



# THE ART OF AI FOR ALL

The connective power of culture and media

NLAI Coalition

# INHOUDSOPGAVE

<b>Management summary</b>	<b>3</b>
<b>Positioning and context</b>	<b>4</b>
<b>PART I Vision and ambition</b>	<b>6</b>
Culture and media	
Sectors and disciplines	
AI for culture	
Culture for AI	
Investments in the Dutch ecosystem for AI, culture and media	
<b>PART II Challenges &amp; Use Cases</b>	<b>20</b>
1. How are we to make all the Dutch cultural and media organisations AI-ready?	
2. How can we design and develop value-driven AI systems?	
3. How can we develop open, independent and responsible AI ecosystems?	
4. How can AI systems that are built on European values strengthen the value proposition and earnings capacity of Dutch culture and media sector?	
<b>PART III Shaping the transition</b>	<b>24</b>
Stakeholders	
Existing infrastructures	
Ecosystems	
The power of the working group	
Tools and instruments	
The power of connecting through culture and media	
<b>Appendix I Use cases for AI</b>	<b>29</b>

## MANAGEMENT SUMMARY

Artificial intelligence (AI) is, in many ways, of growing importance in our daily lives. And the increasing availability of data, number-crunching power and storage capacity is only going to extend that further. The Netherlands AI Coalition (NL AIC) coordinates activities in that domain in the Netherlands. The initiative distinguishes between various application areas, including culture and media. The culture and media sector, with its direct contribution of over €58 billion (3.7% of GDP) and daily interaction with over 15 million people, is a key link as we move towards an AI-ready society. The current pace of digitalisation can however cause disruption in the core principles of democracy, endangering welfare and economic growth. That applies even more strongly in the international context, such as the influence of large tech companies. That is why all strata of the population need to be involved in the rise of AI. AI stands for *All-Inclusive*. The working group Culture and Media wants to contribute to this.

After an extensive round of consultations with stakeholders from the sector, the working group has produced this working paper, addressing the following areas:

1. Inspiration and production versus
2. Distribution and reception, supplemented by overlaps with areas such as
3. Polyvocality and diversity,
4. The ethical and legal requirements, and
5. Value creation and earnings capacity.

The areas listed above are the leitmotifs in the discussions of the working group subsections, each led by a scientist and a professional from the sector. The results of those discussions have led to this position paper.

**Part I** shows on the one hand how AI is steering the transition in culture and media (“AI for culture”) and on the other how the sector can help embed AI applications (“Culture for AI”) in the Netherlands. This refers not only to economic and societal contributions but also to ethical and legal issues. This kind of chain-wide approach is required if the economic and social value of culture and media in the country is to be increased.

**Part II** distinguishes four major challenges for the sector that are then illustrated using real-world use cases:

1. How to make all Dutch cultural and media organisations AI-ready.
2. How to design and develop value-driven AI systems.
3. How to develop open and responsible AI ecosystems that create value for the Netherlands, particularly for the culture and media sector.
4. How to deal with the international Big Tech platforms (mainly American and Asian) using AI systems that are built upon European values, and how that can reinforce the value position and earnings capacity of Dutch culture and media organisations.

**Part III** describes how the sector and governmental authorities can help accelerate our society’s digital transition through AI. This requires us to join forces across society, with a pioneering role for the culture and media sector. Success will depend mainly on the opportunities and possibilities offered by national and European governments. This position paper provides the context for substantive and strategic cooperation with partners and stakeholders within the culture and media sector, aiming to achieve innovations in AI in the Netherlands. Joining forces will let us shape the transformative role of AI, focusing on our national and European standards and values. That is the only way we will be able to cope with the international competition.



## POSITIONING AND CONTEXT

### Background

The Netherlands AI Coalition (NL AIC) was founded at the end of 2019 to encourage Dutch AI activities. It is a public-private partnership in which governmental authorities, the commercial sector, educational and research institutions and social organisations work together to accelerate AI developments in the Netherlands and link AI initiatives in the country to one another. One initiative that is intended to lead to the Netherlands remain in the international vanguard of AI is the development of the AiNed investment programme, of which Phase 1 was implemented in the spring of 2021 thanks to the National Growth Fund. This is an integral, long-term public-private investment programme for research and innovation. Dutch AI research is world-class in international terms, so numerous application areas and sectors, companies, governmental authorities and members of the public will be able to benefit from it in the years to come. One of the application areas is represented by the working group Culture and Media which has the broadest possible representation from the culture and media sector<sup>1</sup>.

### The working group Culture and Media

This position paper was produced with the involvement and input of the best researchers, professionals, institutes and companies representing the culture and media sector. On top of that, a large number of societal organisations have been surveyed. We have looked beyond the Dutch borders at relevant developments within the various sectors, particularly those relating to culture and media. Cross-sector interests and developments were also examined. The Dutch language and elements such as speech technology

in particular are important for many sectors. The working group Culture and Media will obviously be focusing in the first instance on relevant issues within the production chain in the culture and media sector. The areas within the chain that are being focused on are:

1. Inspiration and production versus
2. Distribution and reception, supplemented by overlaps with areas such as
3. Pluriformity and diversity,
4. The ethical and legal preconditions, and
5. Value creation and earnings capacity.

Subgroups have been developed for the five focal areas, led by a scientist and a professional from that field. These subgroups never operate independently; they work together and complement each other. In preparing this position paper, a broad round of consultations was held about its content with stakeholders from the sector.

This position paper has been drawn up looking at the potential of AI applications for a wide variety of user wish-lists. The substantive implementation must take account of the ethical and legal context. The ambition is to organise a programme for major societal issues. This includes a toolkit at the regional, national and European levels – both for the shorter term (closer to actual practice) and in the longer term (scientific research).

1. [1] NL AIC Taskforce (2019), Actieagenda Nederlandse AI Coalitie – Algoritmen die werken voor iedereen (Action agenda of the Netherlands AI Coalition – Algorithms that work for everyone), 8 October

[2] List of application areas: <https://nlaic.com/toepassingsgebied/>

[3] List of horizontal building blocks: <https://nlaic.com/bouwsteen/>

[4] [https://ec.europa.eu/programmes/creative-europe/node\\_en](https://ec.europa.eu/programmes/creative-europe/node_en)

[5] <https://mediaperspectives.nl/mediabedrijven-onderschrijven-ethische-richtlijnen-voor-gebruik-ai/>

[6] <https://ecp.nl/project/aanpak-begeleidingsethiek/>



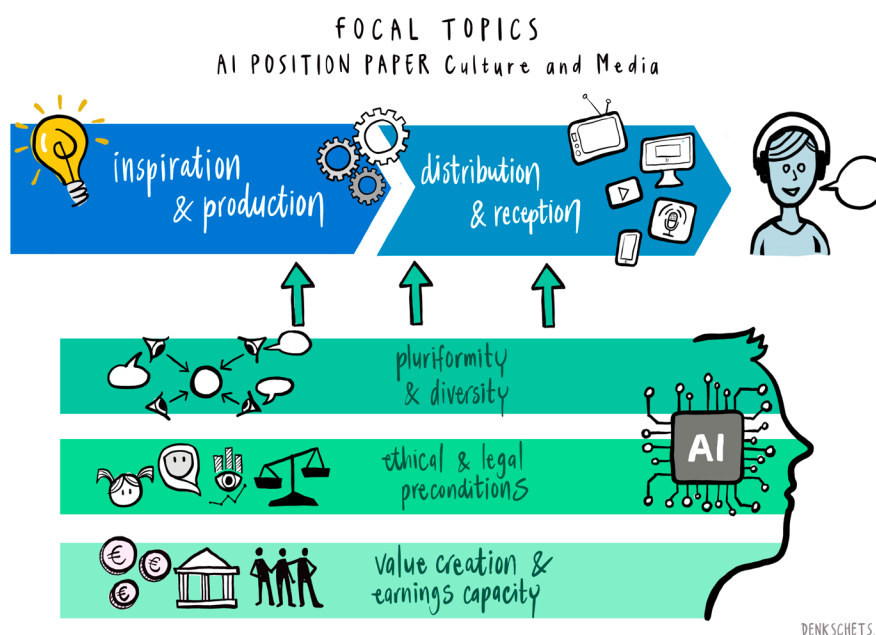
The working group Culture and Media has defined three ambitions that the sector intends to address the major issues over the coming years.

1. Network and chain: Making culture and media visible in the AI world and in discussions about its application, while at the same time showing how the sector is already using AI. This is referring to the visibility of various initiatives within the culture and media sector, for example in politics, governmental authorities, investors and society at large. Visibility in this case also covers the degree of organisation and therefore achieving the critical mass required to generate impact. The working group Culture and Media therefore represents an important ecosystem. There are overlaps here with the Human Capital, Research and Innovation building blocks of the NL AIC.
2. Knowledge and innovation: The ultimate aim is to create new knowledge, insights and visions, focusing on both production and responsible use of AI. Further goals are developing new methods and generating new datasets and, for instance, tools (including open-source ones). In addition, further conversion of knowledge into designs for services and applications. Fundamental knowledge, but also very much knowledge that focuses on innovation and value creation with a clear vision of the importance and responsible implementation of AI

for public values, culture and democracy. There are links here with the Data Sharing, Research & Innovation and Human-Centric AI building blocks of the NL AIC.

3. Incubator and facilitator: a third key ambition is acting as an incubator and facilitator for AI experiments and AI adoption by sharing experiences, developing new use cases, creating consortiums and looking to link up with existing initiatives – including ones outside the Netherlands. A central element is that parties in the culture and media sector should cooperate with universities and colleges, the commercial sector and regional and national government authorities. There are links here with the Data Sharing, Human Capital, Start ups & Scale ups and Human-Centric AI building blocks of the NL AIC.

The position paper constitutes an important framework within which we intend to help achieve the working group's ambitions. Part II of the position paper outlines the major issues and illustrates them with use cases. Appendix 1 later gives a more detailed version of the challenges and use cases presented. A distinction is made between challenges at the chain level (inspiration and production, distribution and reception) and issues with a more transverse impact (polyvocality, ethical and legal requirements, value creation and earnings capacity).



## PART I VISION AND AMBITION

*"Nobody phrases it this way, but I think that artificial intelligence is almost a humanities discipline. It's really an attempt to understand human intelligence and human cognition."*

Sebastian Thrun



AI is a transformative force that has claimed a place in our daily lives at an almost inconceivable pace in everything from smart equipment to chat software or decision support regarding the type of medication to be administered. The culture and media sector is no different. Robot journalism, recommender systems in a news app or perhaps the possibility of exposing the underlying secrets of a world-famous work of art – all aspects of culture and media use AI. That's not so surprising: The culture and media sector covers 320,000 jobs and makes a direct contribution of €58 billion to the GDP, making it one of the biggest contributors to our economic and (maybe even more importantly) our social well-being. With its daily indirect impact on the lives of more than 15 million Dutch people, it literally determines the conversations at the table or by the coffee machine at work. It is for this very reason that it (the sector) carefully wants to inform and engage its audience in the application of AI. After all, AI belongs to all Dutch people and works for them. Together, we can and will see how and where AI can take our society further. It is all about building up connections and confidence. Increasing digitalisation and the associated use of AI has put society on the edge, both positively and negatively – particularly regarding confidence. Misinformation is more prevalent today, more than ever before. Whereas it used to be difficult to reach everyone, the digital highways now make it trivially easy to mislead people. Building confidence is a key aspect when AI is being used. In a relatively limited linguistic area such as that of Dutch, this demands specific developments that transcend the sector, driven by (for instance) language experts from the cultural sector.

For this reason, culture and media are already getting those transitions moving within the way that the sector is structured ("AI for culture"<sup>2</sup>). The sector is providing fundamental input, based on practice and experience, into the way that AI is

embedded, taken on board and applied in society. This is possible mainly due to the broad social significance of the sector ('Culture for AI'<sup>3</sup>).

The working group Culture and Media advocates an even more prominent role for culture in the development of AI, so as to benefit from the potential of AI as developed for and within the sector. At the same time, it is making the case that the solutions developed should also support other economic sectors, from healthcare to the public sector.

## Culture and media

This position paper proposes a programme that explores how the unique ecosystem of the culture and media sector is being transformed by the use of AI, and how that can lead to productive and desirable utilisation of AI in society.

There are hundreds of definitions of culture.<sup>4</sup> The role of culture in society has been investigated and described many times. The general view is that culture provides meaning, logic and form for the social practices in our society. Culture provides content and context for the way we live and what is deemed valuable in life, for various social groupings with their specific identities and histories. Culture also thereby principally provides content and context for society as a whole and for its history, the current situation and how it possibly ought to develop.

Culture arises through social interaction and debate, although unanimity is rarely achieved. There may sometimes be conflicting values, norms and customs that are permanently debated and are subject to change. Social institutions and organisations in the culture and media sector play an essential role in this. Their creative practices allow the content creators and artists to point out aspects of reality, putting the reality of our history – shared or otherwise

2. The term 'culture' is used here as a synonym for 'culture and media'.

3. See note 3.

4. Kroeber, A. L., & Kluckhohn, C. (1952). Culture: a critical review of concepts and definitions. Papers. Peabody Museum of Archaeology & Ethnology, Harvard University, 47(1), viii.



– into words and images. Institutions and companies that are active within culture and media (creative, artistic or journalistic) create a symbolic world that is meaningful for people and important to them. Under the auspices of various organisations and companies, these creative expressions are circulated and gain social and economic impact. Cultural organisations, media institutions and media companies are the driving forces of cultural development and social debate. They create the content for the public arena and provide entertainment and relaxation. They are institutionalised storytellers. Based on those expressions, products and services, people develop their sense of public duty, articulate their cultural profiles, manifest their presence in social discussions, and cultivate a political identity and participation. As part of that, they decide what to spend part of their expenses on.

Technology has a major influence on the way culture and media develop, from writing to printing, from broadcast technology to digitalisation. In its interplay with other social developments, technology has had a decisive effect on the dynamics and the social impact of culture and media. AI is unmistakably having an influence. We are only just beginning to understand how AI is going to affect the social role and significance of media and culture, and how important culture is for AI.

