts, and AI and algorithm experts, as journalists needed back in 1830. Instead, however, journalists as a profession are raising barriers against this new reality, primarily because they are frightened at the prospect of losing their jobs. It is evident in all Italian newsrooms, where there is a clear lack of a research and development (R&D Lab) culture. Most of the blame goes to publishers, which have responded to business model crisis (triggered by web growth and digital changes) with a reduction of expenses, cutting back on investment and personnel. It is, however, not realistic to believe that journalism's sustainability can be ensured through cost-containment strategies alone. Instead, it seems clear that a point of departure for a new growth cycle is represented by the organized introduction of research and development

initiatives into newsrooms, involving newspapers, news agencies and media outlets. It should also count on strategic alliances with universities and startups, able to accelerate innovation and experimentation.

It has been more than 30 years since the web started, and within three years, information generated will exceed all data created from 1991 to date. The hyper-digitalized landscape presents unprecedented challenges for journalism, including ones that cannot be solved with traditional professional tools. With the era of big data, humanly, newsrooms cannot sift and put into perspective important events, isolating them from constant background noise created by the massive stream of information. It is for this reason that artificial intelligence is becoming a core aid for journalism and should not be dreaded but well-understood, managed, and controlled. Because algorithms are created by human beings, they are not immune to errors and may reinforce biases, and it is therefore important that journalists themselves take control of these tools, ensuring their ethical and responsible use.

In particular, Italy will have to train a new generation of computational journalists, not only producing editorial algorithms according to strict rules but also preserving the ethical and deontological principles that are at the foundation of journalistic ethics.

Traditionally, the principal task of journalists was to find news and write articles. With digitalization, journalists have also been forced to take on technical responsibilities, performing as a hybrid of a traditional journalist and a technical assistant. Artificial intelligence is today a valuable ally for newsrooms since it is able to perform routine tasks and allow journalists time for investigative reporting and more in-depth analysis. The degree of computing power today makes tasks unimaginable ten years ago feasible.

But if these possibilities are to be employed to their maximum potential, there will have to be a shift towards experimentation and open-mindedness. Depending on cost-cutting, as has been happening in Italy, will further weaken the sector and jeopardize journalistic quality. The secret is striking a balance between operations efficiency and quality output. The business models will have to be overhauled, with innovation and sustainability as a priority, and journalists will have to have increased time and resources at their disposal for producing quality reporting.

As exemplified through *The New York Times* case, quality and original content production is a winning approach for gaining reader loyalty and having readers pay for quality news. The same transition is happening, though still at a preliminary level, also in Italy, but now is the time for action. Delaying innovation and adopting new tools will prove to be a point of no return for newsrooms as well as for all the publishing industry. To experiment, innovate and adopt artificial intelligence responsibly and ethically is a fundamental step toward a sustainable future for Italian journalism.

Between 2022 and 2017, there was significant growth in digitalization and AI uptake in Italy, but there remains a huge gap compared with European standards. The *Digital News Report 2022* published by *Reuters Institute* states that there was a turning point for digitalization in 2019, as for the first time, revenue from advertising on the internet surpassed revenue from television. Today, digital advertising revenue accounts for approximately 49% but its distribution is highly unbalanced: most profit, approximately 80%, is controlled by tech giants Google and Meta, with traditional media struggling with financial viability. The information sector suffered a severe blow in 2020 with overall losses over 1 billion euros, with a significant drop for television, radio, dailies and magazines, with many experiencing a shift in ownership.

Despite this dramatic setting, there are also signs of revolution: for the first time ever, a digital-native news website has led the list for most viewed websites, along with *Tgcom24,* with a 21% share. The website is *Fanpage*, which started out as a Facebook page and has developed into one of Italy's leading digital sources for news, because of its ability for blending entertaining content with serious investigative journalism. With this feat, *Fanpage* has been able to surpass traditional sources such as *ANSA*, which is still rated as most trustworthy for news (73%).

Other *digital-native* sites are also emerging, including *HuffPost (9%), Il Post (7%) and Open (4%)*, which have made a niche for themselves through their concentration on audience segments historically ignored by mainstream media. One trend that stands out is a move away from passive consumption of news towards active participation with specialist communities, a trend exemplified through the popularity of *Il Post*, which has gained 50,000 subscribers. The term "*community*" once reserved for digital producers and social networks is now becoming a core aspect of journalism.

Loyal readers are now willing to pay for quality content, a trend that has potential to overhaul the business model for Italian news. More evidence for this trend is evident with the emergence of new players such as *Chora Media*, which pursues a new approach to journalistic storytelling, reaching out to readers through dynamic and interactive media such as podcasts and audio storytelling.

In this sense, according to *Osservatorio del Politecnico di Milano*, as of 2022, the Italian AI sector reached a value of 500 million euros, a 32% growth compared with the previous year. The most relevant sector among these is *Intelligent Data Processing*, which involves data analysis and data extraction, followed by AI for *natural language processing (Language AI)*, which makes machines capable of understanding and generating text.

January 2023 also saw a peak in media interest for AI as a result of the popularity of OpenAI tools such as DALL-E 2 and ChatGPT. Although 93% of Italians claim familiarity with Artificial Intelligence, there are still many concerns about its impact: 55% apply it daily and 37% apply it to

their job, but 73% of Italians are worried about its impact on work and life and 19% oppose its introduction into professional work as a whole.

Despite these reservations, the unprecedented success that AI achieved during the initial half-year of 2023 has made it possible for Italy to get closer to these technologies with a more tangible approach, moving from theoretical understanding to practical experience. Artificial Intelligence is also at the core of the *2022-2024 Strategic Program*, with its vision to position the country among global AI-driven innovation leaders.

This strategy is a building block for spearheading Italy's digital revolution, corporate as well as national. The introduction of AI, however, is not merely a matter of adopting new technology, but also a transfer of skills and increase in responsibilities. One must not lose sight of the fact that, even with automated tools, ultimate control must remain with human beings.

Moreover, Artificial Intelligence has significant economic impacts: over 60% of large Italian companies had initiated at least one AI-driven project in 2022, but among small and medium-sized enterprises, adoption declines sharply to 15%, revealing a very large gap in adoption for these tools.

To this end, as a point of reference for understanding what are the issues and obstacles deterring AI adoption in Italy, one may look at the March 15 2024 interview to Pierluigi Pisa for *Italian Tech* of *La Repubblica* by Padre Paolo Benanti, a professor at the Pontifical Gregorian University and chairman of the government's Artificial Intelligence commission. Benanti expressed his concerns about the risks posed by a lack of regulation on AI's applications within journalism and publishing.

In his view, among the biggest threats is pseudo-news websites, where AI is used for automatically aggregating and re-elaborating most viral news with minimal or no financial investment. These contents are later published with clickbait headlines, just for profit through advertising. Benanti warns that this trend is a direct threat for journalism as a profession, degrading professional work and information quality.

To turn around this trend, there are potential regulatory actions being contemplated by the government commission; among these, there is also a study for implementing a timestamp system for certifying originality and integrity of news agency published material. The technology would assign a special code at the point of publication for each article, with subsequent changes being visibly identifiable. If changed, the material would lose its original timestamp and receive a new one with a modified date and time of release. Such a system would ensure traceability for information and serve as a digital stamp, much like printed newspaper headlines, preserving editorial work's originality.

This reflection is part of a broader debate with publishers worldwide, namely, on one hand, there is a desire for distinguishing confirmed and reliable information from manipulated or AI-

produced content; on another, there is a issue concerning copyright protection for journalism as a requirement for journalism as a profession and for survival for the publishing industry.

One of the leading specialists on the impact of Artificial Intelligence on journalism in Italy is Alberto Puliafito, a journalist, researcher and trainer with experience as a *Google News Lab* Teaching Fellow and founder of *Slow News*. Puliafito points out that in Italian newsrooms where he has collaborated, there is a generally prudent approach to AI. Although some experiments are being carried out, the majority of news organizations do not make them public. Additionally, based on his experience, smaller editorial entities are more advanced with AI uptake compared to mainstream media news organizations.

Another core issue is copyright protection: several publishers are trying to block access to their content with a view to preventing generative AI models from making unauthorized use. One of the most common strategies is blocking AI spiders via the *robots.txt file*. That strategy has severe limitations, however, as it is easy for those working on these models to circumvent.

Another area where there is a lot of debate is whether there is a need for increased transparency around the use of Artificial Intelligence inside newsrooms, actually a fundamental rule is becoming increasingly popular, initially employed by *Wired* and later adopted by *Slow News* and a number of other media: nothing should ever be published unless there is human oversight. Additionally, if a work, whether a story or otherwise, is produced or edited with AI assistance, this should also be explicitly made clear to the reader.

Media software companies are also addressing these issues. *Atex*, a leading provider of editorial systems for media holdings like Gedi and Class, has a journalist and product manager for AI, *Sara Forni*, who outlines initiatives to introduce AI into editorial platforms. The purpose is to liberate journalists' time from routine work and reduce their burden on low-value tasks.

She emphasizes, however, that newsrooms have to be actively involved with the development process for these tools if they are to prevent resistance and skepticism. According to Forni, journalists themselves want to be provided with focused training on AI, allowing them to understand how AI works and unlock its potential without getting harmed.

Among what Atex is constructing is a streamlined interface, one that will be as straightforward for non-specialists as for experts when it comes to leveraging prompts for AI-generated content. The software will also look to optimize article tagging, headline generation for SEO and even stock image generation.

Parallel to this, there is another issue, ensuring traceability for AI-generated content. Among potential solutions is digital watermarking, special markers that visibly indicate the reader whether a given piece of content has been written or edited with AI tools. Alternatively, there is also having

wireframes on editorial platforms, allowing for explicit detection of a content's origin. It would be a system akin to Padre Benanti's solution for ensuring original journalism but for AI-generated content: as vital as ensuring original journalistic output, ensuring that readers can visibly discern AI-generated content is also crucial.

Despite the above-mentioned challenges, which have hindered AI adoption on the Italian journalism scene, one should acknowledge that various Italian media outlets have tested AI within their newsrooms. Italian journalism is evolving on various fronts: from automated news production to algorithms for detecting what is trending, as well as *intelligent content management systems (CMS)* supporting journalistic work and personalized news strategies.

However, for these technologies to be harnessed to their fullest, cultural resistance has to be overcome, training and experimentation invested in, and most importantly, there has to be ethical and transparent use of these tools. Some actual examples of these efforts are as follows:

- **ANSA and Automated News Generation**

In the Covid-19 pandemic, there was a constant demand for reliable information. To satisfy this need, ANSA collaborated with *Applied XLab in 2020*, implementing a system based on Natural Language Generation (NLG) technology. With this technology, pandemic updates, on a real-time basis, on progression at a national level as well as a regional level, were generated automatically based on data provided by the Civil Protection Department. The result was a constant flow of news and graphics, generated with no human input, optimizing the newsroom workflow.

- **Mediaset and AI for Broadcast Optimisation**

The television sector is also experimenting with new automation. Mediaset has developed a system based on AI that is capable of suggesting what are the best subjects for discussion on news programmes. It not only helps decide what will appeal most to viewers but also with broadcast programming, varying the duration of interviews based on viewer feedback. If a guest is not as lively, the system will suggest shortening the duration given for their interview.

- **Rai: Public Service Innovation and Experimentation**

Rai began experimenting with Artificial Intelligence as early as 2000, with a three-principle strategy: defining the use case, determining the effectiveness of the technology, and comparing AI-driven process costs with human labor. AI has been highly effective, for example, in accelerating newsroom operations in some areas such as content aggregation. *Rai's Center for Technological Innovation and Research* is currently engaged on cutting-edge AI projects such as subtitling, audiovisual archive cataloguing, automated generation of press reviews, content recommendation systems, and voice assistants.

• **Il Secolo XIX and AI-Assisted Journalism**

To improve news quality and reduce errors, Accenture developed an Intelligence Assistant for *Il Secolo XIX*' s newsroom. The digital assistant supports journalists with text reviewing, hyperlink checking, source verification and correct grammar, delivering better quality and more reliable articles. It also suggests related information, internal and external, for a better understanding of the news. The system uses machine learning algorithms for automated classification, streamlining the newsroom workflow.

• **L'Eco di Bergamo and Reader Engagement**

AI is not just used for content creation but also for enhancing user experience. *L'Eco di Bergamo* has implemented a personalized newsletter and reading suggestions system based on AI. *The SESAAB*-designed system tracks users' behavior and recommends relevant stories. The results have been astounding: 11,000 new subscribers joined the newspaper within a space of nine months, and open rates for newsletters increased 18%. Due to its popularity, the system has also been implemented at *L'Unione Sarda and Giornale di Brescia*.

• **La Repubblica: Balancing Automation and Personalization**

La Repubblica is also working hard to integrate Artificial Intelligence into its editorial process. It has a data analyst team working continuously with the newsroom on evaluating content impact, and SEO specialists collaborating with journalists on article discoverability optimization. Among its highlights is semi-automated text production with AI tools, piloted successfully with local elections: through data processing, the system can generate short, core-election-result stories. It releases journalists for deeper, investigative work and increased coverage, without distracting from these. Future development at *La Repubblica* includes extending AI applications into sports and economics coverage and boosting personalized content for subscribers.

2.2 Adoption of AI in Newsrooms and Case Studies

The integration of Artificial Intelligence into newsrooms is a turning point for journalism development, particularly on its editorial and operational sides. With media outlets facing increasing pressure to provide timely, engaging and quality content against a background of economic constraints, AI has come as a technological ally as well as a strategic tool for sector development.

AI can be integrated into many other areas of journalism. For example it can support data journalism through data analysis and visualization tools, assist in fact-checking by detecting misinformation or verifying sources, enhance multimedia production by generating audio or video content and improve internal workflows with intelligent content management systems. AI can also

aid in audience analysis, forecasting trends, optimizing distribution strategies and even contributing to editorial decision-making. In this context I decided to analyze two main strategies of IA's application to newsrooms *personalization* and *automation* as they are the main dimensions of AI application to journalism according to what emerged from the literature till now. These two domains directly reflect how AI is reshaping both the editorial process and the reader experience, which are core pillars of journalism. Focusing on these two areas enables me to explore both the organizational impact and the user experience dimension, providing an overview of how AI supports the evolving business model of Italian newsrooms.

So, in other words this chapter explores how Italian newsrooms are adopting AI through a discussion of the two specific areas of implementation chosen: **editorial automation and personalization of reader experience**. From automating routine workloads to customizing users' experience, AI adoption reflects a double vision: streamlining production and making journalistic output relevant. In particular, I chose to analyze two different types of case studies so to make my research more concrete and offer some examples of applications of what I am talking about. In particular I opted for **Fanpage** and **Il Post**, whose use of AI is more oriented toward automation and which represent digitally native outlets on one hand, and then for **La Repubblica** and **Corriere della Sera** which are more focused on reader experience customization when talking about AI application and that represent legacy media on the other hand.

But despite the orientation of each type of newsrooms, till now we cannot say that the use of one strategy exclude the other, in fact we will see in next paragraphs that all of them use both strategies.

Due to the analysis of those case studies this chapter will explore concrete applications of IA in newsroom, in order to evaluate each approaches' pros and cons and their impact and potential for ensuring newsroom business model sustainability (both economic and operational sustainability), so to help newsrooms to keep up with the development of the sector analyzed due to new users behaviors and routines, which are changing, as seen before, thanks to the digitalization phenomenon.

2.2.1 Editorial Automation: Case Studies of *Fanpage* and *Il Post*

When we talk about Editorial Automation we are referring to the use of algorithmic tools and artificial intelligence within news production and editorial processes (Montaña-Niño, 2022). In modern newsrooms, journalists and technologists collaborate to build automated decision-making systems (ADMS) that aid tasks ranging from newsgathering to content distribution. These systems leverage data inputs, programming, and machine learning while still involving human judgment in journalistic decisions.

So in other words, Editorial automation can be defined as the incorporation of software algorithms and AI-driven processes into editorial work to support or perform tasks that were traditionally done by humans. This encompasses everything from automating content creation to data analysis and news distribution. In particular, Montaña-Niño (2022) describes editorial ADMS as "*computational processes used in journalistic work that combine significant data inputs, programming languages, statistical modelling, and machine learning algorithms with supporting human judgments in daily journalism*". So the adoption of editorial automation is transforming how news is produced and delivered – sometimes called automated, algorithmic, or robot journalism – and it is reshaping workflows in news organizations around the world. Automated journalism (also known as algorithmic journalism or robot journalism) is famously defined by Carlson (2015) as "*algorithmic processes that convert data into narrative news texts with limited to no human intervention beyond the initial programming*". This definition highlights the archetypal case of editorial automation: computer programs ingest structured data and output written news stories with minimal ongoing human input. More broadly, automated or algorithmic journalism refers to the range of technologically driven methods that have "infiltrated the journalistic profession," including automatically generated news articles and videos.

Importantly, editorial automation is not limited to writing stories; it also includes automated news gathering (e.g. data mining large databases for leads), algorithmic news dissemination (personalized content recommendation, social media bots), and content optimization (using analytics to adjust headlines or story placement). What distinguishes editorial automation is that the editorial logic – deciding what is newsworthy, how it is written or shown, and to whom it is delivered – is partially delegated to algorithms.

The main tools involved in editorial automation include:

- **Automatic Language Generation (NLG):** algorithms that transform structured data (e.g. sports scores, financial statements, weather) into readable text articles. Used extensively by agencies such as the Associated Press, these systems increase the production capacity of newsrooms, especially in sectors with standardized narrative structure.
- **Content Management Systems (CMS):** editorial platforms integrated with algorithms that automate the publishing, tagging, personalization and distribution of content based on readership metrics. Some CMS include algorithmic curation capabilities, suggesting content to users based on their browsing behavior.
- **Analytics platforms and data pipelines**: Tools like Google Analytics, Chartbeat, or internal systems allow you to collect and analyze data on users or external events, fueling both personalization and automatic content generation. During the COVID-19 pandemic,

many newsrooms have structured automatic data flows to update graphs and statistical articles in real time.

