



TOWARDS THE FUTURE SOCIAL MEDIA

NEM White Paper

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Preface

What is and how will the future social media look, how we are going to get there, and what has to be done to enable it? Probably the largest research and innovation community in the area of media and content in Europe organised within the NEM (New European Media) Initiative answers these questions within a coordinated action among the community members. This activity is supported by the Vital Media project¹ of the Horizon 2020 EU research and innovation programme.

This White Paper presents an initial vision on the future social media, based on inputs received from a broad range of media and content sector representatives in Europe (from the NEM Initiative), aiming to identify the next steps towards the future social media, including required research and innovation activities to achieve defined goals, as well as related standardisation, regulatory, and policy actions – underpinned with a European approach. It provides a base for further elaboration of selected aspects of social media, which will be detailed in due course throughout 2018. Feedback was also gathered at the NEM Summit 2017 - the 10th edition of NEM's annual conference and exhibition - held in Madrid, Spain, on 29/30 November, from the Summit presentations, invited and key-notes talks, as well as open discussions.

¹ Vital Media is a support action project under the Horizon 2020 Programme of the European Union – number: 688310 – project duration: June 2016 – May 2018.

Table of Contents

1) Introduction	4
2) Summary of identified actions toward the future social media	6
Data protection	6
Trust.....	7
New areas in social media	8
Business and cooperation models.....	8
Education.....	9
3) Selected future social media scenarios	9
Big data – collection and analytics	9
Social TV	11
Further aspects: Content/information - sharing and publishing in social media.....	13
Paradigm change from off-line to online publishing.....	13
Enhanced user-generated content.....	13
Decentralised vs centralised social media approach	13
New way of searching information	14
Social IoT networking	15
Impact of the evolution of social media on the creative industries.....	15
Social media and news consumption	16
Phenomenon of disinformation / fake news.....	17
Protection of individual user rights	18
Data portability and competition/monopoly issues	19
Digital rights management – prevention of piracy.....	19
Regulation in social media.....	20
Ensuring trust and diversity.....	21
5) Needed research and innovation activities and education measures	22
Management of user information and portability	22
Social media tools and processes.....	22
Tools for fact checking.....	22
Need for collaboration and data exchange	23

Investigation on origins of disinformation	23
Artificial Intelligence for/in social media.....	23
New social IoT models and technologies	24
New business and cooperation models	24
New models related to search of information	24
Business models for publishing in social media	25
Collaborative live production workflow	26
Education and literacy	26
6) Contributors and Acknowledgements	27

1) Introduction

Social media used to be defined as a set of computer-mediated technologies that facilitate the creation and sharing of information, ideas, and other forms of content and applications via so-called virtual communities taking advantage of modern network and communications infrastructures. Social media uses web-based technologies to create a variety of interactive platforms through which individuals and communities can share, create, modify, and discuss different types of information and digital content, which is available in the global Internet landscape.

It can be stated that during the last one-two decades, social media applications have introduced significant changes to the way people communicate, as well as businesses and more over entire communities organised through common interests. Moreover, the recent developments in Internet and communications technologies, media and entertainment sectors, as well as many other spheres of professional activities and life show that social media becomes a standard part of different services and applications offered to people through a variety of communication and consumer devices; computers, tablets, smart phones, smart watches, etc. Furthermore, so-called classical media services, such as broadcasting and even traditional paper-based media, are more and more introducing and using various social media technologies, to improve the overall user experience and further extend their offers and businesses.

Social media is currently being used to infer social behavior and derive tendencies, in combination with big-data analysis tools. Its capabilities are tremendous to obtain information about the acceptance of a new product or service, identification of needs, or even the determination of ways to influence particular social acts and events. A practical example of the above is the still-open question of whether social media, in combination with big-data analysis tools, influence world-wide elections or not. Furthermore, a concern about digital competition is acute in Europe because quite often digital markets and social media platforms are dominated by few, big and foreign companies, accumulating volumes of exclusive consumer data on their platforms and services. And exploitation of this data as the raw material for artificial intelligence (AI) or machine learning (ML) could have an insuperable competitive advantage over new entrants. Consumers gain good services, and often free of charge, from such platforms but there are also potential drawbacks; e.g. using a predominant position to collect data (even improper), keeping that data exclusive in order to maintain monopoly power, which even might obstruct further innovations and creation of new ideas, or using it to prevent consumers to change platform providers. Therefore, from the competition point of view it is also desirable to ensure personal data and profile portability in future social media services.

We can conclude that in the near future it will be more and more difficult to distinguish among traditional media and social media. Where is or will be the border between traditional media and social media (e.g. shift from off-line to online media, or the shift from business to consumer (b2c) to consumer-to-consumer (c2c) as well as the border between social media and any other future type of service or application, or will there be any borders at all?

This White Paper defines a set of actions needed to be taken in a coherent and coordinated way to enable an effective, relevant, consumer-focused social media landscape, underpinned with a European approach.

The document is organised as follows:

- A summary of identified actions that are needed to be taken in order to enable the future social media (Chapter 2)
- Future social media scenarios, providing a base for elaboration on needed actions (Chapter 3)
- Detailed requirements on policy and regulation as well as needed research and innovation activities and education measures (Chapters 4 and 5 respectively).

2) Summary of identified actions toward the future social media

This White Paper elaborates on several aspects of the future social media by providing relevant service and application scenarios and by deriving corresponding requirements and needed actions on policy and regulation as well as on research and innovation in the area. To note, although the inputs and requirements covered in this document are not exhaustive, we consider that it is already possible to identify a number of needed actions to enable a future European social media approach around the following main areas:

- Data protection
- Trust
- New areas in the social media
- Business and cooperation models
- Education

Data protection

Protection of individual user rights

Regulatory intervention should aim to protect individuals' fundamental rights, while encouraging technological innovation and market-driven business development. The General Data Protection Regulation (GDPR)², which comes into effect on 25 May 2018, represents an important step for personal data protection. It takes into consideration privacy issues emerging from social media and requires the collection and processing of individuals' data independently from the location of the social media service provider. Moreover, the recent proposed revision of the e-privacy Directive³ adds further privacy obligations for electronic communication services and networks. To ensure both legal frameworks support consumers as well as business innovation and growth, close attention should be paid on the coherence of them and on the avoidance of regulatory irregularities.

Data portability and competition/monopoly issues

Concern about digital competition in social media is acute in Europe because quite often digital markets and social media platforms are dominated by few, big and foreign companies, accumulating volumes of exclusive consumer data on their platforms and services. A monitoring of the market is needed in order to evaluate the existence of problems on competition with limitations on users' choice. Exploiting huge amounts of user data as the raw material for AI and ML could have an insuperable competitive advantage over new, European, entrants. Therefore, from the competition point of view it is also desirable to ensure personal data and profile portability in any future social media and other type of similar application or services.