Before taking a closer look at the relevance of culture media for AI and vice versa, we are going to examine the scope of the culture and media sector in greater depth. What do we actually mean by the culture sector and media sector?

## Sectors and disciplines

### Creative content

A proper and targeted exploration of the interactions of AI with culture and media needs further specification of what and who we actually consider to be part of those sectors. Both the cultural and the media sectors are generally counted as part of the creative industries. In this context, people sometimes also refer to the cultural and creative sector. CLICKNL, the network for knowledge and innovation in the Dutch creative industries, classifies both sectors within the main group of ‘creative content’.<sup>5</sup> This covers the creators, organisations and companies that are primarily active in the domains of media, art and culture. Their principal mission is to produce creative expressions (or specific categories thereof) and to present them to the public. This refers specifically to the following disciplines and fields: performing arts, visual arts, music, radio and television, film, literature, photography, journalism, cultural heritage, crafts and events.

CLICKNL restricts its definition of the main group ‘creative content’ to a specific category of disciplines in which creation is the central activity. It reserves a category of ‘related disciplines’ for activities other than the purely creative.<sup>6</sup> The working group Culture and Media takes a broader view of the main category ‘creative content’. Our deliberations also include parties such as broadcasters, publishers, museums, archives, galleries, libraries and relevant digital platforms. It is particularly in the interactions between creation, programming, distribution, curatorship and archiving on the one hand and AI on the other that we envisage high-impact innovation dynamics. Moreover, the activities of the said institutions are closely and in some cases inseparably

5. A somewhat different classification of the creative industries has been adopted in the Creative Industry Monitor, including its 2019 edition, where three subcategories are distinguished: arts and heritage, the media and entertainment industry, and creative commercial services. The first of those sub-sectors has been merged by CLICKNL into ‘creative content’. The approach adopted by CLICKNL categorises creative commercial services in the design disciplines. See Media Perspectives (2019). Monitor Creatieve Industrie 2019. Nederland, Top-10 steden, creatieve bedrijven en beroepen. Hilversum: Media Perspectives [Olaf Koops, Paul Rutten & Frank Visser].

6. CLICKNL (2020). Kennis- en Innovatieagenda 2020-2023 (2020 version). Eindhoven: CLICKNL [<https://kia.clicknl.nl/deel-1-de-creatieve-industrie-kennis-en-kunde/3.-karakter-en-kennisbasis-van-de-creatieve-industrie/3.1-disciplines-in-de-creatieve-industrie>]

linked with the creative core process. Publishers, editors and authors are for instance closely engaged in the creative processes of journalism and literature. The same applies for broadcasters, producers, screenwriters and directors in audiovisual productions. Heritage institutions such as museums and archives create the frameworks and the formats in which artistic and creative works and historical objects are presented and made meaningful in the eyes of the visitors and users. This implies that they are also relevant actors with the field of cultural content.

In addition to creative content, CLICKNL distinguishes a second main group within the creative industries: the 'design disciplines'<sup>7</sup> – people who use their creative design capabilities to provide services to third parties, designing products and services for companies and business clients. Companies such as these operate primarily in the business-to-business market and focus sporadically directly on the general public. The term 'design disciplines' refer to a broad spectrum of fields: architecture (including landscaping and interior design), product design, fashion design, game design, digital design, brand design, communications (including marketing, internal communications, corporate communications, public relations and graphic design) as well as the design of systems and processes (including service design). Although the design disciplines are not the prime focus of this paper, they are still relevant, particularly in terms of what AI signifies for culture ('AI for culture').

## AI for culture

AI is an important transformative force operating in both the culture and media sectors, as summarised in the slogan AI for culture. AI is changing the way we see the world around us, not only in its capacity as a technology but also in the cultural practices based on the technology. The transformative power of AI for culture and media is currently visible on several fronts. It is marking out a new phase of the digital era, in which other questions are bubbling to the surface or existing questions are coming to the fore in different forms.

The key similarity between the culture and media sectors is that both of them provide social significance for an audience consisting of the general public and consumers. This is based on creative activities and public presentation of creative products or works, as defined in the Dutch Copyright Act. The key difference between them is that the media industries, without exception, use technology to reach their audiences – in the past that was printed media and electronic broadcasting, whereas nowadays it is principally online digital media. The arts sector is more hybrid in nature. A significant part of the cultural sector is continuing to use more traditional methods for reaching an audience, such as theatre and other performing arts that are entirely focused on presenting their art at a specific time and place. At the same time, disciplines such as film and literature rely exclusively on media. Within the visual arts, a variety of more traditional materials are used as the carrier's artistic expressions, from textiles and canvas to stone. Additionally, there is media art, for example video art or digital art. The use of online media within the arts is undeniable and very much on the rise. The recent and as yet ongoing coronavirus crisis has led to an increase in the deployment and use of digital resources in the cultural sector.

---

7. The following disciplines and professional fields are covered by this: architecture and the built environment, product design, fashion, game design, digital design, brand creation and communication, and the design of systems and processes.

For both the cultural sector and the media industry, AI and the associated large-scale use of data is heralding a new wave within the digital transformation that had already been going on for some years. This offers opportunities as well as presenting threats and challenges.

***“It is true that AI can help to empower numerous creators, make the cultural industries more efficient and increase the number of artworks, which is in the interest of the public. However, there are still very few artists and entrepreneurs that know how to use tools such as machine learning. In addition, the commercial logic of the large platforms may lead to increasing concentration of supply, data and income and to the impoverishment of cultural expressions in the long term.”***<sup>8</sup> Octavio Kulesz

Given these clear differences and developmental phases that the culture and media sectors are in, we will discuss the transformations envisaged in both domains separately.

## Media

The average Dutch resident aged over eight uses their smartphone some 221 times a day. They are looking for news – from friends, broadcasters, colleagues, schools, companies and specific platforms. No sector produces more data per day than the media sector. Large-scale use of data and AI has also been flagged as the fourth main wave in the digital transformation of the media industry. After the advent of online media and the Internet, the rise of mobile media and growing use of social media introduce a new phase of AI and ‘datafication’.<sup>9</sup> The media industry, the products and services that it offers, the relationship with its public and also the way that the sector monetises its value are undergoing substantial changes. AI connects and enhances

the effects of the earlier developments within the digital model, for instance by utilising the data that is gathered online and through social media in order to present a more strongly individualised offering and to get a better picture of the needs and behaviour patterns of consumers. As is the case in the culture sector, the introduction of AI in the media industry is triggering a redefinition of the sector. The blurring of distinctions between the various elements of the industry – also referred to as ‘convergence’ – is ongoing. A key theme is the relationship between the media industry and adjacent sectors such as the technological sector. In that context, discussions are understandably ongoing within the Dutch media industry about the relationships with international technology companies and dependence on them. According to the experts, this is putting pressure on the continued existence of a media industry that focuses primarily on the local Dutch market with products and services targeting local needs.

There are numerous challenges in the sector. Those will be discussed extensively in this position paper as part of the discussion of the key challenges for culture and media. At this point, we mention the challenge that the sector is facing in finding the best ways of using the overabundance of available data. New processing and analysis methods need to be developed for extracting the greatest possible value from them. Developing in-house knowledge and competencies is crucial to be able to operate sufficiently independent of the global technology platforms. For the creators in this sector, e.g. in either journalism<sup>10</sup> or drama productions, it is relevant to learn what new ways of working and what types of output are possible by AI, or even what the human added value is if generative AI takes over part of its tasks. It is also important to gain an understanding of what

8. Kulesz, O. (2018). *ibid.* p. 14.

9. Media Perspectives (2021). Kansen voor AI. Een bundeling van meer dan 50 expert views met toepassingsrichtingen, investeringen, Europese waarden, en beschikbare kennis, op het gebied van media en AI (Opportunities for AI: a collection of more than fifty expert views with potential applications, investments, European values and available knowledge in media and AI). Hilversum: Media Perspectives. [Bert Kok, Dian Visser, Frank Visser and Ton van Mijl]

10. <https://nlaic.com/nieuws/robotjournalisten-maken-hun-intrede-op-redacties-maar-niet-zonder-menselijke-collegas/>



AI means for essential norms such as creative and journalistic independence and for the changes within journalism as a profession. At the same time, we must keep a close eye on the negative implications of AI and must design products and services in a way that will mitigate or eliminate this shadow side.<sup>11</sup> AI can also play a role in this respect, for instance in detecting disinformation or deep fakes.

## Culture

With regard to the adoption of digital technology and processes and products that AI applications can build upon, art and culture present a different picture. That situation in arts and culture is more hybrid, compared to the media domain. Consequently, the transformative power of AI for the world of art and culture is less clear and more unambiguous. Uptake of the potential of digitalisation is increasing. Some cultural organisations and institutions as well as artists and performers have felt the urgency of broadening their scope, impact and value beyond the audiences reached through traditional channels. They have concluded that the connection with their existing audiences can be reinforced and deepened, using cross-media strategies and that new audiences can be reached with the addition of new services to their portfolio. In a cross-media approach traditional ways of reaching the public go hand-in-hand with new, digital products and services. As in the retail sector, an omnichannel approach is often adopted. This refers to a combination of digital channels with other types. Each of the disciplines makes use of digital technology in their activities in some way – in their communications and marketing or, if applicable, for reserving tickets and paying

for them. Some parts of the artistic and cultural sector are using digital technology in a more integral way, in several phases of the chain from creation to production, marketing and distribution or presentation. This is smoothing the way for AI to be used, which is gaining prominence in some domains of art and culture.

One key example is the music industry, in which music recordings are exploited commercially through streaming platforms and tailored offerings are created for the users. Spotify's operations are driven by data and algorithms and its market strategy is based on data analysis. Moreover, the platform gives artists and labels an overview of how their repertoire is being used, letting them develop data-based strategies in response.<sup>12</sup> Artists are for instance increasingly using streaming data as supporting evidence for the fees they demand for live performances. At the same time, though, the music industry is still keeping the analogue medium of vinyl on the market. Nevertheless, its recording process is now entirely digital, with just a few exceptions.

Under the influence of the coronavirus pandemic, the creators and institutions active in performing arts, including theatre and music, have developed digital alternatives to time- and place-bound performances. With sometimes surprising and striking results.<sup>13</sup> Some of these innovations date back from the pre-COVID era, indicating that the current spirit of innovation is around sometime.<sup>14</sup> Digital technology and even AI are also being used in the performance arts, such as dance, in the creative process and the performances based upon it.<sup>15</sup>

11. Rutten, P., Harbers, M. & Willemsen, L. (2020). Communicatie, burgerschap en kunstmatige intelligenties (Communication, the role of the citizen and artificial intelligences). In: Gijsbertse, D. P., Van Klink, H. A., Machielse, C., & Timmermans, J. H. (ed.). Hoger beroepsonderwijs in 2030: Toekomstverkenningen en scenario's vanuit Hogeschool Rotterdam. (Higher vocational education in 2030: future perspectives and scenarios from Hogeschool Rotterdam) [291-326]. Hogeschool Rotterdam Uitgeverij.

12. <https://artists.spotify.com/>; <https://artists.spotify.com/blog/S4A-all-together-now>

13. See inter alia <https://nos.nl/nieuwsuur/artikel/2362146-beethoven-helpt-het-rotterdams-philharmonisch-orkest-door-het-coronajaar> en <https://ita.nl/nl/ip/italive/1440597/>.

14. <https://www.bachvereniging.nl/nl/allobach>

15. <https://nlaic.com/nieuws/deze-choreograaf-instrueert-niet-alleen-dansers-maar-ook-drones/>

Within the visual arts, entirely digital productions – including those building upon what was previously referred to as ‘video art’ – are commonplace. Digital art turns out to have a significant value on the art market and is for example being made more commercially tradable by the advent of what are known as non-fungible tokens (NFTs)<sup>16</sup>. On the other hand, digital art is also exhibited in physical locations, in museums in the Netherlands.<sup>17</sup>

The production process in the audiovisual sector (including film)<sup>18</sup> is fully digitalised. This also applies to the distribution of films to the traditional presentation locations such as film theatres and cinemas. Through broadcasting channels, the sector is intertwined with the media industry and is thus part of the developments that are taking place there. For the distribution and commercial exploitation of its creative products in particular, the transformation of the audiovisual sector is partly being driven by the rise of the major platforms. This is being led by major players such as Disney, Netflix and Amazon, with local initiatives such as Picl, Pathé Thuis, Videoland and NPO Start in their wake. The structure and functioning of these platforms are based to varying degrees on AI and data. In terms of production, the sector is facing major challenges, inter alia because of the potential rise of algorithmic storytelling targeting individual users, based on generative AI.<sup>19</sup>

In literature, digitalisation has above all led to process innovation and, to a lesser extent, to product innovation.<sup>20</sup> The creation, development, production and promotion of literature have undergone a complete transformation, right through to book printing. The market is however still dominated by the traditional paper book, with a minority share for e-books. In terms of marketing technology, both printed books and e-books play a role in the sales sector. The turnover of printed books actually rose in 2020 with respect to previous years.<sup>21</sup>

In the cultural heritage sector, digitisation has taken place over the course of the last decade. Collections have been digitised. Another field that has really taken off is the development of tools for analysing and enriching the content, as well as tools for processing and refining data that has been generated about collections, focusing on both the general public and on professional use. Nevertheless, the public at large and professional users can still visit museums and archives on site. AI lets institutions develop and offer services that meet the needs and expectations of the users.<sup>22</sup> The Netherlands has a pioneering role in Europe, thanks to innovative players such as Beeld en Geluid (the Netherlands Institute for Sound and Vision) and the Koninklijke Bibliotheek (National Library of the Netherlands).

16. Dana Linsen (2021). Nfts-zijn-een-digitale-revolutie-in-de-kunstwereld. NRC, 17 March 2021.

17. <https://nxtmuseum.com/>

18. See inter alia Raad voor Cultuur (2018). Zicht op zoveel meer. Sectoradvies Audiovisueel (A picture of so much more: Advice for the audiovisual sector). The Hague: Raad voor Cultuur.