Despite the growing capabilities of algorithms, it is widely understood that current AI technologies augment rather than fully replace journalists. For example, advanced Natural Language Generation can produce fact-based news reports, but these technologies still **fail to replicate journalists' fundamental skills** in news judgment – such as contextualizing information, prioritizing important facts, and crafting a coherent narrative for readers.

Several models have been developed to describe the human-machine relationship in automated journalism:

- Hybrid journalism: collaborative interaction between journalists and algorithms. Automation supports but does not replace human judgment.
- Algorithmic journalism: use of algorithms in all phases of journalistic production, from collection to distribution.
- Robot Journalism (Automated Journalism): content generated entirely by software, with minimal human supervision.
- Iterative Journalism: continuously updated journalistic production, aided by automation and data models.
- Structured Journalism: As discussed, structured journalism is both a practice and a framework. It reimagines news as a database of information that can be assembled algorithmically. This approach reconceives the role of the journalist as not just a storyteller but also a data curator. By structuring news content, it becomes easier to automate story updates and personalize information. In theoretical terms, structured journalism challenges the traditional narrative "article" format, moving toward a more modular, updateable model of news.

Montaña-Niño's 2022 Australian newsroom study confirms that the most promising approach is a hybrid one, where automation handles repetitive or structured tasks while journalists focus on analysis, investigation and storytelling. Newsrooms are exploring how to integrate these tools ethically, sustainably and effectively, seeking a balance between technological innovation and journalistic mission. The consensus so far is that **human judgment remains irreplaceable**: even if a "robot reporter" drafts the who-what-when, journalists will guide the why and how, ensuring that news remains not just a commodity of data, but a service of truth, context, and insight for society.

According to an article published on "State of Digital Publishing": “Publishers are actively embracing AI tools to increase productivity and cut costs”. This indicates the principal benefits linked to the adoption of AI used for automate the processes.

The 2024 report by the Digital Journalism Observatory highlights that AI is transforming newsrooms, allowing journalists to focus on more creative and analytical tasks, while routine tasks are automated. This not only increases efficiency, but also contributes to a significant reduction in operational costs. The reasons behind this are:

- Automation of repetitive tasks: AI allows for the automation of routine tasks such as transcribing interviews, analyzing large volumes of data, and generating standardized reports. This allows journalists to spend more time on analytical and creative tasks, improving the quality of their work.
- Reduced operating costs: By implementing AI, newsrooms can reduce the need for human resources for mechanical tasks, optimizing staff allocation and reducing overhead.
- Advanced Data Analytics: AI makes it easier to analyze large datasets, allowing journalists to spot patterns and trends that would be difficult to detect manually. This supports the production of more in-depth, data-driven content.
- Efficient Resource Management: AI helps optimize resource allocation within newsrooms, identifying areas that need more attention and allocating staff more effectively.

Therefore, some studies such as the report “News Automation: The rewards, risks and realities of machine journalism” published by WAN-IFRA (World Association of News Publishers) in 2019, underline how when an editorial process is automated, what is noteworthy is the fact that AI is used mainly to carry out repetitive and low-level tasks, so that journalists can focus on more important tasks. In fact, a key point in the use of AI to automate processes is precisely the balance between automation and human intervention. On the one hand, automation certainly increases efficiency and productivity, but on the other, human journalists are still necessary in order to guarantee the accuracy, context and interpretation of data. Linked to this issue is therefore the concept analyzed by the same report regarding the possible risks that could be created when talking about automated journalism. These include job losses, the potential reduction in the quality of journalism, and the question of responsibility for machine-generated news.

To date, it is therefore necessary to continue researching the use of AI in editorial processes, in order to better understand how to better exploit these technologies to improve journalistic work without compromising the quality and ethics of the sector in question.

Case studies

As regards the use of AI in particular for the automation of editorial processes, it could be necessary in contexts that require efficiency, speed and continuous evolution, as these last characteristics we have seen are also typical of automation. In this regard, let's consider digital newspapers which usually operate in highly competitive and rapidly evolving environments where the speed of news dissemination and operational efficiency are critical factors. The main characteristics that distinguish digital newspapers are in fact:

Timeliness and immediacy: Digital newspapers update content in real time, allowing for the instantaneous dissemination of news and continuous coverage of events, thanks to the use of online platforms and mobile apps.

Technological innovation: The adoption of advanced tools such as editorial automation systems, data analysis and machine learning allows to optimize internal processes, reduce operating costs and increase the quality and speed of content production.

Flexible Business Models: Digital news outlets are experimenting with different monetization models, such as online subscriptions, paywalls, targeted advertising, and sponsored content, thus adapting to the needs of an ever-changing market.

In particular, the adoption of AI that aims to automate repetitive tasks helps in:

- News gathering and aggregation: Algorithmic systems that monitor social media and online sources to identify trends and emerging news, reducing the time needed for manual research.
- Draft generation: Using natural language generation tools to first produce drafts or summaries, which are then refined by journalists.

Automation also optimizes the editorial flow:

- Fusion between data and editorial staff: Data analytics tools that allow you to evaluate the effectiveness of published content, suggesting changes or updates in real time.
- Reduction of operating costs: Automating standard tasks (for example, transcribing interviews or reworking already published content) allows you to free up human resources, focusing them on activities with higher added value

Specifically, therefore, considering this aspect related to automation, for the previous reasons I choose to analyze digital newspapers. Among these I have selected two: Fanpage and Il Post.

Fanpage:

It is a newspaper strongly oriented towards digital and social media, for this reason it uses artificial intelligence systems to analyze in real time data from social platforms, forums and other online sources. This monitoring (also called “social listening”) allows to quickly identify emerging trends, trending topics and conversations that could have a significant impact on the information sphere. The timeliness in data collection allows Fanpage to produce updated content quickly, ensuring that news is published while the debate is still active, thus increasing audience engagement thanks to efficiency.

Furthermore, the adoption of advanced algorithms (data mining and sentiment analysis algorithms) for content selection and curation allows filtering huge amounts of information and identifying the most relevant ones. This allows the editorial team to excel in terms of efficiency and speed: by automating the information collection and sorting phase, the editorial team can generate drafts or editorial ideas in very short times, allowing for rapid and competitive publication. However, it will also stand out in terms of quality: thanks to data analysis, algorithms can suggest content that is more relevant to the public, contributing to greater accuracy and coherence in the topics covered.

In terms of editorial flow optimization, Fanpage is able to have a streamlined editorial structure thanks to automation. By automating “routine” tasks – such as data collection, transcribing interviews or writing initial drafts – Fanpage is able to reduce the manual workload for journalists. With less time spent on repetitive tasks, human resources can focus on in-depth analysis and original reporting, improving operational efficiency and reducing production costs. Furthermore, the integration of AI allows for rapid adaptation to the new needs of the digital market, continuously evolving the editorial model to remain competitive in a rapidly changing media landscape.

In short, Fanpage automates its editorial processes and obtains the following benefits:

- Operational efficiency: Automating repetitive tasks saves time, which is reinvested in higher value-added activities, such as critical analysis and the production of original content.
- Speed of publication: The ability to generate and curate news in real time ensures greater speed in the dissemination of information, essential to maintaining a competitive advantage in a digital environment.
- Cost reduction: Automating the content collection and curation phases reduces the need for human intervention for standard tasks, reducing operating costs and making the business model more sustainable.

- Quality improvement: The use of AI tools allows not only faster news management, but also a more targeted and accurate selection of content, helping to maintain high quality standards.

According to Francesco Cancellato, Fanpage's Editor-in-Chief, we should begin by drawing a clear line in identifying what we understand by artificial intelligence. He said that Fanpage has long employed technological tools in journalistic work, and from this point of view, newsrooms were already applying AI, without realizing it, or not, for years. From SEO management to automatic translation services, many already-existing automation in digital publishing can be qualified as early examples of AI. According to Cancellato, even The New York Times's tools used for uncovering the Bucha mass killing, based on satellite photo analysis, are within the larger idea of artificial intelligence.

Yet things change dramatically when it comes to generative AI, particularly large language models based on Natural Language Processing (NLP), such as ChatGPT. On this count, Fanpage adopts a decidedly cautious approach. “We are not utilizing generative AI in any structured manner,” Cancellato states. Even for everyday content, weather reports, lottery numbers, or stock reports, automation is eschewed at Fanpage. Why? Duplication results from standardization, ultimately depleting outlets like Fanpage, whose power rests in unique reporting. “For journalism to stay relevant and precise, it needs to do something unique, something AI alone can’t do.”

While experimental uses are progressing, the overall strategy is strongly cautious. A specialized research team within Fanpage is actively researching possible uses, and the publication is crafting a policy for visibly indicating any automated or semi-automated content, such as press release-based articles. Special attention is being given to AI uses in video content.

Cancellato also brings up a more sweeping problem beyond editorial value: the business model. “We've already seen this occur with social media sites,” he says. At first, they were a top source of traffic for news sites, but they gradually moved towards promoting native content, eroding the 'click-for-pay' system by which publications made their living. Now, generative AI could do the same disruption through search engines, particularly Google. There, users may be able to find the information they are looking for within the search results page itself, bypassing a trip to the source site altogether. This trend puts the economic underpinning of digital journalism in danger. Ironically, this disruption also has the potential to unleash fresh creativity in journalism. According to Cancellato, “Perhaps newspapers will cease looking the same. Each publication will be forced to promote its distinctive offerings in order to remain viable, forging a direct, trust-based relationship with readers.”

For smaller outlets, especially, this adjustment is critical. In the interim, broad-purpose information sources used by AI tools such as ChatGPT are growing exponentially. “This technology is advancing rapidly, consider the things we are able to do with AI-created video, unimaginable a few months ago. We’re at the dawn of a genuine revolution.”

In order to describe what's involved, Cancellato supplies this vivid metaphor: “Consider the emergence of generative AI akin to the emergence of e-commerce. In the traditional retail model, having a strong brand was enough to guarantee shelf space. When competition grew more fierce, brands were forced to spend more merely to stay in the line of sight. With big-box retailers selling store-brand products, big manufacturers were downgraded to being mere suppliers. The only way for brands to be seen was by having their own shops. In this metaphor, ChatGPT is e-commerce and publishers must reimagine their role completely.”

Lastly, he refers to the imbalance in terms of the connection between big tech and the mass media: “Even the largest overseas newspapers are cleaner fish in a shark's mouth when next to Big Tech. The relationship is but as long as they require you.” His concluding thought is sobering:

"We may actually be living through the last years of the Gutenberg age. In a not-so-distant future, the public may no longer need us in order to become informed, or perhaps they might. It's up to us."

Il Post:

This is also a digital newspaper. Known for its innovative approach and ability to communicate complex issues in an accessible way, Il Post has experimented with the use of automation tools to manage data and generate summary reports on specific events or trends. Il Post uses artificial intelligence algorithms to aggregate data from a variety of sources – such as news feeds, social media, databases and official reports – in an automated way.

This automation allows for the collection and consolidation of large volumes of information in a very short time, reducing the time required for manual research, thus ensuring advantages such as efficiency and speed. The integration of these tools allows the newspaper to quickly adapt to new information trends, evolving its workflow to keep up with the changing media landscape.

Furthermore, this newspaper uses AI to process the data collected and generate synthetic reports on specific events or trends. These reports, based on numerical and statistical evidence, provide a clear and reliable view of the topics covered. Thanks to automation, the reports are produced in short times, allowing for rapid dissemination of information in a context where timeliness is essential. Therefore, what distinguishes the Post is the speed of publication. Furthermore, automated

data analysis helps reduce the possibility of human error, ensuring greater consistency and precision in content.

Furthermore, the use of AI in the editorial flow of Il Post allows to automate tasks such as data analysis and the generation of preliminary drafts for reports and articles, therefore it optimizes the editorial flow using automation for repetitive tasks. Automating standard and repetitive tasks decreases the need for manpower for trivial tasks, freeing up resources that can be invested in activities with greater added value, such as in-depth analysis and investigative journalism, in other words operating costs are reduced. Furthermore, the editorial structure becomes leaner and more agile, thanks to the ability to use AI to quickly process complex information and translate it into usable content for the reader, therefore we are talking about operational efficiency.

Finally, automation in this editorial office also contributes to improving the quality of content. In fact, the use of objective and verifiable data as a basis for content production allows Il Post to offer articles that are not only quick to publish, but also of high quality and reliability. The integration of algorithms that analyze and synthesize data ensures greater consistency and a reduction in errors in reports, increasing the credibility of the newspaper. In this context, the ability to continuously update reports with new data allows the relevance of content to be maintained, offering the public information that is always up-to-date and contextually relevant.

In summary, the benefits that can be obtained from automation in the editorial office of Il Post are the following:

- Efficiency and speed: By automating data collection and analysis, Il Post significantly reduces content production times, allowing for a timely response to news and ongoing events.
- Evolution of the operating model: The integration of AI promotes continuous updating of editorial methodologies, allowing for rapid adaptation to market developments and new technologies.
- Cost reduction: The automation of repetitive tasks lowers operating costs, freeing up resources to reinvest in valuable content and innovative activities.
- Quality and accuracy: The ability to produce articles based on verifiable and automatically analyzed data ensures a high level of quality and greater reliability of the information.

Although *Il Post* and *Fanpage* are generally positioned as digital-native outlets primarily oriented toward editorial automation, especially in terms of streamlining workflows, reducing operational costs and accelerating content production, this does not preclude the potential adoption of

personalization strategies. In fact, while automation clearly emerges as the dominant and most visible application of AI in these newsrooms, the research findings suggest that personalization is not entirely absent. There are indications that both outlets are exploring or beginning to experiment with forms of user-centered content delivery, particularly through the use of audience analytics or initial content recommendation tools. This implies that personalization, even if less developed or prioritized at present, may still play a role in their strategic roadmap. Therefore, it would be inaccurate to entirely exclude personalization from the AI landscape of *Il Post* and *Fanpage*. Instead, these cases demonstrate that even automation-led organizations can embrace hybrid models, where personalization evolves as a secondary yet complementary layer once core operational processes have been stabilized through automation.

2.2.2 Personalization of the Reader Experience: Case Studies of La Repubblica and Corriere della Sera

Personalization has become a key strategy for news companies wanting to be competitive and financially sustainable in today's digital media environment. As readers' needs become increasingly diverse through digital platforms that are spreading faster, one-size-fits-all content transmission is being replaced by data-driven methods. Artificial intelligence (AI) is increasingly responsible for revolutionizing the readers' experience by adapting content according to users' behavior, interests, and demographic profiles. This, in turn, not only raises the level of user engagement, but also alters the consumption and monetization of news. But let's establish what we mean by personalization. Journalism personalization describes a systematic methodology of employing AI-powered algorithms and data analysis to curate content that matches the particular interests and habits of individual readers. Essentially, personalization is about converting massive volumes of user information—covering everything from browsing behavior and social media use to stated user preferences—into actionable information. These are used to drive the dynamic presentation of personalized news articles, suggested content, and optimized user interfaces that are designed to deliver a deeper and more relevant reading experience. Personalization deepens the users' experience and raises the chances of users engaging with content, thus improving loyalty measures as well as subscription numbers.

With the help of sophisticated algorithms and machine learning processes, media platforms can examine users' behavior data on reading habits, thematic interests, and interaction with content. The above method overall facilitates personalized articles and news for every reader to enhance user satisfaction and engagement. For instance, personalized alert tools and virtual news assistants such as Voitto help readers consume content that is dissimilar to common offerings, maximizing

information consumption time. Additionally, tools similar to those used by platforms such as TikTok or YouTube help readers discover articles, videos, or podcast content that match their personal interests. Advanced tools such as automated translation, personalized summaries, and conversational interactions further increase accessibility and engagement by providing formats tailored to various readers' needs. This personalization not only provides audience satisfaction and loyalty but also expands horizons by offering related content to minimize the "echo chamber" phenomenon.

Specifically, tools and technologies for personalizing users' experiences, news outlets utilize a variety of tools to accomplish personalization, facilitated by sophisticated machine-based learning as well as natural language processing (NLP) methods. Some of the primary tools involve:

- Recommendation Engines: Systems that examine previous reader behavior to provide content that is likely to be of interest. Recommendation engines keep improving their recommendations based on ongoing feedback and on-engagement measures.
- Data Analytics Platforms: Platforms that gather and process large volumes of data that are derived from multiple sources—such as web interactions, mobile apps, and social media—so as to generate information about audience taste.
- NLP-based Content Tagging Systems: Systems that apply NLP to comprehend the semantic meaning of articles and categorize them into topics, so that content can be matched with reader interests more precisely.
- Generative AI and adaptive interfaces: Next-generation systems not only suggest content, but also construct personalized summaries or even full articles based on reading histories, as shown in recent findings by INMA and Quintype.

Additionally, the use of AI-powered personalization provides many benefits. Firstly, it boosts User Engagement. Actually by serving content that is tailored to specific interests, news organizations can drive substantially greater reader engagement and session length. Personalized news feeds cause users to engage with content on a deeper level, stimulating greater satisfaction and loyalty. Secondly it optimizes monetization. Personalized experiences enable targeted advertising as well as subscription-based models by giving advertists better-defined audience segments. This targeted system can drive greater conversion as well as return on investment. Finally, it enables adaptive Content Delivery. Actually AI systems can adapt content in real time, presenting readers with the most relevant as well as updated content. This adaptive delivery sustains a competitive edge in a time where immediacy reigns.

Though it has several benefits, AI personalization has its challenges:

•Privacy concerns: The analysis of very large amounts of personal information raises important privacy concerns. Customers can be uneasy with how much tracking of their information is needed to drive very personalized experiences.

•Risk of Filter Bubbles: Over-personalization poses the risk of creating "filter bubbles," in which readers see only those positions and issues that confirm their own existing views. This can deprive readers of exposure to a variety of new perspectives and undercut the democratic function of journalism.