² http://ec.europa.eu/justice/data-protection/reform/index_en.htm

³ <https://ec.europa.eu/digital-single-market/en/proposal-eprivacy-regulation>

Management of user information and portability

It will be of great benefit for the development of the market, for competition and for end-user value creation to have effective ICT tools, protocols, frameworks, APIs and systems that can help businesses and consumers to declare, enforce, control and report on data management, and wider aspects of GDPR implementation - to endorse and stimulate good practice and also to identify malpractice. Implementation and interoperability across social media providers should be considered in order to facilitate convergence between social media platforms and to unlock possible proprietary features, enabling data portability.

Trust

Regulation in social media

We consider that it is the appropriate time to start exploring and developing standards and regulations that apply to a range of aspects of social media. As well as regulations specifically applicable to personal data, regulation of AI⁴ and 'misinformation' (including advertising) are also growing in interest and need. However, instead of a strong and centralised regulation of social media / the various aspects that it comprises, self-regulation and/or application of standards among platform providers, media organisations, technology providers, content creators etc might be more effective. Regulation or at least a strong regulation might not be of help and could damage free press, freedom of speech and wider democratic principles and processes.

Ensuring trust and diversity

Besides the regulation measures discussed above, re-establishment of trust in organisations distributing/providing news media in particular, is crucial. Where levels of trust in governments and traditional news media is falling, and people's use and trust in other online sources increases,⁵ the likes of Facebook, Google, Twitter and YouTube need to play an active role in ensuring that the information and sources provided on their platforms, and that they 'push' to consumers through algorithms, is accurate, diverse, transparent and ethical. The objective also being to balance people's individual choices, beliefs and freedom of opinion, with educating them, challenging their perspectives and enabling them to understand how algorithms play a role in the content they see/search for.

Social media tools

There is a need to improve social media technologies, in particular fact-checking tools, and develop new solutions and processes. Furthermore, reputation tools for ranking news publishers/distributors (based on trust, good practice, high standards etc) that publish content on social media platforms directly (as opposed to news articles and links being shared by/between individual users or interest groups) should be put in place also. This ranking should be based on agreed standards and/or policies that news publishers/distributors are working towards, and be transparent, authentic and regularly monitored.

⁴ <https://www.nesta.org.uk/2018-predictions/guiding-smart-machines>

⁵ <https://www.ft.com/content/fa332f58-d9bf-11e6-944b-e7eb37a6aa8e>

Especially where AI and ML are being used for such a process, as “without this transparency, there will be claims of bias and censorship from different content producers”.⁶

New areas in social media

From the beginning of its existence, social media at large has evolved in various and not always predictable directions. Thus, new social media services and applications have been continuously established and deployed and there is no sign that this trend will stop in the future. We can expect a number of developments that will result from not only regulation and standardisation (as mentioned above) but also from innovation in content production and digital technologies.

As an example, in comparison with the social networks of human beings there is a need to consider a notion of social relationships among things – **Social IoT** – making devices and objects not only smart or connected but also social. Here, several different technologies need to be studied and integrated and further researched in order to understand how intelligent and social things can impact social media.

Distributed ledger technology (e.g. blockchain) is also paving the way for a new approach to social platforms, offering efficiency, privacy, and security for content producers and distributors as well as end-users. Not only can blockchain be used for enabling the design and exchange of cryptocurrencies and digital micropayments, but also to enable smart contracts. Whereby **decentralised** licensing systems can be used to enable a producer of content to track usage and define the terms under which it will allow its content to be published by a third party.⁷

Business and cooperation models

New and innovative social media models such as those exploiting distributed ledger technology, are probably the best mechanisms to ensure trust of various sources, democratic principles and processes, and diversity of content to prevent domination of particular world regions, societies, opinion makers, etc. The European Commission-funded D-CENT project being one recent example of collaborative decentralised social networks using blockchain to increase and reward user participation, and enhance trust and privacy.⁸

New models related to search of information

Most web search engines are commercial ventures supported by advertising revenue and thus some of them allow advertisers to have their listing rank higher in search result for a fee. These practices are more and more rejected by end users because they will get the results that are the most profitable for the search engine and not the actual best (most relevant) result. Therefore, we need to consider what the role and relationship is, in the future, of advertising and new forms of adtech, such as ‘crypto advertising’, with content and search personalisation.

⁶ <https://firstdraftnews.com/coe-recommendations/>

⁷ <https://www.digitalcatapultcentre.org.uk/project/content-personalisation-network/>

⁸ <https://dcentproject.eu>

Business models for publishing in social media

The economic model of high-quality journalism is in danger, which is one problem of today's professional journalism, and lets enough room for alternative information gathering and publishing in the media arena, which is frequently (not always) used for spreading the fake news. Thus, there is a need to invest more in journalistic resources and provide additional funding for the area. Furthermore, social media business models are based on attention, so that the social media platforms are mainly interested to get the users' attention (number of visits, clicks), whereas the available content is secondary. Therefore, there is a need for alternative business models for social media, which might be imposed by corresponding regulation measures. The challenge is to ensure competitiveness of the proper social media platforms, as news providers, versus so-called fake news/website factories.

Collaborative live production workflow

These high-level requirements mandate a close collaboration between the owners and stakeholders of the various involved realms, i.e. advertisement agencies and networks, the providers of social media technology, the technology providers for the clip rendering/creation, the owners of the distribution channels and, finally, the broadcast organisations themselves to integrate and enable the workflow in their live productions.

Education

Education and promotion of media and news literacy among social media users will play a significant part in reducing negative impacts of social media, such as the creation and sharing of false information, hate speech and online bullying. Media and news literacy interventions should be introduced across a range of places/opportunities including school, the workplace, libraries, community and charity schemes and even by content publishers and distributors themselves.

3) Selected future social media scenarios

Big data – collection and analytics

Social media platforms have a relevant impact on modern society since they have increasingly been changing people's way of living and interacting with the rest of the world. They have been able to attract an increasing number of users by providing services and opportunities according to a business model that on a user's side is perceived as 'for free'. By entering the social network, users have access to a community that shares information, content, and emotions and the opportunity to always be connected with personal contacts, whatever the physical distance between them. In return, users are asked to provide essentially the following things:

- Explicit personal data (e.g. name, age, place of living...)
- Users' interactions within the social network (e.g. posts, photos/videos shared with the community, comments on other posts...)
- The right to collect, store, and elaborate any user data for various purposes.