19. See for example Uricchio, W. (2019) in: Rutten, P., Harbers, M. & Willemsen, L. (2020). Communicatie, burgerschap en kunstmatige intelligenties (Communication, the role of the citizen and artificial intelligences). In: Gijsbertse, D. P., Van Klink, H. A., Machielse, C., & Timmermans, J. H. (ed.). Hoger beroepsonderwijs in 2030: Toekomstverkenningen en scenario's vanuit Hogeschool Rotterdam. (Higher vocational education in 2030: future perspectives and scenarios from Hogeschool Rotterdam) [291-326]. Hogeschool Rotterdam Uitgeverij.

20. Thompson, J.B. (2010). Merchants of Culture. The publishing business in the twenty-first century. Cambridge: Polity Press.

21. <https://kvbboekwerk.nl/monitor/markt/verkoopcijfers-2020>

22. Nationale Strategie Digitale Erfgoed 2021-2024 (National Digital Heritage Strategy): <https://netwerkdigitaalerfgoed.nl/agenda/save-the-date-lancering-nieuwe-nationale-strategie-digitaal-erfgoed-2021-2024/>

One of the major challenges for the entire culture sector lies in connecting data with data about the public. A strategy that is modelled based on data helps to improve the public-driven value proposition. In the realisation it is important to set up the right coalitions and joint ventures with the colleague institutions with similar objectives, as well as with parties that can bring in additional expertise and knowledge. Thus, the innovation ecosystem for the cultural sector needs to be broadened. The same applies to the media industry as to the cultural sector: they should take a position vis-à-vis the major tech platforms in developing AI applications. Collaboration – including the media sector – within a Dutch ecosystem presents the most opportunity for developing and offering an infrastructure within which European values and principles are central, last but not least when it comes to control over data.

## Culture for AI

The second contribution of culture and media in the realisation of the potential of AI for society is providing insights based on concepts like instance meaning, experience and values in the development of AI-based services and applications in the other twelve application areas of the Netherlands AI Coalition. This is in line with the value that the creative industries in general have as a lever for innovation in other domains and sectors with which there is a great deal of interaction.<sup>23</sup> We refer to this as Culture for AI. Input from culture for the introduction and application of AI can involve showing the significance of the way this new technology can contribute to a better functioning social system and indicating how that could be done. This means ensuring that public values (open, transparent, user centric) are promoted, based on an appropriate embedding of AI in culture and society. This is succinctly expressed in the following quote:

***“The problem is that, even if a country adopts a state-of-the-art policy on robots, smart mobility or drones, if it fails to include culture in the equation, then it would create an unsustainable state of affairs. Put simply, technologies solve problems, but they do not provide meaning – only culture can do that.”***<sup>24</sup> Octavio Kulesz

The cultural domain is the place where the meaning of AI is defined and where reflection on its role and significance is done. In the public arena, where creative activities and debate are important, the meaning and logic behind current social practices are defined. This makes clear what is important, what we believe is valuable, and how society ought to develop. That also applies to the way AI can obtain role and meaning in society and in applications of the technology in social processes.

## The culture sector as a provider of high-quality data for AI

Additionally, the Netherlands’ rich digital heritage has a great deal of potential as a high-quality source of training data and evaluation data for data-driven AI systems. Dutch cultural institutions are among the world leaders in innovative and large-scale digitisation projects. In the current social and scientific debate about AI, the importance of data quality is coming increasingly to the fore on the agenda. The cultural sector could play an even more prominent role as the provider of high-quality data for which the property (including bias) and origin are properly known.

## Social values and AI

The use of AI is always situated in a social context. With the current mission-driven innovation policy in mind, in which social objectives are central, is clarifying and defining the way how AI can help to achieve societal important goals and targets crucial. That, in the end, ultimately determines the social and economic relevance of AI. The same logic

23. cf. Media Perspectives (2019). Monitor Creatieve Industrie 2019. Nederland, Top-10 steden, creatieve bedrijven en beroepen. Hilversum: Media Perspectives [Olaf Kooops, Paul Rutten & Frank Visser], pp. 107-108.

24. Kulesz, O. (2018). *ibid.* p. 10



applies to the use of AI for the realisation of Sustainable Development Goals (SDGs), which largely define the world we want to live in. A world where there are for example sustainable and affordable energy supplies and high-quality, accessible education. Like the social missions and the grand societal challenges, these objectives are driven by values.

Media are crucial for the social debate. They organise and encourage the debate about AI and the values that are important in its application. That also applies for the art and culture sectors, where one of the key focal points is reflection on the world now and of the future. Artistic research is an important source of inspiration for innovation, but also provides critical feedback to society,<sup>25</sup> for instance by extrapolating the consequences of technological developments to the future and projecting them back again to current reality. AI needs cultural frames, including values, in which applications take shape.

In this context, it is worth mentioning another segment of the creative industries, which is not the primary focus of this position paper, but which is crucially relevant here: the design disciplines. Applications of AI need to be designed, particularly for use in social missions or within one of the twelve other [application areas](#) of the Netherlands AI Coalition (NL AIC). There is an important task for both the design disciplines and culture and media. Culture and media generate debate and social reflection, as well as having a formative role in the development of values, whereas the design disciplines are responsible for using and embedding those values in real-world applications.

The ongoing debate on privacy in the Netherlands and Europe are a good example of the issues at stake. Privacy issues have led to European legislation and regulations that will potentially be accepted as global standards. Building further upon that development, a method has been developed known as 'privacy by design' that includes privacy principles at the start of the design process. Instead of being a problem that has to be resolved when applications are fully developed, privacy becomes such an important value as part of a service that ultimately pays off economically. There is a great deal of attention in the Netherlands at the moment for design methods that can be helpful in utilising media, culture and design in the application of technology for social innovation. This emphasises the importance of design in technological applications – in particular the incorporation of social values in their application.<sup>26</sup> The cultural factor is indispensable when embedding AI in society. In that sense, human-oriented AI should not be seen as a field of research, but rather as an instruction; the ELSA labs (ethical, legal and societal aspects) proposed within the NL AIC should be seen as a necessary precondition for the social value of AI.

### **Culture and media as a breeding ground and testing ground**

Applying new technologies that are later widely implemented has repeatedly allowed the media to prove their value as a breeding ground for innovation. The role of the media sector as a breeding ground for new, high-impact technology and as the testbed for the social consequences of that technology can be traced back to the very essence of the sector. In the media sector, without exception, it is all about sharing information or content using technology. New information and communications technology is

25. One current example is an art project by the Flemish artist Dries Depoorter, who is using AI that has been trained in recognising mobile phones and politicians' faces. By getting his software to watch the live stream of the Flemish parliament, the art installation alerts the politicians in question about their conduct by sending them tweets. Depoorter is implicitly criticising the way mobile communication via smartphones is influencing the patterns of social interaction. [<https://www.volkskrant.nl/nieuws-achtergrond/ai-software-tweet-automatisch-als-politicus-op-zijn-mobieltje-kijkt~bbabf64d/>]. See also Rutten, P. (2012). Dutchpack. Innovatie op het breukvlak van kunst, technologie en wetenschap (Innovation at the crossroads of art, technology and science). Haarlem/Amsterdam: Paul Rutten Onderzoek/Waag.

26. The agenda for key enabling technologies is part of the Dutch government's sixth knowledge and innovation agenda (KIA) about key technologies: <https://www.clicknl.nl/onderzoeksagenda-kems-missiegedreven-innovatie/>

therefore often first applied in the media sector.<sup>27</sup> The first consequences of digitalisation were felt in the music industry and the audiovisual sector, where new ways were introduced of storing, processing and distributing the content. New interaction patterns also arose there between the user and the content, and multimedia applications were developed. The Internet was initially primarily a network that gave electronic and interactive access to a broad and integrated spectrum of information and communication that made new forms of social interaction and commercial exploitation of content possible. Above all, it had consequences for the media industry that changed fundamentally in terms of both its structure and its operations. Digitalisation has also changed society and the economy, radically and permanently. There are sufficient reasons and indications for assuming that the said pattern will also come to the fore in the development and application of AI, which is essentially also an innovation in the information and communications domain. Over the last decade, however, companies with global scope have arisen – often also referred to as Big Tech – that combine technological development and content exploitation with a broad spectrum of other activities such as commercial exploitation platforms and e-commerce. It is precisely that concentration of a range of activities within just a few ventures that has made implementing and upscaling innovations to other domains proceed significantly faster than before.<sup>28</sup> However, the media and communications domain is constantly showing itself to be

of great importance for the innovation developments that ultimately get applied broadly.<sup>29</sup> The impact of a succession of new media technologies is affecting the entire economy and is thereby mostly much greater than their effect on the media industry itself.<sup>30</sup>

As well as the significance of the media industry as a breeding ground and nursery for innovations in information and communications technology, including AI, the significance of the media sector as a testbed for the social consequences of its services is also important here. One challenging question is how far the social impact of service-based AI in the media and communications sector can be a predictor for the consequences of it being rolled out in other domains. We would like to state here, at any rate, that it is interesting and relevant to investigate these consequences at an early stage of AI application in the media and communications sector. This is because that technology will be adopted in virtually all the domains of society.

### The shadow sides

Experiences and analyses from previous years show that the changes engendered by AI are certainly not always positive.<sup>31</sup> There are, for instance, indications that the role played by the media in getting the public involved and creating an exchange of ideas and thoughts in society is being eroded by AI applications. The new AI-driven media sector may even lead to social polarisation and segregation, resulting in social groups understanding each other less and less.

27. Another sector that is somewhat comparable to the media sector in this regard is the financial sector, particularly the part of it that is involved in investments. Just-in-time access to information is crucial for success in the financial markets.

28. That this development has negative effects in social terms can be seen e.g. from the following: "...these firms wield dominance in ways that erode entrepreneurship, degrade Americans' privacy online, and undermine the vibrancy of the free and diverse press. The result is less innovation, fewer choices for consumers, and a weakened democracy. ... Our economy and democracy are at stake" Subcommittee on Antitrust Commercial, and Administrative Law of the Committee on the Judiciary (2020). Investigation of Competition in Digital Markets. Washington DC: US House of Representatives, p. 7. Available at <https://int.nyt.com/data/documenttools/house-antitrust-report-on-big-tech/b2ec22cf340e1af1/full.pdf>

29. This also applies to the financial sector, incidentally, which is in turn strongly predicated on real-time availability and exchange of information.

30. Report on Kansen voor AI in de Media (Opportunities for AI in the media): <https://mediaperspectives.nl/publicationdoc/rapport-kansen-voor-ai-in-media/>

31. See also: Stikker, M. (2019). Het internet is stuk maar we kunnen het repareren (The Internet is broken but we can't repair it). Amsterdam: De Geus; Rasch, M. (2020). Frictie. Ethiek in tijden van dataïsme (Friction: Ethics in the Age of Dataism). Amsterdam: De Bezige Bij; Rutten, P., Harbers, M. & Willemsen, L. (2020). *ibid.*

This could lead to conflicts. It is far from unusual for these things to be controlled by foreign powers, making digital media an important factor in aggression in international politics, much more so than in the time of analogue media. A worrying aspect is that consumers who use a digital platform for longer periods largely end up being presented over the course of time with content that fits in with their interests and opinions. People are running the risk of ending up in what are referred to as filter bubbles or echo chambers. They are then no longer exposed to new ideas and viewpoints that differ from their own worldview. Worse than that: they get exposed to fake news. The flows of information associated with Covid-19 are a striking example of a period in which, in addition to human activity, AI was playing a role in the distribution of disinformation. In some cases, this can lead to democracy being undermined. The new media environment, in which information and content are present and available in abundance, does not seem to be creating more diverse consumption of information by members of the public. This paradox can be ascribed to applications that have been developed with an eye on the short-term effects (metrics, clicks) and that pay insufficient attention to social values such as diversity or inclusivity and the user's own input. This can lead to tunnel vision and AI systems that are not aligned with the interests of the users, society and fair competition in the media markets.<sup>32</sup> There is a yawning chasm between theoretical and actual diversity.

There have also been cases where AI applications discourage social participation by the public rather than encouraging it. People are aware that every act on social media and online platforms can leave a data trail. They are increasingly suspicious about the consequences this can have. Increased data gathering – or as some people call it, dataism (Rasch, 2020) or data theft (Stikker, 2019) – and the consequences that are perceived or feared by the public can trigger what are referred to as 'chilling' effects.

A further question concerns the quality and integrity of the information provided. Generative AI can allow content to be created completely automatically. This raises questions about authorship and responsibility for AI-generated content. Who is responsible and could potentially be held accountable for harmful information, fake news or deepfakes or the consequences thereof? In that context, topics that need attention include privacy, sovereignty of individuals, security and responsible data management. Because of the exceptional political and cultural importance of information, culture and entertainment for how the public arena functions, organisations have a duty to provide accountability and transparency about the use of technology and how it works, in particular regarding algorithms. Current practices are as yet falling short in that regard. These themes undoubtedly also play a role in applying AI to other domains, but the effect that culture and media have on the population is unmistakably large.

### **The global dynamic and digital sovereignty**

Technology and its application in various social domains cannot be seen separately from culture and politics; its embeddedness always implies social consequences. That is particularly the case for domains with an exceptional social impact and relevance, such as culture and media. We are currently witnessing what the consequences of the activities of the major American platforms are and may yet be for the economy and for the European culture and media ecosystem. From a European point of view, we urgently need to develop a system that more appropriately reflects the characteristics and values that hold sway in the European context. In Brussels a regulatory framework is being created, comprising for instance the Digital Service Act, the Data Governance Act and proposed AI regulations placing a strong emphasis on human-centric AI and fundamental rights. Therefore it is necessary, at this point in time, to draw the attention of the European Commission and national authorities to the perspective of the national cultural and

---

32. Helberger, N. (2019). On the Democratic Role of News Recommenders. *Digital Journalism*, 7(8), 993-1012.



media sector. Priority should be given to the social relevance of Dutch and European cultural products and services (including media content), the distinction between fact and fake news, safeguarding diversity, avoiding filter bubbles and encouraging independent media innovation and fair competition. The role and significance of the Dutch public institutions and privately-owned companies should be emphasised better and more clearly.