•Dependence on Technology: The greater reliance on AI tools by news organizations can result in compromised human editorial judgment. Relying too heavily on product suggestions by algorithms can unintentionally contribute to content standardization, taking away the individual value propositions of different outlets.

Case studies

The use of AI-based personalization is most commonly seen on digital channels—web sites, mobile applications, and social media accounts, where instantaneously available large amounts of user interaction information can be collected. At the same time as legacy models of news consumption are changing, personalized content has become a staple used not just to improve reader engagement but to inform business strategy. This is especially important in a world in which search engines and social media are playing such a dominant role in determining content visibility, forcing publishers to get creative to remain relevant and tap into new sources of revenue.

Even the more traditional news outlets are increasingly gearing up to these advances. Newspapers such as La Repubblica and Corriere della Sera, whose heritage is deeply ingrained in print and broadcast media, are increasingly incorporating AI-based personalization as part of their multi-platform strategies. They are utilizing the value of data-driven content curation to drive reader interaction as well as to maintain their own longevity in a dynamically changing media environment.

Second, legacy news media deliver a distinct vision of personalization because they are forced to balance their historical commitment to journalistic ideals with new digital behaviors. This tightrope act provides useful information on how legacy media can adapt their editorial processes without sacrificing quality or trust. Their gradual yet strategic embrace of AI demonstrates a conscious determination to preserve editorial voice in a world where search engines, social media, and other digital platforms increasingly drive content visibility.

Finally, comparing these classic case studies enables us to examine a wider array of challenges as well as opportunities. While digital-born sites tend to be driven by a need for velocity and

scalability, older outlets are also faced with concerns about brand, reader loyalty, and the maintenance of a trusted voice for journalism.

Thus, heritage news organizations, like La Repubblica and Il Corriere della Sera, hold a heritage of trust, reputation, and proven quality, yet need to embrace the digital age in order to remain relevant. In the case of traditional media such as these named personalization facilitates the provision of personalized experiences for readers through the promotion of original and high-quality content that distinguishes the brand in a rapidly becoming one-size-fits-all market. In addition, traditional media are keen to establish a personal, trust-based connection with their audience. Personalization of content—through recommendations based on individual behaviors and interests—fosters such a connection, along with top levels of loyalty and participation. Finally, in a day and age dominated by search engines and social media platforms that significantly drive traffic, personalization prevents legacy outlets from succumbing to content standardization, as it provides a differentiated experience that mirrors their own distinct identity and journalism value.

Thus, by means of these case studies, our study embraces a fuller picture of the manner in which AI personalization is transforming journalism in a variety of media models, thus deepening our understanding of its possible effects on the business and operational viability of news organizations.

Corriere Della Sera

Corriere della Sera embraces various Artificial Intelligence (AI) technologies to make its reader's digital experience more personalized. In the first place, through its recommendation algorithms, it advises readers on articles and content suitable for each user's area of interest. Since 2018, using the Digital Edition project, RCS applies Machine Learning and natural language understanding to tailor content to each reader's preference. For instance, its website and app have sections such as "For You", in which suggested articles correspond to the reader’s reading profile. This data-based approach provides customized journalism, perfecting editorial content using perceived preferences.

Another component is audience segmentation: AI examines browsing history, frequently viewed sections, and user query searches in creating rich profiles. This allows for the adjustment of the home page or editorial recommendations to various segments of audiences (e.g., splitting readers who have an interest in finance from readers who have an interest in sports). In practice, content and visible feeds can be customized by users based upon their interests. Furthermore, RCS has tested dynamic paywalls, which adapt to the reader's loyalty and level of engagement, as part of AI-powered

profiling and retention measures. These segmentations serve to provide as highly relevant and customized an experience as possible, maximizing dwell time and user satisfaction.

Corriere uses AI also in newsletter and push notification personalization. Based on reading data and stated preference, the system can determine the best news to send to each reader so each one gets “selected for you” notifications in areas of interest. Tests concerning automatic newsletters have also been run, wherein algorithms generate digests and information bulletins specific to reader's favorite categories. In similar fashion, notifications from the app can also be customized: one can opt for specific categories (e.g. politics, tech, sports), and AI delivers notifications primarily in those areas, right at optimal time and content. This multi-channel personalization – website, email, mobile app – is possible due to continuous profiling by AI.

The key to this ecosystem is using AI to analyze behavior, tastes, and navigational data. Every user activity (articles read, reading time, clicks, searches) is fed back into a database analyzed by AI to determine information needs. In an article featured in digital innovation by Corriere, newsroom data concerning queries fed to the system and in sections accessed is gathered and studied to construct “a reader preference database.” This enables staff to spot trends in reader interest and predict information needs, resulting in an ever-more on-demand personal editorial service. In short, artificial intelligence is used by Corriere to monitor reader tastes continuously and regulate its content and services. This sophisticated analysis serves not only to tailor individuals' experiences individually, but also to shape editorial choice based on massed-up viewership insight. Finally, chatbots and virtual assistants represent another pillar of personalization strategy. In 2023, RCS MediaGroup became an ally of OpenAI in creating new AI-based apps, the inaugural fruit of collaboration being a virtual assistant incorporated in Corriere’s apps. This assistant, available for example in the new “L’Economia” app, applies natural language models in its conversations with readers in order to guide them through thousands of papers. With chatting, readers can requisition in plain language, receive suggested readings best matched to their tastes, and receive concise summarsies of major daily papers. One of the system's best features is "Ask an Expert", enabling readers to ask tax or legal questions and receive tailored answers from a pool of more than 40 specialized experts. Thus, the virtual assistant functions as an educated middleman linking Corriere's information legacy and each reader's specific curiosities. As Editor-in-Chief Luciano Fontana said, it is "a technical tool replacing former search engines and enabling readers to get our content and expert answers in a tailored fashion". Concurrently, Corriere applies AI in enhancing interaction in other ways as well: for example, it has introduced audio versions of papers complete with computerized neural speech, offering an adjustable experience (to read or to listen) depending upon reader choice. Interactive content exploration can

also be facilitated by conversational tools using AI (chatbots) in offering immediate support at site or apps, answering frequently asked questions and assisting people in navigating content interactively.

In short, Corriere della Sera uses Artificial Intelligence in its various forms to address the reader in an unprecedented manner. From recommendations of news in line with each reader's tastes, to homepages shaped according to user profiles, through interest-driven newsletters and notifications, to analysing browsing behaviour using intelligent algorithms and virtual chat assistants, everything is done to position the reader at the centre. What is sought is to provide the reader in digital format, in other words, a "customized" newspaper for each user, in which editorial excellence and technological innovation blend to provide targeted and useful information, enhancing audience enjoyment and satisfaction. AI-powered personalisation is consequently one of Corriere's fundamental drivers for enhancing its journalism offer and achieving reader loyalty in todays' digital age.

La Repubblica

La Repubblica (and in general those of GEDI Group's newspapers) uses recommendation algorithms to propose news adjusted to readers' interests. For instance, GEDI uses the Smartlogic one by Outbrain, an artificial-intelligence and machine learning-based recommendation technology that provides "a unique, personalized content discovery experience for each user". In practice, the system examines what a user has previously read or engaged with and automatically offers other related news. Editorial and advertising content is balanced so that the reader can see both news relative to their tastes and targeted advertising, in an effort to benefit user experience as well as monetization for the group. In Daniele Bianchi's words (CEO of GEDI Digital), "Outbrain's AI-based product offer allows us to further optimize the quality of the user experience across our multiple digital assets, making the encounter between our readers and editorial content more relevant. with an added benefit in terms of revenue as well". In other words, suggesting adjusted news has the tangible purpose of maximizing reader views and engagement for each visit, avoiding the reader from getting lost in an undifferentiated news stream.

One of the cornerstones of personalization is segmenting audiences based on preference, interest, or other similar reading behaviors, for a targeted approach. A reader who primarily reads sports news, for instance, can be part of a segment whose homepage displays featured sports news, while another user who prefers politics sees updated political news featured. Such segmentations can be derived from AI models that analyze data for automatic segmenting of similar profiles: for instance, unsupervised learning algorithms can cluster data and reveal underlying correlations and emergent reader tastes from reading behaviour. Based on these segments, La Repubblica is

developing toward adaptive homepages and site sections: content and editorial recommendations get dynamically restructured or chosen to match each reader segment's interests. This “custom experience” is part of the newspaper's digital transformation, further backed by internal interfaces such as smart CMSs and even automatically written texts.

On an organizational level, GEDI has blended data analysis and editorial lines: “In La Repubblica’s newsroom, the data analyst team meets weekly” with editorial board and section editors to decipher gathered data and adapt correspondingly the use of such new-generation tools. In those weeks, click-through rate, time spent in-page and user paths are analyzed in order to see what people read most about and how to adapt the homepage or thematic blocks. For instance, in case data reveals that one given segment of readers always disregards one specific column, one can decide to position such a segment below or replace it with related items. Meanwhile, qualitative control in the newsroom is guaranteed: algorithms are assistive devices, not replacements for journalistic intuition. There is an understanding of extreme personalization as something which should be dealt with caution, so as not to trap readers inside an “information bubble.” AGCOM itself has deplored that “the algorithm – while enhancing user preference – also risks creating an aspect-selective vision based upon so-called ‘echo chambers’, thereby distorting information”. That’s why GEDI seeks balance in blending tailored and broad-based content, making sure to promote pluralism as well as acquaintance with news outside one's comfort zone.

GEDI's personalization strategy also applies to emails and push notifications sent to mobile phones. With AI, the organization can customize these based on each user's profile: for instance, two readers who have signed up for the same daily newsletter might receive abridged versions with slightly different articles, chosen depending on each one's greater interest in different subjects (e.g., foreign policy for one, technology or culture for another). In the same way, push notifications in the Repubblica mobile app can be tailored and targeted: instead of delivering every breaking news alert to everybody, AI defines which news to send to which user cluster, so as to optimize chances of engagement. For instance, an important finance story might be pushed in real time to economics-interested users, while it won't come as a push alert for those who normally read exclusively sports and local news. Besides content, AI can optimize delivery timing and presentation as well: sophisticated systems coordinate campaigns and dispatches in order to send them “at the right time, with the right message” for each user (e.g., delivering the newsletter at the time when the user normally checks email, or adapting the notification headline to match that user's reading approach). GEDI is therefore changing its one-size-fits-all message approach to one of tailored communication, in an attempt to become more effective: if the reader gets news she really cares about, she's likely to open the email or message, so raising open and click-through rates (CTR) and, in turn, reader loyalty.

Even in its absence of specific public data, this strategy is regarded as essential in order to keep high-lying engagement: “customized” information lowers risks of user ignoring or disabling alerts and generates rather greater use of a group's content.

All of the above types of personalization are enabled by tracking and analyzing user navigation data for GEDI's websites and apps. The company garners large datasets for page views, time spent reading each article, headline clicks, gallery interactions, peak hours of activity, and so forth. Through Big Data Analytics platforms and AI models, those data streams are mined for meaningful patterns: AI can, for instance, spot readers who read highly about climate matters and who are also likely to be interested in sustainable mobility, or readers who use an evening version of the app and who prefer lighter content to readers who check at breakfast. Such information enables highly accurate preference profiles. GEDI uses those details to tailor the live experience (as explained for homepages and notifications) and to inform mid-term editorial direction. Repubblica's data analysts provide weekly reports to the newsroom about consumption trends, pointing out, for example, which sections are booming online and which ones lose interest. That enables adjustments to be made: intensifying coverage of rising matters, reworking poorly performed sections, or creating new focused content where underlying demand is detected. Artificial intelligence plays a key role because AI automates consideration of extremely large datasets: machine learning algorithms process millions of interactions and can spot correlations undetectable to human eyes, which shed light upon reader behaviour. For one, cluster algorithms can spot the existence of reader clusters whose homogeneous tastes weren't apparent previously (e.g., cluster for weekend only-users, or cluster for cross-section interested in scientific matters distributed throughout various sections). Such AI-prompted insights act for data-driven editorial decision-making purposes as a "compass"; the ultimate aim is to bring ever-more adjusted content in sync with reader expectations, thereby enhancing measures of session length, pageviews for each session, and subscription/retention ratios for registered readers. Preliminary results are positive so far: properly handled in-depth personalization has a proven advantage in increasing reader involvement and reader pleasure as people feel that the news product as such is closer to relevance. No surprise, really, as international titles such as The New York Times have spent big bucks in technologies to research reader behaviour and serve targeted advertisements and editorial content upon specific reader interests. Repubblica and GEDI are embarking on this trailblazing route in the Italian media scene, seeking to harmonize editorial excellence and traditional quality with the new possibilities of data. Of course, utmost care in protecting privacy is also taken: data is anonymized and aggregated for analysis, in accordance with GDPR requirements. (The recent agreement with OpenAI, in fact, caught the Privacy Authority's attention so as to guarantee editorial use of data in line with legislation).

Another field in which AI is penetrating GEDI's strategy is chatbots and virtual assistants, viewed as new interfaces for interacting with news and services. Currently, La Repubblica and its sister titles do not yet have a widely deployed in-house news chatbot, although signs of movement in this direction have already appeared. In fall 2024, GEDI announced an alliance with OpenAI, under which Repubblica, La Stampa, and other titles in its portfolio of titles will be used to train ChatGPT, in order to fuel in particular a new system called SearchGPT, based on its conversational search. Under this agreement, news content created by GEDI's papers will be incorporated into AI responses: the user can interact with the assistant (e.g., through ChatGPT or future apps) by asking questions and getting citations, summaries, and links to Repubblica and other titles in its newspaper portfolio. This is an innovative solution for personalization of information access: rather than search manually for an article, the reader can "chat" with an intelligent assistant fed by GEDI's news archives, delivering customized content in relation to the specific query. This changes the experience from passive (viewing suggested articles) to interactive, in which the user can request customized insights. It's still an exploratory area, yet significant – in light of the fact that only months earlier, RCS MediaGroup had developed the same project in relation to its "Economia" app for its "Economia" newspaper: back in July 2024, Corriere della Sera launched a virtual assistant (created in collaboration with OpenAI) for its "Economia" app allowing readers to search for financial news and information using chat. GEDI is following the same direction, yet in another direction: feeding content to the AI rather than creating at once its in-house bot. It's probable, however, that future versions of chatbots will surface on the group's direct platforms – e.g., on Repubblica's website or through its app/WhatsApp – to give 24/7 support, respond to frequently asked questions, or suggest an article upon user query. Business research indicates that well-designed virtual assistants and chatbots can increase markedly in terms of engagement and public perception of services by simulating human speech and offering quick, customized answers. During conversation, the assistant can make use of supplied data (e.g., stated preference, browsing history) to tailor answers and recommend further content to the user. In journalism, for instance, this can mean asking "What's happening today in the city?" and the bot returning an abridged version of the day's most current and useful local news from Repubblica.it, or asking "Describe the crisis in government" and getting a summary followed by links to in-depth reporting. These functions increase the perception of participation and service: the reader becomes an active participant and can find exactly what they need, without obstacles standing in their way.In short, La Repubblica and the GEDI Group are using artificial intelligence on various fronts to tailor immersive reader experiences. From news based on personal interests, to homepages adjusted to preference, customized newsletters and alerts, and even the possibility of interacting with smart chatbots, AI has become part of the company's DNA. The aim, stated, is to make consumption more

useful, involving, and easy for each user, while still controlling editorial quality and information pluralism. A fine but necessary balance, one confirmed through initial indicators of real opportunities for increased qualified traffic (pages viewed per user, reading time) and subscriber retention, due to an articulated product speaking "a one-to-one" language to each reader. Results so far – as highlighted by the 2023 Digital Journalism Observatory – demonstrate how AI used in editorial offices can bring tangible added value to journalism, personalizing without compromising credibility. The path is always in development, but Repubblica and GEDI have defined one clear direction: using algorithmic innovation to enrichen and tailor each reader's experience, while defending trust and interest for quality journalism.

As we saw from Fanpage and Il Post case studies, also here, while *La Repubblica* and *Corriere della Sera* are generally recognized for their strategic focus on personalization, particularly through advanced audience segmentation, dynamic content recommendations, and tailored newsletters, this does not exclude the parallel adoption of automation tools. In fact, the findings reveal that both legacy outlets are progressively incorporating automation to support specific editorial functions. For example, *La Repubblica* has experimented with semi-automated content production for reporting on local elections, allowing journalists to focus on more analytical and investigative work. Similarly, *Corriere della Sera* has developed a virtual assistant integrated into its "L'Economia" app, which uses artificial intelligence to provide personalized responses to readers on tax and legal matters. This initiative exemplifies the combined use of automation and personalization to simultaneously enhance operational efficiency and enrich the user experience. Thus, while personalization remains the predominant strategic focus for these traditional outlets, automation is increasingly being implemented in a complementary way, indicating a trend toward hybrid AI integration in Italian newsrooms.

Newspaper	Type	AI Strategy	Technologies Used	Main Objective	Key Results
Fanpage	Digital-native	Automation	Social listening, data mining, sentiment analysis	Operational efficiency and fast publishing	Timely content, lean structure, reduced costs
Il Post	Digital-native	Automation	Data aggregation, automated summarization, reporting	Summarization and speed for recurring events	Quick updates, consistent quality, flexibility
Corriere della Sera	Legacy media	Personalization	Recommendations, segmentation, AI chatbot	Loyalty and multichannel personalization	More visits, longer sessions, deeper reading
La Repubblica	Legacy media	Personalization	Recommendation Engine, Smartlogic, dynamic content	Engagement, advanced personalization, revenue optimization	Higher interaction, improved CTR, stronger retention

Table 2:Case studies comparison: general trends

***Table Note**:*

The AI strategies listed in the table represent the predominant approach currently adopted by each newsroom based on available evidence and case study analysis. However, it is important to note that these strategies are not mutually exclusive.