Social media platforms, by means of ‘big data’ collection and analytics, can derive the preferences and usage behavior of their members and use this data to monetise, selling the data to third-parties such as advertising agencies that have the opportunity to issue efficiently targeted marketing campaigns. Furthermore, social media providers use all the information retrieved by user interaction within the community to generate useful insights that helps to update and optimise the existing services and to create new services.

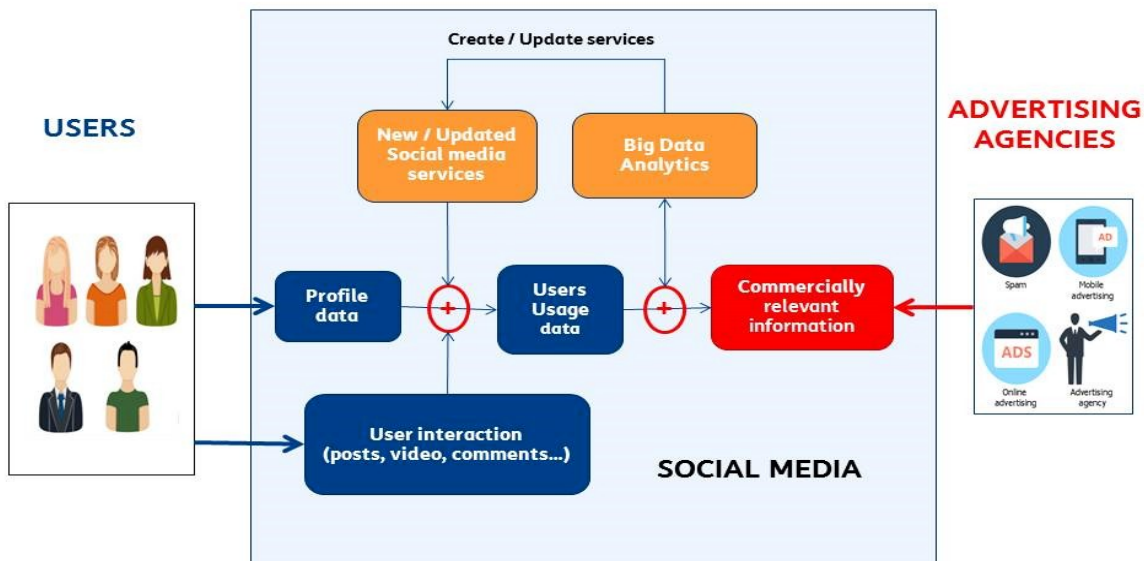


Figure 1: Social media business model based on big data – collection and analytics

This model (

Figure 1) has proved to be extremely successful for any party involved in the chain. The growth in terms of number of users and level of engagement with the platforms has been rapidly rising in the last years bringing to an average daily use of social media of about 135 minutes.⁹ This number is expected to grow even more, because of the increasing number of contacts joining the communities, the number of platforms also growing, and also due to smart phones and mobile broadband becoming more cost effective and accessible.

In order to maximise users’ engagement, leading to increased appeal for advertising agencies, social media platforms have been continuously enhancing their service proposition. With the objective of covering more aspects of users’ lifestyles and creating a service providing not only communications,

⁹ <https://www.statista.com/statistics/433871/daily-social-media-usage-worldwide/>

information and entertainment channels but also user needs such as purchasing goods and services, and making financial transactions. (See Figure 2 below).

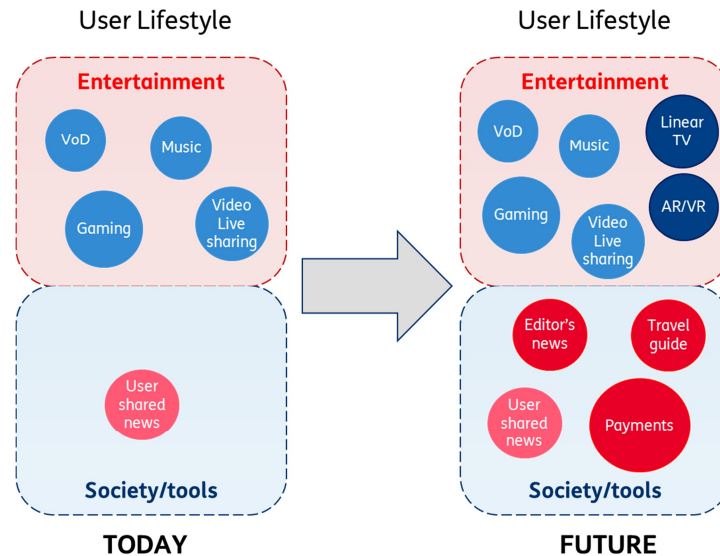


Figure 2: Shifting and enlarging social media service proposition

Social media providers are also increasingly (whether through desire or being required to because of external pressures) exploring ways to become trusted entities for audiences accessing news and information. Facebook, for example, has implemented initiatives to flag potential fake news content.¹⁰

Other services that are increasingly exploiting the big data-social media value proposition include the online travel market, whereby “travel companies are targeting different customer demographics personally in email and social media messages”, and robust data capabilities are helping to “identify visitors across different channels and devices, driving personalized marketing and customer journeys”.¹¹ And also immersive technology applications (augmented reality (AR) and/or virtual reality (VR)) which will likely become an every-day reality of people’s social networking – from the way consumers will engage with advertising and marketing, to the way they can access and consume content, to the way they interact with each other (and each other’s content). This, of course, will be accelerated by the implementation and roll-out of 5G.¹²

Social TV

Social television (social TV) is the union of television and social media, which is becoming increasingly popular in society. Video now exceeds 50% of all traffic on Facebook and is expected to rise to over 75% in the next few years. Also on Facebook, video has primarily been short clips (a few minutes) but in mid-2017 Facebook Watch was launched - a service offering long-form television, including specially commissioned content. Also, many people increasingly watch both short- and long-form content on

¹⁰ <https://newsroom.fb.com/news/2016/12/news-feed-fyi-addressing-hoaxes-and-fake-news/>

¹¹ <https://www.smartinsights.com/digital-marketing-platforms/big-data-digital-marketing-platforms/2017-travel-marketing-trends/>

¹² <https://www.qualcomm.com/news/ong/2017/02/01/vr-and-ar-are-pushing-limits-connectivity-5g-our-rescue>

YouTube and other similar platforms. They upload, share, and comment upon a huge range of video, whether self-generated or from secondary sources.