These issues not only concern culture and media but also much more widely. For instance, the appropriate use of AI promoting smart cities and the application of the same technology in the context of encouraging security are equally important. The global dynamics in new technology and the role of Big Tech have left Europe less favourably positioned to reap the rewards of applying AI in society.<sup>33</sup> The European infrastructure for data and analytics is lagging behind that of China and of America. American Big Tech companies dominate the infrastructure that is used in the Netherlands and Europe. That leaves the Netherlands and Europe lagging behind. Competitiveness for the European companies is quite poor. Moreover, the value systems imported alongside with the introduction of new technology do not match with the European public values. The political economic contexts of both the United States (purely market-driven) and China (under state control) are not attractive for Europe. An eventual European model could offer an alternative, but because time is running out it urgently needs special attention. The culture and media sector is a prime example of the areas where there are major opportunities at the European level for becoming stronger and creating a European digital ecosystem that is more human-centric and specifically focuses on European values such as orientation to humans, transparency, openness, cooperation, privacy and diversity.

## Investments in the Dutch ecosystem for AI, culture and media

Research by Deloitte has shown that the adoption of AI in the world is accelerating. The early adopter phase is coming to an end and we are at the threshold of the early majority phase. 66% of Dutch companies expect to invest about 25% more in AI in 2021. No precise figures are available about investments in AI by Dutch media companies. However, it is clear that the expenditure by companies and organisations on AI technology and services is going to grow substantially in the coming years. A recent report by ING has shown that those investments will double over the next five years, from €1.6 billion to €3.2 billion. In their report of October 2020, McKinsey & Company states that optimum utilisation of AI can help economic growth in the Netherlands reach 1.2% of GDP.

We assume that the investments in AI (and data) will also double in the media sector over the coming years. For 2020, it is estimated that roughly 1% of the turnover in media and entertainment will be invested in AI and data, based on an annual turnover of €10 billion.<sup>34</sup> For the content-creating industry, that boils down to annual investments to the tune of €100 million. We have bounced that figure off several important players in the content-producing media industry and had it confirmed. Because of the strategic importance of data and AI, it is expected that the annual figure will double to €200 million by 2025. All in all, we anticipate a total investment in data and AI of €750 million over the coming five years by the content-creating industry in the Netherlands.

33. <https://en.acatech.de/publication/european-public-sphere/>

34. PWC Entertainment & Media Outlook 2019 – 2023: Outlook perspectives.

The Creative Industries Monitor 2019<sup>35</sup> shows that the creative industries have become one of the drivers of economic growth over recent decades. That applies in particular to the period of high growth between 2015 and 2018. The number of jobs in the sector, consisting of art and heritage, the media and entertainment industry and creative business services (design, architecture and communication) grew on average by 3.4% annually over the period 2015 to 2018. That is twice the average annual growth for the economy as a whole. In 2018, the creative industry had 344,000 jobs, representing 4% of employment in the Netherlands.

From 2015 onwards, the growth of added value from the creative industries has averaged 3.5% per annum, 1% above the national average. In 2018, added value from the creative industries was €17 billion, equivalent to 2.5% of gross added value in the Netherlands.

The difference between the contribution made by creative industries to the total number of jobs (4%) and the gross national product (2.5%) is due to the labour-intensive nature of creative work. However, the earnings capacity of the sector has increased in recent years thanks to growth in productivity at work. AI can play an important part in improving that.

In 2018, Statistics Netherlands published a Culture and Media<sup>36</sup> satellite account. It fits in with the national accounts that give a macroeconomic description of the Dutch economy. The contribution of the culture and media sector to the Dutch economy overall is given as €25.5 billion (3.7% and the number of persons-years in that sector is given as 320,000 (4.5%). The figures in the Statistics Netherlands satellite account are somewhat higher than those in the Creative Industries because the former has adopted a broader definition of the sector and, for instance, uses calculations that also include the production of the necessary hardware (such as television sets) and logistical services for culture and media.

---

35. Media Perspectives 2019. Monitor Creatieve Industrie 2019. Hilversum: Media Perspectives (Olaf Koops, Paul Rutten & Frank Visser).

36. <https://www.cbs.nl/nl-nl/longread/rapportages/2021/satellietrekening-cultuur-en-media-2018>



# CULTURE AND MEDIA-SECTOR FACT SHEET

September 2021

## Creative Industry: KEY DUTCH SECTORS

approx. 4%  
(344,000 jobs)  
and 11.3%  
of company locations in NL



Contribution of the  
culture and media sector to  
the Dutch economy overall:

25.5 billion euro  
(3.7 per cent)

Number of man-years in  
the culture and media sector:

320 thousand  
(4.5 per cent)

(Culture and Media satellite account,  
Statistics Netherlands 2019)

Creative jobs  
(‘embedded creativity’)  
4.8-78.2%  
of the Dutch economy  
(417,000 to 642,000 jobs)



Example:  
Libraries (2019):

6,908  
staff employed  
+ 22,000  
volunteers



Over 12 million  
people in Europe work in the  
cultural and creative sectors  
(7.5% of employment)



## INVESTMENTS

by companies and organisations in  
AI technology and services  
will double over the next 5 years:

from 1.6 billion  
to  
3.2 billion euro.  
(ING Report)

In 2020 about  
one percent of  
the turnover  
in media and entertainment will  
be invested in AI and data.

100 million euro  
in 2020, expected to double to  
200 million euro  
by 2025.

Based on turnover of 10 billion euro.  
(PWC Entertainment & Media Outlook)



Total investments of  
750 million euro  
in data and AI are expected  
in the Dutch media sector  
over the next five years  
(Media Perspectives)

## **PART II**

### **CHALLENGES & USE CASES**

The challenges within the culture and media sector require a chain-wide approach that provides an opportunity for collection managers, creative makers, users, researchers, software suppliers and governments to expand the societal value of our culture. We make a distinction here between four major challenges that are impacting all elements of the culture and media sector. Recurring themes in these challenges are the specific requirements of the creative process, the role of technology in distribution of culture and media, new ways of value creation, diversity and polyvocality, as well as ethical, legal and economic preconditions.



## 1. How are we to make all the Dutch cultural and media organisations AI-ready?

Within the culture and media sector, content is produced and distributed by and for a variety of user groups and organisations. How will we make sure that all stakeholders have the best possible access to the opportunities that AI offers for giving users the optimum experience of our culture and media sector?

Society's reflections on the role of AI are eminently within the realm of the culture and media sector. By using AI in performances, installation art and media expressions, artists make their audience experience AI in a different way. On the other hand, AI offers opportunities for experiencing cultural expressions in new ways, both by using AI through existing user interfaces and by applying AI in new, innovative user interfaces. AI adds value to culture and media that way. AI can, for instance, be used to discover crosslinks in the content, even transcending the boundaries of various providers. Those links can in turn yield richer, more generous user interfaces or interesting recommendations. This will allow diverse and more inclusive content to be presented, with the user more in control of it. Presentations can use multiple modalities (text, speech and video) to adapt them to the needs of individual users, such as people of varying ages and people with functional limitations.

To create added value from the opportunities AI offers, one needs to understand the demands of AI for an organisation, its collections and staff. Not only the major players but also smaller organisations and self-employed artists must be able to benefit from current developments in AI. They must also be able to claim their role in the digital ecosystem of the future. A shared and robust level of basic knowledge and access to data, skills and technology throughout the sector will create inclusiveness, earnings capacity and independence.

## 2. How can we design and develop value-driven AI systems?

By considering what AI can do at any point in the chain, we facilitate and direct responsible use of AI. For the culture and media sector, this means that we must reflect on the role of AI from the moments preceding design and production right through to the distribution of content to consumers. Which goals do we want to achieve with AI? How will we embed society's values in the data and the design of the AI system? What opportunities and limitations does that create? What demands does it impose on the content and the organisation? This provides data – including training data – that is properly documented and is suitable for the purpose for which it was collected, taking account of ethical and cultural values.

The first steps have recently been taken at a European level towards regulating AI, including guidelines about representatives training data and non-discrimination.<sup>37</sup> Given those developments, it is extra important now that AI systems are developed that have been designed from the outset not only for inclusivity and diversity but also for responsible management of the risks and the data. Close collaboration between AI developers and specialists in the content/collections is needed for this. Only then will it be possible to put together training datasets, develop algorithms and present output data to users in a way that takes account of the variety of perspectives. We will test and assess such systems not merely on how well they perform in general, but also from each individual perspective. This will let us actively prevent situations in which for instance minority voices are not heard, cannot be found or have become invisible.

---

37. [https://digital-strategy.ec.europa.eu/en/library/proposal-regulation ...](https://digital-strategy.ec.europa.eu/en/library/proposal-regulation...)



### 3. How can we develop open, independent and responsible AI ecosystems?

The market is currently dominated by a few international players. Working on an open ecosystem that is independent of these Big Tech companies lets us offer the culture and media sector an alternative. Ethical principles and social values can be given a key position in this (see challenge 2). This is a specific example of AI for culture. Design approaches are being suggested that are culture-specific and play a major role in services under development that fit in with the values that apply in the context of the Netherlands and Europe at large.

This kind of ecosystem creates the necessary preconditions for answering the question of what effect ethical principles and regulations based on them regarding AI will have on the value proposition and earnings capacity in the culture and media sector. Developing a Dutch quality mark for responsible AI applications – after the example set by the current PublicSpaces badge<sup>38</sup> for platforms – can be a step towards value creation through responsible AI. The aim ought to be properly protecting values such as the right to privacy and freedom of expression to the users, along with the intellectual property rights of the providers.

Responsible personalisation is an application area in which many of these ideas become apparent, from the algorithmic to the ethical and from heritage to news. What is even more important is that personalisation and recommendation also plays a major role in other sectors (such as retail, recruitment and health). Responsible personalisation sometimes clashes with other interests. It is a broad theme, very important to society and unlikely to be solved by the market itself. There are, moreover, major foreign monopoly holders who present a threat in many sectors – take Google and Facebook in the media field, who present a threat to Dutch earnings models and our own robust media sector. In the retail sector,

Amazon's hunger for data is threatening. Parties such as Apple and Google are extremely active in the healthcare sector.

### 4. How can AI systems that are built on European values strengthen the value proposition and earnings capacity of Dutch culture and media sector?

Companies, organisations and individual professionals in culture and the media utilise the capabilities of AI for creating and generating value. This is referring to economic, cultural and societal values. It involves strengthening the competitive positions of companies and clusters of activities, as well as bringing about social transitions that are centred on various forms of value, often in combinations. Innovations in culture and media are often a precursor to renewal elsewhere; take gamification and virtual reality, for instance.

Economically sustainable business models and the associated value propositions are an essential precondition for all those involved if they are to help bring about social transitions. Socially responsible applications of AI – for instance offering privacy guarantees – seem economically restrictive, but may perhaps in fact be an economically interesting proposition.

Studies into value creation by using AI in the earnings model for the culture and media sector (and the development of that model) is also very important in the international context. The fact that the Dutch-language market is limited plays a role here, with consequences for the accumulation of data in Dutch and therefore the development of Dutch-language AI. This in turn has consequences for the quality of the public arena and for the earnings capacity of Dutch culture and media, both commercial and public. This therefore makes a case for additional attention being paid to the Dutch and European perspectives on AI.

38. [https://www.volkskrant.nl/wetenschap/vpro-initiatief-probeert-internet-te-heroveren-op-big-tech ...](https://www.volkskrant.nl/wetenschap/vpro-initiatief-probeert-internet-te-heroveren-op-big-tech-...)

The discussion about the value creation impinges upon all phases of the inspiration process for generating new productions and content, right through to providing access to the works created and the interactions between the makers, users, enriched content and smart technology that are all part of the material created and offered. Once again, this challenge is an example of AI for Culture.

**Use case A: Developing an AI training programme for and by the culture and media sector.**

Whereas existing training programs are largely focused on the technical aspects of AI, this programme must above all pay attention to embedding AI in the existing information architecture and information systems within the sector. The focus is on relevant legal and ethical frameworks and the relationship that technology has with cultural, and social and democratic values. The specific requirements of the sector in terms of diversity and polyvocality letting voices be heard, independence and professional values are determining factors for the choices that are being made about how AI will be deployed. Sharing best practices can help create a better overview of the possibilities. That is the only way to guarantee that the new capabilities of AI will also filter down to the smaller market players.

**Use case B: Developing polyvocal language models in Dutch with multiple voices for written text and speech, trained on data carefully compiled by experts.**

Written or spoken texts in Dutch play a key role in many cultural expressions. At the same time, many linguistic techniques in AI focus primarily on English, disadvantaged applications in Dutch internationally. Moreover, current AI models are often trained using large datasets that are freely available on the Internet for which little or no quality assurance is possible. The consequences are that the data is not representative of the various user groups and that undesired norms and values can be copied or even reinforced in the AI application.

We are continuing from the results of existing digitalisation processes and studies, making that data suitable as for polyvocal multi-voiced training data through careful selection and annotation processes. Models trained on these datasets can be given characteristics explicitly<sup>39</sup> that correspond to the datasets used. These could for instance be models trained explicitly with historical Dutch, models specifically trained on texts from the colonial period or speech recognition software that is capable of handling various Dutch dialects and accents. The language models developed and documented in this way can be made suitable for large-scale use in both public and commercial applications.

**Use case C: A transparent and platform-neutral framework for value-driven recommender advisory systems.**

Systems providing recommendations and personalisation are omnipresent now in commercial audio and video streaming services, news websites etc. Improved recommender advisory systems often achieve these results at the expense of collecting yet more data about users and at the expense of transparency and accountability for the recommendations given. Uncoupling a personalisation service from the supplier's content and the users' profiles, for instance, allows a user to remain the owner of their own data and the same service can be used on multiple platforms. At the same time, providers are encouraged to characterise their content explicitly. Using AI in this process can let media and cultural institutions show inclusive and diverse content, as well as making new commercial earnings models possible. At the same time, this framework creates a testbed for an experiment with various ways of giving users more control of a say when the ethical and legal implications of the various options are worked out in more detail.