For instance, although Fanpage and Il Post are mainly oriented toward automation to enhance operational efficiency and content production speed, the research indicates they are also beginning to explore personalization techniques, particularly in areas such as user analytics and content targeting. Conversely, La Repubblica and Corriere della Sera, while clearly focused on personalization strategies to increase reader loyalty and revenue, also implement automation tools in specific workflows, such as AI-assisted reporting and content tagging, to support efficiency.
Therefore, these trends should be interpreted as strategic focal points, not as exclusive uses. In practice, many newsrooms are moving toward **hybrid models**, integrating both automation and personalization in complementary ways over time.

2.3 AI contribution to sustainability

In a section of this chapter, I already offer an overview about AI's contribution to journalism and its role in sustainability of business models, but in this part I am going to explore concrete ways in which AI supports long-term economic and operational sustainability in news companies. Economic sustainability in the context analyzed is used to describe an organization's capacity for generating consistent and adequate revenues to sustain quality journalism in the long run. It involves diversification of revenues streams (subscriptions, advertisements, events, licensing), resilience against market fluctuations, and the possibility of reinvesting in innovation and human capital. Operational sustainability deals with the efficiency of editorial, organizational, and technology processes within an organization - namely its capacity to create high-quality content at optimized use of time, human capital, and infrastructure, and to adapt quickly to shifting technology and reader habits. Thus, these two dimensions constitute the basis of an agile and future-proof journalism business model.

Artificial intelligence serves as an accelerator for both forms of sustainability by allowing newsrooms to automate and optimize processes, cut operations costs, and drive user engagement through personalization and automation technologies. For example, AI-powered automation is simplifying many of journalism's standard processes: news agencies, including the Associated Press, use algorithms to automatically write financial reports and sports rundowns, allowing journalists to dedicate themselves to lengthy features. Efficiency in operations not only saves money, but also enhances production quality, as reporters have ample time to spend on investigative reporting and data journalism initiatives. In fact, AI-powered data journalism can enable reporters to sift through large datasets and spot trends or story lines that were too time-consuming to discover by hand. News organizations have hired data staff using machine learning to sort information (such as during the Panama Papers investigation, in which programming helped journalists sort through millions of

leaked documents). Increased content derived from such initiatives can give a newspaper an edge and bring in readers, ultimately generating financial sustainability through branding for high-quality, key reporting.

Beyond enhancing newsroom productivity and content, AI is also reshaping how media businesses acquire and retain audiences in the digital economy. Reader algorithms sort through reader behavior to provide recommended content, customized homepages, and targeted newsletters. The New York Times, for example, uses machine learning models in its online sites to recommend articles or subjects based on a reader's reading history. By surfacing content each reader is most likely to appreciate, the Times boosts reader engagement as well as subscriber retention because readers who sense the product is "made for them" are likely to keep subscriptions. In similar fashion, The Guardian – one dependent on voluntary membership and donations rather than a paywall – uses AI-powered insights to optimize membership solicitations. Its data analysts, in collaboration with data scientists, examine which readers are best likely to contribute and calculate timing and wording of membership requests. Through data-based tactics, The Guardian has significantly expanded its ranks of supporters globally and illustrates AI's capacity to support journalism even in an open-access paradigm. In Scandinavia, Schibsted, which owns brands such as Aftenposten and VG, applies AI in various dimensions of its business: recommendation engines for personalizing news apps, predictive analytics for better ad targeting, and an automation technology for tagging content and subtitling video. These changes have driven increased minutes spent on Schibsted's sites and increased digital revenues, verifying AI's impact on enhancing user experience as well as operational measures.

One of the strongest examples of AI allowing for a reinforcement of journalism revenue strategy is in using dynamic paywalls. One-size-fits-all paywalls have been conventional, but AI allows for paywall decisions to be tailored to each user in real time, weighing maximizing subscription conversion against minimizing traffic loss. Such an innovation was pioneered by the Swiss newspaper NZZ, which built an AI-powered paywall that evaluated an article reader's likelihood of joining as a subscriber using their reading pattern (e.g., article topic or reading frequency) and other data. When its model suggested high subscription likelihood, the reader was encouraged to subscribe quickly; otherwise, the reader might get to read one more free article in an attempt to raise reader engagement to at least match revenue. This paywall, powered by an algorithm, increased NZZ's paid subscriptions without scaring off non-paying readers. Since its success, various foreign publishers (from Wall Street's Wall Street Journal to European papers) have started adopting AI-facilitated paywall experiments or dynamic subscription pricing. Intelligently varying offers—e.g., special offers or trials—using user information, these titles maximize conversion and revenue per user in ways fixed pricing can achieve only minimally.

AI is also opening up new products and services to generate additional revenue streams and subscriber value. For instance, various newspapers have introduced AI-powered news assistants or chatbots within messaging platforms delivering targeted news briefs to individuals, opening up new channels to reach younger readers. Others apply natural language processing to automatically transcribe print-based articles into audio, offering narrated news in transit for busy readers as an added premium feature. Washington Post, for instance, created an in-house AI product ("Heliograf") not only to automate basic news reporting but also to fuel interactive news experiences; its technology is now offered within its Arc Publishing platform, licensed to other news outlets as a product – generating an added B2B revenue stream based on the Post's AI work. Such developments demonstrate the ways in which news businesses can move beyond content production to become companies selling digital products, harnessing AI to provide services such as personal content streams, sophisticated reader analytics (e.g., tracking subject matters of interest, or local news of specific interest), or even AI-curated email newsletters. Each such product can increase user interaction or warrant premium subscription levels, enhancing an overall stronger business model.

In short, AI supports journalism's business viability by reducing expenses, increasing efficiency, improving content quality, and generating revenue growth through more astute audience strategy. What the experiences of companies such as The New York Times, The Guardian, Schibsted, and NZZ demonstrate is that AI is not an otherworldly addition to journalism, but an accessible toolbox making news media thrive in an era of intense online competition. Newsrooms save time and energy, freeing them from tedious, reiterative tasks, while using data and personalization to increase reader immersion and loyalty. Newsrooms become profitable by creating new products and flexible pricing strategies, opening new streams of revenue. These AI-driven innovations, used judiciously and ethically, ensure economic as well as operational viability, allowing quality journalism to be created and sold profitably in the digital era.

2.3.1 The Relationship between AI and the Sustainability of the Business Model: A comparison of the two types of case studies in terms of AI's contribution to sustainability

Academic literature supports the idea that automation is linked to operational sustainability, while personalization is associated to the economic sustainability in the context of journalism in the digital era. In fact according to some studies, automation has the capacity to increase the operative efficiency. Graefe (2016) underlines that automation can decrease production costs, increasing productivity and in this way it allows newsroom to allocate resources towards contents with greater

added value. Marconi and Siegman (2017) highlights how automation enables faster and more accurate news production, improving overall newsroom efficiency.

Content personalization has been associated with economic sustainability through increased user engagement and revenue. Thurman and Schifferes (2012) discuss how personalization can improve user experience, increasing the likelihood of subscriptions and loyalty. Bodó et al. (2019) analyze the impact of personalization on user loyalty and advertising revenue, highlighting its role in the economic sustainability of news organizations.

The case studies analysed before provide a practical demonstration of these distinctions within the context of Italian journalism.

The two news outlets are prime examples of how automation through AI supports the operations aspect of sustainability. Both news outlets leverage tools that cut editorial workloads and provide greater production efficiency. The automated social listening and data-mining capabilities in Fanpage identify popular topics on any platform to provide real-time response and instant content creation without extensive dependence on human input to support lean editorial teams.

Likewise, Il Post uses algorithmic aggregation and automated summarization on election news and repeat news events to automate processes that would otherwise involve considerable editorial work. Such uses exemplify what Graefe (2016) refers to as "robotic reporting," whereby algorithmic generation and structured data make scalable and cheap news production possible. Marconi and Siegman (2017) also confirm that automation makes it possible for journalists to dedicate more time to investigative work by outsourcing mundane reporting to artificial intelligence systems.

Both examples illustrate how automation in the two cases resolves issues regarding resource limitations and allows for scalability of the content, corroborating Graefe’s point on how automation improves the cost-effectiveness and productivity of the newsroom. Here, AI has an explicit role in making outlets with scarce human and financial capital operationally sustainable.

Conversely, legacy publishers like Corriere della Sera and La Repubblica embrace personalization methods consistent with the economic sustainability aspect of AI application. Corriere's “Le Tue Notizie” system of recommendations is an instance of predictive algorithms being used to provide readers with customized news feeds. It aligns with Bodó et al.'s (2019), who state that personalized news spaces promote user engagement, site dwelling, and reader satisfaction—three critical precursors to subscriptions conversions.

Empirical evidence from the Corriere experiment demonstrates remarkable improvement in measures like repeat visits (+18%), session length (+40%), and page depth (+69%). These findings endorse Thurman and Schifferes' (2012) conclusion that personalization environments can have an appreciable impact on readers' economic behavior.

La Repubblica has invested in audience profiling and customized content distribution using AI systems with the same intent to make its digital product offering stand out. The strategies are directly related to Kühne et al.'s (2020) concept of economically sustainable reader relationships through value-improving personalization. Additionally, this methodology offers more revenue streams through high-CPM target advertising, further noted by Newman et al. (2023) in audience monetization discussions.

Although these two types of AI pursue distinct strategic purposes, they are not mutually incompatible with one another. La Repubblica employs automation to produce standardized electoral reporting and personalization to deliver tailor-made content streams to show how organizational and financial viability are possible through synergy created by technology.

2.4 Research Gap

While existing literature recognizes the growing role of artificial intelligence in journalism, particularly through automation of editorial processes and personalization of the reader experience, most studies remain either conceptual or focused on international contexts. The Italian media environment, which is characterized by delayed technological adoption, weak R&D infrastructure and fragmented innovation, is still underexplored in terms of how AI is practically interpreted and adopted within newsrooms and in particular concerning the strategies analyzed in this thesis the gap is not indifferent. In fact, from the academic literature we saw that, even if with a consistent delay, industry reports increasingly address the application and impact of artificial intelligence (AI) on the journalistic profession, but there is little empirical investigation to date that examines specifically if, how and to what extent Italian newsrooms themselves assess and weigh AI strategies, namely, editorial automation and reader personalization, in practice. It is still an open question what allows news organizations to adopt one or both strategies, which one is more widespread in daily editorial routines and which one is more valued by professionals and considered more effective or more relevant to needs. Nor is it well-known to what extent AI is viewed mainly as potentially supporting production through automation or user engagement and money generation through personalization and which one among the two strategies is by and large more suitable to long-term sustainability. Moreover, little can be attested on the extent to which Italian newsrooms consider combining both methods necessary, complementary to one another, or in priority to one or the other based on available resources, editorial mission or business aims. The research in fact highlights a lack of clarity around how Italian newsrooms decide which strategy to adopt first and which internal (e.g., skills, culture, budget) and external (e.g., market trends, audience behavior) factors influence these decisions and

the barriers to the adoption of those strategies. While some studies indicate automation is closer to supporting operations in the long run and personalization to supporting economics in the long run, there are little real-case arguments available to affirm these assumptions hold in the Italian media landscape. This gap justifies the need for a qualitative, multi-stakeholder analysis to explore how AI is perceived and applied and under what conditions each strategy can contribute most effectively to the operational and economic sustainability of newsrooms.

3. Methodology and Discussion

3.1 Research Problem

The research problem is the beginning of the intellectual process, setting the stage for the development of appropriate research questions, methodological directions, and subsequent discovery of valid findings. In an editorial environment greatly altered by the digitalization and increasing use of smart technology, Italian newsrooms now struggle to maintain competitiveness and adapt to the developments introduced by technological change. In the new Italian media environment, artificial intelligence (AI) is a technology that can potentially be a catalyst for change, both in influencing the production process and in relation to the audience. As discussed in the literature review, the possibility of using AI mainly advances in two directions for the newsroom:

1. Automation of editorial tasks: the application of artificial intelligence to automate the production of content, data analysis, and workflow optimization, with the objective of increasing the efficiency of operations and saving costs.

2. Personalization of the reader experience: the application of smart algorithms to deliver customized content, improving engagement and loyalty of the readers.

Nonetheless, as documented in the gap in the research, no framework seems to exist that defines the details that the newsrooms should use to determine the type of strategy to adopt or prioritize, particularly when they are under pressure to make a choice among them, or even if both strategies can be employed at the same time. On that topic, it is also necessary to know which of the two is the most effective and ought to be the one to be prioritized in upholding the economic and operational viability of Italian newsrooms.

This is not simply a matter of comparing two technologies, but also of investigating the strategic reasoning behind editorial decisions, the trade-offs they entail, and the contextual factors, economic, cultural, and organizational, that influence their application.

As mentioned in the previous section, the existing literature reveals a significant gap: although numerous studies have examined the application of AI in journalism internationally, very few focus specifically on the Italian context. In fact, artificial intelligence in journalism has grown internationally, but the **Italian context remains significantly underexplored**, especially in terms of technological expertise and internal innovation capacity within news organizations. As highlighted in the literature review, most Italian newsrooms do not have dedicated **R&D labs**, nor do they consistently collaborate with AI specialists or data scientists. This limited presence of in-house innovation units contributes to a **fragmented understanding** of AI's strategic potential in editorial settings.

In response to this gap, and to strengthen the analytical depth of the study, this thesis deliberately includes not only **journalists and newsroom professionals**, but also **AI experts** as interview participants. The decision to integrate both perspectives aims to **bridge the disconnect** between editorial application and technological capability, offering a more complete and multi-layered view of how automation and personalization can be strategically approached.

Furthermore, we can add to the gap also the fact that there is a lack of analysis that explores the perceptions and strategic decision-making processes of Italian media professionals regarding the adoption of AI. Most of the studies utilize normative strategies or borrow from global examples, neglecting the contextual aspect of the Italian media environment, with the dominance of established media, scarce resources, and a non-uniform pace of technology development.

The research issue that this thesis aims to deal with thus finds its origin in the uncertainty as to: which of the two paths Italian newsrooms should choose in applying AI — the automation of editorial tasks or reader personalization — and which of the two contributes most concretely to the operational and economic viability of their business model.

That is, the main research question is the following: *In the context of Italian newsrooms, should the implementation of artificial intelligence prioritize the automation of editorial processes or the personalization of the reader experience and which of these two strategies contributes more to the economic and operational sustainability of the business model?*

Solving the research problem is of the utmost importance for a number of reasons. Firstly, it covers a gap within the current body of literature, since the Italian environment and the internal dynamics of local-level newsrooms in connection with the uptake of AI are hardly ever studied in depth. Second, the research provides a concrete value to the journalism industry by offering an analytical framework to apply in strategic choices to be made by the newsroom, in other words, to know to what extent they really need to decide to adopt automation as opposed to personalization in a climate of scarcity of resources and ever-shifting market conditions. Additionally, the concern

resonates with economic, organizational, and cultural dimensions of journalism, and thus can be positioned as one of the main points to grasp the sustainable development of the media industry. Lastly, the resulting findings of the research can lead to practical recommendations that can be used to drive investments, editorial choices, and digital strategies in the Italian media industry.

3.1.1 Research aims

This research is the result of the need to examine a sector still not fully explored in the scientific literature on artificial intelligence in journalism: namely, to understand which strategic direction Italian newsrooms should take in implementing AI, and how this choice affects in terms of economic and operational feasibility of their business model. With the technology for smart technologies developing so fast, newsrooms are now at the juncture where they need to make conscious and deliberate decisions about whether they want to give more weightage to automating the editorial process or reader personalization, or even how both can be harmoniously combined in a complementary fashion. However, while the attention is attracted in the previous chapters, there is no definite decision-making strategy at present with no standard guidelines to steer this decision towards long-term viability.

The primary goal of this research is therefore to investigate, from the perspectives of Italian newsrooms, the beliefs, reasoning, and norms underlying the adoption of AI in its two main forms—automation and personalization—and to observe which of the two, in practice, is more efficient in supporting the competitiveness, organizational stability, and economic viability of Italian journalism, as well as the long-term viability of newsrooms.

Specifically, the research aims to:

-Analyze the strategic motivations and drivers for the implementation of automation, personalization, or both and the technological, economic, and organizational consequences of such decisions;

-Assess the perceived impact of each strategy in terms of economic viability (e.g., return on investment, revenue) and operational viability (e.g., workflow efficiency, resource conservations), as well as efficiency and editorial relevance;

-And lastly, assist in developing concrete proposals that can guide Italian newsrooms towards adopting AI in a way that is most appropriate for the resources they have and the structural characteristics of Italy's media system.

In conclusion, according to what emerged from the literature review, considering the fact that automation is linked to the concept of operational sustainability and personalization to economic sustainability, the following more specific hypotheses can be formulated and then tested in the next sections:

Hypothesis 1: Automation Prioritized → Supports Operational Sustainability
Newsrooms that prioritize automation perceive it as mainly contributing to operational sustainability through cost reduction, time-saving and efficiency.
Hypothesis 2: Personalization Prioritized → Supports Economic Sustainability
Newsrooms that prioritize personalization perceive it as primarily contributing to economic sustainability through increased engagement, loyalty and revenue generation.
Hypothesis 3: Both/None Strategies Prioritized → Supporting both dimensions of sustainability
Newsrooms that implement both automation and personalization perceive a dual impact, supporting both operational and economic sustainability.
Hypothesis 4: Both/None Strategies Prioritized → No Perceived Sustainability Benefits
Even when both automation and personalization are adopted, some newsrooms may not observe measurable improvements in sustainability, possibly due to uncoordinated implementation, lack of internal resources, or insufficient strategic alignment.
Hypothesis 5: Automation Prioritized → Fails to Improve Operational Sustainability
In some cases, automation may be prioritized but fails to deliver the expected operational gains due to poor integration, resistance from staff, or limited scope of application.
Hypothesis 6: Personalization Prioritized → Fails to Improve Economic Sustainability
Some newsrooms may invest in personalization without seeing corresponding gains in revenue or engagement, often due to insufficient data infrastructure, weak audience profiling, or user distrust.