In the last 20 years the competitive and commercial pressure in the television industry has increased tremendously as a result of an ever-increasing number of channels and digital platforms viewers can use to access their content. In order to retain viewers, social is a recognised and proven proposition for introducing interactive elements to traditional broadcast formats, with the aim of making formats more personal, dynamic and attractive for viewers, which decreases churn.

An example of a scenario with socialised promotions is the launch of the Game of Thrones season seven in 2017, which used “social clues and games to tout the season” and reward audiences.¹³ The Game of Thrones producers and the HBO network on which it airs have also created a number of partnerships and integrations – including with a celebrity chef, on music streaming platform Spotify, with emerging artists and with news and information aggregation platform Reddit – using social media channels to allow people to participate and to share the campaigns online.¹⁴ Pilot studies have also shown that advertisement value can be increased enormously by adding social and interactive elements to video clips. Clips containing seamlessly embedded user-generated content significantly increase brand awareness and intention to buy, i.e., value for the advertising brand. Of course, similar campaigns as the Game of Thrones initiative, based on the same technologies, strategies and similar partnerships can be created for other brands launching new products and services.

While socialising broadcast productions is a promising and innovative playing field, there’s another aspect that’s often overlooked, namely the surrounding advertisements and promotions that essentially bring income for the broadcasters (as well as for the social media platforms where there is a revenue share). It will be interesting to observe in the future if audiences and engagers of social TV become disinterested and irritated by advertising and marketing campaigns in a similar way to traditional TV broadcast audiences. Who seemingly turn to social media as one way of disengaging from TV advertising, which is adding to the decline in advertisement revenues for traditional broadcast TV.¹⁵

We feel that there is tremendous unexplored value in the socialisation of adverts, which - in the absence of technologies and processes available to mine it - is still left unexploited by the industry today. Moreover, once advertisements can be made as social as the broadcast formats are today, it even becomes possible to link their respective social elements, thereby adding even more value to the ecosystem.

For broadcasters, this proposition increases the value of their most important source of revenue, i.e. their advertisements. For broadcasters and brands/advertisers it increases the effectiveness of their promotional material. For the market as a whole it creates a playing field where productions and advertisements can be linked through their social elements.

¹³ <http://www.thedrum.com/news/2017/06/21/game-thrones-uses-social-clues-and-games-tout-the-season-seven-premiere>

¹⁴ <https://medium.com/rta902/with-the-reportedly-second-last-of-game-of-thrones-approaching-this-summer-i-thought-it-would-be-8684dfe5c64e>

¹⁵ <http://uk.businessinsider.com/facebook-tv-advertising-impact-2017-6?r=US&IR=T>

Finally, because of their embedded social content and their diversity, consumers and viewers will perceive these adverts and promotions much more positively and dynamic than their boring and often irritating predecessors.

Further aspects: Content/information - sharing and publishing in social media

Paradigm change from off-line to online publishing

The digital transition has significantly transformed the publishing value chain; introducing substantial opportunities for disintermediation, as digital technologies eliminate certain limitations of the physical world, but also for reinter-mediation, as new players take up some of the new functions. Whereas a disruptive potential is obvious, however, the digital transition does not eliminate or even completely subvert the essential roles of the value chain: e.g. the writing and publishing of books as one of the prominent examples. For publishers, new production processes entail a multiplication of tasks, linked in particular with the production of e-books and the management of metadata, as well as a wide range of innovations in products (mostly focused on the digital enhancement of books), services and business models (as the sale of books shifts toward the commercialisation of access models).

Social media is an important element of this evolving framework: it provides an alternative channel for marketing and sales to publishers, and allows the creation of a direct link with readers, establishing a dialogue and also highlighting and raising the profile of a publishing house among its customers. Social media can also become a tool for innovation in book production, as it can be a vehicle to involve readers in the creative process. Several social platforms dedicated to books, stories and reading have emerged, including Medium¹⁶ and Flipboard,¹⁷ which develop communities of interest and can become, in turn, instrumental for the launch of books and authors.

Enhanced user-generated content

Improved tools for media acquisition and processing are propitiating the increase of user-generation content, particularly across social media channels. Thus, the content is fed, consumed, and evaluated by its own users, where the long-term vision is that any user can create engaging original content, such as audiovisual and 360-degree video, with the ability to also distribute and monetise, supported by tools and technology that will also add trusted and secure value. In the future, individuals, communities and organisations will be able to produce sellable content, without a central media agency, with a trusted origin and quality given by the community peers and AI and blockchain tools to support provenance verification, creation (and co-creation), exchange, and equal rules for content monetisation.

Decentralised vs centralised social media approach

The centralistic focus of current social media platforms is problematic and is mostly based on the traditional media approach that offers one 'central' channel (newspaper or television) for all content. To ensure the audience of these channels receives relevant information, the content distribution is curated and/or edited. In the case of social media this curation is mostly done by an algorithmic assessment of user interests and based on engagement signals (e.g. likes, comments etc) that are spread by the user

¹⁶ <https://medium.com>

¹⁷ <https://flipboard.com>

and/or the directly related social network. These signals are then automatically matched with content (both from the social network of the user and commercial/ads) resulting in a mixed stream of content 'personalised' to what the algorithm thinks the user might find interesting. It can be argued that the main benefit of the centralistic paradigm of current social media networks is the establishment of a 'marketplace' for premium (ad-based) content resulting in most social network providers focusing on matching content with user interests to increase engagement, the main metric to assess content value and interest.

Several challenges have been identified in relation to the centrality of current social media networks:

- Focus on limited media sources and missing context of information due to automatic algorithms
- Trust issues – filter bubbles, echo chambers and fake news
- Privacy and ethical issues in respect to information flow control

To overcome the current limitations of 'media' focus and platform 'centrality', a more open, flexible and distributed solution is required. This solution is built on the prerequisite that objects and people are digitally identifiable by location and proximity to each other. Furthermore, that users operate in a post-mobile era in which the mobile phone is replaced and extended by one or several wearable devices that allow the extension of sensory perception through digital insertion, such as visual (AR/VR) and/or other senses (e.g. touch, hearing and smelling). Future social systems therefore should be able to support highly dynamic real-world social interactions with the person's environment. For this to be enabled several different technologies need to be extended and further researched towards this vision.

New way of searching information

Today, the usual way to find information is to use search engines, which are browsing huge databases trying to find matches with the user queries. Search engines are software systems designed to search information on the web. They get their information by web crawling from site to site. The 'spider' checks for the standard filename addressed to it, before sending certain information back to be indexed depending on many factors such as the titles, page content, headings etc. Indexing means associating words and other definable tokens found on web pages to their domain names and HTML-based fields.