---

39. <https://doi.org/10.1145/3287560.3287596>

## **PART III**

### **SHAPING THE TRANSITION**

Over the coming years, the digital transition is going to be one of the priorities in the European Union, affecting all sectors of society. AI is accelerating the transition towards a digital information society, even though it has not been always progressing equally successfully in the culture and media sector. Economic and social interests are playing a major role in that. The success of AI development depends on the efforts, knowledge and expertise of the sector, and above all on the chances and opportunities offered by national and European authorities. In our role as a working group, we are striving to contribute to this transition, together with our network of national and international stakeholders, partners and the participants in the Netherlands AI Coalition.



## Stakeholders

The culture and media sector has already acquired experience within AI, collaborating with other stakeholders. An infrastructure for innovation has been developed for some parts of the sector (media, heritage). However, given the major challenges associated with AI, more incentive is needed in order to forge the connections into a coherent ecosystem that can be strengthened and made future-proof.

One of the challenges within the culture and media sector is sustainably organising and developing its network, which largely comprises smaller organisations. Consider the challenge of providing access to collections of distributed cultural heritage collections from various cultural heritage institutions, big and small. And using AI to make them more widely accessible to a broad spectrum of stakeholders. There could potentially be a treasure-trove of collaboration possibilities that we have as yet barely scratched the surface of.

Another feature of this sector is the diversity of content providers. The output ranges from stage performances, exhibitions of visual arts and entertainment such as stadion concerts or radio and television to opinion-forming news in the media. Part of that content is stand-alone, such as expressions intended for inspiration or entertainment for all strata of society. Another part is reflective or directing the society, affecting how opinions are formed, either directly or indirectly. Expressions such as art and satire are in the intersection of these two.

Moreover, cultural expressions and the media are inseparably intertwined with people's behaviour. And precisely that behaviour has been put in the limelight during the current COVID-19 pandemic, for instance, in societal issues. That has been evident in the implementation of COVID-19

protection measures and how these affect the mental and physical health, whether seen as one of the causes or one of the effects. That is not only true in the healthcare sector but also in other domains such as the climate, food supplies and politics. Behavioural influencing, perhaps with cultural expressions or the media fanning the flames, is becoming an increasingly important issue for science<sup>40</sup>. AI can contribute to uncover behavioural patterns, design interventions to influence behaviour, and AI-driven user interactions (e.g. recommendations) can intervene in ways aimed at influencing behaviour.

## Existing infrastructures

For several decades now, various organisations in the Netherlands have been operating in the field of e-culture (a.k.a. digital culture). Take WAAG or V2, for example, or the former Virtual Platform (the Dutch knowledge institute for e-culture in 2007-2012). The Ministry of Education, Culture and Science and others have also invested in policy development, for example through the National Digital Heritage Strategy. This position paper fits in well with the seven principles listed in the most recent strategy, for 2021-2024<sup>41</sup>, which also included the heritage of the arts sector and the creative industry.

More recently, various new initiatives have been rolled out. A few examples:

- ELSA Lab: AI, Media and Democracy
- ELSA Lab: Cultural AI Lab, under the nationwide umbrella of the Innovation Center for Artificial Intelligence (ICAI)<sup>42</sup>
- Field labs started up by the commercial sector, such as ones for data, AI and success metrics through consortiums by MediaPerspectives

40. <https://vragen.wetenschapsagenda.nl/content/wat-is-de-Invloed-van-media-en-cultuur-op-de-samenleving>

41. <https://netwerkdigitaalergegoed.nl/nieuws/nieuwe-nationale-strategie-digitaal-erfgoed-2021-2024-ook-voor-de-cultuurproducerende-sector/>

42. <https://icai.ai>

- RAAK project “Van Black Box to Glass Box” (From a black box to a glass box)
- RAAK project “DRAMA” (Designing Responsible AI for Media Applications)
- The SPRONG initiative for Responsible Applied AI

## Ecosystems

Various innovation hubs have been set up at the regional level over recent years under the ‘Coalitie Data Innovatie Hubs’ umbrella<sup>43</sup>. Regional AI hubs have also recently been established under the NL AIC; these are expected to initiate regional activities leading to typical AI projects as envisaged within the NL AIC and the AiNed investment programme. The working group Culture and Media has now been connected to three regional AI hubs: Amsterdam, Midden-Nederland and Zuid-Holland.

At the national level, there is a clear connection with the Top sector Creative Industry and with the knowledge and innovation agendas such as Maatschappelijk Verdienvermogen (Social Earnings Capacity)<sup>44</sup>. The latter one focuses on scaling up innovation and at the power and value of creative concepts for other domains.

At the international level, cooperation is being explored within the Dutch Digital Innovation Hubs and for the possibility of scaling up to the European level within the Digital Europe programme<sup>45</sup>.

## The power of the working group

Based on the potential of AI applications plus wide-ranging user wish-lists, and considering the ethical and copyright rules, the working group is aiming to achieve a joint effort

to draw attention to the importance of AI in the culture and media sector among national and European authorities. The ambition is to focus on joining forces on AI development with the knowledge and expertise of the stakeholders in the sector. This position paper provides a framework for substantive and strategic collaboration in the sector, aiming for yet more innovation in culture and media. At the same time, the working group is highlighting themes that are cross-sector in nature and relevant for other application areas within NL AIC such as Security, Data Sharing and Education.

## Tools and instruments

This position paper discusses not only existing instruments but also future funding calls and frameworks.

These include the Dutch Research Agenda (such as not only the Living History routes but also Value Creation through responsible data access and data use), the National Growth Fund, the mission-driven innovation policy (Knowledge and Innovation Contract), key sector policy (such as the MIT grant scheme through the ICT, HTSM and the Creative Industry top sectors, as well as the PPP scheme) and NWO (Netherlands Organisation for Scientific Research) instruments such as the LongTerm Program grant scheme or AI-related calls. The NWO and the NL AI Coalition have also launched a programme about human-centered AI for an inclusive society. Another relevant NWO-SIA tool is SPRONG: funds for practice-based research in which universities of applied sciences collaborate with various partners from the commercial sector and/or public organisations<sup>46</sup>.

A methodological framework has been developed within the Knowledge and Innovation Agenda (KIA) for Key Enabling Technologies, allowing innovations and transmissions to be realised better and more effectively; these are what are

43. <https://commit2data.nl/coalitie-nederlandse-data-innovatie-hubs>

44. <https://www.clicknl.nl/kia-verdienvermogen-2020-2023/>

45. <https://ec.europa.eu/digital-single-market/en/europe-investing-digital-digital-europe-programme>

46. <https://regieorgaan-sia.nl/financiering/sprong/>



referred to as the key enabling methodologies (KEM)<sup>47</sup>. They can be used to address social issues by means of technological applications, for instance in field labs where there is room for experimentation involving actual social practice rather than relatively isolated scientific configurations. The proposed research is also aimed at validating the usefulness of the KEMs and making suggestions for modifications and additions. As well as fundamental research, design research is very important, especially for the cultural and creative sector. Support for social change is created from an iterative process focusing on the human perspective.

At the end of 2020, the Raad voor Cultuur issued a recommendation to finance three field labs, including one for Digitalisation<sup>48</sup>. This field lab firstly explores how different cultural and creative practices (and their target groups) can come together, and secondly looks at artistic digital innovations and hybrid and mixed practices. TKI CLICKNL and the Creative Industries Fund NL are responsible for the design and implementation of this fieldlab.

Within mission-driven innovation policy, a knowledge and innovation agenda for social earnings capacity has been developed<sup>49</sup>. This position paper focuses on scaling up innovation and achieving societal impact more quickly. The key enabling technologies of the creative industry fit instrumentally well with this.

In the AiNed Investment Programme<sup>50</sup>, a range of instruments have been elaborated along the lines of 1) integrative chains, 2) research, innovation and knowledge, 3) connecting networks, and 4) talent and education. Specifically with regard to research, innovation and knowledge, three relevant instruments have been mentioned: a) AI innovation labs such as the ICAI lab 'Culture for AI', b) ethical, legal and social aspects (ELSA) labs, and c) valorisation and technology transfer (VTT).

There are also several relevant instruments that fit in nicely with this agenda within the new Horizon Europe Programme 2021-2027<sup>51</sup> and the Creative Europe program<sup>52</sup>. The European Commission's priorities<sup>53</sup> for the period 2019-2024 (including A Europe fit for the digital age) and Key Strategic Orientations (including Promoting an open strategic autonomy by leading the development of key digital, enabling and emerging technologies, sectors and value chains) also fit in nicely with this.

---

47. <https://www.clicknl.nl/en/the-creative-industries/key-enabling-methodologies/>

48. Raad voor Cultuur (November 2020). *Onderweg naar overmorgen: Naar een wendbare en weerbare culturele en creatieve sector* (On the road to tomorrow: Towards an agile and resilient cultural and creative sector)

49. <https://www.clicknl.nl/kia-verdienvermogen-2020-2023/>

50. NL AI Coalition (2020). *AiNed: Strategic Investment Programme for Artificial Intelligence 2021-2027 – National Growth Fund by the Rutte III Cabinet*; internal publication (nlaic.com)

51. <https://www.rvo.nl/subsidie-en-financieringswijzer/horizon-europe-onderzoek-en-innovatie/structuur-horizon-europe>

52. <https://digital-strategy.ec.europa.eu/en/news/commission-launches-calls-worth-eu12-million-support-news-media-and-eu-public-sphere>

53. [https://ec.europa.eu/info/strategy/priorities-2019-2024\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024_en)

## **The power of connecting through culture and media**

This position paper offers opportunities, possibilities and a strategic outlook of the future, or can also serve as a guideline for monitoring cohesion in the sector. To make full use of the potential of AI, investments are needed from both industry and the government. The four key challenges in this position paper comprise the start of the transition that we are facing and that we need to shape. Those challenges are not restricted to the culture and media sector but affect the entire spectrum of society. Nevertheless, the sector can play a key role here because innovation in AI within the sector can help pave the way for other sectors.

Appendix 1 outlines a more detailed version of the four major, overarching challenges (as listed in Part II of this position paper) that affect all elements of the culture and media sector. The detailed description acts as an inspiration and starting point for a new initiative.

A flourishing ecosystem has now started to appear. The working group has signalled, however, that efficiency and effectiveness are in short supply if we want to share knowledge and learn from each other. If the challenges of AI are to be tackled, the knowledge and expertise within the sector must be utilised. Mobilising the stakeholders in collaborations is also a 'must'. Joining forces is the only way for us to shape the transformative role of AI, focusing on our national and European standards and values. And it is the only way we will be able to cope with the international competition. That is why we, the culture and media sector, are calling upon the government, the commercial sector and the sciences to collaborate actively with us towards that goal.

If you would like to make a difference in AI, please contact us. We'll be happy to help you!

## APPENDIX I USE CASES FOR AI

This appendix is a more detailed version of the issues and use cases presented in Part II of the position paper. It differentiates between challenges at the chain level (inspiration and production, distribution and reception) and issues with a more transverse impact (getting more voices heard, ethical and legal preconditions, value creation and earnings capacity).

### Inspiration & Production

Within the sector, content is produced for a wide variety of user groups. This subgroup focuses on how AI can play a role at the beginning of the production chain. Starting to think about what AI can do before the content is actually produced lets us facilitate the use and distribution of the collections, content and creative expressions. Consider the decisions that are made during the digitalisation process, for instance, that make it possible to analyse cultural and cultural heritage collections on a large scale in text, images and sound. This can provide input for social issues and support journalism in its news production and fact checking. Also consider how we can use new methods to provide ultra-personalised forms of presentation to give a richer and higher-impact experience of the stage arts.

### Challenges

- 1. How are we to make all the Dutch cultural and media organisations AI-ready and how will we make sure that all the content creators have the best possible access to the opportunities that AI offers?**

To create a good fit with the opportunities AI offers, you need to know what AI demands of you as an organisation, of your collections and of your staff. A shared and robust level of basic knowledge throughout the sector will be a driver for effectiveness and independence. Inspiration & Production focuses on what will be needed for making culture and media organisations ready for AI. This is being

done by sharing knowledge, providing guidance to simplify implementation, sharing best practices and inspiring with good examples.

- 2. How can we support the creative processes with AI and what can we learn about these processes?**

Creativity is a labour-intensive and time-consuming process that meanders towards an end product. Many content creators record this process – just think of recordings of rehearsals or the ‘track changes’ feature in text processors. Inspiration & Production wants to support these creative processes and learn from the creative paths that the content creators take. At the same time, we are expressly looking the other way too: at how the perspective of the content creators can support AI. Socially responsible use of AI needs a critical and questioning eye. Artists and creative people are just the right ones for providing that perspective, outside the culture and media sector as well.

- 3. How are we going to produce AI-ready content in the entire sector and provide optimum access to those collections, for people and for machines?**

As well as our organisations, our collections and content need to be primed and ready if they are to work with AI. Inspiration & Production studies the use of digital content, working together with the Polyvocality and Ethical & Legal Requirements subgroup sections in order to jointly produce recommendations, standards and formats. This yields a fair<sup>54</sup> method of content production and digitalisation that not only serves people but is also accessible for machines. ‘Optimum access to these collections’ also means that a broad spectrum of collection users must be addressed. This overlaps with challenges from the Polyvocality and Distribution & Reception subgroup sections.

---

54. <https://www.go-fair.org/fair-principles/>

### Use Cases

We are working on inspirational use cases that demonstrate the power of AI in the production process within the culture and media sector and through which (with the help of open scholarship) we record the pathway taken within each project. Sharing knowledge about procedures, making it available, long-term storage, creating and using training material for AI, starting new collaborations and lessons learned are all elements that will expand the level of knowledge within the sector. The end product that this creates will inspire and encourage new collaborations and connections. For example: Creating the right mindset among organisations and representatives.