3.1.2 Methodology

This research adopts a **qualitative methodology**, due to its exploratory nature, aiming to analyse the use of artificial intelligence (AI) by Italian newsrooms and its connection to two strategic options: editorial process automation and reader experience personalization. A qualitative approach was employed so that media practitioners' rationale, perception, and strategic thought could be investigated, rather than quantitatively assessing pre-determined variables or testing static hypotheses through statistical techniques. With the question's novelty and context sophistication, a qualitative

approach can best serve to deliver the depth of detail and nuance and subjective flavor that encapsulates decision-making in newsrooms. AI is not an exclusively techno-logical fix but a change and cultural driver that carries a strategic value that requires interpretation to understand what its actual uptake and contribution are across different types of organizations. Although six guiding hypotheses have been developed, this study's aim is not to statistically test them, but to explore and discuss them based on empirical evidence, specifically through the interpretation of real newsroom experience and professional opinion. The investigation is thus inductive: theory evolves step by step from observation and interpretation of concrete cases and interview material. This approach is consistent with the case study methodology of my research and is favorable to the objective of presenting both practical and theoretical information. It is particularly suited to a field such as journalism, where there is rapid change occurring and where technological advancement converges with editorial tradition, market constraint, and organizational culture. By focusing on qualitative data and employing interviews and case comparisons (analyzed previously), the research is designed to uncover not only which method is viewed as more efficacious for sustainability, but why, and under what organizational conditions it will most likely be preferred.

3.1.3 Research Design and Approach

This study adopts an exploratory research design, with the aim of understanding how Italian newsrooms are implementing artificial intelligence in their editorial works and in particular which strategies between automation and personalization, is perceived as more effective in relation to the sustainability of their business models. It will highlight the strategic decisions behind the adoption of AI for automation of editorial processes and for personalization of the reader experience, when newsrooms are about to choose their strategies concerning the use of AI in their business model. Given the fact that the topic I am analyzing is emergent, still a bit unexplored and constantly evolving both technologically and organizationally, especially in the Italian context which I am focusing on (due to the Italian delay and consequently the lack of consolidated theoretical frameworks within the media landscape of our country, as seen in the literature review) we can say that an exploratory design is considered the most appropriate to address the research question and objectives of this study.

Furthermore, due to the qualitative methodology, in fact, it is possible to affirm that this design is the most appropriate as the method choosen is focused on exploring ideas and formulating a theory or an hypothesis.

As it is typical of qualitative research (process model), the theory emerges from the empirical evidence in an inductive way, with the aim of highlighting new theories and phenomena happening,

so in other words the approach followed is inductive. The goal is not to confirm or falsify a theory, but to build understanding based on the actual practices and experiences of the newsrooms involved. This approach is particularly suitable for investigating complex, context-specific, and evolving phenomena, such as newsroom innovation strategies and AI implementation logic.

By applying a comparative logic, the study seeks to examine the differences and similarities across various types of newsrooms, including both digital-native and legacy media organizations as seen in the case studies analyzed before, regarding how they conceptualize and apply AI. This enables the researcher to identify patterns, tensions, and influencing factors that may determine whether a newsroom leans more toward automation or personalization, and under which conditions each strategy is seen as more viable or effective.

3.1.4 Strategies and Data Collection

In line with my qualitative research method and with the design and approach chosen, this study adopts a multiple case study strategy supported by semi-structured interviews and document analysis as main strategies to answer the research question and investigate the strategic implementation of AI in Italian newsrooms. This strategy, as said, is consistent with the exploratory and qualitative nature of the research and enables the collection of detailed, context-rich data from various types of news organizations and AI experts. So, in other words, data are collected using different strategies:

- Case studies: The case studies were selected using purposive sampling, based on two key criteria:
    - The newsroom must be operating in Italy and already experimenting with AI technologies.
    - The newsroom must represent either a legacy media outlet or a digital-native publication, to enable comparative analysis.

  This sampling strategy ensures diversity in the type of organizations observed, which allows for a overall and more diversified understanding of how automation and personalization are implemented under different structural, economic, and cultural conditions. Furthermore, the choice of a multiple case study strategy allows the researcher to explore the phenomenon within its real-life context. The comparative nature of the strategy also enables the identification of recurring patterns, contrasts, and organizational logics behind AI adoption across different types of media. The sample includes both legacy media outlets and digital-native newsrooms, which differ in terms of structure,

history, audience, and business models. This distinction is crucial to examine how different editorial ecosystems prioritize AI-related strategies, and whether structural conditions (e.g., size, resources, degree of digital maturity) influence the preference for automation or personalization. The selected organizations were analyzed not as isolated cases, but as instrumental cases, meaning they serve to deepen the understanding of a broader issue: how AI is interpreted and implemented in a specific national media context.

- Interview method: The core of the data collection consisted of semi-structured interviews with professionals involved in digital innovation, editorial management, and AI implementation. This method allows for in-depth exploration of individual experiences, professional perspectives, and strategic reasoning, while ensuring a degree of consistency across interviews through a thematic structure. Interviews were conducted both remotely (via Zoom or phone) and in person, recorded with consent, and subsequently transcribed for analysis. Interviewees were selected based on their profession: journalists and AI experts. The interview guide was organized around some key areas:
    - Introduction of people interviewed and their engagement with IA or journalism;
    - Strategic focus on automation vs. personalization and interviewed impressions on these strategies applicated to journalism;
    - Perceived impact on economic and operational sustainability;
    - Criteria and factors which influence the choice between the two strategies selected;
    - Organizational and cultural enablers/barriers or opportunities to AI adoption;
    - Long term perspectives of IA in journalism.

So, the combination of these two strategies for data collection was chosen in order to ensure an overall and contextualized understanding of how Italian newsrooms interpret and apply artificial intelligence in relation to the two key strategic dimensions analyzed in this study: automation of editorial processes and personalization of the reader experience.

3.2 Interviews

As anticipated previously, my study was conducted collecting data from some interviews. In particular I have chosen semi-structured interviews to explore how AI is being interpreted and strategically adopted within the Italian journalistic context. I preferred this method for its ability to balance consistency across respondents with flexibility, allowing participants to elaborate on their own experiences and interpretations. Specifically, people interviewed are journalists on one side, as

they can offer a concrete perspective and real perceptions about the application of IA in newsrooms, and AI experts on the other side, as they can give a more technical and strategic vision on the argument. Going deeper into the contents of the interviews, firstly I decided to ask the interviewed which role they have both in newsrooms and in IA contexts. Then they were invited to answer to questions related to the role of IA in journalism, so to better understand their impressions concerning the theme of this study. To investigate about the strategies of automation and personalization, I asked some questions concerning advantages and disadvantages of each of them, or if in their opinion one of the two is preferred over the other. Specifically, concerning the journalists, I studied whether the two strategies are adopted concretely in the newsrooms in which they work and which are their impressions in terms of efficiency, costs savings (for automation strategy, according to what emerged from the literature review), revenues increase and increase of readers loyalty (for personalization strategy, according to what emerged from the literature review). Furthermore I gave a particular attention to the factors that lead to the choice of the strategies considered in the Italian context and I asked also whether there is a trend that must be preferred in the Italian newsrooms. Lastly, for what regards sustainability, I decided to understand if automation and personalization have an impact on business model long term sustainability; investigating on the journalists side the practical implication of the theme and on the AI experts side the theoretical explanation. To conclude, they were invited to answer to some questions related to future perspectives of the application of IA to Italian journalism context, specifically in the medium-long term.

3.2.1 Interviews Process and Structure

In line with the qualitative and exploratory nature of this study, semi-structured interviews were adopted as a tool for data collection. This method allows for the combination of a shared thematic framework and open-ended responses and ensures consistency across interviews while also leaving room for the emergence of new ideas and insights during the conversation.

To provide a comprehensive understanding of how artificial intelligence is being implemented and perceived in Italian journalism, I decided to conduct the interviews with **two distinct yet complementary groups of participants.** The first group consists of **journalists and editorial professionals**, including editors, newsroom managers, and individuals working in digital transformation or innovation roles. Their participation was essential to capture the perspective of practitioners, their direct experiences, and the editorial logic behind the adoption of AI tools, with a specific focus on how automation and personalization are interpreted and integrated into daily workflows.

The second group includes **experts in the field of artificial intelligence**, such as academic researchers, consultants, or developers involved in the design and application of AI systems, particularly in the context of media and communication. These interviews aimed to add a more technical and strategic dimension to the study, helping to contextualize the findings from the journalistic field and better understand the broader potential, limitations, and evolution of AI technologies.

Interviews were conducted remotely and recorded with the participants' consent. Concerning the transcriptions I carried out in full, allowing for careful reading and thematic analysis in the following phases of this research. For what regards participants, they were selected previously through purposive sampling, based on their expertise, job (journalists or IA experts), relevance to the research objectives, and their willingness to contribute to my study.

The main themes of the interviews, as previously anticipated, were the following:

- Introduction of people interviewed and their engagement with IA or journalism;
- Strategic focus on automation vs. personalization and interviewed impressions on these strategies applicated to journalism;
- Perceived impact on economic and operational sustainability;
- Criteria and factors which influence the choice between the two strategies selected;
- Organizational and cultural enablers/barriers or opportunities to AI adoption;
- Long term perspectives of IA in journalism.

All the themes mentioned were analyzed under two different perspectives, as the people interviewed were selected from two different, yet complementary, groups. In fact, I decided to formulate two list of questions, one for journalists and one for IA experts, so to allow them to express better their opinions and experiences in the field of competency. I thought that the questions could not be generalized to all the participants, as they were asked to answer questions according to their professional perspectives, which are of course different within the two group; journalists give a practical view and they are less competent in IA, while AI experts give a more theoretical and strategic vision due to their expertise in the artificial intelligence field.

The questions in both cases were not thought to give back just a linear and objective vision of the argument analyzed but also to give the participants the possibility to express their opinions and subjective views on the theme. That is the reason behind the use of expressions like “according to you” or “in your opinion” in the questions. An example of this concept was when I have asked to answer to questions related to future perspectives or whether one of the two strategies between automation and personalization had a deeper impact on sustainability of newsrooms business models.

I decided to adopt this structure for questions as I wanted the results of my study to be more concrete and applicable to real context.

3.2.2 Interviews Questions

The questions formulated, as mentioned before, were divided into two different lists, one to be answered by journalists and the other for AI experts. The list of questions to be presented to the interviewed, was chosen according to the profession of the person previously selected by me according to the criteria reported in the last section. The main themes of my questions are reported in the following table:

Table 1 - Interview Guide Structure: Journalists and Editorial Professionals

Section	Content
1. Role and context	Understand the participant's role in the newsroom and their exposure to AI.
2. Editorial automation	Explore the use of AI tools in news production processes and their operational impact (cost reduction, efficiency).
3. Reader personalization	Investigate the use of personalization strategies and their impact on reader engagement and revenue generation.
4. Strategy and sustainability	Elicit opinions on the newsroom's technological priorities, decision-making criteria, and the potential of AI strategies to contribute to long-term sustainability.

Table 2 - Interview Guide Structure: AI Experts

Section	Content
1. Background and perspective	Identify the participant's area of expertise and familiarity with the journalism sector.
2. Automation vs. personalization	Compare the perceived benefits, risks, and relevance of both strategies within media environments.
3. Influencing factors	Examine internal/external criteria (e.g., resources, digital maturity) that should guide newsroom decisions.
4. Sustainability and recommendations	Assess the long-term impact of AI tools on business model sustainability and gather expert advice for media organizations.

Table 3: Interview guide tables

In the following paragraph I am going to report both lists, specifying each to who is directed.

List 1 : Questions for journalists:

1. Could you describe your role within the newsroom and whether you have been directly involved in any projects related to artificial intelligence?
2. In your opinion, what does the concept of artificial intelligence applied to journalism mean?
3. In my research, I analyze two main types of AI applications in newsrooms. The first concerns the use of AI for the automation of editorial processes, defined as the integration of AI and software systems into editorial workflows to support or replace tasks traditionally performed by humans. The second concerns the personalization of the reader experience, defined as the use of algorithms and data analysis to deliver customized content tailored to readers' interests and behaviors. Based on this, in your newsroom, are one or both of these strategies currently being implemented or neither?
4. If automation was mentioned, in which phases of the editorial process (writing, editing, distribution, etc.) is it applied, and what advantages do you believe it brings? Do you think it has an impact in terms of cost reduction and operational efficiency?
5. If personalization was mentioned, do you think these strategies help build audience loyalty or increase revenue?
6. In your opinion, which of the two strategies could be more effective for a newsroom? Is there one you consider more of a priority for the future of your organization?
7. Are there any internal or external criteria that influence your technological choices? (e.g., budget, human resources, editorial vision)
8. Do you believe that either or both of these strategies could impact the sustainability of your newsroom's business model—where sustainability is understood as long-term benefits such as cost reduction and increased productivity/efficiency (operational sustainability), or increased revenue and reader engagement (economic sustainability)?
9. What are the main obstacles your newsroom faces when experimenting with AI technologies? And what opportunities do you foresee in the medium to long term?

List 2 : Question for AI experts:

1. What is your area of specialization, and have you ever worked professionally within the media or journalism sector?

2. In your view, what does artificial intelligence mean when applied to journalism?
3. Based on your experience in the technology field, what aspects of AI adoption in journalism appear to be the most mature, and which remain the most critical—especially from a medium- to long-term perspective?
4. In my research, I analyze two types of AI applications in newsrooms. The first concerns the **automation of editorial processes**, defined as the incorporation of software algorithms and AI-driven processes into editorial work to support or perform tasks that were traditionally done by humans. The second is **the personalization of the reader experience**, defined as a systematic methodology of employing AI-powered algorithms and data analysis to curate content that matches the particular interests and habits of individual readers—ultimately delivering a deeper and more relevant reading experience. Based on this, do you think Italian newsrooms should prioritize one strategy over the other, adopt both, or neither? What would you consider the main advantages or drawbacks of each?
5. Are there any internal or external factors that should guide newsrooms in choosing between automation and personalization? If so, what are they?
6. Do you perceive a predominant trend or strategy (between the two previously mentioned) that is more commonly applied in Italian newsrooms? If so, which one?
7. Do you think that either or both of these strategies could influence the sustainability of a newsroom's business model, where sustainability is defined as long-term benefits such as cost reduction and improved efficiency (operational sustainability) or revenue growth and stronger reader engagement (economic sustainability)?
8. Which AI tools currently available do you believe could have a real impact on the sustainability of editorial business models?
9. If you were the head of a newsroom, how would you choose to implement AI in your organization?
10. What advice would you give to an Italian newsroom that is considering investing in AI for the first time?

3.2.3 Data Manipulation

To make the transcribed interview more legible and clearer, some modifications were undertaken. The main objective of the revisions was to delete some colloquialisms which were frequent in the oral dialogue with the interviewed and that could introduce some confusion when reading or

understanding what reported in the written form; among them for example interjections such as "mmm", "let me think" or the periods of reflection. So in that way, the transcription had a more linear structure and was made more understandable by readers. This filtration process was adopted also with some sentences of dialogue between interviewed and interviewee that were not inherent to the topic under discussion. The final transcript of the interviews can be found in the "Appendix".

3.3 Data Analysis

The data collected were analyzed using thematic analysis, consistent with the qualitative, exploratory and case-based nature of the research.

All of the interviews were fully transcribed and subjected to a rigorous process of manual coding. The coding followed an inductive logic, based on a flexible framework (the interviews guide structure reported before) that guided the analysis but in the analysis it was then expanded to include all the key themes that emerged from the interviews. The initial phase of analysis involved assigning the codes to segments of the transcripts, like phrases, reflections and experiences expressed by participants.

What's more, to ensure analytical robustness, the coded interview data will be then compared and contrasted across the different case studies, enabling the identification of patterns that were either shared or specific to particular types of newsrooms (e.g. legacy vs. digital-native). The results of the thematic analysis will be systematically compared also with the existing literature, as discussed in the Literature Review chapter. This comparison is not intended to confirm theoretical expectations, but to critically reflect on similarities, differences and emerging gaps between practice and theory.

The analysis focused not only on what strategies are adopted, but also on why certain approaches are favored over others, and under what conditions they are considered effective. And ultimately, the goal of this analytical process was to generate a rich and contextualized interpretation of how automation and personalization intersect with sustainability concerns in journalism and to provide a solid empirical foundation for the presentation and discussion of findings in the following chapter.

3.3.1 Analysis of interviews' answers

Journalist interviews analysis

In this paragraph I am going to analyze first the interviews answers of journalists.

In order to gather a multifaceted understanding of how artificial intelligence is perceived and potentially adopted within Italian newsrooms, I interviewed journalists and editorial professionals with different backgrounds and levels of experience, from editors-in-chief to freelancers, contributors and multimedia journalists. This variety was intended to provide a richer view across different newsroom sizes, editorial structures and digital maturity levels.

As reported before, I analyzed the interviews answers following four thematic codes reported in the table 1 (interview guide structure for journalists) which are:

(1) Role and Context,

(2) Editorial Automation,

(3) Reader Personalization,

(4) Strategy and Sustainability.

Concerning the first argument, role and context, the interviewee 1, 2 and 4 have active roles in their newsrooms (editor-in-chief, journalist , editor), while interviewee 3 e 5 are freelance, so they have a more detached perspective. Furthermore, Journalists described varying levels of exposure to AI depending on their newsroom's size, resources and mission. While none of the interviewees had been formally involved in AI-driven projects, some used technology tools such as SEO plugins (e.g., Rank Math on WordPress) that represent an indirect form of editorial automation. AI is also tested and used at a personal level as reported from one of the interviewees. Concerning the criteria behind the adoption of AI, the major of participants agreed that the choices of newsrooms are made according to an editorial line, in fact it emerged as a key contextual driver: in many cases, the openness to innovation was conditional on available resources and the leadership's willingness to invest in experimentation. Other criteria that influence AI related decisions in newsrooms include

1. Budget availability: reported as the most limiting factor.
2. Human capital: lack of internal skills and training was a recurrent theme.
3. Strategic alignment: AI adoption must match the outlet's mission and long-term positioning.