Some techniques for indexing and caching are trade secrets, whereas web crawling is a straightforward process of visiting all sites on a systematic basis. Typically, when a user enters a query into a search engine it is a few keywords. The index already has the names of the sites containing the keywords, and these are instantly obtained from the index.

The usefulness of a search engine depends on the relevance of the result set it gives back. While there may be millions of web pages that include a particular word or phrase, some pages may be more relevant, popular, or authoritative than others. Most search engines employ methods to rank the results to provide the 'best' results first.

Social IoT networking

In the next future, there will be more connected things (objects and devices) than humans and these things will have to communicate together in order to synchronise themselves or to solve a problem. Such use cases should be researched and developed across a range of industries and government priorities, such as IoT (Internet of Things) and 5G networks, health, logistics, energy, smart cities, and Industry 4.0.

The evolution of IoT is transforming our lives into a cyber-physical-social hyperspace and changing what it means to be social, thanks to smartphones, tablets, and all types of wearable and stationary devices, which are connecting people and things both directly and indirectly through various applications and platforms.

In the future, many applications and services will require associated groups of things interacting among them, based on technologies such as swarm intelligence and swarm robotics. The establishment and management of relationships among things can occur with different levels of human intervention. In one case human is responsible only to set the rules of the things social interactions and then enjoys the services resulting from such interactions and groupings, while in the other case things just participate in the human social network built by their owners.

The physical things belonging to our everyday reality are, at the same time, witnesses and protagonists of the (hi)story of our places (territories, home and work environments) and of our social life and communities. If only they could tell stories about what happened to them and around them, the possibility of interacting with things in the person's environment could provide people with a significantly enhanced experiences and services. We can identify different levels of 'social' involvement of such intelligent and social things:

- Things posting information (about the state of environment) in the social networks of humans
- Things interacting with humans and other things at the application layer in social networks
- Things interacting socially with each other to build a dedicated communication network.

Impact of the evolution of social media on the creative industries

The phenomenon that is social media is the result of the evolution of the mega trend user-generated content. At the same time, users themselves become actors and consumers of an inter-active scenario that they convey through mobile platforms. Today's reality of Facebook, Instagram and even dating platform Tinder is closer to this vision than it appears at glance. Mainly digital natives, but increasingly also digital immigrants use such media alternatively and cumulatively to existing media; but their focus has shifted significantly: The individual human existence is melting in an unprecedented way with the medialised world. Reality is medialised, media is reality and the medium is now the only message. In an aesthetic capitalism, symbolic attributes contribute more and more to economic value and the pursuit for fame in a virtual community is becoming increasingly important.

In this environment, the creative economy is increasingly becoming a significant value -adding element. We can identify two mega trends:

- On the one hand, we clearly see the increasing desire for authenticity and real-life, which will also be reflected even more in three-dimensional contexts in the future. It could be that after the mobile sector being the youngest sector of the creative economy, the 3D printing sector will explode within the creative economy. Also, technologies like AR and VR - usually overrated in the past – could play a modest role. The blending of real life and the contribution of the individual to a common theatre, as it is already possible today in Minecraft, will increasingly determine the mindsets and behavior. The interactive communication as it first began in the games sector will be enriched with artificial intelligence and increasingly gaining in importance in this context. Thus, social media has influenced human behavior much deeper than any other media revolution before. The user slips from passive consumption into an interactive role; the development of communities is only partly moderated but boosted through highly personalised advertising and influencer marketing. The increasing customisation of advertising allows business models to be developed that drive the social media community to authentically and simultaneously expand into every part of human life.
- But as a trend we can also identify a second important flow: Users also long for deeper and larger stories. These are currently being portrayed via the new series from overseas streaming services (Netflix, Amazon Prime etc) and partly also via television stations. This longing for a deeper meaning in the stories is, so to speak, the natural and implicit reaction to the social media-generated network access between reality and medial reality. It creates an increasing degree of relaxation and security in an environment of uncertainty. Therefore, it would be wrong to see the user-oriented social media reality as the only mega trend; at the same time, there is also a new form of storytelling, that is only just beginning and that will not only be reduced to television series. Narrative design is gaining in relevance in Europe - the cradle of narration - and a great opportunity for the creative industries of Europe.

Social media and news consumption

Digital news and social media continue to grow, with mobile devices rapidly becoming one of the most common ways to get news. Social networks have become a generalised point of access for news consumption. They have registered an increase in the share of their audience that gets news on the sites and share them, and in respond, they have carried out work in developing their news usability. Not only users grown somewhat in their use of social media for news overall, but now they are more likely than ever to get news from multiple social media sites.

This new reality has caused the appearance of some of the following effects:

- **Infocication:** Journalism is increasingly mobile as shown by prominent trends such as mobile journalism and citizen (or witness) journalism, which are one more source to the journalist, as “a form of new media storytelling where reporters use portable electronic devices with network connectivity to gather, edit and distribute news from his or her community” (Richardson, Allissa). These trends and opportunities, summed up with global news coverage where it is immediate to

access any news media of the world to lead to an excessive amount of information (infoxication) on any topic to whom want to be informed about it.

- **Authenticity:** Due to this amount of information available, sometimes it is uncertain to assure the authenticity of the news, and it is one of the big concerns for the news industry nowadays. Some cases are driven by a clear ideological intention looking to create an opinion state to bring on specific ideas. In the other hand, and growing in importance, the main intention behind them is clickbait, usually with the intention of making money with high views rates.
- **Bias:** Traditionally news media develop their own editorial policy, usually reflecting also ethical, political or ideological views. This lead to different interpretations of the same news among different media and the need of reviewing several of them to have a complete idea of the reality.

Phenomenon of disinformation / fake news

Nowadays, when information is consumed by end users (readers/audiences) through various social media channels, they are dealing with significant amounts of available information, are spending less and less time digesting the information and, furthermore, articles and other types of information are provided in a more and more compressed way. In this landscape, end users don't have the means – be it time, analytics skills, attention span, or the facts – to identify true from false information or information that has a particular bias or motive from information that is objective. Thus, rumours, false statements, inaccurate or diverted information, exaggerated or intentionally misinterpreted information – fake news – have a perfect environment either not be detected or be scrutinised. Consequently, they are often considered, by mass audiences, to be consider genuine and true. Where users' feelings, emotions and biases are heightened and confirmed, the manifestation of fake news is even more efficient and prolific.

Fake news is usually part of well-prepared propaganda activities, which are known from history and are not intrinsically caused by / a symptom of modern society and social media technologies and platforms. However, social media, where users' behaviours across several aspects and applications can be traced, enables more targeted propaganda activities by spreading the fake news targeting topics of a kind of emotional importance for the end users to increase its impact.