The culture and media sectors have been structurally underfinanced for years. There are numerous opportunities for AI to be used, but organisations will have to embrace the digital transformation if that is to happen. This is also a strategic organisational question. Although the coronavirus crisis has underlined how important digitalisation is, the first priority of many parties within the sector is currently – understandably – recovering their levels of creation and production. Additionally, clarification is needed about what AI can mean for them in concrete terms within the context of their business operations, as well as training being needed in how to recognise their own requirements and ask the right questions.

We are therefore making the case for small-scale, targeted communications strategies, for instance by creating:

- A demonstrator that uses AI to link collections of press photographs from various regional archives with the digitised newspapers in which the photos appeared.
- Eight series of podcasts in which experts in AI talk with heritage and media organisations to give them advice about implementation and production.
- The manual for AI production within the culture and media sectors, taking account of pluriformity and legal and ethical preconditions.

- Producing and distributing best practices for the deployment of AI and its interaction with creative and archival activities.
- Organising matchmaking events for interested parties in art-science collaborations in the domain of AI and data.

### Understanding the creative process

The creative process that yields an artefact is a rich event. It is often only the final product, however, that is seen by the public and archived in collections. Making the process itself more understandable for the creator and the public, as well as being able to archive it in digital form, engenders considerable challenges for AI technology in terms of multimodal acquisition, annotation, representation and provenance. We could for instance consider the following projects:

- Using AI for developing a new theatrical or dance presentation that embroiders upon the company's previously recorded rehearsals.
- Recording and documenting the creators' processes throughout the whole spectrum of the sector, such as glass blowers and artists, journalists, theatrical and television producers, musicians and writers.

### Scope for critical questioning and unexpected connections

Both the culture and the media sectors play key roles in asking critical questions (and encouraging the public at large to do so) and in making unexpected connections. Now that AI and digitalisation are becoming more important and more widely used, the need for this is increasing. Unexpected links will only be uncovered here if appropriately fertile ground is provided. It should be noted at this point that the culture and media sector consists largely of independents and small organisations, who are often exceptionally ready to innovate and very creative but that cannot easily get involved in large-scale traditional consortiums and

projects. On top of that, the biggest impact from critical questioning and laying unexpected links will be achieved through cross-connections with other sectors (e.g. theatre and robotics or dance and healthcare). Both AI and the cultural sector can consciously provide input to the UN's sustainable development goals (SDGs). Culture's impact is socially evident; art and culture help create well-being and welfare, for instance, both preventively and in treatment. In the Netherlands, this has been strikingly demonstrated and promoted by Prof. Erik Scherder and others. The idea that this impact is demonstrable is emphatically underlined in the report *What is the evidence on the role of the arts in improving health and well-being?* by the Health Evidence network (WHO Europe). This is the most extensive summary of evidence for linking art and health so far<sup>55</sup>. The report also contains examples of initiatives for collaboration between content creators in the visual and performing arts on the one hand and researchers and institutions looking at how to treat mental social problems on the other. Movement, performativeness and interaction (aspects of e.g. dance and theatre) are the key to the rapidly growing field of social robots, in particular for designing interactions between humans and robots. Another example is provided by Theo Jansen's beach animals as a model for robot designs, in particular regarding the relationship between movement, surroundings and intelligence<sup>56</sup>. An artist or creator is not however particularly likely to come up with crosslinks like those themselves. We therefore make the case for:

- Creating a strong and inclusive ecosystem that can mediate between questions from other sectors and the views of individuals;
- Organising matchmaking events for interested parties in art-science collaborations in the domain of AI and data, which will benefit research into pattern recognition, language and speech, and movement;

- Efforts to get the public's creative gaze actively involved (for instance after the example of the activities of the Waag Society);
- Deliberate investment in forms of projects that can give small organisations and independents from the culture and media sector sufficient and appropriate scope for helping think AI issues through.

### **Distribution & Reception**

This group focuses on the way that cultural expressions (ranging from live broadcasts to games and from podcasts to e-books) find their way to the public. AI can be used for enabling smart recommendations, orchestrating storytelling, multi-language support and rich augmented reality visualisation. AI can also help make material accessible for people with functional disabilities. Moreover, AI can help understand which target groups are being reached and what interactions users undertake with the productions and with other users. This allows a fine-meshed analysis of the impact that can be used as the basis for further cultural expressions.

### **Challenges**

#### **1. How can the content on offer and be personalised responsibly?**

If it is to be possible to find a way through the overabundance of cultural expressions, content is going to need to be offered in a more and more individualised way, because the content that someone finds relevant and interesting is an inherent attribute of that individual.

Personalisation using AI is already playing a crucial role in the content on offer on the major online platforms, albeit not without criticism. The fear of filter bubbles, echo chambers and self-fulfilling prophecies is often mentioned. Personalisation using AI does however also offer

55. WHO/Europe | Evidence-informed policy-making - What is the evidence on the role of the arts in improving health and well-being? Summary (2019)

56. Article by Prof. Maaïke Bleeker (UU/Media & Culture Studies) FCJ-206 From Braitenberg's Vehicles to Jansen's Beach Animals: Towards an Ecological Approach to the Design of Non-Organic Intelligence - FCJ 28: Creative Robotics | FCJ 28: Creative Robotics (fibreculturejournal.org)



opportunities for extending diversity within media offerings and for encouraging diverse consumption of them. For news offerings, research has shown that personalisation can in fact often have a positive effect, and that it is for instance possible to actively encourage polivocality and multiple perspectives.

If the content is to be individualised responsibly, users must perceive greater human control and transparency than is the case with personalised platforms now. The explanation of why certain content is offered and the options for influencing that are extremely important here.

An additional challenge in this regard is ensuring that people with functional limitations have optimum access to the content.

## **2. How can new forms of human-machine interaction provide new cultural experiences?**

AI offers opportunities for experiencing cultural expressions in new ways. Modelling those perceptions can yield new forms of human-machine interaction. This makes it possible to orchestrate interactive storytelling and adjust experiences to suit the users, for instance by supporting multi-language capabilities or by making material accessible for people with functional limitations. AI makes it possible to create rich augmented reality visualisations. These developments also have a substantial overlap with the Value Creation & Earnings Capacity subgroup section. The rise of generous interfaces and immersive experiences are the first signs of this.

Voice agents are providing access to media and cultural expressions in new forms, each of which comes with its own challenges. Speech recognition is for instance not equally accurate and accessible for everyone.

## **3. How can we develop open, platform-independent distribution systems while still keeping an eye on (1) intellectual property rights and (2) public values?**

To keep the Dutch culture and media sector strong, it is important that we are able to develop our platform independently. For that, we must have distribution systems that are open and platform-independent and at the same time monitor intellectual property rights (control over data) and public values. There is a strong relationship here with the Ethical & Legal Preconditions and Value Creation & Earnings Capacity subgroup sections.

A method is needed to allow the source of cultural expressions to be traced – a proof of provenance. Blockchain may offer opportunities, as the recent rise of NFT's has shown.

AI is crucial in monitoring public values in the distribution of user-generated content. Recognising harmful content before it is distributed will remain a challenge, whether it involves threats or deep fakes.

## **4. How can we quantify media consumption and translate it into understandings that can underpin new creative work?**

The majority of new forms of interaction with cultural expressions leave more traces of the consumers than older forms do. This offers opportunities when making new creative works. Analysing implicit and explicit feedback can provide insights for new creations. For those who create cultural expressions, this analysis may be a challenge that AI can help them with, providing insights in an accessible way.

### Use cases

#### **1. A personalised and healthy media diet (GC1, 3 & 4)**

Consumers currently acquire their media straight from the source or through the larger platforms. We want to make a place where content from various providers comes together and where we can jointly investigate what constitutes a healthy media diet. When multiple sources come together, the final offering will have to be put together for the individual. Personalisation is done as transparently as possible, both for the content creators and the consumers. There is also scope here for the values of both parties. There must be scope for

editors and curators to determine what they want to put on show. Consumers get control over the personalisation and can set objectives for their media consumption. The platform offers the creators insights, allowing smaller parties to learn and benefit from the larger ones.

## 2. Speech for culture and media (GC2)

Access to media and cultural expressions is going to happen through speech more often. It is essential that nobody lags behind. Speech recognition for Dutch is not yet as good as it is for English. And more importantly: it does not work equally well for everybody. Interaction through speech is less accessible for elderly people, young people and those who do not speak Dutch as their first language. Speech synthesis also tends not to reflect the polyvocality of Dutch speech. We want to bring that diversity to the fore in benchmarks that can serve as the standard for speech recognition and speech synthesis in Dutch.

### Polyvocality & diversity

A polivocal approach to culture and media is essential for diversity and inclusivity. Polyvocality is the term used when something is viewed from multiple perspectives. Alternative perspectives can arise from other cultures, other parts of the world, different periods in history, or by listening to the narratives of various age groups and strata of the population. In cultural institutions, there is a wish to include alternative voices, opinions and narratives explicitly in the collections. This lets them give a more complete and more inclusive picture of the cultural and historical objects in their collections. Diversity also plays a crucial role in the media sector. A democracy can only function properly if the media “are capable of distributing a pluriform offering of information among a diverse audience comprising members of the public”.<sup>57</sup> Our aim is therefore to create content and make it accessible in a way that does justice to the diversity of perspectives among both the content creators and the user groups.

### Challenges

#### 1. How can we create AI that has been designed from the start for multiple perspectives: ‘polyvocality’ by design?

Use of AI in the culture and media sector has grown substantially recently, with new methods of automated and semi-automated creation and distribution of content, and with data-driven search and recommendation systems. However, these AI systems are by no means always capable of showing the various voices to the public appropriately and equally. On the one hand, there is an increasing need for personalisation; on the other, there are in fact increasing concerns about the negative effects of filter bubbles. The first steps have recently been taken at a European level towards regulating AI, including guidelines about representative training data and non-discrimination.<sup>58</sup> Given those developments, it is extra important now that AI systems are developed that have been designed from the very start for polyvocality. This demands close cooperation between AI developers and content/collection specialists. Only then will it be possible to put together training datasets, develop algorithms and present output data to users in a way that takes account of the variety of voices. Testing these systems and assessing them on each individual perspective lets us actively prevent situations in which minority voices are for instance not heard, cannot be found or have become invisible. In other words, the multiple perspectives we are aiming for could be termed ‘polyvocality by design’.

---

57. [https://www.raadrvs.nl/binaries/raadrvs/documenten/publicaties/2014/11/01/meerstemmigheid-laten-klinken/Meerstemmigheid\\_laten\\_klinken.pdf](https://www.raadrvs.nl/binaries/raadrvs/documenten/publicaties/2014/11/01/meerstemmigheid-laten-klinken/Meerstemmigheid_laten_klinken.pdf)

58. <https://digital-strategy.ec.europa.eu/en/library/proposal-regulation-laying-down-harmonised-rules-artificial-intelligence-artificial-intelligence>

## **2. How can we make the various perspectives in data and collections explicit and quantifiable?**

Pluriformity stands or falls by a good representation of the data. An explicit and quantifiable representation of perspectives is needed for (a) responsible systems for personalisation and recommendation, so that they can also be optimised for diversity; (b) evaluation of AI systems, not only looking at how will they work in general but also specifically how they work from each individual perspective; and (c) the presentation of alternative perspectives about an object or item to an end user.

It is essential to be able to encapsulate something as subjective and personal as a perspective in a quantifiable representation. How can we tell how well the variety of perspectives of content creators and users are represented in a dataset? And in the output of an AI system? Fortunately, we can continue to build upon a rich history of research: from communication sciences (for diversity metrics in the media), from information retrieval (in between ability for search systems), from AI (detection of bias in data and algorithms) and from archival sciences (explicit background knowledge about people, subjects and the creative process for the objects in a collection). Combining insights from these various fields of research and making them suitable for the culture and media sector will yield new methods and techniques for determining what perspectives are represented in data and systems.

We are aiming for an explicit representation of perspectives, including their provenance and cohesiveness. There are numerous modelling principles and standards in circulation that are suitable for this to a greater or lesser extent. What is lacking is an overview of the options that are usable in the culture and media sector. Such an overview must not only describe the pros and cons of each option but must also fit in with the existing information architecture and information systems that are in use within the sector. That is the only way to guarantee that the new capabilities of AI will also filter down to the smaller institutions. This type of manual, combined with a set of tools and methods for mapping the

various data models onto each other, will remain usable for a long time, even as the needs of the individual institutions change.

## **3. How can we present pluriformity to users, taking account of transparency, provenance and the relationships between perspectives?**

What is a good way for us to present a variety of views to an audience? There is not yet much research available in this area. The results of search and recommendation systems are still presented all too often as a list that offers little scope for showing what perspectives that content was created or collected from. The relationships between alternative perspectives on the same object or topic are rarely visible to users of these systems. The museum sector is already carrying out small-scale experiments in how to present pluriformity, for example with electronic textual signs next to works of art on which descriptions from various perspectives go round as a carousel. More extensive research into long-lasting methods of presentation that can be embedded in the systems is however urgently needed.

New forms of human-machine interaction are needed for presenting pluriform content to various user groups. AI can help here, both online and off. The trend of offering content online, which has been reinforced by the coronavirus pandemic, is creating new options for pluriformity. In collections that are digital and accessible online, multiple perspectives can be presented at the same time. The challenge here is selecting relevant perspectives about an object or subject, along with finding new ways of representing the origins and relationships between the perspectives informatively and intuitively. In off-line environments, such as exhibitions and libraries, AI can provide support through e.g. interactive displays or hand-held devices.

## Use cases

### **1. Linking perspectives together across media and across time**

Pluriformity has added value above all when the various voices are linked together, in other words when alternative perspectives on the same object or subject can be presented in relation to each other. This is important, given that the differing perspectives are generally derived from different data sources. How can you link to perspectives together in a sensible way, if they had been obtained using different tools and methods, from different media, from datasets that are orders of magnitude apart in terms of size, and with discrepancies in the level of quality?