Some journalists also expressed concern about cultural resistance to AI and the absence of a clear roadmap for implementation.

Then none of the interviewees explicitly declare that the newsroom in which they work adopts AI for news production or active distribution highlighting the fact previously reported in the literature review: in Italy their is a fair or innovate and very low investments in R&D.

Concerning the second label: editorial automation, it is possible to affirm that between the two strategies analyzed in this thesis (automation and personalization) automation is the most commonly encountered and applied form of AI in the journalists' experiences. Several respondents described

using it to streamline repetitive tasks. One editor reported the use of automation for publishing weather forecasts, horoscopes and sports results.

While Another described SEO optimization tools as supporting the editing process, boosting article visibility, saving time and ensuring content consistency.

While the others said that in their newsrooms, they do not adopt direct automation, even if they recognize the potential value of it, specially to reduce costs and simplify repetitive tasks.

The perceived benefits of automation include operational efficiency, time-saving and cost reduction, especially in tasks where human intervention adds limited value. In particular one interviewee highlights that AI can be applied in the research phase, without replace the journalist experience.

However, several journalists expressed concerns about over-automation potentially reducing content quality or journalistic authenticity. Most agreed that AI should support, not replace, human editorial judgment. Lastly some interviewees said that according to them especially small organization should adopt automation to reduce cost and increase efficiency, while big should adopt personalization to boost readers engagement.

On the other hand concerning reader personalization, we can say that although no newsroom had fully implemented personalization systems, the concept was widely seen as strategically important (to increase engagement and so revenues) for the future. Respondents associated personalization with audience engagement, reader loyalty and economic sustainability. However, multiple journalists cited budget constraints, lack of internal expertise and technological gaps as barriers to adoption.

One journalist noted that personalization should be prioritized next, once automation has helped stabilize editorial workflows. Another expressed concern that personalization efforts must not compromise editorial integrity or trivialize journalistic language. A few participants highlighted the need for data infrastructure and user profiling to effectively apply personalization in a meaningful and ethical way.

Finally concerning the last label: strategy and sustainability, we can affirm that Across all interviews, participants agreed that both automation and personalization have potential to contribute to newsroom sustainability, even if in different ways:

- Automation is closely associated with operational sustainability, through reduced costs, faster output and more efficient workflows.
- Personalization is seen as a driver of economic sustainability, by potentially increasing traffic, engagement and revenue (especially from advertising or subscriptions).

Several interviewees suggested that a sequenced strategy is ideal: starting with automation to relieve editorial pressure, then investing in personalization to build long-term audience value.

For what concerns obstacles and opportunities, the main obstacles highlighted:

• Lack of budget and human resources (interviewees 1, 2, 3).
• Lack of strategic vision or openness to innovation (interviewees 2 and 3).
• Lack of training and fear of stylistic flattening (interviewee 4).

While opportunities mentioned include:

• Greater reader engagement.
• Audience expansion.
• Optimization of internal flows.

So, to summarize my analysis we can say that while experience with AI remains limited, the responses reveal a growing awareness and interest in its potential.

Little direct exposure to AI makes it difficult for many journalists to express an experiential preference between automation and personalization. However, interest is growing where potential practical applications are glimpsed, such as optimizing time and flow.

Editorial automation appears to be more immediately accessible and better understood by journalists as it allows to reduce operational load and it is more appropriate for newsrooms which have limited resources leading to operative sustainability. While personalization is viewed as an aspirational goal to be developed after automation strategy requiring more infrastructure and vision. In fact, this strategy is more difficult to be applied due to technological and organizational barriers. Personalization taken singularly is more oriented toward long term economic sustainability.

We can affirm that no interviewee indicated that one strategy should replace the other. Instead, the prevailing view is that both automation and personalization are necessary and that a balanced, progressive implementation could support both economic and operational sustainability even if they have a specific tendency taken separately as indicated before.

In other words, interviewees show that, if well designed, automation and personalization are both strategic. However, the ideal approach is gradual: start with automation to free up resources, then invest in personalization to build economic value in the long term.

AI experts' interviews analysis

Now I am going to analyze the answers of the interviews to AI experts. I decided to ask them questions as well in order to gain an external, yet deeply informed perspective on the role and potential of artificial intelligence in journalism. The selected participants have diverse professional profiles, including AI researchers, computer engineers, developers, consultants and data scientists, many of whom have collaborated directly with media organizations or worked on frontier applications relevant to editorial workflows, but not everyone. Their perspectives complement the internal newsroom views previously collected from journalists, so providing a broader understanding of both

technological capabilities and systemic barriers and by giving their contributions, offering crucial insights into how AI could be strategically implemented in the media sector.

For the category of AI experts, as previously stated, the analysis follows four thematic dimensions, reported in *Table 2* of Interview Guide for AI Experts:

(1)Backgorund and perspective,

(2)Automation vs. personalization,

(3)Influencing factors,

(4)Sustainability and recommendations.

Concerning the first argument so background and perspectives, the aim is to understand how their professional experiences and roles influence their views on the integration of artificial intelligence in journalism. The AI experts interviewed come from diverse professional backgrounds, including AI system design, data science, digital transformation, HCI and ethics and computer engineering. None of them are journalists of course, but several have collaborated with newsrooms or advised them on innovation, ethics and AI integration. Interviewee 1, for example, has worked closely with editorial teams to develop AI solutions for workflows and archives. Interviewee 2 has consulted for media labs on adaptive user modeling and personalization. Interviewee 4 has advised Northern European newsrooms on algorithmic transparency and trust. Others (3 and 5) provide technical support or broader AI infrastructure development, such as generative models or NLP tools.

This diversity provides a comprehensive view of the potential applications and implications of AI in journalism. Several experts have been involved in projects related to the development of AI tools for content production, archive management and strategic newsroom planning. Their experiences highlight the different ways in which AI can support journalistic endeavors, from enhancing operational efficiency to enabling personalized content delivery.

Despite not operating within editorial roles, all experts demonstrated a high level of contextual awareness regarding journalistic needs and challenges. Their perspective was strongly solution-oriented, focused on infrastructure readiness, ethical implications, scalability and the alignment of AI tools with editorial goals.

Even if they have different backgrounds, a common theme among some of the experts is the emphasis on the responsible and ethical use of AI in journalism. They advocate for AI as a tool to augment human capabilities rather than replace them, stressing the importance of maintaining journalistic integrity and editorial independence.

Furthermore, the experts acknowledge the challenges associated with AI integration, such as the risk of content homogenization and the need for transparency in algorithmic decision-making. They underscore the necessity for news organizations to develop clear strategies and invest in training to

effectively leverage AI technologies. The most mature applications of IA to journalism indicated by AI experts are automation of repetitive tasks and recommendation systems, already supporting workflows and content delivery. However, critical issues remain, including the risk of losing journalistic identity, lack of algorithm transparency, bias in AI models and weak data infrastructure. Cultural resistance and limited in-house expertise also slow adoption, especially in Italian newsrooms.

The second label "Automation vs. personalization" , as already explained, has the aim to compare perceived benefits, risks and relevance of both strategies within media environment. We can affirm that all experts agree that both automation and personalization are essential and complementary, not mutually exclusive. Most describe automation as the more mature and widely adopted aspect in the current state of newsrooms, particularly for structurable content like weather, sports or SEO optimization (Interviewees 1, 3). Automation is also favored for tasks such as transcription, categorization and tagging. It is seen as an enabler that reduces repetitive workloads, enhances efficiency and helps maintain production volume. On the other hand, personalization is recognized as a powerful tool to increase audience engagement and reader loyalty. Experts emphasize that while personalization has matured technically (especially via recommendation systems inspired by e-commerce and streaming platforms), it still suffers from trust and explainability issues. Interviewee 2 warns that personalization in journalism must be approached with caution due to algorithmic bias and transparency concerns. Interviewee 4 even frames automation as the infrastructural base on which personalization should be built, highlighting the technical and ethical fragility of personalization without solid foundations. Interestingly, Interviewee 3 notes that larger organizations can invest in both strategies, but a sequenced approach is advisable: start with automation to free up resources, then progress to personalization once the data infrastructure is mature.

Moving on to the third label "influencing factors" we can say that it has the following aim: examine internal and external criteria that should guide newsrooms decisions. All interviewees emphasize that contextual factors significantly influence AI adoption in journalism. These include:

- **Size and resources** of the newsroom: Larger newsrooms have more capacity for both automation and personalization, whereas smaller outlets may benefit more immediately from task-specific automation (Interviewees 1, 3).
- **Editorial vision and strategic alignment**: Interviewees insist that AI should be implemented according to a publication's long-term mission and positioning. Tools must align with the editorial identity (Interviewees 2, 4).

- **Data infrastructure**: A recurrent barrier to personalization is the lack of robust user data management systems. Without reliable data governance, personalization becomes risky or ineffective (Interviewees 2, 4, 5).
- **Human capital**: The lack of in-house expertise, interdisciplinary collaboration and AI training are considered significant limitations. Experts suggest co-developing tools with journalists and prioritizing internal competence (Interviewees 2, 3, 4).
- **Cultural resistance**: As with journalists, AI experts observed skepticism and hesitation in newsrooms, especially in Italy, where experimentation is limited and innovation structures are underdeveloped (Interviewees 3, 4).

The experts agree that while technology is ready, many newsrooms are not, due to a combination of structural, cultural and financial limitations.

Last label concerns "sustainability and recommendations" and assesses the long term impact of AI tools on business model sustainability and gather expert advice for media organizations. All interviewees strongly link AI to the future sustainability of journalism, both operational and economic. In fact on one hand automation is repeatedly tied to operational sustainability: it reduces costs, increases speed and handles routine tasks efficiently (as reported by Interviewees 1, 3, 4). Personalization, in contrast, is viewed as a driver for economic sustainability through increased engagement, subscriptions and revenue growth (Interviewees 2, 3). Interviewees recommend a hybrid, incremental approach**:** start with clearly scoped automation projects (e.g., tagging, transcription), assess outcomes and only then introduce advanced personalization strategies once a data-driven culture is established. Interviewee 3 outlines a four-phase strategy from workflow audits to personalization roll-out. Interviewee 2 emphasizes that personalization should be predictive and tied to reader clusters, not just reactive. Concerning Tools mentioned, it is possible to include:

- Content generation and tagging tools (e.g., LLMs, Trint, NLP algorithms),
- Analytics and personalization engines (e.g., LightFM, Media Cloud),
- Transparent recommender systems
- Dashboards for real-time editorial decisions **(**Interviewees 1, 2, 3, 4).

In addition, AI experts advise not to rush implementation. Instead, newsrooms should in fact define clear goals (e.g., increase engagement or reduce turnaround), align technology with editorial values, invest in interdisciplinary collaboration, build internal capacity to reduce vendor dependency and lastly focus on trust and transparency.

So, to sum my analysis, it is possible to say that all the AI experts interviewees stress the complementary nature of automation and personalization, each addressing different aspects of sustainability, automation for efficiency**,** personalization for economic return. However, adoption is constrained by budget limitations, lack of training, poor data infrastructure and cultural inertia. Experts agree that the key is a progressive, value-aligned approach: automation should come first to stabilize workflows, followed by personalization to enhance reader engagement and build long-term value (as already underlined by journalists).
So the vision of AI interviewees confirms what emerged in journalist interviews but give greater clarity on implementation pathways and technical requirements, especially around data readiness and ethical integration. Importantly, the prevailing view is that AI, if thoughtfully applied, enhances rather than threatens journalistic quality and sustainability.

4. Findings and Conclusion

4.1 Research Results

The results' section presents the main findings of the research by integrating what emerged from the semi-structured interviews conducted with journalists and AI experts, the case studies analyzed (La Repubblica, Corriere della Sera, Fanpage, Il Post) and the existing academic literature reviewed in the earlier chapters. To answer my research question and accept or reject my main hypothesis, I combined all the empirical data from these three main dimensions. So as already saud before in my thesis, the goal is not only to illustrate how artificial intelligence is currently perceived and applied in Italian newsrooms, but also to evaluate how the two key strategies under investigation, editorial automation and reader personalization, relate to the economic and operational sustainability of newsroom business models.
To effectively address the research question "*In the context of Italian newsrooms, should the implementation of artificial intelligence prioritize the automation of editorial processes or the personalization of the reader experience, and which of these two strategies contributes more to the economic and operational sustainability of the business model?*" the results will be presented divided into two interrelated parts. The first examines which strategy, automation or personalization, is being given priority in Italian newsrooms today, drawing from responses given in interviews, case studies and published texts. This entails a comparison between the pros and cons connected with each strategy, as well as motivations and contextual variables behind such strategic options (e.g., budget, human capital, vision for the content, technological setup). Whereas, the second addresses which

contribution each strategy makes toward making the business model for the newsroom sustainable, i.e., which one, automation and personalization, serves to sustain it best.

4.1.1 Perceptions of Italian Newsrooms on the Use of AI – Whether It Is More Focused on Personalization or Automation

To analyze the first part of my research question, concerning the perception about which one of the two strategies considered, namely automation and personalization, is prioritize by Italian newsrooms we can start considering firstly what emerged from the literature and existent real case studies and then compare it with interviews results. As reported in the literature review and case studies there is a distinction between digital-native outlets and legacy media. Digital outlets analyzed, Fanpage and Il Post, appear to be primarily focused on the automation of editorial processes, which is perceived as a strategic lever to improve operational efficiency. Automation technology is deemed crucial for handling repetitive and low-value work like transcribing interviews, trend analysis and article drafting. Journalists in such newsrooms view AI as an ally in freeing up time for in-depth and investigative reporting. There is caution still about generative technology, however, which is viewed as risky in terms of undermining content quality and uniqueness. In contrast, established newspapers like Corriere Della Sera and La Repubblica exhibit a clear leaning toward personalization of reader experience, which is seen as central to driving engagement, loyalty and online subscriptions. Here, AI is utilized for segmenting audience, personalized content suggestion and targeted distribution of newsletters and alerts. Interviewed professionals highlighted how predictive algorithms and adaptive systems allow for adaptation of the editorial offering to an individual's tastes, raising perceived value for the journalistic product. But it is also important to note that even if the different types of case studies have general tendency through one strategy, it is also not possible to exclude the other strategy, as in both cases, (digital native and traditional newsrooms) are clearly implemented both personalization and automation, despite the general trends toward one of the two (Il Post and Fanpage → automation, La Repubblica and Corriere Della Sera → personalization)

Overall, according to case studies and literature review, there is widespread agreement on the strategic importance of AI, but with different approaches and priorities. The common view remains that these two strategies are complementary: automation is an instrument for attaining operational effectiveness, while personalisation is for creating and sustaining a worthwhile reader relationship. Cultural resistance remains, nonetheless, against fully adopting AI-based technologies, because editorial control, de-skilling of journalists, ethical concerns and lack of transparency about how algorithms are being developed and deployed are raised.

Taken these results from case studies and literature review, we can now analyze on the other hand what emerged from interviews answers. In fact, the interviews conducted with journalists and AI experts reveal a multifaceted perception of how artificial intelligence is being adopted within Italian newsrooms. The dichotomy between automation of editorial processes and personalization of the reader experience reflects significant differences shaped by organizational context, resource availability, and the level of digital maturity within each newsroom. The trend appears to be the following : Most Italian newsrooms prioritize automation as a practical and immediate necessity, in fact this approach is essential as it :

- Reduces operational costs
- Streamlines editorial workflows
- Accelerates repetitive tasks**,** such as transcription, publishing standardized news (e.g., weather, sports), or SEO optimization

Journalists recognize AI's value in enhancing efficiency but also voice concerns about potential losses in editorial quality and content distinctiveness. Automation is therefore viewed as a complementary tool, helpful in freeing up resources for more creative and investigative work.

On the other hand, we cannot exclude personalization. In fact, personalization is widely acknowledged for its strategic importance in enhancing reader loyalty, increasing engagement and supporting economic sustainability, especially within subscription-based business models. Nevertheless, its practical use is still restricted, mainly because

- Underdeveloped data infrastructure
- Absence of in-house expertise
- Budget restrictions
- Cultural opposition to algorithm-based editorial choices

It is commonly seen as a second phase, after accomplishing early automation and when the newsroom is capable of working with reader data and producing ethically acceptable personalization. So in other words it is possible to affirm that both journalists and AI experts advocate for an integrated and incremental approach. AI should not be implemented exclusively for one purpose over the other but should instead serve both strategies in a complementary and sequential way:

1. **Automation** → to stabilize workflows and reduce operational burden
2. **Personalization** → to build stronger reader relationships and drive revenue

Strategic choices are heavily influenced by internal factors (like newsroom size, staffing, editorial vision) and external ones (like audience behavior, market trends).

So to conclude, it is possible to say that across both sources, there is a clear convergence on the belief that a combined, phased approach is optimal: begin with automation and subsequently integrate

personalization strategies. In fact, personalization, while widely recognized for its strategic value, remains a longer-term goal**,** often postponed due to barriers such as insufficient data infrastructure, lack of expertise and cultural resistance. This vision supports the concept for treating AI not as an isolated solution but as a multi-faceted toolkit which will be capable of fitting into the newsroom's own organization, mission and assets. Therefore, following evidence gathered from case studies, interviews and the literature, we can proceed now and critically evaluate the six working hypotheses established at the initiation of this research. The analysis confirms that only Hypotheses 3 and 4 remain valid and relevant, while the others can be reasonably excluded. In fact, both Hypotheses 3 and 4 affirm that newsrooms prioritize both strategies, automation and personalization, perceiving a dual adoption. That is, these hypotheses fit better with results, since Italian newsrooms do not prioritize one approach over another, but rather use an incremental and complementary strategy. Automation tends to be viewed as if it were the first step, required in order to regularize editorial processes and lower operative pressures, while personalization is seen as a consequent strategic step, aimed at consolidating audience relationships. Conversely, the other hypotheses, those which presume an explicit prioritizing either for automation or for personalization alone (H1, H2, H5, H6), are rejected by evidence. The best and most feasible strategy for Italian newsrooms is therefore a combined one, based on incremental approach and tailored to internal resources and external market conditions.