Recently (and as mentioned previously in this paper), fake news has been identified as tool to negatively influence various democratic processes around the world, to influence outcomes of elections, referendums, and further political decisions. Of course, these cases are intensively discussed and highlighted across the media as well as governments. However, disinformation and misinformation affects other areas of life of 'the average person' beyond political issues, which are also of significant detriment to individuals and communities - such as medicine and science, advertising, religion and even romance.¹⁸

As mentioned above, social media in itself is not creating fake news and untrustworthy information, but it is enabling the creation and distribution of it. The reasons for individuals, groups or organisations to (intentionally) produce and distribute disinformation and misinformation is varied – from having financial, political or prejudice motive, to key societal and psychological elements such “fear, division and

¹⁸ https://www.actionfraud.police.uk/fraud_protection/dating_fraud

anger” (Hendricks, Vincent F). Furthermore, as recently discussed at the European Commission’s Multi-Stakeholder Conference on Fake News, in November 2017, a lot of amplification of fake news is done by bots and artificial technology means. These aspects amplify even more end users’ perception on different issues in the modern world (globalisation, migration, wars and crisis, science) and the psychology behind must be taken seriously and from different angles. In which it will be necessary to establish a ‘citizens front’ against fake news, starting with well-, transparently-, and permanently-informed (social) media end uses.

4) Requirements on policy and regulation

Protection of individual user rights

Regulatory intervention should aim at protecting the individuals’ fundamental rights promoting meanwhile technological innovation and a market-driven business development. Consumer protection is one of the most important issues for the end-user experience. The use of social media, also in combination with communication services, is growing and it is important that consumers are protected in terms of transparency of information and contracts, privacy and data protection, and security. In order to better protect consumers, the same rules should be applied to digital services in terms of consumer protection and privacy so that a level playing field between providers is guaranteed and consumers are actually aware of characteristics and possible drawbacks on the use of social media. Clear and transparent information to the users should be provided both about the offered service and on personal data collection, storage, use and elaboration and independently of the kind of remuneration of the service (including not direct remuneration, but based on personal data).

The GDPR, which comes into effect on 25 May 2018, represents an important step for personal data protection. It takes into consideration privacy issues emerging from social media and requires the collection and processing of individuals’ data independently from the location of the social media service provider. The GDPR is based on the following regulatory principles for personal data, which must be strictly applied within future concepts for social media:

- **Transparency and fairness** - data should never be collected and processed without the data subject being actually aware of it
- **Purpose limitation** - data can only be collected for specified, explicit and legitimate purposes
- **Data minimisation** - data should be limited to what is necessary in relation to the purposes for which they are processed
- **Consent** - data collection and processing is based on data subject consent
- **Storage limitation** - data must be kept for no longer than is necessary for the purpose for which the data were collected or further processed
- **Accuracy** - data must be kept up to date, erasing and rectifying them when necessary
- **Integrity and confidentiality** - data processing ensures appropriate security of the personal data

Moreover, the recent proposed revision of the e-privacy Directive adds further privacy obligations for electronic communication services and networks. To ensure both legal frameworks support consumers as well as business innovation and growth, close attention should be paid on the coherence of them and on the avoidance of regulatory irregularities.

Data portability and competition/monopoly issues

Concern about digital competition in social media is acute in Europe because quite often digital markets and the social media platforms are dominated by few, big and foreign companies, accumulating volumes of exclusive operating data on their platforms and services. Concerns about the control of large amount of data by a few companies have been expressed also by European Commissioner for Competition, M. Vestager, at the Web Summit 2017 Conference (5 – 8, Nov. 2017 in Lisbon) underlining that their dominant position could lead to situation where competition and innovation are undermined.

As a matter of fact, the concentration around few platforms that have strengthened their position across multiple service categories, becoming powerful integrated ecosystem and leading potentially to situations of consumers lock-in. A monitoring of the market is needed in order to evaluate the existence of problems on competition with limitations on user's choice.

Using that huge amount of user data as the raw material for analytics and machine learning could have an insuperable competitive advantage over new entrants. Users gain good services, often free of charge, from such platforms but there are also some potential drawbacks; e.g. using a predominant position to collect data, keeping that data exclusive in order to maintain monopoly power could be used to prevent customer to change the platform providers. Competitive markets generally flourish in an environment in which there are few or no barriers to switching, enabling customers to easily move to a better deal.

Therefore, from the competition point of view it is also desirable to ensure personal data and profile portability in future social media services. Here, the GDPR presents a set of recommendations and rules that could provide, particularly on data portability, a promising route to combat customer lock-in, fostering switching between social media providers, including potential new (hopefully European) entrants in this space. The concept of portability (retaining the customer's identifier when changing provider) and support for switching are well established in the context of broadband and voice services and is tightly regulated at EU and/or national level and must be strictly applied in social media.

Digital rights management – prevention of piracy

Whereas the above-mentioned requirements on policy and regulation are rather considering empowered end users and protection of their basic privacy rights, an also very important point is protection of intellectual and other rights on content published and re-published across the social media networks. A good example is the e-book publishing and other similar sectors which are suffering from data piracy present in the digital world in general as well as in the social media and networks. Therefore, an important issue is to find appropriate and applicable mechanisms to protect the published content and the corresponding rights preventing the social media users to illegally share and publish content which does not belong to them.

Regulation in social media

A great advantage of the unregulated social media market is that it completely supports the principle of freedom of speech, diversity of issues and discussions across different demographics and representations of society, and enables expression of citizens' opinions on a large scale. On the other hand, the lack of regulation is damaging the above-mentioned principles of freedom of speech and diversity, by misusing the gaps in the regulatory social media landscape.

As fake news usually does not represent illegal content, where the corresponding legal measures are already well established, the related laws cannot be used. However, the following legal and regulatory measures could be applied or start being applied in the future:

- Defamation of private rights, including copyright for some issues and rules against cyberbullying/harassment
- Establishment and application of press codes, such as not using misleading headlines in news, obligation to correct wrong statements, etc.
- IP law for shutting down so-called fake websites / cloned websites, and
- Improvement of election (and other affected) laws to reduce potential influence by fake news

The overall opinion is that it is time now to consider appropriate standards and regulation for checking the available information and its removing when needed. However, instead of a strong and centralised regulation in social media, application of editorial/publisher standards and a kind of self-regulation among platforms, journalists, users, etc. might be more effective. Regulation or at least a strong regulation might not be of help and could damage free press and overall freedom of speech in the nowadays democracies. On the other hand, responsibility of corporations involved in the social media business could and should be improved. For the time being, social media providers do not take publisher responsibilities, but this behavior is starting to change – be it through willingness or requirement.