These challenges are clearly present when a historical perspective is linked to the current themes. How can we connect news reports about Black Lives Matter or the discussion of whether Zwarte Piet is racist to archived documentary evidence about slavery? How can we give the debates on Twitter about statues and street names a place in an exhibition about the East India Company? Can AI help encapsulate these individual interpretations, use them as input for an alternative perspective and link them responsibly to a collection? It is important here that the sources of such alternative perspectives are made crystal clear and remain so. Our aim is to develop methods, techniques and manuals for linking historical data to current themes and for linking the perspectives of content creators and collection owners to the interpretations of individual consumers.

### **2. Making suppressed voices heard**

One of the biggest challenges in pluriformity is making the voices that have no representation in the data yet explicitly heard. After all, how can we listen to voices that we cannot hear? AI can play a role in this complex but crucial step. Analysing data on the grand scale can pick up signals from groups who are not explicitly represented in the collection.

One example of this is the project *Unsilencing the VOC Testaments*<sup>59</sup>, in which students from the University of Amsterdam looked for information about women and minorities in the East India Company archives within the National Archives. Those groups were rarely mentioned explicitly in the records. Nevertheless, the texts did contain indications about their lives and their roles in the events described. Developing AI that learns to interpret these kinds of subtle hints can let us start searching at a larger scale for similar suppressed voices. Another example is an art collection in which minorities can in fact be seen in the works but hardly appear at all in their descriptions. AI can help provide extra metadata for the artworks, automatically or semi-automatically. A lot of research is already being done in the media sector into diversity, e.g. through textual analysis to uncover how various perspectives appear in news reports and how often. However, such an approach misses any perspectives that do not appear at all. We can also shift the focus from analysis of the content onto analysis of the groups involved who ought to have a voice and onto comparisons with data sources in which they do appear. That demands integrated analysis of a variety of data types. AI can be used here for linking heterogeneous datasets by and about those groups in a meaningful way.

### **3. Making multiple perspectives visible**

How do we make it possible for multiple perspectives to be presented to audiences by all cultural and media institutions – not only the major players but also smaller institutions without in-house IT departments? The information about objects in museums is shared with the audiences through physical exhibitions and the website. Both of these make various modalities possible, but they are also both based on metadata about the objects present in the collection management systems such as Adlib or TMS. These systems are in essence derived from an inventory and then expanded with functionalities to allow the physical collection to be

---

59. <https://www.nationaalarchief.nl/archiveren/nieuws/vrouwen-en-tot-slaafgemaakten-voc-niet-langer-stille-getuigen>

managed. The assumption is that they contain the latest knowledge about the objects. Outdated knowledge and insights are, in the best case, retained in the archive or, in the worst case, overwritten. The various perspectives on the same object, as represented in the title or in the descriptive metadata such as label texts, can consequently often not be displayed either. Or when information about the collection that has not yet been stored is shown during a physical exhibition, that data cannot be retained thereafter in the underlying systems. The question is then how we share information about an object in a collection for a new audience comprising multiple perspectives and relationships between them. And how do we make sure that this information is retained sustainable in the data systems of an institution?

One example is the &Slavernij project (&Slavery) in the Rijksmuseum<sup>60</sup>. Since the beginning of 2021, two different textual signs have been hanging next to 77 works from the permanent collection: as well as the original, there is a second sign with new text that specifically covers the object's relationship with slavery. Another example is the data yielded by researching the provenance<sup>61</sup>. For some years now, targeted research has been done looking at the provenance of works in museums from the Second World War and others with a colonial background. This provides data that complements the existing descriptions of objects. Several questions arise in both cases. How can this new information be stored in the (largely online) collection catalogues and in the collection management system, in a way that will let it be linked to other data from the in-house collection and elsewhere? Should the data model be adapted? And how can that then be presented on the website?

### Relationships with other groups and initiatives

Pluriformity is a theme that cuts across the intersections with all the other working group sections. There is a link to the Ethics & Legal Requirements subgroup section regarding the new EU directives about regulating AI<sup>62</sup>. The Inspiration & Production subgroup section also has to deal with pluriformity: how can we create AI that deals responsibly with the perspectives of the content creators of culture and media expressions? There are various relationships between Pluriformity and the Distribution & Reception subgroup section, such as in the field of responsible personalisation and new forms of human-machine interaction. Pluriformity also plays a role in the NL AIC's Public Services working group, given that AI is also needed there that can take account of diversity and inclusivity.

The theme of pluriformity fits in with what is happening in the culture and media sector. As examples, we will take the Rijksmuseum's long-term plan that has a strong focus on pluriformity, diversity as the main thrust in the policy of the Netherlands Institute for Sound and Vision, the objectives of NDE (the Digital Heritage Network) and the focus on inclusivity in the report entitled *Kansen voor AI in Media (Opportunities for AI in Media)*.

Increasing attention is also being paid to pluriformity in the academic world, for instance in two outstanding calls within Horizon Europe (CL3 and CL4) and the objectives of the Civic AI Lab and the Hybrid Intelligence Lab.

Universities work together with heritage institutions at all levels, looking at exactly that concept of pluriformity. Examples include the projects within Europeana, such as Saint George on a Bike<sup>63</sup> and The Contentious Contexts

---

60. <https://www.rijksmuseum.nl/nl/zien-en-doen/tentoonstellingen/rijksmuseum-en-slavernij>

61. <https://www.musealeverwervingen.nl/>

62. [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_21\\_1682?s=09](https://ec.europa.eu/commission/presscorner/detail/en/IP_21_1682?s=09)

63. <https://pro.europeana.eu/project/saint-george-on-a-bike>



Corpus<sup>64</sup>, the establishment of the Dutch Cultural AI ICAI Lab<sup>65</sup>, and projects such as Culturally Aware AI<sup>66</sup> and the Belgian INSIGHT<sup>67</sup> project. Internationally, American and European heritage institutions and universities such as Stanford and Oxford are also members of the AI4LAM<sup>68</sup> project. All these parties mean that the institutions and researchers involved in these challenges and use cases have connections that can also be utilised for the purpose.

### **Ethical & Legal Preconditions**

This group focuses on recognising, understanding and formulating ethical and legal preconditions for responsible use of AI in the culture and media sector. This covers ethical questions about protecting vulnerable groups in particular (e.g. children) against any unintentional, undesirable effects of applying AI in the cultural domain. This also covers aspects such as inclusion, promoting digital diversity and preventing digital divides. There are aspects such as transparency of algorithms and suppliers, algorithmic bias and the reliability of AI systems. Ethical and legal questions about editorial responsibility, the embedding of journalistic values and optimum cooperation between human expertise and automated systems are important areas for AI to focus on. The areas we are concentrating on include developing ethical standards relating to responsible use of AI and algorithms in culture and media, and the real-world implementation of provisions relating to the protection of personal data in the GDPR. On top of that, we are focusing on the role of copyright and the regulation of AI, including in the European context.

### **A brief sketch of the essence and the problems**

Culture and media serve a dual purpose: libraries, museums, cultural institutions, public and commercial media all provide important contributions to the cultural and social development of a society, the embodiment of public values and maintaining our democracy. In our digital society, the culture and media sector is also an important economic growth factor and the foundation for a large number of new AI-driven services and platforms. **Law and ethics are the framework within which these developments can take place (including new business models).** The legal and ethical preconditions help point the way for the deployment of AI-driven services, responsible and data handling, profiling, predictions and information filtering and sorting. **Ethics and law therefore create the preconditions.** In a digital environment in particular that is controlled by economies of scale and a powerful winner-takes-all mentality, legal and ethical preconditions are extremely important for ensuring fair competition on the 'ideas market', determining the rules of the game when competing with large tech companies and foreign players, and setting up the conditions for effectuating human rights and economic rights. This covers fair rules about copyright and reasonable reimbursements for authors, the rights to data protection, media rights, the regulation of platforms and the competition law. This also covers the importance of new regulations, for instance to curb issues such as misinformation and deep fakes. **Within this working group, we are investigating what these regulations will mean for the deployment of AI in culture and media** and we are getting down to work on real-world legal and ethical challenges in various use cases. These are important times from the perspective of rights and ethics – **the rules for the digital society are currently being written in Europe:** the

---

64. <https://pro.europeana.eu/post/europeanatech-challenge-for-europeana-ai-ml-datasets-announcing-the-winners>

65. <https://www.cultural-ai.nl/researchtopics>

66. <https://www.cultural-ai.nl/projects/aicult-culturally-aware-ai>

67. <https://be.dariah.eu/project/insight-intelligent-neural-systems-integrated-heritage-tools>

68. <https://sites.google.com/view/ai4lam>

Digital Service and Digital Market Act, the Data Governance Act, the European Democracy Plan and Audiovisual Media Strategy, revision of European competition law as a tool to counter platform and data power, and of course the new European AI rules. Another important objective is to keep a close eye on these developments and assess what the implications are for the media and cultural institutions. As is what we can do to include the interests of culture and media in the discussions about the rules that will define these markets for the coming decades.

The first steps towards this are already being taken. A declaration of intent was signed by a large number of media companies in March 2021, for instance, about responsible use of artificial intelligence in the media<sup>69</sup>.

### Challenges

For the first period, three overarching questions (challenges) have been formulated:

- How can we use AI in culture and media in a way that will benefit the special social and democratic role that cultural institutions and the media have and help implement public values for this sector?
- What does ethically and legally responsible use of AI technology mean in culture and media?
- How can we develop transparent, fair and non-discriminatory ways of handling users' data?

### Use cases

#### **1. Predictive algorithms and how their use relates to the users**

A good prediction of e.g. the actual moment at which materials are handed in is important for libraries. It leads to a better user experience, both directly and indirectly, when reserving materials and thereby ultimately in the acquisition process. Correct predictions based on machine learning are predicated not only on material data about the work

but also on the personal data of the borrower and their behaviour patterns. It seems obvious here that the historical borrowing behaviour (known in the library's system) should be used. This does not cover all cases by any means, because of the borrowing history being anonymised and due to there simply not being any such history for the more occasional borrowers. It would then be possible to make generalisations based on known personal data such as age, gender, residential district and family make-up or other data (e.g. Mosaic characteristics) known in the system or added to it.

### Questions:

- What kinds of personal data can we collect for this? Can this data be seen as special category data?
- What do we have to ask for consent for? Or do libraries have a legitimate interest in collecting such data?
- What are the requirements if such data is to be collected in an ethically responsible way? Take non-discrimination, for instance, or profiling by ethnicity or gender.
- How will secure storage for the data be arranged and who will get access to it?
- Is storing a non-anonymized borrowing history justifiable for this application? If so, for how long and under what conditions?

As well as the questions concerning the individual rights of users, this use case raises broader questions about the social impact and desirability of predictive systems in culture and media: how predictions shape the relationship between the public and cultural institutions and the media, which public values it impinges upon, and also how more accountability can (and should) be created when predictive systems are being used.

In collaboration with KB Nederland and Probiblio.

---

69. <https://mediaperspectives.nl/intentieverklaring/>

## **2. How can we develop a mark of approval or badge for AI, similar to the PublicSpaces one?**

### **Problem outline**

More and more questions are being raised by users and by society about how AI is being used. Is it transparent, neutral and trustworthy? How can an organisation – particularly a public one – make clear how AI is being used and for what purposes? What expectations do the users of cultural institutions have about guarantees of their privacy and protection of their data?

These questions are explored in the ‘AI Badge’ use case, in which the AI Badge is worked out in more detail and developed jointly with PublicSpaces partners and users. This AI Badge is intended for transparency and visibility of how AI is used and which values and principles are leading. This will help generate more understanding and awareness among users and organisations about the ethical use of AI and it is in line with the NL AIC’s Grand Challenges.

### **Specifically...**

We are asking the questions and carrying out the development of the AI Badge together with partners from the PublicSpaces network and their users. An important aspect here is that we work in an investigative, learning and iterative way. The startup methods we are using include Design Thinking and Lean. With the help of a facilitator, the working group is organising sessions with partners and users to garner new insights into needs and opportunities and to collect feedback. An initial prototype (minimal viable product) will then be developed and tested with users. Feedback about it will then be used in several iterations to make improvements and gain a clearer picture of the value, role and limitations of transparency and explainability. Communication about the project is also a key activity for forming a more widely shared vision of public values and facilitating the role of transparency.

How is it useful for other parties and how does it help us tackle our challenges?

Both the knowledge and understandings acquired about users and the use of the AI Badge are transferable and usable for the PublicSpaces partners and potentially for other parties too. The use case can be deemed successful if we can show that both users and organisations can get clearer insights into ethically responsible ways of using AI.

## **3. Developing a shared vision of the legal and ethical preconditions for using AI in the culture and media sector**

### **Problem outline**

An important and recurring point needing attention is the future set of ethical and legal rules for guiding the use of AI in culture and media. The need for a legal and ethical framework is inextricably linked to the question of where we as a society want to go with AI, what public values we put at the centre, what opportunities we see for realising these values with the help of AI and what the challenges are in e.g. fundamental rights, such as the right to privacy or freedom of expression.

The Digital Service Act, the Digital Market Act, the Data Governance Act, the European Democracy Action Plan, the Audiovisual Media Action Plan and the new AI rules show that the European Commission is working hard on new regulations for AI and digital technology – regulations that will also potentially be interesting to the media and cultural institutions. They are all rather abstract and parts of them, such as the new AI rules, are general in nature. It is not yet clear how they will relate to the use of AI in culture and media. First of all, the rules as planned need to be mapped out, then made understandable and their importance for the cultural and media sector identified. Moreover, a vision is needed about how far these rules take sufficient account of and serve the interests of cultural institutions and media and their role in our society, promote innovations (independent ones in particular) and create sufficient space and clarity for the deployment of AI.

### Specifically...

In this third use case, we are exploring whether and how these rules create new opportunities and challenges for the use of AI in culture and media (including new business models), as well as whether there is sufficient attention and space for the realisation of public values and the cultural and democratic role of the media and cultural institutions. The EU's limited competencies in culture and media mean that this latter aspect – attention to the special cultural and social role – may have been lost in the sheer volume. Where the European regulatory framework pays insufficient attention, there may be a task for the Dutch government. Elements of this use case are therefore also developing specific, evidence-based policy recommendations and creating better visibility for the specific situation of culture and media.