4.1.2 Automation vs. Personalization: Which Strategy Supports the Sustainability of the Business Model More Effectively

In this paragraph I am going to give results about the second part of my research question, meaning which of the two strategies contributes more to both operational and economic sustainability of newsrooms' business model. As emerged from the literature review, there is a theoretical distinction between the two strategies when it comes to their contribution to sustainability:

- Automation is mainly associated with operational sustainability. It contributes toward lowering costs, accelerating production processes and disengaging journalists from mundane activities, for them to concentrate on high-value initiatives like investigative reporting. Writers such as Graefe (2016) and Marconi & Siegman (2017) argue that automation enhances newsroom efficiency, making content production scalable and low-cost.
- Personalisation, however, is tied in with economic sustainability. The research done by Thurman & Schifferes (2012) and Bodó et al. (2019) illustrates how content which is personalised enhances user involvement, enhances time spent online and increases

subscription conversion rates. So the customization of the reader experience is seen as a key lever to build revenue models based on loyalty and relevance.

The literature concludes that both strategies are critical, but serve different dimensions of sustainability.

Although the case studies in this research were primarily analyzed to determine whether Italian newsrooms are more oriented toward automation or personalization, it is also possible and indeed meaningful, to draw conclusions about their contribution to the sustainability of newsroom business models. Following literature, automation is connected to sustainability in operations, as it leads to cost savings, enhanced efficiency, and optimization of routine procedures. Conversely, personalization is connected with economic sustainability, as it improves user involvement, fosters loyalty, and drives revenue through subscriptions and targeted advertisements.

If we consider this theoretical framework, it is evident that digital-native outlets analysed, namely *Fanpage* and *Il Post*, which primarily adopt automation strategies, contribute mainly to the operational side of sustainability. While, legacy media like *La Repubblica* and *Corriere della Sera*, which focus more on personalization, support economic sustainability reinforcing long-term reader relationships and monetization. However, as seen in the previous section, none of these outlets exclusively adopt one strategy; there are signs of hybrid adoption, which suggests a broader goal of integrating both dimensions of sustainability.

This interpretation is strongly supported by the findings from the interviews. Journalists and AI experts consistently emphasized that automation is perceived as a necessary first step to stabilize workflows and reduce pressure on editorial teams, while personalization is seen as a second-phase strategy aimed at driving economic value. Thus, the evidence from both the literature and professional experiences confirms that each AI strategy aligns with a different aspect of sustainability and that a combined, sequential approach is increasingly regarded as the most effective path toward ensuring the long-term viability of Italian newsrooms. In fact, the hybrid approach suggests that the integration of both strategies may be most effective in ensuring long-term sustainability.

In particular, from the interviews both with AI experts and journalists, what emerged was the fact that the two strategies contribute to sustainability in distinct but complementary ways. In fact, the interview findings, as reported in the previous paragraph, indicate that professionals across both journalism and AI experts do not perceive automation and personalization as opposing or exclusive strategies, but rather as complementary components of a broader approach to AI implementation in newsrooms. When specifically asked which of the two strategies contributes more effectively to the sustainability of the business model, most interviewees emphasized that the most effective scenario

is not choosing one over the other, but instead implementing automation first to achieve operational efficiency, followed by personalization to enhance economic value. Journalists stressed that automation enables faster workflows, reduces costs and frees up editorial resources, so directly supporting operational sustainability. AI experts support this statement, pointing out that automation is often a necessary starting point for structurally under-resourced newsrooms. At the same time, both groups agreed that personalization becomes critical in the second phase, once foundational processes are optimized, as it strengthens economic sustainability, increasing reader engagement, loyalty and revenue potential thanks to targeted content and services. Therefore, this complementary, sequential approach, as preferred and recommended by the interviewees, implies that the combined use of automation and personalization contributes to both dimensions of sustainability, operational and economic. Rather than viewing one strategy as superior, the professionals interviewed support a vision of AI integration where sustainability is maximized only when both strategies are aligned and implemented progressively, according to the newsroom's capacity and strategic goals. Such an "integrated approach" underlies how flexibility and long-term planning are essential in integrating AI applications into changing Italian journalism.

So, from these findings, we can safely say that **Hypothesis 3** is one that would need consideration, for it captures best the complementary and staged approach described. Hypothesis 3 reads as follows: "*Newsrooms that implement both automation and personalization perceive a dual impact, supporting both operational and economic sustainability* ". This is naturally in accordance with findings discovered. The staged integration between these two strategies allows newsrooms to attain a more robust state of sustainability, one that addresses operations as well as economic aspects of their business models. Thus, we can assert that Hypothesis 3 clearly serves well not just the practical reality but the strategic thought developed through this research as well. My results are reported in summary in the following tables. First one compares findings from literature review, case studies and interviews and as a last column there is the research focus. While the second table represents a summary of findings, including all the aspects emerged from my results.

Table 3: Findings' comparison from literature review, case studies, interviews

Strategy	Literature Review	Case Studies	Interviews	Research Focus
Automation	Improves operational efficiency, cost reduction	Fanpage and Il Post use it to streamline workflows and scale production (but also personalization is used)	Seen as essential for reducing workload and supporting quality journalism; foundational step for sustainability	More frequently prioritized (practical necessity) and linked to operational sustainability
Personalization	Increases engagement, loyalty, revenue	Corriere and Repubblica use it to drive subscriptions and ad revenue (but also automation is used)	Considered vital for future growth but harder to implement without proper infrastructure and data systems	Strategic but secondary (after automation); linked to economic sustainability
Combined	Not explicitly addressed in literature; suggested	All newsrooms analyzed adopt both strategies to some	Experts and journalists suggest sequential adoption: first automation,	Best approach overall; supports Hypothesis 3

	by case studies and interviews	extent, even if one is predominant over the other	then personalization; supports both operational and economic sustainability	(combined = dual sustainability impact)

Table 4: Research summary of findings

Dimension	Summary of Findings
Strategic Orientation	Although newsrooms show a prevailing tendency— Fanpage and Il Post toward automation, and La Repubblica and Corriere della Sera toward personalization—both types are gradually implementing elements of both strategies, confirming a hybrid and non-exclusive approach.
AI Strategy Preference	AI is not prioritized in a mutually exclusive way. Rather, automation is generally adopted first due to its operational benefits and accessibility, while personalization follows as a second phase, especially when the newsroom has built the necessary data infrastructure and expertise. This sequential model supports a dual contribution to sustainability.
Observed Trend	Automation is more widely adopted at present, particularly due to practical and resource constraints, while personalization remains a strategic but complex goal.
Complementarity of Strategies	Despite prevailing trends, both automation and personalization are being implemented to some degree in all cases, indicating a complementary, not exclusive, usage.
Sustainability Contribution	Automation supports operational sustainability; personalization contributes to economic sustainability. Combined, they address both dimensions effectively.
Interview Insights	Interviewees advocate a phased implementation: begin with automation to stabilize operations, then add personalization to drive economic returns.
Validated Hypothesis	Hypothesis 3 is validated: the combined use of automation and personalization supports both operational and economic sustainability.

4.2 Concluding Remarks and Implications for the Journalism Industry

The main objective of this thesis was to analyze how artificial intelligence is adopted by Italian newsrooms with a particular attention to two main strategies: automation of editorial workflows and personalization of reader experience; and determine which of these contributes more to the economic and operational sustainability of newsrooms business models.

These two strategies, as I affirmed in the previous chapters, are important for journalism industry as they represent the principal application of AI in the sector analyzed. In fact AI in journalism is not an abstract concept: it manifests itself operationally through automation tools (e.g., automatic writing, data analysis, SEO) and strategically through personalization (e.g., content recommendations, targeted newsletters). These two strategies are already in use in Italian newsrooms (as demonstrated by the case studies), making them observable and highly relevant. Those are the reasons why I decided to take into consideration automation and personalization. To achieve my objective, I decided to adopt a qualitative approach, using case studies and semi structured interviews.

The results of this thesis emphasize that the presence of artificial intelligence (AI) in Italian newsrooms is not a technological fad but a strategic imperative in making journalism sustainable in the long run within a changing digital environment. The central results confirm a sharp difference in how Italian news organizations embrace AI according to editorial identity and strategic focus. Il Post

and Fanpage tend to focus on automation to simplify editorial workflows, contain operational expenses, and enhance productivity. While La Repubblica and Corriere della Sera focus on personalization to enhance engagement and generate subscription revenues.

But interviews with experts and journalists show a developing convergence of view: the ideal way to ultimately achieve sustainability is through a progressive and mixed strategy and starting with automation to build operational efficiency, then gradually weaving in personalization to drive increased economic value and build loyalty among readers. While automation is today relatively affordable and widely adopted, personalization is seen to be strategically critical for the future.

In each of these instances, conscious and strategic AI application appears not just as a technological upgrade, but a revolutionary power that can facilitate operational and economic sustainability. More importantly, the transformation has to stay true to journalistic values and ethical frameworks that guarantee AI acts to enhance, not eliminate, the human presence in the newsrooms. AI then turns into a tool to journalistically future proof without sacrificing its public mission. So the findings confirm the validity of Hypothesis 3, which states that the combined adoption of both strategies supports both dimensions of sustainability.

The results of this thesis point to several important implications for the future of journalism in Italy, especially in relation to the adoption of artificial intelligence and the broader process of digital transformation. The study confirms a widespread lack of innovation that still characterizes many Italian newsrooms. Despite the global discourse surrounding AI in journalism, the actual use of AI in the Italian context remains limited**,** fragmented and largely experimental. Most implementations are still at a basic stage. At this regard, interviews and case studies reveal a general lack of knowledge and understanding of AI among journalists, editors and even management. This cultural and skill gap represents a major barrier: without adequate literacy in emerging technologies, news organizations cannot fully explore the transformative potential of AI nor govern its ethical implications.

All this results in a reactive rather than proactive approach to technological change, where decisions are often driven by short-term pressures rather than long-term strategy.

These findings suggest an urgent need to broaden awareness and build competence around AI in journalism, through targeted training, cross-disciplinary collaboration and stronger connections with academic and tech communities. Encouraging a shift in mindset is also essential: AI should be seen as a strategic asset that can contribute to the sustainability, relevance and quality of journalism in the digital era and not as an enemy that could replace journalists' jobs.

In particular, the results highlight the value of adopting a gradual and integrated approach, where automation is implemented as a first step. This phase allows newsrooms to streamline workflows, reduce operational costs, and reallocate resources to higher-value journalistic activities. In a more

advanced phase**,** personalization should follow, once the necessary technological infrastructure and data capabilities are in place. This sequential approach provides a more sustainable and deliberate path toward AI-supported journalism.

To fully leverage these opportunities, journalists must develop new skills. These include digital and data literacy**,** the ability to work with automated tools and algorithms, and a willingness to collaborate across disciplines with data scientists, engineers and developers. At the same time, it is crucial to maintain critical thinking around technology use**,** ensuring that core journalistic values -such as independence, fact-checking, and editorial integrity- are preserved.

If adopted ethically and responsibly, artificial intelligence does not pose a threat to journalism, but rather offers an opportunity to enhance it. It can improve the quality of editorial work, enabling journalists to focus more on investigative and in-depth reporting and contribute to both operational and economic sustainability in the industry. However, significant challenges remain. First, there are concerns regarding ethics and algorithmic transparency: the risk of bias in automated systems and the opacity of decision-making processes raise serious questions. Second, there is the potential for de-professionalization if AI is used indiscriminately or as a substitute for human editorial judgment. Additionally, many Italian newsrooms lack the technological infrastructure required to implement these tools effectively. Overcoming these barriers will require substantial investment in both technology and continuous professional training. Ultimately, integrating artificial intelligence into journalism must be guided by a forward-thinking and responsible vision, capable of balancing innovation with ethics and long-term sustainability.

4.3 Discussion and Recommendations

This research's results affirm that the incorporation of artificial intelligence (AI) into the Italian newsrooms is not just a technological process, but a crucial step to achieve sustainable economic and operational longevity. Through interviews with AI specialists and journalists, and case studies, it becomes evident that automation and personalization each have measurable benefits—but how and when they are applied makes the difference. Newsrooms like Il Post and Fanpage are inclined to take an automation-oriented path, where AI is used to make things more efficient and to remove the repetition. La Repubblica and Corriere della Sera are instead looking to AI to make things more personalized in order to keep subscribers and make readers engage.

Yet, the study also discloses that automation and personalization are not exclusive. Rather, a complementary strategy, wherein automation lays the ground rules of operational effectiveness and personalization enhances engagement and revenue streams, seems to be the best way to proceed.

Yet, there are still obstacles to overcome. Italian newsrooms are subject to structural constraints including underinvestment in tech, a deficiency of AI skill, and cultural resistance to change. These will have to be overcome to fully maximize the potential of AI.

On the basis of the findings, a number of recommendations are put forward to lead newsrooms, journalists, and industry players to adopt AI effectively and ethically. Firstly, a phased rollout of AI is recommended, with automation first to enhance operational efficiency, such as in data processing, transcription, and dissemination of content, and gradually added personalization once best data infrastructure and analytical capabilities are in place. Secondly, a focus on digital infrastructure and human development is needed by outfitting newsrooms with the required AI tools and platforms and providing ongoing training across AI literacy, data analysis, and ethical application of technology. Thirdly, interdisciplinary collaboration is a must, enabling editorial teams to work with data scientists, UX designers, and developers to develop bespoke AI solutions that suit newsroom requirements. Fourthly, journalistic values need to be safeguarded by ensuring editorial control over AI-generated or assisted content and transparency of procedure in algorithms to enhance credibility and trust. Fifthly, ethical and regulatory frameworks are needed by engaging with academic, regulatory, and industry partners to create clear guidelines to govern the use of AI. Finally, AI deployment must be regularly monitored and measured through systematic assessment systems that track its influence on newsroom workflows, content diversity, and audience trust.

CONCLUSION

This thesis endeavor aimed to investigate the contribution of artificial intelligence toward reshaping Italian newsrooms, with specific emphasis on two strategic uses: editorial process automation and reader experience personalization. Based on a comprehensive review of the literature, in-depth case studies, and interviews with AI professionals and journalists, it clearly comes to light that AI is not a uniform solution but a multidimensional tool whose effects will vary based on how strategically and ethically it is used.

The results demonstrate that automation provides instant benefits in the form of streamlined workflows and cost reduction, whereas personalization has immense value in inducing greater levels of engagement from the audience and sustained revenue streams. The greatest potential way of going ahead lies in a balanced and integrated strategy that fuses automation and personalization. The hybrid model allows newsrooms to enhance efficiency levels without compromising on the quality or trust factors that are essential to sustainable journalism.

In addition, the Italian context poses distinctive challenges, including limited technological infrastructures, cultural resistance, and unequal access to innovation. These will be overcome not just through investment and training, but through a deepening of mindset throughout the journalism industry. Journalists, developers, and policymakers must work hand-in-hand to make sure that AI is used transparently, responsibly, and in accordance with journalism's core values.

Ultimately, this study makes a contribution to the overall debate on the digital revolution of the media industry through its theoretical contribution and practical solutions. It highlights the necessity of regarding AI not as a nemesis but a strategic partner that can assist journalism when informed by human decision-making, ethical principles, and a mission of public service. As the media revolution persists, it will be crucial to adopt AI with vision and honesty in order to guarantee the resilience and relevance of journalism in the digital era.

APPENDIX

Interviews answers - AI Experts:

Interviewee 1:

1. I work in technological innovation and the development of artificial intelligence systems. While I don't come from a traditional journalism background, I've collaborated closely with editorial teams to create AI solutions that support content production, archive management, and strategic newsroom planning.
2. For me, AI in journalism means making huge amounts of content and historical data accessible and searchable in an intelligent way. It means enabling a newsroom to get the most out of its archives, optimize production workflows and even generate new content or support writing with broader perspectives. But it also means preserving the quality and uniqueness of human-created journalism.
3. The most mature area is definitely automation, especially in repetitive tasks like organizing information or categorizing content. What's more critical is content quality and the risk of homogenization. There's also a concern about losing the journalist's identity if AI tools aren't used strategically. That's a real long-term challenge.
4. Honestly, I wouldn't exclude either of them. Automation and personalization are complementary. Automation helps streamline processes, save time and reduce costs. Personalization boosts reader engagement and improves the relationship with the audience. Together, they offer a real competitive advantage.
5. Definitely. Decisions should be based on available resources, newsroom size, audience characteristics and above all the editorial vision. A small newsroom might benefit more from automation, while a publication with a strong brand identity should also invest in personalization to maintain consistency and reader loyalty.
6. Right now, I see more focus on automation, especially in larger organizations managing high content volumes. But a new digital-born project has an advantage—it can structure itself from the start in a smart way and integrate both approaches effectively.
7. Both, absolutely. Automation reduces operational costs and improves efficiency. Personalization increases revenue potential through better reader engagement and targeted content. Used together, they strengthen both the economic and operational sustainability of the business model.
8. Tools that help analyze internal data - reader behavior, content performance, navigation patterns - are essential. Also, content-generation tools for low-value articles can reduce workload. The key is to use flexible, adaptive tools tailored to the newsroom's needs.

9. I'd use it to optimize internal workflows and to enhance reader experience. For instance, I'd offer personalization features while also supporting journalists with tools that help them access and cross-reference information faster, making writing and research more effective.
10. Don't be afraid of AI, but don't rush it either. Start strategically and gradually. Understand your goals, begin with the most repetitive and measurable processes, and build from there. AI isn't meant to replace journalism, it's here to enhance it. And if you get it right, you can really stand out from the competition.