Thus, there is a need for regulation in social media and extension of publishers and other related rights/rules/laws in this direction. However, regulation is a sensitive issue, so the first target should be a kind of self-regulation among all relevant social media actors.

The main social media platforms apply a light verification process of the end users' accounts because of the main aim to increase the number of users and increase 'active engagement'. However, the number of suspicious accounts (including Internet 'trolls') is considered to be increasing and a number of platforms, such as Twitter, Facebook and dating sites, are taking actions to identify and remove these accounts. These activities include also identification of messages sent and accounts used by robots. Thus, an open question is if there are any appropriate measures to be applied to cope with this problem.

It has to be mentioned that the EU and the Member States are limited in concrete actions in controlling fake news and misinformation (especially by news media and so-called news media organisations) because of issues around press independency and political bias. In principle, the States should not be the bodies making decisions as to whether news or information is false or true.

Ensuring trust and diversity

Beside the regulation measures discussed above, re-establishment of trust in organisations sharing/providing/creating the news is crucial to overcome the challenges and damage of fake news. Of course, the most efficient solution for preventing fake news is to detect its creation in early stages, which would help in preventing their further distribution. Here, of course, it is difficult to observe all possible sources of polarisation and fake news. Another important point is that the re-establishment of trust cannot be achieved by a single control entity or similar because of very important pillar of the today's society to keep principle of freedom of speech and diversity of opinions.

Some fact-checking organisations, such as Full Fact,¹⁹ are directly working on trust re-establishment as fully neutral entities, which is ensured by multiple and independent sources of funding. The target is not to create people's opinions but to help people to make up their minds while consuming different types of information. To ensure it, the transparency of all related processes is needed.

Fact-checking has to be implemented through collaboration among multiple stakeholders, including the main social media platforms, on the global level. Furthermore, it is also needed to consider different cultural factors influencing the considered area, e.g. caused by specifics of languages. Here, the ethical responsibility of platforms and citizens engagement is of a high importance for success, whereas political and societal clarifications are the main tools for fighting origins of the fake news and its distribution.

To conclude, to successfully reduce impact of the fake news and its distribution, broad global activities and collaborations among all relevant stakeholders are needed, including standards and regulation as well as cooperation in different world regions by considering as many as possible cultural and language related factors, such as:

- To recognise societal responsibility and promote quality journalism as well as education on media/news literacy and journalists training
- To ensure public funding for fact-checking organisations and tools to be put on disposal for wide public usage, e.g. as open source
- Establishment of common and open data bases, in cooperation with the main platform providers, to enable wide research activities in the area through data analysis
- To cooperate in fact-checking and support the needed innovation as well as adopt multi-platform approach for spreading information and news
- To improve transparency and accountability in all processes as well as support activities on fact-checking and providing related feedbacks and corrections
- Establishment of self-regulation measures among stakeholders involved in overall publishing process in the social media

¹⁹ <https://fullfact.org>

5) Needed research and innovation activities and education measures

Management of user information and portability

Considering the huge amount and relevance of user data that social media are supposed to handle in the coming years it becomes extremely important to impose to social media a correct management of user information and guarantee a set of rights to the final users that range to data security and protection, porting of data to another platform, to complete user control on personal information.

We think it could be of great interest for the development of the market, for competition and for end user value creation to have ICT tools, protocols, APIs and systems that can help to declare, enforce, control and report on data management and also on GDPR implementation as well as to ensure the needed user data portability.

Furthermore, in order to do so, there is need for research activities in order to help people to put their query on relevant social networks and also to develop filtering services helping people to capture queries that are relevant for them.

In addition, there will be a need to ensure communication between different social networks from different sectors and also with social media networks in order to bring to the end user the information about the decision taken by the system. Such interoperability among various social networks should be studied in order to facilitate convergence between these social networks and to unlock possible proprietary features.

Social media tools and processes

From the technology point of view, the current powerful social media has been established by developing and deploying the newest software solutions, enabling all the social media features the citizens are enjoying world-wide. On the other hand, the same tools allow very efficient creation and distribution of the fake news and act as their enablers.

In order to cope with this problem, of course the tools' capability should not be reduced, but they can be enhanced to help to find and remove fake news and false information from the social media platforms, including fake websites. However, the time needed for removing the fake news is still too long to ensure proper reaction within the needed real-time scale.

There is a need to improve social media technologies, in particular fact-checking tools and develop new solutions and processes. Furthermore, reputation tools for ranking the news distributors should be put in place, too.

Tools for fact checking

The fact checking tools are getting better, but significant improvements are needed to make them faster, to be able to provide the needed feedbacks within minutes. There are also ongoing activities in exploring opportunities to apply artificial intelligence and further technologies in fake news checking process.

Even there are powerful tools available for checking the potentially fake news, in most of the cases there is a need to finalise a fake news check manually, which means by a human action and a corresponding action from a person or a team. This, of course, wakes up a question of impartiality or in dependency of people and organisations checking the news and providing the final opinion.

Need for collaboration and data exchange

In order to better analyse the entire problem and provide better tools, it is necessary that the main platform providers open their APIs, so that their data can be used for these purposes. There are open APIs provided, in some cases their users need to pay for it, but amount of information available through the APIs is not yet enough for a substantial problem analysis. However, the large social media platforms, which recognize the overall problem of false news as dangerous for their businesses, are getting ready and committed to collaboration, so we can expect improvements here in the next period as well.

There is a strong need for collaboration on issue of the fake news by all relevant stakeholders on the global level. Furthermore, it is also needed to consider different cultural factors influencing the considered area, e.g. caused by specifics of languages. There is a need to analyze in details all processes related to creation and distribution of the fake news to ensure full understanding of the problem. Collaboration among various actors is needed here as well as access to data and availability of appropriate open source based tools.

Investigation on origins of disinformation

Finally, there is need to investigate origins of false information in social media by a deep analysis of various technical and operational processes related to:

- Potential bias in search results – how they are intentionally or unintentionally created by providing information in the social media channels, search for information to influence ranking algorithms and final search results, etc
- Revision of the ranking algorithms to avoid that the search influences users' opinions
- To ensure full transparency of all processes related to search, ranking, and provision of search results to the end users.