In concrete terms, we are going to get to work mapping out the existing legal and ethical initiatives in this area and what they mean specifically for the culture and media sector. One element of this is converting it all into understandable language so that discussions about the proposed regulations become possible. To that end, we will engage with various experts, policymakers, NGOs such as PublicLibraries 2030 and lawyers who can explain the importance of the new European regulatory framework for culture and media from their own perspectives and/or act as interview partners. The findings will be published in a white paper or blog or other form of visualisation and will serve as a basis for further discussions.

More generally, we will first use a survey to identify the most pressing ethical and legal questions that are current or will arise in the near future. We will work these out in more detail in a series of workshops, blogs and/or podcasts, aiming to make them discussable and to come up with concrete findings (in part by means of co-design and other forms of participatory decision-making). These can be used for example to add substance to what are rather broad and abstract standards and make them more concrete, for example by embedding them in existing ethical codes. A key aspect of this is the role of technology. In close cooperation

with the other working group sections, we will help flesh out abstract concepts further, such as diversity, transparency or privacy and authorship.

How is it useful for other parties and how does it help us tackle our challenges?

Legal and ethical issues associated with the use of AI in the media run horizontally through all the working groups and subgroups and are therefore potentially interesting to all groups. Such issues will also be coming to the fore there. We therefore also propose opening our themed meetings to the members of the other working group sections.

Gaining a better understanding of the ethical and legal preconditions for using AI in culture and media and the role of public values there will let us help develop a general vision of how AI can be used in a way that lets it add to the special social and democratic role of cultural and media institutions. Additionally, we are providing input into the vision of what ethical and legal use of AI technology in culture means.

### **Value Creation & Earnings Capacity**

Companies, organisations and individual professionals in culture and the media utilise the capabilities of AI for creating and generating value. This is referring to economic, cultural and societal value (or combinations thereof). The concept of value has acquired a broader meaning and interpretation over recent years than a purely economic one, in innovation policy too. It is no longer merely about strengthening the competitive position of companies and reinforcing clusters of activities, but above all about bringing about social transitions that are centred on various forms of value, often in combinations. The services and products of culture and media are hugely important to the way our social system functions. It is also the case that innovation and development in culture and media, especially in new technological applications, are important for other areas of society. Innovations in the media industry are often a prelude to innovations elsewhere; gamification and virtual reality are obvious examples.

Within that context, this group is investigating the importance and significance of the use of AI in culture and media. We are developing ways in which these can take shape and examining what it requires from the various institutions, companies and professionals who are linked together in specific ecosystems, particularly for innovation. Special attention is being paid to the capacity and capabilities of organisations and companies (market-driven, publicly funded or a combination of the two) and individual professionals for achieving commercial continuity within this system – in other words, earnings capacity. Economically sustainable business models and the associated value propositions are after all an essential precondition for all those involved if they are to help bring about social transitions. AI heralds a new phase of development for the culture and media sectors that specifically focus on the imagination and on constructing meaning, plus its social embedding and access to it.

It is important to keep in mind that applications of AI in culture and media can also have negative social implications. Applications, services and products must be designed with this in mind. Mitigating or even eliminating negative implications should be a basic principle and this is an important thrust of the research. The point that is specifically important here is determining how the ways in which the negative implications of AI arise are related to the possible culture and media value propositions. It is conceivable that avoiding harmful effects – desirable from a social point of view – will come at the expense of the earnings capacity of culture and media. Another possibility is that socially responsible applications of AI, for instance offering privacy guarantees, may in fact be an economically interesting proposition.

In the context of studies into value creation by using AI in culture and media and how the earnings capacity for the sector is developing, the international context is also very important. Internationally, the American Big Tech companies dominate. That does not apply only for the content on offer and its consumption; they also dictate the technological and

platform conditions within which the national industries have to operate, and the AI applications they impose are no small part of that. The debate about the threat of Americanisation is flourishing again both in the Netherlands and in Europe, and even in the United States there are worries about the dominance of the said tech companies. That development presents a significant challenge, both from the social and cultural and the economic perspectives.

### Challenges

We have formulated three challenges for the time being for research and development looking at value creation and earnings capacity of the culture and media sectors.

#### **1. What is the effect of ethical principles and the regulations based upon them in new AI-based services on the value proposition and earnings capacity of culture and media?**

- Making distinctions on the basis of specific personal characteristics such as race and sexual orientation is not permissible. Media companies are however expected to provide diverse and inclusive content. Using AI can give a picture of the content in terms of these aspects. This can be an earnings model. What earnings models can be developed for this?
- One possible option: what earnings models can be developed using the principle of 'having ethical principles'?

This *challenge* focuses on the relationship between ethical principles, regulation and earnings capacity. When new products and services appear within the culture and media domain, taking account of ethical principles and using AI, this will also serve social objectives. Innovation based on that principle will undoubtedly have implications for the public reach of the services provided, and potentially also for the competitive composition of organisations and companies that offer them. Finding out how and under what conditions that relationship works positively or negatively, and what role may potentially be envisaged for the Dutch and

European governments and for sector-specific or network organisations is an important challenge and at the same time a relevant research question. Extrapolating from there, there is a need for an exploration of design practices and design principles used for developing products and services that are characterised by the correct human yardsticks and are created in an ethically responsible way. Products are needed that comply with regulations that have those underpinnings and that make a positive contribution to the economic continuity of companies and organisations in the culture and media sector. This can for instance fit in with the privacy-by-design approach.

Further study questions:

- What would it mean to make the public's needs and their interactions the focal point as the yardstick of earnings capacity, instead of using purely economic criteria?
- How can we get people and organisations to use AI effectively and competently and get them to aim not only to achieve economic results but also to support public values? These are expressed *inter alia* in ethical and legal preconditions that can be imposed on the use of AI.
- What is the impact of decentralised data processing applications, AI interpretation and privacy-by-design principles on earnings models?
- How is the earnings capacity of organisations affected by ethically responsible use of AI in the creation and consumption of content, entertainment and cultural, communicative and artistic expressions by all strata of society?

**2. How can innovations based on AI applications help create an economically and culturally independent position for Dutch and European culture and media with respect to the international Big Tech platforms, which are primarily American?**

- Most European languages have a relatively small reach. What investment would it require to do speech-to-text conversion for these languages? And what investments are needed for conversions between the languages? Or to do text-to-speech dubbing? For making European content more shareable and more commercially viable?

Within the media sector, as in the cultural domain, people are increasingly worried that retaining a sector with a Dutch flavour is becoming more difficult. That concern affects the entire sector, both market-driven and public. It is less about the ownership relationships in the private media industry, where European companies from outside the Netherlands predominate, and more about the extent to which content and services fit in directly with current topics in the Netherlands and the extent to which the everyday experiences of members of the public in the country are enriched and how they see themselves reflected in the content on offer. The fact that the Dutch-language market is limited plays a role here, with consequences for the accumulation of data in Dutch and thus for the development of Dutch-language AI. These developments have consequences for the quality of the public arena and for the earnings capacity of Dutch culture and media, both commercial and public. Because this applies to virtually all European languages, it therefore makes a case for additional attention being paid to the Dutch and European perspectives on AI.



Further study questions:

- Will seamless and individualised user experiences through all channels be a precondition for a product being sellable? And how can AI help create the content and platform experiences that the market demands?
- How can the Dutch culture and media sector make better use of the capabilities of AI for interpreting and generating colossal amounts of data and thereby using it to create and control?
- How should the Dutch culture and media sector utilise AI for a better, richer and tailored content offering – an offering that provides support in creativity, that is objective, binding, pluriform and Dutch, and that appropriate business cases can be developed for?
- Suppose that it proved possible to keep pace with the US and Asia in the technological race because we become more self-sufficient in terms of crucial infrastructure for developing AI and that it proved possible to base that on European values: how could this then yield better earnings capacity for the Dutch culture and media sector? This covers databases, cloud storage, distribution (including 5G) and user interfacing.

### **3. How is the structure and functioning of the culture and media sector changing under the impact of the growing importance of AI-based applications?**

- A precondition for using AI is that it must have data. It seems obvious that large media companies have a head start in applying AI because of their larger data volumes. How would the relationships between the media companies change as a result of AI being used, other than the further benefits of scale that large companies have with respect to smaller companies?

Issues playing a part here include the growing role of technology and tech companies in culture and media and how they will become intertwined in the near future. One answer to that question has consequences for the way research and development in culture and media will be organised and what the structure and dynamics of innovation will look like. Moreover, this development has direct consequences for the competencies and skills that new talented individuals will need for culture media and the requirements that will be imposed upon organisations and companies.

In the recent past, digitalisation has led to convergence of the media and IT industries. The introduction of digital services in arts and heritage has also made the links with the IT industry closer within that domain. AI is creating an even closer bond between culture and media on the one hand and information technology on the other. Involving data scientists and models of the presumed links takes AI further than information technology and, moreover and more than before, bridges the gap to behavioural sciences and the humanities. Many of the global companies that are currently dominant in media and networks have backgrounds in information technology. They are dictating the rules of the game to an increasing extent. A key question is what the consequences are of the two domains becoming increasingly interwoven. Aside from the question of how data will become a new asset in the culture and media business models, there are also the questions of how the innovation ecosystem in culture and media will change and also of whether and how culture and

media organisations and companies remain in the lead in developing new services and products. Extrapolating from what is happening in the economy at large, innovation in culture and media is taking place within a variety of networks where what are known as 'networked business models' can be seen increasingly often. Under the influence of the rise of AI, a new network structure is developing that culture and media organisations and companies have to navigate their way through. New competencies and skills are extremely important for this, both at the level of the organisation and of the talented individuals it employs. That also means that making innovation possible requires cooperation and coordination, including in terms of the core values, e.g. with an eye on implementing ethical principles.

Further study questions:

- How will the innovation process in culture and media change thanks to the advent of IT, data science and data modelling, humanities and behavioural sciences?
- How can AI help develop strategies in terms of alternative metrics, ubiquitous content, predictions about content requirements, content discovery and distribution in order to improve the earnings capacity of the Dutch culture and media sector with respect to the American and Asian platforms?
- How can public and commercial culture and media organisations combine forces in developing use cases of AI and media so that they can respond to the needs of other sectors in which communication and interaction are playing ever-larger roles in the missions?

### **The relationships and alignment with other working group sections**

The core theme of the Value Creation & Earnings Capacity subgroup is intimately linked to the themes of the other subgroup sections. The discussion about value creation impinges upon all phases of the inspiration process for generating new productions and content. That goes right through to providing access to the works created and the interactions between the makers, users, enriched content and smart technology that are all part of the material created and offered. The challenges that have been formulated within those frameworks all have consequences for value creation within the culture and media sector and its earning capacity. In the context of more broadly defined value creation (social, cultural and economic), diversity is an important theme and both legal issues and ethical questions are extremely important. Because legal questions and any regulations define the context for how cultural organisations and media companies set up or frame their propositions, this theme is exceptionally relevant for the Ethics & Legal Preconditions working group section. The same applies mutatis mutandis for questions about ethics that may or may not be reflected in national or European regulations.

[1] <https://www.topsectoren.nl/missiesvoordetoeekomst> and <https://www.rathenau.nl/nl/vitale-kennisecosystemen/missiegedreven-innovatiebeleid-wat-hoe-waarom>

[2] <https://mediaperspectives.nl/intentieverklaring/>

## Acknowledgements

This position paper has been produced thanks to assistance from the members of the working group Culture and Media. The working group developed this document based on frequent discussions amongst themselves and with the various underlying networks. The paper addresses the major questions in AI, culture and media for the years to come. To add depth to the proposal and sharpen it further, an extensive round of consultations was also held with a wider circle of stakeholders.

## Editing

Marjan Ippel

Tessera Translations BV (Mike Wilkinson)

## Visuals & layout

Denkschets

Whisky Friday

Marloes Bontje (Netherlands Institute for Sound and Vision)

## Authors

Erik Boekesteijn (KB, National Library of the Netherlands)

Marcus Cohen (DEN centre of expertise for culture & digital transformation)

Frits Grotenhuis (Grotenhuis Organisatieadvies - consultancy)

Natali Helberger (University of Amsterdam)

Laura Hollink (Centre for Mathematics & Informatics)

Cynthia Liem (Delft University of Technology)

Eppo van Nispen tot Sevenaer (Netherlands Institute for Sound and Vision)

Daan Odijk (RTL)

Johan Oomen (Netherlands Institute for Sound and Vision)

Jacco van Ossenbruggen (VU University Amsterdam)

Paul Rutten (Hogeschool Rotterdam)

Nienke van Schaverbeke (Netherlands Institute for Sound and Vision)

Rosemarie van der Veen-Oei (KB, National Library of the Netherlands)

Frank Visser (Media Perspectives)

Lotte Wilms (Tilburg University)

## Consultation round

The authors would like to thank the organisations that provided input on request to the position paper during the consultation round. They are: Alliantie Digitaal Samenleving, CLICKNL, Commissariaat van de Media, Cultuur+Ondernemen, Fabrique, Fonds voor de Podiumkunsten, Fontys Academie Creatieve Industrie, GAU, Hogeschool Utrecht, The Royal Netherlands Academy of Arts and Sciences, Media Perspectives, the Ministry of Education, Culture and Science, NBD Biblion, Nederlandse Filmfonds, the Netherlands Institute for Sound and Vision, PublicSpaces, Raad voor Cultuur, ROM Regio Utrecht, RTL, the Social and Economic Council, the Creative Industries Fund NL, University of Amsterdam, Leiden University, VPRO, Waag Society.

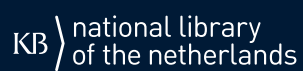
## Contact:

Email — [cultuur@nlaic.com](mailto:cultuur@nlaic.com)

Website — [nlaic.com](http://nlaic.com)

December 2021

This publication has been produced with the support of the Netherlands Institute for Sound and Vision,  
the Dutch Digital Heritage Network & the National Library of the Netherlands.



CC BY license for all stocks and "Paul Ridderhof/the Netherlands Institute for Sound and Vision" for the cover.