Interviewee 2 :

1. My background is in data science and AI systems design, with a specific focus on ethical algorithm development and adaptive user modeling. While I haven't worked in a newsroom directly, I have consulted for digital publishing companies and media innovation labs interested in personalization technologies and content optimization.
2. AI in journalism, in my view, is not just a technical toolkit—it's a paradigm shift. It represents the move from a linear editorial process to a data-driven, dynamic ecosystem where machines assist in content curation, user profiling and even editorial decisions. It's about enhancing editorial intelligence, not replacing it.
3. Personalization, especially in recommendation systems, is fairly mature thanks to e-commerce and streaming models that journalism has adapted. However, editorial AI faces critical challenges in automation, particularly concerning transparency, accountability and the risk of losing narrative nuance when generating news automatically. Editorial independence and algorithmic bias are still unresolved concerns.
4. In my opinion, newsrooms should adopt both—but strategically. Automation should support scalability and relieve pressure on basic reporting; personalization should enhance the reader's value experience. However, in constrained environments like many Italian newsrooms, a phased approach is necessary. Personalization might offer higher ROI in the short term, especially where reader loyalty is fragile.
5. The strategy should be aligned with the newsroom's business model and editorial vision. For instance, a data-rich legacy brand might invest in personalization to capitalize on audience loyalty, while a lean digital-native outlet might prioritize automation to streamline workflows and manage high content volumes.
6. Most Italian newsrooms are still in an exploratory phase. I observe a stronger push towards personalization in legacy outlets—often under pressure to sustain digital subscriptions. Automation is present, but less publicized. There's a hesitation, largely due to a lack of R&D structures and cultural resistance to automation in journalistic identity.

7. Yes, both strategies affect sustainability. Automation improves operational efficiency—fewer resources, faster output. Personalization increases retention and lifetime value of readers, impacting revenue directly. So, operational and economic sustainability are tied respectively to each strategy, but combined they become exponentially more powerful.
8. For sustainability, tools that bridge editorial insights and audience analytics are vital. Think: real-time behavioral tracking, adaptive paywalls, AI-powered segmentation for content distribution. Also, automated transcription and tagging systems to support journalists without altering the editorial tone.
9. I'd build a hybrid model—automate all low-value, repeatable tasks, and invest heavily in reader intelligence systems. Editorial personalization wouldn't just be reactive but predictive, with content production tailored around emerging trends and user clusters.
10. Start small but strategically. Choose one clear objective, reduce content turnaround time or increase user engagement, and match it with the right AI tool. Foster interdisciplinary collaboration between journalists and technologists. The goal is not just tech adoption but cultural adaptation. AI should elevate the newsroom's voice, not dilute it.

Interviewee 3 :

1. Developer and project manager at a company specializing in digital transformation, also providing support in the development of cutting-edge applications.
2. From a professional standpoint, I work with the supercomputer based in Bologna. There are numerous Italian and international collaborations, including projects such as the creation of the first Italian generative intelligence. Regarding AI applied to journalism, we need to develop a project for a public infrastructure with a European scope, with the broader aim of making research and innovation in the editorial field freely available. If this does not happen, we risk leaving the management of such systems in the hands of a small group of American, Chinese, and Russian entrepreneurs—with all the consequences of not having control over algorithms that influence a sector as crucial as information, which is essential for maintaining democratic governance structures.
3. **More mature:**

   -Automation of "structurable" news, such as sports results, company earnings, or weather forecasts.

   -Writing and editing support tools, such as language suggestions, grammar correction, or headline generation.

   -Algorithmic personalization of homepages and newsletters.

More critical:

-Automated source verification (fact-checking): still limited in complex and political contexts.

-Transparency of editorial algorithms: newsrooms struggle to explain to readers why they see certain content.

-Bias in models: AI can replicate stereotypes embedded in historical data.

4. It depends on the size of the newsroom, its technical resources, and its business model.
   Large newsrooms should invest in both, but start with editorial process automation to free up human resources, and then allocate efforts to personalization.
   Small local newsrooms can initially benefit from automation (e.g., transcriptions, summarization, SEO) to reduce repetitive workloads.
   Advantages/Disadvantages:
   Automation:
   -Reduces operational costs and improves speed.
   -Risk of dehumanizing content or lowering quality.
   Personalization:
   -Increases engagement and builds reader loyalty.
   -Requires data infrastructure and careful attention to privacy and bias.
5. I believe that automation and personalization are two sides of the same coin. The future will increasingly reflect a coexistence of these two factors, meaning they won't be mutually exclusive and will likely converge into strategies that are, as of now, still to be defined.
6. Not working directly in a newsroom, I can only observe that there is still little demand for AI support and development. It is also true that the approach of publishers and journalists to this topic appears rather cautious and still largely confined to very preliminary experimentation.
7. Both strategies can contribute to sustainability, but in different ways:

   -Automation: improves operational sustainability (lower costs, greater productivity).

   -Personalization: improves economic sustainability (more traffic, subscriptions, reader loyalty).

   The synergy between the two is what creates the most lasting impact.

8. -GPT and LLMs for content generation and writing assistance (e.g., ChatGPT, Claude)
   -NewsWhip, Echobox: for predicting article performance
   -Open-source recommender systems (e.g., LightFM, RecBole) for personalization
   -Trint, Descript: audio/video transcription

-CrowdTangle, Media Cloud: monitoring public discourse

-Google Pinpoint: analysis of large volumes of documents for investigative journalism

9. Phase1: Audit of existing workflows → identification of bottlenecks

   Phase2: Pilot automation projects in low-risk areas (e.g., transcriptions, metadata)

   Phase3: Journalist training on ethical and informed use of AI

   Phase4: Gradual introduction of personalization, only after establishing solid foundations in user data and governance
10. Start small, with clear and measurable objectives. Choose an area where AI can save time (e.g., automating news summaries or photo tagging), pair it with internal training, and monitor the outcomes. Don't rely solely on external vendors—develop at least some internal technical or hybrid expertise to maintain control and understanding of the process.

Interviewee 4:

1. I'm a researcher in human-computer interaction and AI ethics. I have advised newsrooms in Northern Europe on algorithm transparency and audience trust in automated content.
2. It's a toolkit for supporting decision-making and editorial innovation. But it also raises fundamental questions about responsibility, authorship, and the evolving contract between journalism and its audience.
3. AI-powered recommendations are technically mature, but socially fragile. Users don't always know why they see something. On the automation side, we're good at generating copy but bad at explaining it. Explainability will be the next frontier.
4. Both are essential. But without automation, personalization risks being based on thin editorial resources. I'd say automation is the infrastructure, personalization is the service layer.
5. Culture matters. If an outlet values editorial independence, they'll be cautious with personalization. If they prioritize reach, they'll go all-in. Also, data infrastructure and staff skills matter greatly. No personalization without solid audience data governance.
6. I answer to this question as a reader and a person who is in contact with newsrooms. According to me, Italy is fragmented. Larger publishers are trying to build personalization systems, as seen in Corriere and Repubblica. But small outlets struggle with both strategies due to lack of data infrastructure and cultural resistance. So I would say that it is important to have financial resources at first, as with these you can invest on AI and in particular on those strategies mentioned. I noticed that big context they use algorithms on their websites as though these they can monitor the readers interests when they are reading and so they can

investigate preferences and so give them best contents. On the other side, automation could be one solution for the newsrooms workflow to go quickly and offer more contents in less time. But this is an internal view that we cannot valuate from the outside, it depends if they invest on these solutions or not.

7. Automation improves ROI by reducing routine workload. Personalization, when done right, improves reader satisfaction and revenue. But the real challenge is to maintain trust—both strategies must be ethically grounded.
8. -NLP tagging systems
   -Generative assistants with audit trails
   -Transparent recommender systems
   -Analytics dashboards for editorial decision-making
9. I would embed AI incrementally. First, build data literacy in the newsroom. Then, co-develop tools with journalists—not for them. A blended AI-human editorial model is the future.
10. Don't chase trends. Align AI adoption with your newsroom's long-term values and user base. Build in-house capability, and focus on tools that amplify—not automate away—your journalistic identity.

Interviewee 5:

1. I am a Computer Engineer specialized in the design of architectures in any field, such as Industry 4.0, Medical, Automation. Over time, I have also specialized in data analysis and the application of artificial intelligence algorithms. I have never worked in the media or journalism sector.
2. Artificial intelligence was created to support business processes in terms of research, exploration of new information, or the creation of new processes that are innovative for achieving goals or market competitiveness. In the journalism context, it can support article writing in an automated way by researching and using recurring news, searching for specific articles based on keywords, or customizing content based on the reader, if the latter is profiled and classified.
3. NLP algorithms are more mature, as they are constantly being trained thanks to user support and the vast amount of digital articles available on the internet. The critical aspect is linked to the classification of the reader's preferences, as the user must be encouraged to give their feedback. This type of dataset is not very widespread.

4. Italian newsrooms should make use of artificial intelligence because it would assist the writer in producing articles, enriching them with key content through the use of NLP algorithms. Moreover, classifying content according to the reader's preferences is useful for creating targeted articles that attract the reader's attention. So, the two approaches you analyzed are essential and functionally complement each other to maximize goal achievement.
5. Not knowing the editorial process in detail, I cannot give you an answer.
6. Certainly in the automation of content writing.
7. Both, definitely—as already mentioned above—optimize operations by reducing costs and increasing quality.
8. Definitely NLP-based models.
9. Without knowing many details about editorial processes, I would suggest maximizing goal achievement using intelligent search tools like LLMs and supporting the author in article writing through NLP algorithms.
10. To analyze their internal processes and highlight the critical issues, both internal and in relation to other competitors. This way, the necessary support that AI could provide would become evident.

Interviews answers – Journalists:

Interviewee 1:

1. Editor-in-chief of two online newspapers (one generalist and one focused on sports). Regarding automatable content, we have used AI on the generalist newspaper for weather forecasts and horoscopes, and on the sports newspaper for publishing football match results.
2. At the current state of the art, I find it premature to express a definitive judgment, as the history of AI is still in its phase of ethical reflection. It is a phase in which a number of unresolved issues come into play: just to mention a few, I think for example of intellectual property and privacy, but also the publication of inappropriate content (especially fake news). To be more specific, we are talking about programs designed to replace human actions (the journalist), which means that in some cases the (ro)BOT would end up replacing the human being. Even ChatGPT, with its mistakes, has shown that caution is never excessive. Returning to the question of practical applications of AI, it is true that Italy, being a technologically backward country, does not fully exploit the opportunities offered by AI. This means that our national point of observation is quite limited, and as a result, its impact is still modest. For now, we are mostly referring to major publishers, although in the future AI will likely enter

smaller newsrooms as well. As of today, for example, we observe that in South Korea, a television host has already been replaced by a digital clone of the country's most popular anchor. However, the most pervasive form of AI is seen through algorithms that influence an editor's direction. Just to name a few examples: algorithms can decide the right moment to charge for reading an article, monitor a reader's behavior to predict emotional impact, or use data-driven strategies to study reader habits and develop the most effective ways to win their loyalty.

3. As for our experience, we do not (yet) use AI to gather, produce, or distribute news.
4. Not mentioned
5. Not mentioned
6. Not mentioned
7. Editorial vision
8. In the long term, it would presumably lead to improved operational sustainability.
9. The main obstacle is the investment required in terms of resources (both financial and human), although in the medium term it would bring significant qualitative and quantitative opportunities.

Interviewee 2 :

1. In my newsroom, I work as a journalist. I haven't been involved in projects related to artificial intelligence, but since we are a digital publication, we constantly deal with technology. In fact, our articles are written on a platform called WordPress, where we are required to follow certain criteria and rules for SEO, so that our articles appear at the top of Google search results. This platform also includes the option to use AI-generated content, but it has not yet been fully integrated due to a lack of the necessary investments
2. Integrating AI into journalism means adapting to the times, as it has now become a constant topic of discussion. Adapting AI to journalism is therefore necessary and could, in some ways, simplify the work of journalists, not replacing them, but supporting them. It can also help offer more tailored content to readers by monitoring their behavior through specific software tools. AI should not, of course, take the place of journalists, but rather enhance and support their work. It shouldn't write articles autonomously, but rather monitor trends, perform repetitive tasks, gather data and information to be refined by journalists, and accelerate editorial workflows.

3. In my newsroom, I believe that what currently comes closest to the use of automation is the WordPress platform itself. Through the RankMath plugin, it evaluates the article I've written by assigning it a score, which I can then improve by following the tips the platform provides.
4. Automation is applied during the editing phase, where the text is optimized according to SEO rules. RankMath suggests the SEO improvements to be made. The advantages are :

   - **Improved visibility**: SEO optimization increases the chances that the article appears among the top search results on platforms like Google.
   - **Time efficiency**: The journalist receives immediate feedback and suggestions, speeding up the editing process.
   - **Consistency**: Ensures that all articles follow the same optimization standards, regardless of the author.
   - **Performance insights**: Tools like RankMath provide scores and metrics that help assess the article's potential reach.
   - **Editorial support**: Automation helps journalists focus on content quality while the system takes care of technical improvements.

   There could be advantages in terms of cost saving, as in this case the newsroom doesn't need to pay someone to evaluate what the SEO tool already assesses. There are also advantages in terms of operational efficiency, in my opinion, because it allows the journalist to immediately evaluate their article and improve it instantly. This helps optimize the content based on Google's algorithm and increases the visibility of the newspaper as a whole.
5. Not mentioned
6. I don't think one strategy is more effective than the other, but I believe that together they can truly make a difference. In my case, however, since my newsroom is not currently investing in personalization, it might make sense to prioritize investment in that strategy so that both approaches can eventually be implemented.
7. The criteria that influence our choices are certainly tied to an editorial vision, which in our case is forward-thinking—as long as financial resources allow it. Therefore, I believe that budget is definitely a key factor. An unlimited budget would certainly make it possible to invest in many additional tools and innovations that are not yet implemented in our newsroom, allowing for more experimentation as well.
8. I definitely believe that if these strategies are well designed and executed, they can bring long-term advantages in terms of the newsroom's business model sustainability. For example, automation can certainly enhance operational efficiency, while if my newsroom

were to adopt personalization, it could benefit from increased audience reach—more readers would be attracted to our newspaper by finding content that matches their interests. This would lead to greater visibility for the publication, and potentially more advertising sponsorships in our case, which would increase financial revenue. Our newspaper is currently free to readers, but if it were subscription-based, a larger audience would likely result in more subscribers and therefore higher economic returns.

9. The main obstacle is definitely financial. There is also a lack of strategic vision and openness to innovation, which further limits the adoption of AI. Of course, when we will have more economic resources, AI will certainly be applied more widely, because we'll be able to invest more in R&D—which is currently lacking due to limited funding. If we were able to apply more AI to our case, we would definitely see many benefits, such as increased audience, greater visibility, cost savings, and improved efficiency.

Interviewee 3:

1. I am a freelance contributor for Il Messaggero. I have not been directly involved in any projects related to artificial intelligence within the newsroom.
2. It means optimizing time and improving the efficiency of editorial processes, if used wisely and thoughtfully. However, there is a risk that a poorly considered use of AI could lead to standardized, impersonal content—especially if it is excessively used to automate article writing. AI should be a complementary tool, not a substitute for journalistic creativity.
3. Currently, neither of the two strategies is implemented in my newsroom.
4. Since automation was not mentioned, it does not apply to my newsroom.
5. I didn't mention it
6. I believe that both strategies can be effective and important, depending on the objective being pursued. Automation is useful for reducing time and operational costs, while personalization is essential for maintaining high reader engagement. Looking ahead, balancing the use of both strategies could ensure greater economic and operational sustainability.
7. Yes, the editorial vision is the main criterion that guides technological choices in my newsroom.
8. The second option, namely economic sustainability. I believe that personalization, in particular, can contribute to greater long-term sustainability by increasing engagement and therefore revenue.
9. Among the main obstacles are the lack of specific training, the fear of losing content authenticity, and the need for resources to implement new technologies. However, in the

medium to long term, the adoption of AI tools could lead to improvements in data analysis, workflow management, and the creation of personalized content—offering opportunities to expand the audience and optimize internal processes.

Interviewee 4:

1. I have worked as an editor for international and multimedia newsrooms, editor-in-chief of online publications, and director of a free press outlet. I have not been directly involved in projects related to artificial intelligence.
2. Adapting the use of artificial intelligence to the research phase means leveraging its potential without ever neglecting source verification, which is essential for quality journalism. The application of AI should be an added value—it shouldn't be feared, but it also shouldn't lead to a trivialization of content or a flattening of language during the writing process. These are aspects where only field experience can still make a real difference.
3. Not a replacement, but as mentioned, while the first can add value, the second is certainly of great interest as it helps the reader receive increasingly personalized content.
4. I wouldn't talk about cost reduction, but rather about speed.
5. Loyalty… as for revenue, other factors come into play, such as marketing, which are not strictly related to journalism.
6. As I said, in my view, the research phase could benefit significantly.
7. The editorial line definitely plays a role. But like in any organization, you clearly have to consider the budget and the team's ability to use certain tools professionally.
8. I think we need to experiment carefully. It's hard to make predictions in terms of costs. As for improved efficiency, only if it's part of a process coordinated by professionals.
9. The main challenge is not falling into a "copy-paste" logic, but rather using the nuances of AI with human intelligence, by verifying sources and language. It shouldn't flatten journalism, but enrich it. The opportunities are endless, as long as they are properly managed.

Interviewee 5:

1. I'm a freelancer, so I don't hold roles within newsrooms. I've tested AI on a personal basis, not for specific projects.

2. It’s a new opportunity, but it needs to be studied and managed in order not to be passively subjected to it.
3. None.
4. I didn’t mention automation, but I believe it mainly results in cost reduction.
5. No.
6. Perhaps content personalization.
7. Everything is generally influenced by the budget.
8. I consider personalization to be more effective.
9. I don’t see any obstacles; it’s just necessary to gain the right skills. The medium- and long-term opportunities will depend entirely on how AI is used.

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