Artificial Intelligence for/in social media

There is a big challenge for the development of the AI tools (mainly based on deep learning) tailored for social media, such as:

- Blockchain for media generation and exchange, to track the authorship of the content and be able to reward the content creators, and verify the content and the source
- Media analytics: value to measure the media reach and consumption
- Source analysis and distribution pattern forecasting: identifying origin and replication, avoiding modified content to be delivered and discovering increased impacts by zombie networks
- Lightweight quality assessment and enhancement: avoiding low-quality content to be distributed, enhancing the quality with automatic video processing

New social IoT models and technologies

In analogy with the social networks of human beings there is a need to study and define a notion of social relationship among things, making them intelligent and social. One possible definition is that things come in social relationship, because and when their owners come in touch with each other during their lives (e.g. devices and sensors belonging to friends, classmates, travel companions, colleagues).

Several different technologies need to be extended and further researched towards the vision on intelligent and social things,

- *intelligence and social abilities* of the things that allow them to interact with people and among themselves are based on reasoning and learning from the following kind of information:
 - semantic information such as common-sense and general knowledge about things domain and environment (e.g. an ontology)
 - user behavior data during interaction
 - content associated with the things (e.g. photos or videos posted on/from the things)
- people and things are both *social entities*, able to manage and share knowledge and to establish relations with other things and people - social network thus maintains three types of dynamic relations: *user-to-user* (e.g. friendship, similarity, etc.), *user-to-thing* (e.g. ownership, potential interest, etc.), *thing-to-thing* (e.g. similarity, proximity, task, etc.)
- *bidirectional interactions*: person and the intelligent thing may start a conversation
- *natural interactions*: gently and playfully led by interest, curiosity and fun while fully exploiting intelligent and social things
- *content adaptation, personalisation and aggregation*: the capability to filter, synthesize and mashup content in a meaningful way, ranging from the intelligent search, discovery and recommendations to the digital storytelling, that involve intelligent and social things.

New business and cooperation models

Strategically speaking, publishers and content creators in the digital age still face a degree of uncertainty; they will need to undertake a fundamental evolution that takes carefully into account the creation and distribution of value across all participants, including retailers, distributors, publishers and authors. The role and results of the players of the industry will depend heavily on future content consumption preferences (consumer-centric shift) and patterns and the evolution of the competitive landscape; in particular, moving towards a consumer-centric approach appears as an essential adaptation in the future social media.

On the other hand, the new and innovative business models are probably the best mechanisms to ensure trust to various sources in social media (of course the trusted sources only) and diversity of content to prevent domination of particular world regions, societies, opinion makers, etc.

New models related to search of information

Most web search engines are commercial ventures supported by advertising revenue and thus some of them allow advertisers to have their listing rank higher in search result for a fee. These practices are

more and more rejected by end users because they will get the results that are the most profitable for the search engine and not the 'best result'.

The future social media should disturb this model because users will question social network parties instead of using search engine. In this new way of searching, when one is searching information, he just has to send its query to a specific social media network and due to the number of users connected on the social media network; it is obvious that one of them have the 'best' answer. Such a usage should also very interesting for internet businesses, they just have to filter on the social network queries that are fitting to their business and when it matches send back an answer.

This new practice should take a bigger and bigger role in the future and it should be a chance for European industry to come back on the playground in this field.

Business models for publishing in social media

The economic model of high-quality journalism is in danger, which is a significant problem of today's professional journalism, and it lets enough room for alternative information gathering and publishing in the media arena, which is frequently (not always) used for spreading fake news. Thus, there is a need to invest more in the journalistic resources and provide additional funding for the area.

The social media business models are based on attention – more people using a platform the more advertisement can be done, so that the social media platforms are mainly interested to get the users' attention (number of visits, clicks), whereas the available content is secondary, which is one of the enablers of the fake news. Thus, the current business models applied by social media actors are acting in favour of fake news and should be reconsidered – maybe also through appropriate regulation and taxing measures.

Furthermore, if we define a customer as somebody paying for a service, the real customer of the platforms is the advertising industry, whereas the end users are not paying for information on the social media and, accordingly are not the platforms' customers in a real sense and can be even seen as product of the platforms, which have established communication links to the end users, have the users' data, and know a lot about the users' behaviour.

Thus, the power of attention in social media, limited number of powerful global players in the area, power of financial flows coming from advertising industry into the social media and its commercialisation, unintentionally create an environment for efficient creation and distribution of disinformation and misinformation. Furthermore, follow-up of financial / advertising flows around the recognised fake news producers, with aim to catch them and with it prevent wide distribution of the fake news is needed as well. This activity is supported by possibility for the end users to report false information and the fake news.

Therefore, there is a need for alternative business models for the social media, which might be imposed by corresponding regulation measures. The new models and related regulation have to ensure creation and distribution of professional made journalistic content (particularly considering quality of information, its presentation, and true facts behind), which is of course significantly expensive,

compared with simple and amateur work, which is however enough to establish and distribute disinformation and fake news.

The challenge here is to ensure competitiveness of the proper social media platforms, as news providers, versus so-called fake news/website factories, which exist even within the EU and could be countered by consequently applying current laws.

Collaborative live production workflow

These high-level requirements mandate a close collaboration between the owners and stakeholders of the various involved realms, i.e. advertisement agencies and networks, the providers of the social media technology, the technology providers for the clip rendering/creation, the owners of the distribution channels and, finally, the broadcast organizations themselves to integrate and enable the workflow in their live productions.

In order to materialise this concept, various technologies, concepts and processes will have to be developed, e.g.:

- Instead of a single clip that is designed, created and approved months before its first display, advertisements must become dynamic templates of which a large number of different versions will eventually be realised
- The end-to-end workflow, including its underlying technology, must be developed, from content reception, to moderation/selection, to rendering, to approval of the individual clips and finally the distribution/transmission of all the material to broadcast and/or portals
- In the context of social media, time and volume are everything. This implies that the whole workflow must have a short lead time and be scalable to large numbers.

Education and literacy

Education and promotion of media and news literacy among the social media users are probably the best way to reduce negative impacts of the social media, such as fake news. Thus, social media users and media audiences in general should be educated to consume the offered information (on the Internet and particularly on social media platforms) in effective, accessible ways, to look for complete information before forming opinions, and to look for more news sources where needed and possible.

Even results of a literacy education experiment with school children show a strong interest of young people to be educated in this area and their willingness and ability to learn. It can be concluded that there is a need and potential in organizing education programs on media (news) literacy, targeting different groups; of course, the end users, the journalists, broad IT personnel involved on various aspects of the social media, as well as many other groups of people.

On media (news) literacy, the corresponding education efforts should be shared among various disciplines which are taught at schools and other education centers instead of focusing on one single 'media subject', to be offered to all EU citizens. On the other hand, the corresponding education of journalists to cope with the problem of the fake news, e.g. training journalists to discard inaccurate news, should be part of overall education process towards future social media.

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